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LIETUVOS BANKAS
EUROSISTEMA

Financial Stability Review

2022

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Summary

In 2021, the global and Lithuanian economies recovered from the COVID-19 pandemic and grew sharply. However, as a result of high inflation and the consequences of Russia's war against Ukraine, Lithuania's economy will face challenges in 2022. In 2021, the global and Lithuanian economies grew by 6.1% and 4.8% respectively. The post-pandemic recovery was driven by business adaptation to the new operational conditions, successful vaccination, lifting of mobility and social distancing restrictions, and expansionary fiscal and monetary policies. In 2021, unemployment in Lithuania decreased from 8.8% to 6.6% and reached its pre-pandemic level, while wages after tax increased by 9.4%. It should be noted, however, that annual inflation increased rapidly, reaching 10.7% at the end of 2021 and 18.5% in May 2022. In 2022, economic growth is expected to slow down in Lithuania, mainly due to high inflation, a contraction in trade with Belarus, Russia and Ukraine, continuing disruptions in supply chains, and the recent deterioration in business and household expectations. This will adversely affect the financial condition of some companies and households.

As uncertainty eased during the pandemic, banks' profits in Lithuania grew in 2021, while the quality of loans and the resilience of banks improved, which will help banks to withstand the risks of the war. The condition of the companies most affected by the pandemic improved, leading to a decline in non-performing loans across banks in the country in 2021 to one of the lowest levels in the EU. Banks' profits also grew and returned to pre-pandemic levels, allowing banks to expand their lending volumes or build up capital buffers. While concentration of bank assets is still the second highest in the EU, risk appetite grew in 2021 and credit institutions' active lending to households and businesses increased, leading to a rise in loan portfolios and a decline in interest rates. However, rising inflation and Russia's war against Ukraine have heightened uncertainty, which may cause borrowers' situation to deteriorate and bank lending to become more precautionary. Banks in Lithuania still have large capital buffers and are ready to withstand even greater losses than under the adverse scenario (in case of economic contraction by approximately 7.5%).

In 2021, lending for house purchase continued to grow rapidly, and loans for consumption and businesses recovered following the pandemic. In 2021, the housing loan portfolio reached its highest annual growth rate since 2009, which was driven by increased demand for housing during the pandemic. Moreover, amid easing pandemic constraints and improving household expectations, demand for consumer credit recovered, with the portfolio of consumer loans approaching pre-pandemic levels by the end of 2021. As the epidemiological situation and business expectations improved, the state reduced the amount of financial support for companies, while banks became more active in providing financing to businesses. Demand for business investment increased in 2021, with financing being mainly provided to the real estate (RE) operations, trade, and manufacturing sectors, which grew markedly. After the largest contraction in the EU in the first year of the pandemic, the portfolio of loans to non-financial corporations in nominal terms returned to pre-pandemic levels in early 2022.

In 2021, the housing market was heating up: as demand exceeded supply, prices picked up at an ever-faster pace, affordability decreased after a long break, and indications of house price overvaluation appeared, thus increasing the risk of a price correction. There was a significant increase in housing demand in 2021 that resulted in historically high sales, driven by residents' desire for more spacious housing, strong wage and savings growth, house price increases and fears of inflation. Although more construction permits than ever were issued in Lithuania in 2021, there are significant obstacles to obtaining construction permits in Vilnius. At the same time, the number of homes being built grew only moderately and the number of completed homes declined, leaving housing supply lagging behind the increased demand. Due to supply-demand imbalance and rising construction costs, the annual growth rate of house prices accelerated in 2021, reaching between 21% and 26% in March 2022. According to the Bank of Lithuania, house prices became overestimated by about 9% and housing

affordability deteriorated. The increase in housing supply is increasingly constrained by scarcity of building raw materials and rapid increases in construction costs, which may exacerbate supply and demand imbalances and accelerate house price growth. Such rapid price growth is unsustainable and leads to an increasing systemic risk to the country's financial stability — the emergence of imbalances in the housing market increases the likelihood of a sudden price correction that could turn into insolvency of borrowers, losses for the banking sector, declining lending volumes and slowing economic development.

Russia's war against Ukraine could negatively affect Lithuanian credit institutions through secondary channels, such as cyberattacks and potentially increasing losses for credit institutions due to the shrinking volume of trade with the war-affected states, rising energy and raw material prices, and deteriorating consumer and business expectations. The transport, construction, manufacturing, energy, and agriculture sectors have the closest trade ties with Belarus, Russia and Ukraine, and it is therefore likely that their profits will suffer the most from trade disruptions and the increase in prices of energy and raw materials. At the same time, rising inflation also has a negative impact on the financial situation of households and companies in a wider range of sectors, which worsens their expectations and may lead to a fall in aggregate demand. These factors may impair the ability of households and businesses to meet their financial obligations, which would result in losses for credit institutions. Finally, because of Lithuania's political support for Ukraine, hostile states can carry out cyberattacks against Lithuanian credit institutions, which could lead to the withdrawal of deposits. However, the banking sector remains highly liquid and would be able to withstand a 41% fall in deposits.

Due to high inflation and possible interest rate hikes, vulnerable households and businesses may have difficulty in making loan payments, but credit institutions would withstand potential losses. The rapid rise in prices reduces households' disposable income and corporate profits, resulting in lower funds available to meet loan obligations. In addition, the ECB is increasingly likely to raise its key interest rate in 2022 for the first time in a decade to reduce inflation in the euro area, which will increase loan payments for households and businesses and make new borrowing less attractive. With less available funds and increasing monthly loan payments, the financial situation of some households and businesses could deteriorate, which may lead to losses for credit institutions. On the other hand, the impact of this risk is mitigated by the significant increase in household savings during the pandemic and the large capital buffers of credit institutions that would enable them to withstand even significant losses.

The transition to a climate-neutral economy remains a challenge for Lithuania's financial system, as well as a possible correction of imbalances in Sweden, with the Swedish capital banks making up a significant share of the banking sector's assets and lending in Lithuania. As a result of the transition to a climate-neutral economy, manufacturing and transport sectors, which are major polluters and whose loan portfolio accounts for a quarter of Lithuania's total corporate loan portfolio, will face new regulation and changing consumer behaviour. As a result of these processes, firms from these sectors may face a decrease in competitiveness and profits or even an increase in bankruptcies in the long term, while credit institutions may suffer losses due to an increase in non-performing loans. Imbalances related to the housing market in Sweden remains one of the challenges for Lithuania's financial system. While household indebtedness and house prices in Sweden reach historical peaks, a more significant economic downturn or an interest rate hike could amplify household insolvency or lead to a correction of house prices. This would cause significant losses to parent banks and could therefore also result in the worsening of financing conditions in Lithuania. Moreover, should Swedish banks decide to curb lending in the Baltic region owing to increased risk, this could result in a slowdown in economic growth and a correction in the real estate market due to weaker demand in Lithuania.

Rapid growth in the fintech sector can pose challenges to the financial system in the long term, thus it is important to increase its maturity in terms of risk and business management. The growing fintech sector contributes to fostering innovation and increasing efficiency and accessibility of financial services in Lithuania. However, the low maturity of the fintech sector also poses related risks.

One of them is the risk of money laundering and terrorist financing (ML/TF), which could harm the reputation of the state and of financial institutions established in the country. Moreover, fintech firms are more vulnerable to cyberattacks, and a successfully conducted cyberattack could increase distrust not only of the affected financial institution but also of other market participants. In order to avoid these risks, it is important to increase the maturity of the fintech sector, and the Bank of Lithuania is actively contributing to this goal.

The Bank of Lithuania continues to actively implement measures in order to support financial stability and, in response to the overheating of the housing market, it tightened the down payment requirement and set a 2% sectoral systemic risk buffer (SRB) rate for the housing loan portfolio. As of 1 February 2022, a tightened down payment requirement of at least 30% of the housing value has been applied for the second and subsequent housing loans in order to reduce the riskiness of such loans and to limit investment transactions that are financed with loans. The Bank of Lithuania also decided to apply the 2% sectoral SRB rate to the housing loan portfolio of credit institutions, which entered into force on 1 July 2022. This measure aims to increase the resilience of credit institutions, given the increased risk of overheating of the housing market. The Bank of Lithuania is assessing developments within the financial system and stands ready to introduce, if necessary, additional measures to ensure financial stability.



THE FINANCIAL SYSTEM AND ITS OUTLOOK



Economy

The economy recovered from the COVID-19 pandemic shock, but financial stability prospects are dented by high inflation and the consequences of Russia's war against Ukraine



Banks

With pandemic uncertainty reduced, banks' profits and the quality of loans improved. Banks are able to withstand the risks posed by Russia's war against Ukraine



Credit growth and indebtedness

Lending for consumption and businesses recovered, while lending for house purchase continued to grow at a rapid pace, but heightened uncertainty may influence further lending dynamics



Real estate market

The housing market has dangerously heated up, as demand exceeds supply, prices have risen rapidly and housing affordability has fallen. In the commercial RE market, demand has increased and excessive supply has declined

SYSTEMIC RISKS TO FINANCIAL STABILITY



Consequences of Russia's war against Ukraine



The consequences of the war may trigger a decline in economic activity, higher inflation and cyberattacks. This will weaken the financial standing of households and companies and may cause losses for credit institutions



Overheating of the housing market



With signs of overvaluation in the housing market and active lending for house purchase, the possibility of price correction increases



Prolonged inflation and possible increase in interest rates



Due to prolonged high inflation and likely interest rate hikes, some borrowers may have difficulty in making loan payments in the short term

STRESS TESTING



Bank solvency

Even under the adverse scenario, banks would still safely meet the minimum capital requirements



Bank liquidity

Bank liquidity
Banks have as many liquid assets as would be sufficient to cover a 40% decrease in deposits

MACROPRUDENTIAL MEASURES



In response to the heating up of the housing market, the Bank of Lithuania tightened the down payment requirement to 30% for the second and subsequent loans and set a 2% sectoral systemic risk buffer (SRB) rate for the housing loan portfolio

1. The financial system and its outlook

1.1. Financial market and economic developments

The global economy recovered in 2021 from the recession caused by the COVID-19 pandemic, although GDP growth is expected to slow in 2022, reflecting rising inflation and Russia's invasion of Ukraine. As estimated by the IMF in April 2022, the global economy grew by 6.1% in 2021 and such growth was broadly in line with the projection for the beginning of 2021. At the same time, GDP growth in the US and the euro area expanded at a similar pace: 5.7% and 5.3% respectively. The recovery was mainly driven by firms which adapted to the pandemic, successful vaccination programmes and the associated significant easing of COVID-19-related mobility and social distancing restrictions, as well as expansionary fiscal and monetary policies in advanced economies. These factors had a positive impact on household consumption and international trade in 2021, although the pick-up in economic growth was constrained by the pronounced disruptions in global supply chains. Ongoing supply chain constraints, together with Russia's invasion of Ukraine at the beginning of the year and the related sanctions (see Table 1), will speed up energy and commodity price increases and pose higher challenges regarding dependence on Russian energy in the euro area countries. As a result, according to the IMF projections, global growth will slow down to 3.6% in 2022 and to 3.7% and 2.8% in the US and the euro area respectively.

Table 1. Sanctions imposed on Russia and Belarus

Type of sanctions	Russia	Belarus
Individual	The EU and the US froze assets and imposed restrictive measures on individuals and economic entities.	
Financial	The EU banned trading of Russian shares and Russian capital; The Central Bank of Russia's reserves held in EU jurisdictions were frozen. Seven Russian banks were separated from the SWIFT system, four of which had their assets frozen. The provision of high-value crypto-asset services to Russian entities was prohibited. Sales of financial assets denominated in the currency of any EU Member State to Russia were prohibited.	The reserves of the Central Bank of Belarus held in EU jurisdictions were frozen. Three Belarussian banks were disconnected from the SWIFT system. Sales of financial assets denominated in the currency of any EU Member State to Belarus were prohibited.
Energy	The US banned Russian oil, natural gas and coal imports.	The EU prohibited trade in mineral fuel.
Transport	The EU and the US banned exports of goods in the aviation and space industry. The EU and the US closed their airspace. It was prohibited to undertake activities (except for transportation of basic goods) in the EU territory. Russian-flagged ships were prohibited from entering EU ports (except for transportation of basic goods).	Belarusian companies were prohibited from using EU airports. It was prohibited to undertake activities within the EU territory (except for transportation of basic goods).
Technology	The EU banned the exports of dual-use goods and technologies, such as semi-conductors, and goods that can be applied in the defence industry.	

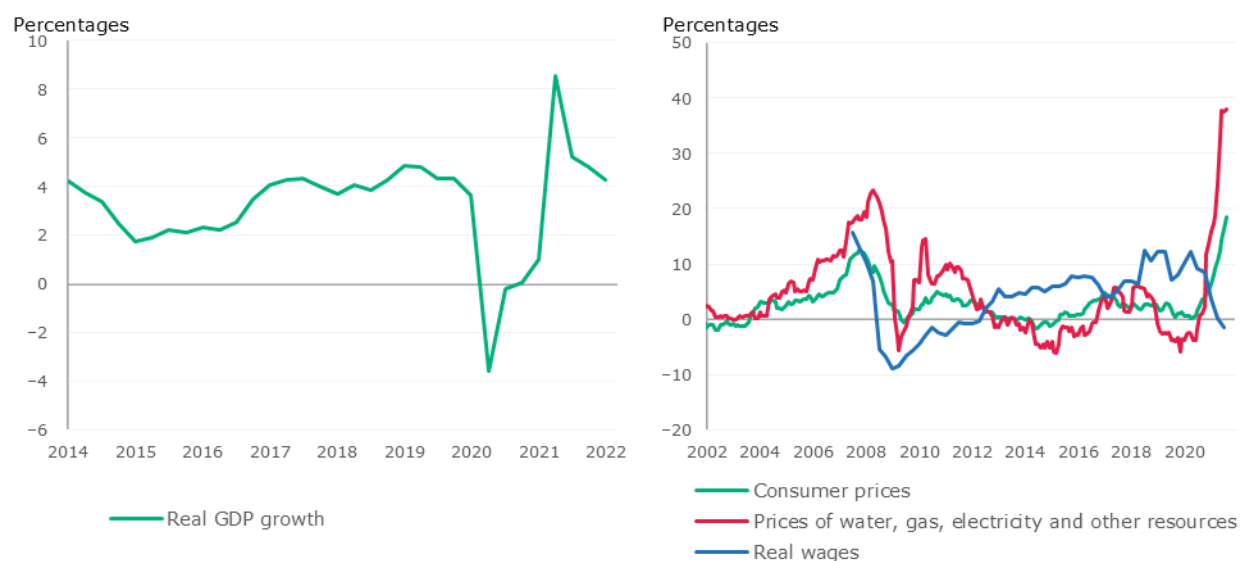
Visa policies	In the EU, a restricted scheme for granting loans to investors or golden passports was introduced.	The EU and the US tightened the issuance of visas to Belarusian state officials.
Trade and goods	The EU banned steel imports from Russia. The EU and the US banned the exports of luxury goods. The target export bans amounting to EUR 10 billion in the areas where Russia is vulnerable due to goods supplied by the EU (e.g. quantum computers, advanced semi-conductors, sensitive machinery, transport equipment and chemical products).	The EU introduced a ban on tobacco products, bituminous materials and gaseous hydrocarbons, potassium chloride products, wood, cement, iron, steel and rubber products.

Sources: Council of Europe and the White House.

In 2021, Lithuania's economy fully recovered after the COVID-19 pandemic, and the financial situation of its population improved; however, higher inflation will weigh on it in 2022. In 2021, Lithuania's GDP grew 4.8%, i.e. somewhat lower than expected at the beginning of 2021. GDP growth was curbed by persistent supply chain disruptions in the second half of last year, labour shortages, and increased inflationary pressures, slowing down the development of Lithuania's economy. These factors, together with the high comparative base (in 2020 Lithuania's GDP contraction was one of the smallest in all EU countries), determined that Lithuania's economy grew at a slower pace than in the EU and other Baltic States. The declining unemployment rate (from 8.6% to 6.6% in 2021) and the rapid increase in wages (9.4% per year) are expected to result in an improvement in the financial situation of Lithuania's population, while a significant increase in the saving ratio during the pandemic should help meet future challenges. Consumer expectations returned to the pre-pandemic levels in mid-2021 as the economy recovered but started to deteriorate in the second half of 2021 and in early 2022, against the background of stronger inflation growth and the onset of the war in Ukraine. The strong increase in inflation (by 18.5% in May 2022, see Chart 1, right-hand panel) is expected to weigh on households' real income growth in 2022 (an estimated nominal increase of 10.7% in 2022), together with their financial situation (for more details, see Section 2.3).

According to March 2022 projections, Lithuania's economy will experience a significant slowdown in 2022, while inflation picks up.

Chart 1. GDP (left-hand panel) and average annual inflation and real wage (right-hand panel) developments in Lithuania



Sources: Statistics Lithuania, Bank of Lithuania and Bank of Lithuania calculations.

The consequences of Russia's war against Ukraine will cause a slowdown in economic growth in 2022, mitigated by the flexibility of Lithuania's energy imports and measures aimed at reducing the impact of energy prices. The economic sanctions imposed on Russia and Belarus and a shock due to Russia's aggression against Ukraine led to a decline in Lithuania's trade with these countries, while the prices of energy and other commodities and materials are rising. Trade with China is likely to be restricted so supply chain disruptions in Lithuania will continue. The slowdown in 2022 will also be driven by a slowdown in real consumption growth driven by higher inflation. As a result, Lithuania's economy was projected to decrease (by 2.7%) or suffer a recession (1.2%) in 2022, should trade with Russia and Belarus come to a full halt, thus further reducing demand from other countries. Nevertheless, the flexibility of energy imports had already allowed Lithuania to cut gas and crude oil imports from Russia in April 2022, accounting for the bulk of imports from this country. The fiscal measures adopted by the Lithuanian government in April 2022 to mitigate the impact of inflation will improve the financial situation of residents. They increase the non-taxable income level and pensions and compensate for part of the rise in the prices of gas and electricity.

Global and Lithuanian financial markets experienced rapid growth in 2021 as the economic recovery progressed. However, a stronger-than-expected increase in inflation, the associated expectations of a more rapid rise in key interest rates, and Russia's war against Ukraine led to a pronounced decline in stock markets and a rise in bond yields. Major stock indices in the US, the euro area and Lithuania rose by 26.9%, 20.8% and 18.3% respectively in 2021. The historically strong stock price increases were supported by the stimulus measures adopted by governments and central banks (in the form of fiscal stimulus and asset purchase programmes led by central banks), significant increases in household savings, and well-anchored expectations of future economic recovery. However, financial market sentiment started to prevail in early 2022. After hitting the ten-year low of 0.2% in August 2021, investment-grade euro area corporate bond yields increased significantly to stand at 1.5% in April 2022, i.e. 0.5 percentage points more than the 10-year average, which also translated into a marked increase in the cost of financing for enterprises within a short period of time. Borrowing conditions among European banks also tightened, supported by interest rate growth expectations, but still remain favourable. In early January 2022, the 6-month EURIBOR rose by 18 basis points to the beginning of April, reaching historically low levels, while market participants' expectations of an increase in the ECB base interest rate also rose significantly (for more details, see Section 2.3). Stock prices in the US, the euro area, and Lithuania decreased by 4.9%, 9.4% and 7.4% respectively between the beginning of 2022 and April. It should be noted, however, that they are still at historical highs, and the rapidly rising inflation and related interest rate growth expectations, as well as Russia's war against Ukraine, are accompanied by the higher risks of further stock and bond price corrections that may have negative repercussions on the global economy (for more details, see Section 2.3).

1.2. Banking sector developments

As uncertainty eased during the pandemic, most performance indicators of banks operating in Lithuania improved in 2021 and were still among the best in the EU. The indicators of efficiency¹, asset quality and liquidity in Lithuania's banking sector were among the three best-performing in the EU, whereas the profitability, leverage² and capital adequacy ratios were among the ten best (see Chart 2, left-hand panel). The historically high liquidity coverage ratio decreased from 743% to 392% over the

¹ Taking the EBA sample. The increase in the cost-to-income ratio for the banking sector (grey line in Chart 2) was due to technical factors: a noticeable increase in administrative expenses per market participant (in tandem with increases in income that is not included in the indicator calculation) and these were previously recorded on the parent bank's balance sheet.

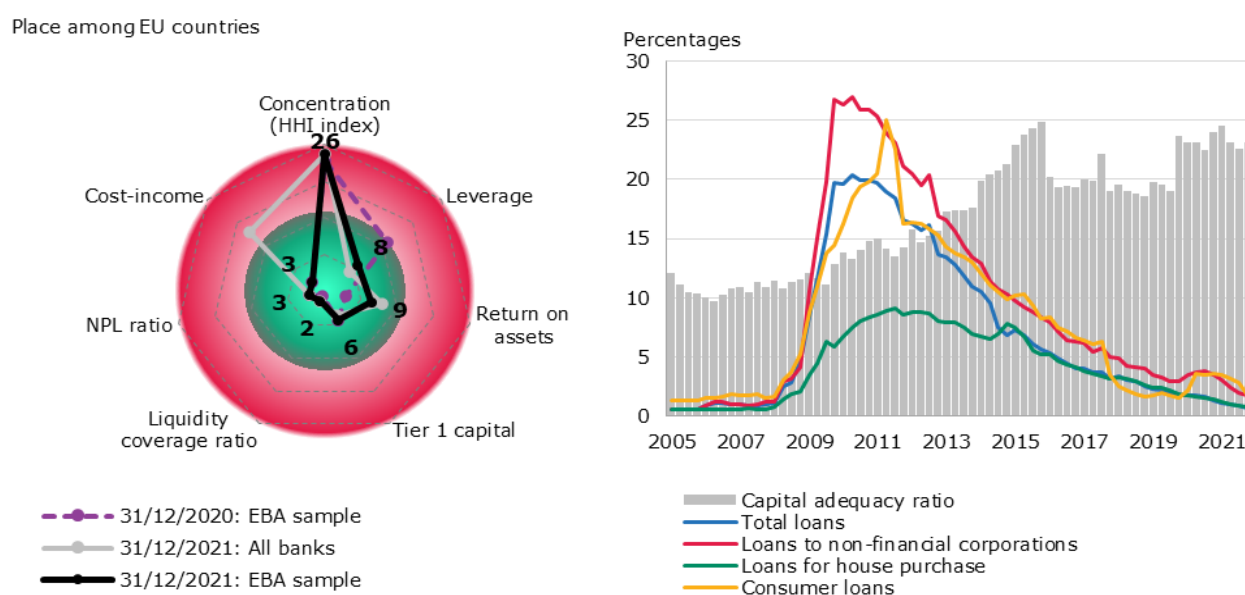
² While the leverage ratio was lower (deteriorated) due to an increase in bank assets, this should not be seen as a real increase in leverage risk because it was driven by assets of risk-free groups (e.g. funds held at the central bank or parent credit institutions). The leverage ratio of the banking sector recovered, when one bank made use of the [possibility to exclude central bank exposures](#) from the leverage ratio.

year, but this was driven by liquidity management operations undertaken by the major banks³ and did not affect the overall bank liquidity. In general, the liquidity situation in banks remains rather positive, with banks meeting the main requirements with a large margin.⁴ During the pandemic, banks increased their capital buffers, which led to higher capital adequacy ratios in 2021 (23.1% at the end of 2021), above their pre-pandemic levels. As the health of companies and households improved, the share of non-performing loans (NPLs) in banks fell to its lowest level since 2008 (see Chart 2, right-hand panel).

High levels of capital and liquidity will help banks to withstand potential economic difficulties and losses as the condition of borrowers worsens due to the consequences of Russia's war against Ukraine (for details, see Section 2.1). The results of stress testing show that banks are prepared to withstand even severe shocks and, under the adverse scenario, should GDP contract by 6.5%, meet their capital requirements in a prudent manner (for more details, see Section 4.1). However, banking sector concentration remains high — the second highest in the EU — although the concentration index has been slowly declining due to increased competition in recent years. High concentration of the banking sector increases the dependence of the sector on individual banks, and the insolvency of one of the major banks might have a significant impact on the financial system.

Most performance indicators of banks operating in Lithuania have been improving and are still among the best across the EU.

Chart 2. Performance indicators of banks



Sources: EBA, ECB, Bank of Lithuania and Bank of Lithuania calculations.

Notes: Concentration is measured by the Herfindahl-Hirschman index. The latest concentration data are for 2020. The green colour marks the Lithuanian banking sector indicators surpassing those of most EU countries, and the red colour shows those that were comparatively worse. All banks (the grey line) mean the indicators of the Lithuanian banking sector, while the EBA sample is comprised of the indicators of the three major Lithuanian banks (Swedbank AB, AB SEB bankas and AB Šiaulių bankas), published on the [EBA website](#).

Banks' profits reverted to the pre-pandemic levels in 2021 as a result of an increase in fee and commission income and improvements in the quality of the loan portfolio but may experience a renewed decline in the wake of Russia's war in Ukraine. Banks' profit increased by 18% year on year, reaching EUR 329 million, which was only 2% below the pre-pandemic levels (see Chart 3, left-

³ Funds on the accounts of parent banks were transferred to central bank accounts, but the amount of liquid funds with banks, i.e. liquidity on the accounts of the central bank and the parent banks, remained unchanged.

⁴ While the liquidity coverage ratio is almost four times above the 100% requirement, the net stable funding ratio stood at 207% at the end of the year, which was more than twice as large as 100%.

hand panel). At the same time, bank profitability ratios⁵ have deteriorated compared with the pre-pandemic period, as profits remain broadly at the same level and both assets and equity have increased considerably. Rising profits help banks to build up capital buffers and increase their resilience to shocks. The main contribution to profit growth was an increase in net fee and commission income due to the pick-up in economic activity, as well as the recovery of loan impairment expenses. As a result of high economic resilience and government support measures for households and business (for more details, see Box 1), the quality of the loan portfolio of banks remained relatively stable during the pandemic. Following loan impairments, banks incurred losses of only around EUR 57 million in 2020 (e.g. impairments amounted to EUR 1.5 billion in value in 2009), and in 2021, they already recorded proceeds of approximately EUR 2 million from the reversal of impairment losses. The condition of some Lithuanian companies is likely to deteriorate in the next few quarters due to the consequences of Russia's war against Ukraine and banks will need to make more provisioning for higher credit risk (for more details, see Section 2.1), while loan impairments are expected to increase again in banks.

As deposits increased and lending remained subdued, banks' costs of negative interest rates rose, dampening the stronger growth in banks' profits. Deposits of the private non-financial sector with banks increased as much as 42% over the past two years, while the portfolio of loans to the private non-financial sector increased by only 9% in the corresponding period, despite the strong re-acceleration of lending in 2021 (for more details, see Section 1.3). This development led to a still historically low loan-to-deposit ratio (see Chart 3, left-hand panel), while the share of funds held with the central bank increased by 13 percentage points since 2019, to 36% of total assets. Interest expenses paid for funds held with the central bank and other credit institutions subject to negative interest rates (which have increased by 160% since 2019) went up accordingly and amounted to EUR 68 million, accounting for the largest share (69%) of total interest expenses. With negative interest rates, central banks aim to encourage euro area banks to lend more actively, thereby offsetting the negative interest expenses. As central banks globally and in Europe tighten monetary policy, interest rates may start rising, leading to a reduction in these costs over the longer term (for details, see Section 2.3).

Bank funding through deposits of foreign credit institutions declined further, but deposits from non-residents, which are used to finance new market participants at the start of their operations, increased. The increase in deposits during the pandemic led to banks being even less dependent on funding from markets or other credit institutions (for more details, see Section 3.1). The historically low share of foreign credit institutions' deposits on balance sheets of Lithuanian credit institutions amounts to approximately 4.4% of their assets (see Chart 3, left-hand panel). Nevertheless, when new banks and specialised banks started operations,⁶ a new trend in the banking sector has been observed, with the share of foreign resident deposits increasing. In February 2022, it accounted for 4.7% of total assets of credit institutions, a year-on-year increase of 3 percentage points, and was the highest since 2007. The largest increase was recorded in the share of deposits from EU residents, while the share of deposits from non-EU residents, including Russian and Belarus residents, was stable (for more details, see Section 2.1). Lithuania's residents tend to hold deposits at very low or zero interest rates with major banks, although smaller banks and new market entrants often offer higher interest rates. By expanding their cross-border activities and using deposit platforms⁷, new banks may experience faster growth. On the one hand, it helps them diversify risks, but on the other hand, it undermines adequate prevention of

⁵ Return on equity was 10.4% (–1.9 percentage points, compared to 2019), while return on assets amounted to 0.8% (–0.3 percentage points, compared to 2019). The increase in equity levels as a result of the pandemic has led banks to increase their capital levels, while asset growth is outpaced by higher bank deposits as a result of the pandemic, while banks have channelled most of their asset gains into accounts at the central bank, thus earning relatively lower profits.

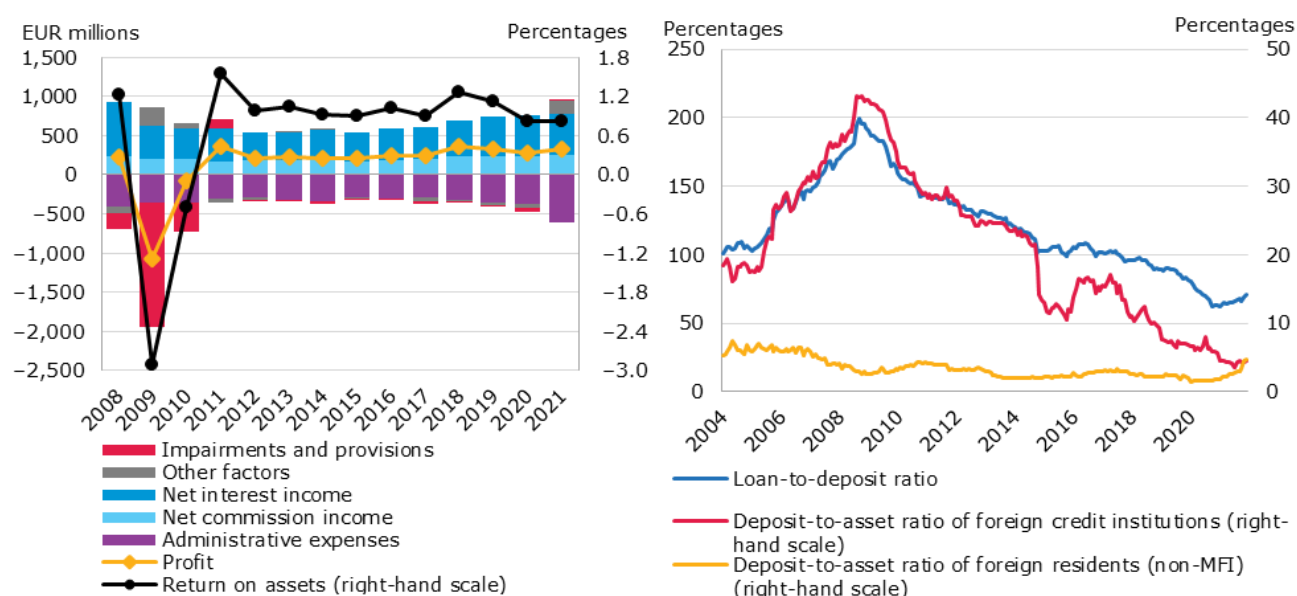
⁶ New entrants in the banking sector accounted for 3.2% of the total assets of the banking sector in 2021. These banks hold nearly 80% of foreign residents' deposits and approximately 6% of deposits of foreign companies held with Lithuanian credit institutions. For more details, see the [Banking Activity Review, 2021](#).

⁷ Some banks operating in Lithuania use cross-border deposit platforms through which (normally fixed-term) deposit services to foreign residents can be provided, thus ensuring an additional source of funding or managing liquidity. Deposits from platforms account for less than 2% of households' deposits and are more significant for new market entrants.

money laundering and may make it more difficult to balance cross-border positions on liabilities and assets, especially as countries find themselves in different stages of the economic cycle.

Banks' profit returned to pre-pandemic levels owing to improvements in the quality of loans and increases in fee and commission income, but deposit growth, which was faster than crediting, put negative pressure on the growth of net interest income and profits.

Chart 3. Developments in banks' profitability and contributing factors (left-hand panel), developments in funding of credit institutions through deposits



Sources: Bank of Lithuania and Bank of Lithuania calculations.

As the economic recovery progressed and pandemic restrictions were eased, the situation of companies most affected by the pandemic improved, leading to a decline in the share of non-performing loans; however, it remained higher in the accommodation and catering sector.

During the pandemic, the share of non-performing loans to companies engaged in activities that were most affected by the constraints, namely, accommodation and catering, arts, education, administration and support services, increased (see Chart 4, left-hand panel). After businesses had adapted to the imposed restrictions and subsequently, when the constraints were lifted, the quality of loan portfolios improved. However, at the end of the year, the share of non-performing loans to accommodation and catering companies remained elevated and banks continued to curb lending to these companies. Similar developments were also reflected in the share of borrowers with a significantly increased credit risk⁸ who are still delivering on their liabilities. At the start of the pandemic, the share of such loans in the corporate loan portfolio increased in the first three quarters of 2020 and decreased gradually until the third quarter of 2021, as the economic situation was improving (see Chart 4, right-hand panel).

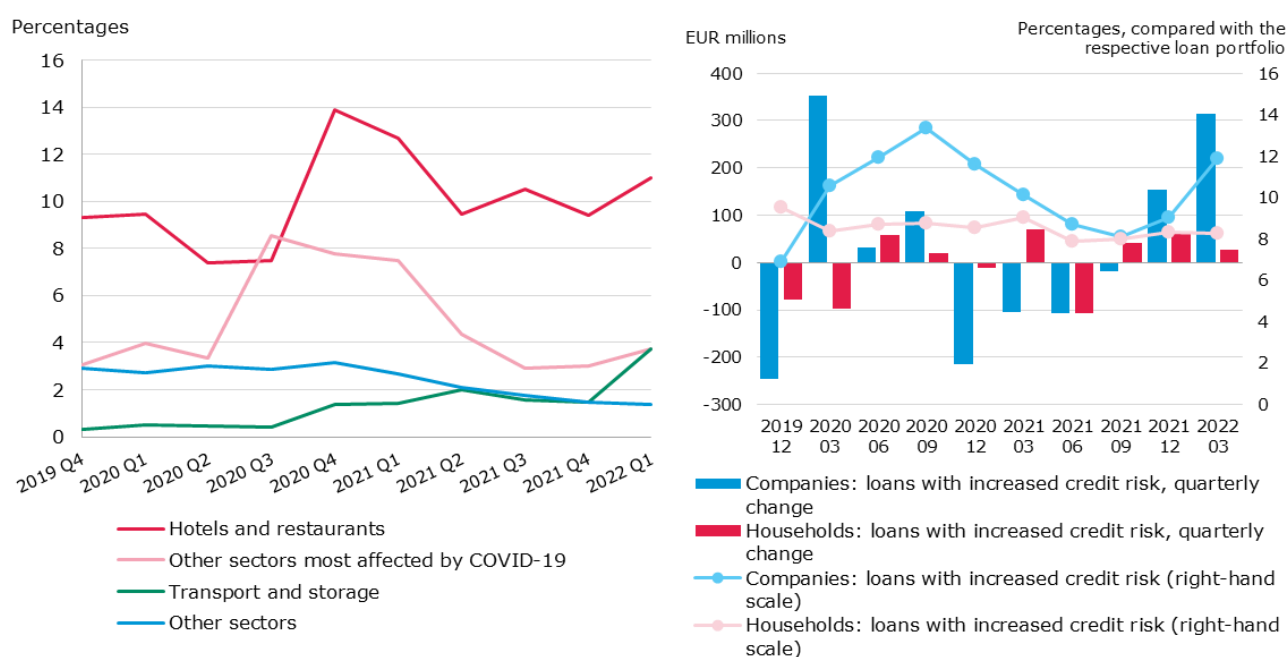
At the end of 2021, the share of loans with a significant increase in credit risk rose again after the expiration of government support measures for businesses and accelerating inflation, while Russia's war against Ukraine further strengthened this trend and will contribute to the deteriorating quality of the loan portfolio. In the fourth quarter of 2021, the share of riskier borrowers increased again, especially in the corporate segment — the share of such loans increased by 1.4 percentage points to 10%. This increase may have reflected the expiry of government support to

⁸ When making provisions, banks classify loans into the following three categories according to their riskiness: Stage 1 loans, with unchanged riskiness since the loan was granted (i.e. they are performing); Stage 2 loans, which have increased their credit risk significantly since the initial recognition but did not decrease in value (i.e. they are under-performing); and Stage 3 loans that were impaired due to credit risk (i.e. they are non-performing).

businesses (for more details, see Box 1) together with strong inflation rates, as well as rising construction and energy costs. In addition, banks increased provisioning for loans to construction and RE, energy supply, accommodation and catering, and support services companies. With the war, the share of non-performing loans increased slightly (from 1.7% to 1.8%) in the first quarter of 2021, while the share of loans with higher credit risk increased by 3 percentage points to 13%. The worse debtor assessment is also reported in the Bank of Lithuania quarterly bank surveys: from the end of 2021 banks started to give poorer assessments as to the developments in the financial standing of households and some companies, while the developments in the situation of companies engaged in manufacturing, transport, real estate and construction activities were negatively assessed in the first quarter of 2022. The share of loans to companies engaged in these activities subject to higher credit risk also increased (for details, see Section 2.1). If the share of non-performing loans increases significantly, the risk appetite, credit volumes and profitability of banks may decline.

