Financial Stability Report

May 2022

NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

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Foreword

In view of what is currently happening in the world, we are tempted to say that the good news for financial stability has petered out. And we would be far from the only euro central bank to be talking about a worsening situation. The world economy has been battered by a two-year pandemic crisis, and now there is a major military conflict taking place, as it were, right on our doorstep. We are witnessing rising prices, and not only in energy and commodities. Housing market growth is breaking multi-year records. Global supply chain disruptions are persisting. Few of us recall a time of greater uncertainty.

The way to deal with any problem lies in understanding its nature and intensity to the greatest extent possible. Therefore, at this juncture, I see the role of Národná banka Slovenska as indispensable. In particular by analysing granular data on firms and households, we can better understand the sensitivity of our economy and financial system to scenarios of potential future developments.

It appears that rising prices may have an adverse impact on the financial situation of both firms and households. In a scenario of rising inflation and economic crisis, as many as 5% of loans to households could end up in difficulty, with low-income households most at risk. As for firms, up to 10% of the corporate loan book could become distressed. Having a clear picture of which types of firms and households are affected is essential for effective and targeted assistance.

There is, however, still good news to be found. The domestic financial sector remains a solid pillar of our economy. Even under a highly adverse stress scenario, our banks are shown not only to remain stable and secure, but also to remain able to provide sufficient financing to firms and households.

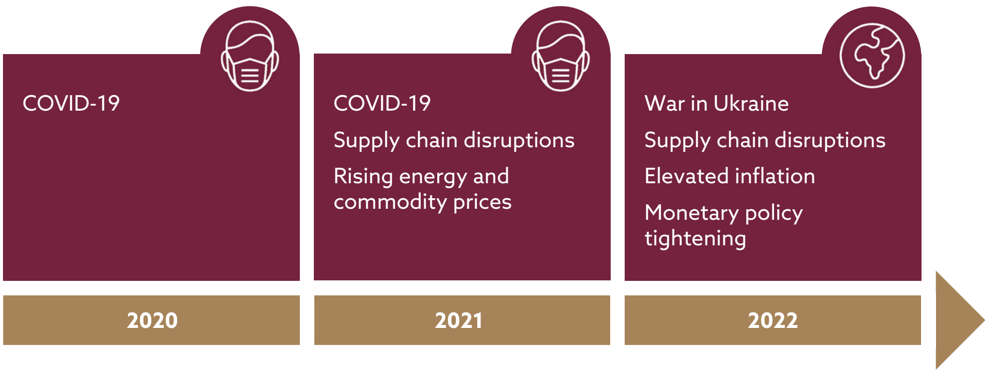
Overview

Financial stability remains high, but external risks have increased

Financial stability developments have for more than two years been largely affected by events in the external environment. The pandemic crisis that we faced from March 2020 has been followed by new challenges with a significant impact on the global economic environment. Most notably, there have been supply chain disruptions and an elevated level of inflation (including surging prices of energy and other commodities) coupled with a tightening of monetary policy. The negative effects of these developments are being exacerbated by the war in Ukraine, which is a source of considerable uncertainty about the future situation. In this context, the financial stability outlook may have deteriorated.

Elevated inflation in particular will pose a major challenge to financial stability. The more protracted this trend, the greater its impact may be, especially if accompanied by a weaker economic situation. Firms and households would be adversely affected if their expenditure were to increase faster than their revenues or income, and those facing a higher rise in expenditure could end up struggling to service their debts or having to reduce consumption. On the other hand, around one-half of households may see their income grow faster than their expenditure, thereby easing their debt servicing burden. In the inflationary environment, upward pressure on interest rates is increasing and may also contribute to the worsening financial situation of indebted households and firms. Despite rate increases, the risk of negative real returns on savings remains present, particularly where savings are in the form of bank deposits.

Figure 1
External developments impacting financial stability



Source: NBS.

Rising prices, softening economic growth, and gradually increasing interest rates will weigh on households and firms

The current situation will have an adverse impact on the corporate sector. Firms largely avoided being permanently scarred by the two-year pandemic crisis, but their financial situation has still not fully rebounded to pre-crisis levels. As a result, they are more vulnerable to new shocks. In the current environment, their main challenges will be soaring costs and possibly weakening demand, and they have already begun adapting to this situation. However, firms' ability to offset rising costs varies and depends on many factors. It is estimated that if corporate costs continue rising over the next three years, loans to firms that may be at risk of financial distress could account for up to 17% of the aggregate corporate loan book. New loan defaults alone could amount to 6% of the overall portfolio within three years. These estimates do not, however, take into account any solvency-strengthening measures that the government or firms themselves may take.

Households are in a better situation than firms. Around 2.6% of housing loans could be at risk of default. Banks do not, however, expect this portfolio to be a source of significant losses, since strong housing price growth is giving them something of a cushion against default-related losses. On the other hand, some households may find themselves in a situation where their income no longer covers both living costs and loan repayments. In the case of consumer credit, delinquency risk is a greater issue, and we are already seeing a gradual increase in the default rate. More than 8% of consumer loans could default.

Inflation will have a key effect on households' debt servicing ability. Since inflation is expected to affect them gradually, it is very important that households keep track of their financial situation and identify potential risks in good time. Households will be under increasing pressure to trim consumption expenditure.

With housing loan growth continuing to accelerate, NBS proposes adjustments to regulatory lending limits

Despite a climate of increasing uncertainty, the housing loan market has maintained strong growth, which has even accelerated in the recent period. There has also been a pick-up in consumer finance. Although the consumer credit portfolio has continued to shrink, increases in existing borrowing through refinancing (including top-up loans) have contributed to growth in lending for consumption.

Housing loan trends and rising household indebtedness are bringing risks that require some adjustment of regulatory lending limits. NBS is closely monitoring trends and risks in this market and considers the current calibration of its regulatory limits to be generally appropriate. An adjustment is required, however, in regard to the continuing growth in housing loans extending beyond retirement age. When borrowers retire, their income falls, and this fact must be taken into account when housing loans that extend into retirement are being granted. The refinancing of such loans can accentuate this risk. Moreover, banks' credit standards in this area are subject to strong competitive pressure and are therefore at risk of bring further eased.

In view of the above risks, NBS is proposing to adjust the debt-to-income (DTI) ratio limit for loans extending into retirement. However, this adjustment is primarily designed to prevent a future build-up of risks. The impact on the current credit market is expected to be minimal.

NBS is also taking active steps to support the transition to a green economy. To this end, it is proposing to ease regulatory conditions on house renovation loans facilitating financing from Slovakia's recovery and resilience plan.

The housing market boom continues. Housing price growth rates of more than 20% are outpacing household income growth, with the result that housing is rapidly becoming less affordable. If interest rates continue on their current upward path and inflation remains elevated, the decline in housing affordability may become even more pronounced. Lower-income groups in particular will be dropping out of the market, in which there will be a greater concentration of higher and middle-income groups. This only highlights the need to provide alternatives for affected households, mainly in the form of government-subsidised rental housing.

We do not expect housing prices to correct sharply in the near term, but rather to grow at a gradually more moderate pace.

Banks and insurers remain profitable and well capitalised

The profitability trends of banks and insurers remain favourable. The banking sector's profit increased moderately, year-on-year, in the first quarter of 2022, but remains somewhat lower than the EU median. Insurers also saw a slight increase in their profitability, which, by contrast, is among the highest in the EU. Their positive figures have been driven mainly by developments in non-life business.

Slovak banks remain well capitalised. The total capital ratio of the Slovak banking sector was 20.0% as at the end of 2021. Last year banks strengthened the amount and composition of their capital mainly by retaining almost half of their earnings for 2020. The sector continues to have sufficient available capital to maintain lending to the real economy.

The resilience of banks in Slovakia has been confirmed by stress testing. On the one hand, rising inflation is undermining the financial situation of firms and households and increasing the probability of default. On the other hand, interest rate increases should help stabilise the situation and support a gradual uptrend in the banking sector's net interest income.

NBS is closely monitoring the state of the financial cycle, which at present is in a relatively strong expansionary phase. There is now a high build-up of imbalances amid still rising risk appetite and increasing signs of overheating in the property market. If trends continue on this path, NBS will consider raising the countercyclical capital buffer rate in June, at its next regular quarterly decision on the buffer's calibration. Another key factor in that decision will be the degree of uncertainty about the impact of the war in Ukraine.

Growth in investment demand

The volume of household assets under management in the second and third pension pillars and in the investment fund sector increased at a record pace in 2021. The growth was driven not only by strong customer inflows, but also by high nominal returns on investment across the funds in question. In the first quarter of 2022, however, returns corrected to some extent. The growth in investment demand was partly supported by rising inflation. Investors were gravitating towards equity funds to a greater extent than they did previously.

Besides recording strong growth, pension fund investments have also been undergoing a gradual change in composition. In the previous period of low returns, demand for equity investment products started to increase. Given the long-term nature of pension saving, such products are generally seen as more advantageous for younger and middle-age savers. Today, one in every three pension savers is invested in a fund with a predominant equity component. The preference for equity investments is particularly strong among younger customers newly enrolling in the pension system. On current trends, the equity component of the overall pension fund portfolio will continue to grow; nevertheless, given the small degree of switching between funds, a significant proportion of savers will remain invested in bond-focused funds.

1 Macroeconomic environment and financial markets

1.1 Global economy facing a slowdown amid war and rising inflation

The war in Ukraine has brought new risks to the economy and to financial stability

As recently as the start of 2022, the global macroeconomic outlook appeared relatively bright. The Omicron wave of the coronavirus (COVID-19) pandemic was receding and its adverse effects on economic activity were milder than those of the pandemic's earlier iterations. Moreover, there were the first signs of an easing of global supply chain disruptions. All the indications were that this year would witness a robust recovery and normalisation of economic conditions.

At the end of February, however, a dramatic shock occurred with the outbreak of war on the European continent between Russia and Ukraine. In addition to the incalculable human suffering, this conflict has had major economic consequences both at a global level, and even more so for European countries owing to their geographical proximity to, and trade and commodity links with, the belligerents.

The economic effects of this new geopolitical situation are being, and will be, reflected in the international arena at several levels. The most direct channel is the decline in exports to the two countries directly involved in the war. In the case of Russia, the flow of goods and services has been significantly reduced by the sanctions imposed on it by EU and other Western countries and by Russia's retaliatory countermeasures. In this respect, it should be noted that Europe's engagement with the Russian market has been declining since the middle of the last decade, to the point that exports to Russia accounted for just 4% of EU exports. A second channel, with the potential to cause significant damage to the European economy, is the rising prices of energy and other commodities or the reduction of their availability. In extremis, there is a risk that oil and gas supplies from Russia will be completely cut off, resulting in significant production losses and serious economic disruption in countries more heavily dependent on these resources. The third and least predictable channel is the negative impact of the war on the confidence and sentiment of agents in the economy. These parameters are affecting how households and firms adjust their consumer and investment decisions in the face of a prevailing climate of uncertainty.

After the first two months or so of the war, it is very difficult to quantify its global, or even regional, economic repercussions. A major unknown is how long the war will last, as is the duration and intensity of the sanctions. Projections made so far are highly tentative and are constantly being revised. What is certain is that economic growth will slow down and will be lower than projected at the start of this year.

In the case of the euro area there is a small but not entirely negligible risk of a prolonged period of elevated inflation coupled with weak economic growth. It must be noted that none of the relevant international institutions or consensus forecasts of surveyed economists are yet showing such a scenario to be probable. At present, however, amid the interplay of multiple adverse circumstances, such a risk is relevant.

Rising inflation is putting global monetary policies on a tightening track

After several decades of experiencing stable, or even excessively low inflation, advanced economies are confronted with the risk of significant and sustained price growth. Already last year, a gradual acceleration of consumer prices was evident across virtually the whole world. It was initially assumed to be a merely transitory phenomenon resulting from the mismatch between rapidly recovering demand and less elastic supply, particularly in the areas of energy and durable goods. In the first half of 2022, however, it has become clear that inflationary pressures are not fading so quickly; nevertheless, they should still be temporary in nature. After the outbreak of the war in Ukraine, the risk of even more adverse inflation developments took on new dimensions. Upward pressure on consumer prices has been exacerbated by surging commodity prices and a new wave of disruptions to the supply of key components produced in Russia and Ukraine for use in global industrial chains. In its March 2022 projections, the ECB revised up its forecast for annual headline inflation in 2022, to 5% in the baseline scenario and to as high as 7% in the 'severe' scenario, while at the same time it stressed that risks in the current situation were tilted clearly to the upside.

In an environment of mounting inflation, the global monetary policy cycle has started to take a tightening turn. The most important steps in this regard have been those taken by the US central bank. In March 2022 the Federal Reserve raised its key federal funds rate for the first time since 2018 and signalled a series of further increases that should bring the rate close to three per cent within less than two years. The Federal Reserve is expected to shortly begin the process of so-called quantitative tightening, i.e. the reduction of its balance sheet. For its part, the ECB has not yet adjusted its monetary policy stance. However, in its forward guidance, the ECB has indicated that its asset purchases under the asset purchase programme will end early, in the third quarter of 2022, thereby leaving room to raise interest rates in the second half of the year. According to expectations derived from market instruments, the ECB's deposit facility rate should increase to just above 1% by the end of next year. Other central banks of major economies have also started increasing rates or have indicated that they will do so soon.

Expectations for rising inflation and for monetary policy tightening affected financial market developments in late 2021 and early 2022

The gradually shifting monetary policy outlook in an environment of rising inflation has been adversely affecting bond markets since the autumn of last year. Initially gradual, this impact became more pronounced in early 2022 when first the Federal Reserve and then the ECB adjusted their stance on inflation developments. Euro and, even more so, dollar risk-free yield curves shifted upwards in these conditions, most notably at their shorter end. At the start of the war in Ukraine, this trend briefly reversed amid flight to safe assets. Within a short time, required yields on government bonds returned to their upward path, and in the euro area they did so with even greater intensity. In the case of corporate debt securities, the increase in yields to maturity was further amplified by the increases in credit risk premia that investors were requiring in response to the shift away from lower interest rates and to the deterioration in macroeconomic projections. Even at their recent peak in early March, however, these premia were far from the levels seen at the onset of the pandemic, let alone during the global financial crisis. They have fallen slightly since then, and not even the evolution of CDS spreads indicates that financial markets are reflecting any significant increase in nervousness about credit risk. Overall, however, the value of bond investments across the credit and maturity spectrums has been trending downwards in recent months.

The way in which market interest rates react to monetary policy normalisation will also have a significant role from a financial stability perspective. This assertion is based on the fact that large open interest rate positions associated with bond holdings have in recent years been building up in the global financial system, and the average duration of these portfolios has been continuously increasing. Another risk element is the sharp rise in the volume of dollar-denominated bonds issued by non-financial corporations operating outside the United States, as these may be more sensitive to an increase in dollar benchmark interest rates. In the specific case of the euro area, an environment of rising market rates and decelerating economic growth could exacerbate concerns about the sustainability of public finances in more heavily indebted countries. While there has been some widening of sovereign bond spreads of selected euro area countries over German Bunds, these spreads remain within a relatively narrow band compared with the peaks they recorded during the sovereign debt crisis.

Early 2022 saw the start of a correction in equity markets, which for the previous one and a half years had been experiencing an almost uninterrupted cheap-money-driven boom. Equity prices initially responded to the prospect of higher interest rates. Then in late February and early March they decreased more sharply, owing to the escalation of risk aversion that followed the outbreak of war between Russia and Ukraine. The majority of losses resulting from this shock were, however, later eliminated. Even so, by the end of April most of the major global equity indices had recorded a negative performance for the first four months of the year and their volatility had increased. At the same time, across the spectrum of equity investments, there was during this period a shift away from growth equities and towards value equities, i.e. from sectors with greater interest-rate sensitivity to the energy sector or sectors harder hit by the pandemic crisis.

Europe's banking sector is facing heighted risks associated with the war in Ukraine and its economic implications. This has been reflected in, among other things, a sharp decline in the banking equity index. Only to a lesser extent is this due to direct exposure to Russian and Ukrainian assets, including foreign bank branches. At the aggregate level, such exposures represent only a fraction of the banking sector's total assets. Even for the small number of banks in which they are concentrated, their impact on capital—even if they were completely written off—should be manageable. It is second-round effects that will cause greater harm to the EU banking sector, particularly as the financial situation of customers deteriorates amid lower economic growth, rising inflation and possible interest rate increases. On the other hand, the expected normalisation of monetary policy is something of an opportunity for banks to increase their interest margins and net interest income.

This next major crisis, coming on the heels of the pandemic, will in the near term further strain general government finances and increase the associated risks. The gradual fiscal consolidation that was planned to take place in the euro area following the fading of the pandemic crisis will be put on hold, at least for the time being, given the turbulence of macroeconomic and geopolitical developments. Government budget deficits will be higher than originally targeted and projected, because, amid a general slowdown in economic growth, households will need to be compensated for high energy prices and defence expenditure will be increasing. In this context, the prospects for reducing public debt in the medium term have also deteriorated. In some countries, this situation will compound their already unfavourable public debt level. Moreover, the sustainability of public finances may also come under pressure from an increase in required yields on government bonds, which would increase sovereign debt servicing costs.

1.2 Domestic economy still growing after the pandemic crisis

Its recovery, however, will be greatly affected by the war in Ukraine

The Slovak economy has over the past year been recovering from the effects of the pandemic crisis. After recording very solid growth in the second quarter of 2021, the economy managed to continue expanding, albeit more moderately, in the second half of the year, despite the onset of another pandemic wave. The tightening of pandemic containment measures in response to that wave dampened activity in certain sectors, mainly in the area of services. In general, however, the government's economic lockdown measures were less stringent than those imposed during previous waves of the pandemic. In the end, the Slovak economy grew by 3% in 2021.

The outbreak of war in Ukraine will have a major impact on the Slovak economy. Future economic risks have increased sharply in the recent period. The uncertainty about future developments is reflected in NBS's most recent forecast,[1] which lays out a pre-war baseline scenario plus 'adverse' and 'severe' scenarios that differ mainly in their assumptions for the duration and extent of the war. The adverse scenario is more moderate than the severe scenario, envisaging that the Russian invasion will be over by the end of the summer of this year. In this case, the Slovak economy is estimated to continue growing, but at a rate of less than 3% for each year of the stress test horizon. The severe scenario assumes an escalation of the conflict, hence GDP growth is estimated to stagnate in 2023 and grow by a sluggish 1.9% in 2024. The war is already having a number of impacts, but its overall repercussions are difficult to forecast at this stage, being dependent on the duration and intensity of the conflict and of the consequent sanctions and commodity supply restrictions. At present, the most notable effects are on price developments, especially in energy and commodity prices. The uptrend in Slovakia's inflation rate predated the war but has been amplified by it. Annual headline inflation has already hit double dig-

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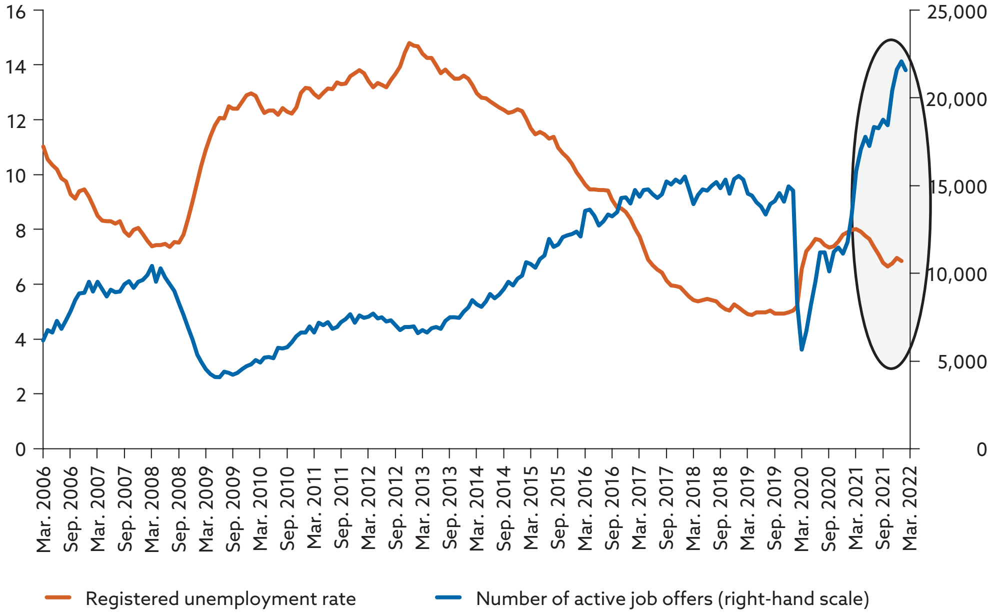
1 The spring 2022 forecast for key macroeconomic indicators.

its this year.[2] While energy and food prices have increased the most, inflation excluding these components has also accelerated.

Chart 1

The number of advertised job vacancies has risen sharply since last summer, while the unemployment rate has fallen only slowly

Evolution of the unemployment rate and number of job advertisements (percentages; number of advertisements)



Sources: ÚPSVaR SR, Profesia online job portal (www.profesia.sk), and NBS.
Note: The number of active job vacancies advertised on the Profesia online job portal, adjusted for seasonal effects.

The war has not so far had any significant impact on the labour market's recovery. After increasing substantially during the height of the pandemic crisis, the number of unemployed fell by more than 31 thousand in 2021. As a result, the unemployment rate fell by more than 1 percentage point in 2021, to 6.7%.[3] Although this downtrend came to end in early 2022, it cannot yet be said to have reversed.[4] On the one hand, the labour market is struggling with skilled labour shortages, while on the other hand, demand among job-seekers for lower-skilled and lower-paid positions remains subdued. This has created a situation in the labour market where the number of unemployed is still far from pre-crisis levels, yet the number of jobs advertised on the country's largest job portal is at historically high levels. As a result of the labour market tightness, wage growth remained strong in 2021.[5]

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2 The annual inflation rate reached 11.4% in April 2022.

3 The registered unemployment rate in December 2021, when labour offices recorded a total of 182.8 thousand unemployed persons (Source: ÚPSVaR SR).

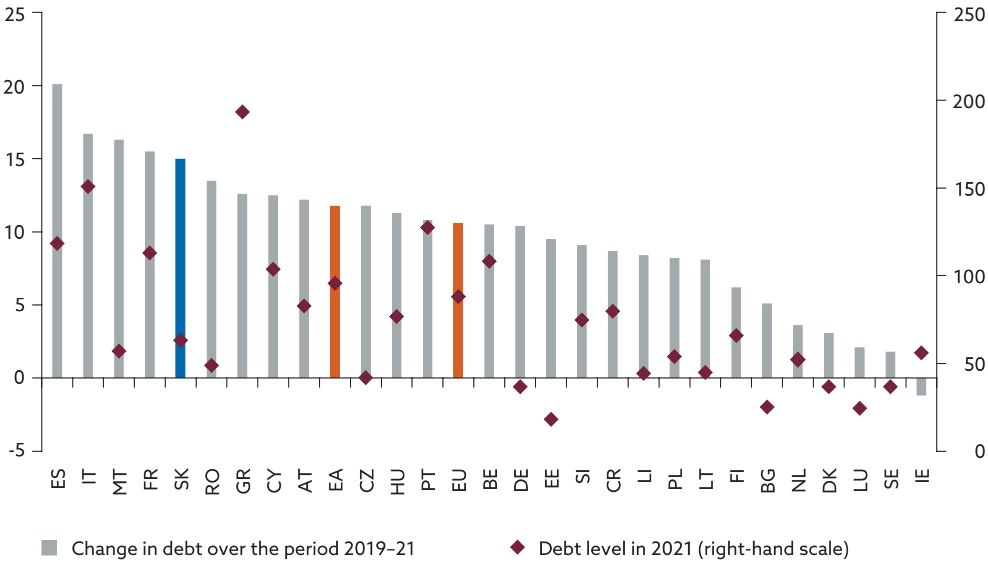
4 The number of unemployed fell by 2.5 thousand in the first three months of 2022, and the unemployed rate was 6.7% in March 2022 (Source: ÚPSVaR SR).

5 Average wage growth in the economy stood at 6.9% in 2021.

Chart 2

The increase in Slovakia's public debt over the past two years has been one of the highest in the EU

Change in public debt over the period 2019–21 and the level of public debt in 2021 (percentage points of GDP; percentages of GDP)



Source: Eurostat.

Slovakia's public debt is at historically high levels. The pandemic crisis exacerbated what was an already elevated general government debt, fluctuating at around 50% of GDP in the pre-crisis period. In 2021 the debt climbed to 63.1% of GDP, exceeding the 60% limit laid down by the Stability and Growth Pact. Although Slovakia's public debt ratio is still lower than the EU average,[6] it is no longer among the lowest in the bloc. On this measure, Slovakia currently ranks midway, with 13 other EU countries reporting a lower debt ratio. Slovakia's public sector rapidly increased its debt during the pandemic crisis, compared with both the private sector in Slovakia and with other EU countries. Whereas public debt increased by 15 percentage points of GDP over the last two years, household debt and corporate debt increased respectively by almost 5 percentage points of GDP and 1.3 percentage points of GDP. Only four other EU countries recorded a higher rise in their public debt ratio during that period. Although the increase in public debt during a crisis period usually results from the fiscal response to the crisis, the composition of public debt is an important factor in this situation. A larger public debt can heighten sensitivity to interest rate increases. In view of the announced tightening of monetary policy, public expenditure on debt servicing can be expected to increase in coming years.

[6] The average public debt of EU countries in 2021 was 88.1% of GDP.

Box 1
Stress test scenarios for macroeconomic and financial developments

The uncertainty of future economic developments has been heightened by the war in Ukraine. This year's stress test scenarios envisage that the war may progress in various ways, with consequent variance in the intensity of its effects on the Slovak economy. The baseline scenario assumes that economic growth slows down owing mainly to the war in Ukraine and remains subdued over the stress test horizon. The adverse scenario envisages an additional substantial external shock and therefore a recession in first two years of the scenario period.

Table 1 Macroeconomic scenarios

	Actual data	Baseline scenario			Adverse scenario		
	2021	2022	2023	2024	2022	2023	2024
Real GDP	3.0	2.8	2.3	2.6	-8.5	-3.6	0.8
Employment	-0.6	0.8	0.8	-0.2	-0.9	-1.8	-1.6
Unemployment rate (percentage)	6.8	6.6	6.5	7.1	8.1	10.3	12.1
Nominal wages	6.8	6.9	9.2	5.7	4.7	8.6	4.7
Inflation	2.8	7.6	10.0	2.8	7.8	14.3	4.4
Real household disposable income	-1.2	0.1	-0.6	1.5	-0.1	-5.3	-1.1

Source: NBS.
Note: Data shown in the table are annual percentage changes, with the exception of the unemployment rate, which is a level defined as a percentage of the overall population.

The stress test's baseline scenario assumes a situation in which the war is not protracted and is over before the end of the summer of this year. However, its effects and economic consequences, as well as part of the sanctions, last for a longer time.[7] Exports from Slovakia and EU countries to Russia are approximately one-third lower this year than last year and fall gradually further over the subsequent two years. Some of the production losses are, however, permanent. Slovakia's economic growth is assumed to be lower in each year of the scenario compared with the 2021 level. This has a moderately negative impact on the labour market situation, including an increase in unemployment. Because of tightness and disruption in commodity supplies, there is a surge in energy prices that is reflected in double-digit headline annual inflation in 2023. These problems are not, however, expected to be protracted in nature, and inflation is assumed to be converging towards its target level by the end of the stress test horizon. Accelerating prices also result in a jump in nominal wages, which to some extent reflect price level developments. In this scenario, however, real disposable income declines in 2023, as inflation outpaces wage growth.

