National Bank of the Republic of North Macedonia
Financial Stability and Macroprudential Policy Department

FINANCIAL STABILITY REPORT FOR THE REPUBLIC OF NORTH MACEDONIA IN 2023

September 2024

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Summary

During 2023, the environment in which the financial institutions operated was characterized by gradual stabilization, but still present risks and uncertainties mainly associated with the external environment and the impact of the geopolitical turmoil and the further geoeconomic fragmentation. Global inflation slowed down, after the historically high growth in the previous year, but continued to be maintained at a higher level, which was the reason for central banks to continue to tighten the monetary conditions. Amid tighter financial conditions and risks from the environment, the global economic activity remained resistant and registered a moderate, but stable growth. In the domestic economy, the economic growth slowed down, while inflation reduced to a one-digit level, which was above the historical average. In such conditions, the National Bank continued to gradually tighten the monetary policy, and also took additional measures to encourage "denarization" of the banks' balance sheets and macro-prudential measures to strengthen the resilience of the banking system to systemic risks. Thus, it contributed to the stability of the financial system, which copes well with the challenges and is resistant to shocks. However, the environment remains uncertain and points to risks for the coming period. They are mainly associated with the possible escalation of the geopolitical tensions and their spillover on the global, and indirectly on the domestic economy, which as a small and open economy is strongly exposed to external shocks. Also, the possible longer maintenance of the tighter financial conditions, in case of more pronounced persistence of inflation, could adversely affect the private and public sector debt with transmission effects on the balance sheets of financial institutions. **Such conditions point to the need for further vigilance by the financial institutions in the conduct of macro-prudential policies[1], as a support to the maintenance of the financial stability also in the next period.**

The impact of the risks on the financial stability is largely determined by the resilience of the financial and non-financial sector and the capacity to absorb the shocks from the environment. **The balance sheets of households and the corporate sector are with a solid capacity, which provides resilience to shocks and the tighter financing conditions.** Households are still with a moderate level of indebtedness, which is relatively stable compared to the previous year (30% of GDP), while solvency and liquidity ratios point to a relatively limited systemic vulnerability of the sector. The indebtedness of the corporate sector (measured through debt to GDP ratio) is slightly higher compared to the previous year, but is still within moderate frames. The debt structure exposes the non-financial sector to interest rate risk, which becomes especially important in the current context of higher interest rates and to currency risk, which is limited due to the exchange rate targeting strategy. The materialization of the interest rate risk is currently limited, due to the slower growth of the price of household and corporate loans and the further growth of the disposable income of households and the profitability of the corporate sector, as factors that contribute to debt sustainability. **The non-financial sector is vulnerable to the risks from the environment and the shocks that could adversely affect the household income and the activities of the corporate sector.** The possible materialization of these

[1] In April 2023, the first Strategy for implementing the macro-prudential policy in the Republic of North Macedonia was adopted, which set the operational framework for implementing the macro-prudential policy by the Financial Stability Committee and the competent authorities which further strengthened the coordinated approach of financial regulators to further strengthening of financial stability.

risks, amid still tighter financial conditions, could undermine the ability of households and the corporate sector to regularly repay debt with an adverse impact on the materialization of the credit risk with domestic banks. These risks are currently mitigated by the good financial position of households and the corporate sector and consequently the low rate of non-performing loans in the banking loan portfolio, but there is a need for vigilance **and prudent debt management**, in order to ensure its sustainability also in the following period.

During 2023, the **real estate market registered gradual stabilization, with fall in the turnover and slower growth of the real estate prices which comes after the high growth in the previous year.** However, despite the slowdown, the growth of real estate prices is higher compared to the European Union member states and the prices continue to rise from the beginning of 2024. The high growth of labor cost in construction, amid further growth of profitability of construction companies, is a factor that contributes to the growth of real estate prices. At the same time, housing lending, although at a slower pace, continues to register solid growth, as a support to the demand for real estate. Such conditions impose a need for further close monitoring of the real estate market in order to early identify the risks and take further macro-prudential measures if necessary to preserve financial stability.

The Macedonian financial system has a simple structure, low inter-institutional connection and small exposure to the contagion risk, as well as absence of more complex financial instruments and services. Combined products are not very represented, but registered an increase. **The banking sector** is the main segment of the financial system, where the savings of the non-financial sector and the liquidity of other financial institutions are concentrated, which makes it key to the financial stability of the country. In 2023, the banking sector continued to increase the activities and maintained its safety and soundness in the operations, with improved solvency and liquidity and good quality of the loan portfolio. In conditions of monetary tightening, banks were relatively cautious and gradually increased the interest rates on loans and deposits, which prevented the materialization of the risks on both sides of their balance sheets. The higher interest rates made the sources of funding for banks more expensive, but encouraged faster deposit growth amid more favorable maturity and currency structure of the new deposits, and there was a positive effect on the banks' liquidity which has further improved. On the other hand, the gradual and cautious harmonization of the interest rate policies enabled small and controlled materialization of the credit risk. In 2023, the banking system registered higher profits, while the capital adequacy reached one of the highest levels in the past 17 years, contributing to greater resilience of the banking sector, which is also confirmed by the results of the stress tests. However, the environment is still uncertain amid geopolitical turmoil and there is a need for close monitoring of the risks and precaution in the policy conduct. For that purpose, the National Bank adopted the macro-prudential measures in the domain of the countercyclical capital buffer, in order to further strengthen the resilience of the banking sector, as well as the decision on introducing macro-prudential measures for the quality of credit demand, in accordance with the European practice.

Private pension funds in 2023 registered solid annual rates of return in conditions of far more favorable developments on the capital markets compared to the previous year. Their role and importance within the domestic financial system continued to strengthen amid further accumulation of funds. The structure of the portfolio of investments of the pension funds registered no significant changes, where the placements in the domestic government bonds still have the largest share, although there were also slightly higher investments in foreign government securities, while the portfolio of equity financial instruments is still predominated by the Exchange traded foreign investment funds. Such structure of the investments emphasizes the exposure to the interest rate risk, which in conditions of an expected gradual decline in the policy rates of the most relevant foreign central banks, is manifested in the form of reinvestment risk, due to the inability to reinvest the inflows from contributions and due securities at the same or similar interest rates.

In 2023, the **insurance sector** enhanced the volume of activities, improved the financial result and maintained solvency at an appropriate level. The investments of this sector are directed towards less risky and liquid instruments, primarily in deposits and government securities, with very low exposure to the international financial markets, which indicates exposure to the concentration risk and the interest rate risk. The solvency ratios of the insurance sector are by several times higher than the legislative requirements in this area, which is in the process of harmonization with the latest international standards and practices in this field. Profitability has been improving, but is still under the pressure of the structural weaknesses of the sector related to the low operational efficiency and the high costs for conducting insurance activities.

The other segments of the financial system (savings houses, leasing companies, investment funds and financial companies) still register a small volume of activities and for the time being constitute a negligible source of systemic risk to the financial stability. Similar to pension funds, the more favorable developments on the capital markets had a positive influence on the operations of investment funds, which in 2023 registered solid rates of return, after the reduction of the funds registered in the previous year. The adoption of the amendments in July 2023 and the new by-laws in 2024 is important for the operations of financial companies. Their aim is to provide greater protection of individuals - consumers of the services of financial companies, to increase the confidence in these companies, as well as to establish a better risk management system and improve the oversight.

During 2023, the National Bank enhanced the activities in the field of **climate risks, as one of the most important structural vulnerabilities to which the global and domestic financial system is exposed in the long run.** The first Medium-Term Plan for the National Bank activities in the field of climate risk management for the period 2023 - 2025 was adopted, whose implementation is expected to contribute to better understanding of climate risks, their incorporation into the banking system analyses and building a resistant banking system that will be able to support the economy's transition to a green and sustainable development. The National Bank has so far carried out several activities that include analyses of the exposure of the banking sector to climate risks, collection of statistical data on green loans, issuance of guidelines for commercial banks on the manner of incorporating climate risks into their strategies, and from the beginning of 2024 it started to publish a review of green indicators for easier monitoring of the progress of climate goals. The analyses show that the domestic banking sector is exposed to climate-related physical and transitional risks, due to the credit exposure of banks to areas with a high level of risk of natural disasters and to clients in the activities with high greenhouse gas emissions, such as energy-intensive activities and activities that depend on fossil fuels.

In addition, the National Bank continued to carry out activities in relation to the long-term structural vulnerabilities to cyber risks. The National Bank has been preparing a new by-law in terms of the information system security, harmonized with the guidelines of the European Banking Authority (EBA) on managing the risks associated with the security of IT systems. This by-law is an introduction into the national activities for preparing and introducing a new law on improving the digital operational resilience in the financial sector, harmonized with the European Digital Operational Resilience Act (DORA). The new law is expected to improve several key areas about the IT risk and IT incident management, the risk of transferring the performance of operational functions or outsourcing services and their supervision, as well as the testing of cyber resilience, the exchange of information, etc.

Maintaining a strong and resilient banking sector remains the National Bank priority also in the following period, which is a key prerequisite for maintaining financial stability. In this respect, and in conditions of an uncertain macroeconomic environment, the macro-prudential policy of the National Bank remains aimed at maintaining appropriate capital and liquidity strength of domestic banks and thus strengthening the resilience to possible risks.

I. INTERNATIONAL AND DOMESTIC ENVIRONMENT

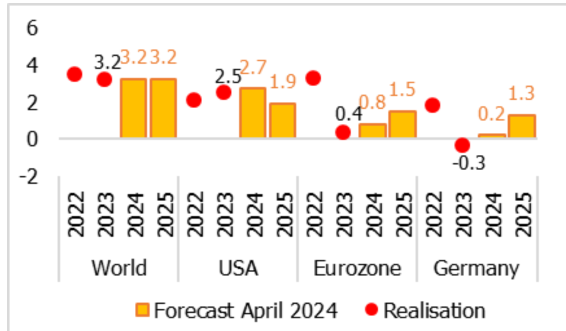
1.1. International macroeconomic environment

The global macroeconomic environment in 2023 was accompanied by high uncertainty and risks. At the beginning of the year, the concern about the stability of the banking systems in the USA and Europe was quickly overcome with a rapid response by policy makers, while the challenges related to the further military actions in Ukraine and the tensions in the Middle East were present throughout the year. Despite the high uncertainty, the economic performance worldwide was relatively more favorable than expected at the beginning of the year. The economic growth was moderate, but stable. Central banks in developed countries continued to tighten the monetary policy, but at a more moderate pace relative to the previous year. The tighter monetary conditions and the normalization of the situation in the world primary commodity markets gradually reduced inflationary pressures, which was particularly evident in the second half of the year. The risks for the global financial stability reduced, but are still present, associated with the possible longer maintenance of the tighter financial conditions which could adversely affect the balance sheets of economic agents.