The share of non-performing loans decreased but remains higher in the accommodation and catering sector, while the share of loans with a significantly greater credit risk for banks went up at the end of 2021.

Chart 4. Ratios of non-performing loans by economic activity (left-hand panel) and loans with a significantly greater credit risk (right-hand panel)



Source: Bank of Lithuania calculations.

Note: Other economic activities most affected by COVID-19 include administrative and support activities, education, health care and social work, and arts, entertainment and recreation activities.

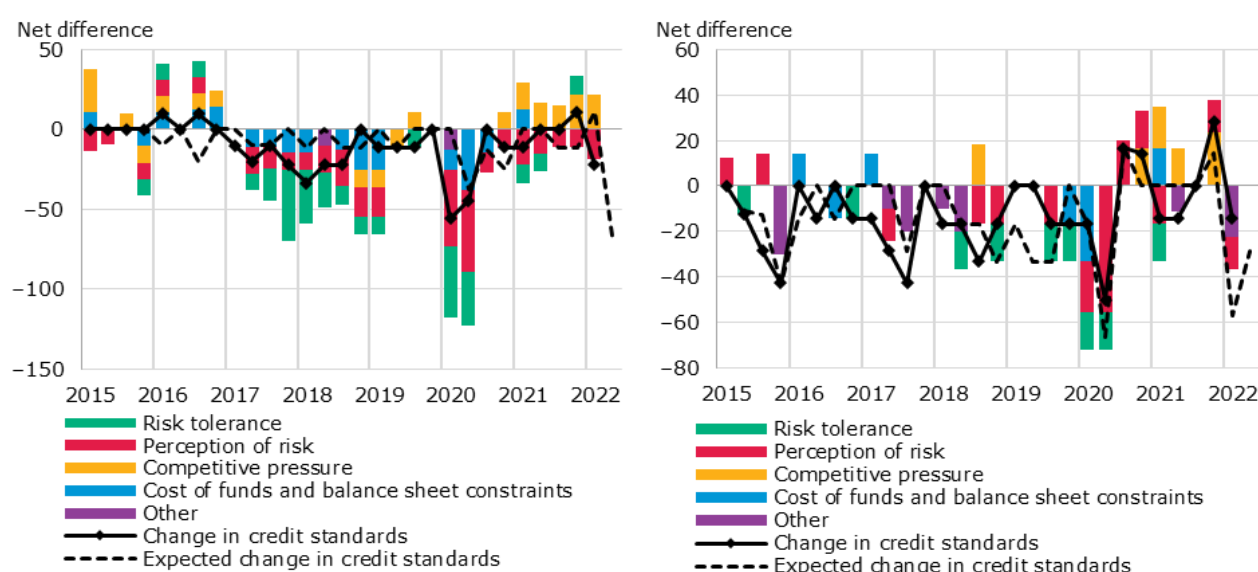
Before the outbreak of the war, as the economy picked up, the condition of companies improved and banks sought to maintain profitability, banks' risk appetite increased. Since 2018, amid reduced risk appetite, banks have been actively granting only less risky loans for house purchase, and consumer and corporate loan flows have been decreasing, while lending to predominantly higher-rating firms has been more active.⁹ This trend reversed as of mid-2021, when concerns about the pandemic receded and demand for financing increased. Banks, wishing to increase their profitability, stepped up the provision of consumer loans and credit to firms, including SMEs (for more details, see Section 1.3), for which financing conditions were the tightest. During this period, banks eased lending conditions and standards, mainly owing to increasing competitive pressure (see Chart 5). Higher risk

⁹ For more details, see [Survey on funding of small and medium-sized enterprises](#), 2021.

appetite was also reflected in rising risk weights, particularly in the consumer and large corporate loan portfolios. With no decline in lending for house purchase, banks eased the standards for loans for house purchase as well, with the share of loans with high LTV, DSTI and long maturities increasing¹⁰ (for more details, see Section 2.2). The growing risk appetite increases the riskiness of the loan portfolio, however, it should be noted that the riskiness of the banks' loan portfolio remains low. It is reflected in low credit losses, as the lending of banks operating in Lithuania is relatively conservative and was particularly cautious before the pandemic. With Russia's war against Ukraine, banks' risk perceptions and tolerance changed, and therefore, most banks plan to tighten their lending standards (see Chart 5), and lending will become more cautious.

Owing to the uncertainty triggered by Russia's war against Ukraine, banks anticipate a tightening of their credit standards.

Chart 5. Changes in credit standards for loans to companies (left-hand panel) and housing loans (right-hand panel) and contributing factors



Sources: Bank Lending Survey and Bank of Lithuania calculations.

Notes: Net difference means the difference between the (percentage) share of banks reporting easing credit standards and the (percentage) share of banks reporting tightening credit standards. Positive net difference means the easing of standards and negative net difference means the tightening of standards.

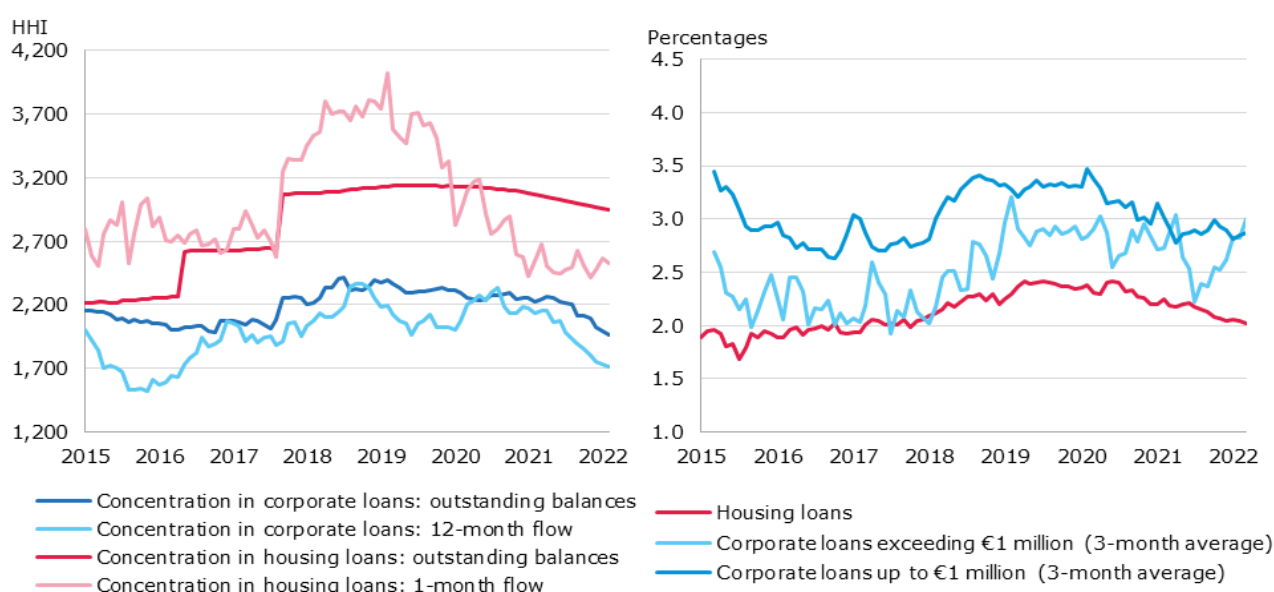
Competition has increased, driven both by active lending by the major banks and by rapid credit provision by smaller banks, as suggested by improving concentration indicators. From mid-2020 onwards, more banks started to increase their lending volumes, while smaller market participants started to actively grant loans for house purchase and, accordingly, credit market concentration started to decline (see Chart 6, left-hand panel). Although the loan portfolio is still concentrated among the major banks, the flow of new loans has become more homogeneous among the market participants. The concentration of corporate loan flows in the corporate segment is similar to that observed in 2016, i.e. before the exit of the important corporate lender, Danske Bank A/S Lithuania branch, and the mergers of *Nordea* and *DNB* banks in the Baltic States. In turn, the concentration of flows in the housing loan segment is at its lowest since 2015 and below the 20-year average. Higher risk appetite and increased competition improved the access to finance for enterprises – based on the data of the [Survey of Enterprises 2021](#), the share of rejected corporate loan applications decreased.

¹⁰ Due to the growing housing market risk and the increased importance of housing loans in the portfolios of credit institutions, the Bank of Lithuania introduced a sectoral SRB at 2% and tightened the down payment requirement for second housing loans (for more details, see Section 5).

Increased competition led to a further decline in interest rates in 2021, which also added to the pressure on banks' profitability. To attract customers in an environment of increased competition, banks cut interest rates¹¹: compared to the peak in 2020, interest rates on housing loans decreased by 0.4 percentage point and stood at 2.0% in March 2022, while interest rates on small corporate loans were 0.6 percentage point lower and stood at 2.9% (see Chart 6, right-hand panel). This decline in interest rates is also contributing to the pressures on net interest income¹² and profitability. Heightened uncertainty due to the war and the deteriorating economic situation may dampen the demand for credit, particularly for investment loans,¹³ making it harder for banks to maintain their current profitability without changing interest rates. On the one hand, increasing credit risk and declining profitability may increase margins, and on the other hand, if demand for credit falls and competition remains elevated, it will be more difficult for banks to raise interest rates.

Competition in the credit market increased, contributing to lower banking sector concentration and banks' lending rates.

Chart 6. Loan concentration (left-hand panel) and interest rates on loans (right-hand panel)



Sources: Bank of Lithuania and Bank of Lithuania calculations.

1.3. Credit developments and indebtedness

The growth of credit¹⁴ to the private non-financial sector picked up in 2021, but the level of indebtedness remained stable. At the end of the fourth quarter of 2021, the annual growth rate of credit granted to the private non-financial sector stood at 8.6%, whereas the growth had stopped a year earlier. This was influenced by the recovery in corporate lending by credit institutions, an increase in the financing of businesses through debt securities, and an even stronger expansion of household credit. The portfolio of loans granted by credit institutions to the private non-financial sector grew rapidly, with the growth rate reaching 13.3% in March 2022. The portfolio of loans granted to non-financial corporations

¹¹ In the [quarterly bank surveys](#) conducted for both 2020 and 2021, banks regularly reported that increased competitive pressures were the main reason why they had cut interest rates on loans to firms and loans for house purchase.

¹² Interest income improved due to strong credit provisioning, not as a result of loan margins.

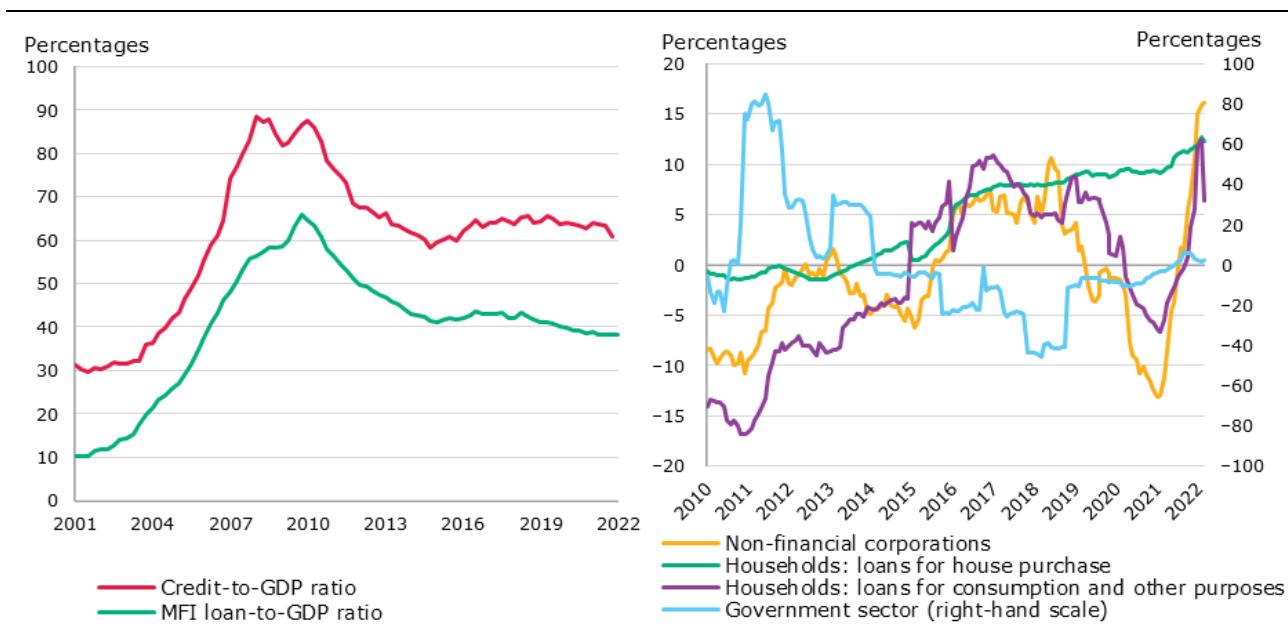
¹³ In the first quarter of 2022, most banks reported an expected decline in demand for housing and corporate loans, while 40% of respondents indicated a decline in demand for consumer loans. When assessing firms' demand, the weakest expectations were related to developments in demand for long-term loans and loans to large companies.

¹⁴ In this case, credit includes loans granted by all lenders (credit institutions, other financial institutions, non-financial corporations, foreign residents, etc.) to the private non-financial sector and financing through debt securities.

and households increased by 16.2% and 11.3% year on year respectively, i.e. the highest growth rates among the euro area countries (see Chart 7, right-hand panel). The acceleration in loan growth was driven by an increase in new loan flows and the base effect stemming from the substantial contraction in the portfolio of loans to non-financial corporations during the lockdown period. Financial liabilities of general government institutions to credit institutions also started to increase and in March 2022 stood 2.2% higher year on year, mainly due to a rise in local government liabilities. Nevertheless, reflecting the pick-up in economic activity, the overall level of indebtedness remained broadly stable – at the end of 2021 the credit-to-GDP ratio declined to 60.9%, while the ratio of loans granted by credit institutions to GDP fell to 38.1% in the first quarter of 2022 (see Chart 7, left-hand panel). The levels of indebtedness of non-financial corporations, households and government declined somewhat in the course of the year and remained among the lowest among the euro area countries.

Although the portfolio of loans granted by credit institutions grew more rapidly, the indebtedness of the private non-financial sector remained broadly unchanged.

Chart 7. Credit and MFI loans to GDP ratios (left-hand panel), annual growth rate of the MFI loan portfolio (right-hand panel)



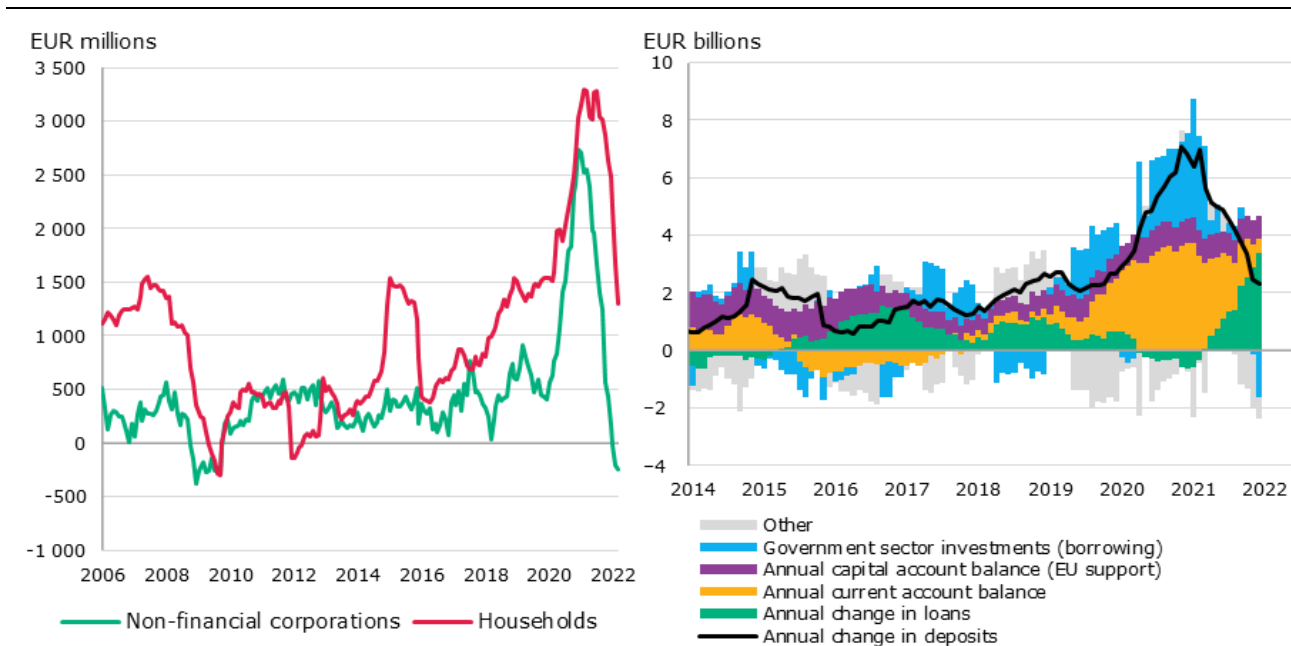
Sources: Statistics Lithuania, Bank of Lithuania and Bank of Lithuania calculations.

Demand for new lending by corporations picked up in 2021, driven by the recovery in investment and the expiration of government support measures. Although the restrictions imposed during the lockdown at the start of the pandemic led to a significant contraction in the turnover of non-financial corporations, business continued to adjust further to the changes in business conditions, and in 2021, the volume of turnover was already one-fifth higher than in 2020 and 2019. Investment increased, as non-financial corporations increasingly returned to normal business conditions and expectations improved. In 2021, corporate investment was 11.6% higher than a year earlier, and this also contributed to the increase in new financing needs. In addition, during the pandemic, the government support measures (for more details, see Box 1) contributed significantly to corporate liquidity, and upon the expiration of these instruments, the financing needs for working capital increased as well. Corporate liquidity is historically high and, after having started to increase rapidly during the pandemic, deposits of non-financial corporations remained sizeable, standing at EUR 9 billion at the end of February 2022, i.e. EUR 2.3 billion more, compared to the pre-pandemic period (see Chart 8, left-hand panel). It should be noted, however, that in early 2022, deposit levels stopped rising owing to the renewal of corporate stock which fell during the pandemic and the resulting rising imports. Overall, the

factors driving the increase in savings during the pandemic – an increase in the current account balance and the government support (the latter resulting in an increase in general government debt¹⁵) – are currently being replaced by the growing lending by domestic banks (see Chart 8, right-hand panel). Hence, the role of banks in financing the economy is growing again, as government support is phased out.

The increase in deposits during the pandemic was mainly supported by government support and declining investment but has recently been increasingly driven by growth in credit.

Chart 8. Annual growth in deposits of non-financial corporations and households (left-hand panel) and contributing factors to the growth in deposits of the private non-financial sector (right-hand panel)



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Box 1. Impact of government support measures for businesses on corporate borrowing and bank risk exposure during the pandemic

Government support measures were mostly used by small and medium-sized enterprises and corporates with higher credit risk that were most affected by the pandemic. The value of government support measures implemented for businesses until the end of 2021 amounted to approximately EUR 3.2 billion, and this led to improvements in corporate liquidity and solvency positions during the pandemic period. These measures can be divided into the following three main groups: subsidies¹⁶ (EUR 1.17 billion), loan-type instruments¹⁷ (mainly including direct loans and underpaid

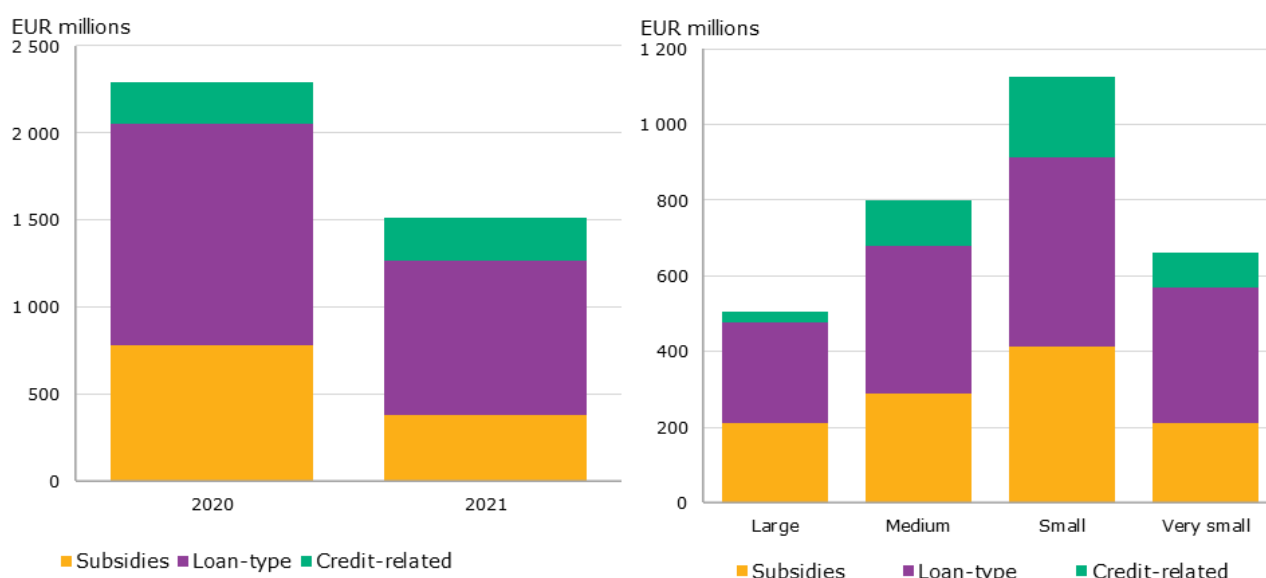
¹⁵ The ratio of general government debt to GDP had reached 46.5% in 2020, i.e. increased by more than 10 percentage points compared to 2019, yet slightly declined and stood at 44.3% at the end of 2021.

¹⁶ Subsidies include subsidies provided by the Employment Service during and after idle time, subsidies of the Ministry of Economy and Innovation to companies affected and most affected by COVID-19, and some INVEGA instruments, such as partial compensation of lease payments, compensation for COVID-19 research workers and business start-up subsidies. The amounts of the subsidies are approximate because the amounts of subsidies awarded by the Employment Service for enterprises that have three or fewer employees are not published.

¹⁷ These loan-type instruments include tax underpayments and tax loans granted by the State Tax Inspectorate, as well as INVEGA instruments such as direct COVID-19 loans, loans to businesses most affected by COVID-19, loans to tourism and accommodation service providers, ASAPs, crowdfunding loans Avietė and the incentive financial instrument Alternatyva.

taxes, EUR 1.55 billion) and credit-related INVEGA instruments¹⁸ (guarantees and compensation of loan interest, EUR 477.5 million, see Chart A, left-hand panel). The measures were mainly used by companies engaged in accommodation and catering (68.1% of the total sector), health care (57.2%), education (51.9%) and trade (51.5%), with the trade sector accounting for the largest share of support measures (EUR 1.17 billion). Government support was more actively used by riskier companies with medium and low credit ratings: at least one measure was used by 73.5% of C-E credit rating¹⁹ companies which received EUR 861.8 million in support measures. In addition, government support measures were actively used by SMEs, including micro-firms, which accounted for 81% of the total value of the support measures granted (see Chart A, right-hand panel).

Chart A. Value of government support measures by type of measure (left-hand panel) and distribution of support measures granted according to the size of beneficiaries (right-hand panel)



Sources: Employment Service, Ministry of the Economy and Innovation, State Tax Inspectorate, INVEGA and Bank of Lithuania calculations.

Note: In the left-hand panel, the sum of the columns does not add up to the total amount of aid measures granted to avoid double-counting, as tax underpayments might have become tax loans for the same companies in the subsequent year.

Government support measures for businesses due to the COVID-19 pandemic increased corporate liquidity, thereby dampening corporates' demand for new loans. The weakening of demand for working capital contributed to a reduction in the flow of new loans by credit institutions to non-financial corporations, which also had an impact on the faster contraction of the loan portfolio. In 2020, the flow of pure new loans to non-financial corporations was 33% lower than the average annual flow in 2017-2019, while the loan portfolio contracted by approximately 13% over the year. However, in terms of the volume of support measures, the value of the support measures implemented in 2020 was broadly in line with the average annual flow of loans in 2017-2019 (down by 3%), suggesting that government support secured the amount of liquidity that had been received from credit institutions in normal times (see Chart B, left-hand panel). Given their riskiness, the share of companies with active loans and the outstanding loan amount decreased slightly more for medium and low credit-rated companies, by 2% and 12% respectively, reflecting a more cautious approach by credit institutions towards granting new loans during the pandemic. On the other hand, in 2021, the volume of credit

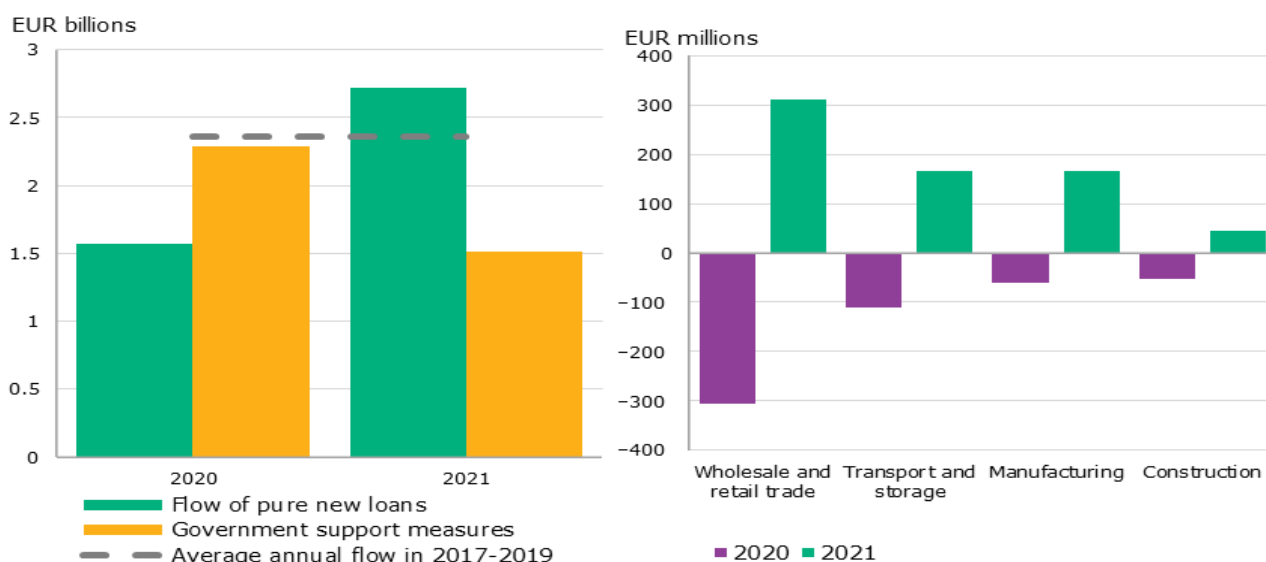
¹⁸ The credit-related measures include INVEGA instruments such as guarantees for the enforcement of travel agents' obligations, portfolio guarantees for loans and leases, portfolio guarantees for factoring and portfolio guarantees for factoring 2, partial compensation of loan interest, export credit guarantees and individual guarantees.

¹⁹ Corporate credit ratings depend on the firm's financial condition and past financial behaviour (e.g. delay of repayments on financial liabilities, debt). A company can be issued one of the following five ratings: A, B, C, D or E. Rating A is assigned to companies with the lowest risk, whereas rating E is given to the most exposed company. The 2019 Scorify credit ratings are used as a source.

granted by credit institutions also recovered as a result of the reduction in government support and the improving economic situation, although some sectors were still financed more cautiously (for more details, see Section 1.3).

In 2020, the largest decline in the portfolio of loans granted by credit institutions was observed in sectors that received most of the government support. The portfolio of loans granted by credit institutions to companies which had been granted government support of nearly EUR 1.6 billion (or 71% of the total value of measures in 2020) for their activities in the transport, construction, trade and manufacturing sectors contracted by EUR 0.5 billion (or 20%). Such a decline exceeds that of the total corporate loan portfolio by 7 percentage points (see Chart B, right-hand panel). The largest change in liabilities to credit institutions was visible in the transport sector, which was significantly affected by the pandemic, with the portfolio of loans to enterprises that have received government support decreasing by EUR 0.1 billion (29%) and those that have not received government support decreasing by EUR 47 million (16%). Transport was one of the sectors on which banks had reportedly imposed tighter lending constraints²⁰ during the pandemic, while financial institutions saw it as one of the most prone to bankruptcy.²¹ However, following the rebound in loans granted by credit institutions in 2021, the remainder of activities more affected by the lockdown, such as accommodation and catering, as well as arts, entertainment and recreation activities, were still credited more cautiously, with banks significantly curbing the provision of new loans during the pandemic, which has so far not fully recovered. However, in 2021, EUR 0.2 billion (or 15% of the total value of all support measures) was allocated to these particular activities, while the portfolio of loans granted to these companies decreased by EUR 40 million (18%). Furthermore, the largest credit contraction was recorded specifically for corporations that were granted government support, while the loan portfolio of companies which have not received or used government support measures increased or remained stable over the period 2020-2021.

Chart B. Flow of government support measures and pure new loans to non-financial corporations (left-hand panel) and annual change in the portfolio of loans to non-financial corporations that received government support (right-hand panel)



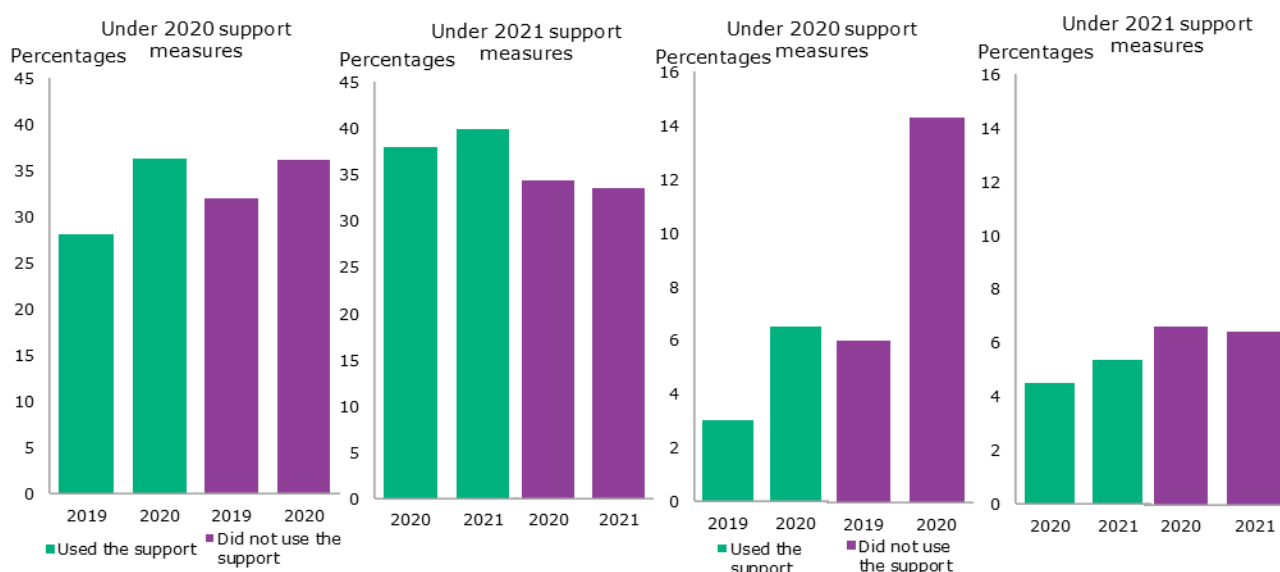
Sources: Employment Service, Ministry of the Economy and Innovation, State Tax Inspectorate, INVEGA, Bank of Lithuania and Bank of Lithuania calculations.

²⁰ According to bank survey [data](#).

²¹ According to the Survey of Risks to Lithuania's Financial System [data](#).

The government support measures had a more positive impact on the discharge of credit liabilities of riskier firms. The probability of default on loans²² to companies that had benefited from government support increased more rapidly than those companies that had not used government support. Compared to 2019, the share of companies with a high probability of default, i.e. above 4%, increased by 8.1 percentage points in 2020 and the share of those which did not use government support increased by 4.2 percentage points (see Chart C, left-hand panels). On the other hand, the rise in the share of companies in default was considerably lower (+ 3.5 percentage points) than that of companies that had not used the support measures (+8.3 percentage points, see Chart C, right-hand panels). This reveals that government support had a positive impact on the solvency of companies from riskier sectors in the first year of the pandemic and helped to amortise the impact of the pandemic on credit risk growth which could lead to an increase in losses for credit institutions. According to the latest data, the increase in the share of companies with high probability of default which received government support was rather modest in 2021 (+1.9 percentage points), and the share of defaulted companies increased by a meagre 0.8 percentage point. On the other hand, the share of companies with a high probability of default which did not benefit from support measures decreased by 0.8 percentage point and the share of those who were in default declined by 0.2 percentage point. This suggests that the situation started to stabilise in the second year of the pandemic, with credit risk and its assessment undergoing no significant changes, and this could have been influenced by the adjustment of companies to the change in the operating conditions, as well as declining uncertainty.

Chart C. Share of non-financial corporations with the probability of default exceeding 4% (left-hand panel) and share of non-financial corporations in default on their credit liabilities (right-hand panels)



Sources: Employment Service, Ministry of the Economy and Innovation, State Tax Inspectorate, INVEGA, Bank of Lithuania and Bank of Lithuania calculations.

Note: The annual change is compared separately for 2020 and 2021 due to a different sample size depending on the government support received in the respective year: the data of companies which received government support in 2020 are compared with their 2019 data and the data of those who received support in 2021 are compared with their 2020 data.

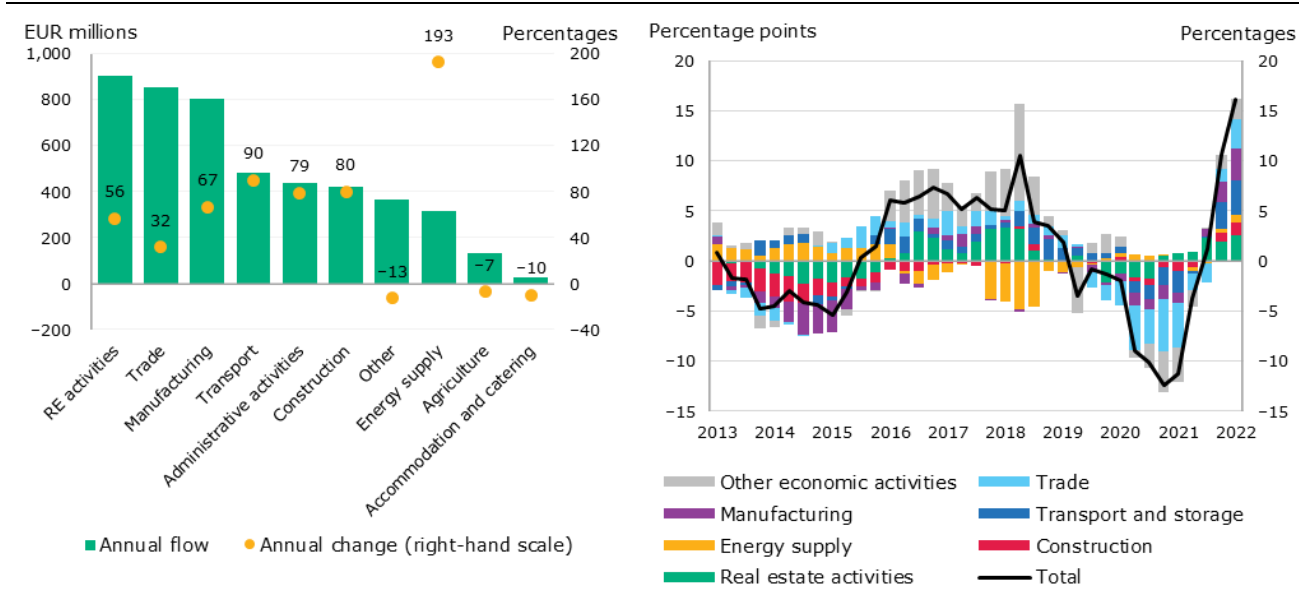
The portfolio of loans to non-financial corporations from credit institutions reached its pre-pandemic level: financing was concentrated on the real estate, trade and manufacturing sectors, but credit provision to the activities most affected by the lockdown remained more cautious. During the pandemic period, the portfolio of loans granted by credit institutions to non-financial corporations decreased by EUR 1.3 billion and, in January 2021, it had reached its lowest level

²² Based on the data of banks using the internal ratings-based approach to credit risk.

since 2015. However, as new credit flows increased in 2021, the portfolio started to recover strongly, reaching its pre-pandemic level in January 2022. The annual flow of pure new loans granted in 2021 was 73% higher year on year, while in 2022 the flow of new loans was 7.7% higher than in the corresponding period in the previous year. Given the prevailing high level of activity in the real estate sector, real estate activities and construction accounted for 28%²³ of the total volume of new loans granted in 2021 (see Chart 9, left-hand panel). Another significant share (35%) was in the trade and manufacturing sectors, which also contributed markedly to the overall growth in the loan portfolio (see Chart 9, right-hand panel). On the other hand, higher demand for working capital owing to increasing energy costs led to an almost three-fold increase in the flow of loans granted to the energy sector, while still accounting for only a minor share (6.6%) of the total flow. While lending to most economic activities grew, some of them were sluggish in terms of the provision of new loans, including the sectors most affected by the lockdown restrictions and still riskier (e.g. accommodation and catering, entertainment and recreational activities).