[7] This scenario is the same as the adverse scenario set out in NBS's spring 2022 forecast.

The adverse scenario[8] simulates a shock to both the economy and financial markets that could occur, for example, if the war in Ukraine becomes drawn out and later even escalates. In this scenario, sanctions on Russia are tightened and supply chains with Russia are permanently disrupted. At the same time, because of efforts to decouple from Russian energy supplies, commodity prices rise even further and remain at elevated levels. These factors push the economy into recession in both 2022 and 2023, before it manages to remain flat 2024. By then, the economy is at its levels of a decade earlier. This situation is reflected in a deteriorating labour market, with the unemployment rate reaching double digits and remaining there over the stress test horizon. On the back of sharply rising commodity prices, inflation increases to more than 14% in 2023 and only gradually moderates thereafter. The constraints on business activity due to the adverse economic situation result in wage growth being outpaced by inflation, which, in conjunction with rising unemployment, has a downward impact on real household disposable income in each year of the scenario period.

A traditional part of the stress test exercise is to test resilience to market risks, particularly the resilience of non-bank financial institutions. The assumptions underlying the scenario include, as in the past, a 35% decline in the main global equity indices.[9] Reflecting ongoing inflationary pressures, an upward trend is modelled for risk-free interest rates. By the end of the three-year stress test horizon, the euro yield curve for zero-coupon government bonds lies within a relatively narrow band, from 1.2% to 1.9%. The simulation also envisages an increase in credit risk premia, which are derived for bonds, depending on the issuing country, in proportion to movements observed during the euro area debt crisis. The market scenario also includes a strengthening of the euro's exchange rate vis-à-vis most currencies, including the US dollar. The exchange rate movement parameters were taken from the European Banking Authority's most recent EU-wide stress test exercise. The euro's average appreciation against a basket of foreign currencies is assumed to be around 20%.

8 The adverse scenario is more of technical scenario, which is not identical to the severe scenario set out in NBS's spring 2022 forecast for key macroeconomic indicators.
9 This decline is assumed for the first year of the stress test horizon. Thereafter, prices are assumed to remain subdued until the end of the three-year period.

2 Financing of the economy

2.1 Corporate revenues and credit growth continue to recover

Corporate revenues have continued to grow strongly, but firms will face new challenges in the period ahead

The Russia-Ukraine war has the potential to significantly affect the situation in the corporate sector. The expectations of economic recovery that accompanied the gradual fading of the Omicron wave of the pandemic have been replaced by a strong degree of uncertainty about future economic developments. The extent of the war's impact is for now very difficult to quantify. A number of risks can, however, be identified, in particular the restriction or complete cessation of strategic commodity supplies, increases in the prices of such commodities as well as prices of other commodities, and even greater supply chain disruptions.

Corporate revenues maintained their strong uptrend in the first two months of 2022, with their annual growth rate exceeding 20%. The situation is, however, rather uneven. Revenue growth has been strong in the sectors of trade, transportation, and information and communication. The gradual unwinding of pandemic containment measures has had a notable upward impact on annual revenue growth in the hospitality sector.

A key factor affecting the evolution of revenues has been the sharp increase in the price level. Prices of a broad range of goods have been rising. The largest increases have been in prices of energy carriers, oil, and metals, and these are passing through to various categories of goods. A widespread uptrend has also been observed in domestic producer prices. The industry sector has in recent months, seen a particularly strong increase in prices.

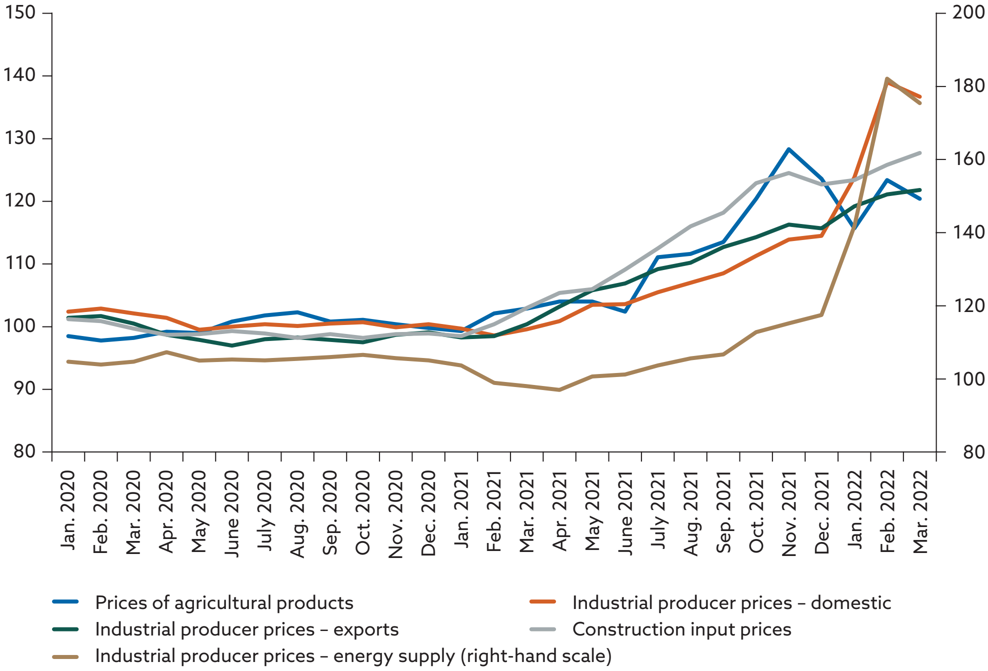
With its relatively high growth in recent months, foreign trade has also been reflecting the impact of rising prices. Its rate of increase has been more pronounced on the import side.[10] During this period, annual growth in both imports and exports has been almost entirely accounted for by rising prices.

[10] In 2022 exports increased, year-on-year, by 16% in January and 11% in February, while imports increased by 27% and 23% respectively.

Chart 3

Producer price growth across the economy

Annual rate of change in producer prices (index: 100 = same period of the previous year; index: 100 = same period of the previous year)



Source: SO SR.

The recovery of lending to the corporate sector has continued, but remains heterogenous across loan categories

Annual growth in total loans to non-financial corporations (NFCs) was 3.5% in March 2022. After accelerating quite sharply in late 2021, year-on-year corporate loan growth maintained an elevated level (4% on average) throughout the first quarter. By this metric, Slovakia ranks below the median for central and eastern European countries and at the median for EU countries.

The main driver of corporate loan growth has been loans with a maturity of more than five years, the bulk of which are loans for fixed investment. The growth rate of fixed investment loans has picked up strongly, increasing from negative territory to 7.6% in the space of six months. The revival of investment activity will, however, come under downward pressure from the negative effects of the war. Loans with a maturity of between one and five years have also evolved favourably. By contrast, the annual rate of change in short-term loans turned sharply negative. Although this decline is largely accounted for by lending to large enterprises, short-term lending to NFCs in other size categories has also been decelerating.

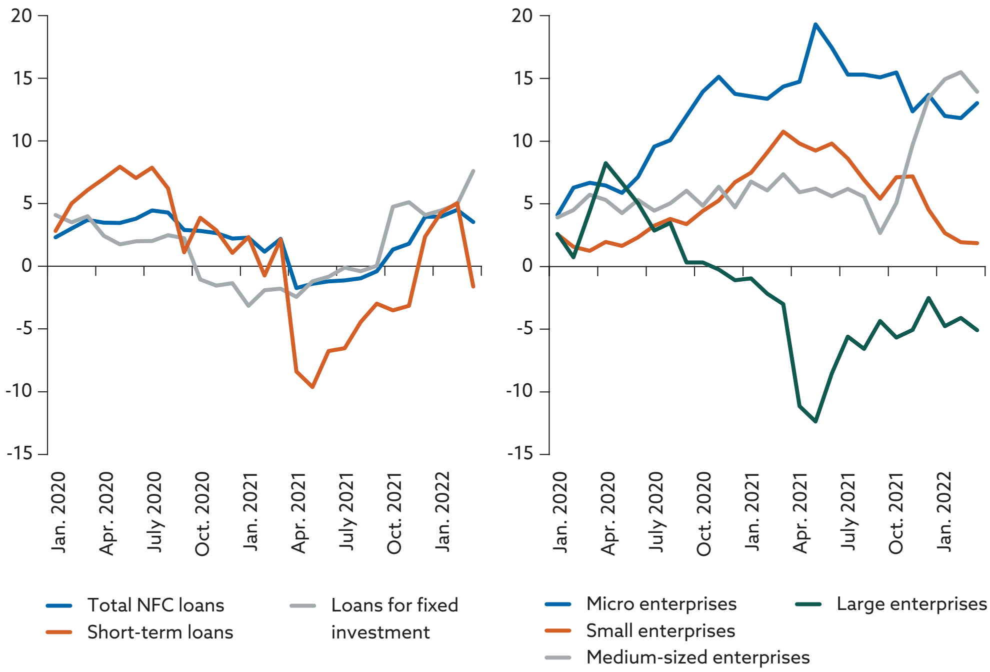
In the breakdown of total corporate loan growth by borrower size, micro enterprises and medium-sized enterprises are making the largest contri-

bution**s.** Growth in loans to micro enterprises has remained steadily strong at around 12% year-on-year, while lending to medium-sized enterprises was still accelerating sharply at the end of last year [11] and maintained high growth in the first quarter of 2022.[12] In contrast with these trends, total lending to large enterprises is still trending downwards. In this category, short-term loans have decreased the most. Growth in lending to small enterprises has been gradually slowing since the middle of last year.[13]

Chart 4

Corporate lending is gradually recovering, though the situation is mixed across firm size categories

Annual rate of change in NFC loans broken down by loan purpose and firm size (percentages; percentages)



Sources: NBS, and RBUZ.

The breakdown of corporate lending by economic sector also shows considerable heterogeneity. Lending to the trade and construction sectors has increased year-on-year, while lending to the industry, energy supply, and selected market services sectors has declined.

The flow of credit to the commercial real estate sector has maintained strong growth. Although year-on-year growth in lending to the CRE sector has slowed, from 15% at the end of March 2021 to 12% in March 2022, the sector remains one of the fastest growing.

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11 Its annual growth rate increased from 6% in June 2021 to 13% in December 2021.

12 Its level in March 2022 was 14%.

13 Annual growth in loans to small enterprises moderated from 10% in June 2021 to just 2% in 2022.

Lending rates for NFCs will respond relatively quickly to an environment of rising interest rates

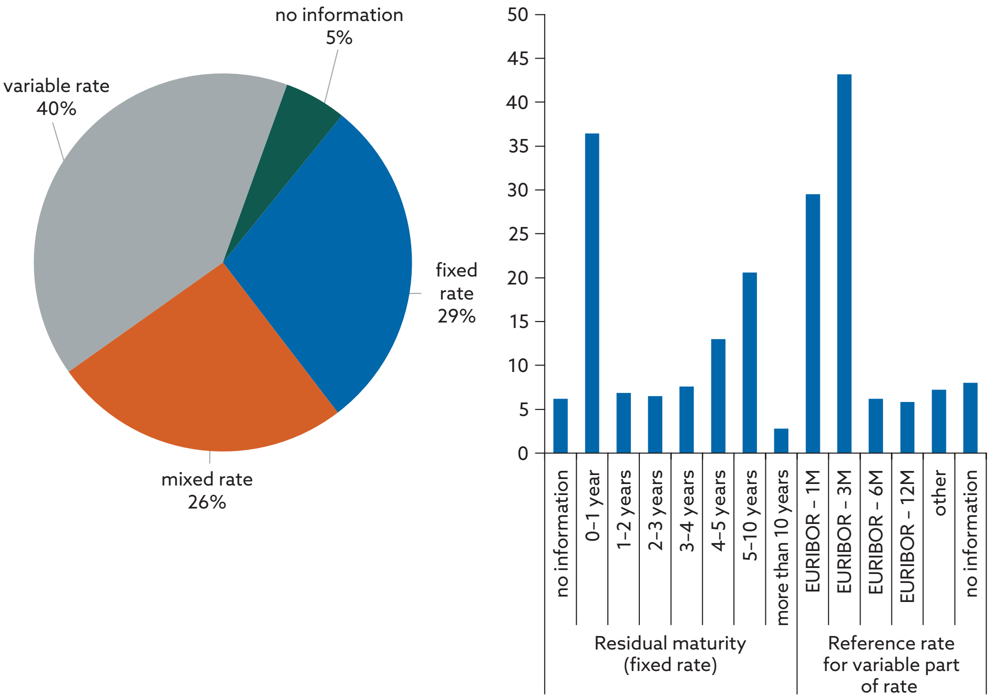
Firms will see interest rates rise more sharply than households will. Something less than one-third of the corporate loan book is subject to fixed interest rates and will therefore not be exposed to interest rate increases until the fixation period ends. However, more than one-third of these fixed interest loans have a residual maturity of less than one year. The other loans in the portfolio have variable rates for at least part of the loan contract. For most of the variable rates, the reference rates are the one-month and three-month EURIBOR.

As of March 2022 there was still no broad increase in lending rates for new NFC loans. The only increase in recent months has been observed in variable rates linked to the twelve-month and, to a lesser extent, six-month EURIBOR.

Chart 5

Firms will be more rapidly affected by interest rate increases

Share of total NFC loans by type of interest rate and share of total NFC loans by residual maturity and reference rate (percentages; percentages)



Sources: NBS, and RBUZ.
Note: In the 'variable rate' category, the loans are granted entirely with a variable rate. In the 'mixed rate' category, the loans are granted with a combination of fixed and variable rates.

The non-performing loan ratio has not increased, but credit quality is deteriorating in certain areas

The non-performing loan (NPL) ratio for corporate loans continued to edge down in the first quarter of 2022, ending the period at just above 3%. The total volume of NPLs did not change, and the decrease in the NPL ratio was largely due to the increase in total corporate loans.

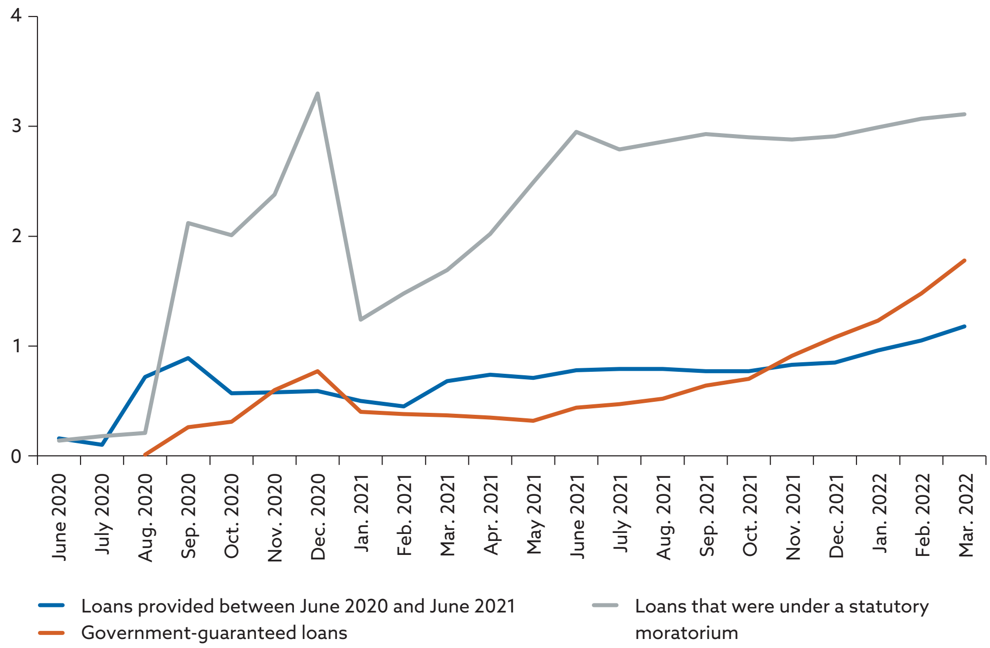
There are, however, areas of lending in which credit quality has been deteriorating. Lending across economic sectors still shows sizeable heterogeneity in terms of credit quality. Defaults have been increasing in sectors worse affected by the second year of the pandemic crisis or by current developments in energy prices. The sectors reporting the highest increase in defaults have been energy supply, accommodation and food services, and selected market services, though in no case has the default rate surpassed the levels observed in previous years.

The NPL ratio has also been rising among loans guaranteed by the government. After initially remaining flat, the NPL ratio for these loans started gradually to rise in the second half of 2021, up to 1.8%. This level is still less than the average for NFC loans, but compared with non-guaranteed NFC loans provided between June 2020 and June 2021,[14] the guaranteed loans show greater riskiness.

Chart 6

Rising NPL ratio for government-guaranteed loans

NPL ratios for selected groups of loans (percentages)



Source: RBUZ.

[14] The period during which most of the government-guaranteed loans were granted.

2.2 Robust growth in loans to households

Annual growth in loans to households accelerated to 10.0% by the end of March 2022. A year ago,[15] we were still noting a long stagnating trend in household credit growth up to March 2021. The annual rate of change was at 6.0%, before it started accelerating strongly over the next 12 months.

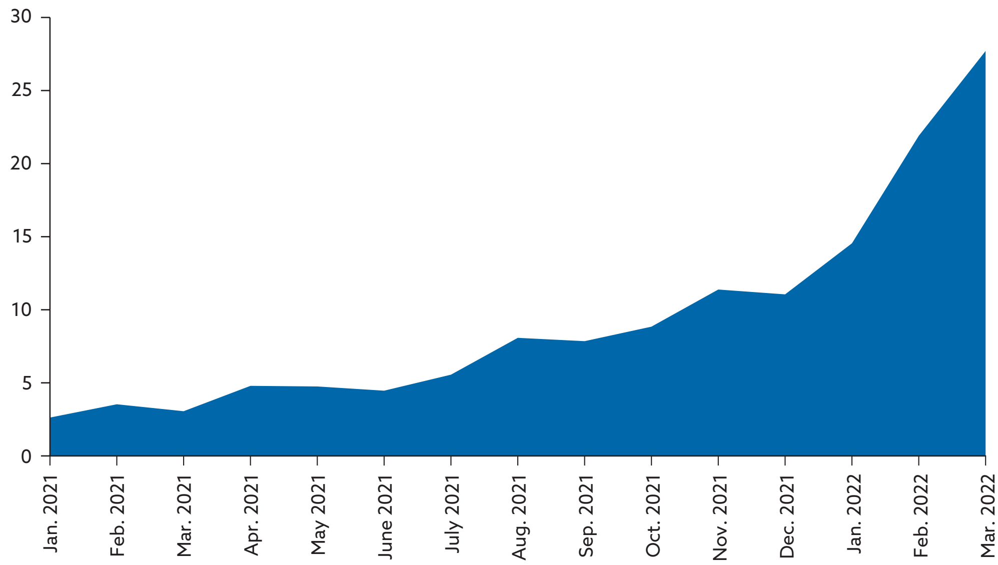
This upturn in loan growth has several causes, in particular the accelerating prices of flats, rising inflation, and fears of interest rate increases. With flats becoming more expensive, prospective flat buyers have strong reason not to delay their purchase decision. This is true both for younger buyers looking for their first home, and for older buyers acquiring an additional property. They fear that the property they desire will become unaffordable in the future. Hence, loan growth is being stoked by two factors: an acceleration of lending and, with prices rising, an uptrend in the size of loans required to purchase property. The average growth in pure new loans accelerated from 5% in 2020 to more than 13% in 2021.

Loan growth has also been closely related to the impact of increasing inflation. Investment in a rising property market is seen by many as a good way to protect savings from inflation. Part of the demand for property is therefore driven by purchases for investment purposes, whether made entirely with savings or with a combination of savings and a housing loan. This has further supported growth in both prices and the loan portfolio.

Chart 7

Growing demand for longer interest rate fixation periods

Share of new housing loans with an interest rate fixation period of more than five years (percentages)



Source: NBS.

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15 In the May 2021 Financial Stability Report, data as at March 2021.

Fears of interest rate increases have also played an important part in the loan growth uptrend. There has been increasing demand for longer interest rate fixation periods, which for a long time attracted little interest. They are being requested not only for new loans, but also to a significant extent for refinancing loans, both for those involving an increase in principal and those that do not.[16]

Household loan growth has been accelerating in around one-half of the EU countries, mostly in central and eastern European Member States. By this metric, Slovakia ranks third among euro area countries and sixth among EU countries.

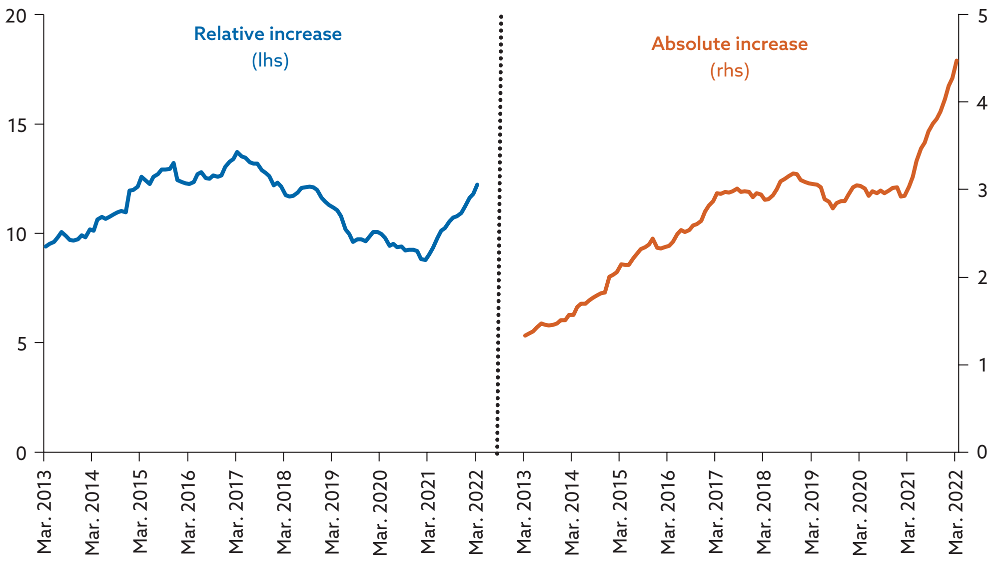
Record growth in housing loans

Annual growth in housing loans accelerated to 12.2% by the end of March 2022. The increase in this portfolio during the twelve months to the end of March was more than one-half higher compared with the previous twelve months.[17] The largest monthly increase during the period under review was in March of this year, when the portfolio increased by a record €548 million.

Chart 8

Sharp rise in housing loan growth

Relative and absolute year-on-year change in total housing loans (percentages; EUR billions)



Source: NBS.
Note: Data are adjusted for one-off methodological changes made in January 2022.

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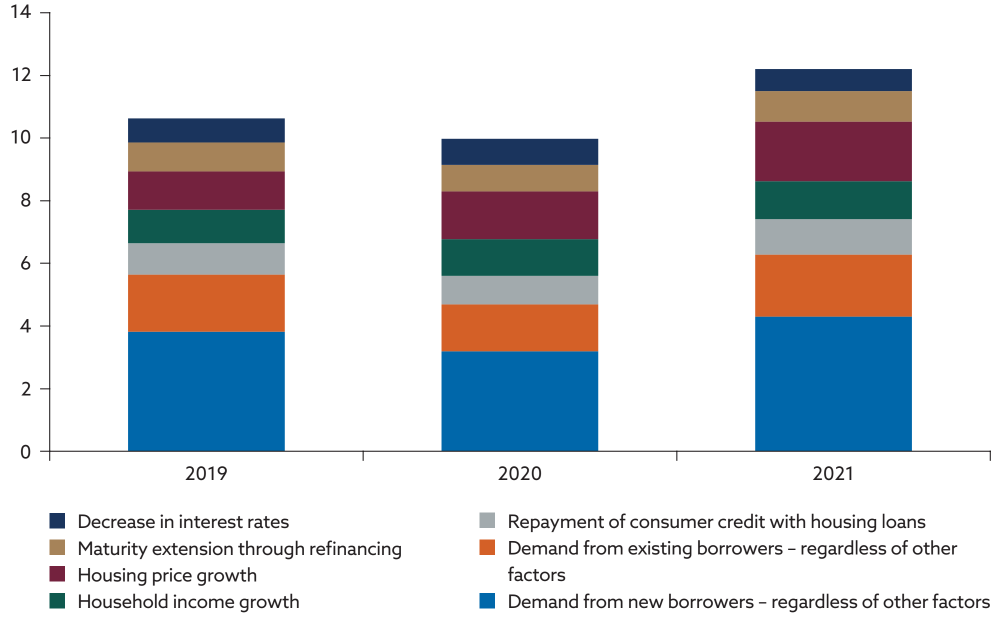
16 Housing loan prepayments as a ratio of the overall portfolio have increased from an average of 1.2% for 2021 to 1.6% in March 2022. Pure loan origination has, however, increased even more, so the ratio of prepayments to pure new loans has fallen from an average of 32% for 2021 to 21% in March 2022.

17 The absolute year-on-year increase in housing loans increased from €3.0 billion in March 2021 to €4.5 billion in March 2022.

Chart 9

Housing loan growth driven mainly by property prices and rising demand for loans

Housing loan growth broken down by components (percentages)



Source: NBS.
Note: Existing borrowers means borrowers who increased their borrowing by either refinancing or topping up their existing housing loan.
The loan growth decomposition methodology is based on a forthcoming NBS working paper: Cesnak, M., 'Decomposition of retail loan growth'.

The acceleration in housing loan growth has been caused mainly by rising property prices and increasing demand from new and existing borrowers.[18] While housing prices affected loan growth in previous years, too, their impact in 2021 was 0.5 percentage point higher.

Housing loan growth has for several years now included relatively significant contributions from the extension of loan maturities through refinancing and from the repayment of consumer credit with housing loans. Absent these factors, housing loan growth would have been lower by around 2.1 percentage point.

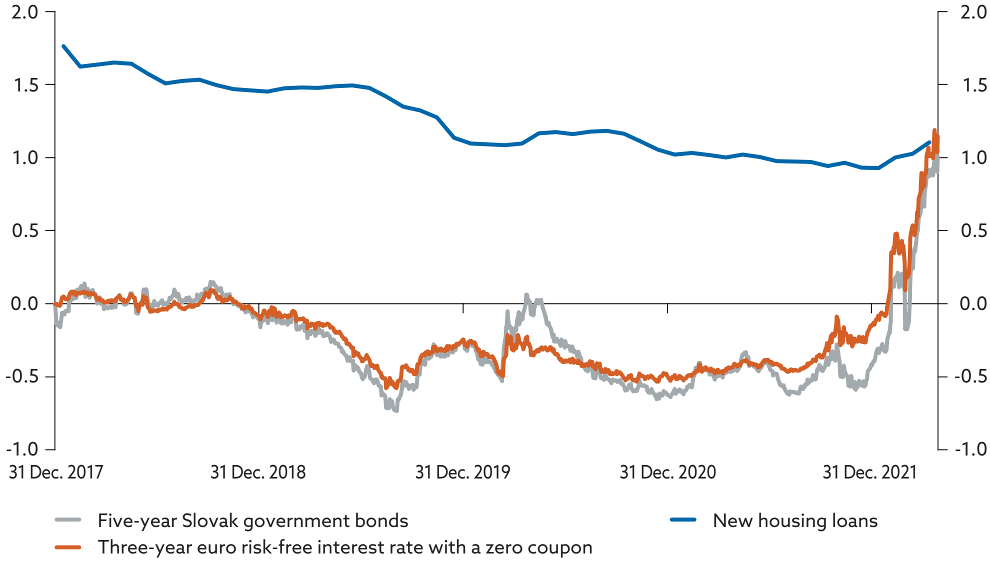
Among banks, housing loan portfolio growth has been uneven. While some banks have seen their loan book increase to 2.5 times last year's average, others have only just achieved any growth. The share of the four largest banks in housing loan origination has increased from 73% to 79%. On the other hand, medium-sized banks have been more successful in retaining existing borrowers.