The risks for the domestic economy are largely determined by the developments in the euro area, where the economic growth stagnates with expectations to move in an upward direction in the following period, while the banks' capital and liquidity positions remained at a solid level, providing resilience to different shocks. In conditions of high trade and financial openness of the Macedonian economy, there are still risks of transmission of the external shocks on the domestic economic activity, and thus indirectly on the activity of the financial sector, due to which the need for conducting prudent domestic macroeconomic and structural policies is emphasized. When applying monetary strategy of a stable exchange rate of the denar against the euro, the changes to the domestic monetary policy also reflect the monetary policy setup of the European Central Bank.

The global economy gradually stabilized, after the consecutive shocks it faced in the previous few years. In 2023, the economic activity was strongly influenced by the effects of the tighter global financial conditions, the slow growth of global trade and the deteriorated confidence of business entities and households. The global economic growth in 2023 is estimated at 3.2%, which is a slight slowdown compared to the growth in 2022 (3.5%), mainly reflecting the slower economic growth in the advanced economies. The forecasts for the global growth in the next two years are that it will stabilize at 3.2%[2]. Such forecasts are still accompanied by uncertainty, although according to the IMF, the risks are mainly estimated as balanced, while the global economy, as relatively resilient to consequent shocks and tightened financial conditions.

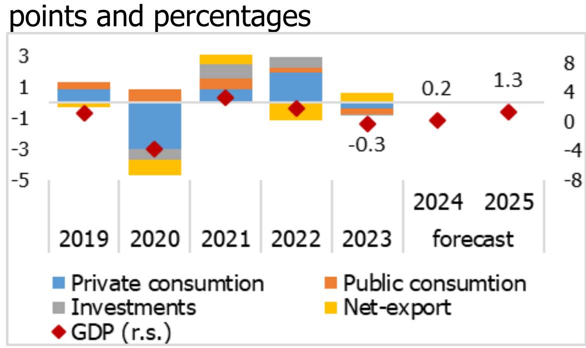
Chart 1
Economic growth
Real annual GDP growth, in %



Source: IMF.

The economic activity in the euro area stagnated. In 2023, the economy in the euro area registered an annual growth of 0.4%, which is a slowdown compared to the previous year (3.3% in 2022). The slowdown in the growth was registered in conditions of deteriorated confidence of consumers, long-term adverse affects of the high prices of energy, the increased financing cost due to the growing interest rates, as well as the weaker performances of the German economy. The economic activity of Germany, which is also the major trading partner of the Republic of North Macedonia, decreased by 0.3% (growth of 1.8% in 2022). The fall in the economic activity was almost equally distributed to all activities, but the energy-intensive and production activities, which are energy dependent, were the most affected. The performances in the German economy, primarily in the automotive industry, are especially important for the Macedonian economy because a large number of foreign companies that operate in the free zones in the Republic of North Macedonia are fully integrated into the chain of suppliers for the German car and auto part producers. In 2023, the car production in Germany registered a significant annual growth of 10.9% (3.5% in 2022) whereby the automotive industry in Germany, for the second year in a row, has been successfully offsetting the losses from the previous few years (which were incurred as a result of the disturbances in the supply chains, the weak global demand for cars and the transition to using e-mobile devices[3]). For the next period, the economic growth in the euro area is expected to move in an upward direction and to amount to 0.8% in 2024, after which a certain acceleration in the economy at a

Chart 2
Contributions to the real annual GDP growth in Germany and forecasts, in percentage points and percentages



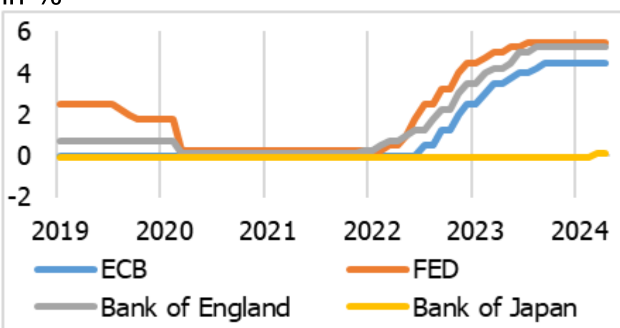
Source: IMF, Eurostat.

[2] Source: IMF, World Economic Outlook, April 2024.
[3] Source: Deutsche Bank research, 2024.

growth rate of 1.5%[4] is expected in 2025. Within the euro area, growth of 0.2% in 2024 and 1.3% in 2025[5] is forecasted for the German economy. The strengthening of the German economy in the next period is expected to affect favorably through both the capital inflow channel and the domestic confidence channel.

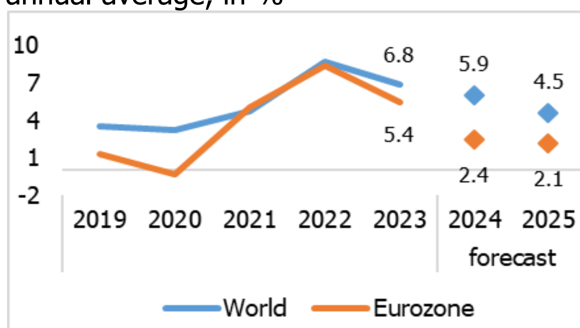
Inflation slowed down at global level, after the historically high growth in the previous year. Central banks in the developed economies continued to tighten the monetary policy, which together with the stabilization of the world prices of energy and food, slowed down the inflation growth. At global level, inflation in 2023 is still at a relatively high level and equals 6.8% (8.7% in 2022), amid still present price pressures in most advanced economies, caused by domestic factors, mainly related to the wage and profit growth, and the prices of energy and food although decreased, are still at a higher level. In the euro area, inflation in 2023 was 5.4% and decreased on an annual basis (9.2% in 2022).

Chart 3
Interest rates of central banks
in %



Source: Web sites of central banks.

Chart 4
Inflation rate
annual average, in %



Source: IMF

For the next period, inflation is expected to continue to reduce. At global level, prices are expected to reduce to 5.9% in 2024 and 4.5% in 2025. For the next period, inflation in the euro area is expected to reduce to 2.4%, on average in 2024 and to 2.1% in 2025.

Budget deficit in the euro area continued to decrease, with a further decline in the total debt position. Budget deficit in the countries in the euro area in 2023 registered divergent movements, but overall, the budget deficit in the euro area (3.6% of GDP) decreased on an annual basis. The budget deficit is expected to continue to decrease also in the following period, expecting to reduce to 3.0% in 2024 and 2.8% in 2025. A decrease was also registered in the government debt in the euro area, which at the end of 2023 is estimated at 90.0% of GDP. This level is forecasted to be maintained also in the next two years[6]. The uncertainty about the development of geopolitical tensions and the dynamics of trade and financial flows increase the risks for sustainability of public finances within the euro area, which, given the high public debt, emphasizes the fiscal vulnerability.

[4] Source: IMF, World Economic Outlook, April 2024.
[5] Source: IMF, World Economic Outlook, April 2024.
[6] European Commission, Spring 2024 European Economic Forecasts.

Chart 5
Budget deficit, euro area
in % of GDP

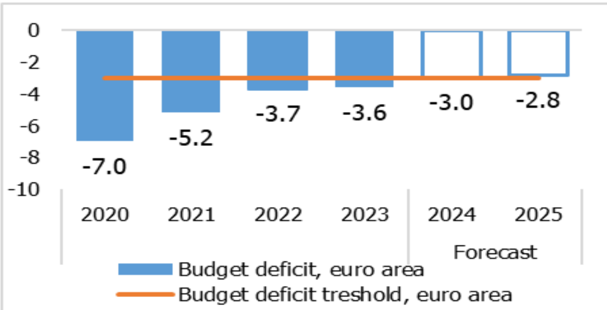
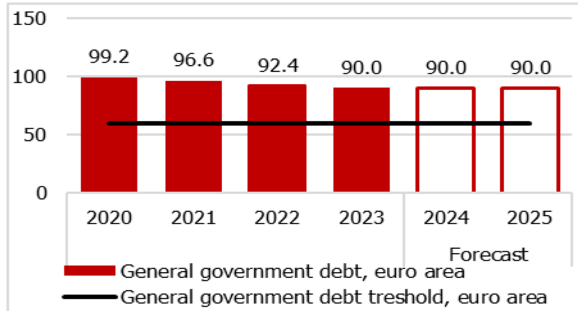


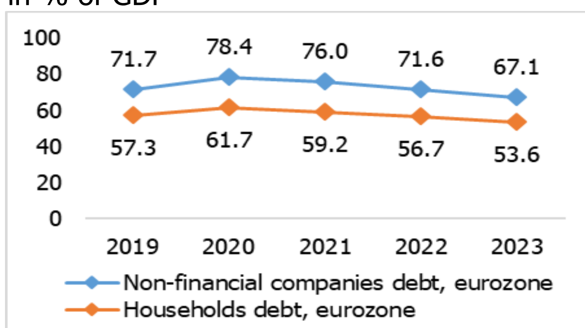
Chart 64
Government debt*, euro area
in % of GDP



Note: 3% threshold for budget deficit to GDP and 60% threshold for government debt to GDP under the Stability and Growth Pact.
*General government debt.
Source: European Commission, Spring 2024 European Economic Forecasts.

The indebtedness of the private sector in the euro area continued to decrease. Euro area corporate debt declined compared to the previous year and at the end of 2023 it equaled 67.1% of GDP (71.6% of GDP in 2022). A decrease was also registered in the household debt which at the end of 2023 amounted to 53.6% of GDP (56.7% of GDP in 2022). Such data point to improved debt positions of the corporate sector and households, which have so far shown good resilience to the risks from the environment. However, the environment of still high borrowing costs, together with the labor costs, are risk factor for the profitability of the corporate sector, and thus the ability to repay debt in the period ahead. Regarding the households, it is estimated better resilience of the sector as a whole, which is supported by the income growth and the strong labor market, but also growth of the vulnerable categories of households, especially of those with lower income[7]. This poses risks to the financial stability in the euro area in the next period, to which the Macedonian economy is not directly exposed. However, indirect effects are possible in case of potential materialization of these risks and their spillover on the economic activity of the European countries, taking into account the high trade connection of the Macedonian to the German economy and the relatively fast transmission of the developments from the external environment to the domestic economy.

Chart 75
Private non-financial sector debt*
in % of GDP



*Private non-financial sector debt .
Source: ECB.