The flow of new loans granted by credit institutions to non-financial corporations increased significantly, with the real estate, trade and manufacturing sectors receiving the largest share of credits.

Chart 9. Flow of MFI loans granted in 2021 and its annual change (left-hand panel) and annual change in the portfolio of loans to non-financial corporations by economic activity (right-hand panel)



Sources: LRDB and Bank of Lithuania calculations.
Note: The names of some activities have been abbreviated.

Higher-value loans and lending to SMEs increased more rapidly in 2021. The recovery in investment has accelerated the growth of higher-value loans: the annual flow of loans up to EUR 1 million increased by 44%²⁴ year on year, while the value of loans exceeding EUR 1 million²⁵ increased by 49%. The year 2021 also saw a rise in the flow of new loans by credit institutions to SMEs, which had started to decline since end-2018. In 2021, the flow of new loans to SMEs was 65% higher than in the previous year, although the growth rate for large businesses was also robust, standing at around 43% (see Chart 10, left-hand panel). A decrease in the share of rejected applications – according to the survey of non-financial corporations conducted by the Bank of Lithuania – may have contributed to these developments, while in 2021 the decline in the share of rejected applications was strongest for small businesses, which

²³ Based on the LRDB data.

²⁴ Based on the LRDB data.

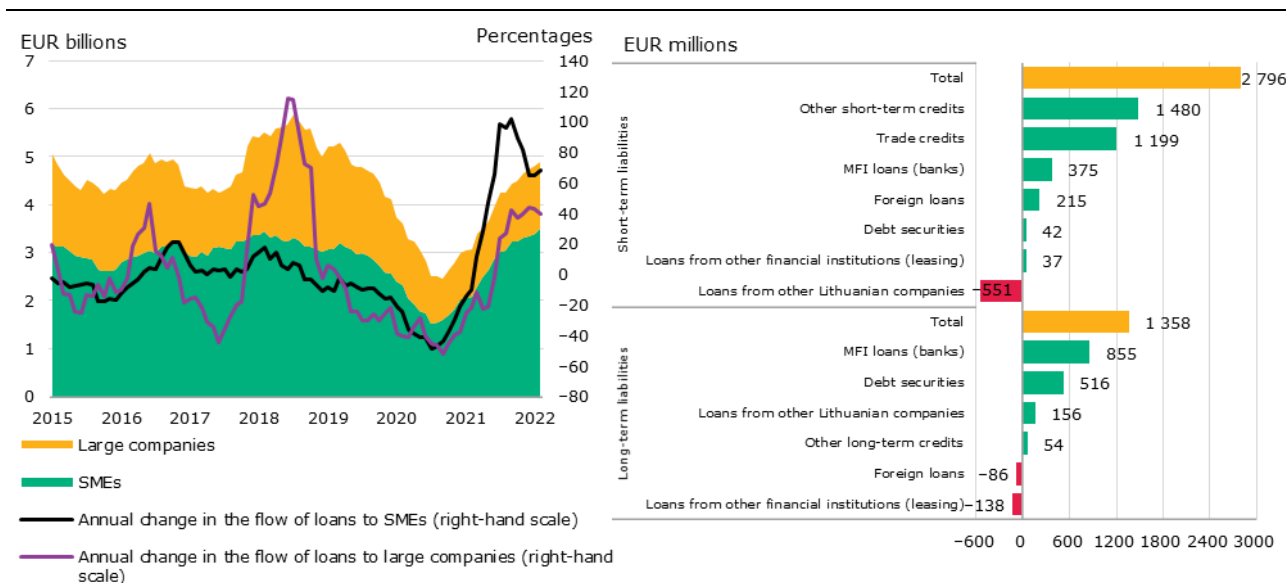
²⁵ To EUR 30 million.

are generally considered to be riskier. Furthermore, the tightening of lending standards²⁶ to SMEs by mid-2020, largely due to higher risk levels, had stopped as of the end of 2020 and some banks reported a slight easing at the end of last year.

The recovery of credit institution lending was accompanied by a contraction in loans to other non-financial corporations, but debt securities and trade credit financing increased. Despite a significant increase in the flow of new loans granted by credit institutions in 2021, corporate funding from other non-bank sources also increased. Corporate liabilities to non-banks grew at a slightly slower pace than loans granted by credit institutions: in the course of the year, it increased by 8.5%, or EUR 2.9 billion. The main contribution came from a further rise in trade credit liabilities (EUR 1.2 billion, or 8%), debt securities (by EUR 0.6 billion, or 34%) and other amounts payable to non-financial corporations and households (EUR 1.2 billion, or 23%, see Chart 10, right-hand panel). On the other hand, the strong growth in short-term loans granted by other non-financial corporations in recent years started to contract, representing a decrease of 22% (or EUR 0.6 billion) at the end of 2021 compared with the previous year. Irrespective of this trend, liabilities to other non-financial corporations remain significant and account for 35% of their total financial liabilities. This means that the risks due to disruptions in the chain of mutual corporate debts remain relevant since other related enterprises might be affected by financial difficulties and failures of these companies to meet their obligations, which could cause credit losses for financial institutions.

Lending to SMEs increased more rapidly in 2021, while corporate financing from other non-bank funding sources also increased.

Chart 10. Annual flow of new loans granted to non-financial corporations (left-hand panel) and annual change in financial liabilities in 2020–2021 (right-hand panel)



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Strong lending for house purchase has led to a rapid expansion of the housing loan portfolio since 2020, as well as an increase in the share of riskier loans. Demand for new housing loans has been growing since 2020, supported by more favourable lending conditions, positive housing market outlook and higher savings, which made it easier for households to meet their down payment requirements. In March 2022, the annual growth rate of the portfolio of housing loans granted by credit institutions stood at 12.3%, one of the highest growth rates since 2009. The volume of new housing loans granted in the course of the year was 19.2% higher than a year ago and the value of loans granted

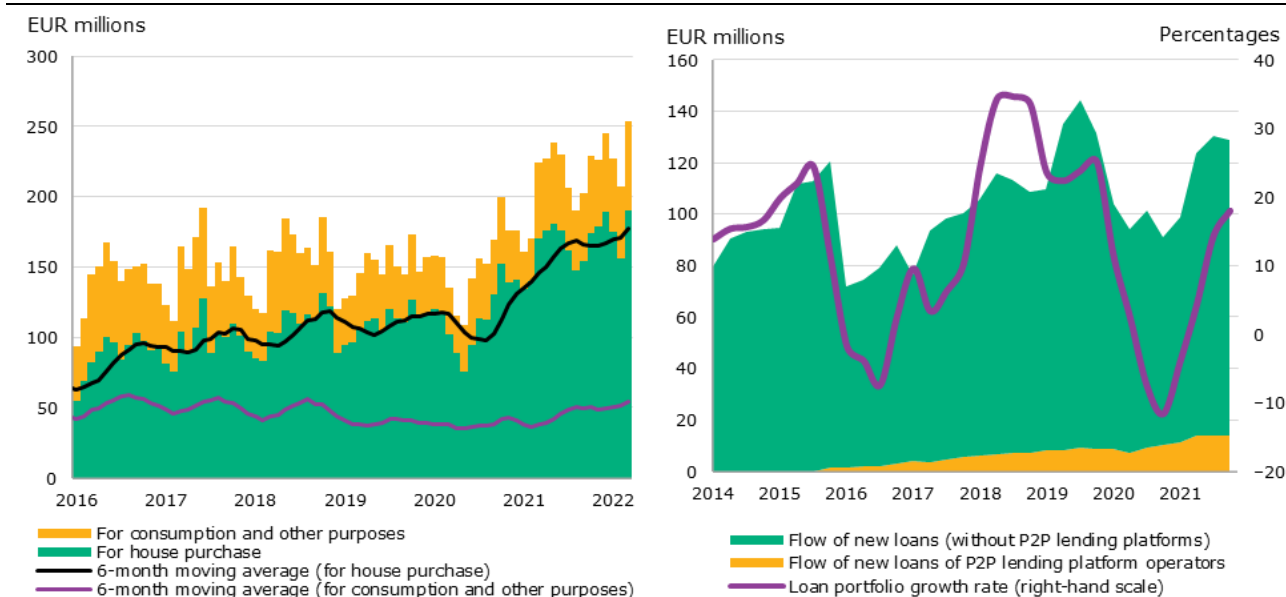
²⁶ Based on the quarterly bank surveys conducted by the Bank of Lithuania.

increased even more rapidly (43.3%, see Chart 11, left-hand panel). This reflected not only an increase in activity in the housing loan segment, but also an increase in the average loan value. At the beginning of 2022, the latter amounted to EUR 81,000 (15% more than a year ago) and this could have been affected by the rise in house prices. As in the previous years, in 2021, slightly more than half (51.5%) of new housing loan agreements were signed in the Vilnius District, although housing loan portfolios increased across regions. Increased competition led to even more favourable lending conditions and an easing of standards in 2021: the average annual interest rate decreased by 0.2 percentage point to 2.1%, while the average DSTI and LTV ratios of newly issued housing loans increased slightly and fluctuated in a range of 28% and 78% respectively. In particular, the share of borrowers taking housing loans with a lower down payment and longer maturities has recently increased (for more details, see Section 2.2), but a slight tightening of lending standards has also been observed since the start of 2022.

In 2021, the flow of new consumer loans recovered from the contraction during the lockdown periods as the average loan value increased. Borrowing through P2P lending platforms generated greater interest as well. The easing of lockdown restrictions led to stronger household consumption and, therefore, demand for new consumer loans grew accordingly. Improvements in household expectations, the favourable cost of borrowing, and the increased need for this type of financing may have contributed to this development. In 2021, the value of new consumer loans granted by other consumer credit providers (non-credit institutions) amounted to EUR 481 million, i.e. 23.2% more than in the previous year, while the number of loans granted contracted by 15.7% (see Chart 11, right-hand panel). This shows an increase in the amount of household borrowing for consumption — the average amount of credit increased by 46% year on year, as well as the lengthening of the average maturity of loans by five months. It may have been influenced by rising prices, the desire to purchase more expensive items, and more favourable conditions to assume larger liabilities as a result of robust wage growth. In aggregate terms, the portfolio of loans granted by other consumer credit providers increased by 18.1% over the year, while the interest in peer-to-peer (P2P) lending platforms remained strong as well. In 2021, the volume of loans granted through P2P lending platforms increased by 21.9% and the total value of these loans increased by 49.2% year on year (i.e. nearly EUR 53 million). The provision of new MFI consumer loans was also more active: in March 2022, the annual flow of pure new loans increased by 59.2% year on year, reaching EUR 355 million. This led to the recovery of the portfolio of consumer and other loans granted by MFIs after the lockdown and in March 2022 it was 6.4% higher year on year.

Activity in the housing loan segment remained robust and the contraction in lending for consumption during the pandemic recovered.

Chart 11. Monthly flow of pure new MFI loans to households (left-hand panel) and quarterly flow of new loans granted by other consumer credit providers (non-banks) and annual change in the portfolio (right-hand panel)

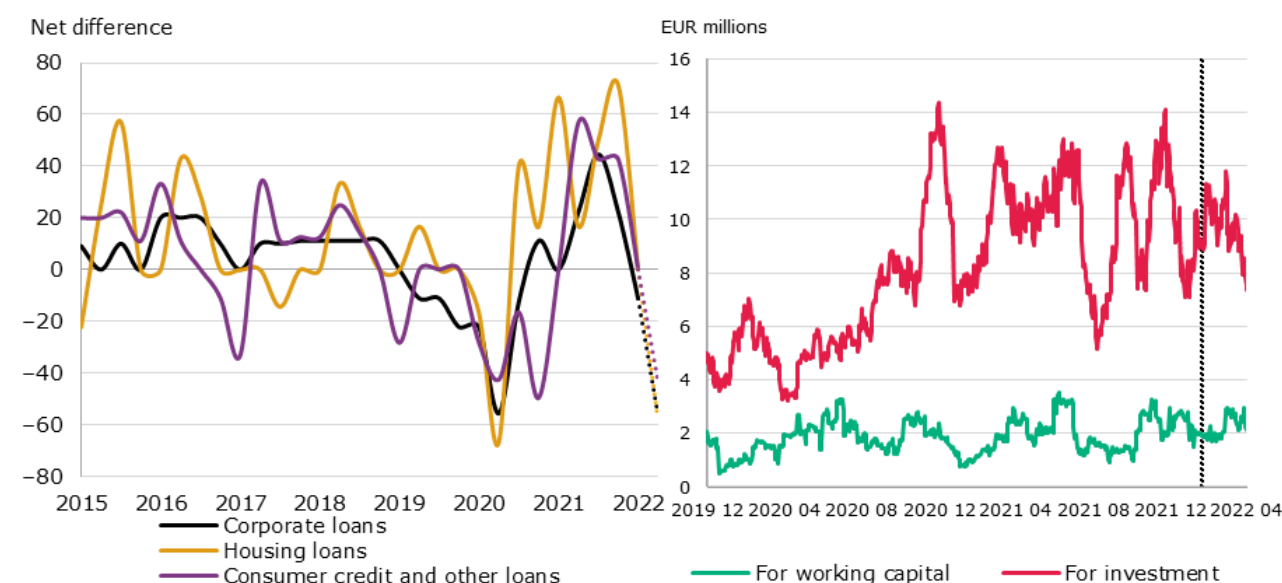


Sources: Bank of Lithuania and Bank of Lithuania calculations.

Heightened uncertainty due to Russia's aggression against Ukraine may affect further credit dynamics. The flow of new loans to the private non-financial sector may be dampened by the contraction in demand for new loans. This could be due to increased uncertainty, rising commodity prices, and increasing disruptions in supply chains, which might cause companies to postpone higher investment for the future, as well as more stringent lending standards, which could increase the share of rejected applications. According to the bank lending survey, a slight decline in demand of non-financial corporations for new loans is already observed in the first quarter of this year and has so far been mainly driven by the financing needs for working capital and capital investment (see Chart 12, left-hand panel). On the other hand, the flow of new loans for investment has not yet been significantly subdued, though the flows may so far reflect earlier projects planned and initiated (see Chart 12, right-hand panel). Business confidence indicators deteriorated significantly in March, which could lead to more cautious planning of new investments and lower demand for this type of financing. On the other hand, should liquidity needs increase, the demand for working capital could increase, which could partly amortise the decline in the flow of investment loans. Rising inflation and uncertainty over Russia's war against Ukraine also weighed on household sentiment: in March, consumer confidence reached its lowest level since the first lockdown. According to the bank lending survey, demand for new housing and consumer credit stalled in the first quarter of this year. In the near term, banks expect a contraction in demand and a slight tightening of their lending standards. Further developments of household credit may be affected by a more cautious management of personal finances and more carefully thought-out assumption of new liabilities due to lower expectations.

Heightened uncertainty and worsened expectations may dampen the demand for new credit.

Chart 12. Change in demand for new loans of non-financial corporations and households (left-hand panel) and flow of loans granted to non-financial corporations per day (right-hand panel)



Sources: Bank Lending Survey, Bank of Lithuania and Bank of Lithuania calculations.

Notes: The dotted line marks demand expectations within the nearest 3 months. The flow of loans is given as a 30-day moving average, the dotted line marks the beginning of Russia's invasion of Ukraine.

1.4. Real estate market developments

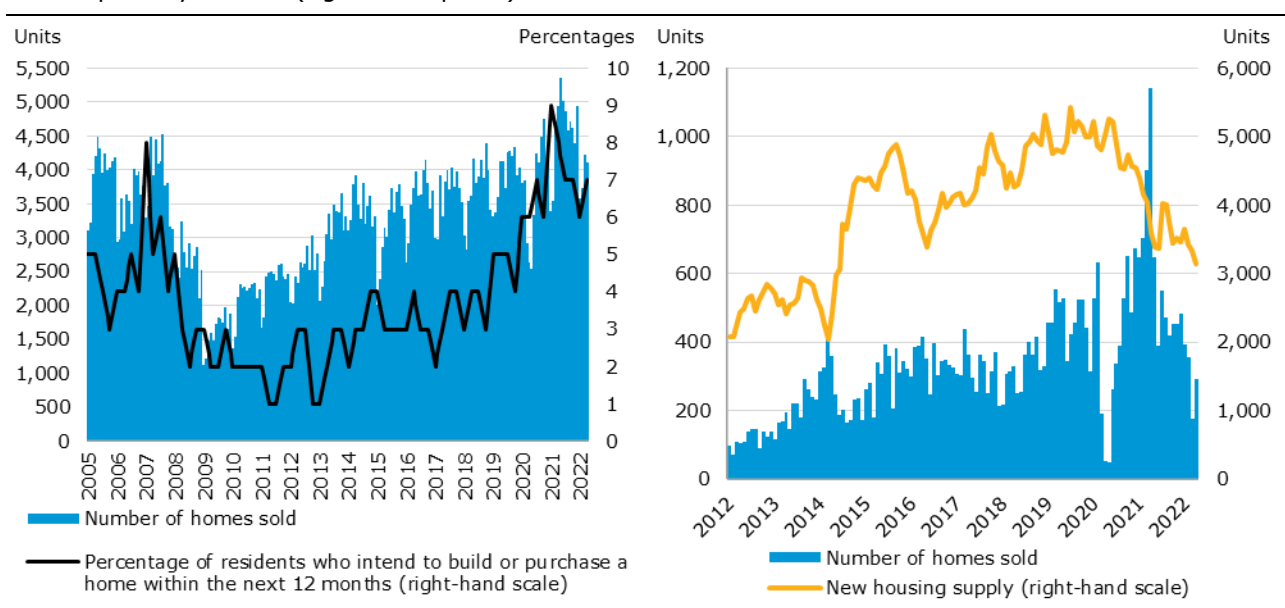
The number of homes sold reached a historical peak in 2021, but market activity declined in the first months of 2022. As the pandemic hit the economy less than expected, the financial situation of households continued to improve (the average wage minus tax increased, on average, by 10.1% in 2021) and upon the change in households' housing needs (e.g. due to spending more time at home), the residents' interest in the purchase of homes reached a historical peak in 2021. This, combined with the so-called "spring effect", when the housing market recovered from a slow-down at the start of the pandemic, led to a historically high number of homes sold in 2021. According to the Centre of Registers, a total of 55,000 homes were sold in Lithuania in 2021, a 22.2% increase compared with 2020 and 16.4% more than before the pandemic in 2019 (see Chart 13, left-hand panel). As the residents wanted to live in more spacious dwellings during the pandemic, house sales increased in 2021, being 26.5% and 35.2% higher than in 2020 and 2019 respectively. The volume of apartment sales in 2021 was 20.5% higher than in 2020 and 9.8% higher than in 2019. Legal persons also contributed to the increase in the number of housing units sold in 2021, accounting for 6% of the total housing acquired (1 percentage point more than in 2020). They were even more active in Vilnius as they purchased 9.5% of all homes sold in 2021 (3 percentage points more than in 2020). Amid the waning of the above-mentioned spring effect, increasing home prices, limited new housing supply and a consequent reduction in choice options, housing market activity has gradually contracted since the summer of 2021. According to more recent data, the first quarter of 2022 recorded a fall in sales volumes, which is common to the beginning of the year. The number of homes sold was 16% lower than the average over a quarter in 2021. Growing inflation and devaluing household savings provide incentives to residents to purchase homes earlier than planned, which could lead to a renewed increase in sales.

After the historical activity in the first half of 2021, the volume of sales in Vilnius, the largest primary market, returned to the pre-pandemic levels, but supply in the market continued to

shrink. According to the data on market participants,²⁷ in 2021, a total of 7.2 thousand homes were sold on the Vilnius new housing market, a 52% increase compared to 2020 and 31% increase compared to the pre-pandemic level in 2019 (see Chart 13, right-hand panel). Following a particularly active sales period in the spring of 2021, sales started to decline and, in the first quarter of 2022, other than the first months of the pandemic in 2020, stood at their lowest level since mid-2018. The decline in sales is due to a surge in house prices and limited options, with only 3.3 thousand new apartments in March, the lowest number since 2015. While the Kaunas and Klaipėda primary markets saw supply increases in the summer of 2021, the supply of housing was limited in Vilnius due to problems in obtaining building permits (5.4% fewer building permits were issued than in 2020, whereas the number of building permits issued in Kaunas and Klaipėda increased by 28.4% and 65.5% respectively, compared to 2020).

After the record in 2021, housing market activity and intentions to buy homes declined in the first quarter of 2022, while the supply of apartments in Vilnius remained limited.

Chart 13. Homes sold and residents' intentions to purchase a home (left-hand panel) and the situation in Vilnius primary market (right-hand panel)



Sources: Centre of Registers, Statistics Lithuania and UAB Inreal.

Note: The share of the population planning to purchase or build a home is counted as the share of the population answering the question with "Yes, definitely" and "Probably".

The impact of Russia's war against Ukraine on the Lithuanian housing market is so far limited, but uncertainty remains. Sales in the secondary housing market did not decrease as a result of the start of the war: in March 2022 they increased by 12%, compared to February, and by 17.9%, compared to the same period prior to the pandemic, in 2019. Based on the more recent data, the sales in April fell slightly (3.5%) compared to March but were 14.5% higher than before the beginning of the war, i.e. in January. In March, the volume of sales on the primary new housing market in Vilnius was half of the volume in February, although sales have been declining since January 2022 owing to low supply and limited options to choose from. In April, purchases in the Vilnius primary market were 66% higher than in March but lower than before the start of the war. According to the consumer survey conducted by Statistics Lithuania, the percentage of consumers who decided to buy a house in the next 12 months increased slightly in April compared with January.²⁸ This shows that consumer confidence in the housing market was not significantly affected by the start of the war. However, as Russia's war against Ukraine persists, uncertainty in the housing market remains. Further market dynamics are shaped by the impact

²⁷ UAB Inreal.

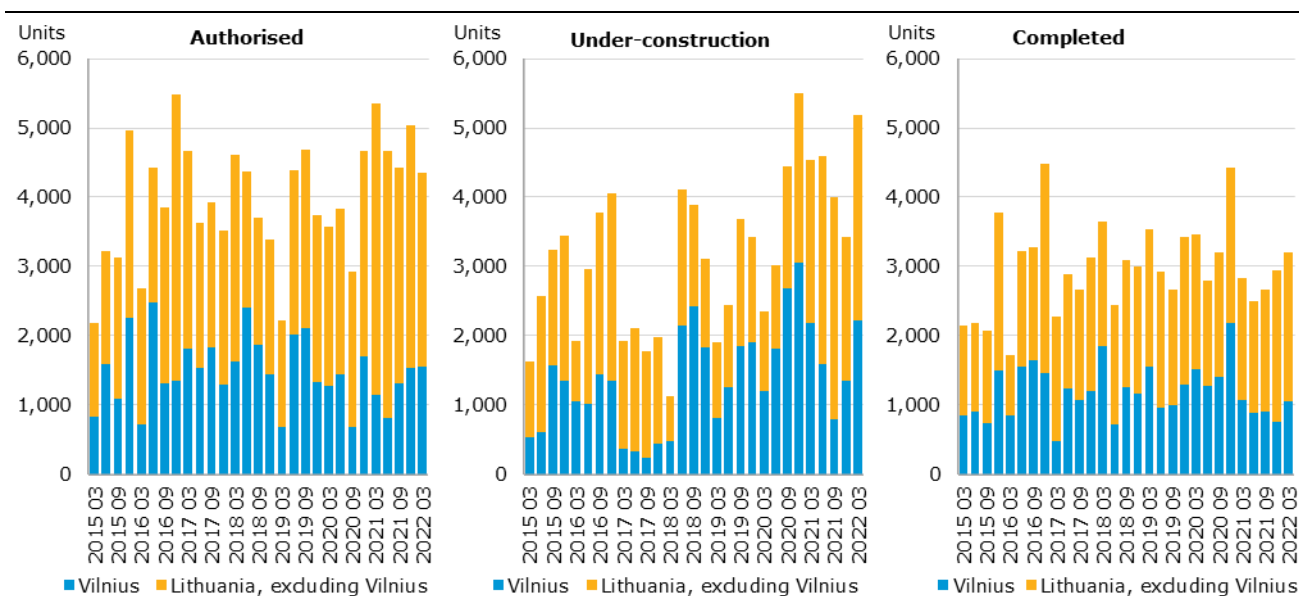
²⁸ At the same time, the share of consumers not aiming to buy housing increased, as the share of undecided consumers declined.

of the war on the economy and the financial situation and confidence of the population, as well as the entry of refugees in Lithuania into the housing market, in both house purchases and leases.

Although the number of building permits issued and under-construction housing units increased in 2021, the number of completed housing units decreased. Together with stronger demand for housing in 2021, there were also signs of improvement in housing supply, especially in the first half of the year. In 2021, the number of building permits issued in Lithuania was 29.7% higher than in 2020 and reached its historical peak, while legal persons acquired 40% more residential land plots than in 2020, possibly as part of the planning of the roll-out of new projects. In 2021, the number of under-construction housing units increased by 8.1% compared to 2020 but started to decline from mid-2021. The number of completed housing units declined by 21.1% since 2020, hitting its lowest level since 2017 (see Chart 14); thus, housing supply lagged behind the surge in demand and more market participants were noticing a lack of available apartments (see Chart 20). The supply of new housing in Vilnius grew extremely slowly. In 2021, the number of authorised, under-construction and completed homes in Vilnius decreased by 5.4%, 32.4% and 43.4% respectively.

Despite the high number of building permits issued in 2021, the increase in housing supply remained moderate.

Chart 14. Authorised, under-construction and completed houses on a quarterly basis



Source: Statistics Lithuania.
Note: Based on data for 16 May.

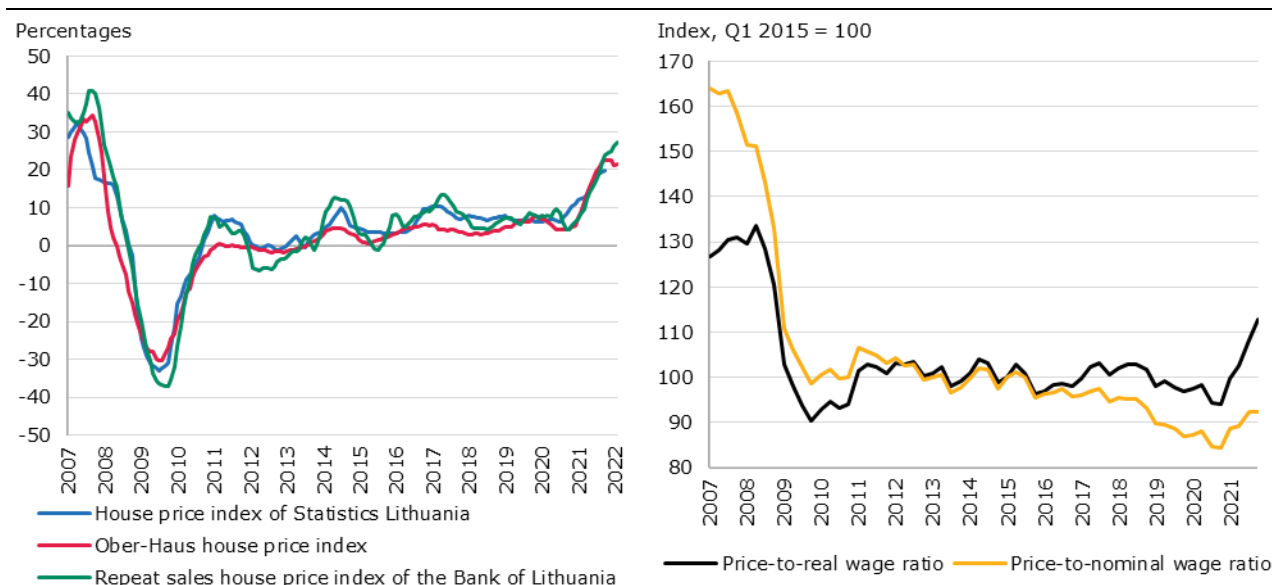
As housing demand outpaced supply, house price growth in 2021 reached its highest level since the financial crisis. House price growth started to accelerate in 2021 and stood at 19.8% to 23.9% in December 2021, its highest rate since 2007-2008 (see Chart 15). The rapid price growth is recorded across Lithuania; according to Statistics Lithuania, house prices in Vilnius rose by 20.5% year on year in the fourth quarter of 2021, whereas in the remaining territory of the country they were 19.2% higher. Based on the more recent data provided by the Bank of Lithuania and the market participant UAB OBER-HAUS real estate (hereinafter – *Ober-Haus*), the rate of price growth continued to rise in April 2022, reaching 21.4–27.2%.

Increasing house price growth outpaced the growth rate of wages, while higher inflation further pushed wages down and reduced housing affordability. Housing affordability improved over the decade, with house selling prices rising by 77% between the first quarter of 2010 and the fourth quarter of 2020; meanwhile, the average wage after taxes increased by 111%. While wages continued to

rise strongly in 2021, reaching an annual average growth of 10.1%, house price growth accelerated further, to 16% on average. With house price growth overpassing nominal wage growth and high inflation leading to slower or even negative real income growth, it becomes increasingly difficult for households to keep up with the rapid house price growth and to save more for house purchases. The worsening housing affordability is reflected in the pronounced rebound in the house price-to-income ratio throughout 2021 (see Chart 15). Looking at nominal income, in the fourth quarter of 2021, the house price-to-income ratio stood close to the levels observed in the 2018-2019 period. In terms of real household income, the deterioration in affordability was even more pronounced and in the fourth quarter of 2021 stood at its lowest level since 2008.

House price growth has been the fastest since the financial crisis, surpassing wage growth, and therefore, the housing affordability indicator is worsening.

Chart 15. Annual house price growth rate (left-hand panel) and housing affordability ratio (right-hand panel)



Sources: Statistics Lithuania, Ober-Haus, Bank of Lithuania and Bank of Lithuania calculations.

Note: Based on data for 20 May.

While house rental prices rise at a slower pace than sale prices, the rent market may start to heat up amid higher demand for rented homes as refugees from Ukraine enter Lithuania.

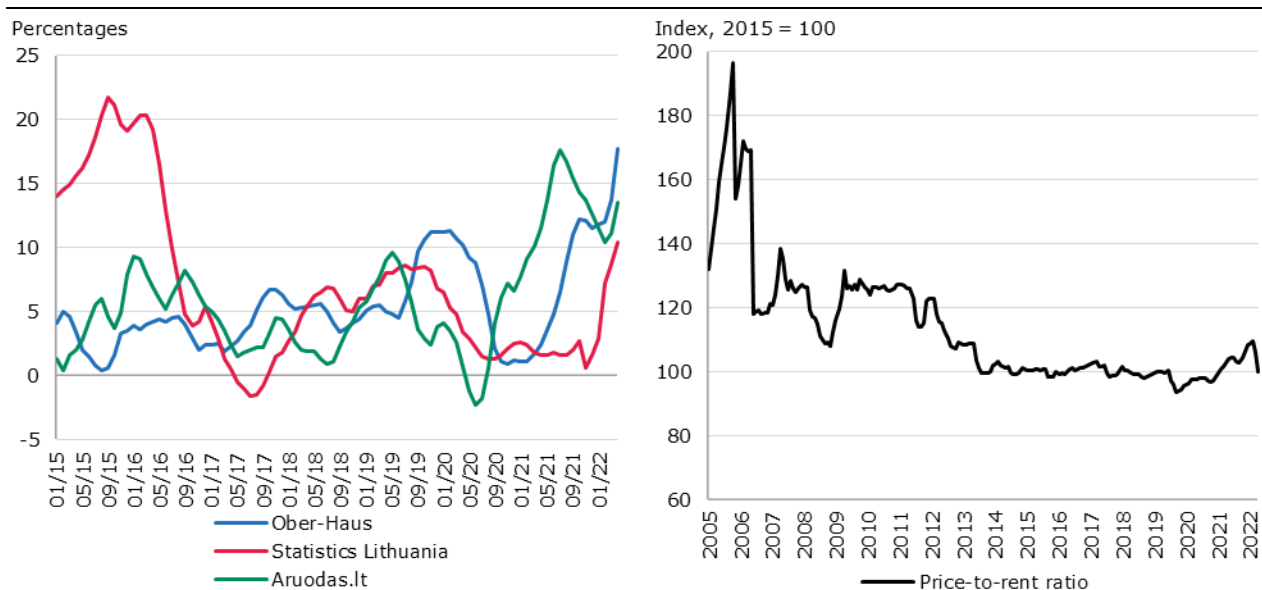
Against the backdrop of the recovery in rent markets following the pandemic shock and reflecting the trends in the housing sales market, rental price growth stood between 10.4% and 17.8% in April 2022, according to different data sources²⁹ (see Chart 16, left-hand panel). It is likely that rental prices will start to pick up in the near term. According to the latest survey of RE market participants conducted by the Bank of Lithuania in March, the number of market participants predicting a rise in rental prices over the next 12 months and a lack of rental housing increased in all three major Lithuanian cities (see Chart 19). With refugees from Ukraine arriving in Lithuania, some of them will want to rent an apartment, while supply constraints and increased demand may put upward pressure on rental prices. In March-April, there were already signs of faster rental price growth: according to Ober-Haus, rental prices were 12% higher in April than in February. According to the data of Aruodas.lt, rental prices increased by 10.9% during the given period, while according to Statistics Lithuania's, they underwent only a slight rise of 3.3% during the reporting period.

²⁹ Aruodas.lt, Ober-Haus, and Statistics Lithuania.

With rapidly increasing house sale and rental prices, it is increasingly difficult to save money for house purchases. As house sale prices rise more rapidly than rents, the sale price-to-rent ratio increases, making rent relatively more attractive than buying (see Chart 16, right-hand panel). Currently, it is still more attractive to buy housing with a loan than to rent a home, as the average monthly payment is lower than the rental price.³⁰ However, with a strong rise in house sale and rental prices, the financial burden of housing on households is increasing: they have to borrow an ever larger amount for house purchases, and along with increases in rental prices, it becomes more difficult to collect a larger sum and housing becomes scarcely affordable, which leads to a [vicious rent cycle](#).

Rent price growth is slower than that of selling prices but may start to accelerate in the near term.

Chart 16. Annual change in rental prices in Lithuania (left-hand panel) and the house sale price-to-rent ratio (right-hand panel)



Sources: Aruodas.lt, Ober-Haus, Statistics Lithuania and Bank of Lithuania calculations.
Note: A three-month moving average of the annual change in rental prices. Based on data for 6 May.

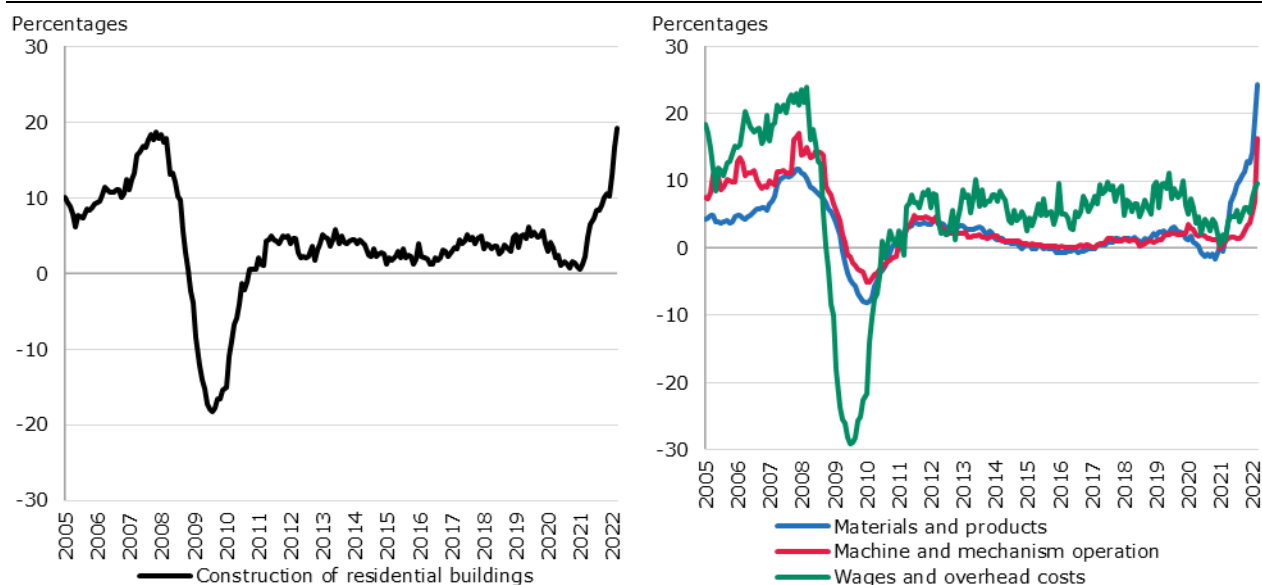
Rapid increases in construction prices may continue to put upward pressure on house prices.

From the beginning of 2021, there has been a marked rise in the prices of residential building construction, mostly driven by the supply chain disruptions and rapid increases in the prices of construction materials due to a shortage of raw materials. In March 2022, the total annual growth rates of residential building construction prices and construction materials were at historical peaks, standing at 19.2% and 24.4% respectively (see Chart 17). As construction materials have become more expensive and this has caused an increase in the cost of new housing, if housing demand remains high, part of the increase in the construction price level could be passed on to the selling price of the housing, so that even if the supply of new housing increased, there would be a further rise in price pressures (for more details, see Section 2.2).

³⁰ According to market participants, in the residential areas of Vilnius, the rent for a 2-room apartment is between EUR 340 and EUR 540. And an apartment of 50 sq. m situated in the residential areas of Vilnius could be acquired for a total of EUR 80-150,000. Having acquired an apartment of such value with a loan with a 30-year maturity and a 15% down payment, the monthly payment would amount to EUR 250-470.