[18] The loan growth decomposition methodology is based on a forthcoming NBS working paper: Cesnak, M., 'Decomposition of retail loan growth'.

Chart 10

Interest rates on new housing loans reflect market developments

Slovak government bond yield; risk-free interest rate; and average interest rate on new housing loans (percentages; percentages)



Sources: NBS, and Reuters.

The average interest rate on new housing loans started picking up in December 2021. Over the next three months it increased from 0.9% to 1.1%. The uptrend was largely a result of banks passing on market rate increases to retail rates.[19] It also reflected, to a lesser extent, borrower demand for longer interest rate fixation periods,[20] as the cost of such financing is usually slightly higher.

Improving consumer credit situation

With the fading of the pandemic, the situation in the consumer credit market has been gradually improving. The annual rate of decrease in total consumer credit moderated to -3.3% in March 2022. February and March saw slight month-on-month increases in this portfolio, the first recorded since October 2019. Slovakia was one of eight EU countries in which consumer credit declined in March on a year-on-year basis, and it was among those that reported a moderate drop.

Despite the average interest rate on consumer credit not having changed significantly during the period under review, the annual percentage rate

[19] The increase occurred mainly at the long end of the yield curve. For example, five-year Slovak government bond yields increased from around -0.5% at the end of 2021 to 1.0% at the end of March.

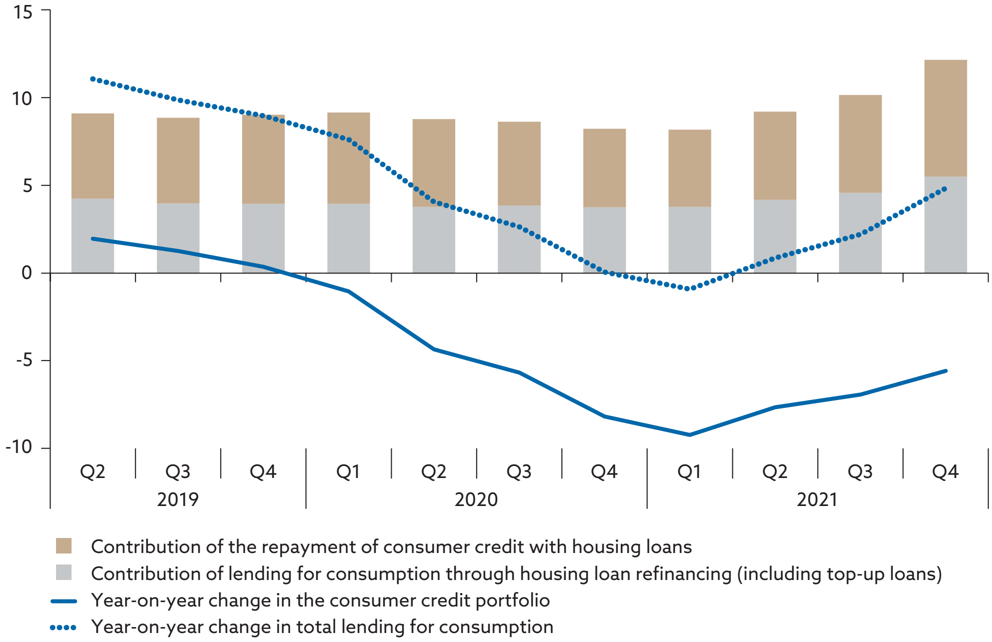
[20] The share of new loans with a rate fixation period of between one and five years fell from an average of 91% for 2021 to 69% in March 2022, while the share of those with a fixation period of more than five years increased from 7% to 30%.

of charge (APRC) has decreased. The most significant interest rate movement occurred in the autumn of 2021, when two banks launched marketing campaigns for cheap consumer credit. Following the end of these campaigns, the average interest rate increased in the first quarter of 2022 to around 7.7%, which, however, was still lower than the pre-campaign level.[21]

Chart 11

Lending for consumption has been growing for most of the time

Annual rate of change in consumer credit and total lending for consumption (percentages)



Source: NBS.
Note: Where existing borrowing is increased by up to €30,000 through the refinancing of a housing loan, we deem the increase to be lending for consumption.

Although the annual rate of change in the consumer credit portfolio has been negative since early 2020, we assume that total lending for consumption has been increasing for most of this period. Lending for consumption can be deemed to include not only consumer credit, but also, firstly, the repayment of consumer credit with housing loans and, secondly, increases in existing borrowing through housing loan refinancing (including top-loans). If total lending for consumption is taken to include these two factors (whose significance increased further in 2021), its annual growth rate at the end of 2021 is estimated to have been 4.8%.

Regulatory limits on credit standards are well calibrated, though adjustment is required in some areas

Thanks in part to NBS rules, the risk characteristics of new loans have stabilised. During the COVID-19 pandemic crisis, the debt service-to-income

[21] The average interest rate before the campaigns started was around 8.1%.

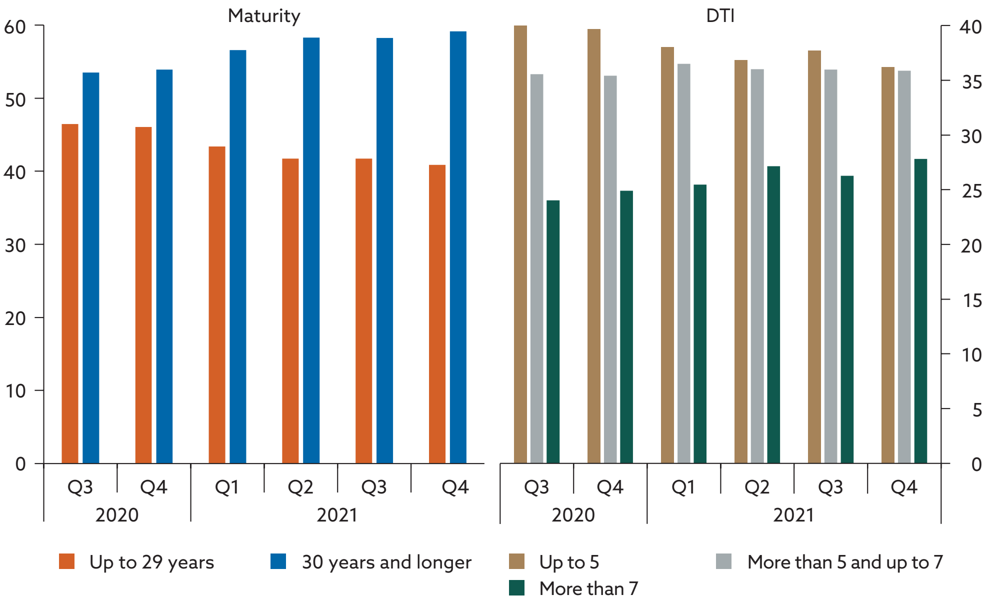
(DSTI) was confirmed to be the most important indicator of households' creditworthiness. It is therefore positive to note that DSTI values have not been deteriorating – the share of loans close to the regulatory limit on the DSTI ratio has maintained its level.

It is a similar story with the average loan-to-value (LTV) ratio, which for a long time has been around 73–74%.[22] So, despite rising property prices and the resulting need for higher deposits, the average LTV ratio has remained flat.

Chart 12

Loan maturities and household indebtedness are increasing

Distribution of housing loans by maturity and DTI ratio (percentages; percentages)



Source: NBS.
Note: Refinancing loans not involving a principal increase are not included.

In general, NBS considers the current configuration of the regulatory limits on credit standards to be appropriate. Although lending is rising sharply, there has been no widespread deterioration in credit standards for new loans. The increase in riskiness is particularly evident in the debt-to-income (DTI) ratio, in particular among middle and older-age borrowers. Among younger borrowers, the DTI ratio, as well as other indicators, is stable, but among borrowers from around the age of 40 and older, the ratio is increasing. Closely related to this is the increase in loan maturities – the extending of maturities can result in indebtedness rising while repayments stay flat. But whereas younger borrowers will repay their 30-year housing loans within the course of their working life, older borrowers will neces-

[22] The share of housing loans granted under the ratio limit exemption (i.e. with an LTV ratio of between 80% and 90%) ranges between 13% and 15%. In the case of pure new housing loans, the share is between 17% and 18%. The exemption allows up to 20% of a bank's new housing loans to have an LTV ratio of between 80% and 90%.

sarily still be repaying such loans beyond their retirement age. Moreover, maturities are extending further into retirement, often up to the age of 70. Indeed, it is no longer exceptional for loans to extend into the borrower's seventies.[23]

Default rates are low but showing signs of worsening

Default rates for loans to households remain at very favourable levels, although the situation in the consumer credit portfolio is showing signs of change. In March 2022 the non-performing loan ratio for household loans stood at 2.1%, virtually an all-time low. For seventeen consecutive months there was no increase in housing loan defaults, and the NPL ratio for these loans fell to 1.3%. Consumer credit defaults recorded their lowest increase in June 2021, and thereafter had a worsening trend. The net default rate for consumer credit increased from 1.1% in June 2021 to 1.8% in March 2022, still below the historical average.[24]

Box 2

NBS is ready to ease regulatory requirements in order to support the financing of a project for renovating houses

A project for renovating houses is included in Slovakia's recovery and resilience plan (RRP) for accessing funds from the EU's Recovery and Resilience Facility (RRF). The purpose of the project is to renovate at least 30 thousand older houses over four years, so as to make them more energy efficient. The project encompasses various types of investments, including, for example, thermal insulation, the replacing of windows, the changing of heat sources, and the installing of green roofs. Further information, including terms and conditions, are published on the website www.obnovdomov.sk[25].

It is expected that some of the house owners will take out a loan to finance the investment. Despite the interest costs, the renovation should be economically viable for the households concerned, given the combination of the RRP subsidy they will receive, the expected energy savings, and the long-term benefits of the renovation.

NBS is ready to support the house renovation project by partially easing the regulatory limits on credit standards for loans related to the project. The key principle is that the riskiness of these loans will not be increased, while the expected benefits related to the renovation will

23 For further details, see Section 3.

24 Net default rate data have been available since 2013. The average net default rate over this period was 2.3%. Given the path of other credit quality indicators, it may be assumed that the pre-2012 rate was even higher.

25 The information available from this source as at 29 April 2022 was used in the preparation of this box.

be taken into account. First of all, the lending will be in the form of specific-purpose consumer credit, and the improvement in heat efficiency will bring long-term benefits to households. Consideration is therefore being given to increasing the maximum maturity of such loans to ten years.

The second way in which conditions will be eased is by taking energy savings into account. The DSTI ratio limit on loans currently stands at 60%. If the reduction in energy costs is factored in, the resulting savings could translate into higher repayments, and so the size of the loans could be increased by between five and ten thousand euro with virtually no change in the delinquency risk.

The regulatory limit adjustments are designed so as not to increase the administrative burden. At the same time, it will still be possible to finance the renovation also with other standard consumer credit or housing loans.

Although the final terms of the project are not yet known, the amount of new consumer credit is estimated to increase by between 5% and 10% as a result of this project. For the banking sector, this will be not only about supporting a socially beneficial project, but also about helping meet the financial sector's green objectives.

It is expected that consumer credit granted for the purpose of this project will be subject to lower interest rates. Another important contribution will be a guarantee from the European Bank for Reconstruction and Development to cover part of any losses.

3 Household indebtedness

3.1 Risks associated with rising household indebtedness is increasing, mainly in the middle-aged cohort

The current uptrend in indebtedness entails risks for middle-aged borrowers in particular

The long-running strong growth of the housing loan market, including rising property prices, has accelerated further in the recent period. This is increasing the need for close monitoring of risks associated with rising household indebtedness and of the characteristics of the housing loans being granted. For now, no broad adjustment of regulatory limits on the provision of housing loans is deemed to be necessary. Nevertheless, certain risks in the market are becoming gradually more pronounced. These risks are largely related to middle-aged borrowers opting to increase their existing borrowing and to the resulting extension of the loan maturity further beyond their retirement age. The amount of loans granted to borrowers in this age cohort is increasing faster than their income. The respective DSTI ratio has remained stable, but only thanks to the extension of loan maturities. Maturity extensions are occurring in around two-thirds of the housing loan refinancings (including top-up loans) that result in an increase in borrowing and in one-third of other housing loan refinancings. The average amount of principal-increasing refinancing loans has been rising faster than new housing loans, particularly so among middle-aged borrowers.[26]

The gradual shift in risk trends to middle-aged borrowers needs to be taken into account when setting regulatory lending limits. This movement is a natural consequence of long-term trends in the area of household indebtedness. In the case of younger age cohorts, (in particular the 30–39 group), a relatively high level of saturation has already been reached. Hence, banks are naturally also targeting middle-aged and older borrowers. While many of these borrowers are still repaying existing housing loans, an increasing proportion are new borrowers.

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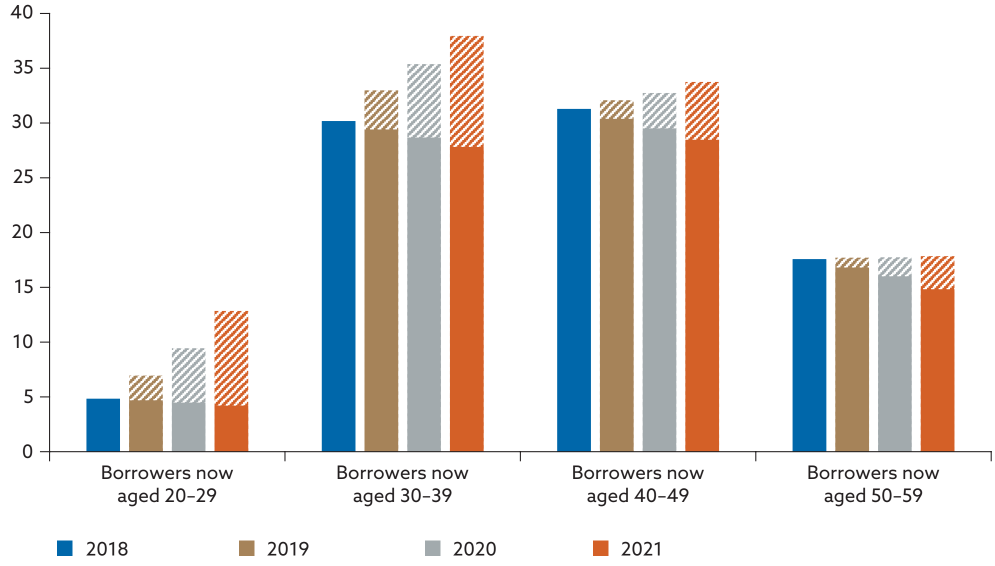
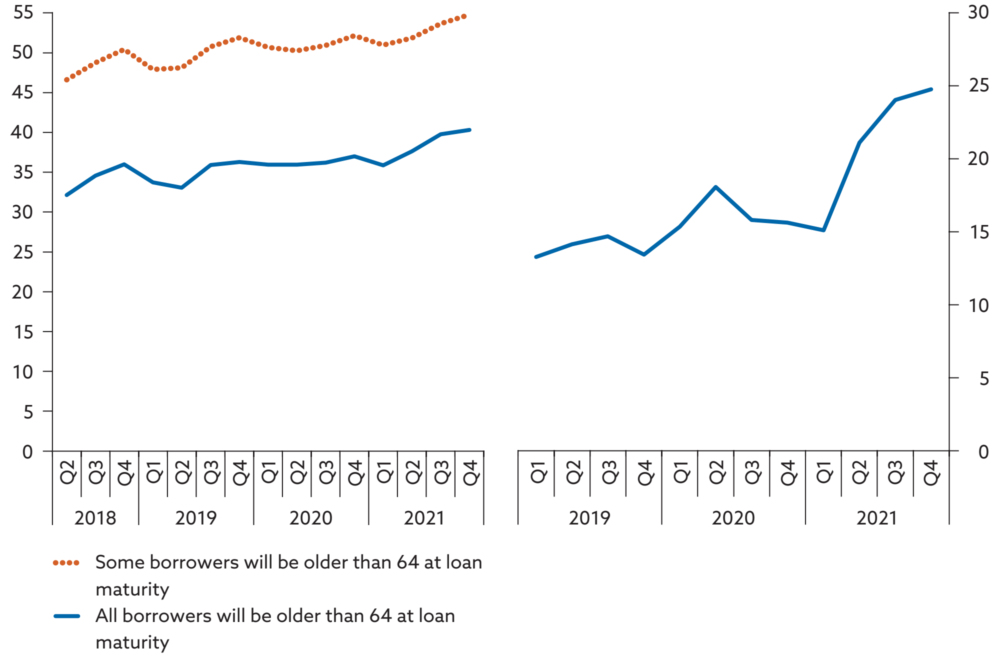
26 For borrowers in the 40–50 age cohort, the average amount of housing loan refinancings that involve a principal increase was 18% higher, year-on-year, at the end of 2021, while the median income of these borrowers rose by only 11% over the same period.

Chart 13
The share of housing loan borrowers who are middled-aged is relatively high and rising
Housing loan borrowers broken down by age cohort (percentages)



Source: NBS.
Note: Each group is defined by year of birth (for example, people in the 40–49 age cohort are people born in the years from 1972 to 1981) in order to avoid migration of borrowers between categories over time. The solid part of the bars shows the percentage of people who already had a housing loan in 2018; the hatched part shows the percentage that took out their loan in subsequent years.

Chart 14
The share of housing loans extending into retirement and housing loans with a long maturity is increasing
Left-hand panel: Housing loans maturing after the borrower's expected retirement age as a share of total new housing loans granted in the respective quarter (percentages)
Right-hand panel: Housing loans with a 30-year maturity as a share of total new housing loans granted to borrowers aged 40–45 in the respective quarter (percentages)



Source: NBS.

The share of new housing loans that have two co-borrowers and mature after each has retired increased from 36% in the fourth quarter of 2020 to 40% a year later. Nor is it exceptional for borrowers in their seventies to still be repaying housing loans. The gradual increase in the share of housing loans that extend into retirement is being driven mainly by borrowers who are in the 40–50 age cohort when they apply for the loan. It is among these borrowers where there has been the largest increase in the number of years for which housing loans extend into retirement.[27] Among housing loans provided to borrowers aged 40–45, the share that have a maturity of 30 years increased from one in seven in 2019 to one in four by the end of 2021.

Risks are largely long-term in nature, but they could become far more serious if current trends continue

Current trends coupled with a booming credit market pose three main risks:

The first risk is that borrowers struggle to make loan repayments owing to the drop in their income in retirement. Moreover, the extent of this risk is subject to considerable uncertainty, as it depends on long-term future developments. This relates in particular to the income replacement rate at retirement, the level of living costs in retirement, and the evolution of income until retirement.

The second risk is the current trend in which many indebted households are increasing their borrowing, often at an even faster pace than their income growth. As a result, loan repayments are being shunted further into retirement. Further increases in borrowing may in future exacerbate loan repayment difficulties in retirement. For one-quarter of the people who had a mortgage loan at the end of 2018, their overall debt did not fall, but actually increased, in the period 2019–2021.

The third risk stems from strong interbank competition that could add pressure to relax credit standards on loans extending into retirement. The way in which such maturities should be taken into account is not at present specified by the regulatory framework, and banks differ in their approach to this issue. Such heterogeneity across banks increases the risks that credit standards will be further eased under the pressure of competition. Banks with more relaxed internal limits may be able to lend to borrowers that other banks turn down, thus forcing their rivals to ease standards.

27 Among loans extending into retirement, the average number of years for which repayments continue into retirement increased from 4.1 to 5.0 over the period 2020–21.

We quantified these risks by estimating the share of loans at risk of delinquency in retirement. Each borrower's income was simulated separately, taking into account that individuals' incomes evolve differently. Although we assumed average annual income of 3%, some borrowers may experience a decline in income.[28] We also modelled increases in borrowing in line with current trends. It is assumed that after ten years, one-half of the borrowers whose income has grown will have increased their borrowing by the same percentage.

Under these assumptions, loans at risk are estimated to constitute around 9.1% of current new housing loans. Given, however, the long projection horizon, this estimate is subject to significant risks, notably in regard to the evolution of total income in the economy, the increase in expenditure, and borrowers' behaviour as regards further increasing their borrowing.

The risks are also quite significant in international comparison. The combination of housing loans' long average maturity and the share of loans maturing after the borrower reaches 65 is one of the highest in the EU and is rising quite sharply.[29] Another risk is that households' accumulation of savings slows significantly. Abroad, households typically accumulate savings during their economically active period, thereby moderating any higher debt burden they have at an older age. In Slovakia, the rate of savings accumulation, as well as the overall level of savings, is far lower, and this fact needs to be taken into account when assessing risks associated with household indebtedness, especially in older age cohorts.

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[28] For this purpose, borrowers' future income was simulated using an income change model estimated on granular data on employee income trends across the population. This model takes into account three main factors:
- income rises faster among lower-income groups;
- income growth slows with age;
- people who previously experienced income growth are more likely to experience it in future.

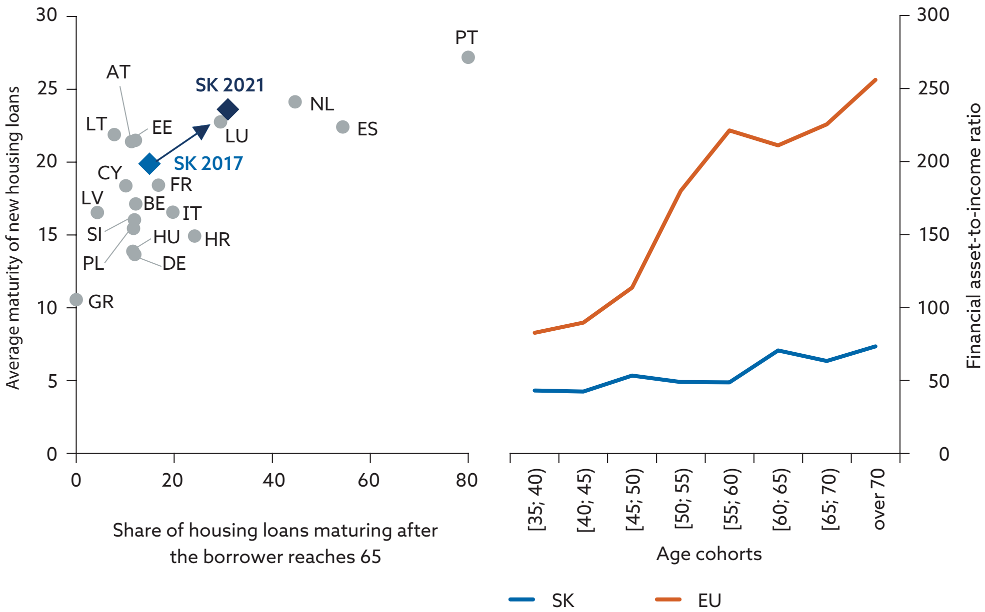
[29] Malta and Portugal, which together with Slovakia are among the countries with the longest average maturity for new housing loans, have already taken measures to mitigate these risks. Malta has capped the provision of loans extending into retirement and Portugal has reduced the imputed income for loans extending into old age.

Chart 15

International comparison of loan and household characteristics

Left-hand panel: Comparison of the average maturity of new housing loans (in years) and the share of new housing loans maturing after the borrower reaches 65 (percentages)

Right-hand panel: Ratio of financial assets to gross monthly income for households, broken down by age cohort (percentages)



Source: Household Finance and Consumption Survey (HFCS).
Note: Data are from the third wave of the HFCS (2017), and the left-hand panel is supplemented with fourth-wave data for Slovakia (2021 data provisionally validated by the ECB and NBS). For the purposes of both panels, the average age of household members was calculated as a weighted average of individual household members, using their income as a weight.

A warning about the increasing risks in the Slovak housing and lending markets was recently issued by the European Systemic Risk Board (ESRB). The ESRB warned specifically about the high ratio of housing price growth, signs of housing price overvaluation, rising household indebtedness, and rapid growth in housing loans. The ESRB says Slovakia may need to consider adjusting the measures it currently has in place, especially in relation to the increase in borrowing among already indebted households and the extension of loan maturities, often into retirement.

NBS proposing adjustment of DTI ratio limit

In view of the above risks, NBS is proposing to adjust the debt-to-income ratio limit. The proposal concerns only loans maturing after the borrower reaches 64. It takes into account the risks related to the decline in income in retirement, as well as the gradual decline in the number of years for which borrowers can service their debts without a significant increase in financial distress risk.

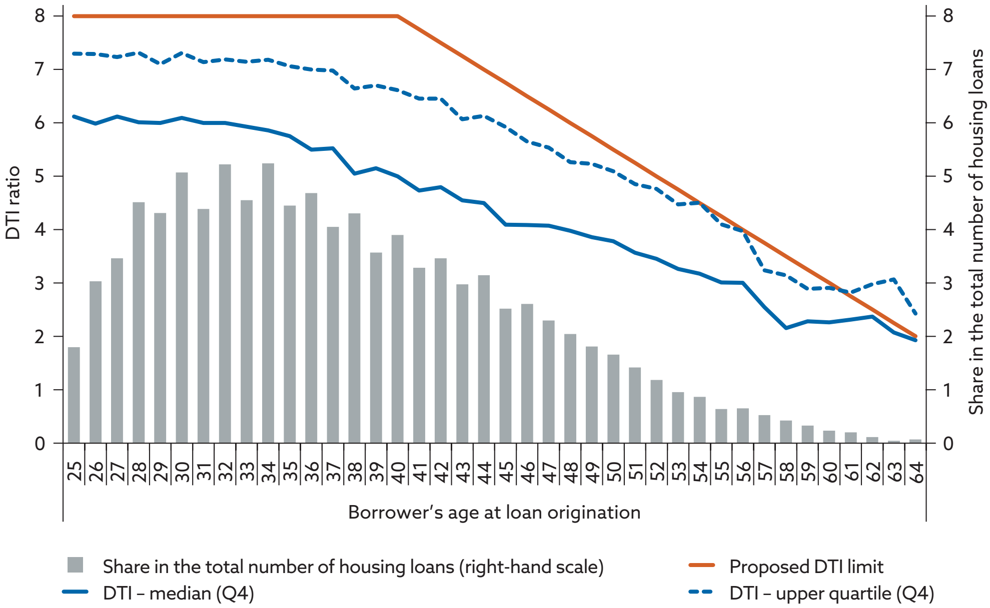
Under the proposal, this risk is taken into account through a gradual reduction in the DTI limit. The aim is to contain excessive indebtedness in cases where loans are granted to borrowers who will be 70 in less than 30 years. The DTI limit for these borrowers is reduced incrementally, by 25 basis points for each year of the borrower's age above 40.