The developments on the international financial markets were volatile during the year. Yields on government bonds in the USA and in the euro area were volatile as a result of the announcements of monetary policy makers for the level of policy rates and their long-term expectations, the risks for the economic growth of the euro area and the progress in reducing

[7] Source: ECB Financial Stability Report, May 2024

inflationary pressures. However, they registered no significant changes on an annual basis. Volatile movements in 2023 were also registered in the stock exchanges in the USA and the euro area. At the beginning of 2024, yields on government securities registered upward movements, which was also the case with the stock exchange indices, which registered a significant growth. Movements in stock market indices affect the assets of domestic financial institutions that invest in foreign markets[8].

Chart 8
Yields on government bonds in the United States and the euro area, in percentages

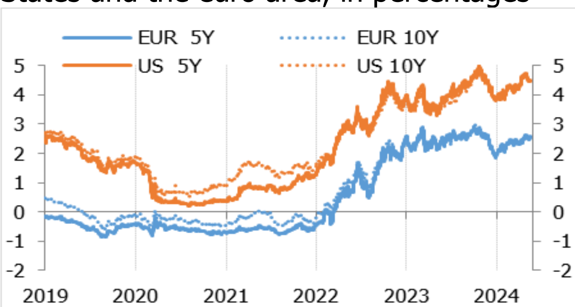
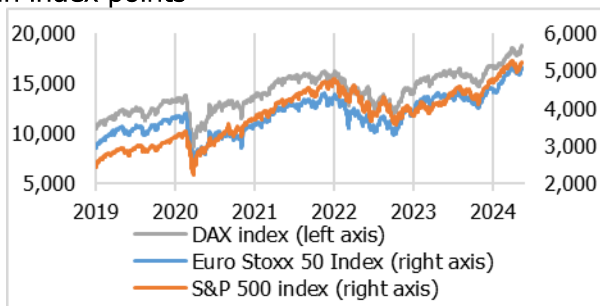


Chart 9
Movement of stock market share indices in index points



Source: Online publishing service.

The value of the US dollar registered a small depreciation on an annual basis. At the end of 2023, the euro/US dollar currency pair was 1.1050, compared to 1.0666 at the end of 2022. In the domestic context, given the policy of nominal denar/euro exchange rate peg and the largest representation of the euro among foreign currencies in the banks' balance sheets, changes in the euro/US dollar currency pair do not have a significant impact on the currency structure of the balance sheets of the Macedonian banks, and on the entire financial system, although in some segments, such as in pension and investment funds, about one fourth and one third of the assets, are appropriately nominated in non-euro currencies.

The banking sector in the euro area maintained its resilience and continued to support the economy in the euro area. Despite the increased geopolitical risks, accompanied by inflationary pressures and higher interest rates, the banks in the Euro area during 2023 provided credit support to the real sector, which was enabled by their solid capital and liquidity positions. Namely, the capital adequacy ratio of the banks in the Euro area in 2023 increased to 19.7% compared to the end of 2022 when it was 19.4%. Growth was also registered in the liquidity coverage ratio - LCR, which at the end of 2023 equaled 164.4% and significantly exceeded the regulatory minimum of 100%. However, the growth of credit activity in 2023 slowed down to 0.6%, which is significantly slower compared to the growth of 5.4% in 2022. In conditions of higher interest rates as a result of the tightening of the monetary policy, the rates of return on equity and assets have improved and at the end of 2023 they amounted to 9.3% and 0.6%, respectively. After reaching the historical minimum (1.8%), the rate of non-performing loans in the euro area registered a slight increase and amounted to 1.9% at the end of 2023. Overall, the quality of assets of the banks in the Euro area is solid, but the risks to the quality of the credit

[8] More details about the placements of domestic financial institutions in the foreign market can be found in the sections concerning the individual financial institutions of this report.

portfolio remain pronounced. Amid uncertain landscape that can affect the creditworthiness of households and the corporate sector, ensuring sustainable profitability is still an important factor for the soundness of the European banking sector and the maintenance of financial stability.

Table 1
Main indicators for the performance of euro area banks

		2019	2020	2021	2022	2023
Profitalbility	Cost efficiency*	65.8%	66.0%	64.3%	61.2%	57.0%
	ROE	5.2%	1.5%	6.7%	7.7%	9.3%
	ROA	0.4%	0.1%	0.4%	0.5%	0.6%
Asset quality	Non-performing loans coverage	44.0%	43.3%	43.0%	41.9%	40.6%
	Non-performing loans	3.2%	2.6%	2.1%	1.8%	1.9%
Capital adequacy and leverage	Total capital ratio	18.6%	19.5%	19.6%	19.4%	19.7%
	Tier 1 ratio	16.1%	17.0%	16.9%	16.7%	17.1%
	CET 1	14.9%	15.6%	15.6%	15.4%	15.7%
	Leverage ratio	5.6%	6.0%	6.0%	5.6%	5.8%
Liquidity	Liquidity coverage ratio	146.0%	171.8%	173.4%	161.3%	164.4%
Funding	Loan-to-deposit ratio	116.0%	106.7%	104.4%	103.5%	102.7%

* Cost to income.
Source: ECB.

1.2. Domestic macroeconomic environment[9]

The domestic economy in 2023 registered a slower growth amid still unfavorable and uncertain external environment. During the year, the National Bank continued to gradually tighten the monetary policy, and also took additional measures to encourage "denarization" and strengthen the banks' systemic resilience. After the significant annual growth in the previous year, the average inflation in 2023 reduced to a one-digit level, but is still above the historical average. The stability of the exchange rate was successfully maintained, and the foreign reserves remained at an appropriate level and in the safe zone. Uncertainty arising from the environment remains high and is mainly associated with the geopolitical developments, but also from the medium-term prospects for the domestic economy, the still present inflationary pressures and the volume of public debt, which emphasizes the risks to the financial sector. The possible materialization of these risks could worsen the creditworthiness of households and the corporate sector with transmission effects on the balance sheets of financial institutions. The National Bank closely monitors the developments and is ready to take appropriate measures if necessary for maintaining the stability of the banking sector and the overall financial system.

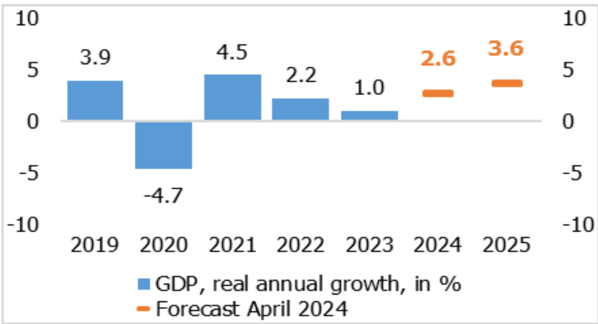
The economic activity in the domestic economy registered a slower growth. Observed through the individual components on the demand side, the slowdown is mainly driven by the fall in investments, that reflects an adjustment in inventories after their growth in the previous period amid high uncertainty associated with prices and the availability of raw materials and energy. Private consumption makes a slower, but positive contribution to the annual growth, while the contribution of net exports is positive. The growth of economic activity of 1.0% was registered in conditions of still unfavorable and uncertain external environment, amid geopolitical tensions,

[9] For more information on the domestic macroeconomic environment see the Annual Report of the National Bank for 2023.

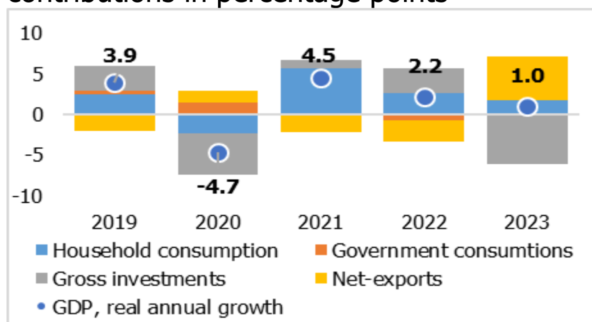
reduced trade and reduced confidence of economic agents, and amid still present inflationary pressures and tightened financial conditions.

Chart 10

Real GDP growth, actual and forecast, in %



Real GDP structure, by component, contributions in percentage points



Source: State Statistical Office and National Bank for GDP forecast
Note: GDP data for 2022 are preliminary, and data for 2023 are estimated.

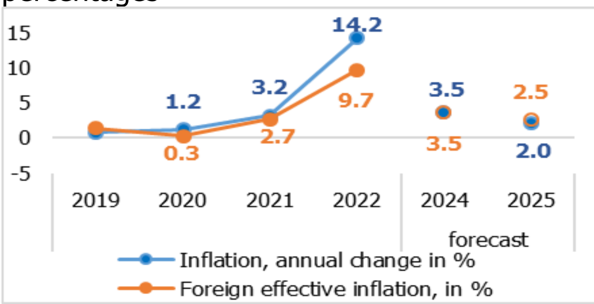
According to the macroeconomic forecasts of the National Bank in the April forecasting round[10], the growth of the Macedonian economy in 2024 and 2025 is expected to accelerate to 2.6% and 3.6%, respectively. The medium-term prospects for the domestic economy are strongly influenced by the risks which arise from the external environment. The geopolitical turmoil and its possible effects on the supply chains and the global prices can limit the global growth with transmission effects on the domestic economy. On the other hand, upside risks are also present, which, among other things, assume faster global structural changes and favorable impacts of new technologies, which will increase productivity and global growth. Regarding the specific risks from the domestic environment, in the medium run, there is possibility for favorable effects of the NATO membership, a positive outcome of the negotiations for EU membership, as well as of the possible utilization of the geographical advantages of our economy within the process of adjusting the global supply chains.

The inflation rate slowed down on an annual basis. Inflation slowed down gradually during 2023, in line with the movements of the prices of primary products in global markets, the dynamics of foreign imported inflation, and as a result of the gradual tightening of the monetary policy. After the rate of 14.2% in the previous year, the average inflation in 2023 reduced to a one-digit level of 9.4%. Structurally observed, this performance reflects the significant reduction of the pressure from the food and energy price component, as well as the stabilization of price pressures from the less volatile categories, in accordance with the undertaken monetary measures.

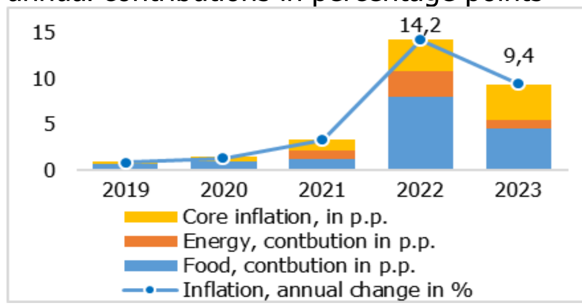
[10] For the latest National Bank forecasts from April see the Quarterly Report, May 2023.