A strong rise in the prices of construction materials led to rapid increases in the cost of construction of residential buildings.

Chart 17. Annual changes in the prices of construction cost elements



Source: Statistics Lithuania.

The large share of imports of construction materials from Belarus, Russia and Ukraine may lead to a further rise in construction prices. Wood and articles of wood imported from Belarus, Russia and Ukraine accounted for 47% of total imports of these materials in 2021 (see Table 2), equalling the same share of imports of iron and steel and articles from these metals. The removal of both Belarusian and Russian elements and disruptions to trade with Ukraine as a result of the war will result in purchases from other suppliers at a potentially higher price and the duration of the supply of materials will be prolonged. This is likely to lead to continued strong growth in construction prices and limit the number of housing units under construction.

Table 2. Share of imports from Belarus, Russia and Ukraine in 2021

(percentages)

Parties	Wood and articles of wood	Articles of stone, plaster, cement, or similar materials	Iron and steel	Articles of iron or steel	Aluminium and articles thereof
Belarus	25.1	11.8	11.0	4.2	10.7
Russia	15.6	8.3	20.7	4.3	3.0
Ukraine	6.0	1.8	4.5	2.1	0.4
Total	46.7	21.8	36.2	10.6	14.1

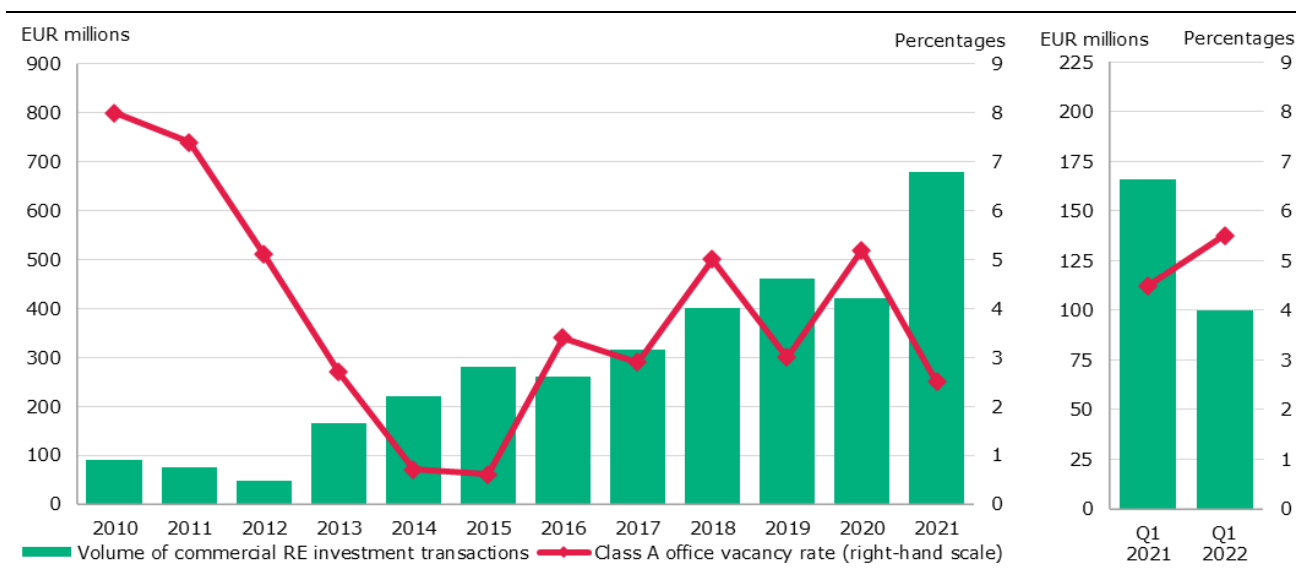
Sources: Statistics Lithuania and Bank of Lithuania calculations.

Activity in the commercial real estate market rebounded noticeably in 2021 with the economic recovery and low interest rates prevailing. With stable economic growth, demand for commercial real estate premises increased as well, and the supply of commercial premises was therefore gradually increased by real estate developers, which had remained resilient in the construction projects during the pandemic: the supply of office, retail and storage premises in Vilnius increased by 8.9%, 10.7% and 2.8% respectively. There were also marked increases in commercial real estate demand, from both tenants and investors. As the pandemic eased, the number of office rental contracts in Vilnius concluded in 2021 went up by almost one-third (31%) compared with the average of five years, while the volume of

investment transactions increased by 61% on average as investors searched for yield (see Chart 18). Investments in commercial real estate went in different directions, however; more active residential real estate purchases stood out, while the amount of funds invested in other segments remained largely unchanged. In the first quarter of 2022, investor activity in Lithuania decreased significantly, with the volume of investment transactions decreasing by 39.8%. The start of Russia's war against Ukraine and the resulting sanctions on Russia and Belarus may further reduce demand for commercial real estate (in particular storage premises). On the other hand, an ongoing increase in the supply of commercial real estate may be hampered by rising construction costs, economic uncertainty and supply chain disruptions.

The volume of commercial real estate transactions contracted noticeably at the beginning of 2022.

Chart 18. Volume of commercial real estate transactions in Lithuania and Class A office vacancy rate in Vilnius



Sources: Ober-Haus and UAB Colliers.

In 2021, imbalances in the market for office and trade premises decreased as the economy recovered and COVID-19-related restrictions were unleashed. According to the RE market participant surveys conducted by the Bank of Lithuania,³¹ Lithuanian RE market participants, following the onset of the pandemic in 2020, considered that there was excess supply of office and trade premises in the major cities, as well as shortages of storage premises. Imbalances related to excess office supply were not visible as early as the beginning of 2021, while opinions regarding the excess trade premises persisted until the second half of 2021. When assessing imbalances in the real estate market in Vilnius, Kaunas and Klaipėda, 39%, 14% and 17% of real estate market participants, respectively, stated that there was too much supply of trade premises in these cities (see Chart 19), while no one indicated the shortage of such premises in the respective cities. In early 2022, as the economy continued to expand and trade restrictions receded, real estate market participants' perceptions regarding significant imbalances in the trade premises market changed: according to the March 2022 survey, real estate market participants did not see any imbalances in Klaipėda, while a lack of trade premises was beginning to be noticed in Vilnius and Kaunas (as perceived by 8% and 33% of the respondents assessing real estate markets in Vilnius and Kaunas respectively).

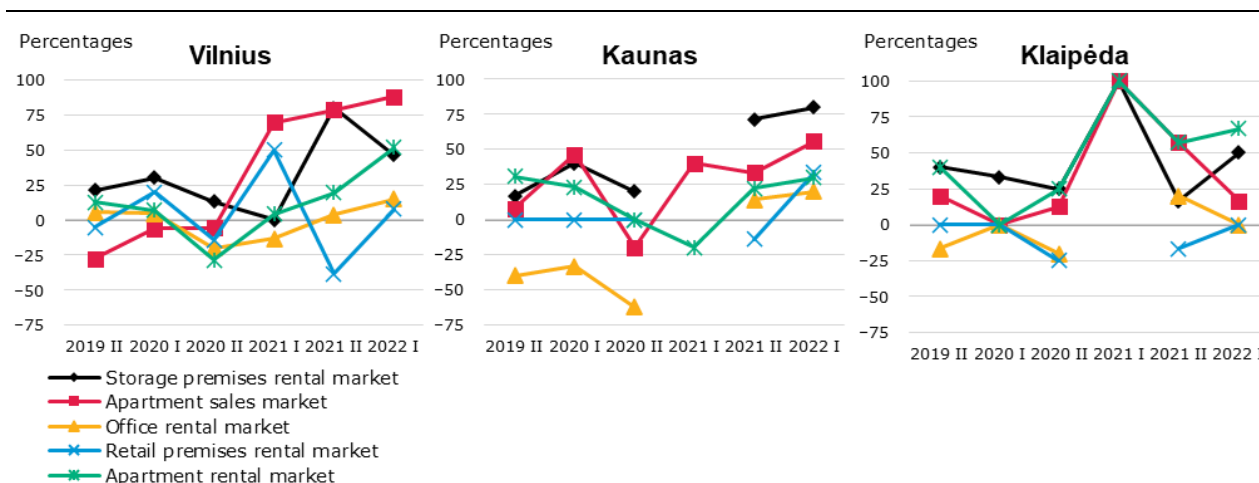
The lack of storage premises may fade away due to the restrictions on the trade with Russia and Belarus. The shortage of storage premises remains common to all major cities: in March 2022, the

³¹ For reviews of the surveys of RE market participants, see: <https://www.lb.lt/en/reviews-and-publications/category.40/series.185>

shortage of such premises in Vilnius, Kaunas and Klaipėda was indicated by 46%, 80% and 50% of the surveyed respondents who assessed the commercial RE markets in these cities, respectively. However, after the onset of Russia's war against Ukraine, the share of real estate market participants who believed that there was a shortage of storage premises in Vilnius decreased by 34 percentage points. A contraction in international trade volumes and re-exports from Lithuania due to the entry into force of the sanctions against Russia and Belarus is also likely to lead to a drop in demand for storage premises over time. Should the volume of international trade shrink markedly in Lithuania, a surplus of storage premises may arise. As a result, real estate developers carrying out the storage premises construction projects would suffer significant losses as a result of higher construction costs as inflation climbs and the occupancy rate of the premises is lower than planned at the start of the projects.

While imbalances in the market for office and trade premises related to excess supply narrowed, Russia's war against Ukraine may have reduced the shortage of warehouses in Vilnius.

Chart 19. Difference between the share of those responding that the RE market has a shortage of real estate and those who reported a surplus of real estate in the RE market



Source: Bank of Lithuania.

1.5. Developments in the non-bank financial sector

The insurance sector grew in 2021, while insurance undertakings invested in riskier instruments, and market profits decreased as a result of higher claims.³² In 2021, the volume of concluded insurance contracts increased by 5.5% compared to 2020, while the amount of collected premiums was EUR 1 billion, 8.9% more than in 2020. While households sought to employ their savings, the number of unit-linked life insurance contracts concluded in 2021 grew significantly – 23.7% more than in 2020, with the amount of premiums increasing by 14.9%. At the same time, the share of riskier investments in the balance sheets of insurance undertakings also rebounded in 2021, reflecting the increased demand for unit-linked life insurance. In the fourth quarter of 2021, the share of investment fund units accounted for 41.9% of total assets of insurance undertakings – 3.7 percentage points more than during the respective period in the previous year, while debt securities accounted for 42%, i.e. a year-on-year decrease of 4.1 percentage points. In 2021, profits of the insurance undertakings registered in the Republic of Lithuania benefited from their successful investment activities, while profits were

³² For further details on the insurance market, see [Review of Lithuania's Insurance Market 2021](#).

dampened by an increase in the number of non-life insurance claims. In 2021, profits of the entire insurance sector decreased by 10% to EUR 45.2 million, compared to 2020. In 2021, all undertakings complied with their solvency capital requirements under the Solvency II Directive. The importance of the insurance undertaking sector in the financial system somewhat decreased in 2021: the ratio of insurance undertakings assets to all financial institutions (excluding the central bank) assets stood at 3.8% in the fourth quarter of 2021, i.e. a year-on-year decrease of 0.4 percentage point.³³

With the growth trends prevailing in financial markets, the value of Lithuanian pension and investment funds and holdings of assets grew rapidly in 2021, yet it had negative consequences of the asset price correction that started in early 2022. In 2021, second pillar Lithuanian pension funds earned the highest average annual return on the total life of pension funds in Lithuania (21.0%), while their managed assets increased by 31.4% to reach EUR 5.9 billion in December 2021. In the course of the year, the assets managed by third pillar pension funds increased by 32.8% to stand at EUR 221.8 million in December 2021, compared with an average annual return of 13.8%. In December 2021, the total assets managed by Lithuanian pension funds accounted for 9.7% of the total assets of the financial system, while this share remained unchanged over the year. In line with the growth trend prevailing in equity and RE markets, the assets of Lithuanian investment funds also grew rapidly, increasing by 40.3% year on year to EUR 1.6 billion in December 2021. The value of units issued by investment real estate funds amounted to EUR 990 million in February 2022 (46% of the total value of all investment fund units and 19% of the total value of commercial real estate loans). The strongest growth in the value of equity investment and pension funds was observed: the average value of a fund unit in such funds increased by 22.3–32.7% in 2021. However, such strong growth in return is likely to be less sustainable: at the beginning of 2022, the assets of Lithuanian investment funds investing in equity decreased by 11.2%, whereas assets of pension funds declined by 1.8%. In the event that asset revaluation — which had been observed in early 2022 as a result of Russia’s war against Ukraine and market expectations of a withdrawal of expansionary monetary policy by advanced central banks — were to increase and spread to other asset classes, the strong growth in Lithuanian pension and investment fund assets so far could slow down or even start declining. This would be particularly reflected in the investment fund segment, as the growth of assets of second pillar pension funds is significantly supported by mandatory contributions and government premiums.

The market capitalisation of crypto-assets surged in 2021, and the interest of Lithuania’s households in this form of investment also increased. Crypto-assets,³⁴ and in particular cryptocurrencies, received global attention in 2018, when the market capitalisation increased from USD 123 to 818 billion,³⁵ over a few months, in reaction to the rapidly rising price of bitcoin. However, having reached the peak level, market capitalisation returned to the 2017 level and did not undergo any significant changes until 2020 (see Chart 20, left-hand panel). Since the onset of the pandemic, the market has started to expand again, reaching new highs with an increase of more than 10 times and approaching market capitalisation of USD 3 trillion. A number of factors may have contributed to such growth, such as digitalisation triggered by the pandemic, higher savings, the simplicity and availability of investments, the wider use of crypto-assets for payments, expansion of decentralised finance (*DeFi*), the pursuit of return in an environment of low interest rates and high inflation (for more details, see Section 2.3), and in particular speculative purposes, with the expectation of strong and high returns after observing rapid growth. As crypto-assets are becoming more popular, the interest of Lithuanian households (especially the youngest) in this investment has increased (see Chart 20, right-hand panel): In the survey conducted by the Bank of Lithuania in 2021, one-fifth of younger households aged 18 to 29

³³ For comparison, when looking at MFIs’ financial assets, this ratio stood at 65.7% in the period under review.

³⁴ In the proposed [Regulation](#) of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937, a crypto-asset is defined as “a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology”.

³⁵ 15 September 2017–18 January 2018.

considered cryptocurrencies to be the most attractive investment option, while private sources estimate³⁶ that around 2.6% of the total population could be holding cryptocurrencies in Lithuania, the fifth largest share in the EU.

Although crypto-assets currently do not pose risks to financial stability in Lithuania or globally, their importance is growing due to strong growth and increasing links with the financial sector. Crypto-assets have been developed as an alternative to money issued by central banks, the stability of which is based on the credibility of a third party. However, the price of crypto-assets is highly volatile, as they rely solely on supply and demand considerations, and recent analyses show³⁷ that the correlation between crypto-assets and prices of traditional investment assets, such as stock indices, is increasing, making crypto-assets not an appropriate alternative to shield assets from turbulence in financial markets. For example, following the strong growth in May 2021, crypto-asset markets, like stock exchanges, experienced corrections — the capitalisation of crypto-assets more than halved compared with the peak observed in November 2021. While crypto market capitalisation is still high, as yet there are limited direct links with major participants in the financial sector. Crypto-assets are not widely used in payment systems and high volatility in crypto-asset markets did not affect traditional financial markets and, as such, this type of assets does not create systemic risk. However, as the popularity of cryptocurrencies and other crypto-assets increases, the links tend to get stronger as well: more institutions are entering this market, crypto-assets are more often used in retail sales, the *DeFi* sector and the volume of the financial services offered is expanding, while the importance of businesses providing crypto-asset-related services (e.g. platforms) is growing. Moreover, in recent years, a certain type of crypto-assets, namely, *stablecoins*, which are pegged to certain assets (usually currencies, but may also be commodities, currency basket, etc.), has become popular. Stablecoins usually retain a stable value³⁸ because they are collateralised³⁹, but this creates interlinkages with the financial system and, if no adequate risk management is ensured, is likely to affect short-term funding markets. As the importance of crypto-assets increases, the EU is preparing [regulation](#) to legalize crypto-assets, to support innovation, to ensure adequate consumer and investor protection, to reduce regulatory arbitrage, and to safeguard financial stability.

³⁶ Based on TripleA [analysis](#). The ECB survey identified that around 10% of households in the euro area may have invested in crypto-assets. For more details, see the section of the ECB Financial Stability Review for May 2022 *Decrypting financial stability risks in crypto-asset markets*.

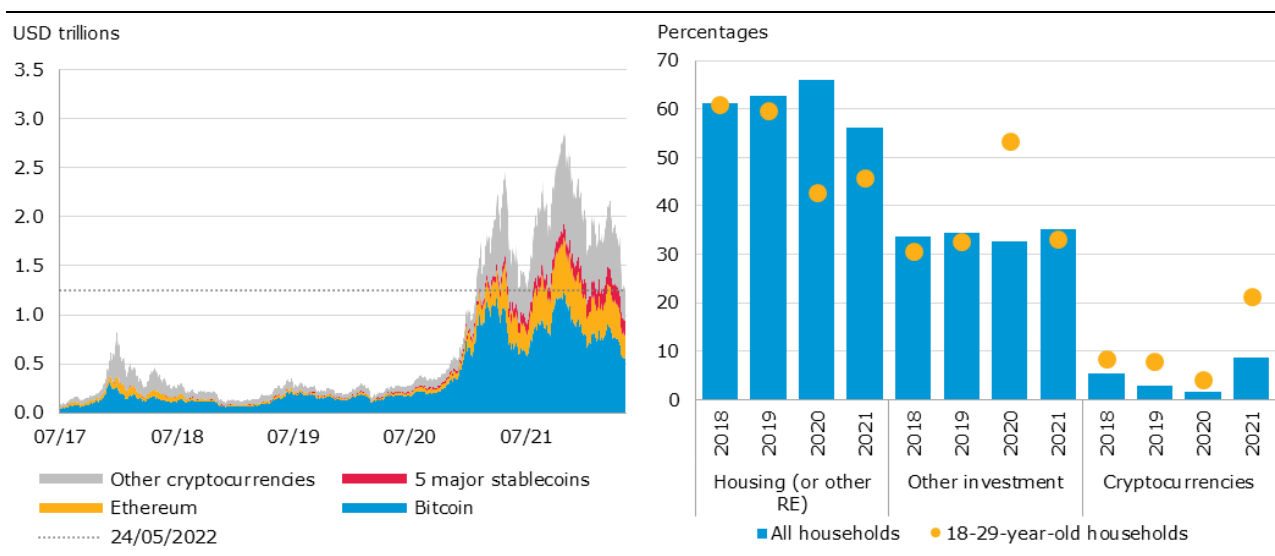
³⁷ For further details, ECB Financial Stability Review for May 2022, *Cryptic Connections: Spillovers between Crypto and Equity Markets*, *Global Financial Stability Notes*, No 2022/01 (Tara Iyer, IMF, January 2022).

³⁸ However, the correction in crypto-asset markets that took place in May 2022 also affected stablecoins, some of which, including the largest stablecoin Tether, were unable to maintain a stable exchange rate against the US dollar, which weakens investors' confidence in this type of crypto-assets.

³⁹ For more details about stablecoins and their types, see the ECB publication *Stablecoins: Implications for monetary policy, financial stability, market infrastructure and payments, and banking supervision in the euro area* (ECB Crypto-Assets Task Force, ECB Occasional Paper Series No 247, 2020).

The growing crypto-asset market has also led to increasing interest on the part of Lithuania's households in this investment.

Chart 20. Capitalisation of crypto-assets (left-hand panel) and perceptions of the most attractive investment for households (right-hand panel)



Sources: *Macrobond* and Bank of Lithuania calculations, Bank of Lithuania.

In 2021, the electronic money institution (EMI) and payment institution (PI) sector in Lithuania continued to grow rapidly. Based on the [unaudited data](#), the income of EMIs and PIs, which are the core of the Lithuanian *fintech* sector, amounted to EUR 504 million, 3.5 times more than a year ago, representing 53% of interest, fee, and commission income generated by banks in the respective period. The total amount of payment transactions was more than EUR 194 billion, which was 3.8 times larger than in the previous year. The number of licences issued to EMIs and PIs also increased, standing at 141 (6.8% more than a year earlier) at the end of 2021, yet one of these institutions had completed their year-long period without meeting their own capital requirements. In general, the market for EMIs and PIs is relatively young, and given its rapid expansion (as there are new market participants and the number of customers and volume of processed transactions is growing), it is important to ensure its maturity and prevent potential risks for the financial system as a whole (for more details, see Box 2).

Box 2. The growing importance of new financial market participants in the financial system

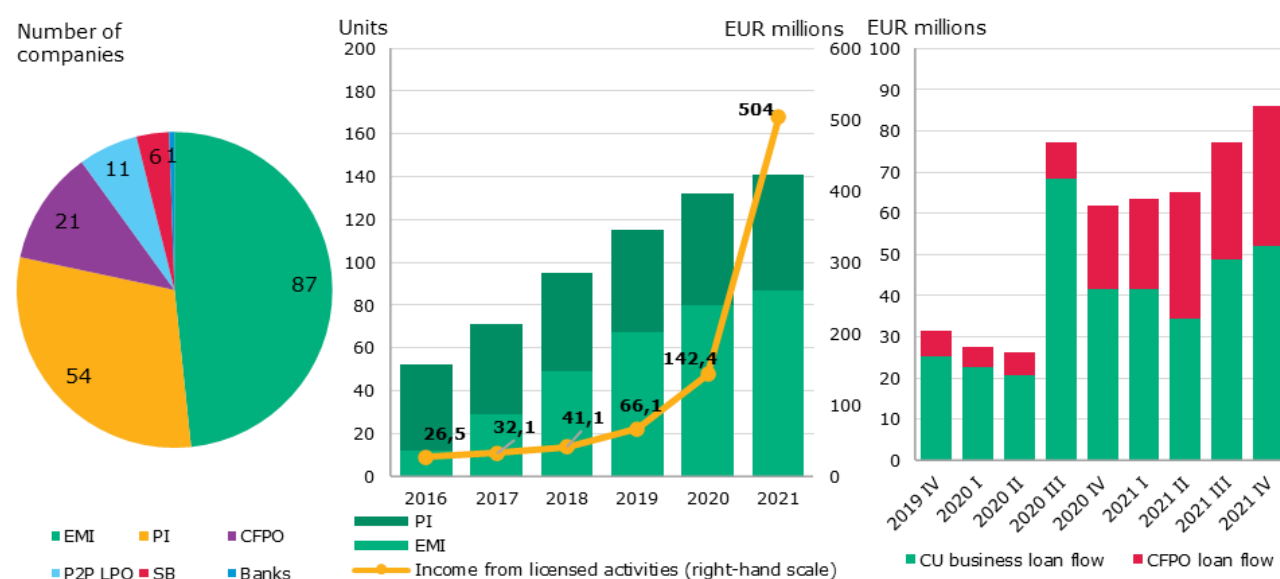
The fintech sector remains quite young, although its importance is growing every year in Lithuania's financial system. In early 2022, there were 180⁴⁰ licensed fintech⁴¹ companies in Lithuania, which are dominated by EMIs and PIs (see Chart A, left-hand panel). The number of licensed EMIs has increased from 12 to 87 in the last five years, while the number of PIs has risen from 40 to 54, even though one market participant accounts for 51% of the total turnover. Their income generation and market share in payment services are increasing every year (see Chart A, central panel). For instance, in 2020, 27.4% of all payment transactions in Lithuania were executed by EMIs and PIs customers. This share amounted to 11.3% in 2019, whereas in 2021, after the amounts of payment transactions by EMIs and PIs customers had grown considerably (by 3.8 times), this share might have increased further. Crowdfunding platform operators (CFPOs) and P2P lending platform operators are also actively entering

⁴⁰ This box deals only with the market participants licensed by the Bank of Lithuania and carrying out financial activities, including all EMIs and PIs.

⁴¹ Technological-based financial innovations that help to create new business models, business programmes, processes and products.

the market, rapidly increasing the volume of financing provided to businesses and households. In 2021, the amount of CFPO-funded projects represented 65% of the total flow of new loans provided by credit unions (CUs), or 4.2% of the total volume of pure new MFI loans to businesses (see Chart A, right-hand panel). The financing provided by P2P lending platform operators remains low compared with the consumer credit market, but is also robust: in 2016, the flow of loans granted by the P2P LPOs accounted for 2.7% of the loans granted by other consumer credit providers (non-credit institutions), yet in 2021 this share was already close to 11%.

Chart A. Distribution of *fintech* companies operating in Lithuania by type of institution (left-hand panel), the number of licences and income of EMIs and PIs (central panel) and financing granted by the CFPOs in relation to the financing flow provided by CUs (right-hand panel)



Sources: Bank of Lithuania, LRDB and Bank of Lithuania calculations.

Note: LPO – lending platform operators.

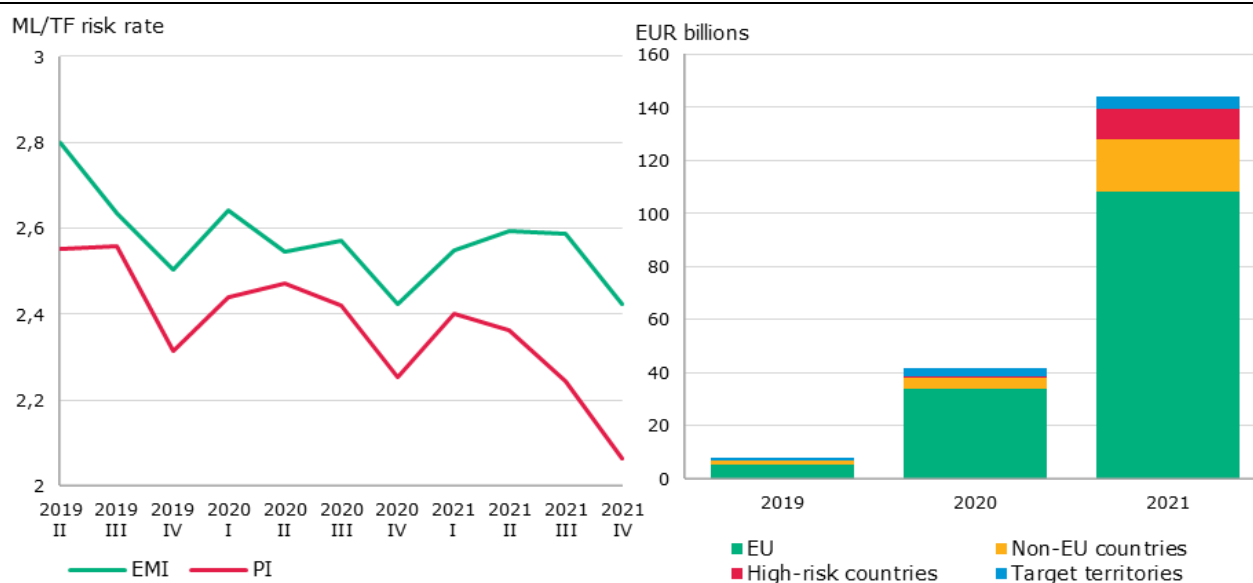
The fintech sector contributes to fostering innovation, increasing efficiency and making financial services more accessible. Empowering innovation facilitates the development of efficient processes which can reduce costs, generate higher incomes and allocate capital more efficiently. As the fintech sector grows and adapts to changing customers' expectations, technological solutions are increasingly embedded in traditional banking activities, thereby contributing to progress in the financial system as a whole. Moreover, there is a positive impact on enhancing transparency and availability of credit — fintech firms which can process a large amount of data from various sources help to avoid the asymmetries of information and enable a better assessment of customers' risk and collateral needs, contributing to greater availability of the credit market for those that traditional credit providers would be less willing to finance. Overall, the fintech sector provides the possibility to expand the availability of financial services, particularly in areas with lower population densities and no physical divisions of financial institutions. The benefits are also reflected in the management of macroeconomic risks, as diversified services offer resilience from a potential collapse of the specific market segment in the event of a potential economic downturn.

On the other hand, the lower maturity of the fintech sector poses a number of risks to the financial system, one of the key ones being the risk of money laundering and terrorist financing (ML/TF).⁴² Every year, the volume of money laundering in the world averages between 2%

⁴² Based on the [assessment](#) by the State Security Department of the Republic of Lithuania. Given the information provided on the terrorist situation, the level of terrorist financing risk in Lithuania remains low.

and 5% of GDP, or between EUR 0.7 trillion and EUR 1.9 trillion, and 97% of money-laundering-related crime involves financial institutions.⁴³ For the latter, in particular those with fast growth and less experience, the anti-money laundering or self-regulation mechanism may be underdeveloped, which enhances the likelihood of getting into money laundering schemes. Inadequate ML/TF risk management can harm the reputation of the country and other related countries and turn into systemic risk. This could lead to a reduced customer base, lower income, more expensive funding, tighter lending standards, licence losses and lower investment attractiveness of the financial system, which could pose difficulties in attracting new, especially larger and reliable, market participants. According to the monitoring model applied by the Bank of Lithuania, the ML/TF risk indicator decreased by 0.4 points for EMIs and by 0.5 points for PIs since the second quarter of 2019 (to 2.4 and 2.1 points,⁴⁴ respectively), but the risk gap between EMIs and PIs widened due to the risks that the EMI sector encountered while rapidly increasing its turnover (see Chart B, left-hand panel). Moreover, ML/TF risks can also be realised through operations conducted by customers, particularly non-residents. In 2021, payments from countries outside the European Economic Area in Lithuania accounted for almost 25% of the total value of payment transactions in the EMI/PI sector (see Chart B, right-hand panel). The higher risk relates to customers and partners registered in high-risk countries or countries with preferential taxation, where the identification process is more complex. It is also important in the context of Russia's ongoing war against Ukraine and sanctions that part of payments in the Lithuanian EMI/PI sector go to Russia and Belarus, which is particularly risky now. Although, overall, this share accounted for less than 1% of the total volume of payments executed by the sector in 2021, in some institutions it accounted for a quite substantial share.

Chart B. Changes in ML/TF risk indicators for the EMI/PI sector (left-hand panel) and turnover of payment transactions performed by customers according to regional riskiness (right-hand panel)



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Note: Payment transaction data include natural persons who are nationals of a group of relevant countries and legal persons whose place of establishment is located in the relevant country group.

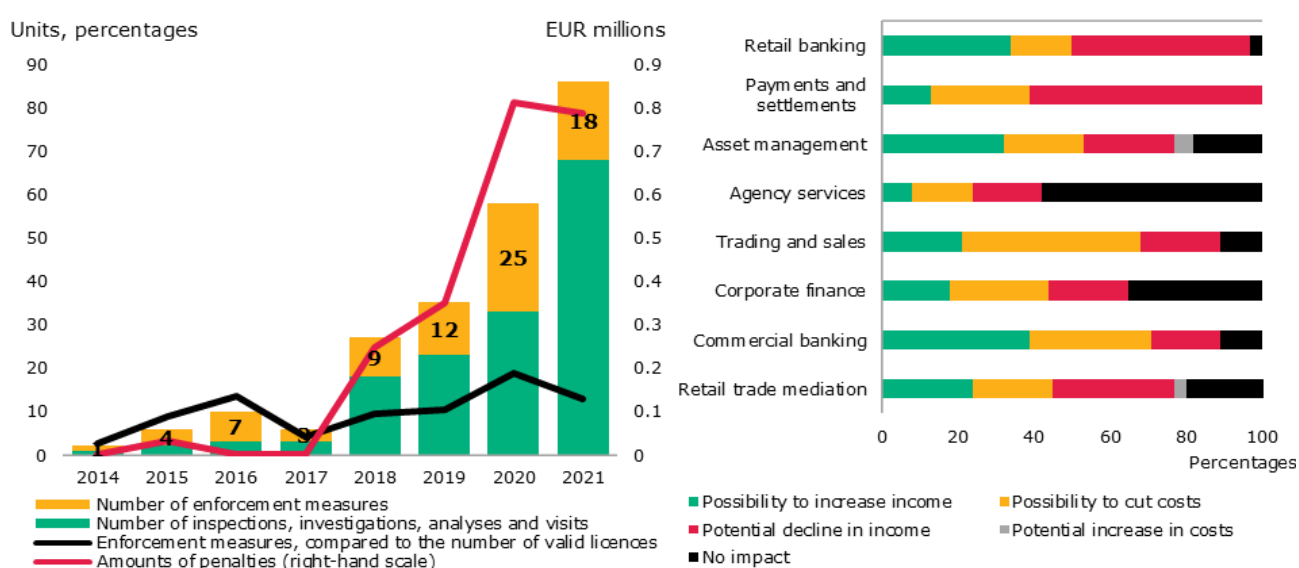
Cyber vulnerabilities and shortages of competent staff may increase the probability of materialisation of operational risk. Innovative technologies used by fintech firms can increase cyber risk if security systems are not adapted to changing new technologies and this makes them more vulnerable. Successful cyberattacks can lead to distrust in a financial institution and, at times, related

⁴³ Based on Europol data.

⁴⁴ The assessment of institutions' riskiness is based on a score framework, the size of which is divided into four groups, where 1 means low risks, 2 – average low risks, 3 – average high risks and 4 – high risks.

market participants. At the same time, cyber risk is exacerbated by the growing interlinkages between financial system participants with different levels of cyber security assurance, which may lead to vulnerabilities in the financial system as a whole, owing to spillover effects. In addition, the lack of competent professionals may exacerbate the growth in operational risk. The growing need for competencies in Lithuania is reflected not only in the growing number of fintech firms, but also in the more active inspection activity and the increasing number of detected breaches. For example, since 2018 the Bank of Lithuania has imposed 64 enforcement measures on EMIs and PIs for the violations of ML/TF prevention requirements, whereas 15 sanctions were applied between 2014 and 2017 (see Chart C, left-hand panel). Although the number of licences granted increased significantly during these periods, some of the enforcement measures were also growing in relation to the total number of licences, reaching almost 13% in 2021.

Chart C. Supervisory action vis-à-vis EMIs and PIs (left-hand panel) and European banks' reply to the question on how *fintech* impacts their current business model (data from the 2018 survey) (right-hand panel)



Sources: EBA, Bank of Lithuania and Bank of Lithuania calculations.

Fintech firms can contribute to higher credit pro-cyclicality if the volume of loans they grant would increase significantly in the future. The regulatory requirements applicable to fintech firms are much lower than in the case of traditional banks, and this allows them to avoid certain risk restrictions in macro-prudential terms, even though some of the requirements, such as the Responsible Lending Regulations or the assessment of the creditworthiness of borrowers for household credit, are applicable. Moreover, lending by fintech companies tends to focus on smaller firms or consumer loans, and this segment is much riskier. For instance, lending via the P2P lending platform operators significantly depends on customers' risk tolerance levels and expectations, and credit risk might not always be measured appropriately. In an environment of an economic upswing, such lending may contribute to excessive credit and debt growth, especially if the lending volumes of the P2P lending platform operators would increase significantly in the future. Moreover, as a result of a negative economic shock, the debtors using the P2P lending platform operators might face a lack of liquid funds due to a decline in credit supply, riskier clients might face difficulties in meeting their obligations, and creditors might be unable to recover the invested funds. Therefore, underestimated risks and active behaviour in a specific segment may increase the pro-cyclicality of certain financial services. This increases the likelihood of a shock and contagion for the financial system as a result of a weakened confidence in similar institutions or the

services provided by them, while riskier clients may face a lack of liquid funds or even solvency problems that could spill over to other creditors.

The fintech sector also faces financial risks, and an increase in the number of systemically important participants could also pose a risk of systemic contagion in the event of failure.

Fintech firms often have less liquid assets than, for example, traditional banks and, hence, firms providing financing services tend to be more vulnerable to economic shocks the adjustment of which may result in a lack of liquid funds. Although the likelihood of liquidity risk on EMIs and PIs is not high, as the institutions do not hold customer funds, they could be affected via the financial institutions where these funds are held.⁴⁵ Moreover, the risk of capital inadequacy is relevant to the EMI/PI sector as well, particularly in view of the fact that most of these institutions do not have significant capital buffers. For example, one institution completed the year 2021 with a violation of equity requirements, and in the third quarter, there were two institutions in the same situation. Institutions with a significant market share could cause systemic problems if financial risks were not properly managed. For instance, when one market participant accounts for more than half of the total market turnover in Lithuania, it increases the risk that, if it faces certain problems, this could significantly affect the business of the entire sector through a loss of confidence.

The activities carried out by fintech firms are increasingly affecting traditional banking and can contribute to the increase in certain risks. EU banks point out that lower commission income results from the most rapidly growing competition in payments and retail banking (see Chart C, right-hand panel). In addition, some deposit-taking *fintech* firms, which face lower administrative expenses and seek to attract more funds, could offer more favourable interest rates on deposits. Other institutions, such as CFPOs and P2P lending platform operators, may also offer alternative ways of investing funds which are more attractive because of a higher return, albeit with higher risk. In turn, this could lead to a contraction of deposits in other financial institutions. The decision of fintech firms to withdraw funds held with credit institutions could also have its impact. If, for these reasons, traditional banks had a lesser possibility to use deposits as a source of funding, they would face an increased liquidity or structural risk, in case less risky funding instruments (e.g. domestic deposits) were changed into much riskier ones. Nevertheless, in the short term, such risks to the Lithuanian financial system are less likely due to the significant capital buffers and ample liquidity of the banks operating in the country.

Given the rapid growth of fintech firms and their increasing importance in the financial system, it is important that the sector matures in terms of risks and business governance.