The proposed calibration is based on current market practice. Because it applies at the highest DTI levels currently available, the DTI limit adjustment should be mainly preventive in effect – not having a significant impact on the current market, but able to limit a further build-up of risks in the future. In their current lending to borrowers who would fall into the category targeted by the adjustment, banks already apply a DTI standard below the regulatory limit (8). As previously noted, such internal standards are gradually being relaxed as a result of strong competition.

Chart 16

Proposed DTI ratio limit adjustment reflects current practice

DTI values (lhs) and share in the total number of housing loans granted in the fourth quarter of 2021 (rhs; percentages)



Source: NBS.

The limit adjustment will have little impact on credit flows but will significantly reduce future risks

According to our analysis, the proposed DTI limit adjustment will have little impact on current lending. The volume of new housing loans is not expected to fall by more than 1%, while their growth is estimated to slow by a marginal 0.1 percentage point. In the case of consumer credit, the estimated impact is significantly lower,[30] since DTI ratios are far lower for consumer credit than for housing loans. In line with the stated objectives, the proposed adjustment will have a slightly greater impact on loan applicants who already have a loan (who are either refinancing/topping up their existing loan or applying for an additional loan) than on those who do not.

Less than 6% of new housing loans will be affected to some extent by the proposed adjustment. The impact on the size of the loans affected is estimated to be relatively moderate (a reduction of around 15%).

Table 2 Impact analysis

	Share of loans affected	Average decrease in size of loans affected	Decrease in new lending
Housing loans	5.6%	15%	0.8%
– Applicants without existing debt	4.4%	12%	0.6%
– Applicants with existing debt	5.8%	16%	0.9%
Consumer credit	0.7%	28%	0.2%

Source: NBS.
Note: The impact analysis was carried out on new loans granted during the second half of 2021. The estimation assumed that where a loan was provided under the DTI limit exemption, the same loan would be subject to that exemption in the same way under the tightened DTI limit. The further provision of loans under exemptions was not assumed, but in some banks they could partially reduce the estimated impact.

The impact of the proposed adjustment is expected to increase with the age of loan applicants. It will not have any effect on young applicants. In the case of higher-income applicants, the impact will be moderately larger. This is in line with the pension system's solidarity principle, under which higher income borrowers experience a sharper drop in income following retirement.

Although the DTI limit adjustment will not have a significant effect on the current credit market, it will be highly effective in mitigating risks associated with future increases in borrowing. The proposal will reduce the risk of borrowers becoming financial distressed and defaulting on their loans in retirement, even where borrowers have taken advantage of income growth to increase their borrowing. It is estimated that this adjustment will cause the share of loans at risk of delinquency in retirement to fall by almost two-thirds (from 9.1% to 3.7%). Moreover, if NBS did not take action in the near term, any later intervention would, on current trends, need to be more substantial, with a correspondingly greater impact on the credit market.

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30 The higher average reduction in the case of consumer credit is due to fact that the consumer credit affected largely comprises credit taken out on top of a housing loan. Since the existing loan may result in the borrower having a higher DTI ratio already before the consumer credit is granted, the consumer credit itself may be affected to a greater extent.

In order to minimise adverse effects, the adjustment is designed to be proportional to the risks identified and, at the same time, to allow a certain measure of flexibility in specific cases. The proposal to tighten the DTI limit concerns only loans extending into retirement. It in no way affects younger borrowers (aged up to 40), nor does it cap the age by which borrowers should repay their loans. Importantly, the existing exemption under which up to 5% of new loans are not subject to a DTI limit remains in force. This leaves banks with a degree of discretion to grant loans to borrowers' whose DTI ratio exceeds the general limit, for example to less risky borrowers.

4 Housing market and housing affordability

4.1 Record housing price growth and falling affordability of housing

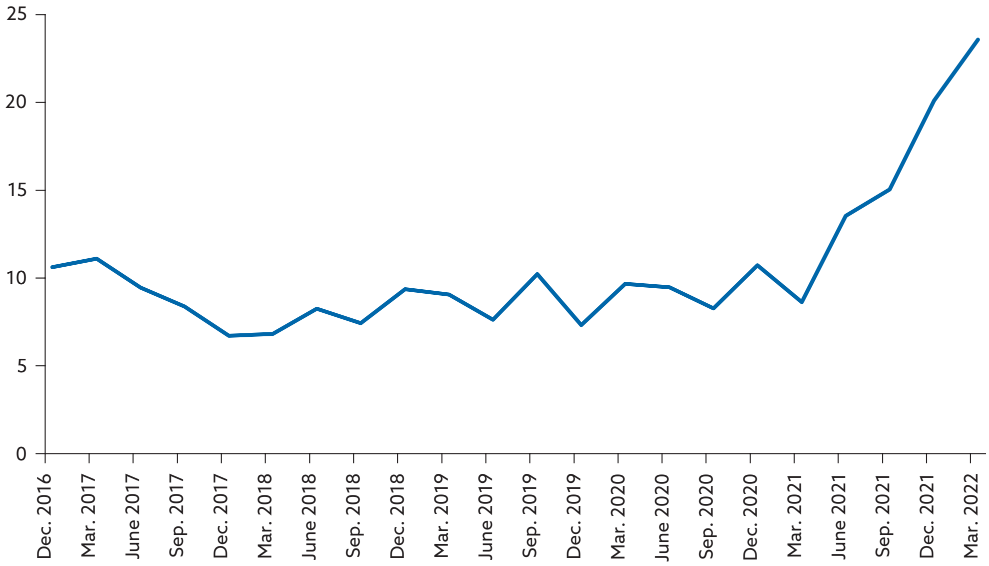
Housing price growth has accelerated sharply

The unwinding of pandemic containment measures has benefited the housing market. Although housing price growth slowed during the first half of 2021, prices started accelerating sharply again in the latter part of the year. The growth rate was up to 22.1% in December 2021 and continued to accelerate in 2022, reaching 23.3% in March. Prices of existing flats have been accelerating in all regions and across all types of flats. Their growth rate in late 2021 was particularly pronounced in Slovakia's regional capitals. Such high rates of price growth were last seen in 2008.

Chart 17

Annual growth in prices of flats accelerated sharply in 2021

Annual rate of change in prices of flats (percentages)



Source: NBS.

Not just existing flats, but also new-build flats have been rising sharply in price. Annual growth in prices of new-build flats in Bratislava stood at 18.3% in December 2021. The economy's reopening and recovery has also benefited the rental market. After declining during the pandemic crisis, rental prices started rising moderately in autumn 2021, though they still remained below pre-pandemic levels.

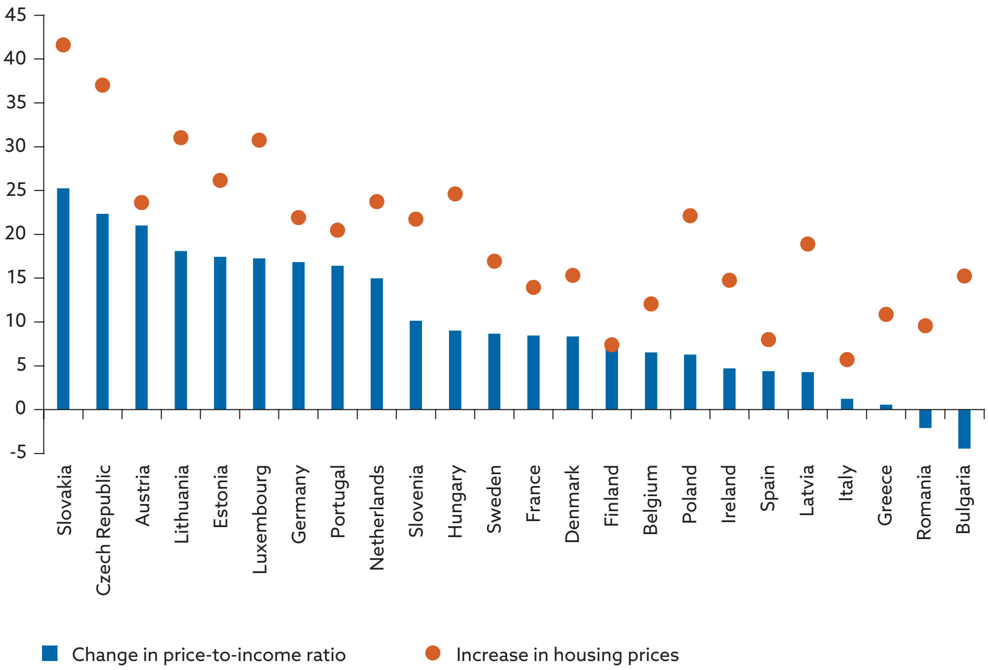
Housing prices rising in most EU countries

The cost of housing has also continued to increase in other EU countries. In most EU countries, growing demand for housing is driving up property prices and reducing the affordability of housing. In both Slovakia and most other EU countries, housing price growth is outpacing wage growth. In terms of the rate of change in the housing price-to-income ratio in the period 2020–21, Slovakia ranked first among EU countries. In Slovakia, housing prices increased by a cumulative 42% during that period, while the average wage grew by just 13%.

Chart 18

Rising housing prices and falling affordability of housing in the EU

Change in the housing price-to-income ratio and growth in housing prices in the period 2019–21 (percentages)



Sources: OECD, NBS, and CMN.
Note: For both indicators, the chart shows the change between the fourth quarter of 2019 and the fourth quarter of 2021. The price-to-income ratio, denoting the nominal index of housing prices divided by nominal disposable income per capita, is deemed to be the housing affordability index.

Housing affordability[31] remains elevated, but it is rapidly deteriorating because of rising housing prices

Housing affordability was already starting to decline in the second half of 2021. Until this period, the housing affordability index had been evolving in a relatively balanced way, with the impact of housing price growth being largely offset by rising household income and, in particular, by the decline in interest rates on housing loans. In the second half of 2021, however, housing prices accelerated to such an extent that neither wage growth nor lower interest rates could counteract the impact of the rising share of the net wage that is required to repay a notional housing loan. If housing prices and interest rates remain on their current upward trends, housing affordability at the end of 2022 will be at its lowest level in ten years.

How housing affordability evolves will depend on how the economic situation and credit availability evolve. The strong housing price growth in recent months has been far outpacing household income growth, thereby creating imbalances in the market. A reduction in housing affordability is already evident and is having a disproportionate impact on low-income groups.

At the same time, however, factors that will mitigate housing market growth trends are becoming increasingly apparent. Lending capacity will be reduced by rising interest rates on new housing loans, while household disposable income will be squeezed by rising inflation. These trends should have a gradual downward impact on demand for housing. We expect that lower-income groups in particular will be dropping out of the market, in which there will be a greater concentration of higher and middle-income groups. This only highlights the need to provide alternatives for the households affected, mainly in the form of government-subsidised rental housing.

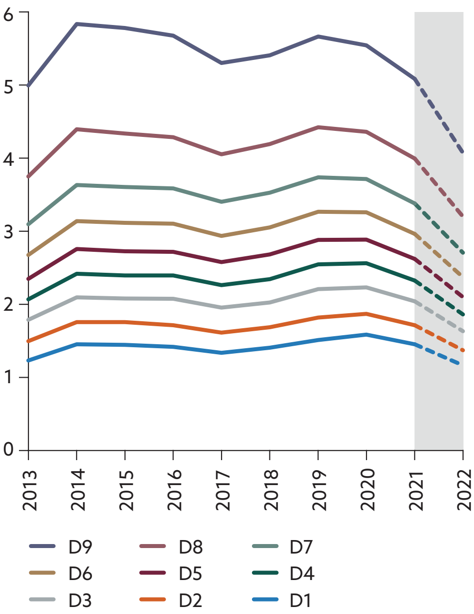
We do not expect any sharp correction in housing prices in the near term. The flexibility in new housing supply remains limited, and construction input prices are rising sharply.

31 Housing affordability is here defined as the inverse of the share of the median net wage that is required to repay a notional loan for the purchase of a flat.

Chart 19

Housing affordability for different income groups

Share of net wage allocated to debt servicing (housing affordability index)

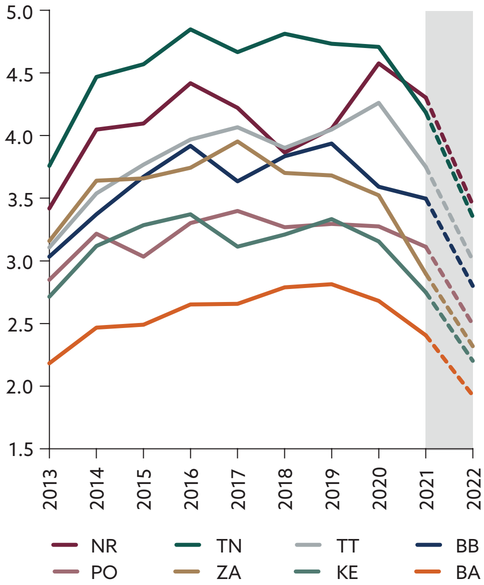


Sources: NBS, CMN, and Social Insurance Agency.
Note: The letter 'D' with a number denotes an income decile, with the number denoting the income group. The housing affordability index represents the share of the median net wage that is required to repay a notional loan for the purchase of a flat, i.e. a 50 m2 flat where the deposit amounts to 10% of the purchase price and the loan covers the rest. The grey shading denotes the simulation period in 2022.

Chart 20

Housing affordability across Slovak regions

(housing affordability index)



Sources: NBS, CMN, and Social Insurance Agency.
Note: The housing affordability index for each region represents the share of the median net wage that is required to repay a notional loan for the purchase of a flat in that region. The notional flat is 50 m2, with the deposit amounting to 10% of the purchase price and the loan covering the rest. The lower the index value, the lower the affordability of housing. The grey shading denotes the simulation period in 2022. The regions are abbreviated as follows: BA – Bratislava Region; TT – Trnava Region; TN – Trenčín Region; NR – Nitra Region; ZA – Žilina Region; BB – Banská Bystrica Region; PO – Prešov Region; KE – Košice Region.

5 Credit risk

5.1 The impact of the pandemic and rising costs on firms

Although the corporate sector largely avoided severe scarring during the pandemic crisis, the pandemic waves in 2021 prevented it from fully rebounding to pre-crisis levels[32]

Following the onset of the pandemic crisis in 2020, a large part of the corporate sector was confronted with a temporary but relatively severe drop in revenues. Thanks to their own and the government's flexible response, however, most firms ended the first pandemic year with only a relatively moderate decline in their financial situation. Although their profitability declined to some extent, they remained in profit. The corporate sector largely avoided more permanent scarring, with no significant increase in the share of firms that are loss-making or have negative equity.

The second pandemic year did not bring any significant worsening of the situation, but nor did it allow the corporate sector to rebound fully to its pre-crisis level. As a consequence of further waves of the pandemic, revenues of around half of firms (across economic sectors) remained below 2019 levels, but were moderately higher compared with 2020. Costs also remained at a reduced level, with the exception of staff costs, which increased in the context of rising wages and an increasing number of people in employment. Corporate profitability therefore remained at around 2020 levels, with the share of loss-making firms even returning to its pre-pandemic level. The impact of the pandemic crisis was mitigated not only by the keeping down of operating expenses, but also by ongoing public support measures, which were even more substantial in 2021 than in the previous year.[33]

It may be said that most firms came through the second pandemic year without suffering any lasting effects. Loan default rates even fell. As early as 2020, banks were able to identify a large proportion of the firms in distress. Despite the expiry of statutory loan moratoria introduced as part of the pandemic support measures, the number of distressed firms did not increase significantly in 2021. Credit risk has fallen, as is indicated, for ex-

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[32] This analysis is based on available financial statements for 2021, which cover approximately half of all firms. Although this sample is relatively representative, the end conclusions may differ when all financial statements are fully available.

[33] The average monthly level of support in 2021 was 10% higher than the average monthly support for the period from March to December 2020.

ample, by the decline in the share of firms that are rated highest risk according to the Altman score.[34]

At the same time, however, the pandemic had a substantially more adverse impact on firms in the accommodation and food services sector and the arts, entertainment and recreation sector. It was these sectors that were hardest hit by the lockdowns and suffered the severest slump in revenues. Almost two-thirds of the firms in these sectors reported revenues for 2021 that were lower than their pre-crisis revenues. More than half of the sectors' firms remained loss-making in 2021 and their share of firms in the sectors remained higher than pre-crisis levels. Although the default rate fell, the share of firms representing a significantly high credit risk is still elevated.

Table 3 The pandemic's impact on the risk profile of firms

		All firms			Firms in the accommodation and food services sector and the arts, entertainment and recreation sector		
		2019	2020	2021	2019	2020	2021
Evolution of revenues and costs	Change in revenues versus 2019 (median)	-	-4.0%	0.0%	-	-23.6%	-29.1%
	Share of firms' reporting revenues below the 2019 level	-	55%	50%	-	68%	65%
	Change in costs versus 2019 (median)	-	-5.2%	-0.7%	-	-17.8%	-20.0%
Impact on firms' financial position	Profitability (median ROE)	7.3%	6.2%	6.2%	2.3%	0.0%	0.0%
	Share of loss-making firms	36%	39%	37%	50%	59%	55%
	– only those with bank financing	28%	31%	28%	44%	61%	56%
	Firms with negative equity	16%	17%	17%	29%	31%	30%
	Liquidity ratio (median)	0.70	0.78	0.79	0.41	0.39	0.41
Impact on firms' riskiness	Share of firms representing a higher credit risk [1)]	33%	35%	35%	47%	54%	54%
	Default rate	0.7%	1.3%	0.5%	0.8%	1.5%	0.6%

Sources: SO SR, and FinStat.
Note: The shares of firms represent shares of the number of firms.
[1)] Firms representing a higher credit risk are firms with an Altman score of less than 1.2, which corresponds to the highest level of risk.
A stable sample of firms is used for the year-on-year comparisons.

Corporate liquidity remained elevated during the second year of the pandemic. This is evidence that firms still have ready access to credit and continue to hold higher volumes of cash. This is particularly so among smaller firms, though even the liquidity of larger firms has not fallen back to pre-pandemic levels.

[34] The Altman score is a bankruptcy model which uses the financial position of a firm (ratios) to assess the risk that the firm will go bankrupt.

After the two-year pandemic, however, the corporate sector is more sensitive to adverse shocks than it was before the crisis. New challenges in the form of rising input prices and supply chain disruptions due to the war in Ukraine are presenting themselves at a time when the financial situation of firms has still not rebounded to pre-crisis levels. Moreover, the impact of the pandemic crisis has been highly heterogeneous across firms. Indeed, the situation in several areas of the services sector continued to deteriorate in 2021.

Risk in lending to the commercial real estate sector has not changed significantly

In the commercial real estate (CRE) sector, the ability of individual segments to cope with the new challenges will primarily depend on how the economic situation evolves. The most favourable developments are in the area of logistics and industrial parks, where the uptrend in demand has continued. On the other hand, several challenges face the retail segment, and the biggest questions marks are over the office segment. Office vacancy rates will rise as tenants increasingly seek to optimise leased premises.[35] This impact will, however, be somewhat spread over time with the gradual renegotiation of older leases. The highest risk will be associated with older office buildings.

New challenges related to the war in Ukraine have the potential to significantly affect the situation in the corporate sector

A direct impact of the war in Ukraine has been the severe restriction of trade with both the belligerents,[36] whether because of the conflict per se or because of the sanctions imposed on Russia. In 2021 Slovakia's exports to Ukraine and Russia amounted to €2.1 billion, or around 2.4% of its total exports. Two-thirds of these exports comprise machinery and transport equipment.

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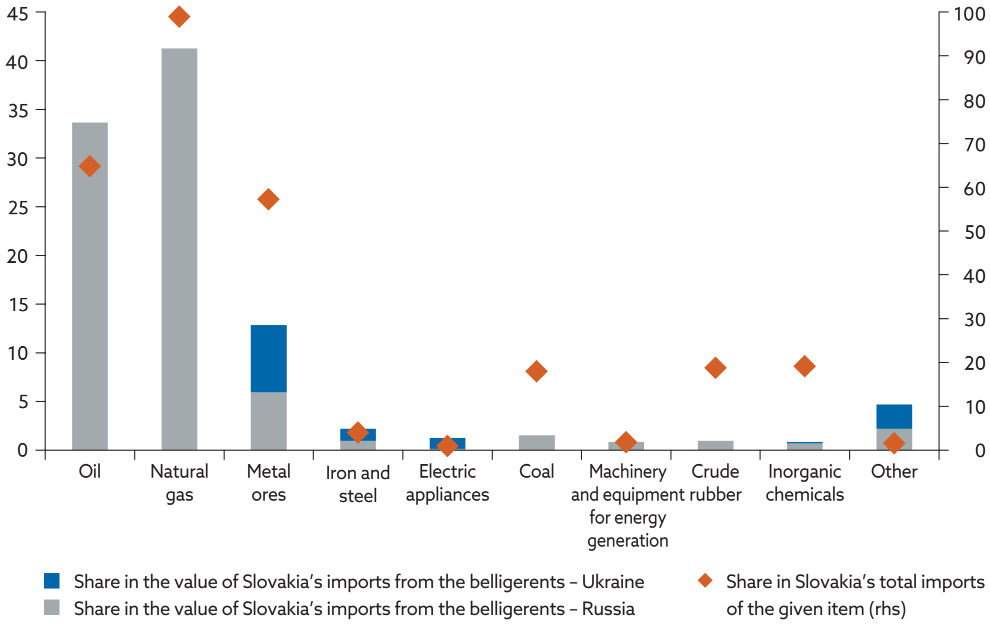
[35] Against a backdrop of the increasing use of remote working and the postponing of expansion plans, firms are tending to swap existing space for higher quality premises with a smaller area.

[36] For further details on the domestic economy's exposure to the war in Ukraine, see Box 1 in NBS's March 2022 Macroprudential Commentary.

Chart 21

Commodities make up the bulk of Slovakia's imports from Russia, and Russia is Slovakia's major source for several commodities

(percentages; percentages)



Sources: NBS, and SO SR.

The domestic firms with the largest direct exposure to the belligerents are large enterprises, which are naturally more export-oriented. At the same time, however, the business activities of these enterprises are far more diversified than those of smaller firms.[37]

Imports from the belligerent countries comprise mainly commodities. As a share of the total value of Slovakia's goods and services imports in 2021, imports from Russia and Ukraine stood at 6.4% and 0.9% respectively. These imports consist mainly of oil, natural gas, and various types of metals. Moreover, several of Slovakia's commodity imports largely comprise imports from Russia. Ukraine, for its part, is an important supplier of certain components used mainly in the manufacturing of transport equipment and electrical equipment, shortages of which will significantly hinder the finishing of products.

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[37] In the case of most large enterprises, their exports to the war-affected markets do not exceed 5% of their total revenues. By contrast, some micro and small enterprises are oriented almost exclusively on these markets, but such firms constitute only a fraction of the NFC sector. Looking at the domestic banking sector's corporate loan portfolio, around one-fifth of the total is accounted for by loans to firms that export to the belligerent countries. However, only a small proportion of those firms report exports to these countries as a significant share of their total revenues.
Fully 96% of these loans are to firms whose direct exports to Russia or Ukraine account for less than 1% of their annual revenues. There are, however, a number of firms whose exposure to the belligerents is more appreciable (with exports to the countries exceeding 5% of revenues). The banking sector's exposure to these firms amounts to €250 million, i.e. around 1.2% of the overall corporate loan portfolio (additional exposure of almost €500 million is off balance sheet).

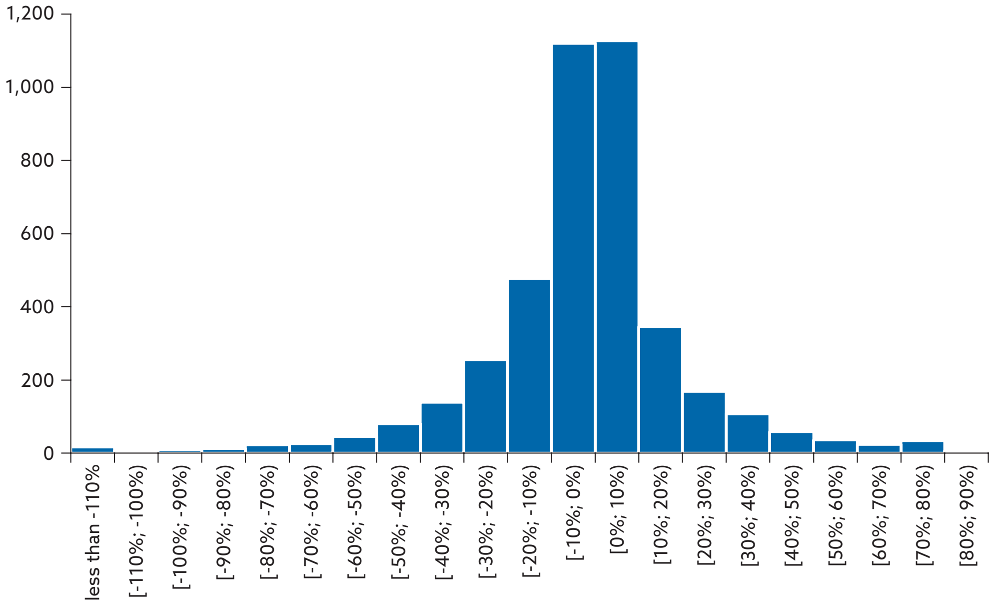
The war's indirect effects have the potential to significantly affect the domestic corporate sector. While the sector's direct exposure is relatively limited, second-round effects could, given the complexity and interconnection of global economic relations, affect a broad range of firms.

Two major factors will weigh on corporate revenues.[38] The first is the surging prices of energy and input materials. Price increases are already passing through gradually to a wide variety of goods and will have a significant impact on corporate costs. The second factor is the major disruption of supply chains. Shortages of input materials and components may substantially slow up and complicate manufacturing processes, thereby weighing on corporate revenues and keeping costs elevated.

Chart 22

The ability to offset rising costs through sales growth varies from firm to firm

Distribution of the difference between the relative increases in sales and costs during the second half of 2021 (number of firms)



Sources: NBS, and SO SR.
Note: The horizontal axis show the ranges of the difference between the relative change in sales and relative change in costs. The vertical axis shows the number of firms. The chart shows only firms that reported an increase in costs.

The ability to offset rising costs by increasing sales varies from firm to firm. It depends in particular on the firm's position in the market, what type of product it produces and the availability of alternatives, its financial situation, and so on.[39] Amid a relatively sharp rise in input prices in the

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[38] The impacts of rising energy and input prices, as well as of supply chain disruptions, is examined in more detail in Section 2.1.

[39] In order to analyse the ability of firms to cover rising costs, we observed firms' behaviour during the second half of 2021, following only firms that had recorded an increase in costs in the second half of 2021. Around one-third of the firms in the sample reported a decline in

second half of 2021, firms had an opportunity to try offsetting higher costs by increasing sales, and more than half of the firms sampled were more or less able to do that.[40] For one-quarter of the firms, however, the relative increase in costs was far higher than the relative increase in sales. The rest of the firms (more than 20%) managed an increase in sales that was significantly higher than the increase in their costs.

Firms will face higher costs and, in an adverse scenario, weaker demand

The purpose of this part is to quantify the potential impact of the above-mentioned factors that may adversely affect the corporate sector. Our analysis is based on the macroeconomic scenarios set out in Box 1. We simulate mainly two types of shocks – an increase in costs and, more so in the adverse scenario, a decline in demand.