Chart 11

Domestic inflation and foreign effective inflation, annual growth rates and forecast, in percentages



Volatile (food and energy) and long-term component of inflation
annual contributions in percentage points



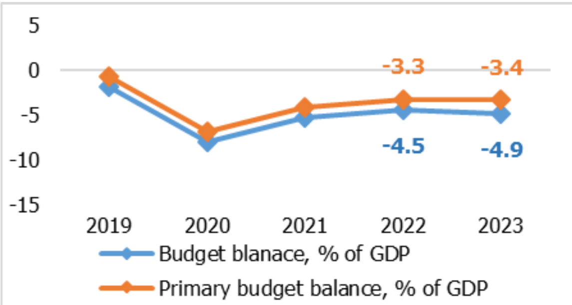
Source: SSO, Eurostat and National Bank assessments.

For the next period, **the forecasts suggest further price stabilization.** According to the April forecasting round of the National Bank, the inflation rate in 2024 is expected to continue to reduce and would average 3.5%, and in the next two years it is expected to stabilize at the historical average of 2%. Such forecasts are accompanied by risks which mainly result from the uncertainty about the geopolitical developments and their effects on import prices. There are also domestic factors with risks associated with the policies affecting the demand in the economy, and primarily the labor market and wages.

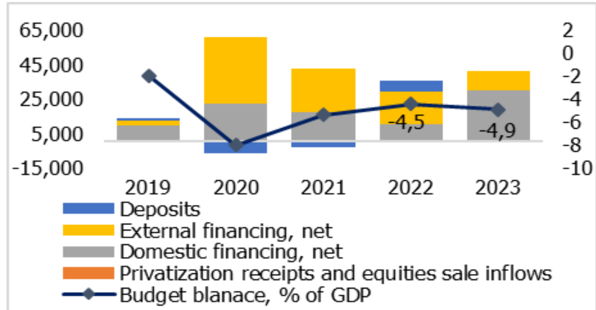
Budget deficit moderately deepened, and increase was also registered in the domestic public debt. In 2023, budget expenditures were higher by 14.3% on an annual basis, primarily as a result of the increased capital expenditures, mainly related to financing of infrastructure projects, with growth of current expenditures. Budget revenues registered a smaller annual growth (14.0%), amid growth of revenues in almost all categories, with the exception of non-tax revenues. In such conditions, the budget deficit increased by 0.5 percentage points and amounted to 4.9% of GDP. At the same time, the primary budget balance[11] as a percentage of GDP remained at an almost stable level compared to the previous year. The budget deficit was mainly financed by net government borrowing on the domestic market[12], and to a lesser extent on the foreign market[13], while government deposits with the National Bank registered minimal growth. According to the Revised Fiscal Strategy[14], the budget deficit is planned to gradually decrease in the forthcoming five-year period and in 2024 to amount to 3.4%, in 2025 to reduce to 3.0% of GDP, and in 2028 to 2.9% of GDP.

[11] The primary budget balance does not include repayments of current loan liabilities (interest). This fiscal indicator is considered more appropriate because it does not contain the fiscal costs that affect public debt related to the implementation of the fiscal policy in the past period.
[12] The government borrowing on the domestic market, in addition to the regular issues of continuous government securities, also results from the newly issued civil bonds and the new issue of a green bond.
[13] In March, the ninth Eurobond in the amount of Euro 500 million was issued, at a coupon rate of 6.96% and with a maturity of four years, while the Eurobond issued in July 2016, in the amount of Euro 450 million, with a 7-year maturity and at an interest rate of 5.625%, was fully paid in July. In December, loans were received from the World Bank in the amount of about Euro 94 million, from OPEC in the amount of about Euro 50 million and from the KfW bank of about Euro 90 million.
[14] Revised Fiscal Strategy of the Republic of North Macedonia for 2024-2028, December 2023.

Chart 12
Total and primary budget balance in % of GDP



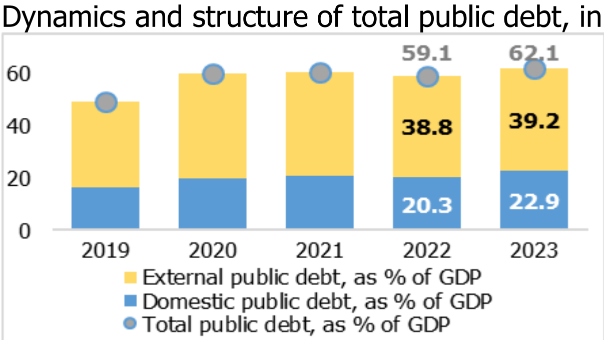
Financing of the budget balance*
in millions of denars in % of GDP

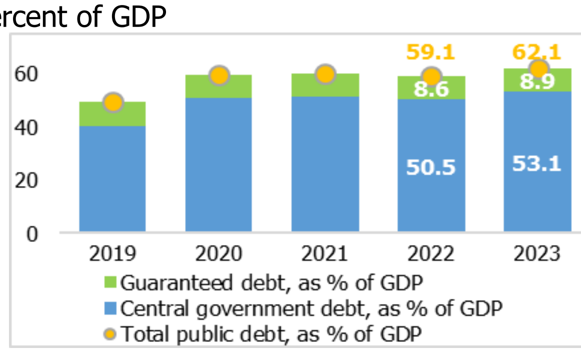


Source: Ministry of Finance and National Bank calculations.
*Negative growth of deposits in the financing structure of the budget balance represents growth of government deposits.

The total public debt increased to 62.1% of GDP, i.e. by 3.0 percentage points compared to the previous year, amid higher nominal growth rate of debt relative to GDP. For fiscal stability and public debt sustainability in the medium run it is important to continue the fiscal consolidation, in line with the Fiscal Strategy of the Ministry of Finance. The main risks related to the fiscal consolidation arise from the uncertainty about the dynamics of the economic activity, the collection of tax revenues and the realization of capital expenditures. According to the Public Debt Management Strategy[15], the level of public debt relative to GDP of 60% is set as a threshold in the medium and long term. The threshold is expected to be exceeded by 2025, and in the period 2026-2028 debt will return to the prescribed frames as a result of the fiscal consolidation measures. The Strategy also provides for diversification of the sources of financing in the medium run by issuing green, project and civil bonds.

Chart 13
Dynamics and structure of total public debt, in percent of GDP





Source: Ministry of Finance and National Bank calculations.

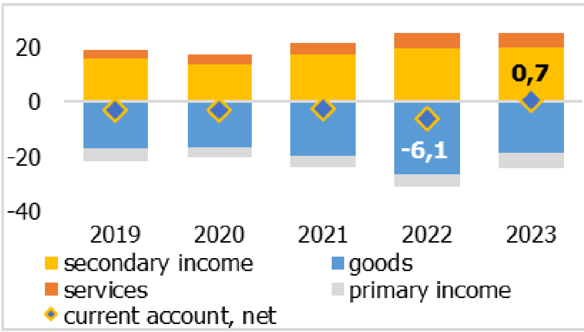
The external position of the domestic economy improved. The current account of the balance of payments recorded a surplus of 0.7% of GDP, which is a significant improvement compared to last year, when a deficit of 6.1% of GDP was registered. Such change mainly reflects

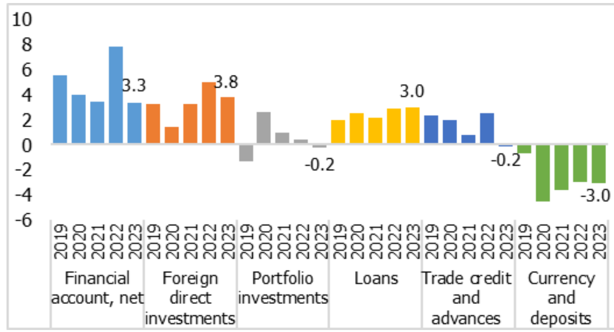
[15] Public Debt Management Strategy of the Republic of North Macedonia for 2024 - 2026 (with prospects until 2028), May 2023.

the narrowing of the trade deficit, mostly due to the downward adjustment of the import of goods, amid a minimal decline in the export of goods.

Chart 14

Current account and main components in % of GDP	Financial account and main components in % of GDP





Source: National Bank.

The narrowing of the trade deficit was mostly influenced by the substantial improvement of the energy balance in the balance of payments, amid significant reduction in the prices on the energy market, reduced dependence of the domestic economy on energy imports and increased domestic electricity production. The financial account of the balance of payments registered net inflows on an annual basis of 3.3% of GDP (7.9% of GDP in the previous year), which are mainly a result of the net inflows of foreign direct investments. Private sector and government borrowing[16] was an important source of inflows in the financial account in 2023.

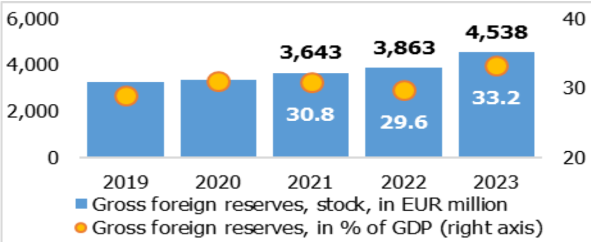
The financial flows in the balance of payments enabled full financing of the current account deficit and growth of the foreign reserves. In 2023, the National Bank intervened on the foreign exchange market with a relatively high net purchase of foreign currency, which was mainly a result of the more favorable movements in the second half of the year. The reduced need for foreign assets with the easing of the energy crisis, the stabilized expectations and the increased confidence in the domestic currency, significantly increased the level of foreign reserves on an annual basis. **Despite the uncertain environment, the stability of the exchange rate was successfully maintained, and the foreign reserves remained at an appropriate level in accordance with the international standards and are in the safe zone. The stability of the exchange rate is critical for the financial stability, not only due to the direct exposure of certain segments of the financial system to currency risk, but primarily due to the significant share of the currency component in the debt of the non-financial sector.**

[16] In order to provide financial support to overcome the economic difficulties due to the consecutive crises in the past period, in December 2023, the government borrowed from the KfW bank (Euro 90 million), with the World Bank (Euro 93.8 million) and with the International Development Fund within the Organization of the Petroleum Exporting Countries (OPEC) (the Loan Agreement for the Sustainability And Resilience Programme - Euro 50 million).

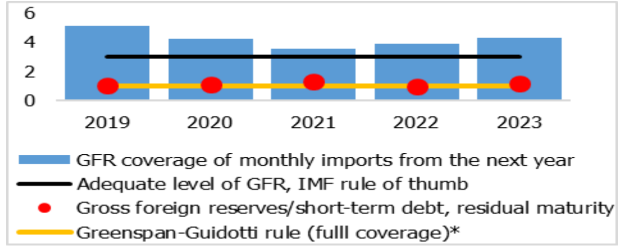
Chart 15

Gross foreign reserves, balances and share in GDP

balances in millions of euros in %



Foreign reserves adequacy indicators in months and units



Source: National Bank.