Although most of the risks identified above have not yet acquired systemic importance in Lithuania, they may, over time and with similar trends to those observed so far, gain increasing importance for the financial sector as a whole, given the potential to become systemic. The maturity of the fintech sector should be commensurate with the size of its expansion, and the emerging risks should be identified and managed in a timely manner. The [Bank of Lithuania](#) contributes to this development by implementing one of the objectives of increasing the maturity and moderate development of the financial sector.

⁴⁵ In 2020, the bulk of EMI and PI customer funds (71%, or around EUR 2.7 billion) were held with Lithuanian and EU credit institutions, although this share decreased significantly (to 11%, or EUR 0.6 billion) in 2021.

2. Risks to the financial system



SYSTEMIC RISKS TO FINANCIAL STABILITY



Consequences of Russia's war against Ukraine



The consequences of the war may trigger a decline in economic activity, higher inflation and cyberattacks. This will weaken the financial standing of households and companies and may cause losses for credit institutions



Overheating of the housing market



With signs of overvaluation in the housing market and active lending for house purchase, the possibility of price correction increases



Prolonged inflation and possible increase in interest rates



Due to prolonged high inflation and likely interest rate hikes, some borrowers may have difficulty in making loan payments in the short term

STRUCTURAL CHALLENGES NOT POSING SYSTEMIC RISKS



Challenge posed by a potential correction of imbalances in Sweden and potential changes in lending policies of Swedish banks

Due to high concentration and the significant share of Swedish capital banks, Lithuania's banking sector is sensitive to a potential correction of imbalances in Sweden and possible changes in Swedish banks' lending policies



Climate change

The transition to a green economy may have a negative impact on the most polluting companies, which may lead to losses for credit institutions

2.1. Risks posed by Russia's war against Ukraine

Russia's war launched against Ukraine in late February 2022 significantly changed the geopolitical environment, while the direct impact of sanctions, rising energy, commodity and food prices, changing expectations, heightened uncertainty and cyberattacks may have a

negative influence on the stability of Lithuania's financial system. Although there is little direct link between Lithuania's economic and financial system and the countries affected by the war, namely Russia, Belarus and Ukraine, the impact on the Lithuanian financial system could be amplified through secondary channels. First, it could worsen the situation of firms with links to these countries, or of companies that are more vulnerable to energy, commodity and food price increases or simply affected by the overall sluggish demand from export markets, thereby making it difficult for firms to meet their financial obligations. Second, Lithuanian financial institutions might be adversely affected due to an increased likelihood of cyberattacks and residents' rapid withdrawal of deposits. Third, war-induced uncertainty and sanctions have shaken up financial markets significantly and may further increase risk premia and debt servicing costs. Finally, if consumer confidence deteriorated and buyers retreated from the housing market, the current price overvaluation could lead to a correction of house prices.

As a result of Russia's war in Ukraine, the West adopted sanctions against Russia and Belarus, with the financial, transport and energy sectors being the most affected. The first packages of sanctions were targeted at the financial sector: the assets of sanctioned persons, banks and the central bank were frozen and seven Russian banks were disconnected from the SWIFT system (see Table 1 in Section 1.1). Lithuania's banking sector was not significantly affected by these sanctions, while a number of banks and other financial institutions themselves decided not to serve Russian and Belarussian customers and not to execute payment orders to those countries. These decisions are particularly detrimental to those Lithuanian businesses that have trade relations with the sanctioned countries, as companies may face difficulties when paying their customers. The sanctions have particularly adverse effects on the transport sector, with the market in Belarus being of particular importance for Lithuanian Railways and seaport. For some of these companies, these markets were also important for the provision of road transportation, storage and other transportation services. The decision not to import oil and gas from Russia by some Western countries, including Lithuania, will most likely affect Lithuania's energy sector, which needs to look for new import markets at higher prices but has been unable to increase prices accordingly for consumers.

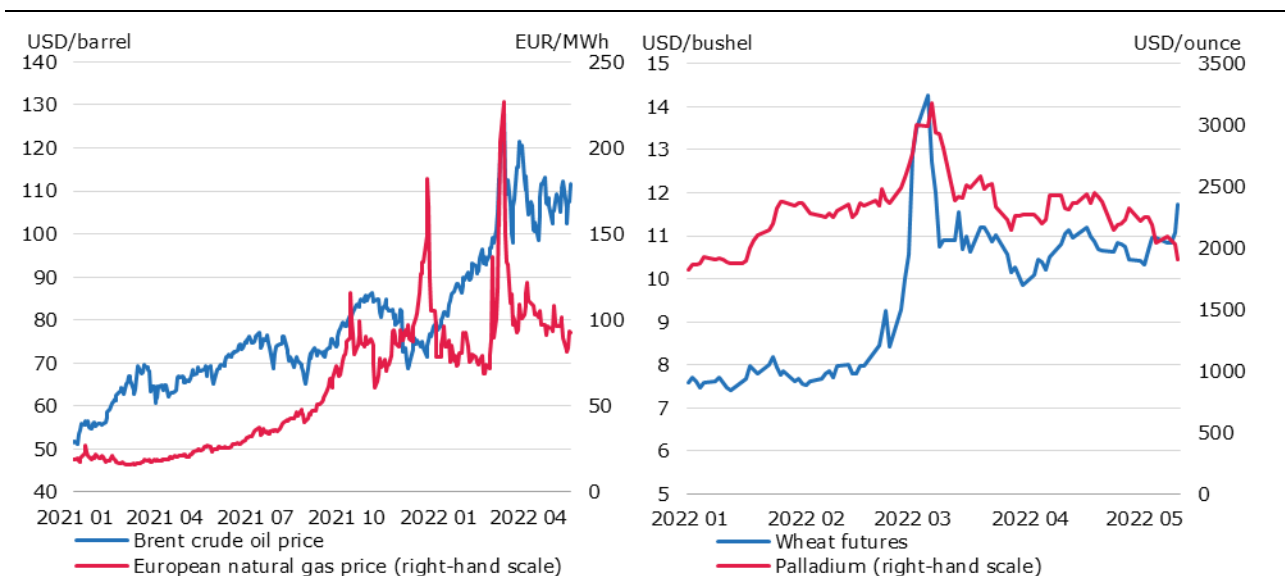
The imposed sanctions, the direct consequences of the war and the decisions to break trade relations with Russia have increased the prices of energy, food and various commodities, thereby further fuelling inflation and adversely affecting economic developments and the ability of households and companies to repay loans. The war in Ukraine led to a 40% increase in oil prices, which reached their highest level since 2008, but the prices have gradually declined,⁴⁶ mainly as a result of the US decision to increase oil supply and expected lower demand from China, where severe pandemic restrictions were introduced (see Chart 21, left-hand panel). In addition, other energy prices rose as well: the European natural gas price has risen almost three times since the beginning of the war, reaching historical heights. According to data available on 13 May 2022, gas prices were still around 30% higher than before Russia's invasion of Ukraine. Lithuania's energy independence is enhanced by the available natural gas and oil terminals, which will somewhat mitigate the shock caused by the cutting of Russian gas and oil imports.⁴⁷ The war also triggered an increase in food and commodity prices, especially in the markets in which Russia and Ukraine hold important positions, such as wheat and other cereals, as well as crops and metals (particularly palladium) (see Chart 21, right-hand panel), which will also contribute to inflation. The rising prices will also make it more difficult for households and firms to meet their financial obligations, which may impair the quality of assets in banks.

⁴⁶ Based on the data of 8 April, *Brent* crude oil prices were approximately 10% higher than before the beginning of the war.

⁴⁷ It should be noted that Lithuania's dependence on Russian gas has declined in recent years, with gas imports from Russia accounting for less than one-third of gas imports, while the Government announced that it will completely cut Russia's gas imports.

Energy prices increased significantly in response to Russia's invasion of Ukraine.

Chart 21. Dynamics of oil and gas prices (left-hand panel) and of grain and metal prices (right-hand panel)



Source: Refinitiv.

While Lithuania's direct relations with Russia are limited, several trade areas are closely linked by economic relations. After Crimea's annexation, Lithuania's exports to Russia and imports from Russia gradually declined in 2014 (see Chart 22). Nonetheless, even though exports to Russia fell significantly, Russia was the largest export destination of goods (10.8%) in 2021, accounting for approximately 6.3% of Lithuania's total exports of goods and services (the fourth largest direction of total exports). It should be noted that 75% of these exports of goods and services were re-exports⁴⁸ that generated lower value added, while 17% of exports consisted of services dominated by transport services, meaning that it is through this sector that Lithuania's economy could be most affected. Imports from Russia accounted for 10.4% of total imports, most of which was oil and oil products. Russia accounted for 65% of the total imports of crude oil and crude oil products (EUR 1.9 billion) and for 42% of the total imports of refined oil and refined oil products⁴⁹ (EUR 229 million). Lithuanian companies depending on the imports of these goods may face supply bottlenecks and more expensive materials, particularly if finding new markets is difficult. Based on the calculations by the Bank of Lithuania, under the severe shock scenario, ceasing exports to Russia and to other countries directly affected by the war — Belarus and Ukraine⁵⁰ — would shrink Lithuania's GDP by 1.2% in 2022, which would then rise by 1.5% in 2023. The trade data for March 2022 show that exports to Belarus and Russia shrank by one-

⁴⁸ Exports of Lithuanian-origin goods to Russia amount to EUR 0.3 billion (1.7% of total Lithuanian-origin exports) and are diversified, with agricultural and food commodities, chemical products and plastics accounting for approximately one-fifth each, vehicles accounting for 17%, wood and articles of wood – 15%, and machinery and equipment – 14%. Some of these areas of activity are more dependent on exports to Russia, which could significantly affect individual firms. Fluoride exports to Russia account for 62% (EUR 10 million) of total group exports, fermented drinks and malt beer – for 59% and 44% (EUR 21 and 22 million) respectively, and trailers and semi-trailers – for 37% (EUR 52 million) of the total group exports.

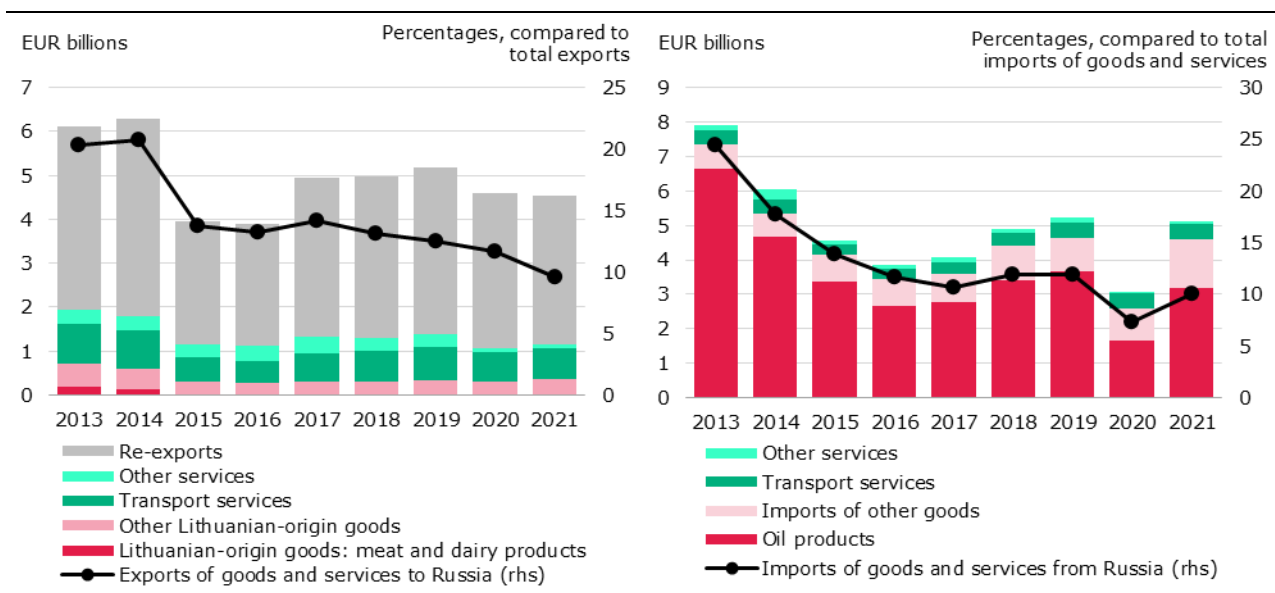
⁴⁹ Besides, imports from Russia account for 57% of total imports of natural potassium phosphates (EUR 84 million) and as much as 74% of total imports of other bars and rods from other alloy steel (EUR 60 million).

⁵⁰ Overall, exports to Russia reached EUR 4.5 billion in 2021, while exports to other countries affected by the war, namely, Belarus and Ukraine, account for additional EUR 1.5 billion and EUR 1.3 billion respectively. The largest share of exports to Belarus consists of merchandise re-exports (60%) and exports of services (32%), whereas exports to Ukraine are mostly comprised of Lithuanian-origin goods (62%).

third in the course of the year and by 85% to Ukraine, thus it is likely that the impact on Lithuania's economy will be larger than forecast under the conventional scenario.⁵¹

Export volumes of Lithuanian goods to Russia are not large and, in general, trade with Russia has been declining since Crimea's annexation.

Chart 22. Lithuania's exports of goods and services to Russia (left-hand panel) and imports from Russia (right-hand panel) by product in 2021



Sources: Statistics Lithuania, Bank of Lithuania and Bank of Lithuania calculations.

Direct links between the financial system and the countries affected by the war are also weak.

Deposits of residents of Ukraine, Russia and Belarus amounted to a total of EUR 119 million in April 2022, or 0.27%, compared with assets (see Chart 23, left-hand panel). Deposits with Lithuanian credit institutions were mainly held by non-banks, i.e. households, enterprises, public institutions or other financial institutions. Since the beginning of the war, deposits of Ukrainian residents have increased by 40% (EUR 12 million), whereas those of Russian and Belarussian residents have declined. Banks directly provided only EUR 2 million in loans to residents of these countries, and loans to Russian residents showed a significant decline since the end of 2021.⁵² Banks have also granted loans to companies, in which natural or legal persons from the affected countries⁵³ have invested, but the overall share of such loans is not large, i.e. about 0.5% of the total corporate loan portfolio, although a few smaller banks also have larger exposures, roughly 2% of their loans. Exposures of banks to the currencies of the affected countries and security investments are also insignificant. Likewise, other financial institutions operating in Lithuania have few links with Russia and are only relevant to a few institutions in Russia.

Increased exposure to cyberattacks as a result of the war poses a risk to the financial system, but financial institutions are increasing their focus on potential threats. Even before the war and after it had started, the number of notices about various cyberattacks in Ukraine, mainly targeting public institutions, information technology, energy and other relevant sectors, was growing. Since the beginning of the war, some 40 destructive attacks⁵⁴ have been identified, of which 32% were directed against

⁵¹ For further details, see [Macroeconomic projections for March 2022](#) by the Bank of Lithuania. For example, in the forecasts published by the European Commission in May 2022, Lithuania's annual GDP growth in 2022 was revised downwards by 1.7 percentage points to 1.7%, as compared to the projections published in February.

⁵² The decrease was mainly driven by the loans to Russian credit institutions, which in April 2022 were EUR 5.7 million lower than in December 2021.

⁵³ The companies included are companies with at least 10% of their shareholders from Russia, Belarus or Ukraine.

⁵⁴ Based on Microsoft [data](#).

government organisations and more than 40% were against critical infrastructure organisations that could have an impact on the government, the army, the economy or civilians. Due to the rising risks, other countries, including Lithuania, have increased their level of cyber vigilance. Credit institutions are also enhancing their preparedness by strengthening the protection of information technology systems, conducting monitoring and regular updates of business continuity plans. However, owing to the interdependencies between financial institutions, the role of each participant in the financial system in ensuring a common level of security is important, particularly for smaller institutions, such as EMIs or PIs that may be more vulnerable due to their lower capacity to devote attention to or investment in cyber risk management (for more details, see Box 2). In order to enhance the resilience of the financial system, the Bank of Lithuania is also considering alternative ways of implementing the CERT⁵⁵ centre of the financial system, which addresses cyber risks.

Although the frequency and extent of cyberattacks have so far been lower than expected, the risk remains elevated. For example, attacks targeting the financial system could be a response to the disconnection of Russian banks from the SWIFT system or other sanctions. The 2020 Report of the National Cyber Security Centre shows that, already before the war, the malicious activity in Lithuanian cyberspace aimed at identifying vulnerabilities had been conducted from the Seychelles, Russia, the US and China, while in 2020 the main source of information threats remained the Russian Federation and its government-owned media. The main risk drivers might come from state-sponsored entities that are driven by geopolitical motives. They are considered to be the most dangerous due to ample funding and technologically advanced attacks. According to Microsoft, Russia accounts for almost 60% of all government-sponsored cyberattacks recorded between July 2020 and July 2021, with the most common targets being the US, Ukraine and NATO countries in Europe. Moreover, it is also observed that these entities sponsored by Russia have been increasingly targeting organisations engaged in the fields of foreign policy, national security and defence, but the case of Ukraine suggests that attacks may also be targeted against the financial sector.⁵⁶ Such cyberattacks could significantly disrupt the activities of financial institutions, suspend payment orders and freeze funds and thus disrupt businesses, cause loss of confidence in financial institutions and increase depositors' anxiety, which could result in possible liquidity problems for banks.

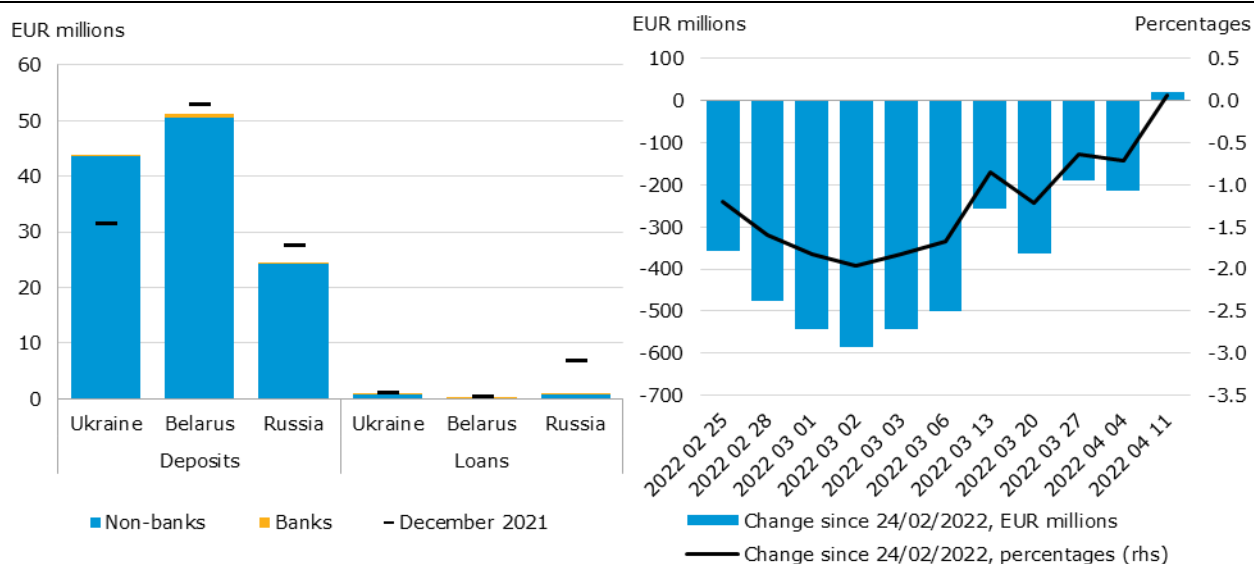
Due to growing war-induced uncertainty or decreasing confidence in the Lithuanian financial system due to activities of hostile countries, financial institutions could be adversely affected by the rapid withdrawal of deposits. The increased volatility of deposits was observed during the first days of the war through 3 March, when deposits declined by EUR 585 million (2%) compared to 25 February. However, deposit growth had been already recorded on 4 March and, at the beginning of April, deposit growth turned positive (see Chart 23, right-hand panel). Due to the heightened concerns about the war and the desire of residents to increase their cash reserves, there was a shortage of cash at automated teller machines (ATMs), with a further EUR 562 million being distributed to banks between 24 and 25 February, but the situation quickly stabilised. There was an increase in cross-border transfers and a decrease in the TARGET2 balance, the latter being more significant than the cash withdrawals from ATMs. Despite these developments, banks continued to display particularly high liquidity ratios — in most banks, their liquidity coverage ratio was above 200%, and in all banks, the liquidity coverage ratio significantly exceeded 100%. The decline in deposits could be more significant if the war was to spread or if confidence in the Lithuanian financial system weakened as a result of activity of hostile countries. However, banks now demonstrate great resilience to liquidity shocks: the liquidity test shows that banks are able to withstand a 43% decline in deposits (for more details, see Section 4.2).

⁵⁵ Computer Emergency Response Team is an electronic communications network and information security incident investigation unit.

⁵⁶ In February, Ukraine's financial sector suffered a distributed denial of service attack (DDoS) and malicious software-type attacks.

The heightened uncertainty at the beginning of the war led to a short-term reduction in bank deposits, but the direct links of the banking sector to the countries affected by the war are insignificant.

Chart 23. Deposits and loans of residents of Ukraine, Belarus and Russia with Lithuanian banks in April 2022 (left-hand panel) and changes in bank deposits at the beginning of the war (right-hand panel)



Source: Bank of Lithuania calculations.

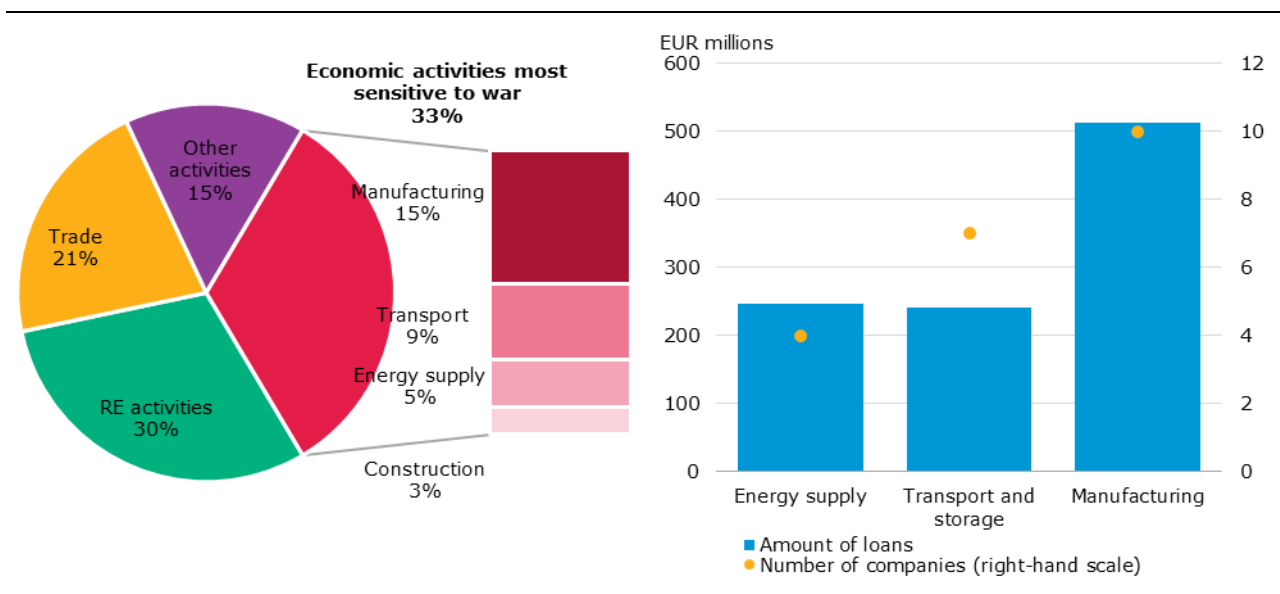
Lending to companies with direct links to Russia, Belarus and Ukraine may have a major impact on the financial system. Looking at Lithuania's import and export structure, the most vulnerable companies might be in the transport sector (9% of all bank loans to companies) due to the sanctions imposed on transport between the EU countries and Russia and Belarus; in the construction sector due to higher construction costs and a possible shortage of materials (3%; for more details, see Section 2.2); and in manufacturing activity (15%), which might be significantly dependent on commodities from Russia and Belarus. An acceleration in energy prices as a result of the war may also pose challenges to companies engaged in energy supply activities (6%).⁵⁷ Faced with challenges in these sectors, it would become more difficult for businesses to meet their obligations to credit institutions, which would adversely affect the quality of the loan portfolio. According to the data from the fourth quarter of 2021, loans to companies in these four sectors accounted for 33% of the total banks' corporate loan portfolio (see Chart 24, left-hand panel).

The insolvency of large companies operating in the areas that are most affected by the war would have the largest impact on banks. Lithuanian financial institutions have granted loans to 21 large companies operating in areas that are more sensitive to the war (see Chart 24, right-hand panel) with a total portfolio of EUR 1 billion (approximately 12% of the corporate loan portfolio). It should be noted that, in terms of the economic activity of companies, the structure of the loan portfolios of the banks operating in Lithuania is similar, and the majority of large companies were granted loans from several credit institutions. On the one hand, such diversification in the event of insolvency reduces the amount of loss per bank. On the other hand, given the high concentration of the sector, in the event of insolvency of several large companies, banks with a similar portfolio structure and the same customers may amplify the shock to the financial system.

⁵⁷ Due to higher energy prices at the beginning of the year, companies engaged in energy supply already increased their borrowing from credit institutions — the flow of new loans grew by almost 200% in 2021 (see Section 1.3).

Loans to companies engaged in war-sensitive economic activities represent about one-third of the corporate loan portfolio, some of which are concentrated in large companies.

Chart 24. Portfolio of bank loans to companies by economic activity (left-hand panel) and to large companies (right-hand panel) in 2021



Source: Bank of Lithuania calculations.

Note: This includes companies with a total loan balance of more than EUR 25 million (left-hand panel).

The first signs of increased credit risk as a result of the war were already observed in the first quarter of 2022. Lithuanian companies demonstrated resilience during both Crimea's annexation and the pandemic period. However, Russia's war against Ukraine is likely to cause higher losses for banks. In the case of Crimea's annexation, the economic areas affected by the sanctions⁵⁸ were much less significant for Lithuania's economy, while the pandemic shock was external and affected essentially all businesses, but the shock was amortised with the particularly strong state aid (for more details, see Box 1). Russia's war against Ukraine will significantly affect companies whose business models and competitive advantage are based on trade relations with Russia, Ukraine and Belarus, or on production of these countries. The worse outlook for some companies is reflected in the share of loans with a significant increase in credit risk in March, which grew by 3 percentage points to 13% in the first quarter of 2022 (see Chart 25, left-hand panel). The share of such loans granted to companies engaged in the economic activities most affected by the war,⁵⁹ such as manufacturing, construction, energy supply, and transport, increased by EUR 184 million in the first quarter of 2022, which represents 2% of the corporate loan portfolio. It should also be noted that the share of loans to trade and RE companies that are sensitive to economic fluctuations also rose significantly. Overall, loans with a significant increase in credit risk rose more strongly than at the beginning of the pandemic in the first quarter of 2020. The losses to banks stemming from Russia's war against Ukraine will only be fully reflected in the subsequent quarters and will depend on the course of the war, the economic developments in Lithuania and its major trading partners, and the adaptive capacity of businesses.

A high capital adequacy of Lithuanian banks would help banks to withstand even a severe economic downturn due to Russia's war against Ukraine. Although some Lithuanian companies

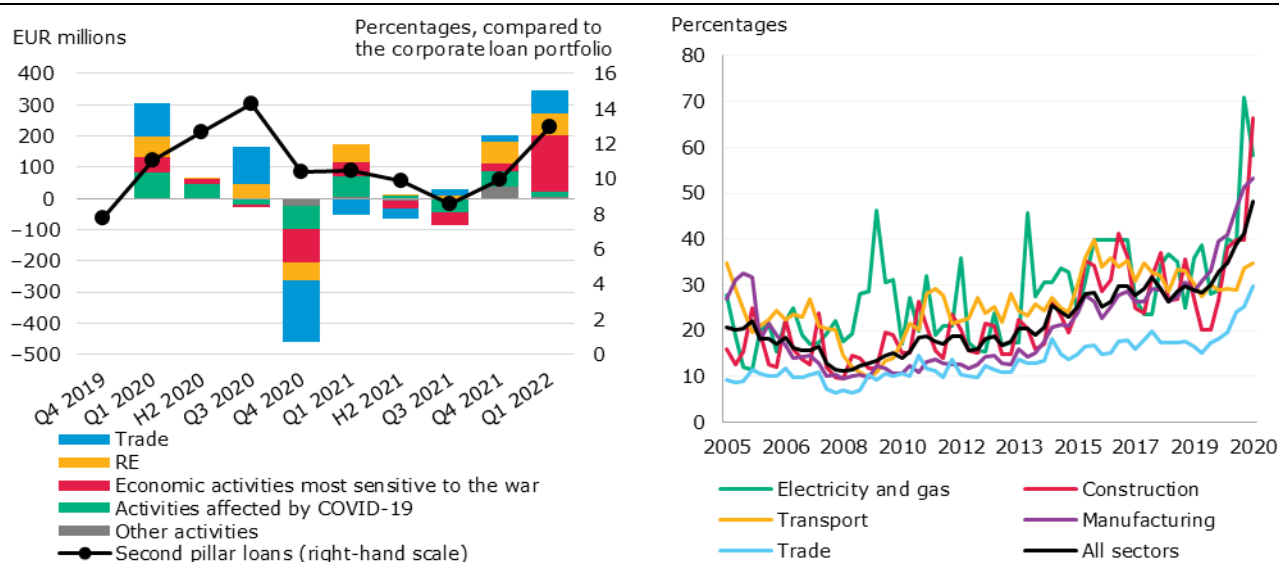
⁵⁸ Dairy and meat products accounted for a very small share of Lithuania's exports (see Chart 23, left-hand panel). After Crimea's annexation, there were increasing numbers of bankruptcies of agricultural and transport companies, but they did not materialise as bank losses.

⁵⁹ They also include companies engaged in professional, scientific and technical activities which also recorded loan gains with a significant increase in credit risk. The largest increase was due to head office and consulting management companies (i.e. large companies) which manage Lithuanian production companies.

have considered their situation to be worse since late 2021 due to rising inflation, weaker demand and labour shortages, the liquidity buffers accumulated during the pandemic will help amortise the challenges posed by Russia's war (see Chart 25, right-hand panel). Prior to the more active credit provision period in 2021, the risk appetite of banks had declined, with loans being provided mostly to companies in very good condition, which reduces the riskiness of the banks' loan portfolio and the possibility of severe losses. Bank resilience is also high: the results of the stress test show that in the case of a more severe shock,⁶⁰ when exports to Russia and Belarus would completely collapse and energy prices would converge to the daily peak reached between 28 February and 17 March 2022, the capital ratios of the banking sector would decrease by 1.3 percentage points to 20.1%, while credit losses would amount to EUR 205 million. Such losses would be greater than the losses if all loans with a significant increase in credit risk due to the war during the first quarter of 2022 turned non-performing. It should be noted that even in the extremely adverse scenario,⁶¹ credit losses of Lithuanian banks would amount to approximately EUR 628.5 million in 2022-2023 (or around 4% of the total loan portfolio⁶² at the end of 2021), while the capital ratio would fall to 17% but still significantly exceed the capital requirements (for more details, see Section 4.1).

High liquidity makes Lithuanian companies more resilient to war risks. However, bank loan portfolios already showed the signs of increased credit risk in the first quarter of 2022.

Chart 25. Change in loans with a significant increase in credit risk on a quarterly basis (left-hand panel) and corporate liquidity ratios (right-hand panel) by economic activity



Sources: LRDB and Bank of Lithuania calculations (left-hand panel), Statistics Lithuania and Bank of Lithuania calculations (right-hand panel).

Notes: Economic activities that are most sensitive to the war comprise manufacturing, construction, energy supply, transport, and professional, scientific and technical activities. The activities affected by COVID-19 comprise administrative and service activities, accommodation and catering, arts, entertainment and recreational activities, as well as education and health activities. Level 2 loans refer to loans with a significant increase in credit risk since initial recognition but no impairments. The right-hand panel shows the absolute liquidity ratio calculated by dividing cash and cash equivalents by the sum of short-term liabilities.

Rising energy, food and commodity prices and slower economic developments will also affect companies with no direct links to Russia, while the sanctions and the search for new suppliers will put additional pressure on supply chains. This will create new challenges for Lithuanian companies that have recently been burdened by supply chain disruptions caused by the pandemic, rising labour costs and labour shortages. The war launched by Russia against Ukraine also has negative effects

⁶⁰ Based on [Macroeconomic projections for March 2022](#) prepared by the Bank of Lithuania.

⁶¹ Lithuania's real GDP would decline by 6.5% in 2022 and 1.0% in 2023.

⁶² Focussing only on the major banks of Lithuania: AB SEB bankas, AB Šiaulių bankas, Swedbank, AB, and UAB Medicinos bankas.

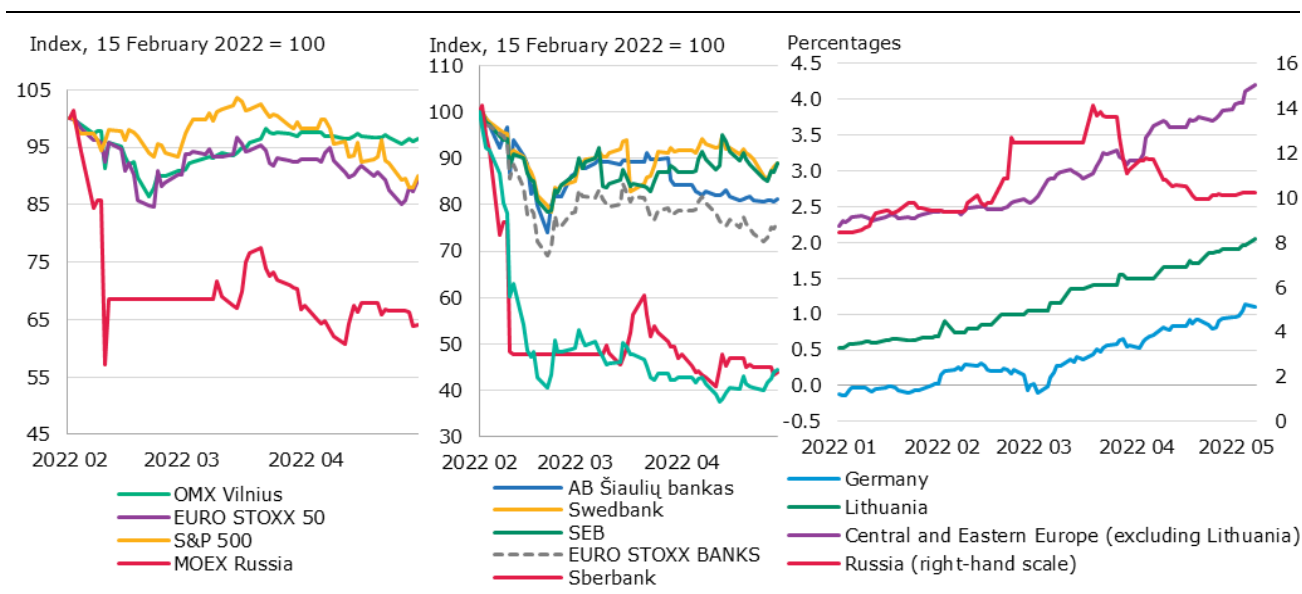
on the economies of other trading partners, therefore, Lithuania's export demand is expected to weaken and investment to decline amid heightened uncertainty. A rapid increase in inter-firm liabilities (i.e. more than one-third of the total financial liabilities of all companies) in recent years could induce disruptions to payments between firms during a financially challenging period and make it more difficult for them to meet other financial obligations. High inflation also reduces the purchasing power of households and their ability to save, which in turn results in the deteriorating financial situation of households and may amplify the burden of current financial liabilities, especially in the light of the recently robust lending to households (for more details, see Section 2.3).

War-induced uncertainty and sanctions shook up financial markets significantly, yet the shock for the shares of Lithuanian companies was not higher than that for the corporate shares in other European countries.

The war negatively affected the stock indices in Europe: while the impact was less pronounced than that on Russian shares (the trade in which had been suspended), Lithuanian and European corporate stock indices fell by about 12%, owing to heightened uncertainty in the region during the first week of the war, but have since returned to the pre-war levels (see Chart 26, left-hand panel). Confidence in US corporate stocks was higher than in European corporate stocks, with the S&P 500 index having grown early in the war. It should be noted that the relationships between Russia and the entities whose securities are listed in AB Nasdaq Vilnius Stock Exchange are negligible, but the war strongly affected the shares of the companies that have links with Russia. There is a particularly marked decline in the shares of the European banks operating in Russia (since they are most vulnerable to the sanctions): for example, the share prices of *Raiffeisen Bank* dropped by around 60%, similar to those of the largest sanctioned Russian bank *Sberbank*. By contrast, investor confidence in banks operating in Lithuania continued to be good: the shares of AB Šiaulių bankas, the single Lithuanian bank listed on the Stock Exchange, and the parent banks of Swedbank, AB and AB SEB bankas, also declined less than the overall European stock index (see Chart 26, central panel). Overall, as the stock exchange in Lithuania is relatively undeveloped and relevant for only a few companies, the direct impact of market corrections for large financial institutions is limited. However, the Lithuanian financial system could be affected owing to deteriorating expectations in the region and existing linkages between major foreign capital banks and parent institutions (for more details, see Section 3.1).