The first shock is a relatively large increase in costs, mainly in the form of energy and input purchases. We assume that these costs will already be increasing sharply in 2022, by as much as 60% under the adverse scenario. The costs of certain goods and services are also assumed to increase, as they reflect the impact of rising prices of inputs and energy. The assumed increase in staff costs is line with the projected wage growth in the economy.

Despite the assumption of a broad increase in costs, the impact of that increase will be heterogenous across types of firms[41] and so we simulated it using microdata.

Table 4 Assumptions for the simulation of firms at risk

	Baseline scenario			Adverse scenario		
	2022	2023	2024	2022	2023	2024
Sales	7.9%	6.4%	3.4%	-6.2%	3.4%	4.8%
Input materials and energy costs	40%	-10%	0%	60%	10%	0%
Costs of goods	20%	5%	5%	30%	15%	5%
– Costs of services	10%	5%	0%	15%	10%	7%
Other costs	7%	9%	6%	7%	10%	5%

Source: NBS.
Note: The change in costs represents the change in unit costs in each category.

costs. The data source was the regular SO SR survey conducted on a sample of around five thousand firms, which tracks the evolution of key items of the balance sheet and income statement on a quarterly basis.

40 The differences between the relative change in sales and relative change in costs ranged between -10% and 10%. A value of 10% means, for example, that the firm's sales increased by 35% year-on-year and its costs increased by 25%.

41 In this breakdown, the increase in costs will be highest among manufacturing firms. Even within this category, however, there will be firms that cope better with rising costs and others for whom they cause significant difficulties.

Besides simulating cost increases, we also simulated the ability of firms to cover them by increasing their sales. The main factor in this regard is the ability to pass on rising costs to output prices. This will depend on the firm's position in the market, the type of product it produces, the availability of alternative such products, and so on. The simulation was based on firms' observed behaviour during the second half of 2021.

The second type of shock is a decline in demand, particularly under the adverse scenario. Since the adverse scenario envisages a recession, including a drop in nominal GDP, it is expected to result in a decline in corporate sales.[42] Even if firms manage to pass on rising prices of inputs to output prices, they may face a decline in sales due to a fall in the in quantity of outputs they can sell.[43]

The ability of firms to cope with these two shocks depends on their financial situation. If costs increase faster than revenues, profitability is adversely affected. Profitable firms can cover this difference through their profit margin. Firms that do not have a sufficient profit margin may become loss-making, with a consequent decline in their equity capital. We consider exposures[44] at risk to be exposures to firms that could fall into negative equity as a result of losses over the period 2022–24.[45]

The adverse scenario could affect firms quite significantly

In the baseline scenario, we estimate that as a result of the above-mentioned shocks, up to 17% (€3.6 billion) of corporate loans could fall into the at-risk category, which is a relatively high proportion. This estimate does not, however, take into account any solvency-strengthening measures that the government or firms themselves may take. The share of exposures at risk is lowest among large enterprises, while it is higher among small and medium-sized enterprises. The risk is also slightly higher for loans guaranteed by the government as part of pandemic-related support measures. In the light of previous experience, however, not all of these exposures are

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[42] In the adverse scenario, the decline in sales is estimated to be most pronounced in 2022. In subsequent years too, however, demand is expected to fall, despite an assumed increase in nominal GDP and total sales. Indeed, sales growth is expected to be outpaced by the increase in unit costs.

[43] Firms are assumed to respond to such a fall by saving costs, as their purchases of inputs and energy decrease. It is estimated that these savings will offset 80% of the decline in sales. This estimate is based on observations of firms' behaviour during the pandemic crisis.

[44] In addition to loans, exposures here include off-balance-sheet exposures (e.g. undrawn credit lines and authorised overdrafts, guarantees, and loans that have been granted but are not yet drawn down) with a conversion factor of 5%.

[45] Experience shows that even negative equity does not necessarily mean the default of a loan to the firm in question. However, the default rate is far higher for firms with negative equity than for other firms.

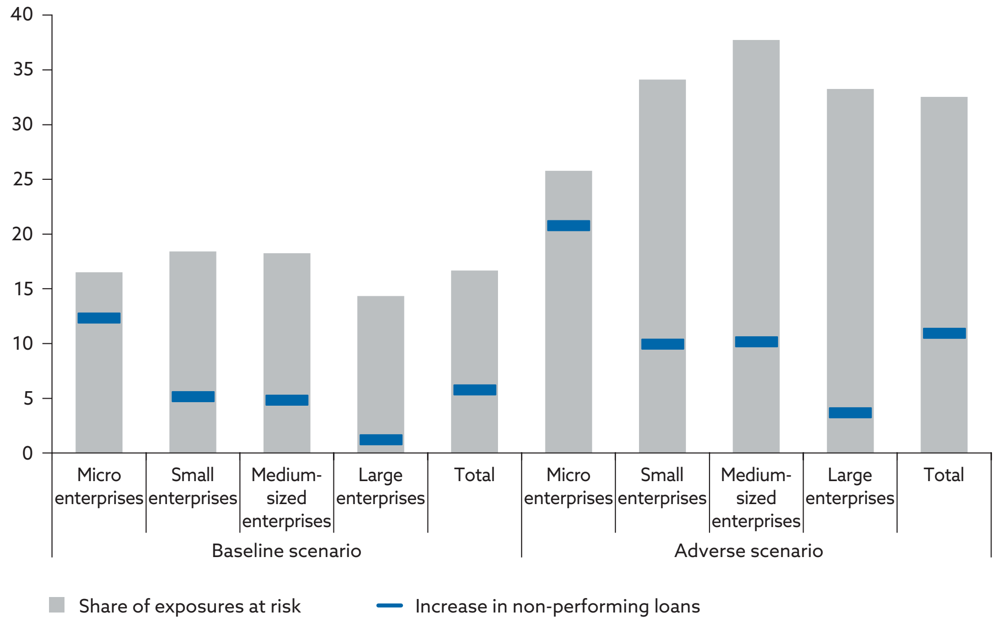
expected to default. Loans that could default within the period 2022–24 are estimated to amount to 6% of the total NFC loan portfolio.[46] The default risk is highest for at-risk exposures to micro enterprises.

In the adverse scenario, the share of exposures at risk is estimated to increase by around twofold (by 34%, or €7 billion). The aggregate cumulative default rate for the period 2022–24 is estimated to be as high as 10.9%. Again, the default risk is estimated to be highest for loans to micro enterprises and lowest for loans to large enterprises.

Chart 23

Exposures at risk and non-performing loans

Share of exposures at risk and newly default loans by firm size category (percentages)



Source: NBS.

5.2 Upward pressures on household credit risk

Elevated inflation, rising interest rates and a possible increase in unemployment may lead to an increase in the share of households at risk of default

The purpose of this part is to analyse the financial situation of indebted households in an environment of elevated inflation, rising interest rates

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[46] Default rates vary across firm size categories, according to data from the Register of Bank Loans and Guarantees. In the adverse scenario, the share of at-risk loans that default is estimated to be around 60% for micro enterprises, around one-fifth for SMEs, and around one-tenth for large enterprises. In the baseline scenario, the default rates are estimated to be one-third lower than those in the adverse scenario. The aggregate default rate in the adverse scenario is estimated to be at the levels observed during the 2008–10 global financial crisis.

and, under the adverse scenario, an increase in the unemployment rate. The analysis is based on an estimation of the share of indebted households that are at risk of falling into financial distress, i.e. a situation in which debt servicing costs and necessary expenditure[47] exceed income and accumulated savings. For this analysis, we use the baseline and adverse economic scenarios set out in Box 1. The key assumptions for estimating the share of households are given in Table 5.

Table 5 Assumptions for the simulation of loans at risk

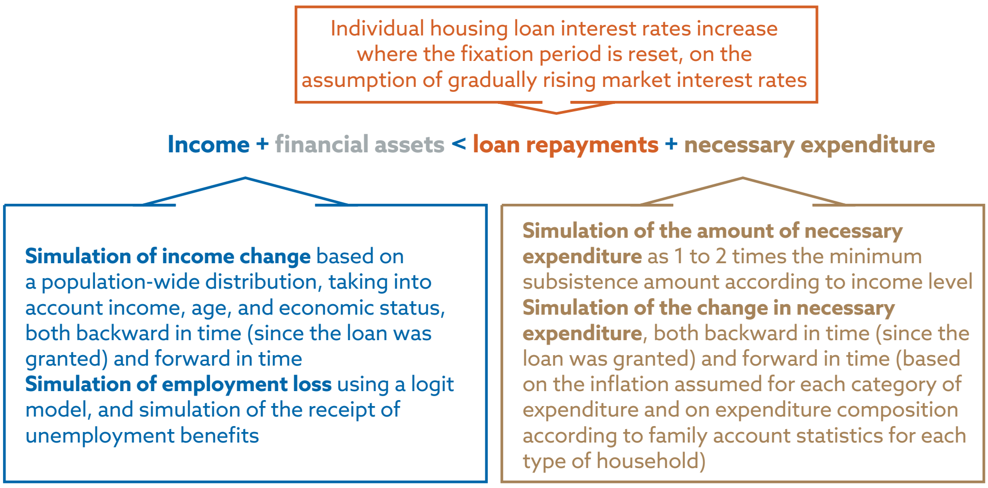
	Baseline scenario	Adverse scenario
Increase in unemployment rate	0.3 pp	5.3 pp
Cumulative increase in nominal wages	22%	18%
Cumulative increase in necessary expenditure	27%	39%
– increase expressed in euro	€121	€185
Increase in interest rates on housing loans [1)]	200 bp	300 bp

Source: NBS.
Note: The table shows the increase in values over the period 2022–24, assuming an even rate of increase over the period.
1) The share of loans at risk is estimated using both a basic assumption for the movement of interest rates, shown in the table, and an alternative assumption where the interest rate increase is 400 bp in the baseline scenario and 500 bp in adverse scenario.

Microsimulations take into account that some households may be subject to stronger shocks

Figure 2

The identification of households at risk and the simulation method for income and expenditure



Source: NBS.
Note: We consider household loans to be at risk where the household's income and financial assets over the period 2022–24 are insufficient to cover its loan repayments and necessary expenditure. Just because a loan is at risk does not mean it will default. Income, loan repayments, and expenditure are calculated using their cumulative simulated value for the period 2022–24.

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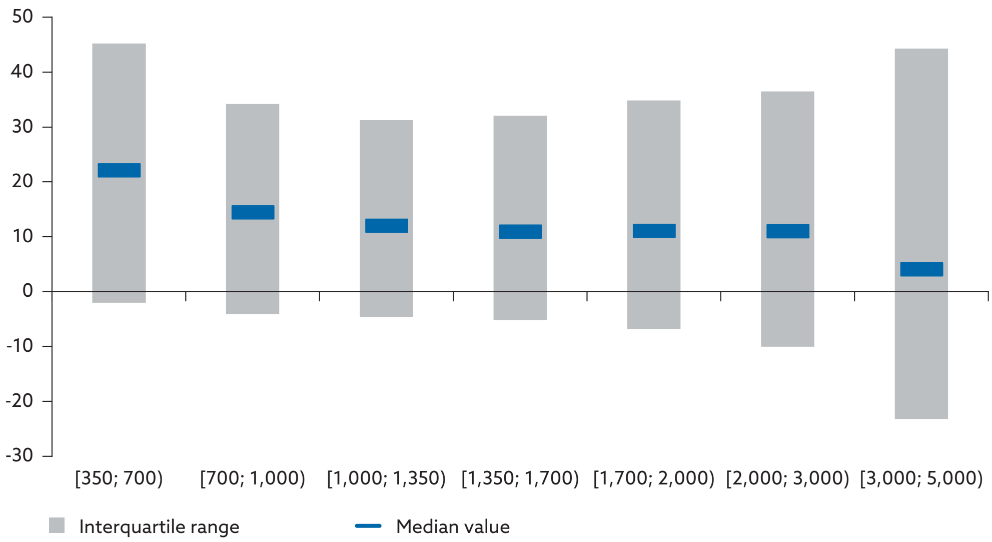
47 For our purposes, necessary expenditure is deemed to comprise spending on food, non-alcoholic beverages, housing, water, electricity, gas, health, transport, postal services, telecommunications, and financial services.

The simulations themselves, however, take into account the heterogeneity of income and expenditure patterns across households, as well as the different probabilities of employment loss across employees, depending on their characteristics (e.g. age, income, economic status, education). Income and expenditure for individual households are simulated not only forward in time, for the period 2022–24, but also backward in time for the period from when the loan was granted until 2021. Figure 2 provides details of the simulation.

Chart 24

Earnings of employees aged 30–35 is estimated to increase, more so for those on lower incomes

Distribution of the cumulative change in employee earnings over the period 2019–21 (percentages)



Sources: NBS, and Social Insurance Agency.
Note: Earnings categories on the horizontal axis denote employees' net monthly earnings in euro. The simulation for the period 2022–24 is based on the distribution of the change in earnings of people in each category according to income group, age cohort and economic status (employee, self-employed person, other) over the past three years, with growth in each year being further increased by 1.2 pp. In the adverse scenario, the cumulative growth is estimated to be 4 pp lower than in the baseline scenario.

The simulation takes into account that although the income of most households will increase, the income of some households may decline.[48] The share of households whose income falls may be more pronounced among higher-income households, which make up a greater proportion of housing loan borrowers. Chart 24 shows the estimated distribution of changes in income over the period 2022–24 for employees in the 30–35 age cohort.

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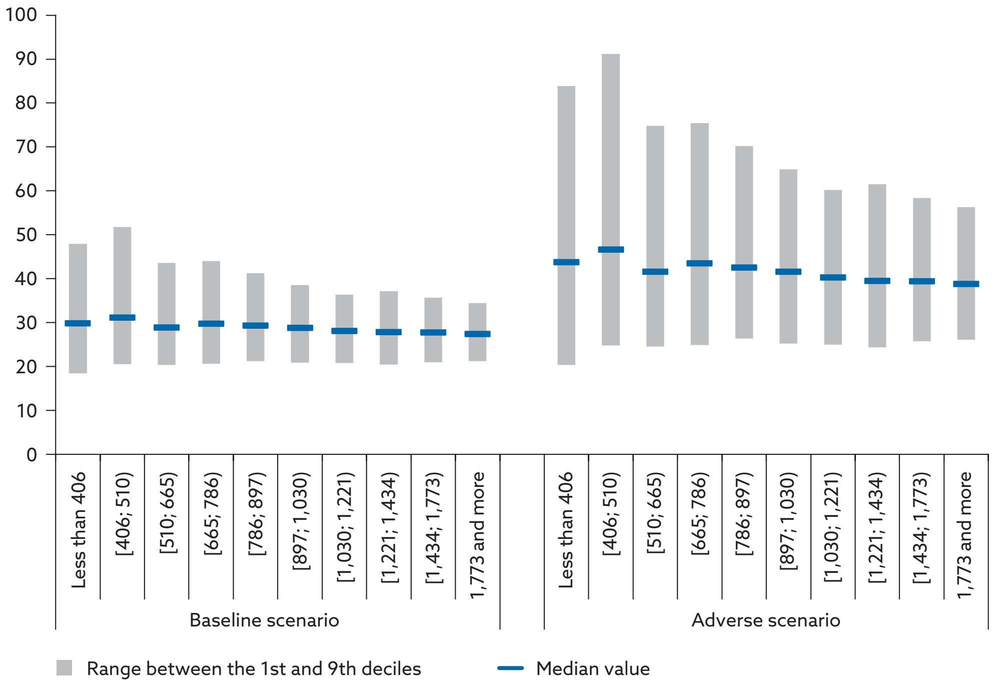
[48] We estimate that because of the decline in income of certain households, the share of housing loans and share of consumer credit provided to households at risk of financial distress will be as high as, respectively, 3% and 5%. These shares may further increase over the period 2022–24, by 2 pp for housing loans and 4 pp for consumer credit.

Chart 25

Inflation is estimated to have a slightly higher impact on lower-income households

Distribution of the estimated cumulative increase in necessary expenditure over the period 2022–24 (percentages)



Sources: NBS, and SO SR.
Note: The values take into account expenditure composition for a sample of around 5,000 households according to family account statistics, as well as the projected evolution of prices in different categories of goods and services. Income categories on the horizontal axis denote net monthly household income in euro.

Account is also taken of the heterogenous impact of inflation across households, including the fact that inflation has a greater impact on lower-income households. For some lower-income households there is a risk that costs will increase by even more than three-quarters.

In the baseline scenario, the negative impact is caused mainly by inflation; in the adverse scenario, by inflation together with rising unemployment

Because of increases in expenditure, interest rates and unemployment, it is estimated that between 3% and 7% of housing loans and 4% and 10% of consumer credit[49] will become at risk over the three-year scenario horizon. Chart 26 shows more detailed results and the impact of different factors on growth in at-risk household loans.

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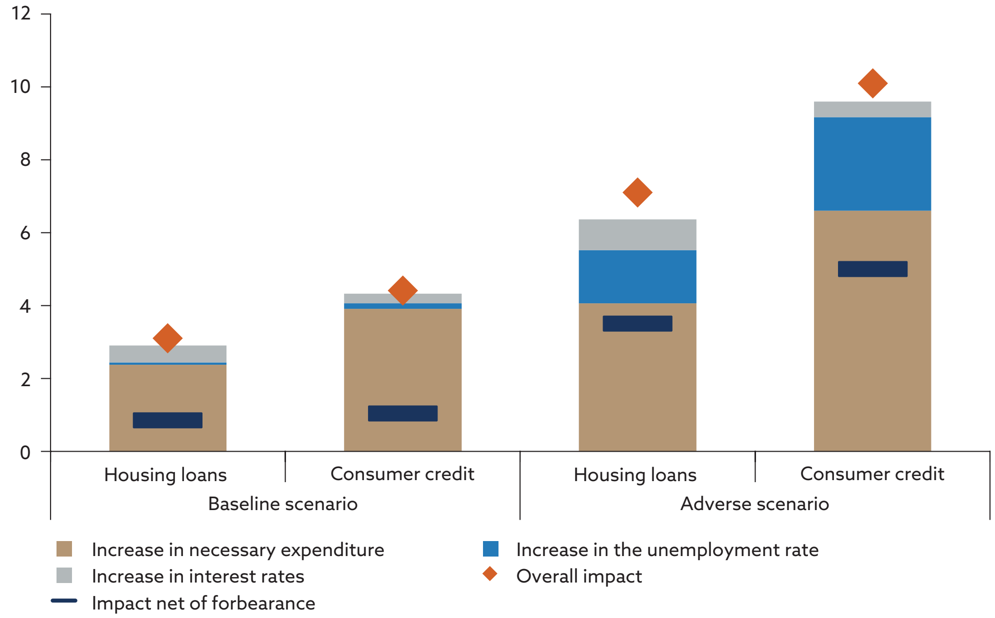
[49] The impact on consumer credit is more pronounced, owing to the assumption that households in distress will first default on consumer credit; they will only default on housing loans where their income and savings are insufficient to both service the loan and cover necessary expenditure.

Chart 26

Impacts of different shocks on loans at risk

Share of growth in at-risk household loans by type of shock (percentages)



Source: NBS.
Note: Households are deemed to be at risk where their loan repayments and necessary expenditure exceed their income and accumulated savings. The different impacts were assessed separately. The overall impact slightly exceeds the sum of the impacts of individual factors, since the simultaneous interaction of multiple shocks can put at risk even households that would be resilient to those shocks in isolation.

In the light of the positive experience with pandemic-related statutory loan moratoria, we also analysed the impact of forbearance on households at risk. If loans were forborne under conditions similar to those applied during the pandemic crisis, the share of loans at risk would be roughly halved.

The factor having the largest upward impact on loans at risk is elevated inflation.[50] On the other hand, the expenditure of most households that become at risk because of high inflation will only slightly exceed their income. Moreover, the impact of inflation will be gradual, and households may respond to it by changing the composition of, or partly reducing, their expenditure. Even so, as the financial situation of at-risk households deteriorates, their consumption (especially of non-essential items) may decline and they may become more vulnerable to adverse events (in the particular the loss their main income). Although indebted households are the primary focus of this analysis, other households may also be exposed to the adverse impact of inflation. At the same time, it should be noted that the baseline scenario results in a positive change in the financial situation

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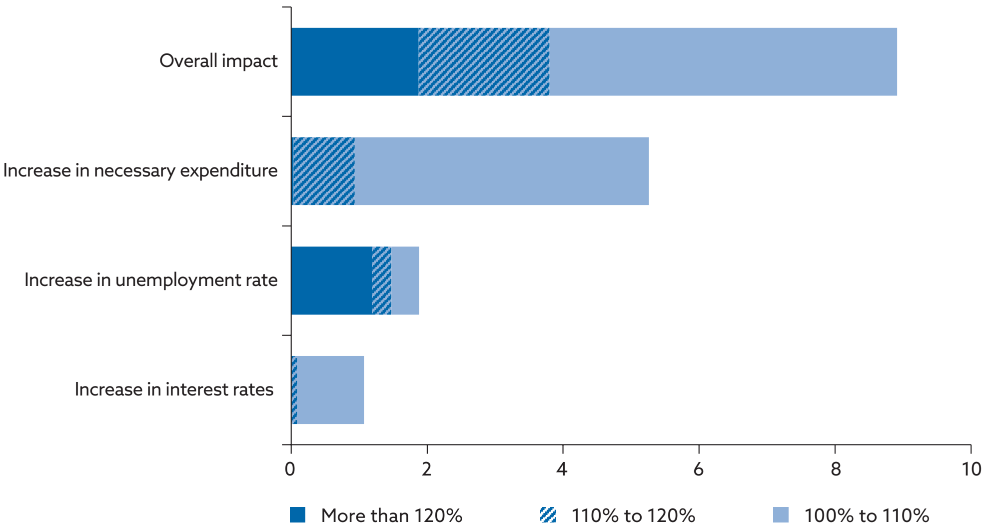
[50] The share of housing loans at increased risk owing to inflation is estimated to rise by between 2.4 pp and 4.1 pp; the share of consumer credit, by between 3.9 pp and 6.7 pp.

of around one-half of households, whose debt burdens are eased by income growing faster than expenditure.

In the adverse scenario, the assumed increase in the unemployment rate has a smaller upward impact on loans at risk than does inflation. At the same time, however, it leads to a significant deterioration in the financial situation of the households affected. It is loans to these households that face the highest risk of default. Chart 27 shows the extent and intensity of the impact that different factors have on the financial situation of households in the adverse scenario.

Chart 27

Extent and intensity of impacts on the financial situation of households in the adverse scenario
(percentages)



Source: NBS.
Note: The horizontal axis shows the share of total loans to households that become at risk as a result of the given factor in the adverse scenario. The components of the bars show the intensity of the impact by denoting the post-shock debt servicing-to-income ratio (including recourse to savings).

Another factor that may itself increase the share of loans at risk is rising interest rates on housing loans. Compared with the impacts of rising inflation and rising unemployment, its impact is more modest; nevertheless, a higher increase in rates is estimated to increase the share of housing loans at risk by 1.7 percentage points. Unlike inflation, which affects virtually every household, households whose housing loan will have its interest rate fixation period reset in coming years are most exposed to an increase interest rates.[51]

[51] This year 15% of housing loans will undergo a rate reset; in 2023, 20%; and in 2024, 34%.

Table 6 Upward impact of interest rate increases on the share of loans at risk

	Interest rate	Housing loans	Consumer credit
Baseline scenario	Increase of 200 bp	0.5 pp	0.3 pp
	Increase of 400 bp	1.1 pp	0.6 pp
Adverse scenario	Increase of 300 bp	0.8 pp	0.4 pp
	Increase of 500 bp	1.7 pp	0.9 pp

Source: NBS.
Note: The table shows the cumulative increase in interest rates on new housing loans over the period 2022–24, assuming linear increases of the same amount.

The proportion of loans at risk that actually default will depend on the resulting financial situation of households. In the baseline scenario, it is estimated that 2.6% of housing loans and 8.3% of consumer credit could default during the three-year scenario horizon. The corresponding figures under the adverse scenario are 4.9% and 14.5%.[52] These estimates are based on the assumption that expenditure on necessities and debt servicing only moderately exceeds income (including recourse to savings); a loan may not necessarily default even though its probability of default has increased relative to that of other loans. Where, however, the gap between expenditure and income is significant, the default risk increases sharply. [53]

Box 3
Potential channels of the impact of inflation on financial stability

The recent uptick in inflation and the prospect of its rate continuing to rise in coming quarters will have an increasing impact on the domestic economy, with both the corporate sector and households affected.

The corporate sector has already been experiencing rising input prices. The firm-level impacts may range from a drop in profit to bankruptcy, depending on the particular firm or sector and the scope for passing on higher input prices to output prices in order to maintain business margins. This is related, however, not only to the elasticity of demand, but also, increasingly so today, to the actual availability of inputs on the global market. Domestic firms' options for responding vary greatly and may lead to a serious deterioration in their financial

[52] Besides the impacts of increases in necessary expenditure, unemployment and interest rates, another impact taken into account is that, despite a rise in average income, some households may face a drop in income.

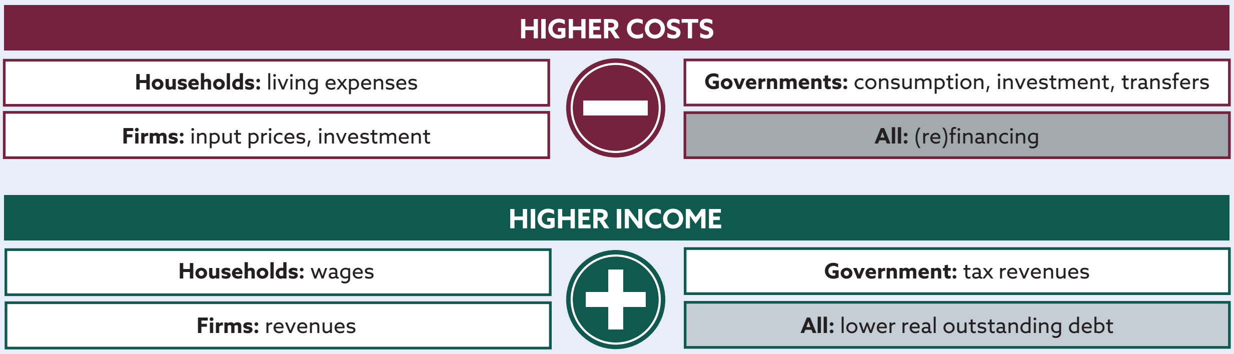
[53] The probability of default is assumed to increase with the debt service-to-income ratio (where income is reduced by necessary expenditure and includes recourse to savings). Default is assumed for one in every two housing loans with a DSTI ratio of between 110% and 120% and for every housing loan with a DSTI ratio of more than 120%. In the case of consumer credit, default is assumed wherever the DSTI ratio is more than 100%. It is assumed that households at risk will first default on consumer credit; they will only default on their housing loans out of necessity (where income is insufficient to cover expenditure).

situation (see Section 5.1). Particularly vulnerable is the status of energy inputs, which firms cannot, or can only gradually, substitute in the medium term. Moreover, energy inputs are required by all sectors of the economy, so any increase in their prices has the potential to trigger a second-round overall increase in prices of goods and services, thereby adversely affecting input prices.