Note: According to the Greenspan-Guidotti rule, the country has to keep full coverage of short-term debt (residual maturity) with foreign reserves.

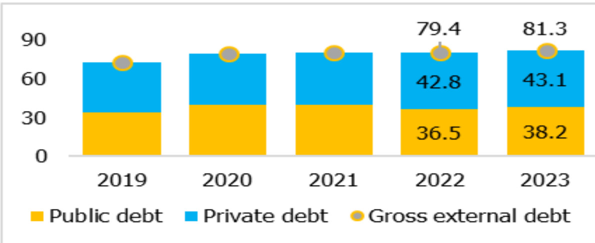
The National Bank continued to tighten the monetary policy, which was accompanied by additional measures to encourage "denarization" and strengthen the banks' systemic resilience. In order to reduce and stabilize the price pressures and inflation expectations, the National Bank on six occasions, gradually increased its policy rate to the level of 6.30% and maintained the offered amount of CB bills at the level of Denar 10,000 million. At the same time, interest rates on overnight and seven-day deposit facilities increased, to 4.20% and 4.25%, respectively. In order to encourage the savings in domestic currency, the National Bank, on two occasions, increased the reserve requirement ratio of banks' foreign currency liabilities, to the level of 21%, and increased the part of reserve requirement from foreign currency liabilities that is met in euros, to 81%. The reserve requirement ratio that is applied to liabilities in denars with foreign exchange clause also increased from 50% to 100%. The measure aimed at encouraging projects for renewable energy was active throughout the year. In order to further strengthen the systemic resilience of the banking sector, the National Bank adopted macro-prudential measures to increase the countercyclical capital buffer rate for the exposure of domestic banks, as well as measures related to setting thresholds to improve the quality of credit demand. These measures have a preventive role with respect to the level of household debt, taking into account the current macroeconomic conditions, and are in accordance with the measures undertaken in many European Union member states.

Gross external debt[17] to GDP ratio remained at a relatively stable level with a certain upward movement. The growth of gross external debt (from 79.4% to 81.3% of GDP) was registered in conditions of higher public debt, mostly as a result of increased net liabilities of the central government on the basis of increased issue of debt securities, with growth, but to a lesser extent, of private debt. Moreover, the share of intercompany debt still accounts for about one third of the total gross external debt, with solid share of trade credits (10%), which contributes to mitigating the vulnerability from excessive external indebtedness because these two categories are relatively less risky debt forms.

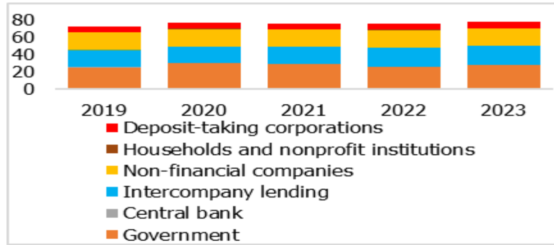
[17] Gross external debt data does not include central bank liabilities under repo agreements.

Chart 16
Gross external debt structure

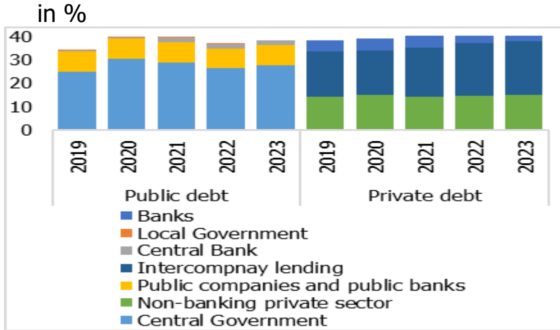
By debtor
in % of GDP



By institutional sector
in % of GDP



Public and private debt structure
in %

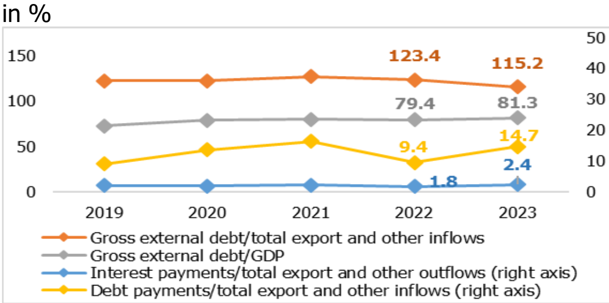


Source: National Bank.
Note: Gross external debt does not include central bank liabilities under repo agreements.

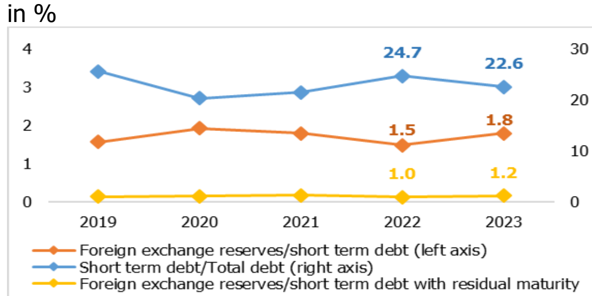
The external indebtedness of the Macedonian economy is moderate as a whole. Solvency ratios point to low indebtedness, with the exception of gross external debt to GDP ratio which is the only ratio that indicates high indebtedness. Liquidity ratios improved, amid reduction of the share of short-term in total debt and larger coverage of short-term debt with foreign reserves.

Chart 17

Solvency as an external debt indicator
in %



Liquidity as an external debt indicator
in %



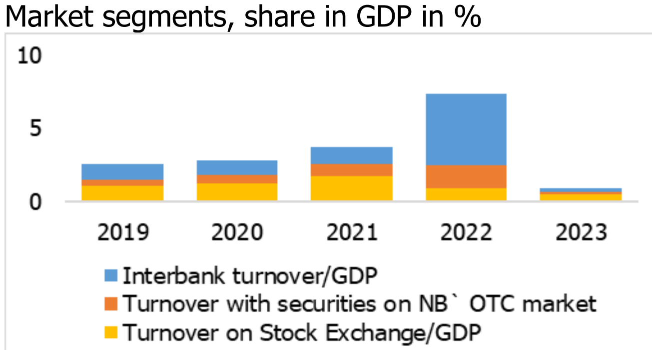
Source: National Bank.
* Moderate debt criterion is taken from the World Bank's debt indicator compilation methodology, which implies using three-year moving averages of GDP and export and other inflows as denominators in the indicator compilation.
Moderate debt criterion:
Interest payments/export and other inflows: 12-20%;
Debt payments/export and other inflows: 18-30%;
Gross external debt/GDP: 30-50%;
Gross external debt/export and other inflows: 165-275%;
Foreign reserves/short-term debt with residual maturity 1; and
The country needs to maintain full coverage of short-term debt (residual maturity) with foreign reserves.

1.2.1. Financial markets

The financial markets in the Republic of North Macedonia have a modest impact on the domestic financial flows, and hence on the stability of the overall financial system in the country. In 2023, amid high level of liquidity in the banking sector and further tightening of the monetary policy, the trading on all market segments was extremely low, which reduced its share in GDP. The increase in the interest rate on CB bills was transmitted to the interbank segment and caused growth in the interbank interest rate. On the primary government securities market, the favorable developments in the maturity and currency structure in the new issues continued, and new financial instruments (green, civil and municipal bonds) were also introduced. Amid higher interest rates on the primary market, the yields on transactions with securities on the secondary market increased. Equity securities were mostly traded on the Macedonian Stock Exchange, and the value of MBI-10 registered an annual growth, although it had volatile movement during the year. The current situation points to very low liquidity on all market segments. The increased investment alternatives and the strengthened financial education have considerable potential to ensure greater visibility in the securities markets and increase competitiveness, which is important in the process of attracting investors. The issuance of green, civil and municipal bonds is a step in this respect and if it continues, it is expected to increase the interest of domestic and foreign investors and to deepen the capital market. The current activities for further improvement of the regulatory and institutional framework and its harmonization with the relevant European regulation are important for the development of the capital markets. Thus, in March 2024, two new laws[18] were adopted, which are an important step towards improving and bringing the domestic regulation in this area closer to the EU standards.

In 2023, the trading on all market segments registered a decline[19] and reduced to 0.9% of GDP (7.4% of GDP in 2022), which is an extremely low share. On an annual basis, the turnover from all market segments dropped by 87%, which is largely explained by the unusually high turnover in the previous year, amid energy crisis and high uncertainty about the Russian-Ukrainian conflict. However, compared to the period before 2022, the activity on all market segments is lower. Observed by market segments, the largest drop in 2023 was recorded in the trading on the interbank market for non-collateralized deposits, whose share in GDP reduced to 0.3% (4.9% of GDP in 2022). The lower

Chart 18
Market segments, share in GDP in %



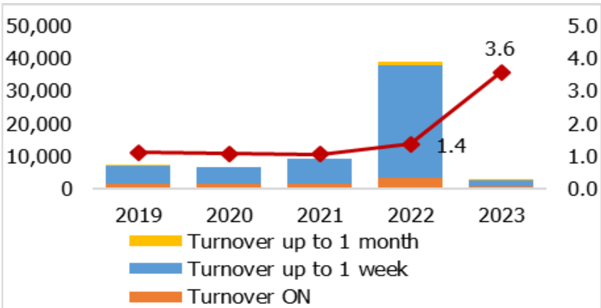
Source: National Bank.

[18] The Law on Financial Instruments (Official Gazette of the RNM, No. 66/24) and the Law on Prospectus and Transparency Obligations of Securities Issuers (Official Gazette of the RNM, No. 64/24) which replaced the existing Law on Securities. Given the type and volume of the amendments, both laws have delayed enforcement.

[19] The analysis covers the following market segments: trading in interbank deposits, trading in securities and stock exchange trading. The foreign exchange market is not subject to analysis.

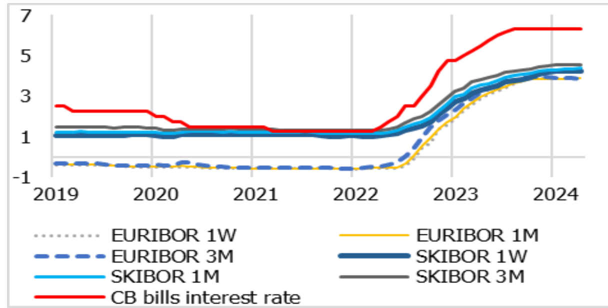
interbank turnover was registered in conditions of a high level of liquidity in the banking sector and smaller liquidity needs of the corporate sector due to stabilization of the price of electricity, which reduced the need for interbank borrowing.

Chart 19
Interbank turnover and interest rate on the market of non-collateralized deposits,
in millions of denars and in %



Source: National Bank.