Following the adjustments due to the war, the valuation of shares of Lithuanian banks remained similar to that of other European countries, although the growth of Lithuanian government bond yields was stronger than in Western Europe.

Chart 26. Developments in stock indices (left-hand panel), bank stock prices (central panel) and ten-year government bond yields (right-hand panel)



Source: Refinitiv.

Heightened uncertainty led to higher government bond yields, which will push up the state debt servicing costs.

The rise in Central and Eastern European government bond yields, including Lithuania, has been more pronounced. Since 18 February, Lithuanian government bond yields rose by around 120 basis points (see Chart 26, right-hand panel). Against the background of a weaker outlook in Europe, the euro depreciated and the US dollar became stronger. Rising yields will push up the state's debt servicing costs, while the depreciation of the euro may further burden Lithuania's importers. Rising inflation, increasing bond yields and interest rates are recorded around the Western world, and sharp price corrections may lead to significant shocks in financial markets, as in 2009, resulting in an economic downturn and thus a decline in foreign demand, which would have a significant impact on Lithuania's economy.

With uncertainty increased due to the war, consumer, investor and business confidence deteriorated, which may lead to weaker demand and corrections in the real estate markets, although increasing construction costs and supply constraints dampen the likelihood of correction.

Weaker expectations dampen consumption and investment, and therefore, companies may face demand-related challenges and the economic growth may slow down. At the same time, adverse expectations could dampen activity in the commercial and residential real estate markets. For example, a sharp slowdown in housing market activity, as was the case after Crimea's annexation by Russia in 2014-2015, could lead to a correction of house prices given the currently growing house price overvaluation. However, the prospect of a sharper slowdown in price growth, or even a fall in prices, is hampered by the fact that, even if demand shrunk, large housing supply surpluses should not emerge as the supply is currently constrained. Furthermore, the introduction of sanctions and restrictions on the use of Russian and Baltic construction materials⁶³ may lead to a further increase in construction prices and, unless demand is reduced significantly, the growing construction costs would put additional upward pressure on prices (for more details, see Section 2.2).

⁶³ The growth rate of residential construction costs stood at 19.2% in March and was at its historical heights.

2.2. Risk of potential housing market overheating

The particularly rapid house price and credit growth may lead to the build-up of serious imbalances in the housing market, and should the market overheat and price corrections occur, it would have adverse consequences for households, real estate developers, the construction sector and credit institutions. The increase in activity in the domestic housing market had been observed for several years, and in 2021 the number of housing units sold even exceeded the pre-financial crisis levels. At the same time, the pace of price growth was also accelerating, reaching levels last seen between 2007 and 2008, while the MFI housing loan portfolio growth reached the highest rate since 2009. The continued robust activity of buyers could lead to an even larger supply-demand gap, especially if housing supply continues to grow only gradually, and the build-up of unreasonable expectations about further price increases, which could induce residents to adopt ungrounded decisions regarding house purchases. As a result, expectations of faster price increases would become self-fulfilling. Should the real economy and housing market be significantly affected by an external shock and market activity suddenly contract and house price corrections occur, the risk of past overheating of the housing market and its contraction could materialise through several different channels, such as an excessive burden of liabilities, which mortgage borrowers might face due to a deterioration in their financial well-being; an increase in losses of real estate developers and construction firms as a result of falls in demand for real estate and business financing; and losses sustained by credit institutions due to solvency issues of their customers and value impairment of real estate collateral. Finally, as economic activities related to construction and RE operations constitute a significant part of Lithuania's economy,⁶⁴ if the housing market slows down, the country's overall economy would be adversely affected due to the contagion effect.

In 2021, housing and credit market activity decoupled from the overall economic growth trends, signalling potential overheating of the housing market. Along with the strong rise in house prices and the number of sales, the value of housing acquired in 2021 was EUR 1 billion (40.7%) higher than in 2020, amounting to EUR 3.6 billion. This acceleration in the housing market led to a widening of the housing market's gap vis-à-vis developments in the economy as a whole. Having fluctuated between 4% and 5% in 2016–2020, in the fourth quarter of 2021, the ratio of the value of purchased homes to GDP stood at 6.5%, i.e. 1.3 percentage points more than in the same period of the previous year and the most since the first quarter of 2008 (see Chart 28, left-hand panel). This increase in activity in the housing market was accompanied by a rise in lending for house purchases, which are increasingly affected by overly optimistic economic expectations and a low perceived level of credit risk (for more details, see Box 4). In 2021, the volume of housing loans granted increased by EUR 613 million (38.7%) compared to 2020, while in the fourth quarter of 2021 the ratio of the annual flow of new housing loans to GDP reached 4%, i.e. a year-on-year increase of 0.8 percentage point and the highest since the third quarter of 2009. Meanwhile, the value-to-GDP ratio of construction works carried out through the construction of new housing has remained broadly stable since 2019, amounting to 0.8% in 2021, indicating that housing supply increased much slower than demand. A sudden decoupling of housing sales and loan flows from the general economic trends increases the risk that activity in the housing market may become based on non-core factors and the housing market may become overheated.

As house price growth accelerated, the gap from the economic factor-based values widened in 2021,⁶⁵ and as the gap increases, the risk of price correction is growing as well. According to the calculations by the Bank of Lithuania, in the fourth quarter of 2021, the gap between house prices and their fundamental values based on economic factors amounted to 8.8%, i.e. a year-on-year increase

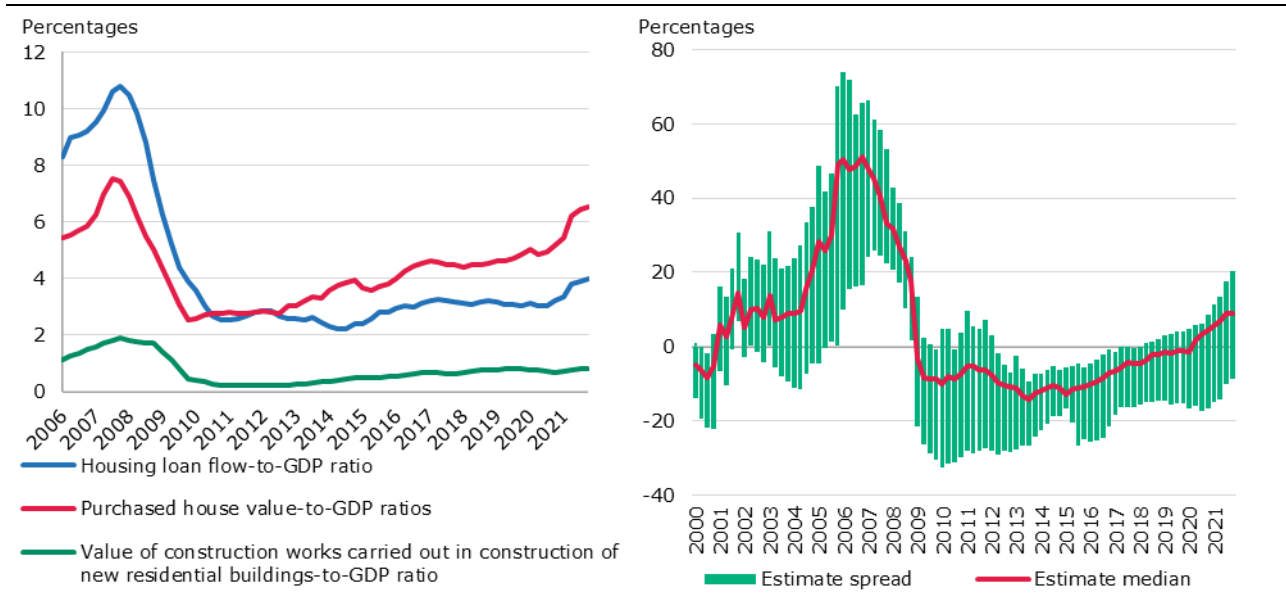
⁶⁴ In 2021, economic activities related to construction and RE operations accounted for 13.4% of gross value added. In these sectors, 8.7% of all employees were employed during the given period.

⁶⁵ Estimates were made using the house price-to-rental price ratio, the house price-to-income ratio, the econometric models and the HP filter.

of 4.4 percentage points (see Chart 27, right-hand panel, and Box 4). Before 2021, such a gap was last observed in the fourth quarter of 2008. Only one indicator — the house price-to-income ratio — suggests that house prices are lower than the values based on the fundamental factors. Current price overvaluation is still moderate, compared to its level during the financial crisis, but if the increase in prices continues strongly, it is likely that overvaluation will grow. Should house prices move further away from those based on economic factors, there is the risk of a sharper correction of house prices.

In 2021, the value of purchased homes and the flow of new housing loans grew more rapidly than the economy as a whole, while house prices deviated from economic factor-based values.

Chart 27. Housing market indicators-to-GDP ratios (left-hand panel) and the gap between house prices and fundamental values (right-hand panel)



Sources: Statistics Lithuania, Centre of Registers and Bank of Lithuania calculations.

Notes: GDP at current prices, adjusted for seasonal and workday effects. Estimates of fundamental house prices were made using the house price-to-rental price ratio, the house price-to-income ratio, econometric models and the HP filter.

With the strong expansion of the MFI housing loan portfolio, the diversification of the loan portfolio has declined, making credit institutions more vulnerable to housing market shocks.

The share of housing loans in the total portfolio of MFI loans to the private non-financial sector started to increase from 2018, especially since the start of the pandemic, when the corporate loan portfolio contracted and the housing loan portfolio continued to grow. Before the pandemic, housing loans accounted for 39.2% of the total MFI loan portfolio in December 2019, increasing to 43.7% in February 2022⁶⁶ (see Chart 28, left-hand panel). An increase in the share of housing loans in the total loan portfolio creates greater vulnerability to housing market shocks and, as a result, a housing market overheating would have a significant negative impact on credit institutions and financial stability. In 2021, the portfolio of loans to non-financial corporates started to expand, resulting in a gradual improvement in the diversification of the MFI loan portfolio. In addition, resilience of credit institution to a potential housing market shock will be enhanced by additional capital requirements for banks and central credit unions, which took effect as of 1 July 2022 (for more details, see Chapter 5).

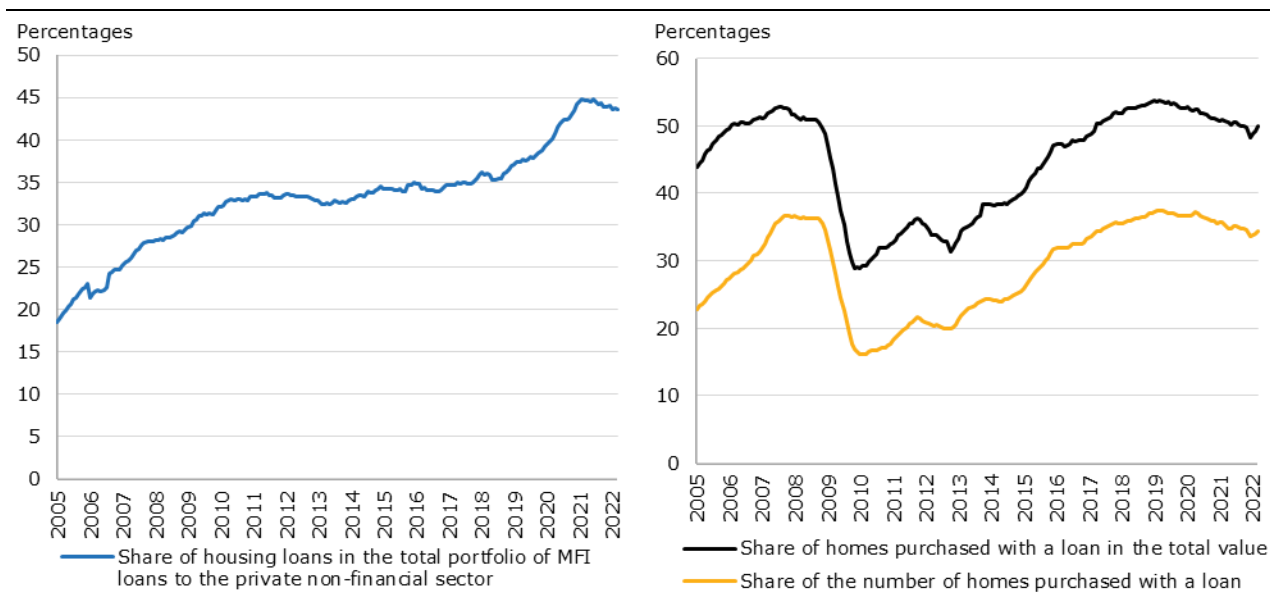
Although the share of borrowed funds did not increase in the total value of purchased housing, there was a rise in the volume of riskier loans. The number of houses purchased with a loan in 2021 accounted for 47.7% of the total value of housing units purchased (down by 3.1 percentage points compared to 2020), or one-third of the total number of purchased housing units (33.4%) (down 1.9

⁶⁶ According to ECB data, 1 percentage point above the euro area average. The share is 52.6% in Estonia and 50% in Latvia.

percentage points compared to 2020) (see Chart 28, right-hand panel). The non-increasing share of housing units purchased with a loan shows that the surge in lending for house purchases observed in 2021 is not the main source of financing of the observed larger number of sold houses. In the context of rapidly rising prices, house purchases are increasingly taking place with a lower down payment and longer maturity of the loan. The share of loans with a LTV rate of 80% or more (in other words a down payment of 20% and less) in the total flow of new housing loans was 43% in December 2021, i.e. a year-on-year increase of 6 percentage points (see Chart 29, left-hand panel). In order to reduce the average level of loan repayments, individuals assume liabilities for a longer term. The share of long-term loans (i.e. loans for 25 years or longer) accounted for 53.7% of all new housing loans in December 2021, i.e. a year-on-year increase of 3.7 percentage points.

The share of housing loans in the total MFI loan portfolio increased, but the share of housing purchased with a mortgage loan slightly decreased in 2021.

Chart 28. Share of housing loans in the MFI loan portfolio (left-hand panel) and the share of purchased housing with a loan (right-hand panel)

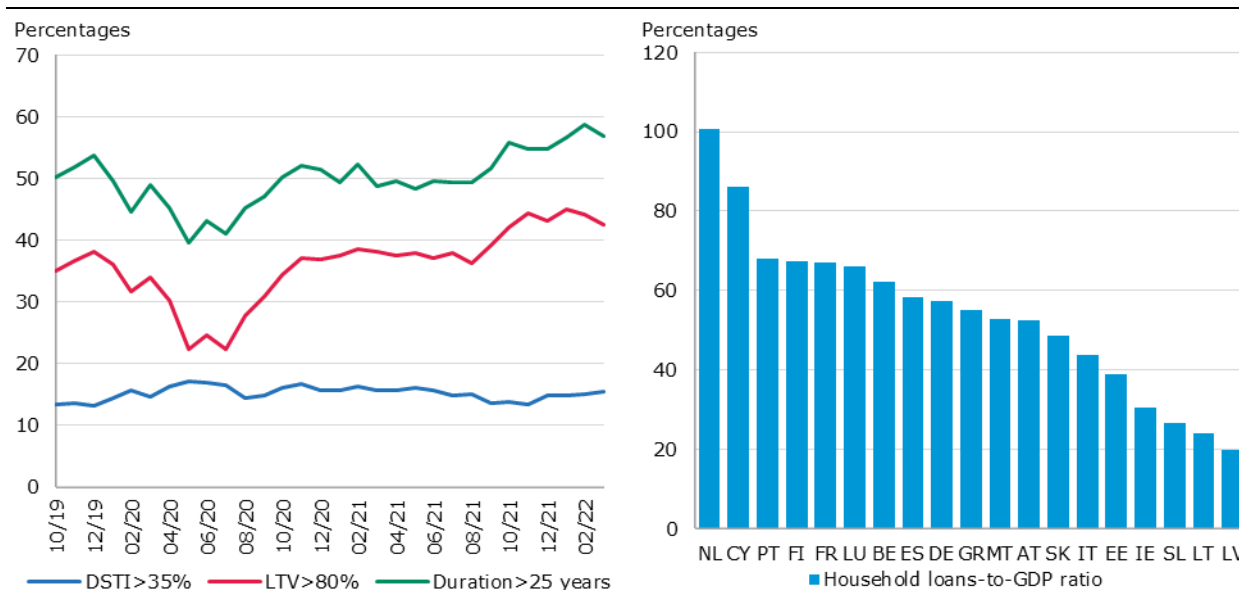


Source: Centre of Registers.
Note: 12-month moving average.

Resilience of households to potential housing market shocks is enhanced by the good financial condition of households. However, in the face of rapid house price increases and high inflation, the situation may worsen. The financial situation of households is more favourable: average wages after tax increased by an average of 10.1% in 2021, while financial assets of households exceeded their liabilities fourfold (429%) in the fourth quarter of 2021, with no significant change in the ratio over the year. In addition, Lithuania's household indebtedness is one of the lowest in the euro area — according to the ECB, the household debt-to-GDP ratio in Lithuania stood at 24.1% in the third quarter of 2021 (see Chart 29, right-hand panel). The sound financial position of households makes them more resilient to an unexpected deterioration in their financial situation and reduces the likelihood that they will not be able to meet their financial obligations in the event of a correction of house prices. However, amid rapidly rising house prices, residents have to borrow even more and assume liabilities for a longer period of time, and expectations of further rapid price increases may induce people to make urgent, unreasonable decisions regarding house purchases. The prolonged high inflation could worsen the financial situation of households, due to stagnating or even declining real income, and a possible interest rate hike would lead to rising mortgage loan payments, as nearly all housing loans (97.6% in 2021) are granted at variable interest rates (for more details, see Section 2.3).

Loans close to the levels set by the RLR are somewhat on the rise recently, but Lithuania's household indebtedness is low.

Chart 29. Loans close to the RLR requirements (left-hand panel) and household indebtedness (right-hand panel)



Sources: ECB and Bank of Lithuania.

In recent years, buyers purchasing homes as investment have contributed to the activity of the housing market, and a rapid withdrawal of such buyers could lead to a market correction.

According to the latest real estate market participant survey carried out by the Bank of Lithuania, investors in Vilnius and Kaunas purchased 23% and 15% respectively of new apartments in the second half of 2021, i.e. respectively 2% and 20% less than in the first half of 2021, while, in Klaipėda, in the second half of 2021 investors purchased a fifth (20%) of new apartments, which was 10 percentage points more than in the first half of the year. The heightened uncertainty at the onset of Russia's invasion of Ukraine may lead to a withdrawal of investors, and a sudden exit of investors comprising a relatively significant share of the housing market could lead to a correction in that market.

High inflation, combined with strong rental demand and price increases since the beginning of the war, may increase investor activity and lead to further unsustainable price growth. Rapidly rising inflation may again attract investors seeking to protect their savings against depreciation — according to a survey conducted by the Bank of Lithuania in 2021, 56% of households find real estate as the most attractive investment. Moreover, the strong inflow of refugees from Ukraine to Lithuania has shown signs of increasing demand for rented housing and accelerating rental price increases, which enhances the attractiveness of housing as an investment. An increase in investor activity would lead to a faster, unsustainable increase in house prices, based on the wish to earn money from the overheated housing market. To ensure the sustainable development of the housing market and limit the opportunities to purchase housing as an investment using borrowed funds, the Bank of Lithuania tightened its LTV requirement for second or subsequent housing loans to 70%, as from 1 February 2022 (for further details, see Chapter 5). Tax measures could also reduce the attractiveness of housing as an investment and introduce more sustainable development of the housing market (for more details, see Box 3).

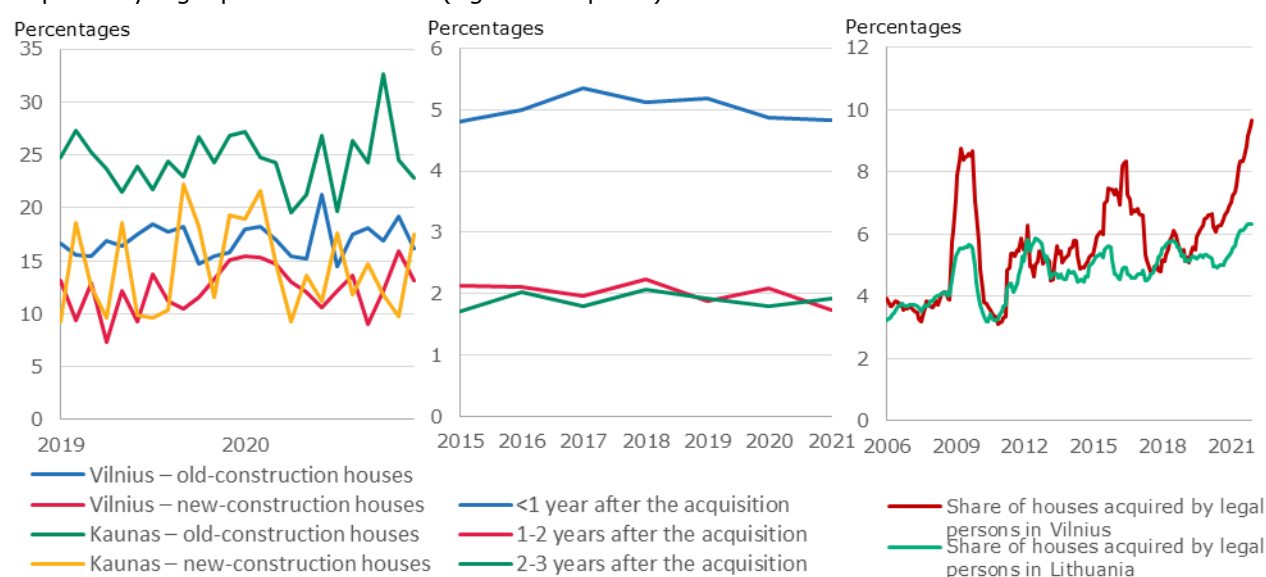
Box 3. Limiting real estate investment transactions by RE taxes

A real estate tax can be an effective fiscal policy tool to limit the build-up of real estate market imbalances. As the number of residential real estate transactions in Lithuania is less than half of all residential real estate transactions (for details, see Section 2.2), macroprudential policy measures cannot effectively affect the attractiveness of housing as an investment alternative. High investment in residential real estate purchases is likely to steadily build up imbalances in the housing market and can increase housing shortages and problems related to growing inequality over time. Moreover, investment flows to residential real estate may also weigh on the stability of the whole country's financial system, by accelerating prices in the expansionary cycle and by increasing the price decline since the start of the economic downturn. As a fiscal policy tool, real estate taxes directly affect all taxpayers and can reduce the profitability of investment in residential real estate. They reduce incentives for households that manage large funds to continue to invest substantial amounts of money in the real estate market, thus accelerating the potential RE price growth.

Every fifth house purchase in Lithuania is not due to the need of buyers to reside there, but more and more of them are purchased by legal persons. According to the Centre of Registers, in mid-2021 roughly 20% of the total number of apartments and individual residential homes sold were secondary housing,⁶⁷ the share of which has remained unchanged since 2019. It is also worth noting that a significant share of housing transactions in Lithuania are concluded for the purpose of resale. For example, apartments sold less than three years after the acquisition accounted for 8.5% of all apartment transactions in 2021 (4.8% were sold in less than one year, 1.7% after 1 to 2 years and 1.9% after 2 to 3 years), and this share has been fairly stable in recent years (see Chart A, central panel). In recent years there has also been an increasing share of housing acquired by legal persons, a trend that has been particularly pronounced in the country's largest Vilnius real estate market. Based on the data of the Centre of Registers, every tenth housing unit (9.7%) was purchased by legal persons in Vilnius in 2021, and this percentage was almost double the long-term average of 5.6%. Smaller yet similar trends were observed across Lithuania: in 2021, the houses acquired by legal entities accounted for 6.3% of the total number of housing units sold in Lithuania.

⁶⁷ Secondary housing is a purchased house with the market value lower than the market value of the previously existing house.

Chart A. Share of investment real estate transactions in Vilnius and Kaunas in 2019-2020 (left-hand panel), share of frequently resold apartments in Lithuania (central panel) and the share of apartments acquired by legal persons in Vilnius (right-hand panel)



Source: Centre of Registers.

A properly designed real estate tax can be an efficient source of tax revenues that is less distorting towards economic behaviour. Given its design, the RE tax does not significantly distort people's economic behaviour or the allocation of resources as compared to other taxes, e.g. income or consumption taxes (Norregaard, 2013). At the same time, it is a stable and predictable source of revenues compared to other taxes, as the tax base is not transferable and not very variable (Lutz et al., 2011), and the properly designed RE tax is difficult to avoid. Moreover, the efficient collection of RE taxes can generate significant revenues, mainly via local government contributing to the improvement of the surrounding infrastructure, thereby raising the long-term value of RE properties.

There are two main types of real estate taxes: the stamp duty and the recurrent RE tax, which can have a positive impact on the stability of the financial system. While the stamp duty is a one-off tax that is paid when acquiring real estate, the recurrent RE tax is paid regularly, usually on an annual basis. Both of these taxes are widespread worldwide. Lithuania is currently subject to a limited recurrent RE tax on residents with a residential real property the value of which exceeds EUR 150,000. The stamp duty on real estate transactions is not levied in Lithuania, but in other countries it is usually imposed on all real estate transactions based on their value. It should be noted, however, that just like the recurrent RE tax, the stamp duty on real estate transactions can be differentiated according to the applicable tariffs, tax base or application procedure. Some countries apply progressive stamp duty rates on real estate transactions according to the value of the acquired RE (e.g. United Kingdom, Ireland). In some countries where housing is a favourite asset class for investment, a higher stamp duty rate on real estate transactions is applied to secondary housing (e.g. the Netherlands, Italy). There is also the practice of levying higher stamp duties on frequently transferable real estate (Hong Kong) and differentiating it according to geographical regions (Germany). The prevailing view in the literature is that the recurrent RE tax has an advantage over the stamp duty in that it is less distorting towards the market and has no detrimental effect on household mobility; however, both taxes may have stabilising effects on house prices. The stamp duty on RE transactions helps limit excessive house price growth and volatility (Catte et al., 2004; Kuttner and Shim, 2013), as well as curbing speculative incentives in the real estate market (Hua and Craig, 2011). The recurrent real estate tax also reduces the volatility of real estate prices due

to the impact on the net present value of real estate.⁶⁸ As RE prices rise, the tax represents an increasing proportion of (indirect) rental income, reducing the net present value of RE and thereby dampening RE price growth (Blöchliger et al., 2015b). Compared with the recurrent RE tax, the stamp duty is much more difficult to avoid because it is paid even before the acquisition of RE, at the time the transaction is registered.

The periodic RE tax is assessed by international institutions as more favourable than the universally applicable stamp duty on RE. In the opinion of the IMF, although some countries use the stamp duty on RE to limit short-term speculation in the real estate market, the tax of this type is not efficient because it can restrict RE availability and residential mobility, reduce asset liquidity. For these reasons, the IMF proposes replacing the stamp duty on RE transactions with the recurrent RE tax administered by municipalities, which would be calculated as a certain proportion of the constantly updated real estate values (IMF, 2016). It should be noted that the findings of the investigations of these institutions are based on the examples of the countries levying the stamp duty on all real estate transactions and do not cover the cases where the stamp duty on RE transactions is only charged in a limited number of housing transactions without being applied to other transactions.

Lithuania's residential real estate is subject to the progressive and periodic RE tax, which is in part not efficient. Currently, different rates are applied to different thresholds for owned real estate, thus allowing persons who own more expensive RE to be charged relatively more. It also consists of a simple structure; the tax is clear and does not have many exemptions. On the other hand, the RE tax applicable in Lithuania is not extensive and does not significantly limit incentives to invest in residential RE due to the relatively high value of property from which it is payable. Moreover, the current RE tax is not compatible with the principles and tariffs of commercial RE and land taxes: it does not eliminate undesirable incentives for tax arbitrage resulting from the transfer of a non-commercial RE from a natural person to a legal or vice versa. Similarly, the RE tax is not calculated using RE values that as relevant as possible and close to market values: based on the universal RE valuation, the tax values are reviewed only once every five years. For these reasons, the effective administration of this tax is not ensured and incentives to acquire residential RE for investment purposes remain robust. However, as RE values increase over time, the current RE tax will become increasingly applicable.

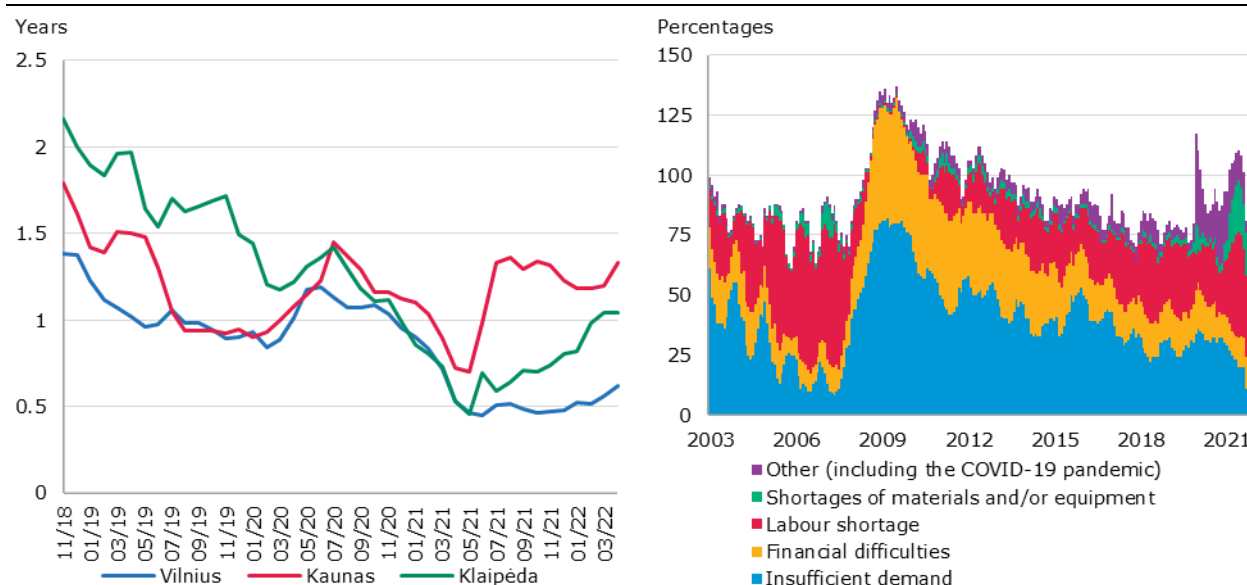
A properly calibrated RE tax can help balance the RE market. Based on preliminary calculations made in Lithuania, it can be assumed that the tax can best achieve its objectives if its application is differentiated to different groups of RE market participants, taking into account the distortions that the RE market seeks to remedy. In order to balance the RE market and minimise potential distortions in the future, it is meaningful to impose a periodic RE tax on a broad range of taxpayers, while maintaining the tax progressiveness. In order to dampen incentives for a speculative, non-economic or demographic-based increase in RE prices, the stamp duty on RE transactions applicable to properties frequently traded and acquired by legal persons, which supplements the regular RE tax, could be considered. This would affect the minimum share of RE transactions and have a significant impact on the RE market (especially if macro-prudential measures were applied at the same time). In view of the continued secondary housing purchases for investment purposes, the application of the stamp duty on the acquisition of secondary housing could be considered. Based on the experience of other countries (e.g. the United Kingdom), the stamp duty on secondary housing may significantly reduce demand for secondary housing, thereby increasing the accessibility of housing for persons who purchase houses for private needs. This combination of the main principles of the stamp duty would generate sufficient funds in the budget, strengthen the advantages of the tax compared with the other tax options, and minimize its drawbacks.

⁶⁸ The net present value of RE is calculated as a discounted flow of income from rent or indirect rent from own housing less depreciation costs and property taxes.

When housing demand exceeds supply, the new challenges for construction firms imply slow supply increases and increasing supply-demand imbalances, which can lead to unsustainable growth in house prices. According to Statistics Lithuania, in 2021 the value of works carried out by construction companies during the construction of new housing stood at EUR 447 million, a 30% increase compared to 2020, which was particularly affected by the pandemic, and 11% more than in 2019. However, in 2021, construction prices were 8.7% higher than in 2019, making the real growth of the value of the construction works completed in 2021 stand only at 2.6%, compared to 2019. Shortages in housing supply were particularly noticeable in the Vilnius new housing market due to disruptions in the process of obtaining building permits. Taking into account the number of housing units sold, if no new housing is offered to the market, all of the housing currently for sale would be sold out in six months' time (see Chart 30, left-hand panel). It is likely that supply increases will not materialise in the near term. The supply chain disruptions and shortages of construction materials caused by the pandemic and the deterioration of the situation since the onset of Russia's war against Ukraine have increased the challenges faced by construction companies. Only around 15% of construction companies in the first quarter of 2022 stated that there were no restrictions on their activities, i.e. the lowest percentage since 2016 (see Chart 30, right-hand panel). During the period under review, one-fifth of construction companies reported lack of construction materials as a factor limiting operations of the construction sector, the largest number during the entire survey period since 2003. Meanwhile, household demand was buoyant — in the first quarter of 2022, only 14% of construction companies reported their activities being curbed by insufficient demand — the lowest share since 2007. As housing demand is still high and construction companies face new challenges that may be exacerbated by the start of the war, the slow increase in housing construction causes demand to grow further apart from supply, and consequently and higher house price growth. After demand and supply imbalances have built up, even if demand shrinks, price pressures may continue to persist as a result of limited supply.

The supply of new housing in Vilnius remains limited, with an increasing share of construction companies facing shortages of materials and equipment.

Chart 30. Time during which all new housing would be purchased (left-hand panel) and factors limiting construction activity (right-hand panel)



Sources: UAB Inreal, Statistics Lithuania and Bank of Lithuania calculations.

An abrupt withdrawal of buyers could lead to a deterioration in the financial standing of construction and real estate companies, posing risks to financial stability which in the near term are exacerbated by rapidly rising construction prices and heightened uncertainty caused

by the war. An increasing number of construction companies are facing financial difficulties: in March 2022, such an evaluation of their own situation was provided by a fifth of construction companies, the largest share of companies since the end of 2015. The rapid increase in construction prices also poses challenges for RE developers, as, according to market participants, up to 90% of the new apartments sold are still under construction. When the sale of still unfinished apartments is agreed upon in advance, in the context of higher construction prices, a number of RE developers may ask buyers to pay more, risking that buyers will not agree to terminate their reservation contracts or to incur higher construction costs for the developers themselves, thus potentially deteriorating their financial position. Heightened uncertainty due to Russia's invasion of Ukraine also poses challenges for RE developers. Should housing buyers leave the market abruptly as a result of heightened uncertainty, a rapid rise in construction prices may result in a lack of liquid funds for developers to complete the already existing projects. A deterioration in the financial situation of construction and RE companies and the failure of companies to meet their obligations to housing buyers and credit institutions could lead to a housing market correction and pose risks to financial stability, as loans to these companies accounted for a third (33.6%) of the total MFI loan portfolio to non-financial corporations in the fourth quarter of 2021.

Although there are a number of factors reducing the risk of overheating in the housing market, if risks continue to intensify, it is important to take additional measures to ensure market sustainability. As mentioned above, the strong financial position of households and their relatively low indebtedness, as well as the stagnant share of houses purchased with loans, reduce the risk of overheating in the housing market. Sizeable liquidity buffers held by RE developers⁶⁹ that increase their resilience to a potential market shock, combined with the Bank of Lithuania's measures (RLR, sectoral SRB), which will come into force this year or which have been already in force, also contribute to ensuring market resilience to shocks. Russia's invasion of Ukraine raised a lot of uncertainty about future housing market developments, but it did not lead to a significant decline in sales in the first few months of the war. If house sales, price and credit dynamics remain high and the market continues to heat up, it is important to strengthen the resilience of the financial system to a potential overheating of the housing market. Housing supply should be increased in order to reduce the current excess demand, which places upward pressure on prices. Households planning to buy a house, especially with a mortgage loan, should carefully assess their financial prospects in the face of high inflation and the possible rise in interest rates in the near future. Finally, additional macro-prudential tools to ensure the sustainability of the housing market could be considered where needed.

Box 4. Assessing the house price and mortgage credit gap with fundamentals⁷⁰

In 2021, house prices and mortgage loan flows grew at a pace not seen in a long time: house prices grew by approximately 20%, reaching their highest level in more than a decade, while the flow of new housing loans increased by as much as 35%. The only time such tremendous house price growth was seen was during the period of the housing bubble in 2008.⁷¹ However, double-digit increases in house prices and credit flows do not necessarily imply that housing and mortgage loan markets are overheated. Such market dynamics may be based on the long-term fundamental demand and supply factors, such as household income, savings, population growth, building permits, etc. This box addresses the question of whether house prices and credit are balanced, or whether a bubble is forming.

⁶⁹ According to Statistics Lithuania, in 2015-2020, short-term assets of construction and RE companies were on average 54.3% higher than their short-term liabilities.

⁷⁰ This Box is based on the article by J. Karmelavičius, I. Mikaliūnaitė-Jouvanceau and A. Petrokaitė "Housing and credit misalignments in a two market disequilibrium framework", published in Occasional Paper Series of the Bank of Lithuania, No 42/2022 ([link](#)).

⁷¹ Following the bursting of the RE price bubble in 2009, house prices fell by approximately 30% year on year, while mortgage loans declined by as much as 50%. Thus, double-digit increases in prices and credit flows require particular attention to ensure financial stability.