In some sectors, higher inflation may translate into higher profits. This is traditionally the case with more cyclical sectors, such as construction, real estate, and energy. It also, however, applies to the manufacture and sale of food and to heath care, since essential consumption expenditure is usually characterised by low price elasticity. On the other hand, the sectors supplying water, gas, and electricity are typically subject to price regulation and their profitability may be adversely affected.

For the firms and sectors more affected, their credit risk will increase owing to the deterioration of their financial situation. Hence, they may be subject to higher credit risk premia from lenders, and so their debt servicing costs may increase. On the other hand, a nominal increase in debt servicing costs need not imply an immediate worsening of the real financial situation. In fact, during inflationary periods, it is more likely to bring some relief to borrowers, as the nominal value of their debt will decrease relative to the nominal increase in prices and the associated increase in revenues and wages.

Figure 3
Inflation will increase not only costs, but also income in the economy



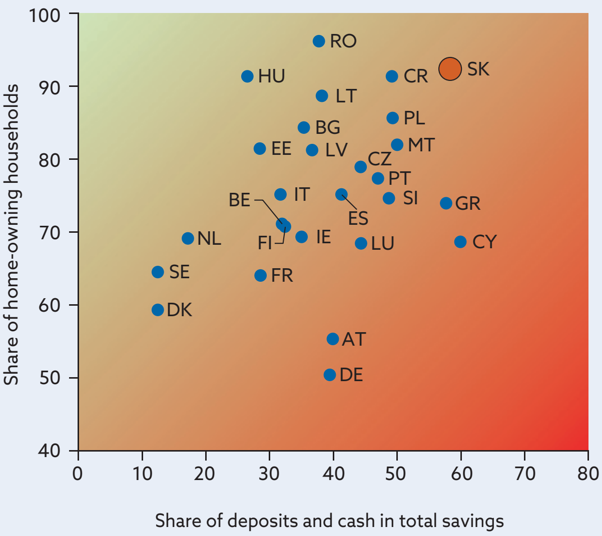
Source: NBS.

Higher inflation will erode household savings, especially with bank deposits usually having the highest negative real interest rate. On the other hand, any increase in interest rates that to some extent slowed the depreciation of deposits would at the same time have a downward impact on the value of bond investments, in particular those with a longer duration. Households in Slovakia have relatively few financial assets compared with households in other EU countries, since most of their wealth is tied up in their home. From an inflation perspective, this situation can be viewed as quite favourable, given that real estate has less tendency to depreciate during inflationary periods than do the different types of financial assets. However, in terms of the concentration of household financial assets in bank deposits and cash – the asset classes most vulnerable to rising inflation – Slovakia reports one of the highest levels in the EU (Chart 28). If interest rates are not sufficiently flexible in following inflation, such assets may become even less attractive compared with other types of investments and the result may be an outflow of deposits from banks.

Because of rising inflation, real household income is projected to decline. Since real income is a core living standard indicator, higher inflation will reduce the living standard of certain households. Most at risk are lower-income households, who spend proportionally more of their income on necessities than do other households. On the other hand, it is positive that the financial situation of indebted Slovak households that own their own homes is relatively favourable. The share of households whose spending on housing (excluding housing loan instalments) exceeds 40% of their disposable income is only 1.8%, one of the lowest figures in the EU (Chart 29).

Chart 28
Financial and non-financial assets

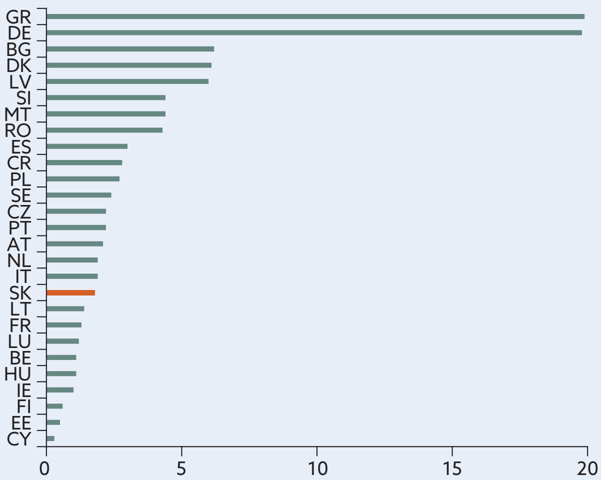
Share of home-owning households and share of bank deposits and cash in total household savings (percentages)



Source: Eurostat.

Chart 29
Households with a housing loan whose expenditure on housing exceeds 40% of disposable income

(percentages)



Sources: Eurostat, and EU-SILC.

Higher inflation is also associated with interest rate increases. New loans to firms and households will therefore rise in price, possibly resulting in a reduced volume of lending and fewer people qualifying for loans. Moreover, interest rate hikes automatically reduce the affordability of housing. For existing borrowers, they push up debt servicing costs, depending on the length of the interest rate fixation period. For corporate borrowers, short fixation periods are the norm, but since corporate loans typically have short maturities, their sensitivity to rising interest rates is lower. Loans for fixed investment, in particular to firms in the CRE sector, are an exception in this regard, since their longer maturities may make them more sensitive. The turn in expectations about interest rates has already been reflected in increasing household demand for longer interest rate fixation periods, which in an environment of rising rates shift interest rate risk from borrowers to banks.

Rising interest rates will also affect the insurance sector, in particular life business. At times of falling and low interest rates, the longer lifetime of insurers' liabilities vis-à-vis their shorter-maturity investments poses a risk to the viability of their business model. This is primarily because the net present value of insurers' liabilities increases faster than their assets, thereby having a negative impact on their solvency. At the same time, life insurers face risk related to their portfolio of liabilities that provide policyholders with a guaranteed return, as either they are unable to earn such returns in real terms, or they have recourse to higher-risk investments. Hence, insurers have reduced their provision of such insurance products or have made them far less attractive, so as to shift investment risk to policyholders. As interest rates rise, this trend is expected to reverse.

The current combination of elevated inflation and uncertainty about the economic situation may have an adverse impact on the fiscal position. The relationship between nominal interest rates and economic growth rates is crucial for the sustainability of public finances. When inflation is rising, so usually are interest rates and economic growth. It is therefore problematic if, on the one hand, inflation and credit risk premia are raising the nominal cost of servicing government debt, while, on the other hand, war and global supply chain disruptions are weighing on economic growth. Such a combination can pose a challenge for fiscal policy, especially in more indebted countries.

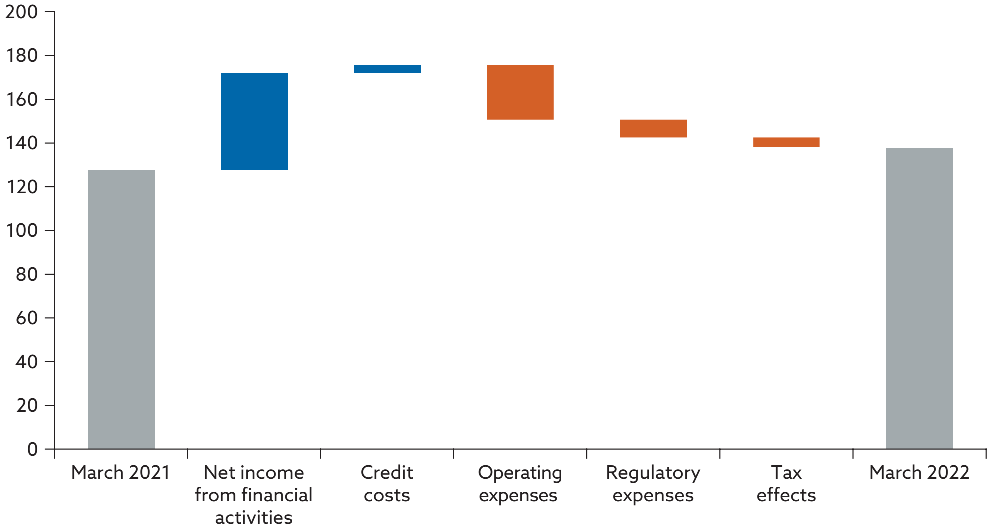
6 Banking sector profitability and resilience

6.1 Banks' profitability supported by income from financial activities

Chart 30

Annual growth in banks' profit for the first quarter of 2022 was largely driven by net income from financial activities

Net profit and the most significant contributors to the change in its year-on-year increase (EUR millions)



Source: NBS.
Note: Regulatory expenses include the bank levy, contributions to the Resolution Fund and the Deposit Protection Fund, and supervisory fees. Income from financial activities includes net interest income, net fee and commission income, dividends received, and the revaluation of financial instruments fair valued through profit or loss.

The Slovak banking sector made a net profit of almost €138 million for the first quarter of 2022, representing a year-on-year increase of 8% or €10 million.[54] The result was underpinned by income from the traditional pillars of profitability – net interest income and net fee and commission income,[55] which together increased by more than €35 million year-on-year. The main factor offsetting their impact was higher operating expenses.

[54] Compared with the average for the pre-pandemic period 2017–19, however, this result is lower by more than 17% (€28 million). The items accounting for most of that difference are credit costs (€27 million higher) and interest income (€26 million lower), with their negative impact being significantly offset by net fee and commission income (€41 million higher).

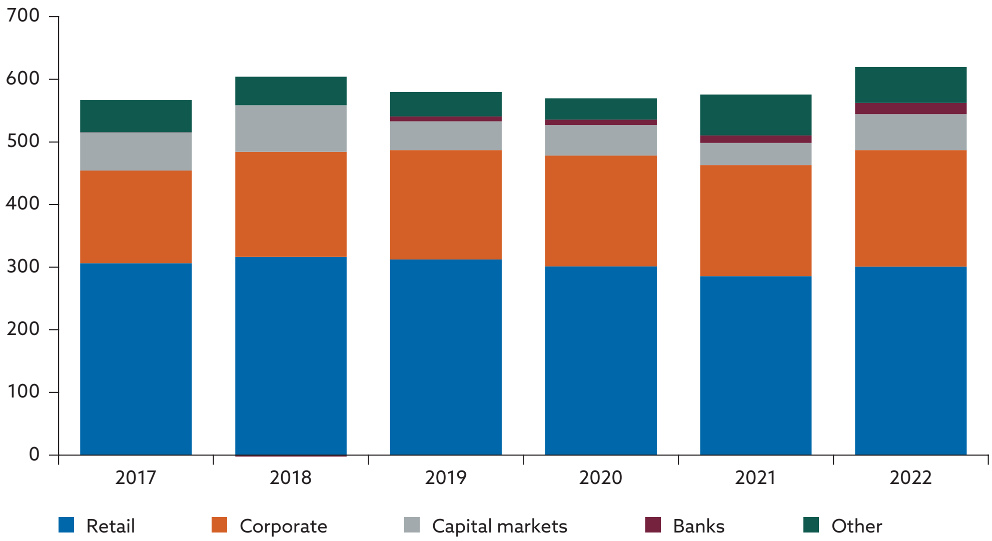
[55] The fastest-growing of the principal aggregates of net fee and commission income were net fee and commission income from third parties for arranging the sale of investment or insurance products and net fee and commission income related to banks' credit products.

Income from financial activities increased in all customer segments. In the two most significant segments – retail[56] and corporate – the year-on-year increase in net income was 5% in each case. But while income from corporate business has been on a year-on-year uptrend for five years, income from retail business fell in 2021 and only rebounded to its 2020 level in the first quarter of this year, still short of its 2018 peak. Capital markets income added almost €22 million to the banking sector's profitability, as it picked up from a subdued performance in the previous year. Thanks to the impact of TLTRO III operations conducted with the central bank, the interbank segment maintained its strong momentum, with its net income increasing by 56% year-on-year.

Chart 31

All customer segments contributed to net income from financial activities in the first quarter

Sectoral breakdown of net income from financial activities in the first quarters of the respective years (EUR millions)



Source: NBS.
Note: The segment 'Other' includes the segments 'non-residents', 'general government' and 'non-bank financial corporations'. The segment 'Capital markets' includes net interest income from debt securities, revaluation of financial instruments, and dividend income.

The banking sector's credit risk costs in the first quarter of 2022 did not change significantly in year-on-year terms, recording only a moderate slowdown. Banks' net allocation to provisions and reserves in the first quarter amounted to €47 million, which was 8% lower than in the same period of 2021. Compared with the pre-pandemic period 2017–19, however, provisioning remained up to 1.5 times higher. At the same time, there is an interesting sectoral aspect to these figures, as provisioning for corporate

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[56] For the purpose of this report, the retail sector comprises households, sole traders and non-profit institutions serving mostly households.

exposures decreased significantly while provisioning for other lending, in particular the retail loan book, accelerated sharply.[57] In terms of approaches to loan loss provisioning, the heterogeneity across banks remained considerable in the first quarter of 2022.

High inflows of new loans and the ongoing downtrend in the volume of non-performing loans contributed significantly to a year-on-year improvement in the credit quality of loan books.[58] For customer exposures at all levels of the IFRS 9 staging structure,[59] coverage ratio trends have remained stable during the pandemic crisis and beyond. The overall coverage ratio dipped from 2.7% to 2.4% between the end of March 2021 and March 2022, entirely because of a decline in the volume of non-performing exposures (and provisions), mainly in the corporate portfolio.

The profitability of banks in Slovakia for the first nine months of 2021 remained below the median for banks in EU countries. The annualised ROE of the domestic banking sector has nevertheless continued to increase since the onset of the pandemic crisis.[60] Across all EU national banking sectors, the median ROE for the first nine months of 2021 exceeded the annualised ROE for the pre-pandemic year of 2019.[61] The reason for the improvement in both Slovakia and other EU countries was primarily a reduction in provisioning, compared with the elevated levels of provisioning the followed the pandemic outbreak. In the light of heightened geopolitical risks and their direct and indirect repercussions, 2022 is expected to see slower growth (or even decline) in banks' profitability across the euro area, including in Slovakia.

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57 For corporate exposures, net provisioning in the first quarter of 2022 was almost zero (new provisioning fell by €38 million), while for retail exposures it increased by 50%, to €37 million.

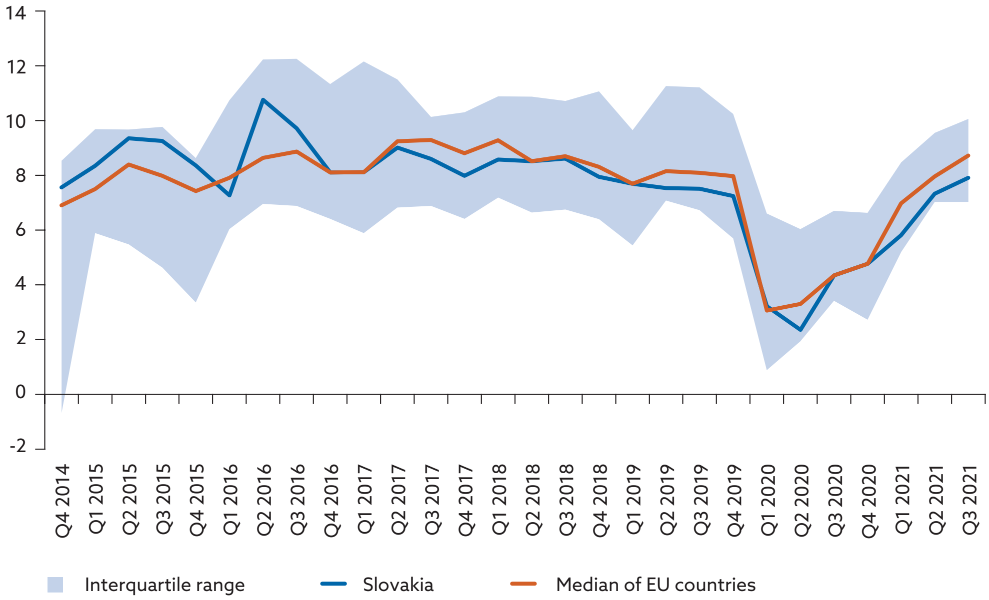
58 With gross customer exposures increasing by almost €6.3 billion year-on-year, and the amount of NPLs falling by more than €200 million, the share of Stage 1 loans increased by 1.6 pp, to 85.6%, and the share of Stage 3 loans dropped by 0.5 pp, to 2.3%.

59 For Stage 1 loans, coverage ratios have ranged between 0.34% and 0.38% (0.38% at end-March 2022); for Stage 2 loans, between 3.9% and 4.4% (4.2%); and for Stage 3 loans, between 66% and 69% (69%).

60 For 2019, the ROE of Slovak banks was 7.2%, and for the first nine months of 2021 it was 7.9% (annualised).

61 For 2019, the median ROE of EU national banking sectors was 8%, and for the first nine months of 2021 it was 8.7% (annualised).

Chart 32
Return of banks' profitability to pre-pandemic levels
Evolution of the annualised ROE of banks in the EU (percentages)



Sources: NBS, and ECB.

Although its profit is expected to decline year-on-year, the Slovak banking sector is in a favourable situation.[62] In the baseline economic scenario for 2022, the aggregate profit of Slovak banks is estimated to fall 5% year-on-year, to €625 million. The main causes of this decline are expected increases in administrative costs and provisioning. On the other hand, net interest income and net fee and provisioning income will have a positive impact on the sector's profit.

6.2 Banking sector solvency remains high

The current turbulence has hit at a time when Slovak banks are well capitalised. The total capital ratio of the domestic banking was 20.04% as at the end of 2021.[63] For less significant banks, the aggregate ratio increased by around one percentage point over the year, to 21.32%; for significant banks, by 0.17 percentage point, to 19.67%.[64]

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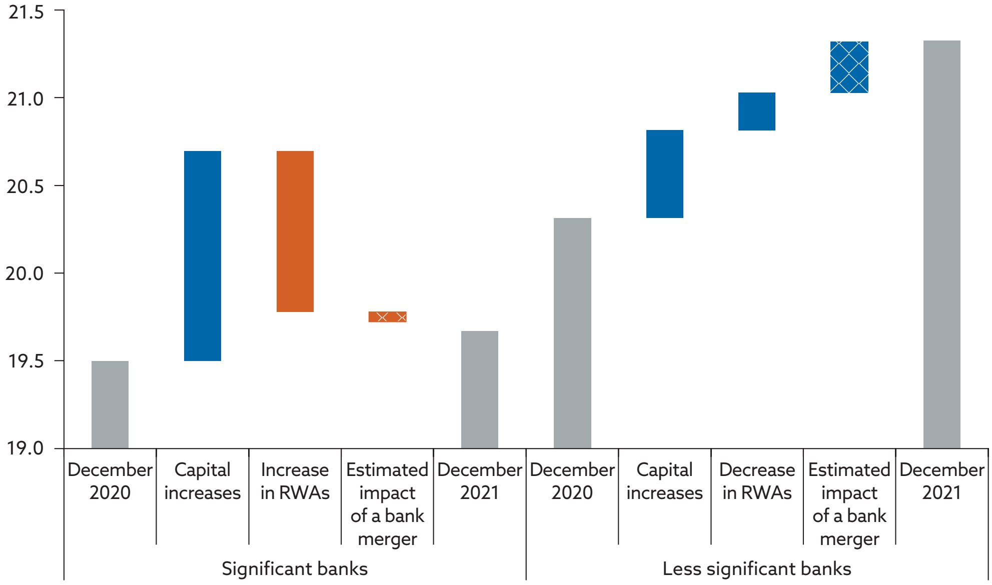
62 Further details of the stress testing of Slovak banks are provided in Section 6.3.

63 This represents a year-on-year increase of 0.33 percentage point, with capital increases having a positive impact (1.0 percentage point) and changes in risk-weighted assets having a negative impact (-0.7 percentage point). The highest level the sector's capital ratio reached in 2021 was 20.78% at the end of June. These figures are for banks on an individual basis. For banks on a sub-consolidated basis, the total capital ratio increased by 0.31 percentage point, year-on-year, to 19.64%.

64 These figures in the two groups of banks were partly affected by one bank's acquisition of another bank within the sector.

Chart 33

Changes in the total capital ratios of significant and less significant banks
(percentages)



Source: NBS.
Note: RWAs – risk-weighted assets. For each group of banks, the impacts of capital and RWA increases are adjusted for the estimated impact of a bank merger.

In 2021 banks strengthened the amount and composition of their capital mainly through the retention of earnings for 2020.[65] Capital accumulation at individual banks in 2021 was significantly supported by reducing the deductible capital item related to the elevated pandemic-induced provisioning in 2020 and by the issuance of new Additional Tier 1 (AT1) capital.

Increases in risk-weighted assets curbed the year-on-year improvement in the banking sector's solvency.[66] They increased despite a decline in the average risk weight of credit exposures,[67] largely because banks' balance sheets grew significantly in segments that attract a zero or below average risk weight, such as claims on central banks or retail loans secured by residential real estate. In this particular portfolio, however, banks using an internal ratings-based (IRB) approach to assess credit risk saw a more significant increase in the average risk weight, after its relatively stable trend over the previous four years.[68] This increase, however, reflected mainly the

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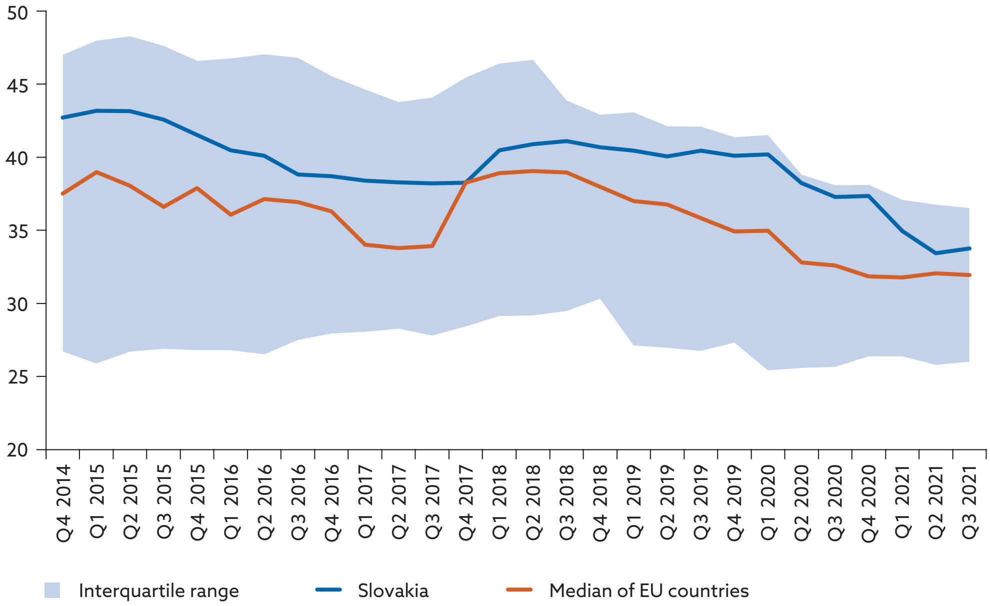
65 Recommendation on capital and profit distributions by banks during the COVID-19 pandemic was in effect until 30 September 2021. The earnings retention rate in 2021 reached approximately 45%, or €193 million, with its positive impact on the total capital ratio amounting to 2.6%.
66 RWAs increased by 3.4% year-on-year.
67 The average risk weight of credit exposures as at the end of end of 2021 was 3 percentage points lower year-on-year, at 33%. Adjusted for the impact of TLTRO operations, the average risk weight fell by 1 percentage point, to 36%.
68 Across IRB banks, the average risk weight of retail loans secured by a mortgage on residential property increased by 2 percentage points, to 16.8%.

heterogeneity of trends across banks. By contrast, the average risk weight of corporate exposures decreased significantly,[69] owing mainly to a marked increase in the volume of off-balance-sheet exposures. The average risk weight of credit exposures has therefore moved close to the EU median.[70]

Chart 34

Average risk weight of credit exposures across EU countries
(percentages)



Source: ECB.

Banks' capital headroom above regulatory buffers remains sufficient for, as necessary, loss-absorption purposes or lending to the economy. The banking sector's available capital at the end of 2021 amounted to €1.7 billion, or 4.5% of risk-weighted assets, the same as a year earlier.[71] Banks use of capital has remained unconstrained by the leverage ratio, at both the sectoral and individual bank levels. The sectoral ratio fell by around 0.4 percentage point year-on-year, to 7.7% (the minimum leverage ratio requirement for banks is 3%).

All relevant banks whose minimum requirement for own funds and eligible liabilities (MREL) has been set since the start of this year are meeting

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69 The average risk weight of exposures to NFCs decreased by almost 4 percentage points, to 56.7%.

70 The average risk weight in a particular country is affected significantly by the structure of the banking market in that country (the use of the standardised approach versus the advanced measurement approach, or the extent to which different financial asset classes of varying risk profiles are represented), as well as by the specifics of the different IRB model designs.

71 At the sub-consolidated level, banks' aggregate available capital as at the end of 2021 amounted to €1.6 billion, or 4.1% of risk-weighted assets.

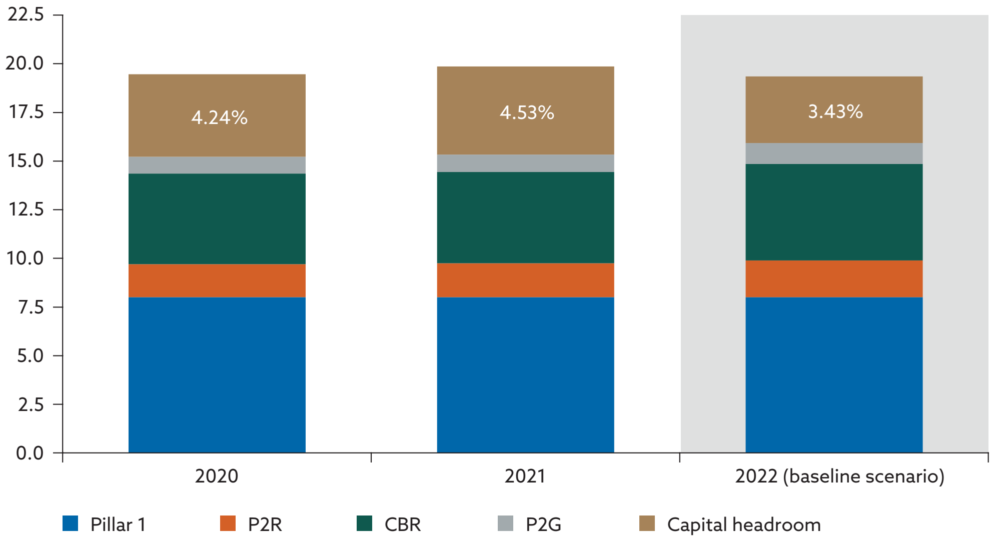
the new requirement comfortably.[72] The MREL can be met with capital as well as with specific debt instruments. Although these debt instruments are an economically more advantageous alternative, they are also less certain in regard to the success of their placement on the market.[73] This is particularly so given their dependence on the risk appetite of potential investors at times of heightened market uncertainty and given domestic banks' relatively little experience with this form of financing. A separate issue is the refinancing risk associated with these instruments at their maturity. Banks' use of capital is also not constrained by the MREL, a relatively new regulatory requirement.

In the baseline scenario, the banking sector's capital adequacy is expected to remain stable in 2022. Banks will have sufficient available capital to absorb losses and lend to the real economy. With 2022 expected to see increases in exposures and individual capital buffer rates, the aggregate amount of available capital is expected to fall this year from 4.5% to 3.4% of risk-weighted assets.[74]

Chart 35

Decomposition of the banking sector's total capital ratio

(percentages)



Source: NBS.
Note: The Pillar 1 requirement is 8% of risk-weighted assets. P2R – Pillar 2 requirement; CBR – combined buffer requirement; P2G – Pillar 2 Guidance.