Chart 20
Interest rate on CB bills and indicative rates EURIBOR and SKIBOR,
in %



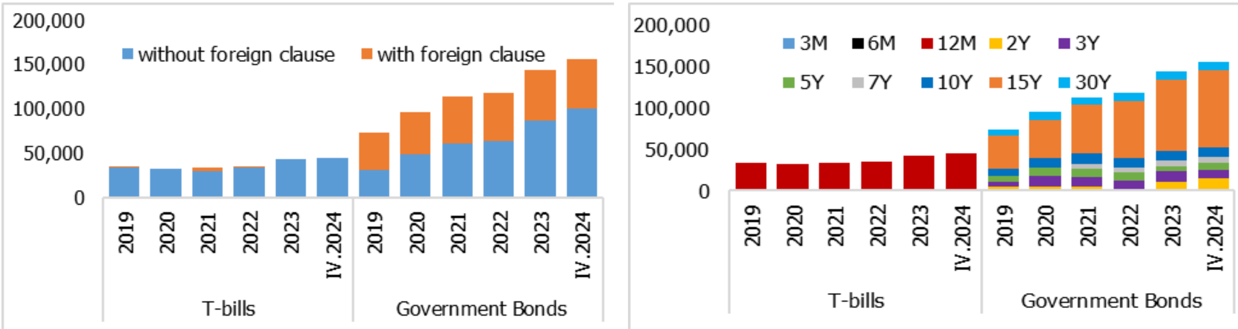
Source: National Bank and European Central Bank.

Amid further tightening of the monetary policy, the interbank interest rates continued to increase. During 2023, the National Bank raised the interest rate on CB bills[20] on six occasions, to a level of 6.30% i.e. by a total of 1.55 percentage points. The increase in the policy rate of the National Bank caused growth in the indicative interest rates on trading in interbank deposits (SKIBOR). Annual growth was also registered in the interbank interest rate (MBKS) which during the year averaged 3.6% (1.4%, on average in 2022). In line with the expectations for the movement of the policy rates of the European Central Bank and their increase during the year, the indicative quotations for interbank trading in the euro area (EURIBOR) also registered an upward trend, whereby the growth was stronger compared to the domestic market. This narrowed the spread between the indicative quotations of the denar interbank interest rates (SKIBOR) and the interbank interest rates in the euro area (EURIBOR) during the year.

On the primary government securities market, the interest rates kept on increasing, and new financial instruments were also issued. The total continuous government securities in 2023 increased by Denar 33,264 million and at the end of the year they reached Denar 186,586 million, which is 22.2% of GDP (19.1% at the end of 2022). In 2023, the favorable developments on this market segment continued, whereby the new issues of government securities were predominantly in domestic currency and were largely concentrated in government bonds, which accounted for more than two thirds of the newly issued government securities. At the end of the year, the maturity structure of government securities is still dominated by the fifteen-year government bonds, with a share of 46.1%.

[20] In 2023, the National Bank held 9 auctions of CB bills with a maturity of 42/49 days, which was aligned with the duration of the reserve requirement period. Starting from 2023, the dynamics of deciding on the setup of the monetary policy of the National Bank is harmonized with the ECB's dynamics of deciding.

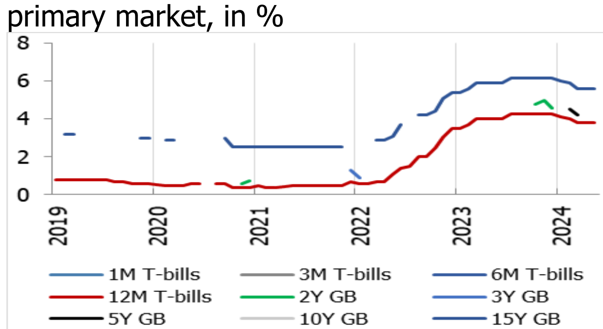
Chart 21
Currency (left) and maturity (right) structure of government securities
in millions of denars



Source: Ministry of Finance.

The interest rates on government securities increased amid further growth of the policy rate of the National Bank and upward movements in the yields on the financial instruments in the international capital markets. The increase was mainly in the twelve-month treasury bills and in the fifteen-year government bonds, as the most common maturities in the supply of government securities in the primary market.

Chart 22
Interest rates on government securities on the primary market, in %



Source: Ministry of Finance.

At the end of 2023, the interest rate on the twelve-month treasury bills was higher and equaled 4.25% (3.50% at the end of 2022), while the interest rate on the fifteen-year government bonds equaled 6.15% (5.40% at the end of 2022)[21]. **During the year, in order to dynamize the capital markets, the range of financial instruments was enriched**, which is in line with the Financial Market Development Strategy, the Public Debt Strategy and the Accelerated Development Plan. Thus, the Ministry of Finance on two occasions (in July and in November) issued **civil bonds** (with a maturity of 2 years and at an interest rate of 5.0%), in October, it issued for the first time **green government bonds** (in the amount of Denar 600 million, with a maturity of 2 years and at an interest rate of 4.75%[22]), **structural bonds for municipalities** (in the amount of Denar 275 million)[23] were also issued for the first time, and the twenty-second emission of **denationalization bonds** (in the amount of Euro 4.5 million) was also issued.

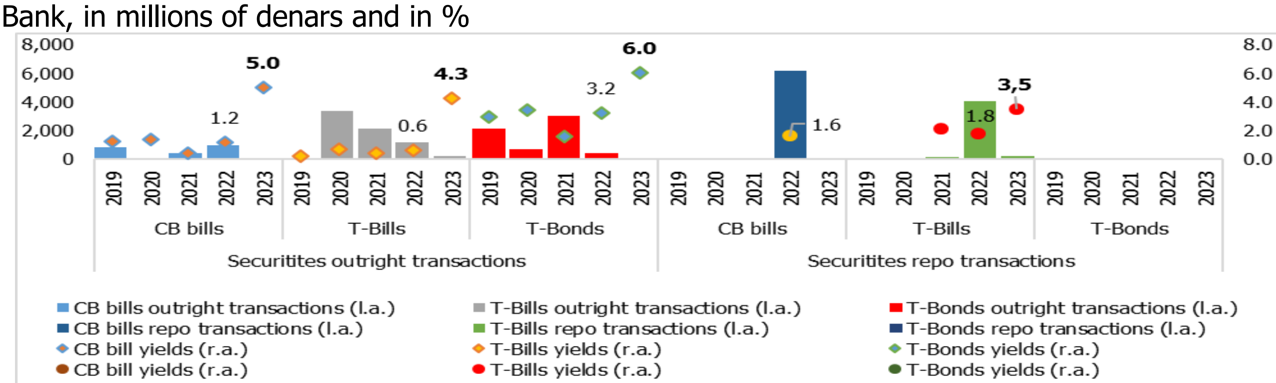
In 2023, for the needs of private and public entities, the Securities and Exchange Commission approved thirteen offers for new securities issues (two issues less than in 2022), totaling Denar

[21] The returns relate to government securities without FX clauses.
[22] The funds from the issued green bonds are allocated to a special account in the Energy Efficiency Fund, in the Development Bank of the RNM and are intended for support of the financing of green projects i.e. energy efficient projects and renewable energy sources for small and medium-sized enterprises.
[23] This bond was issued in accordance with the amendments to the Law on Financing of Local Government Units from 2022, [link to the press release of the Ministry of Finance](link).

4,384 million (Denar 5,633 million in 2022). From the total number of approved new issues, eleven were organized by way of a private offer (10 offers of new issues of ordinary shares and one offer of a perpetual bond[24]), and two were public offers for issuing municipal bonds, which were not organized[25]. The new securities issues which were organized on the Macedonian Stock Exchange in 2023 were entirely for recapitalization of joint stock companies, but their volume compared to the issues of government securities is very small, thus confirming that the private sector entities still rarely use the domestic financial market as a financing mechanism.

Trading on the secondary securities market organized by the National Bank in 2023 dropped significantly, while yields registered an increase. The turnover on this market segment in 2023 dropped by 97% on an annual basis and reduced to 0.05% of GDP (1.6% of GDP in 2022). Almost all transactions (91%) were with treasury bills, whereby part of them were concluded as outright transactions, with part of them being carried out on the repo segment. Amid higher level of interest rates on the primary securities market, the yields on the transactions in CB bills, treasury bills and government bonds on the secondary market were higher on an annual basis (by 3.8 percentage points, 3.7 percentage points and 2.8 percentage points, respectively).

Chart 23
Trading in securities and yields on the secondary over the counter market organized by the National Bank, in millions of denars and in %

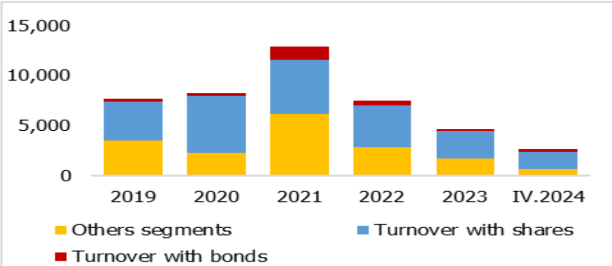


Source: National Bank.
Note: Secondary market returns are a weighted average of the transactions with the corresponding securities throughout the year, with the amount of individual transactions used as weight.

The trading on the Macedonian Stock Exchange continued to decrease. The stock exchange turnover[26] in 2023 was lower by 38% on an annual basis, mostly due to the lower standard trading in equity securities, and a smaller turnover was also realized through block transactions. The total stock turnover is still very small and in 2023 accounts for 0.5% of GDP (0.9% in 2022).

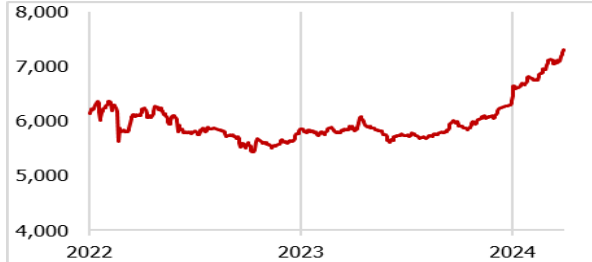
[24] It concerns approval of Universal Investment Bank AD Skopje for the third issue of 1,350 perpetual bonds with an individual nominal value of Euro 1,000 and a total nominal value of Euro 1,350,000.
[25] In 2023, for the needs of two local government units (Municipality of Štip and Municipality of Aerodrom), the Securities and Exchange Commission issued approvals for the issues of two long-term securities-municipal bonds by way of a public offer. They were not organized because the municipality borrowing was not approved by the Government of the Republic of North Macedonia, which according to the Law on Public Debt needs to approve the maximum borrowing of the local government units.
[26] The turnover contains the trading in shares, bonds including the turnover realized through block transactions, public offers of securities and public stock exchange auctions. Starting from 8.1.2019, continuous government bonds are listed on the official market of the Macedonian Stock Exchange.