The assessment of housing and credit market imbalances is based on a joint disequilibrium model which allows to take into consideration the interactions between these markets.⁷² The model is based on three assumptions. First, both markets may face a disequilibrium, i.e. demand may exceed supply, or vice versa.⁷³ Second, house prices and interest rates rise more rapidly (weakly) when a demand/supply surplus occurs in the respective market. This assumption provides a certain price self-correcting mechanism which allows markets to return to equilibrium. Third, the housing and housing loan markets are interdependent. For example, if within one market a change in demand and supply occurs, resulting in a change in market price and quantity,⁷⁴ this will also directly affect the price and quantity variables of the other market. As a result, emerging imbalances in one market, such as price gaps, may also cause imbalances in another market, such as excessive lending.

An econometric assessment shows that the housing and housing loan markets were overheated in 2021, with a gap of 11.8% for house prices and around 14.6% for the flow of housing loans (see Chart A). Although these values appear to be significant, imbalances are far smaller than prior to the 2009 crisis, when house prices were overvalued by around 50%, while the housing loan flow gap with fundamentals reached almost 90%.⁷⁵ Furthermore, the factors relating to the formation of positive gaps in 2006-2008 and 2020-2021 are somewhat different. The widening of the gap in both markets in 2006-2008 can be explained by loose lending standards and perception of credit risk,⁷⁶ the overheated economy, and wages.⁷⁷ In 2021, the overpricing in the housing market was driven by a sharp rise in construction costs, high consumer confidence and optimistic expectations, as well as by a significant increase in housing demand (for more details, see Section 1.4). The gap of the housing loan flow reflects overly optimistic economic and housing market expectations and a relatively low level of credit risk perceptions.⁷⁸

⁷² For example, house prices may have a positive causal impact on housing loans: as house prices rise, more credits are needed to finance these transactions. Moreover, the supply of housing loans may have an impact on RE demand, as credit that may be obtained easier and cheaper may reduce borrowers' funding constraints and increase overall housing demand, which in turn leads to higher prices.

⁷³ Disequilibrium and imbalance are two distinct concepts. Disequilibrium is a situation in which market demand and supply do not get balanced because the price mechanism does not function, at least partially. Imbalances are a mismatch between the market price or quantity and fundamentals, i.e. fundamental factors shaping supply and demand.

⁷⁴ In the housing market, the quantity is the monthly volume of housing transactions, and house prices are measured as the average house price. In the credit market, the quantity is the monthly flow of new mortgages, whereas the credit price is a monthly interest rate on new mortgages.

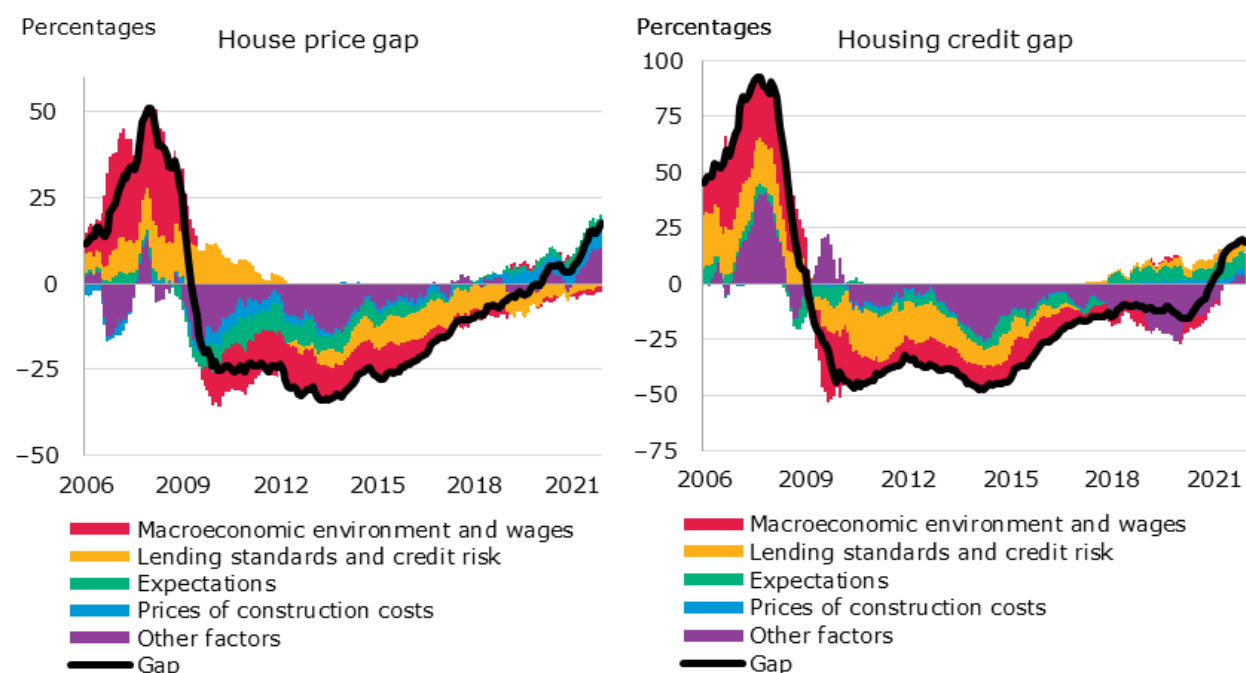
⁷⁵ Following the crisis, the house price and credit flow gap turned negative, reaching, on average, around -20% and -40% respectively in the period 2010-2015. The positive house price gap started to widen again at the end of 2019, while the credit gap turned positive during the COVID-19 pandemic.

⁷⁶ The latter can be explained by the historically low ratios of non-performing loans (i.e. perceived credit risk), which were well below the probability of default.

⁷⁷ The credit gap also resulted from other factors, such as structural demand and supply shocks. It should be noted that macroeconomic overheating may also include imbalances in housing and credit, and therefore, the contribution of eased lending standards to the emergence of bubbles could be underestimated.

⁷⁸ Similar to the levels observed in 2000, but to a lesser extent, banks may have made a somewhat loose assessment of their credit risk.

Chart A. Decomposition of house prices and housing loan gap



Source: Bank of Lithuania calculations.

The positive relationship between house prices and the housing loan gap illustrates that the two markets are typically overheated together. Simply stated, if there is a surplus in the credit market it is usually associated with the overvaluation in the housing market and vice versa. Furthermore, the credit gap usually occurs three months earlier than that of house prices. Finally, abnormally high house prices tend to reflect shortages in housing supply, while the positive credit gap in the housing credit flow usually arises in the event of excessive supply of housing loans in the market.

Other methods (with the exception of the housing affordability indicator) confirm that house prices were overvalued in 2021. The gaps estimated using different methods⁷⁹ (see Chart 28, right-hand panel) fluctuate between negative and positive values in the fourth quarter of 2021: -9% to + 20%. Looking at the median of this estimate (marked in red), house prices currently exceed the prices that are expected to be in the current macroeconomic environment by approximately 9%. Comparison of the housing loan flow gap with the portfolio gap reveals that the credit surplus was positive in 2021 but declined towards the end of the year.

2.3. Risks from high inflation and a possible increase in interest rates

Increasing consumption and supply chain disruptions during the pandemic led to a significant rise in inflation, which may get further prolonged owing to Russia's war against Ukraine, impair the financial situation of companies and reduce the purchasing power of citizens. During the COVID-19 pandemic, active economic stimulus actions taken by central banks and governments worldwide and ample state support measures helped retain population employment and wage growth, thereby mitigating the economic shock.

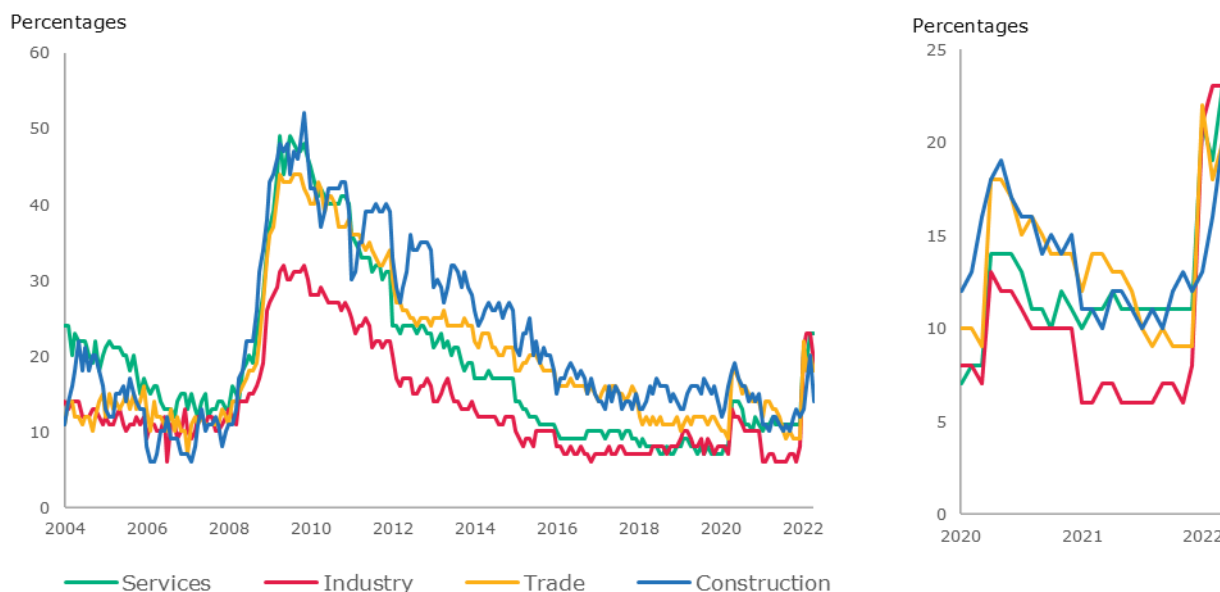
⁷⁹ For more details, see J. Karmelavičius commentary "Būsto kainų tvarumas. Ką rodo skirtingi matavimo metodai?", published on the Bank of Lithuania's website on 1 September 2021: <https://www.lb.lt/lt/komentarai/busto-kainu-tvarumas-ka-rodo-skirtingi-matavimo-metodai>

Due to limited opportunities to consume during the lockdown period and wage increases, resident savings increased significantly. Over the same period, as a result of operational restrictions related to the pandemic and destocking of companies, the supply of goods and services dropped significantly, with supply disruptions from the long-established global supply chain at the start of the economic recovery after the initial pandemic shock. This led to strong commodity price increases in global commodity exchanges in the second half of 2021, resulted in shortages of goods and services and inflation that exceeded the medium-term inflation targets of central banks in the euro area and in a number of other advanced economies. The rise in energy prices was amplified by Russia's war against Ukraine, which has the potential to disrupt global energy supply chains and further push up inflation. In May 2022, Lithuania's annual inflation rate reached 18.5%, its highest level since 1996 and the second highest among EU countries. In addition to global contributions from energy and food commodity prices, the contribution of domestic factors affecting inflation in Lithuania has also strengthened, largely reflecting a stronger increase in service prices since mid-2021 associated mainly with domestic economic developments, which have been significantly affected by rapidly increasing wages.

Rising inflation had already started to adversely affect the financial situation of some Lithuanian companies even prior to the start of Russia's war against Ukraine, which may worsen further as costs continue to increase. Since the beginning of 2022, the share of companies in Lithuania which reported, in the surveys conducted by Statistics Lithuania, that their activities were affected by financial difficulties has increased significantly. Higher inflation may have contributed significantly to this effect, as this share had risen even before the onset of Russia's invasion of Ukraine and, according to the data reported in April 2022, fluctuated between 18% and 23%, exceeding the levels observed during the first lockdown (see Chart 31). The assessment of the financial situation of businesses in Lithuania in the first quarter of 2022 was one of the weakest in the EU countries: the financial situation was assessed worse only by Polish companies, while the share of companies facing financial difficulties in Lithuania exceeded the EU average by 14.5 percentage points. The rise in inflation has negative effects on the financial situation of companies — rising costs reduce the profitability of firms (in particular those with little negotiating power to pass on rising costs to buyers or who cannot compensate for them by increasing operational efficiency). At the same time, it may increase the likelihood of corporate defaults and reduce the availability of financing but may also have negative effects on the economy as a whole (e.g. higher unemployment and lower wage growth) via secondary effects. Nevertheless, the number of corporate bankruptcies has so far remained stable; although it exceeded its 2020-2021 level in March, the number of bankruptcies has remained one-fifth lower than in the pre-pandemic year 2019. In addition, liquid assets of non-financial corporations increased during the pandemic and may help companies to withstand significant economic shocks, while households with historically high savings may make them available to companies by consumption, thereby further strengthening their resilience.

The share of companies in financial difficulties significantly increased in early 2022, exceeding the levels observed during the first lockdown.

Chart 31. Share of companies in financial difficulty



Source: Statistics Lithuania.

At the same time, higher inflation weighs on the purchasing power of households and, if it continues, there would be a decline in consumption and a reduction in the possibility of more vulnerable households to repay their debts. The rise in prices of various products reduces household consumption and makes it more difficult for them to meet their financial liabilities as an increasing portion of income must be directed towards essential products. Therefore, the prolonged inflation has an adverse impact on households' riskiness and financial stability and reduces their access to financing. Inflation mostly affects people with low incomes, as well as those who spend a higher share of their income on loan payments. On the other hand, the decline in the purchasing power of residents may also weigh on the production demand of Lithuanian companies, which would further worsen their financial situation. At the same time, inflation reduces the real value of outstanding loans, and as a result, the relative burden of the loan on residents who hold fixed-rate loans decreases.

In response to the rising inflation rate in the euro area, financial market participants assumed that the ECB would start raising the base interest rates already in 2022, while this increase in interest rates might have a negative impact on borrowers' financial condition. Market participants' expectations regarding EURIBOR interest rates, which are affected primarily by the ECB's monetary policy decisions and how the changes in interest rates directly affect the loan repayment costs of the majority of borrowers, increased noticeably at the beginning of 2022. While the three-month EURIBOR was expected in December 2021 to turn positive in mid-2025, markets expect EURIBOR to reach the positive level already at the beginning of 2023 (see Chart 32, left-hand panel). Following its meeting in April 2022, the Governing Council of the ECB stated that the ECB's asset purchase programme would be completed in the third quarter of 2022, paving the way for higher base interest rates in the second half of 2022.

The high degree of vulnerability of households and companies to interest rate increases is due to the fact that the bulk of their loans were granted at variable rates. In Lithuania, household and corporate indebtedness levels are one of the lowest in the EU (in the first quarter of 2022 the respective

outstanding loans accounted for 21.8% and 16.1% of GDP respectively), but loans with variable rates⁸⁰ make up the largest share of these loans, thus both residents and companies with loans are sensitive to a six-month EURIBOR increase above 0%. Rising interest payments are likely to result in higher loan repayments, which would cause additional costs on companies and households in the period of rising inflation, and this could pose additional challenges for borrowers in a weaker financial situation to pay back their loans. Moreover, interest increases become more likely to lead to a correction in property prices, which may slow down activity in the RE market, which has accumulated imbalances related to price levels and credit activity over the past few years.

With inflation rising further, central banks in some advanced countries have already started raising interest rates⁸¹ — their decisions and market participants' expectations for further action led to higher interest rates for borrowers and a correction of the prices of underlying asset classes. Looking at a specific example, in Poland, the base interest rates were raised by 4.4 percentage points between October 2021 and April 2022, while the interest rates on the Polish ten-year government bonds increased by 4.1 percentage points over the same period, while only 1.5 percentage points in Lithuania. The increase in interest rates on loans for house purchase and on corporate loans in Poland followed a similar upward pattern: in February 2022, the interest rates on these loans were increased by 2.8 and 2.4 percentage points respectively, taking effect from October 2021 (see Chart 32, right-hand panel). Similar trends can also be observed in the US, where base rate increases started in March 2022 (by 0.25 percentage point), while interest rates on debt securities and loan markets started to rise already in early 2021, when market participants assessed the start of the future interest growth cycle and potential amplitude. As was the case for interest rates on loans, a correction in the Polish stock markets also coincided with the start of the rise in base rates, while in the US the correction started around half a year earlier.⁸² In general, rising interest rates lead and may continue to lead to a significant correction of the prices of various asset classes: investors may decide to sell riskier assets accrued over a prolonged period of time, in an environment of prevailing low interest rates — the 3-month EURIBOR in the euro area has already been negative since 2015.

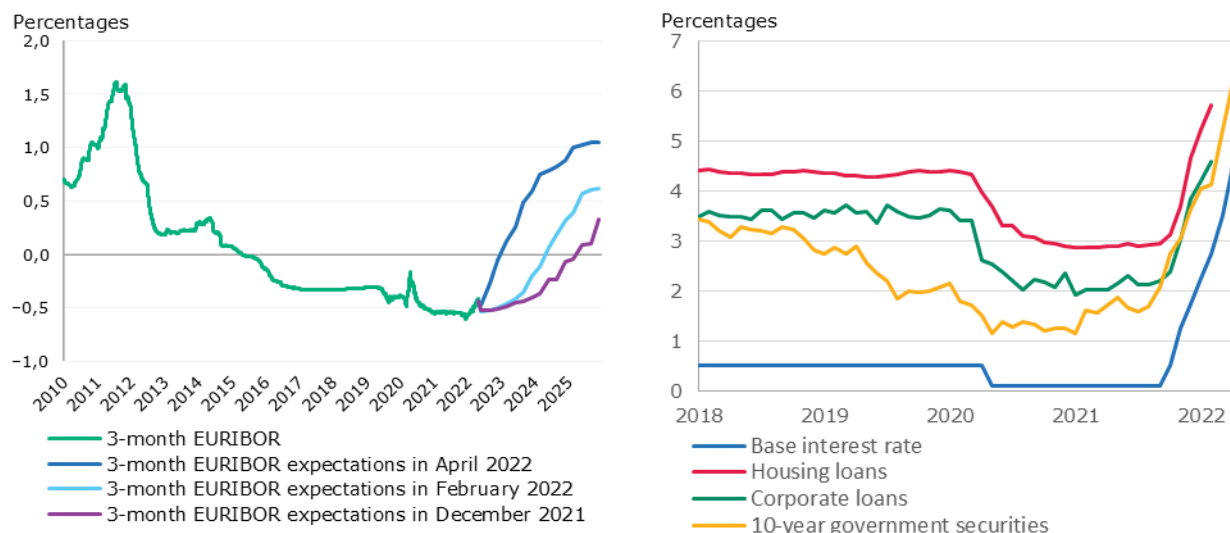
⁸⁰ Loans with variable rates accounted, on average, for 90% of all new household and corporate loans between 2015 and 2022.

⁸¹ In order to contain the rising inflation and bring it back to the levels closer to long-term objectives, the central banks of some developed countries worldwide (e.g. the US, Great Britain, Poland, the Czech Republic) began to suspend quantitative easing and raise the base interest rates at the end of 2021 and at the beginning of 2022.

⁸² However, other factors had a significant influence on stock markets, such as the discovery of the *omicron* variant in November 2021 and the outbreak of Russia's war against Ukraine in February 2022.

Expectations of a rise in base interest rates in the euro area have strengthened, and the example in Poland shows a similar rise in interest rates on loans in the context of base rate increases.

Chart 32. Market expectations for the 3-month EURIBOR (left-hand panel) and developments in base interest rates and interest rates on loans and bonds in Poland (right-hand panel)



Sources: Central Bank of Poland, *Macrobond* and ECB.

While a potential increase in interest rates would weigh on credit and economic growth prospects in the short term, reducing inflation and lower imbalances in the real estate market would have a positive effect on the economic and financial system in the long run. Higher interest rates would increase the cost of existing household financial liabilities and more expensive lending would dampen demand for new credit. Based on the calculations, a rise of 1 percentage point in interest rates on housing loans would result in an increase of EUR 44, or 14%, in the contribution of the average housing loan (see Table 3). Assigning a higher share of their income to loan payments would reduce the ability of households to allocate their income to consumption or repayment of their loans, thereby increasing the riskiness of household loans. A rise of 1 percentage point in interest rates would increase the probability of household insolvency by 0.077 percentage point (for more details, see Box 5). A similar situation would be observed in the corporate sector. The rising interest rates would dampen economic growth: according to econometric models, real GDP could be 0.96% lower due to the interest rate increase of 1 percentage point after one year, while the credit level would be 1.77% lower (see Table 4). It should be noted, however, that the resilience of households with housing loans to an interest rate shock is also enhanced by the fact that, since 2015, new housing loans were provided in the context of the income stress test of borrowers, with loans being granted only if the borrowers' expenses for repayment do not exceed half of the income received, increasing the interest rates on housing loans to 5%. Moreover, in the long run, higher interest rates would reduce elevated inflation and the accumulated imbalances in Lithuania's real estate market and, therefore, would have a positive effect on the country's financial stability.

Table 3. Impact of increase of interest rates on housing loan contributions

Increase of interest rates on housing loans, percentage points.	Housing loan interest rate, %	Monthly loan instalment, EUR	Change in the monthly loan instalment, EUR	Change in the monthly loan instalment, %
–	2.0	230	–	–
0.5	2.5	242	12	5
1.0	3.0	254	24	11
2.0	4.0	279	49	22
3.0	5.0	306	76	33

Note: The monthly loan instalment is calculated at EUR 40,000 for the average value of the outstanding loan; the remaining maturity is 22 years. This is based on the assumptions that the loan is repaid by the annuity method and that the interest rate applied corresponds to the average interest rate on new loans.

Table 4. Impact of interest rate and aggregate supply shocks on the economy

Impact of the interest rate shock on the economy				Impact of aggregate supply shock on the economy			
Increase of interest rates, percentage points.	Real GDP, %	Inflation, %	Credit, %	Increase in inflation, percentage points	Real GDP, %	Credit, %	House prices, %
+0.5	-0.48	-0.48	-0.88	0.50	-0.39	-0.52	-1.07
+1.0	-0.96	-0.95	-1.77	1.0	-0.79	-1.05	-2.14
+2.0	-1.93	-1.91	-3.54	2.0	-1.57	-2.10	-4.27
+3.0	-2.89	-2.87	-5.30	3.0	-2.36	-3.14	-6.41

Sources: Statistics Lithuania, Bank of Lithuania and Bank of Lithuania calculations.

Box 5. Sensitivity of housing loan risk to interest rate increases

This box aims to quantify the potential impact of interest rate increases on credit risk for housing loans. Around 45% of the loan portfolio held by the banking sector consists of housing loans, roughly 98% of which are with variable interest rates largely linked to EURIBOR. A possible increase in the EURIBOR owing to a possible tightening of monetary policy would imply an increase in interest rates on housing loans that would complicate borrowers' ability to pay off their loans. In order to assess the riskiness of housing loans granted to households and to explain its main drivers, a probability of default⁸³ model for housing loans is being developed. For each housing loan, the probability is modelled that a borrower will be in default on his liabilities due within one year and the loan will become non-performing. The resulting model takes into account the different characteristics of the debtor and the loan, as well as the key macroeconomic indicators. It is assumed that, in case of interest rate hikes, the riskiness of each loan would be affected through two main channels: 1) instalment, indicating enlarged average monthly loan instalment; 2) macroeconomic, indicating that Lithuania's economic growth would slow down and inflation would fall.

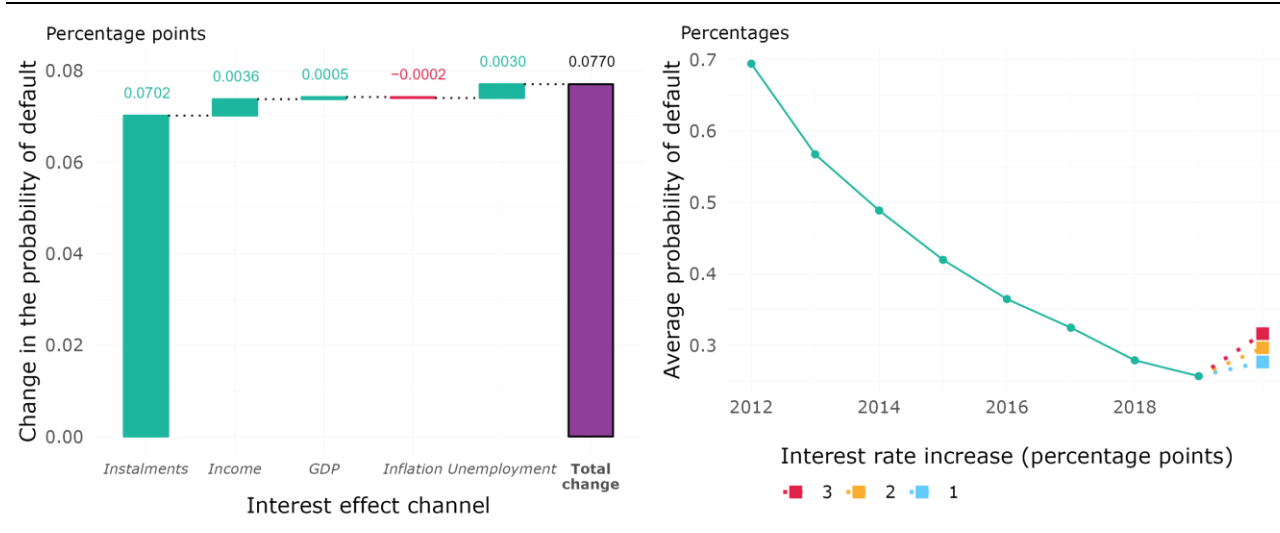
Based on the results of the assessment, a 1 percentage point interest rate hike and increased burden of loan payments could lead to a rise in the share of housing loans in arrears. An increase of 1 percentage point in interest rates would increase the likelihood of a borrower delaying the

⁸³ Although it is more correct to say that loans, unlike borrowers, become *non-performing* rather than insolvent, here we will call the likelihood of housing loans to become non-performing as the probability of *default*.

repayment of his housing loan⁸⁴ by around 0.077 percentage point (see Chart A, left-hand panel). In fact, all of this change (some more than 0.07 percentage point) would result from the increase in a monthly loan instalment. Other macroeconomic effects (listed in Table 4 above) would slightly increase credit risk as a result of the increase in interest rates, although these are less pronounced. From these effects, the reduced household income and a rise in the unemployment rate in the economy would increase the probability of insolvency most significantly. It should also be noted that the impact of interest rate rises on different housing loans would be heterogeneous, depending on both the debtor and the loan characteristics itself. For example, an increase in interest rates on loans with higher initial rates or on loans with a higher DSTI ratio would further increase the likelihood of becoming non-performing. In the case of a housing loan with an initial interest rate of 4.0%, the DSTI ratio of 45% and a maturity of 30 years, a 1 percentage point interest rate shock would increase the probability of default by approximately 0.088 percentage point.

Owing to higher interest rates, credit risk on housing loans would be particularly affected by the increased instalment.

Chart A. Decomposition of the impact of 1 percentage point contribution to interest rate gains (left-hand panel) and the impact of increase in interest rates on the average probability of default on the housing loan (right-hand panel)



Source: Bank of Lithuania calculations.

Notes: The left-hand panel assesses the decomposition of the impact of interest rates on the loan with an initial interest rate of 2%, the DSTI ratio of 40% and the maturity of 30 years. The data from the first quarter of 2012 to the fourth quarter of 2019 are used in the right-hand panel.

Looking backward, even a 3-percentage point interest rate shock would not give rise to a sharp spike in the probabilities of default (see Chart A, right-hand panel). The probability of default on housing loans decreased gradually between 2012 and 2019, from 0.7% in 2012 to 0.25% in 2019, due to lower interest rates and the improved economic situation. Assuming that interest rates on loans have risen by an average of 1 percentage point since 2019, the share of non-performing loans would increase by just 0.02 percentage point, returning to the 2018 level. A more significant effect would be observed if interest rates jumped by 3 percentage points — the probability of default on housing loans would go up by around 0.06 percentage point, reaching its 2017 average. Nevertheless, even in such a case, the average probability of default on a housing loan would be almost two times lower than in 2012-2013.

⁸⁴ The assumption is that a household holds a 30-year housing loan with an initial interest rate of 2% and the DSTI ratio of 40%.

3. Challenges to the financial system

3.1. Challenges posed by a potential correction of imbalances in Sweden and changes in Swedish banks' lending policies in Lithuania

Following a significant reduction in direct links between the Swedish capital banks operating in Lithuania and their parent banks in recent years, the risks arising from imbalances in Sweden have since been seen as a challenge to the Lithuanian financial system. Lithuania's banking sector has high concentration: in terms of assets, the concentration of credit institutions was the second highest in the EU in 2020,⁸⁵ while in 2021, the two largest Swedish capital banks, Swedbank, AB, and AB SEB bankas, together accounted for 65% of the Lithuanian banking sector assets. This share increased over the year, primarily owing to an increase in the share of funds held with central banks, while the share of loans granted decreased from 60.8% to 58.0% in the face of increased competition in the credit market (see Section 1.2 for more details). The share of deposits of foreign credit institutions (measured as the significance of funding from parent banks) continued to decline throughout the year, falling from 5.7% to 4.4% of assets (based on the February 2022 data). Although direct bank dependence on parent bank funding is low, due to high concentration decisions on the lending policy of individual banks affect the financing conditions in Lithuania. The dependence of the sector on Swedish capital banks increases its sensitivity to that country's imbalances, such as high household indebtedness and overvaluation of RE prices. Should corrections be made or parent banks face financial difficulties, lending in Lithuania could also be affected.

Since the funding of parent banks is not substantial and should not significantly affect the funding costs of Lithuanian banks, it is most likely that due to the high interlinkages with Swedish banks, the Lithuanian financial system could be affected by two main channels: an increase in deposit volatility and changes in parent banks' lending policies. The first channel would activate during a particularly deep crisis in the event of heightened distrust in the operational sustainability of Swedish banks. This could increase the withdrawal of deposits from banks operating in Lithuania, which would cause liquidity problems for banks.⁸⁶ Depositors expressed greater concern at the beginning of Russia's war against Ukraine (for more details, see Section 2.1), and the linkages of the banking sector to Sweden, which is located further from the war, may also be viewed as positive. The resilience of Swedish banks through various crises remained high,⁸⁷ and in the face of Russia's war against Ukraine, the possibilities of the major banks operating in Lithuania to obtain assistance from the parent banks, which are less affected by geopolitical tensions can provide stability to the banking sector. Nonetheless, the second channel is more relevant in the context of Russia's aggression. The banks belonging to foreign banking groups and operating in Lithuania have to pursue their respective operating and profitability objectives. Therefore, in case group-wide decisions to change lending policy and curb lending are adopted (e.g. owing to increased risks in the Baltic region or individual sectors), due to the significant market share of these banks in Lithuania, the volume of lending would be reduced, making loans more expensive and subject to less favourable financing conditions for companies and households. This, in turn, would put a brake on Lithuania's economic growth and could trigger corrections in the real estate market due to fallen demand.

⁸⁵ Based on ECB data. Concentration is measured by the Herfindahl-Hirschman index. The highest value of the index is recorded in Estonia.

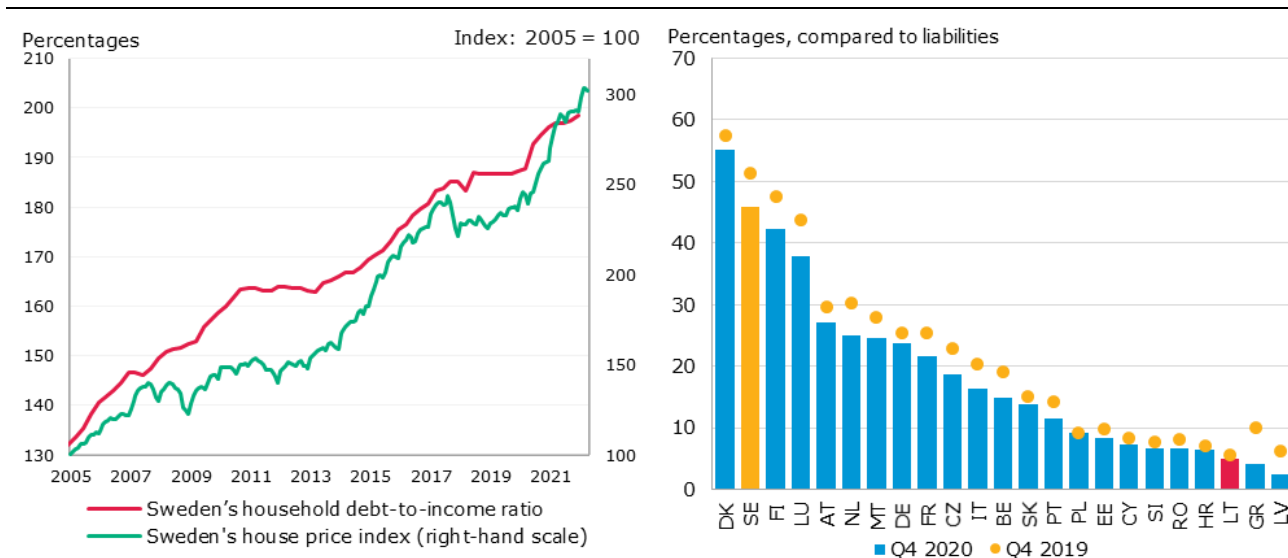
⁸⁶ Given the current very high levels of bank liquidity, the risks from this channel are also low (for more details, see Section 4.2).

⁸⁷ In recent years Swedish banks have overcome scandals related to the prevention of money laundering and the pandemic; now they remain strong and investor confidence is high.

A correction of imbalances in Sweden could also have an impact on the Lithuanian financial system. First, the indebtedness of Swedish households increased by 2.5 percentage points in 2021, becoming almost twice as large as annual disposable income (198.5%), and is among the highest in the EU (see Chart 33). Moreover, house prices have risen by an additional 23% since the onset of the pandemic and have reached historical heights, amplifying imbalances in the housing market. Accordingly, growth in lending for house purchase also strengthened (by 7.1% year on year). A downturn in economic growth and a rapid increase in inflation as a result of the war, together with increases in interest rates by central banks, would make it harder for households to meet their financial liabilities and housing demand could shrink, triggering a correction in house prices. Second, Swedish banks raise a large share of their funding in the markets and are thus vulnerable to financial market corrections. The increased liquidity and the availability of central bank funds slightly reduced the share of Swedish bank funding in the market, which in 2020 accounted for 46% of total liabilities and stood at the lowest level since 2014, although it was among the highest in the EU (see Chart 33). Geopolitical tensions and high inflation, which is expected to lead to a further tightening of monetary policy⁸⁸ (for more details, see Section 2.3), may amplify volatility in global financial markets and lead to price corrections in certain asset classes. Thus, a deteriorating housing market situation in Sweden or an increase in the funding costs of parent banks could also result in the worsening of financing conditions in Lithuania as a result of group-level decisions.

In Sweden, house prices and household indebtedness continued to increase, but the share of banks' market-based funding somewhat decreased.

Chart 33. Developments in house prices and household indebtedness in Sweden (left-hand panel), share in the market-based financing of the banking sector in EU countries (right-hand panel)



and ESRB assessment, the level of physical climate change risk in Lithuania is one of the lowest in the EU; although some companies might be affected by the rising sea levels and floods,⁸⁹ this would not cause significant losses to financial institutions. Transition risk is more relevant to Lithuania's financial system due to bank lending to transport and manufacturing companies. According to Eurostat data, loans to these companies have accounted for one-quarter of the banks' corporate loan portfolio for some time already, while the activities of these companies account for more than 60% of all GHG emissions in Lithuania and are nearly two times more GHG-intensive than the respective sectors in the EU. The European Green Deal, as well as the objectives set out at the UN Climate Change Conferences, are likely to lead to higher costs for companies in the more polluting sectors (due to regulation, the implementation of new greener technologies, changes in the behaviour of investors and consumers, etc.), which may result in bankruptcies of some of these companies and losses for financial institutions lending to these companies.

The rapid increase in energy prices as a result of Russia's war against Ukraine poses new challenges for companies, policymakers and financial institutions, making a smooth transition to a climate-neutral economy of particular relevance. During the pandemic, GHG emissions declined temporarily, and governments around the world laid out higher expenditures to meet climate targets in their recovery plans. For example, EUR 841.2 million, or 37.8% of all the funds earmarked for Lithuania under the Recovery and Resilience Facility, is expected to be allocated to the achievement of the climate change and green transition targets and the implementation of the Green Deal.⁹⁰ However, Russia's war against Ukraine may, in the short term, have a negative impact on achieving the green targets and may in fact increase global GHG emissions. To increase security, some EU countries will increase their defence budgets, but military spending is associated with the intensive use of fossil fuels,⁹¹ and physical damage caused by the war, such as fires, destruction of infrastructure and deforestation, directly increase GHG emissions. At the same time, energy prices increased significantly due to Russia's aggression (for more details, see Section 2.1). On the one hand, longer time frames for transition to renewable energy sources are being considered due to fears of rising inflation, adverse effects on the economy, and household reluctances, and the supply of fossil fuels is increased to mitigate the rise in energy prices. These factors will increase GHG emissions and make it difficult to meet the climate targets, thereby postponing them to a longer-term perspective, which means that governments will need to take much stricter and more disruptive measures to avoid an irreparable impact on climate change, thus adding to the transition risk. On the other hand, this situation has further highlighted the dependence of European economies on fossil fuel pollution and the need for a rapid transition to renewable energy sources, thus increasing energy independence, and it is therefore likely that the ambition to diversify energy sources and increase energy independence in the medium term may lead to a [more ambitious implementation of green targets](#).