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[72] The MREL was introduced with the purpose of building up banks' internal resources, so that they can absorb losses in the event of resolution and thereafter recapitalise themselves without recourse to public funds.

[73] In the euro area, the amount of MREL-compliant debt instruments issued in the first quarter of 2022 was 30% lower than the average for years 2017–19, owing to an increase in banks' funding costs.

[74] These figures are for banks on an individual basis.

6.3 Factors affecting bank liquidity are changing

The banking sector in Slovakia follows a traditional funding model. The sector is largely oriented to corporate and household deposits, while the importance of bond issuance, in particular the issuance of covered bonds, has recently been increasing slightly. Recent trends, however, are bringing a number of changes. These relate mainly to rising inflation and the associated change in monetary policy, including special programmes (most notably TLTROs). Liquidity, however, has also been affected by the end of the pandemic crisis, the war in Ukraine, and accelerated growth in housing loans.

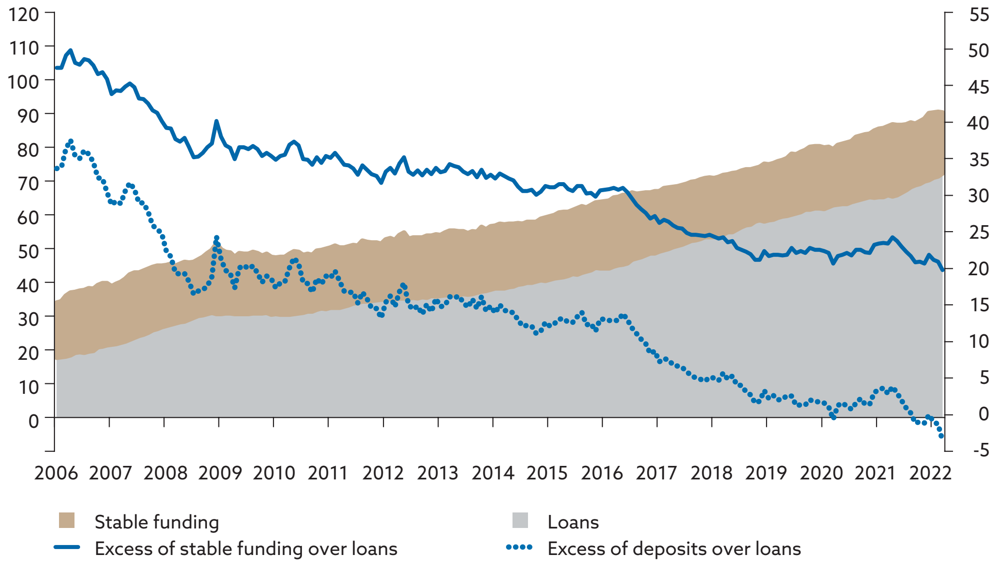
The ECB's third series of longer-term refinancing operations (TLTRO III) has had a major impact on banks' liquidity. Banks' primary reason for participating in these operations was to take advantage of simple and accessible interest rate arbitrage. The net contribution of TLTRO operations to the aggregate profit of participating banks for the period from June 2020 to December 2021 is estimated to be around €55 million before tax. Most of the funds that banks borrowed under the programme were subsequently redeposited in accounts with the central bank or in accounts within their own groups. Moreover, some banks provided collateral for these operations in the form of covered bonds that they themselves had issued and held in their own portfolios; in doing so, they substantially further increased their balance sheets and temporarily improved their liquidity ratios to a significant extent.

An important trend from a liquidity perspective is the combination of exceptional credit growth and a historically high outflow of household deposits in response to the outbreak of the Russia-Ukraine war. This is behind the ongoing decline in the stable funding ratio, with loans growing faster than stable funding components (Chart 36). The increasing requirements related to the funding of credit growth should also be seen in the context of rising inflation and changing interest rates. On the one hand, the increase in nominal rates together with elevated geopolitical risk in the central European region is making it more expensive for banks to obtain funding by issuing debt securities; hence, they may have an incentive to do more to make their deposit products more attractive to customers. On the other hand, not even an increase in deposit rates will be able to offset the impact of the increasingly negative real rates on bank deposits, with the result that a proportion of savings may be allocated to other types of investments with expected higher returns.

Chart 36

Ongoing downtrend in the stable funding ratio and faster growth in loans than in stable funding components

Evolution of stable funding sources, loans, and the excess of stable funding or deposits over loans (EUR billions; percentages)

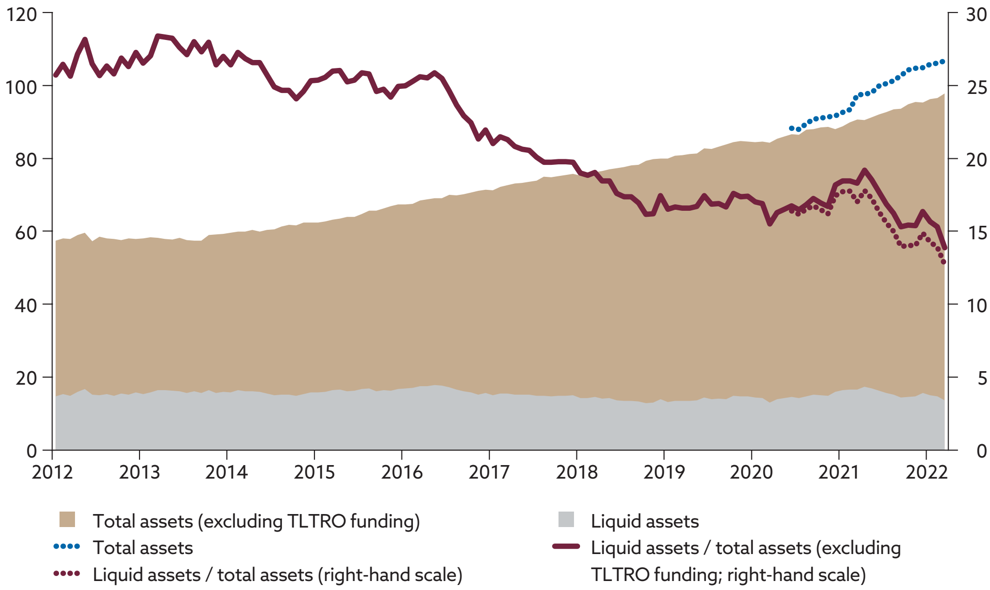


Source: NBS.
Note: Stable funding sources comprise customer deposits, debt securities issued, capital and internal MREL-compliant interbank borrowings.

Chart 37

Decline in liquid assets on the banking sector's balance sheet

Evolution of liquid and total assets and their ratio adjusted for the potential immediately repayable amount of TLTRO borrowing (EUR billions; percentages)



Source: NBS.
Note: Liquid assets comprise debt securities purchased and banks' net position in the interbank market. TLTRO repayments are taken into account up to a maximum amount equivalent to banks' net position in the interbank market.

The banking sector's ratio of liquid assets to total assets has also been declining. As at the end of March 2022 the ratio was at its lowest level since 2012 (13.9% after adjusting for TLTRO effects). This is because deposit growth has not been matching the recent significant credit growth, a large part of which is therefore covered by excess liquid assets.

6.4 Macroprudential policy in times of uncertainty

There are now increasing reasons to raise the countercyclical capital buffer

The financial cycle is in a relatively strong expansionary phase, and there is now a large build-up of imbalances. The financial sector has quite quickly shaken off the pandemic crisis, as is evident from the strengthening expansionary trends observed in the credit market over the past year. Lending to households in particular has been accelerating, and there has also been a more recent gradual increase in loans to non-financial corporations. The combination of a housing price boom, an environment of still low interest rates, and a favourable labour market situation has been conducive to an increase in loan demand. A new factor is the current uptick in interest rates and the acceleration of inflation, which is further incentivising private sector borrowing at the expense of savings.

Risk appetite remains elevated. Rapidly rising prices, in particular property prices, and the wide availability of credit are encouraging households to take on more debt, with maturities often extending into retirement. Meanwhile, the property market is showing signs of possible overheating.

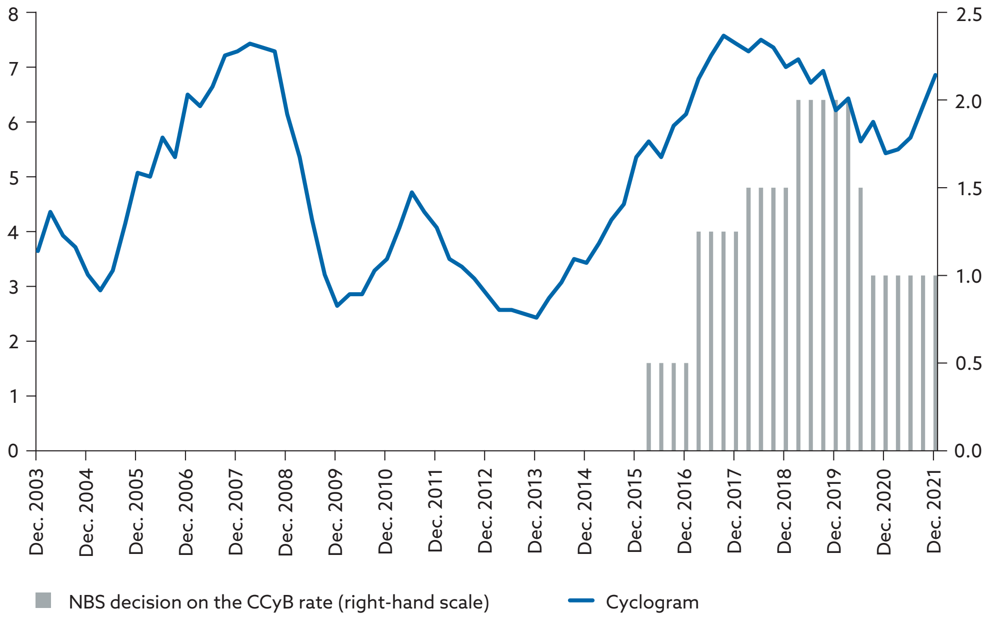
The financial cycle indicator is also pointing to a strong increase in expansionary tendencies in recent quarters. The level of the Cyclogram, the NBS-designed indicator of the financial cycle, is now where it was in mid-2017, when it was close to its pre-pandemic peak. The indicator is expected to continue reflecting expansionary tendencies, including the persistence of conditions that support a build-up of imbalances. The Cyclogram is now at a level that implies the need for the countercyclical capital buffer (CCyB) rate to be higher than its current setting.

NÁRODNÁ BANKA SLOVENSKA EUROSYSTÉM

Chart 38

Expansionary tendencies in the financial cycle have become markedly stronger over the past year

(index; percentages)



Source: NBS.
Note: A higher Cyclogram value indicates an amplification of expansionary tendences and a greater build-up of imbalances.

If trends continue on this path, NBS will consider raising the countercyclical capital buffer rate in June, at its next regular quarterly decision on the buffer's calibration.[75] Any CCyB decision will, however, give careful consideration to the current uncertainty concerning the impact of the war in Ukraine.

At the same time, if adverse effects are identified that raise reasonable concerns about the possibility of an increase in loan defaults and related losses, NBS stands ready to reduce the CCyB rate with immediate effect, so as to give banks greater capacity to absorb potential losses.

List of systemically important banks to be expanded

The list of domestic banks designated as 'other systemically important banks' (O-SIIs) will be expanded from the beginning of 2023. Prima banka has been approved for inclusion in the list after rapidly increasing its growth and market share in recent years. At the same time, the O-SII buffer rate ČSOB for Československá obchodná banka has been increased, following its acquisition of OTP Bank.

[75] If approved, the CCyB rate would take effect in summer 2023.

Table 7 O-SII buffer rates

Bank	O-SII buffer rate as from 1 January 2022	O-SII buffer rate as from 1 January 2023
365.bank, a.s.	0.25%	0.25%
Československá obchodná banka, a.s.	1.00%	1.25%
Prima banka, a.s.	-	0.25%
Slovenská sporiteľňa, a.s.	2.00%	2.00%
Tatra banka, a.s.	1.50%	1.50%
Všeobecná úverová banka, a.s.	1.75%	1.75%

Sources: NBS, and ECB.
Note: O-SII – other systemically important institution.

6.5 The banking sector remains resilient even under an adverse stress test scenario

The banking sector is also expected to cope with the risks it faces as a result of the war in Ukraine

Although banks have for the past two years had to cope with the pandemic crisis and its aftermath, they are still able to bear the impact of a serious crisis resulting from the potential materialisation of adverse risks. The stress test[76] results confirm that most banks[77] in Slovakia would be profitable over the next two years even under the adverse scenario.[78] Under that scenario, however, the profit of the sector as a whole falls by more than 40% year-on- year.[79] The sector's profitability as measured by return on capital drops to low levels similar to those seen after the onset of the pandemic crisis. Banks' profitability therefore remains highly sensitive to economic developments.

76 According to the results of macro stress testing of the Slovak financial sector carried out using data as at 31 December 2021. The stress test consisted of two scenarios: a baseline scenario assuming a more moderate war in Ukraine; and an adverse scenario assuming a drawn-out and escalating war. Both scenarios are described in Box 1.

77 Four banks would make losses.

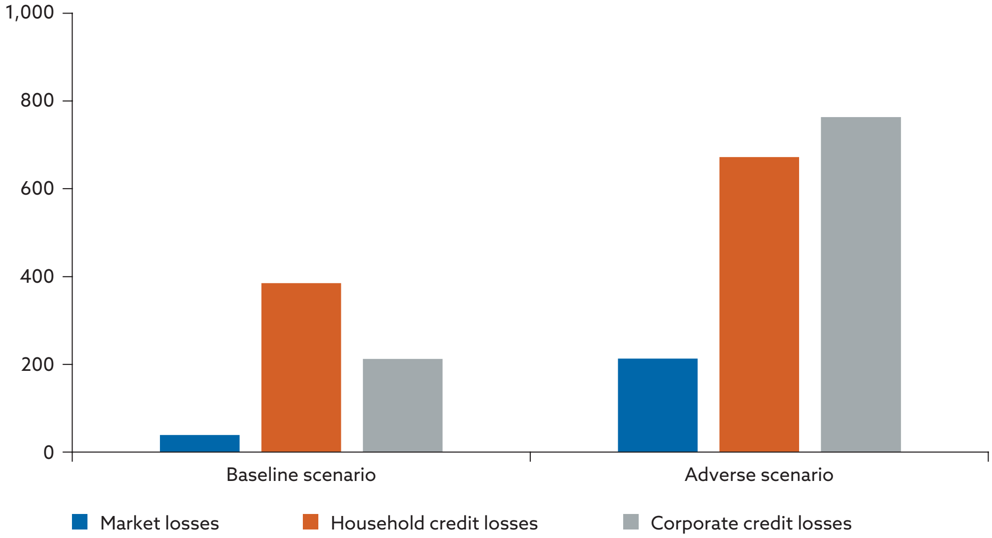
78 Further details of the adverse economic scenario are provided in Box 1.

79 The banking sector's profit in 2022, when the economic downturn is assumed to be most severe, declines by 8.5% year-on-year.

Chart 39

The amount of credit losses and market losses increases significantly under adverse developments

(EUR millions)



Source: NBS.

In the adverse scenario, credit losses have the largest impact. An economic downturn coupled with rising unemployment and a decline in real household incomes reduces the debt servicing capacity of both households and firms. Credit costs therefore increase fourfold,[80] with almost three-quarters of that increase accounted for by non-performing corporate loans. As for losses on loans to households, non-performing housing loans make up only around one-quarter of the total.[81] This is because prices of the real estate used as collateral for these loans have been rising sharply in recent years, thereby offsetting a large part of the simulated decline in housing prices.[82] Credit losses on household loans occur predominantly in the consumer credit portfolio. Total loan loss provisioning needs to be four times higher in the adverse scenario than it was in the pre-pandemic period.[83] On the other hand, MREL compliance is not expected to weigh heavily of banks' financial performance.[84]

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80 In the adverse scenario, credit losses increase to 4.4 times their 2021 level; in the baseline scenario, to 1.8 times.

81 In the baseline scenario, losses on housing loans account for 25% of total losses on loans to households; in the adverse scenario, 28%.

82 The adverse scenario simulated housing prices falling by 30% in 2022 and remaining stable in subsequent years.

83 For each year in the adverse scenario, loan loss provisioning needs to be four times greater than the average level of provisioning in the period 2018–19', when no exceptional factors were in play. In the baseline scenario, it needs to be only around 1.7 times greater.

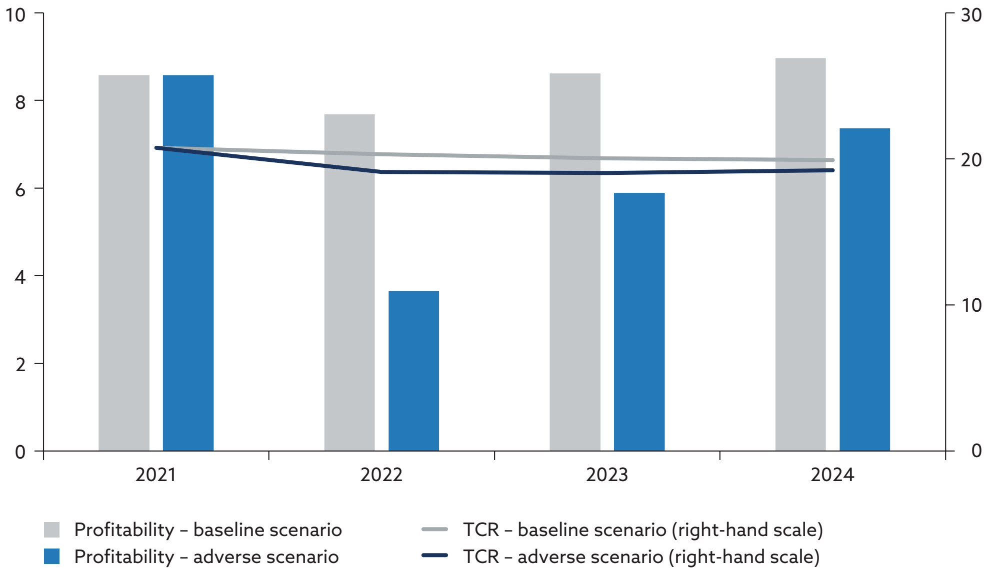
84 In the baseline scenario, MREL costs are estimated to not exceed 0.5% of the sector's gross profit in 2024, while in the adverse scenario they range between 1.2% and 3.1%.

Banks' margins were already low going into the pandemic crisis, and they became even more compressed as the crisis progressed. In both stress test scenarios, interest margins are assumed to increase. The gradual tightening of monetary policy has an upward impact on interest margins, resulting in a gradual increase in banks' interest income in both stress test scenarios. Both scenarios assume that although lending continues to grow, it does so at a decelerating pace, mainly because the deteriorating economic situation and rising interest rates have a downward impact on demand for loans.

Chart 40

The banking sector's solvency is significantly affected by banks' profit-generating capacity

(percentages of own funds; percentages of risk-weighted assets)



Source: NBS.
Note: Profitability as measured by return on equity. The total capital ratio (TCR) also covers the profit made in the respective year.

Although the risks materialised in the adverse scenario are relatively large, banks are expected to withstand them. Their current levels of capitalisation allow banks to absorb significant losses. In the baseline scenario, assuming that capital distributions take place at the announced levels, banks' capital ratios are comfortably above regulatory requirements. Although capital headroom gradually falls over the stress test horizon, the sector's total capital ratio remains adequate, ending the period at just below 20%. In the adverse scenario, the banking sector's significant losses and weakened capacity to generate profit result in its total capital ratio falling by 1.8 percentage points over the first two years of the simulation. This decline also reflects an increase in risk-weighted assets due to the deterioration in risk parameters. Even in this case, however, because of the level of capital accumulation in recent years, banks are not envisaged to have any major difficulty in meeting capital requirements.

7 Other sectors

7.1 The financial position of insurers remains sound[85]

In 2021 the Slovak insurance sector's composition underwent further changes that had a major impact its financial indicators. Two insurers – UNIQA and Generali – each transformed into a branch of an insurer from the Czech Republic. In 2019 Generali acquired the insurer Ergo, while in 2020 UNIQA took over AXA's branch in Slovakia.

Other changes that occurred last year included Union's takeover of Poštová poisťovňa and, for the first time in several years, the entry of insurer into Slovak market. The newcomer was PARTNERS poisťovňa, which focuses on life business.

Profitability has remained almost unchanged, yet affected by extraordinary effects

The insurance sector's aggregate return on equity for 2021 increased moderately year-on-year, from 13.92% to 13.98%, and remained among the highest in the EU.[86]

In the last two years, however, the sector's profit has been affected by extraordinary effects. The first was the impact of the pandemic crisis. In 2020 insurers created extraordinary provisions (mainly for travel agency risk), which represented an additional cost of around €26 million. It later turned out that, thanks largely to public measures that supported travel agencies in 2021, insurers actual costs were lower than had been expected in late 2020. Consequently, insurers reversed their 'pandemic' provisions and so reduced costs by around €14 million.[87]

Another one-off effect in 2021 was an almost €24 million increase in the Slovak Insurers' Bureau's provision for old claims, which translated into an increase in insurers' costs.

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85 The analysis covers nine domestic insurers accounting for 97% of the premiums written by all insurers in the domestic market.

86 The most recent available data for EU countries are for 2020 and are published in EIOPA's July 2021 Financial Stability Report.

87 The result of €14 million includes the reversal of technical provisions amounting to €17 million (a reduced cost) and the payment of no-claim premium refunds amounting to €3 million (a reduced income). Each figure is a qualified estimate.

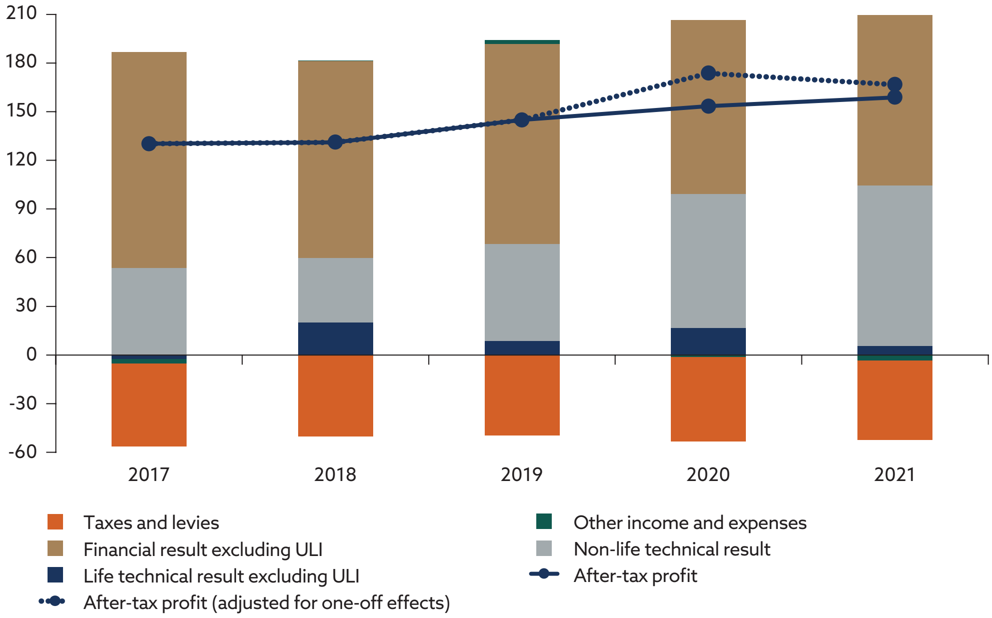
The two effects, partially offsetting each other, together contributed €9.9 million to the sector's technical result for 2021.[88] The aggregate ROE adjusted for these effects stood at 14.2%.

The insurance sector's aggregate profit recorded its lowest growth in three years in 2021, increasing by 3.6%, year-on-year, to €159 million. Absent the extraordinary effects in 2020 and 2021, it is estimated that the profit would have been 4.0% lower year-on-year.

Chart 41

The insurance sector's profit growth in 2021 was the lowest in three years

Insurers' net profit and its components (EUR millions)



Source: NBS.
Note: Adjustment for one-off effects includes the creation and reversal of 'pandemic' provisions for travel agency insurance risk and contributions to the Slovak Insurers' Bureau's provision for liabilities. ULI – unit linked insurance.

Insurance activity contributed to profit growth, while investment results remained unchanged

Non-life insurance business had a solid year in 2021 and made the largest contribution to the insurance sector's aggregate profit (€99 million, or €109 million excluding extraordinary effects). Premiums grew in the non-life classes of motor third party liability (MTPL) insurance, compre-

[88] Their estimated positive impact on the sector's profit after tax (at 21%) was €3.6 million in 2021 and €20 million in 2020.

hensive motor insurance and property insurance.[89] In 2021, as in 2020, both motor insurance and property insurance made a profit.[90]

In the case of motor insurance, the results may be partly accounted for by transport restrictions imposed during the pandemic and the consequent decline in the number of road accidents. For a long time before the pandemic, this business line was loss-making. Whether it can sustain a profit in the long term or, post-pandemic, returns to loss remains to be seen.

Although the technical result in the life insurance segment[91] fell by €11 million in 2021, it still had a positive impact (€6 million) on the sector's profit. The decline stemmed largely from the downtrend in premiums written in traditional life insurance, which fell by a further 4.1% in 2021.

Returns on insurers' investment activity (excluding unit-linked insurance) remained unchanged, year-on-year, in 2021. The aggregate financial result (excluding unit-linked insurance) was again €86 million, and the average rate of investment return also remained flat, at 2.5 %. The average guaranteed return on insurance products fell from 2.48% to 2.30%.[92]

The insurance sector is sufficiently solvent

The insurance sector's solvency increased in 2021 compared with the previous year. The aggregate Solvency Capital Requirement (SCR) coverage ratio rose from 190% to 208%. However, almost two-thirds (64%) of the sector's eligible capital continued to be accounted for by *expected profits included in future premiums (EPIFP),* a volatile component that can cover only certain risks, not the full range of unexpected losses.

89 In MTPL insurance, premiums written increased by 2.9%; in comprehensive motor insurance, by 3.7%; and in property insurance, by 4.8%. In property insurance there were level changes after two domestic insurers each transformed into a branch of an insurer from another Member State. Although the growth rate was nominally lower compared with previous years, it represented an acceleration for the sample of insurers analysed.

90 The combined ratio for motor insurance business (MTPL and comprehensive motor insurance together) was 95.3%, after factoring in mandatory levy payments to the Slovak Interior Ministry and contributions to the Slovak Insurers' Bureau. Adjusted for extraordinary contributions to the Bureau's provision for liabilities, the ratio would have fallen to 90.4%. The combined ratio for property insurance business decreased from 83.6% in 2020 to 78.5% in 2021, thanks to favourable developments in the loss ratio.

91 The technical result in the life segment, net of income from unit-linked insurance, fell from €17 million in 2020 to €6 million in 2021.