Chart 24
Market segments of the Macedonian Stock Exchange
in millions of denars and in %



Source: Macedonian Stock Exchange AD Skopje.

Chart 25
Movement of the MBI-10, in index points



Source: Macedonian Stock Exchange AD Skopje.

The reduced interest in equities in 2023 was registered amid increase of the interest rates on government securities, which are considered risk-free instruments, but also increase of the interest rates on bank deposits. An additional factor was also the taxation of capital gains from trading in securities, which was introduced from the beginning of 2023[27].

The MBI-10 increased by 8.2% on an annual basis. Within the index[28], the most significant annual growth was registered in the prices of shares of three banks, which were also among the most traded shares of MBI-10. Most of the transactions on the Macedonian Stock Exchange are still among domestic investors, while the share of foreign investors on the purchasing and selling side remains small and equals 3.39% and 3.45%, respectively (in 2022, these shares equaled 5.79% and 2.72%, respectively).

Table 2
Statistical indicators of secondary trading on the domestic capital market

Data and Indicators	2019	2020	2021	2022	2023
Total turnover - conventional trading and block transactions (in millions of denars)	7,701	8,196	12,854	6,997	4,618
Total turnover - conventional trading (in milions of denars)	4,178	5,965	6,737	4,633	2,890
Total turnover of conventional trading / GDP (in %)	0.6	0.9	0.9	0.6	0.3
Annual change of total turnover (in %)	-26.0	6.4	56.8	-45.6	-34.0
Turnover of conventional stock' trading (in millions of denars)	3,819	5,681	5,395	4,151	2,688
Turnover of conventional bond' trading (in millions of denars)	359	284	1,342	460	184
Turnover of conventional stock' trading / Total turnover (in %)	49.6	69.3	42.0	59.3	58.2
Turnover of conventional bond' trading / Total turnover (in %)	4.7	3.5	10.4	6.6	4.0
Average monthly turnover (in milions of denars)	642	683	1,071	620	385
Average monthly number of transactions	1,573	1,891	1,721	1,440	998
MBI - 10 as of last trading day in the year	4,649	4,705	6,153	5,652	6,116
Annual change of MBI - 10, in %	34.0	1.2	30.8	-8.1	8.2
Market capitalization of qouted stocks, as of year end (in millions of denars)	181,279	179,009	218,251	207,586	224,205
Market capitalization of quoted stocks / GDP (in %)	26.3	27.0	30.2	26.1	26.7
Market capitalization of all stocks (quoted and stocks of compnaies with special reporting obligation) / GDP (in %)	26.9	27.6	31.0	27.0	27.5

Source: Macedonian Stock Exchange AD Skopje.

[27] Law amending the Law on Personal Income Tax published in the Official Gazette of the RNM No. 274/22.
[28] MBI-10 includes the prices of ordinary shares issued by: Komercijalna Bank AD Skopje, Granit AD Skopje, Alkaloid AD Skopje, Makpetrol AD Skopje, Makedonijaturist AD Skopje, Macedonian Telecom AD Skopje, NLB Bank AD Skopje, Stopanska Bank AD Skopje, TTK Bank AD Skopje and UNI Bank AD Skopje.

1.3. Real estate market (residential and commercial buildings)

During 2023, there was a gradual slowdown in the growth of real estate prices after the high growth in the previous year. On the supply side, the increase in apartment prices was determined by the high growth of labor cost in construction, while the growth of material costs dropped significantly and passed in a decline in the second half of the year, which contributed to the declining dynamics of the growth of apartment prices. On the demand side, housing lending continued to slow down amid tighter credit conditions and higher interest rates on newly approved loans, but it is still maintained at a solid level at growth rates of about 10%. More than half of the traded real estate is still supported by housing lending provided by banks. The total value of the traded real estate during the year decreased compared to the previous year, and growth of the value was registered only in traded houses. The supply of new apartments continued to increase as a result of the increased number of buildings under construction, but the growth is slower due to the significantly smaller number of issued permits for the construction of apartments in 2022.

Risks to financial stability associated with the housing market mainly arise from the uncertain future movement of apartment prices and the future development of consumer prices. Such risks are currently limited due to the high profitability and adequate capitalization of banks, and the National Bank will continue to closely monitor the real estate market and to take appropriate macro-prudential measures if necessary to preserve financial stability. In this regard, the National Bank adopted preventative macro-prudential measures aimed at the quality of credit demand which started to be applied in mid-2023, and whose aim is to mitigate the risks of excessive indebtedness of households and the risks associated with the real estate market as factors that may affect the materialization of credit risk in banks' balance sheets.

1.3.1. Residential real estate market

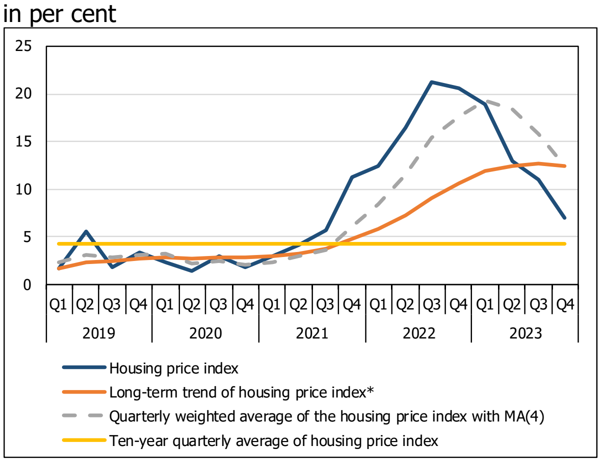
The high growth of the prices of residential buildings[29] on the Macedonian real estate market continued in 2023, but at a slower pace compared to the previous year. The nominal annual price growth rate according to the index of apartment prices[30] amounted to 12.2%, and although it has been registering a double-digit value for the second consecutive year, it is by 5.6 percentage points lower than in 2022. The dynamics of the annual growth rates by quarters suggests a continued slowdown in growth, so the fourth quarter registered a one-digit growth rate of 6.9%. The real annual price growth rate amounted to 4.8%, which is a decrease compared to 2022 (8.1%), but it is still higher than the five-year and ten-year averages.

[29] According to the Nomenclature of Constructions and Construction Works, 2015 of the State Statistics Office, residential constructions are designated as residential buildings and this group includes: One-apartment buildings; apartment buildings; and community buildings.
[30] Housing price index is calculated on a quarterly basis by the National Bank using the Hedonic method (for more information see Davidovska-Stojanova B., Jovanović B., Kadievska-Vojnović M., Ramadani G., and Petrovska M., (2008). "Real Estate Prices in the Republic of Macedonia, Working Papers, NBRM.) The index calculation uses the prices advertised by real estate agencies and includes only apartments on the territory of the City of Skopje.

Unlike the slower growth of the prices of residential buildings in our country, the prices in the other European countries fell, i.e. in 2023 the average annual fall in the prices of apartments in the European Union and in the euro area was 0.3% and 1.1%, respectively. The average growth in the member states of the European Union from Central and Southeastern Europe (EU-CSEE) on an annual basis equals 5.4% and is also significantly lower than the growth rate of the Macedonian real estate market, with Croatia being an exception where a double-digit growth rate of apartment prices compared to 2022 was registered. The real price growth in the Macedonian real estate market is also above the average in the EU-CSEE countries.

Chart 26
Annual housing prices growth rates

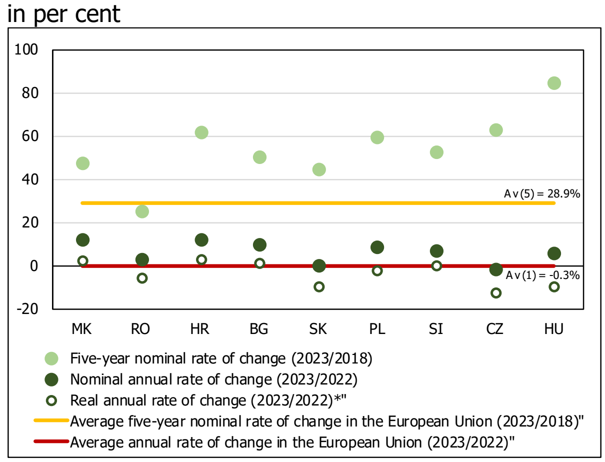
in per cent



Source: National Bank calculations.
* Calculated using a one-sided Hodrick-Prescott filter and λ = 400,000 for the period Q1 2014 – Q4 2023.

Chart 27
Housing price growth rate in selected European countries

in per cent



Source: National Bank and National Bank calculations based on Eurostat data.
* Calculated with the inflation rate for comparability.
Notes: Abbreviations: North Macedonia (MK), Romania (RO), Croatia (HR), Bulgaria (BG), Slovakia (SK), Poland (PL), Slovenia (SI), Czech Republic (CZ) and Hungary (HU).

The volume of transactions in apartments registered an annual decrease amid prolonged period of high growth of apartment prices and net tightening of credit conditions. In 2023, the total value of traded apartments decreased by 4.2% on an annual basis compared to the growth of 4.0% in the previous year. However, rapid annual growth was registered in the value of transactions in houses of 18.5% compared to the growth of 10.3% in the previous year. Moreover, the average price of traded apartments on the entire territory of the country[31] in 2023 reached Denar 48,318 per m^2, while the average price of traded houses was Denar 7,793 per m^2.

[31] The average price of traded apartments is the ratio between the total trade based on the purchase and sale of apartments and the total area (in m^2).

Chart 28
Construction costs

annual growth rate in per cent

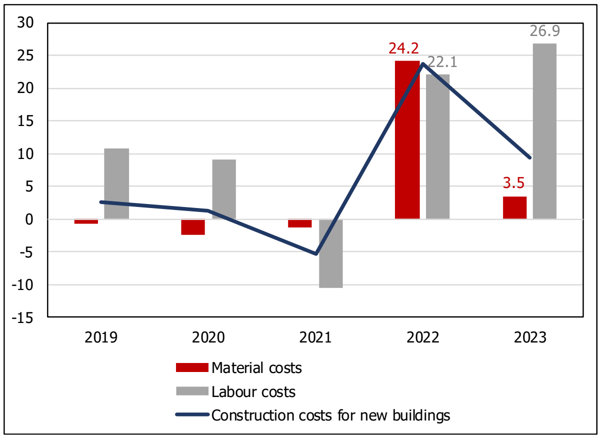
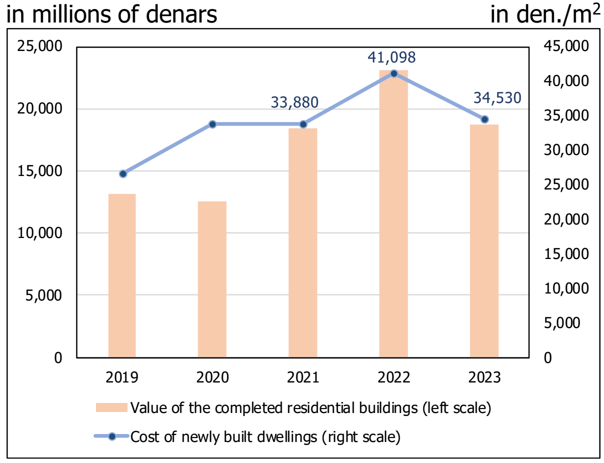


Chart 29
Value of completed residential buildings and cost price

in millions of denars in den./m²



Source: Calculations based on data from the State Statistical Office.