The resilience of the Lithuanian economy in the transition to a green economy is moderate, and increased investment in more sustainable business models by companies would further reduce the risk posed by the transitional period. According to an index composed by the World Bank, the resilience of the Lithuanian economy to the transition to a green economy was better than that of the most Central and Eastern European countries and it also slightly improved over two years (see Chart 34, left-hand panel). In recent years, Lithuanian companies and financial institutions have paid increasing attention to a more sustainable business model: there is a growing number of offers in banks to finance more sustainable products and projects, investment and pension funds focusing on green investment are emerging, and more and more companies are investing in green technologies. For example, according to the survey of non-financial corporates conducted by the Bank of Lithuania, the share of companies investing in green technologies in the first half of 2020 was 23%, and 27% in the

⁸⁹ For more details, see: [Climate-related risk and financial stability](#) (ECB/ESRB Project Team on climate risk monitoring, 2021).

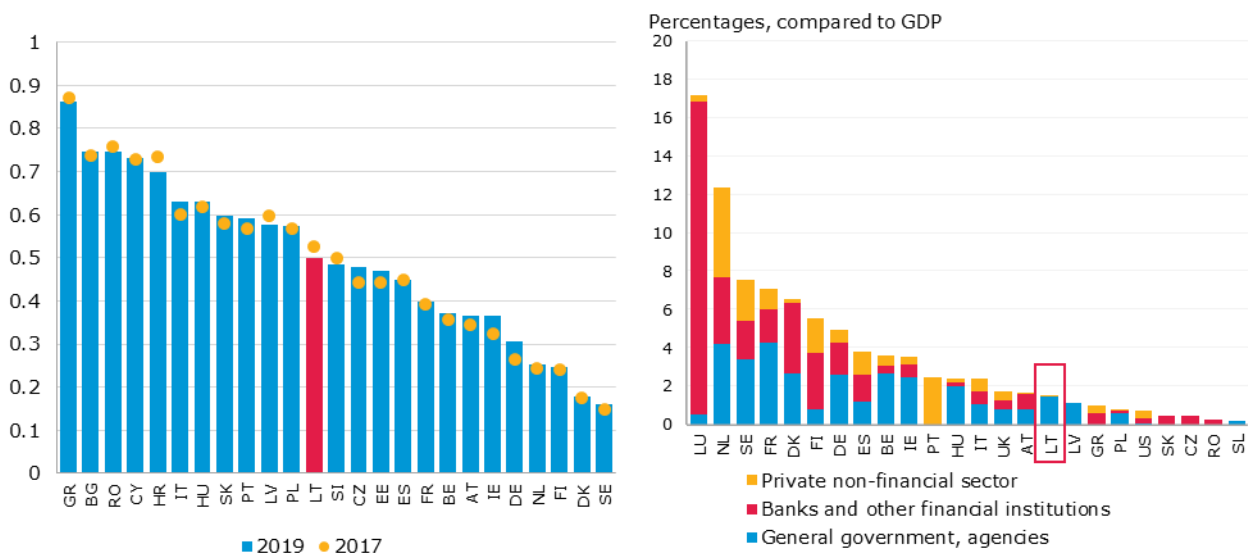
⁹⁰ For more details, see New Generation Lithuania [plan](#).

⁹¹ It is calculated that military expenditures can account for 5% of total global CO2 emissions. For more details, see [here](#).

first half of 2021. One way to finance the green transformation is to issue green bonds, but Lithuanian companies hardly use this option — there were no new issuances of green bonds in 2021. In general, green bonds are mainly issued by the government and its subordinate institutions, while the private sector has issued green bonds only once (see Chart 34, right-hand panel).

The resilience of Lithuania's economy in the transition to a green economy has improved in recent years.

Chart 34. Resilience in the transition to a low-carbon economy in EU countries (left-hand panel) and issuance of green bonds by country and sector (right-hand panel)



Sources: The Bank of Lithuania calculations are based on data from the World Bank, the OECD, the United Nations World Economic Forum, *Refinitiv* and *Nasdaq Baltic*.
Notes: The index takes values from 0 to 1; higher value indicates lower resilience (left-hand panel). Bonds were issued before 3 May 2022.

4. Stress testing

4.1. Bank solvency testing

The main purpose of bank solvency stress testing is to assess the capital adequacy levels of the largest banks operating in the country⁹² under adverse economic conditions. It should be noted that the results obtained through stress testing are not forecasts, thus the results obtained must be assessed based on the assumptions made.

As part of the bank solvency testing, four scenarios for economic development were developed. The baseline scenario (conventional scenario) is based on the official macroeconomic projections of the Bank of Lithuania published in March 2022 (for more details, see Section 1.1). The baseline scenario was designed to assess the sustainability of bank activity in the context of the most likely economic developments. The shock scenario and severe shock scenarios are based on sensitivity analysis, which assumes a worse international economic situation and stricter sanctions.⁹³ An additional adverse scenario has been developed to assess the sustainability of bank activity in the case of a particularly severe economic shock. Under this scenario, domestic demand would decrease by 5.8% in 2022 (1% in 2023), the unemployment rate would rise to 9.4% (9.9% in 2023), while exports of goods and services would fall by 8.2% in 2022. Under an adverse scenario, Lithuania's real GDP would contract by 6.5% in 2022 and by 1% in 2023. The main macroeconomic indicators used in the testing and their evolution are presented in Table 5.

Table 5. Evolution of the key macroeconomic indicators under stress test scenarios

(percentages)

Indicators	Actual indicator	Baseline scenario		Shock scenario		Severe shock scenario		Adverse scenario	
	2021	2022	2023	2022	2023	2022	2023	2022	2023
GDP (annual change)	4.8	2.7	2.7	0.4	2.1	-1.2	1.5	-6.5	-1.0
Exports of goods and services (annual change)	14.1	5.2	1.9	3.8	3.1	3.0	3.9	-8.2	-0.9
Private consumption expenditure (annual change)	7.2	4.7	4.9	1.5	2.8	-0.8	1.1	-5.8	-1.0
Unemployment rate (annual average)	7.1	7.1	7.3	8.1	8.3	8.8	9.0	9.4	9.9
Wages (annual change)	10.5	10.7	7.7	5.6	3.7	2.2	1.1	-5.1	-1.3
Average annual inflation (based on HICP)	4.6	10.5	2.7	10.7	2.7	11.1	3.0	4.7	-1.3
RE price index (annual change)	16.0	14.2	8.7	4.8	2.3	-1.9	-3.7	-15.2	-2.3

Sources: Statistics Lithuania and Bank of Lithuania calculations.

Note: Data on GDP, exports of goods and services and private consumption expenditure are at constant prices.

⁹² The following banks are assessed: AB SEB bankas, AB Šiaulių bankas, Swedbank, AB, and UAB Medicinos bankas.

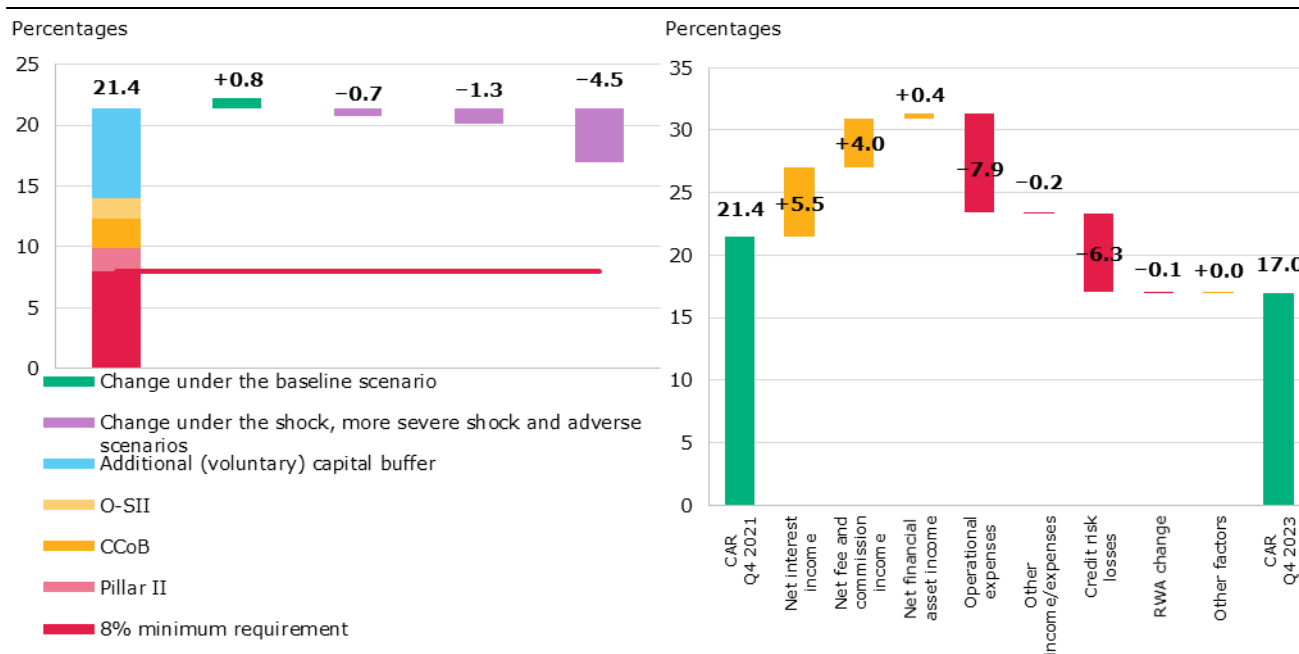
⁹³ These scenarios are based on the GDP and inflation development scenarios published by the Economics Department of the Bank of Lithuania on 22 March 2022, and additional assumptions are made regarding the development of other macroeconomic indicators.

Stress test results show that the banking sector is sufficiently capitalised and remains resilient to potential shocks (see Chart 35, left-hand panel). During 2022-2023 testing period, the banking sector would maintain high capital adequacy ratios (22.2%) under the baseline scenario. Under the shock and severe shock scenarios, there would only be a limited impact on banks' capital positions. Under these scenarios, the weighted capital adequacy ratio would fall to 20.8% and 20.1%, respectively. Under the adverse scenario, which provides for an extremely severe economic shock, the capital held by the banking sector would be sufficient to meet the minimum capital requirements, including Pillar 2, with a margin. During the testing period, the adverse scenario would see the weighted capital adequacy ratio decline to 17%, while the gap from the baseline scenario would be -5.2 percentage points. Since the recent good profitability and macroprudential capital requirements have allowed banks to build up significant capital buffers, the capital depletion assessed during the stress testing does not address risks to the stability of the sector, allowing banks to withstand even a more severe economic shock than under the stress-testing scenarios.

Under the adverse scenario, credit losses incurred by the banking sector in 2022-2023 would amount to around EUR 628.5 million, or approximately 4% of the total loan portfolio at the end of 2021 (losses on loans to non-financial corporations would amount to 8.6%, losses on household loans – 1.1% and household consumer loans – 3.7%). Between 2022 and 2023, as compared to 2020-2021, banks' operating income could fall by around 11.5% under the adverse scenario. Compared to the baseline scenario, the decline in the capital adequacy ratio is mainly driven by increased credit risk losses and reduced net interest income (see Chart 35, right-hand panel).

The banking sector is resilient to economic shocks. Credit risk losses on the loan portfolio are a major source of losses for banks.

Chart 35. Decline in the banking sector's capital adequacy ratio by scenario (left-hand panel) and decline in the banking sector's capital adequacy ratio under the adverse scenario (right-hand panel)



Sources: Bank data and the Bank of Lithuania calculations.
Note: CAR - capital adequacy ratio.

4.2. Bank liquidity testing

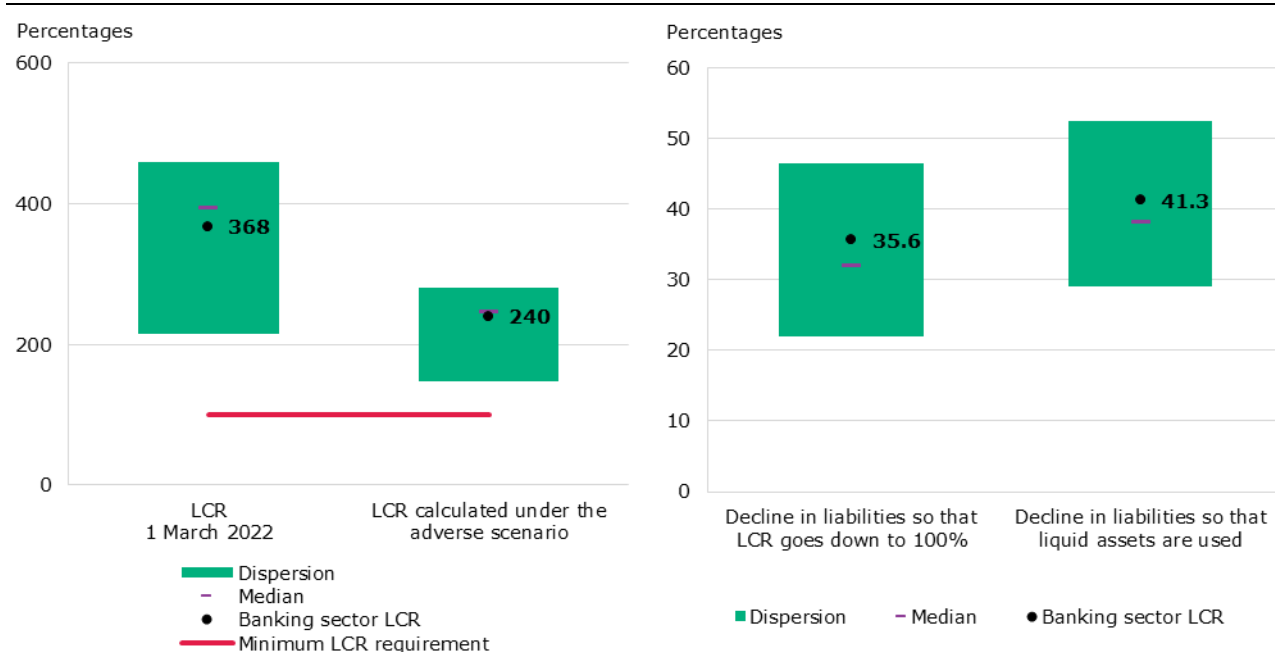
The banking sector is sufficiently well equipped to withstand short-term liquidity shocks. Bank liquidity stress testing involves the analysis of short-term liquidity shocks, which would trigger a fall in

the value of liquid bank assets, a larger than usual deposit withdrawal and a decline in banks' cash inflows.⁹⁴ The actual *liquidity coverage ratio* (LCR) of the sector was 368%⁹⁵ in March 2022, yet under the adverse scenario it would fall to 240%. Thus, the banking sector would meet the 100% liquidity coverage requirement with a margin (see Chart 37, left-hand panel). The LCRs of individual banks would also meet this requirement.

The banking sector would overall be able to cover a 41.3% decrease in deposits with liquid assets; however, their liquidity situation varies (see Chart 36, right-hand panel). Results for individual banks fluctuate from 29.1% to 52.4%. For comparison: the largest monthly decline in deposits in the banking sector (6.2%) was recorded in October 2008, when depositors started to have doubts regarding the sustainability of one bank (deposits in the said bank dropped by 9.3%). Looking at individual banks, the largest decline in deposits over a month (28.7%) was registered in November 2008 in AB Parex banka (currently – AS Citadele banka Lithuanian branch), when its parent bank came into liquidity difficulties and the Government of Latvia had to provide it with financial support.

The banking sector would be able to cover a 41.3% decline in deposits.

Chart 36. Bank liquidity stress testing results (left-hand panel) and decline in deposits that banks would be capable to withstand (right-hand panel)



Sources: Bank data and Bank of Lithuania calculations.

⁹⁴ Assumptions for testing bank liquidity are presented in the [2017 Financial Stability Review](#).









⁹⁵ The LCR is calculated as the ratio of liquid assets to net cash outflow. The LCR of banks operating in Lithuania is sufficiently high since the structure of bank liabilities and inflows is relatively stable. It should be noted that the main bulk of liabilities of banks operating in Lithuania consists of corporate and household deposits, which are considered to be stable liabilities.

5. Financial stability strengthening

Since 2014, the Bank of Lithuania has been given a macroprudential policy mandate, implementation of which improves the resilience of the financial system as a whole. The implementation of macroprudential policy enables early identification of threats to the financial system and the making of appropriate arrangements to manage those risks. In autumn 2021, the Bank of Lithuania reacted to the heating of the housing market by tightening the RLR and setting the sectoral SRB rate at 2% for the housing loan portfolio (see Chart 37).

The Bank of Lithuania reacted to the heating of the housing market by tightening the RLR for second and subsequent loans and setting the sectoral SRB rate at 2% for the housing loan portfolio.

Chart 37. Macroprudential policy instruments implemented in Lithuania

L				
Borrower protection			Bank resilience	
	Down payment requirement	first loan second and subsequent loan*	15% 30%	
	Maximum monthly loan instalment		40%	
	Interest rate rise test**		50%	
	Maximum loan maturity		30 years	
	Systemically important institutions buffer			
	AB SEB bankas	„Swedbank“, AB	2%	2%
		AB Šiaulių bankas		1%
	Countercyclical capital buffer			0%
	Capital conservation buffer			2.5%
	Sectoral systemic risk buffer		2%	applicable to the housing loan portfolio as of 1 July 2022

* An exception is applied to borrowers who have a loan balance of less than 50% of the value of the housing acquired with each corresponding loan.

** The monthly maximum loan contribution must not exceed 50% of sustainable revenue using the 5% interest rate used in the calculation.

In order to equalise the riskiness of the first and subsequent housing loans and to further limit investment transactions financed by loans, the second and subsequent housing loans are subject to the tighter 30% down payment requirement as of 1 February 2022.⁹⁶ The share of secondary⁹⁷ housing loans increased from 10% to 13% of new housing loan flows between 2019 and 2021 (see Chart 38). The largest share of second housing loans is in the Vilnius and Klaipėda districts, although the share of these loans has been growing across Lithuania in recent years. An analysis⁹⁸ (for more details, see Box 6) showed that households with more than one housing loan, particularly in cases where only a small share of former housing loans is repaid, are more exposed to financial stress arising

⁹⁶ Resolution No 03-191 of the Board of the Bank of Lithuania of 11 November 2021 on the amendment to Resolution No 03-144 of the Board of the Bank of Lithuania of 1 September 2011 on the Responsible Lending Regulations.

⁹⁷ Secondary loan means a second or subsequent housing loan.

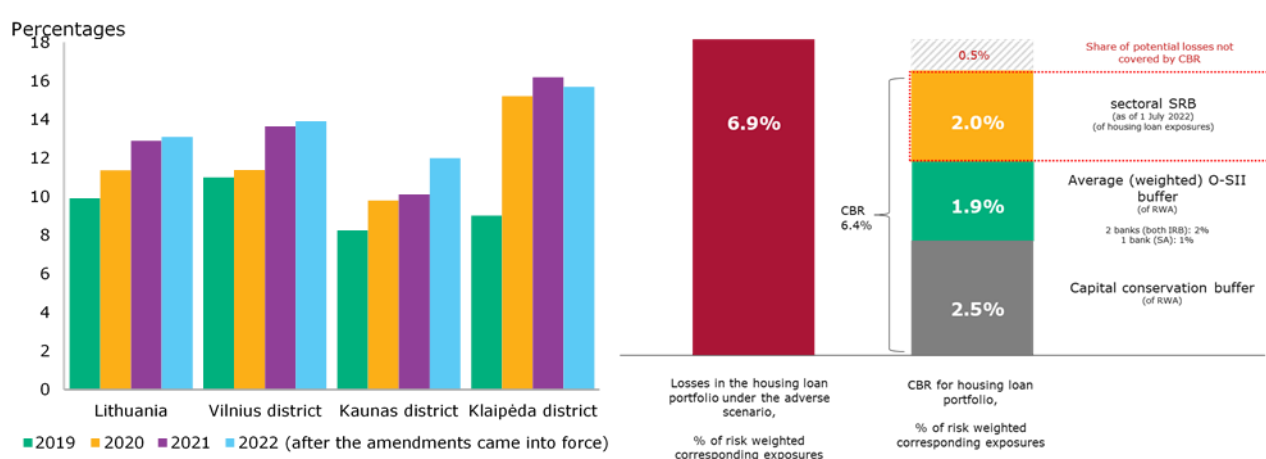
⁹⁸ For more details, see J. Karmelavičius, M. Dirma and G. Stalenis's article "Pradinis įnašas antrajai būsto paskolai. Koks jis yra ir koks galėtų būti?", published on the Bank of Lithuania's website on 28 September 2021 and Box 6 of this Review "Assessment of the riskiness of secondary housing loans".

from an unexpected change in the economic situation. Given this and in order to hold back investment transactions financed by loans in second and even third houses, when investing in anticipation of future rents or future appreciations, a higher 30% down payment requirement was decided for second and subsequent housing loans.

It should be noted that these changes are targeted — the requirement for a higher down payment will not affect the buyers of their first home, who will continue to be subject to the down payment requirement of 15%. Similarly, to take due account of situations where existing housing loans were taken a long time ago and most of them have already been repaid, an exception will apply to households with the outstanding amount of each earlier loan lower than 50% of the value of housing purchased using that loan. The second and subsequent housing loans of such households will be subject to the minimum down payment requirement of more than 15%.

Given the increase in the share of secondary loans in the flow of new housing loans between 2019 and 2021, it was decided to tighten the down payment requirement for second and subsequent housing loans, which entered into force on 1 February 2022. The new sectoral SRB is aimed at increasing the resilience of credit institutions to potential losses from deteriorating housing loan quality under the adverse scenario.

Chart 38. Share of secondary housing loans in Lithuania and in some districts (left-hand panel) and combined buffer requirement for the housing loan portfolio compared to potential losses under the adverse scenario (right-hand panel)



Source: Bank of Lithuania calculations.

Note: CBR - combined buffer requirement; RWA - risk-weighted assets; IRB - internal-ratings based models applied to credit risk; SA - standardised approach.

The Bank of Lithuania also decided⁹⁹ to apply the 2% sectoral SRB rate to the housing loan portfolio of credit institutions, and this requirement entered into force on 1 July 2022. This action aims to enhance the resilience of credit institutions in the face of increased risk of potential housing market imbalances and to contribute to the reduction of this risk. The requirement will apply similarly to the CCyB rate, however the capital buffer will not be calculated on the amount of all exposures but only on the amount of RE collateralised exposures to natural persons in Lithuania (in principle, the housing loan portfolio). Accordingly, in the event of a future increase in the CCyB rate, the sectoral SRB rate could be revised in parallel to ensure that there is no overlap between the two requirements if specific risks are already fully covered by one of them, i.e. the combined buffer

⁹⁹ Resolution No 03-200 of the Board of the Bank of Lithuania of 25 November 2021 on the application of the systemic risk buffer.

requirement for specific exposures should not exceed the losses of that particular portfolio under the adverse scenario (see Chart 38).

The buffer requirement will not apply to institutions with a housing loan portfolio comprising a very small share of the housing loan portfolio of the entire credit institution sector, i.e. below EUR 50 million, a figure which currently accounts for approximately 0.5% of total housing loans in Lithuania. Therefore, this requirement will not affect market participants whose impact on systemic risk in the housing market is negligible. On the basis of current data, the buffer will be applied to five institutions: AB SEB bankas, Swedbank, AB, AB Šiaulių bankas, the Lithuanian Central Credit Union and the United Central Credit Union groups. All of these institutions already have sufficient capital to meet the requirement when it comes into force. Since loans granted by foreign bank branches in Lithuania comprise approximately one-quarter of the housing loans in the country, the Bank of Lithuania applied to the ESRB, which, at its request, issued a recommendation to other national competent authorities to recognise the sectoral SRB established by the Bank of Lithuania and to apply it to banks established in their jurisdictions with housing loan portfolios exceeding the materiality threshold mentioned above.

The amendments to the Law on Banks¹⁰⁰ entered into force on 1 November 2021, extending the powers of the Bank of Lithuania to assess an increase in systemic risk when banks or banking groups carry out concentration-increasing transactions.¹⁰¹ In addition to assessing transactions in cases where banks merge, the Bank of Lithuania will now be able to assess the acquisition of significant asset portfolios¹⁰² and the acquisition of a qualifying share in the authorised capital or voting rights (where control is acquired). In addition to transactions of banks established in Lithuania, those of foreign bank branches and subsidiary financial institutions of banking groups that are subject to consolidated supervision in Lithuania can be assessed as well. The assessment will be carried out in two stages.¹⁰³ The starting point is the future importance of the entity in the different financial services markets after the transaction, i.e. the market share that the entity will hold in the loan, deposit and payments markets after the transaction, as the greater importance identifies a higher risk for the stability of the financial system if the entity faces financial or other distress. In the second stage, a range of systemic risk indicators (e.g. the systemic importance score, calculated in accordance with the EBA methodology, interconnectedness with other market participants, critical functions, geographical concentration, etc.) as a whole, along with the overall extent of change, are assessed. Transactions will not be allowed if it is established that they may have a negative impact on the level of systemic risk in Lithuania's system of credit institutions.

The EC undertook a review of the EU's macro-prudential policy framework. The CRR requires the EC to assess, by 30 June 2022 and every five years thereafter, whether the macro-prudential policy measures established by the CRR and the CRD are adequate to address systemic risks in EU countries and to present, where appropriate, proposals for amendments or supplements to the European Parliament. In preparation for this assessment, the EC consulted the public¹⁰⁴ and invited the ECB, the ESRB and the EBA to put forward proposals on improving the efficiency of the capital buffer framework, introducing new macro-prudential provisions, streamlining and clearer presentation of the macroprudential provisions currently adopted in the CRR and the CRD, and clarifying other aspects. Based on the responses received and its assessment, the EC intends to finalise and submit proposals to the European Parliament on specific amendments to the CRR/CRD text by the end of the first quarter of 2023.

¹⁰⁰ Law No XIV-292 of 13 May 2021.

¹⁰¹ For more details, see the [Bank of Lithuania website](#).

¹⁰² Asset portfolios exceeding 1% of the total assets of the system of Lithuanian credit institutions.

¹⁰³ [Consolidated version](#) of the Resolution of the Board of the Bank of Lithuania on approval of the assessment methodology.

¹⁰⁴ For more details, see [here](#).

The Bank of Lithuania, together with the Competition Council, conducted and published a study¹⁰⁵ on the financing options of SMEs and put forward recommendations whose implementation would improve SMEs' access to credit and thereby enhance the contribution of the financial system to real economic growth. The recommended measures include dissemination of information on financing sources, improvements in the financial literacy of SMEs, strengthening compliance with financial reporting requirements, and improving state aid instruments and their targeted implementation. The Bank of Lithuania will continue its cooperation with the responsible authorities with a view to contributing to the implementation of the recommendations.

Box 6. Assessment of the riskiness of secondary housing loans

As of 1 February 2022, the amendments to the RLR entered into force in Lithuania and they introduced a 30% minimum down payment requirement for secondary housing loans (for more details, see Chapter 5). These amendments were adopted to prevent risks posed by the targeted group of borrowers taking second and subsequent housing loans, without affecting the less risky and socially more vulnerable segment of borrowers who take out first housing loans. This box discusses the need for regulation of secondary housing loans and assesses their riskiness and the minimum down payment requirement based on credit risk models, according to the comment by J. Karmelavičius, M. Dirma and G. Stalenis.¹⁰⁶

Prior to the entry into force of the new RLR amendments, secondary loan borrowers, on average, devoted a higher proportion of their income to the cost of handling their loans compared to first-time loan borrowers, and paid a relatively higher down payment. First, this means that secondary housing loans were more vulnerable to borrowers' loss of income or jobs or to interest rate hikes. Second, although the down payment on secondary loans was mostly higher than that of first loans, even half of the secondary housing loans accounted for only 15% to 20% of the value of the collateral. The question arises whether, when taking other characteristics into account, secondary loans are indeed riskier than first ones? This can be clarified by econometric credit risk models.

Household housing loans are on average riskier when households hold other previously taken housing loans, of which only a small part is repaid. Looking at the actual loan insolvency frequency series (see Chart A, left-hand panel), it appears that, while the share of non-performing loans in the total loan portfolio declined over the period under review, secondary household housing loans became non-performing more often. This is confirmed by the results of an econometric probability of default model for housing loans¹⁰⁷, which show that household loans for house purchase are statistically significantly riskier when households hold other previously taken loans, particularly in the case when only a minor part is repaid (see Chart A, right-hand panel). For example, if a household's previously taken out loan is nearly repaid, the secondary loan is in practice not riskier. Nonetheless, if the first housing loan had depreciated by 50%, the secondary loan would be at around 0.08 percentage point riskier, with other factors unchanged.

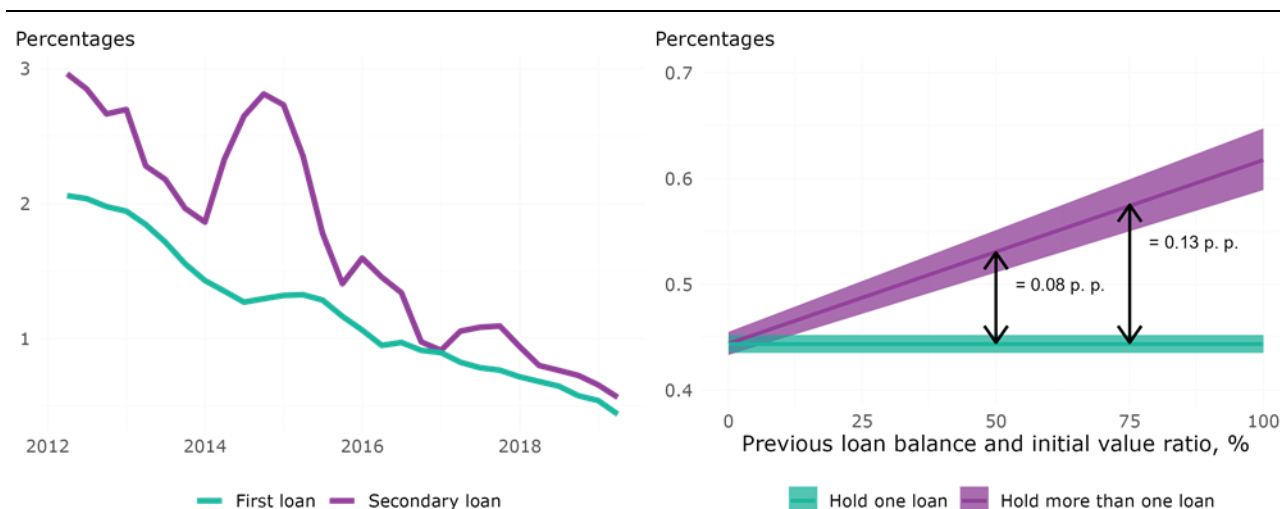
¹⁰⁵ Bank of Lithuania and Competition Council, [Accessibility of financing for small- and medium-sized businesses](#), 2021.

¹⁰⁶ J. Karmelavičius, M. Dirma and G. Stalenis's article "Pradinis įnašas antrajai būsto paskolai. Koks jis yra ir koks galėtų būti?", published on the Bank of Lithuania's website on 28 September 2021.

¹⁰⁷ The same credit risk model for housing loans is applied as in Box 5.

Secondary loans of households are, on average, riskier than the first ones.

Chart A. Actual insolvency frequencies for household housing loans (left-hand panel) and dependence of the probability of default on the depreciation of previous household housing loans (right-hand panel)



Source: Bank of Lithuania calculations.

Notes: The areas around the lines correspond to the 95% confidence interval. Data refer to the period from the first quarter of 2012 to the first quarter of 2020.

The assessment suggests that a stricter down payment requirement for secondary loans, which becomes more significant in the circumstances of a deeper economic downturn, is meaningful to households with low levels of depreciation of their first loans (see Chart B and Table A). On the basis of the loan default probability model¹⁰⁸ and the household bankruptcy simulator,¹⁰⁹ an individual LTV limit applicable to secondary loans for each household was sought. It appears that households which almost fully repaid their first loans (i.e. those with a low current LTV¹¹⁰ ratio) might be granted a higher LTV limit than those who had only a small fraction of their first loans repaid. Chart B also shows that even stronger regulation would be needed when the current LTV of first loans reached more than 70%. It is important to note that regulatory tightness depends on the macroeconomic situation in the country. In the light of a mild crisis scenario, characterised by a 15% drop in house prices, the individual LTV limits on secondary loans were broken down between 76% and 85%. However, if house prices fall by 25% in the event of a severe economic crisis, more than the 20% down payment requirement would be meaningful for a larger part of the household sector.

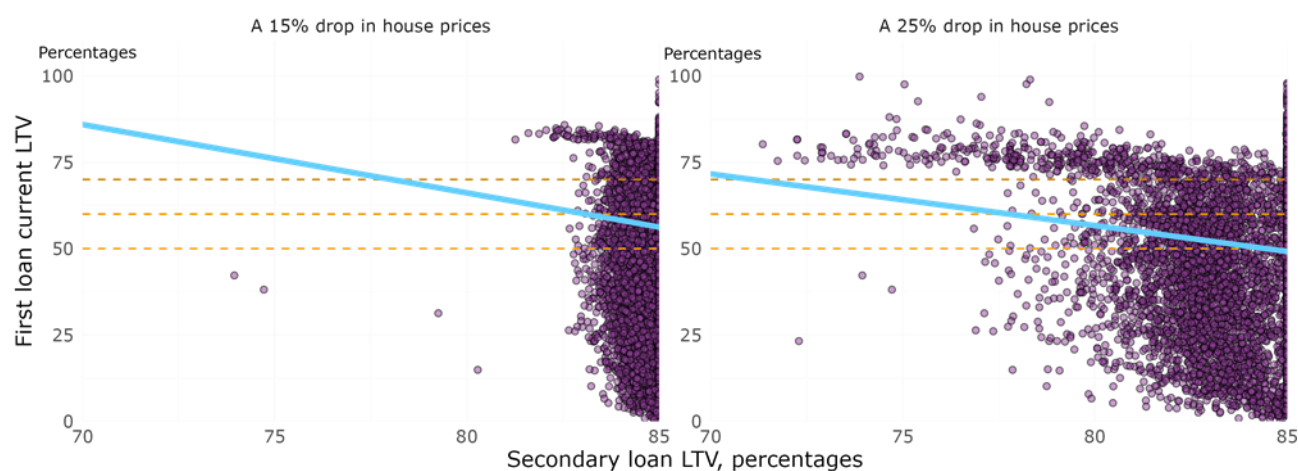
¹⁰⁸ For more details, see Box 5.

¹⁰⁹ According to the methodology of Gross, M. and Población, J. (2017). Assessing the efficacy of borrower-based macroprudential policy using an integrated micro-macro model for European households. *Economic Modelling*, 61:510–528.

¹¹⁰ The current LTV ratio is defined as the ratio of the credit balance to the present value of pledged assets.

For households with higher current LTVs on the first loan, a tighter LTV limit for the secondary loan is more meaningful, especially in case of sharper drops in house prices.

Chart B. Relationship between individual LTV limits for secondary housing loans and the current LTV of the first housing loan, taking due account of the crisis scenario



Source: Bank of Lithuania calculations.

Notes: Orange dashed lines correspond to the limits of 50%, 60% and 70% of the current LTV of the first loan. The light blue line denotes the censored (tobit) regression line weighted by the other factors of the first loan.

Table A. Estimated LTV limits for second housing loans

Current LTV of the first loan, %	1. Loan default probability model		2. Household bankruptcy simulator	
	A: a 15% drop in house prices	B: a 25% drop in house prices	A: a 15% drop in house prices	B: a 25% drop in house prices
> 0	85	84	85	82
> 50	84	82	76	76
> 60	84	80	77	76
> 70	84	76	78	78

Source: Bank of Lithuania calculations.

A stricter down payment requirement should encourage borrowers to better assess their financing options for taking out second and subsequent housing loans, as well as reducing the risks incurred by lenders. At the same time, this would limit the build-up of possible housing market imbalances due to the acquisition of homes for renting or investment purposes. On the other hand, higher down payments reduce the risks taken by the lender. Should a loan become non-performing, in the event of a sharp drop in house prices, the lender may incur losses without being able to cover the remaining part of the loan. A larger share of the value of the housing purchased covered by a down payment translates into smaller credit granted (compared with the value of the collateral) and a lender that becomes more resilient to possible drops in house prices. It should be noted that the assessment of the down payment of secondary housing loans is based only on the individual credit risk of each household. Given the potential impact of house purchases with secondary loans on the RE market, as well as the feedback between micro-level credit risk and the overall financial stability of the country, the down payment requirement for secondary housing loans could be even tighter than the estimates presented above.

Abbreviations

AB	public limited company
CCyB	counter-cyclical capital buffer
CFPO	crowdfunding platform operators
CIU	collective investment undertaking
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
CU	credit union
DSTI	debt service-to-income
EBA	European Banking Authority
EC	European Commission
ECB	European Central Bank
EMI	electronic money institution
ESRB	European Systemic Risk Board
EU	European Union
EURIBOR	Euro Interbank Offered Rate
Eurostat	Statistical Office of the European Union
Eurosysteem	European Central Bank and euro area central banks
GDP	gross domestic product
GHG	greenhouse gas emissions
HICP	Harmonised Index of Consumer Prices
IMF	International Monetary Fund
LRDB	Loan Risk Database
LTV ratio	loan-to-value ratio
MFI	monetary financial institution
ML/TF	money laundering and terrorist financing
P2P LPO	peer-to-peer lending platform operators
PI	payment institution
RE	real estate
RLR	Responsible Lending Regulations
SB	specialised bank
SME	small and medium-sized enterprises
SRB	systemic risk buffer
STI	State Tax Inspectorate

Country codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES (in charts)	Spain
EU	European Union
FI	Finland
FR	France
GB	Great Britain

GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
UK	United Kingdom
US	United States of America
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	The Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia

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The analysis of the banking sector was based on consolidated data on banks operating in Lithuania, including foreign bank branches, unless otherwise specified.

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