92 Data for 2021 are provisional.

7.2 Strong growth in financial assets under management in the pension fund, investment fund and investment firm sectors

High growth in household financial assets in 2021, especially in their equity component

Slovak households' financial assets under management in the pension fund sector (comprising the second and third pillars of the pension system), investment fund sector and investment firm sector have never grown as rapidly in nominal terms as they did in 2021. They increased at a record pace both on an aggregate basis and in each of the three sectors separately. Of the aggregate increase of €4.8 billion, assets under management in second pillar funds accounted for one-third; in investment funds, also for one-third; in investment firms, for just under one-quarter; and in third pillar funds, for at least 8%. In relative year-on-year terms, household assets under management increased most sharply in the investment fund and investment firm sectors (21% in each case) and more moderately in the second and third pension pillars (around 15% in each case).

The strong increase in assets under management was due not only to significant customer inflows, but also to nominal returns on investments in the respective funds. In both pension fund sectors, regular contributions increased on the back of wage growth, increasing employment, and expansion of the participant base. The increase in household demand for investment fund shares/units appears to have been driven by an accumulation of savings and the lure of potentially higher returns in the midst of a low interest environment and rising inflation. Similar factors can be assumed to have underpinned customer inflows to investment firms, as well as what were, in historical terms, exceptionally high inflows to equity investment funds. There was also high demand for investment in mixed and real estate investment funds. In the climate of heightened risk appetite among retail investors, people joining a pension fund, or switching from one fund to another, predominantly opted for equity and index funds, and there was a rapid increase in the volume of equity investments held through investment firms.

As regards the nominal performance of the household financial assets covered in this section, they produced an aggregate return of 6.5% in 2021, which was above the historical average and supported the accumulation of savings.[93] On the other hand, the real return, taking into account the

93 The figure does not include assets under management by investment firms, since information about their performance is not available.

5.8% increase in consumer prices over the same period, was only just in positive territory. The average data mask considerable heterogeneity, including double-digit returns for, in particular, households with a higher share of equity investments, and often slightly negative returns, even in nominal terms, for households investing mainly in bond instruments.

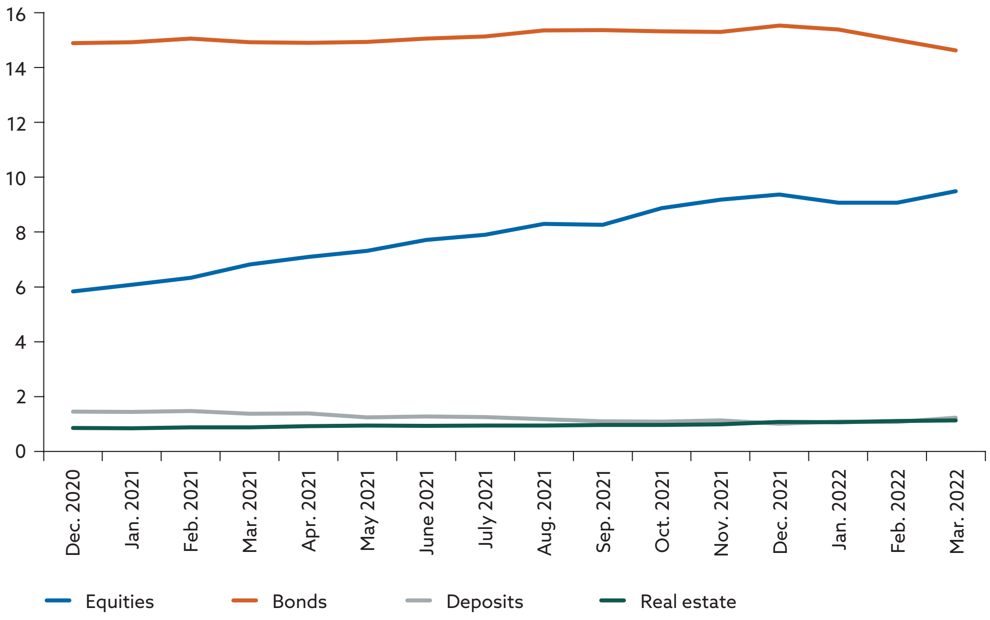
The evolution of household financial assets in the first quarter of 2022 was already showing a shift from the previous trend. Despite continuing inflows of new funds, adverse developments in financial markets resulted in the volume of household assets under management falling by just under €400 million, or around 1%, between the end of 2021 and the end of March 2022. Both bond and equity investments underwent downward repricing. The first quarter developments did, however, include at least one positive for financial stability in Slovakia. Just as they did after the onset of the pandemic in Slovakia exactly two years earlier, investors in investment funds again showed, following the outbreak of the war in Ukraine, that they are not prone to panic and do not pull out their money even when there is heightened nervousness and financial markets are falling sharply. Although net issues turned negative in late February and early March, they amounted to only a few tens of millions of euro. Nor was there any significant liquidation of household positions held through investment firms. The stability of these funds is the more remarkable given that, during the period in question, the banking sector experienced deposit flight amounting to €1 billion.

Looking at the investment mix of households' financial assets under management, the shift towards a larger equity component has reflected not only the preferences of households themselves, but also the activity of the management companies in the second and third pension pillars. Pension fund management companies (second pillar) and supplementary pension management companies (third pillar) have been strengthening the equity component of their equity funds and mixed funds. This trend has been most marked in equity-focused third pillar funds, whose equity component has increased by up to one quarter since the start of 2021, albeit due in part to the impact of upward repricing. In second pillar equity funds, the aggregate equity component increased by seven percentage points between the start of 2021 and the end of March 2022, to stand at almost 85% of the funds' net asset value.

Chart 42

Equity investments have been the main driver of recent growth in household financial assets under management in the pension fund, investment fund and investment firm sectors

Amount of selected types of assets (EUR billions)



Source: NBS.

In the aggregate bond portfolio of funds under management in the investment and pension fund sectors, the period under review saw a shift away from bonds issued by firms and financial institutions and towards government bonds. In both sectors, the share of general government debt securities was approaching a multi-year high of 50%. In the case of pension funds, not only domestic government bonds, but also Italian and Spanish sovereign debt were added to the portfolio. As for bond investment funds, from mid-2021 managers were mostly reducing the residual maturity and duration of the debt portion of the portfolio, probably being influenced to do so by the prospect of rising interest rates. In this respect, developments in the pension fund sector were heterogeneous, with no clear trend emerging.

In the wake of the slump in prices of Russian and Ukrainian financial assets following the outbreak of the war in Ukraine, it is important to stress that Slovak households have only minimal direct exposure to these assets through their investments under management in the two pension fund sectors, investment fund sector and investment firm sector. In all four sectors, at the aggregate level, the share of Russian and Ukrainian securities in the net asset value (NAV) of the funds under management ranged between 0.2% and 0.5%. In each sector, only a few funds had a non-zero exposure to the securities in question, and such exposure at the individual fund level was mostly less than 5% of the fund's NAV. Only in three investment funds did the exposure exceed 10%.

The aggregate investment portfolio in unit-linked life insurance has also seen an increase in the equity component. This was reflected in the share of investment funds in total investments, which in the period under review increased by a further five percentage points, to 86%. By the end of March 2022, structured securities accounted for 8% of the portfolio and corporate bonds for 5%, with both minor types of investment recording a year-on-year decline.

7.3 The share of second pillar pension savers in equity-oriented pension funds is rising, especially among younger savers

Gradual increase in equity component of savers' investments

The distribution of second pillar pension savers across different types of pension funds marketed in Slovakia has been a subject of quite intensive discussion for many years, and not only among professionals. The absence of a clear political or expert consensus in this area has been reflected in practice, with the system having undergone several diametrically different phases in terms of saver distribution.

In the first years following the establishment of the second pillar, new savers were predominantly opting to invest in equity pension funds. This was also the case among relatively older savers, who had a shorter investment horizon. A turning point came in 2013, when a legislative amendment required all second pillar savers to switch to guaranteed bond pension funds unless they explicitly expressed their wish to invest in another type of fund. Since only a small proportion expressed such a wish, the result was an abrupt and radical change in the distribution of savers and assets in the second pillar. Fully 90% of savers ended up invested in a bond pension fund, and initially it seemed that the dominant share of bond funds in the second pillar would remain the norm. What can now be seen ex post is that savers were thus denied the returns that would have accrued to them if they had remained in an equity-oriented fund.

Around 2015 the situation started to change again, but this time the trend was smooth. Savers were gradually returning to pension funds that had a larger or smaller equity component. The increased interest in and awareness of the benefits of a more dynamic investment strategy initially became evident among existing savers, as they switched their pension savings into equity and index pension funds. Subsequently, in addition to the switching trend, there was a propensity among new savers to invest in higher-risk and potentially higher-yielding pension funds, and it was happening in the context of an overall increase in the inflow of savers into the second pillar pension scheme.

One of the factors that appeared to draw savers to equity and index pension funds was financial market developments. During the period under review, when interest rates remained subdued, global equity markets were performing strongly. This constellation was reflected in returns on investment being far higher in equity and index pension funds than in bond funds.

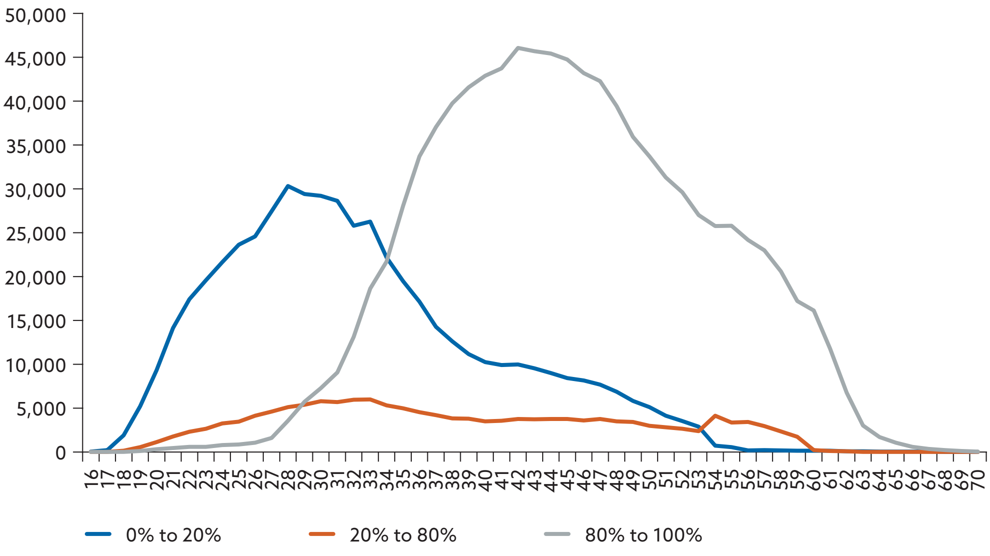
Given the interplay of these factors, the share of second pillar savers in bond pension funds[94] was already down to just below 60% by the end of 2021. By contrast, the share of savers who had the bulk (more than 80%) of their pension savings in equity or index funds had already increased to almost one-third. The remaining 9% of savers opted for one of the other mixed-ratio strategies that allow investment in a combination of two fund types. From an NAV perspective, the situation is very slightly different. The share of bond pension funds was 61% at the end of 2021, since savers in these funds have on average a longer accumulation phase.

Younger pension savers largely opting for equity investments

Chart 43

Bond pension funds are now the predominant choice only for middle-aged and older savers

(number of people)



Sources: Ministry of Labour, Social Affairs and Family of the Slovak Republic, and own calculations.
Note: The vertical axis shows the number of savers; the horizontal axis, the age of savers. Data are as at 31 December 2021. The percentages in the legend denote savers' affiliation according to the share of pension savings held in a bond fund (for example, the range 0% to 20%, marked in blue, represents savers invested in equity and index pension funds, or those pursuing a combined strategy in which the share of savings held in a bond fund is less than 20%).

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94 Or in a combination of funds with at least 80% of assets held in the bond fund.

The above figures imply that in the case of pension funds, as financial products with a very long investment horizon, the current investment profile of savers remains tilted to the conservative side. A slightly different impression is gained from a closer analysis of data on the age distribution of savers across different types of pension funds or investment strategies. Chart 43 shows that younger savers, aged up to around 34, are more or less gravitating towards equity-oriented investment strategies, which theoretically are an appropriate choice for them. Among the youngest savers, it is in fact exceptional to find anyone opting for a predominantly bond-oriented investment strategy. The current aggregate dominance of bond pension funds reflects the investment profile of the high proportion of savers who are in their forties and, to a lesser extent, fifties.

The natural inclination of new savers to opt for riskier investment strategies will change the aggregate profile of investment strategies in coming years

Even a disaggregated view by age category may still raise the question of whether the optimal distribution of pension savings should not feature a higher allocation to equity and index pension funds among established savers who will still be in the accumulation phase for at least another 15 to 20 years. To find an answer, we carried out a simple simulation which assumed that aggregated changes in the numbers of savers (arising from new entrants and from switching between different types of pension funds) and their age distribution will continue to follow the trend of recent years.

The simulation results show that within a few years, given its internal dynamics, the pension system will likely be approaching a situation in which the vast majority of savers whose saving horizon is in keeping with an equity investment strategy will be invested in pension funds with such a profile. The transition is slow, however, owing to the relatively low rate of savers switching to equity-oriented funds. According to the simulation, in 2030 the vast majority of savers under 35 will be invested in pension funds that have a predominant equity component. In the middle generation of savers, the share invested in an equity or index pension fund declines quite rapidly with age. Among savers aged 45 and over, where the remaining time until retirement is not too long, that share is already less than one-quarter for each age cohort. Among savers aged over 53, the share drops sharply down, since these savers must not by law[95] have more than 80% of their savings in pension funds other than bond pension funds.

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[95] Under Section 92 of Act No 43/2004 on the old-age pension scheme, the maximum share of their pension savings that savers may have in a fund other than a guaranteed bond fund

As for what explains the difference between the distribution of savers in 2021 and the distribution simulated in 2030, the key factors are the natural demographic shift over time and young savers' prevailing preference for equity and index pension funds. Although there is a trend of middle-generation savers switching from bond funds to equity-oriented funds, the numbers involved are limited and have little impact on the overall distribution profile of savers.[96] The importance of the demographic factor also became apparent when testing other settings of the simulation, as the results obtained for 2030 were broadly similar to the simulation results outlined above. The conclusions would therefore appear to have a certain robustness.

The simulated distribution of savers in 2030 was also contrasted with a selected sample of life-cycle strategies from abroad.[97] Although none of them can be unequivocally said to be optimal, they have similar features. For the first third to half of the savings accumulation phase, the strategies all have a high share of equity investment; thereafter, first slowly and then more markedly, the investment profile becomes oriented to low-risk assets such as bonds and cash investments. In the latter stage, just before pension age, the investment profile is reliably conservative. Although the situation simulated in 2030 does not correspond exactly to the comparative foreign strategies, it is far closer to them than is the current situation. For savers aged up to around 40, the simulation is in line with practice in other countries in that a large majority of the savers are invested in equity-oriented pension funds. A difference only becomes apparent in the future generation of savers in their forties, as the share invested in bond pension funds is higher in Slovakia than in the foreign schemes under review.

is reduced by 10 percentage points for each year above the age of 52. Hence, savers aged 53 must have at least 20% of their pension savings in a guaranteed bond fund. At the same time, however, savers may request to have that share halved. We did not include the impact of this option in the simulation, since it is not relevant in terms of its focus.

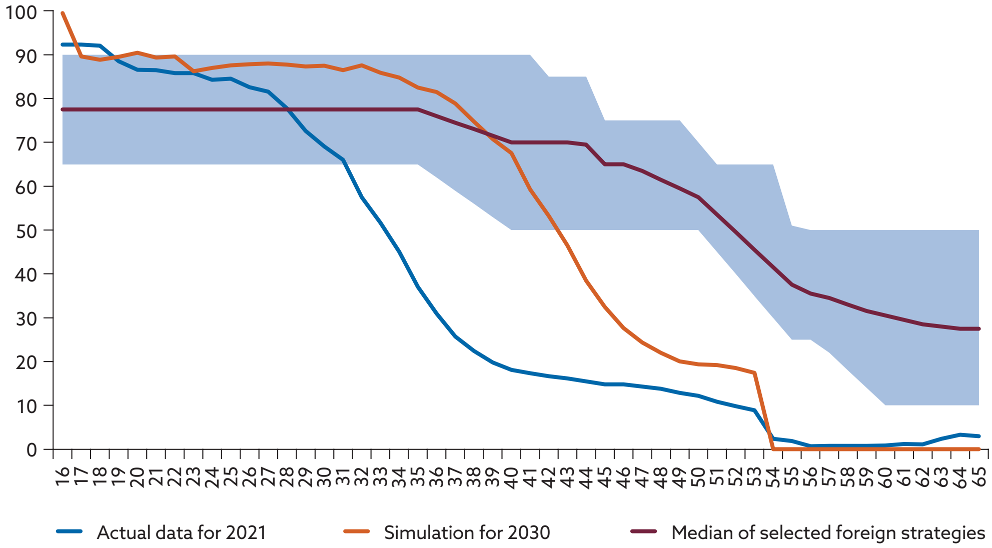
96 The transition of so-called passive savers (those who, since being assigned to a guaranteed bond pension fund in 2013, have not taken any decision on which fund they wish to invest in) into the middle generation of savers is among the issues addressed by a draft amendment to Act No 43/2004. According to the amendment, those passive savers who will be 54 or under by the end of 2023 will have the distribution of their savings automatically aligned with the 'default' investment strategy that prescribes a certain minimum equity component according to the saver's age.

97 The sources of these strategies are available here and here.

Chart 44

By 2030 the share of savers in equity-oriented pension funds is simulated to be converging towards the shares observed in selected foreign life-cycle strategies

Percentage of pension savers who have more than 80% of their savings invested in an equity or index fund, by age cohort (percentages)



Sources: Ministry of Labour, Social Affairs and Family of the Slovak Republic, NBS, and own calculations.
Note: The median and range (shaded blue) of the selected foreign strategies represent the prescribed shares in equity investments at the individual saver level for each age cohort in the savings accumulation phase.

Current trends and the simulation of their evolution in coming years suggest that the categorisation of pension savers, and hence the composition of their portfolios, is shifting in the direction of higher expected returns on pension savings. The gradually more predominant equity component of younger savers' portfolios is consistent with the life cycle of these savers and implies an expected pension income which is higher than that based on pure bond investments.

7.4 Stress testing of non-bank financial institutions confirms their increased sensitivity, especially where equity exposure is greater

The resilience of insurers, second and third pillar pension funds, and investment funds to market risks was stress tested

Stress testing of the non-bank part of the Slovak financial sector has indicated the relatively high vulnerability of certain entities to possible adverse financial market developments.[98] In line with theory and with re-

[98] The market scenario was predicated on a 35% decline in equity prices, an increase in yield curves due to rises in risk-free interest rates and credit risk premia, and appreciation of the euro exchange rate. For further details, see Box 1.

sults of previous years' testing, the funds and institutions exposed to largest downward price risk are those with a higher equity component in their asset portfolios. A case in point is index pension funds, whose portfolios are composed almost entirely of equity positions and which in the simulation all record a loss in the region of 30%. The other portfolios facing the highest risk of asset depreciation are those of certain equity investment funds, particularly where the equity exposure is underpinned by derivatives contracts. In the case of pension funds in particular, the simulated loss does not automatically mean that savers lose almost one-third of their assets. Compared with the three-year stress test horizon, the investment horizon in the pension sector is sufficiently long for equity prices to rebound.

On average across the sample, the stress testing showed that unit-linked insurance products, equity and mixed pension funds, and mixed investment funds had medium level of riskiness. On an aggregated basis, the assets in these portfolios decline by approximately 12%, owing to downward repricing. Since this large set is diverse in terms of the composition of investment portfolios, the individual results lie in a relatively wide range around the stated average. However, for at least three-quarters of the representatives from each category, the simulated losses do not exceed 18% of the original volume of assets.

As for entities whose asset portfolios consist mainly of debt securities, they experience only a relatively limited decline in the value of their investments under the stress simulation. These portfolios include insurers' assets (excluding unit-linked products) and bond investment funds, which decline in value by, respectively, 4% and 6%. Even less sensitive to market risks are second pillar bond funds, third pillar decumulation funds, and short-term investment funds. Almost without exception, their savers and investors do not face a decline of more than 2% in the value of their pension points or fund shares/units.

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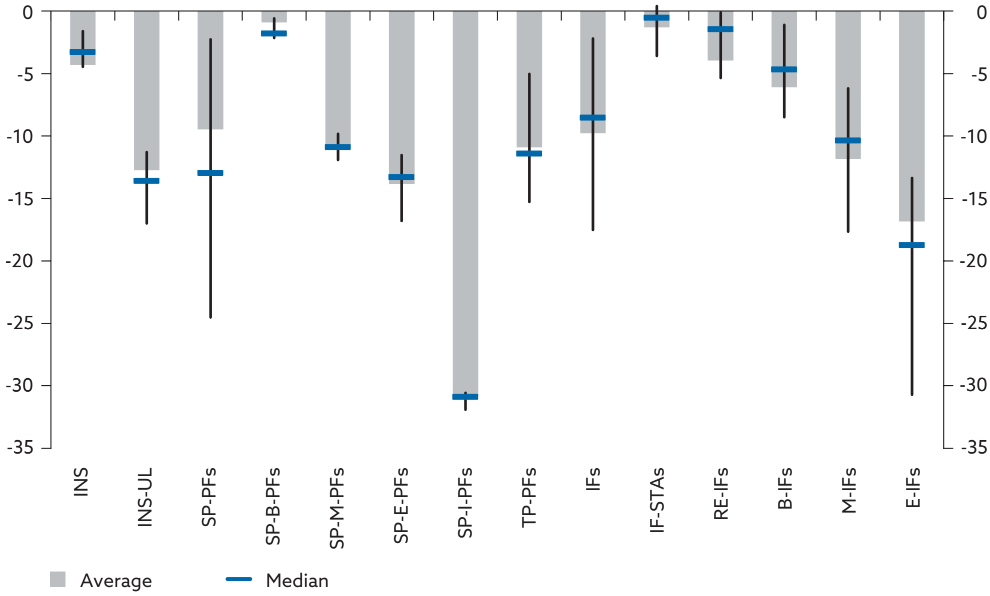
Chart 45

Portfolios recording the largest loss rates over stress test period are mostly those that are equity-oriented

Simulated losses relative to total assets/NAV as at 31 December 2021 (percentages)



Sources: NBS, and own calculations.
Note: The charts show the weighted average, median and interquartile range of losses for each category of entities, abbreviated as follows: INS – assets of insurers excluding unit-linked insurance; INS-UL – insurers' unit-linked products; SP-PFs – second pillar pension funds in total; SP-B-PFs – second pillar bond pension funds; SP-M-PFs – second pillar mixed pension funds; SP-E-PFs – second pillar equity pension funds; SP-I-PFs – second pillar index pension funds; TP-PFs – third pillar pension funds in total; IFs – investment funds in total; IF-STAs – short-term investment funds; RE-IFs – real estate investment funds; B-IFs – bond investment firms; M-IFs – mixed investment funds; and E-IFs – equity investment funds.

Compared with last year's exercise, this stress testing shows slightly worse results in all the categories of entities under review. This outcome can probably be explained to some extent by two factors. The first is the year-on-year increase in the equity component of many portfolios. The second explanation is related to the stress test scenario itself, which this time around, in line with the change in expectations concerning monetary policy, assumes an appreciable upward shift in yield curves. This means in particular that, compared with last year's results, debt securities with a longer maturity are subject to a greater decline in price due to the movement of risk-free interest rates.

The insurance sector is resilient even to adverse developments

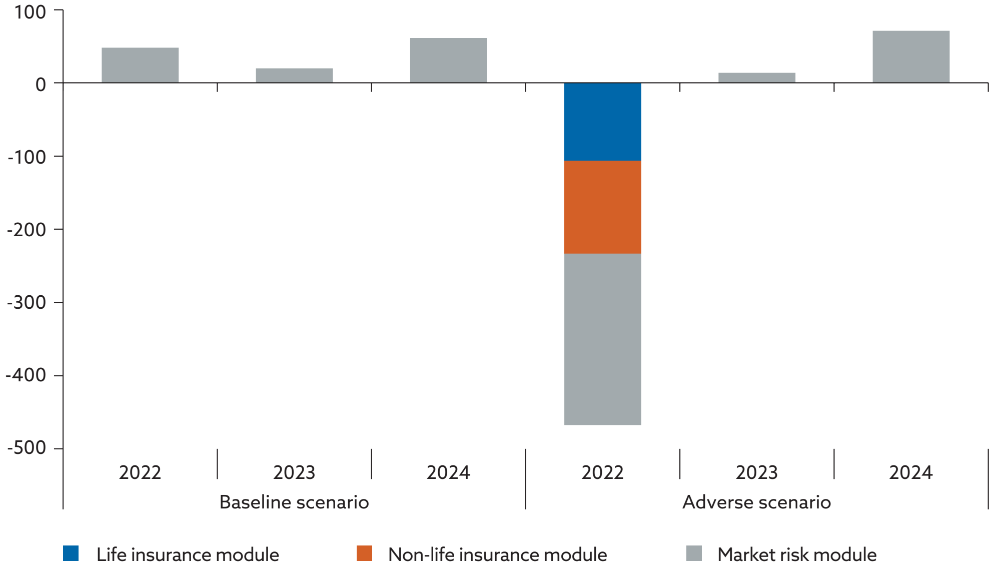
Even in the adverse stress test scenario, the insurance sector continues to meet the Solvency Capital Requirement (SCR), with an SCR coverage ratio estimated at 156%. The vast majority of insurers record a coverage ratio comfortably above the minimum SCR of 100%. Some insurers are at around that level, but they do not represent a significant group in terms of the sector's overall financial stability.

Financial market fluctuations are traditionally the largest cause of losses in the sector. In this exercise, they cause around half – €234 million – of the overall estimated loss in the first year of the stress test horizon. Mass surrenders in life insurance account for €106 million of the overall loss, and increased costs in non-life business, for €127 million.[99]

Chart 46

The largest losses result from financial market developments

Profits (positive values) and losses (negative values) in individual stress test modules (EUR millions)



Source: NBS.

[99] The adverse scenario assumes unfavourable financial market developments (identical to those assumed in the adverse scenario for the banking sector), a 10% increase in claims paid in all non-life insurance classes, and a 20% mass surrender rate in life insurance.

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Abbreviations

bp	basis point(s)
CCyB	countercyclical capital buffer
CDS	credit default swap
CMN	Property Price Map / Cenová mapa nehnuteľností
CRE	commercial real estate
DSTI	debt service-to-income (ratio)
DTI	debt-to-income (ratio)
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
EU-SILC	European Union Statistics on Income and Living Conditions
GDP	gross domestic product
IFRS	International Financial Reporting Standard
IRB	internal ratings-based approach
lhs	left-hand scale
LTV	loan-to-value (ratio)
MREL	minimum requirement for own funds and eligible liabilities
NAV	net asset value
NBS	Národná banka Slovenska
NFC	non-financial corporation
NPL	non-performing loan
OECD	Organisation for Economic Co-operation and Development
O-SII	other systemically important institution
pp	percentage point(s)
RBUZ	Register of Bank Loans and Guarantees / Register bankových úverov a záruk
rhs	right-hand scale
ROE	return on equity
RWA	risk-weighted asset
SCR	Solvency Capital Requirement
SO SR	Statistical Office of the Slovak Republic
TLTRO	targeted longer-term refinancing operation
ÚPSVaR SR	Office of Labour, Social Affairs and Family of the Slovak Republic / Ústredie práce, sociálnych vecí a rodiny Slovenskej republiky