The high construction costs amid further increase in the profit margins of construction companies are an important factor on the supply side which affects the growth of apartment prices. On the other hand, the smaller growth of material costs has a mitigating impact on the level of apartment prices. The total costs for the construction of new residential buildings in 2023 increased by 9.4% on an annual basis, which is a decrease of 14.3 percentage points compared to the growth in the previous year. This growth was driven by the increased labor costs, which increased by 26.9% and maintained the dynamics of high double-digit growth throughout the year. Such growth is almost entirely a reflection of the annual growth of the net wages of construction workers involved in the construction of buildings of 26.2%. On the other hand, material costs increased by 3.5% on an annual basis, which was entirely due to the growth in the first half of the year, while the second half of the year registered a reduction of these costs. Material costs registered slower growth amid a decline in the price of traded building land[32] by 32.7% compared to 2022, which returned to the level of 2021. As a result, the cost price[33] of newly built apartments per square meter in 2023 fell by 16.0% and returned to the level of 2021.

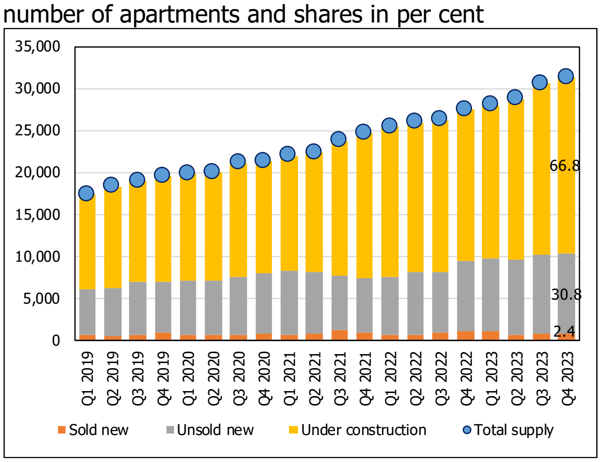
The supply of new apartments continued to increase mainly as a result of the growing number of residential buildings under construction. The average supply of new apartments[34] in 2023 was 29,684 apartments, which is by 12.8% more compared to 2022, but

[32] The average price of traded building land is the ratio between the total trade based on the purchase and sale of building land and the total area (in m²).
[33] The cost price of newly built apartments per square meter is a derived indicator, which is calculated as a ratio between the value of completed residential buildings and the area of completed apartments (in m²) during the year.
[34] The total supply of new apartments consists of the number of new constructions sold during the year, the number of new constructions unsold and the number of buildings under construction. According to the methodology of the Real Estate Cadastre Agency (RECA), new constructions sold are apartments with a title deed sold by an investor; and the buildings under construction are apartments that have been pre-marked according to the investor's building permit, but the construction has not yet been completed and the title deed has not been issued. From the fourth quarter in 2022, the RECA no longer publishes data on the number of unsold new constructions, which are apartments with a title deed that have not yet been sold by an investor. Hence, the number of new constructions unsold starting from that period was made under the assumption that their share corresponds to the moving average of the quarterly shares in the last five-year period.

represents a slight slowdown compared to the previous annual growth rate of 13.3%. This increase is almost entirely due to the growing dynamics of apartments under construction and unsold apartments, while the number of sold apartments registers a minor increase. However, the growth of the number of apartments under construction slowed down and was driven by the significant reduction of the number of apartments for which construction permits have been issued in 2022 compared to 2023. As a result, the average share of apartments under construction in the total supply in 2023 was 66.4% (68.3% in 2022). The absorption rate[35] as a measure for the level of sale of the supplied apartments in 2023 equals 26.7% on an annual basis and is lower than the previous year due to the reduced sale of apartments from the second to the fourth quarter of the year. Accordingly, the average period of sale of constructed supplied apartments increased to 3.7 years compared to 2022 when it was 3.3 years.

Chart 30
Supply of new apartments

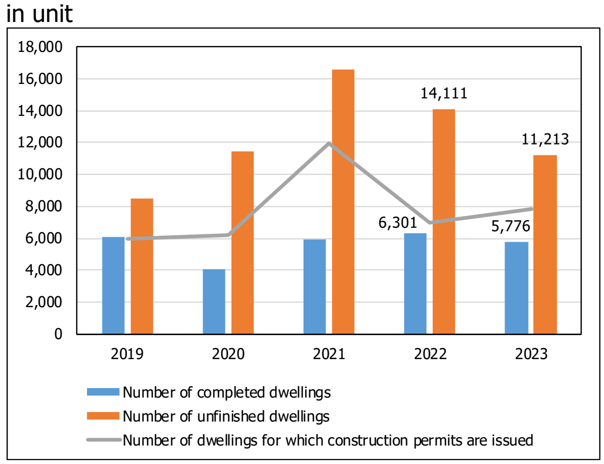
number of apartments and shares in per cent



Source: National Bank calculations based on data from the State Statistical Office and the Real Estate Cadastre Agency.
Note: From Q4 2022, due to lack of data, the number of new constructions unsold is determined in accordance with the moving average of the quarterly shares in the last five-year period.

Chart 31
Housing construction status and issued building permits

in unit



Source: State Statistical Office and National Bank calculations, based on data from the State Statistical Office.

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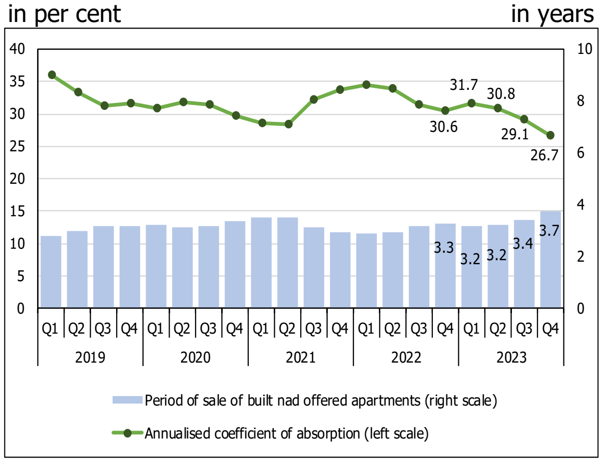
[35] The absorption rate is the ratio between the number of new buildings sold and apartments under construction sold and the total number of supplied apartments. Since there is no data on the number of sold apartments under construction, i.e. pre-marked apartments, an assessment was made that buildings under construction are sold at the same rate as completed new buildings.

Chart 32
Absorption rate



Source: National Bank calculations based on data from the Real Estate Cadastre Agency.

In terms of financing of the demand for apartments, housing loans continued to increase at a slower pace amid prolonged tightening of credit conditions. Household loans for the purchase of residential property in 2023 on average from the quarters increased by 10.6% on an annual basis, which is by 2.8 percentage points lower growth rate than in the previous year. Total newly approved housing loans in 2023 have been declining for the second consecutive year, but at a slightly slower pace than in the previous year. Such movements mainly occur in conditions of tightening of the banks' credit conditions and increase in interest rates[36]. However, housing lending is an important source of financing of the purchase and sale of apartments, so around 54.6% of the total value of traded apartments and houses in 2023 was financed by newly approved housing loans[37], which is an increase of 2.6 percentage points compared to 2022. Housing loans are the highest-quality segment of the banks' loan portfolio at a rate of non-performing loans of 0.5%.

Housing loans for the purchase of a dwelling apartment predominate in the structure of total housing loans with an average share of 72.8% for 2023, which increased compared to the average for 2022, while a smaller portion of the housing loans are intended for the purchase of an apartment for other purpose.[38] The rate of non-performing housing loans in both types of housing loans – for the purchase of a dwelling apartment and for other purpose – is equal to and stands at 0.5%.

[36] Bank Lending Surveys in the fourth quarters of 2023.
[37] Newly approved housing loans also include refinancing.
[38] The calculations for the structure of housing loans by purpose and accordingly, the rates of non-performing loans by purpose are made on the basis of data submitted by 11 banks.

Chart 33
Newly approved housing loans and interest rates
in millions of denars in per cent

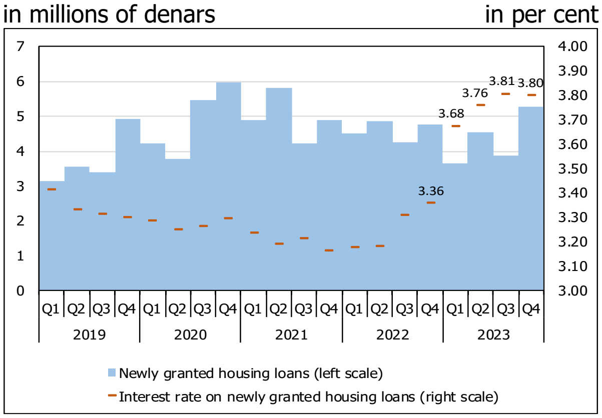
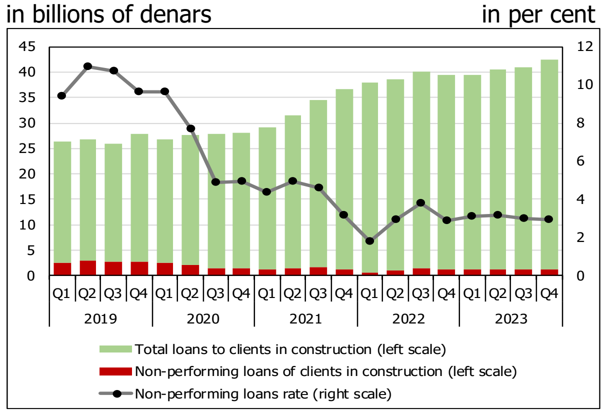


Chart 34
Loans to the construction sector and related activities
in billions of denars in per cent



Source: National Bank.
Note: Newly approved housing loans also include refinancing.

Banks are cautious with regards to the collateral of housing loans because the value of the LTV ratio is lower than the prescribed level of 85%. The average LTV indicator for 2023 equals 64.1%, which is a decline by 0.5 percentage points compared to the average for 2022. Most of the total credit exposure (44.5%) is on the basis of housing loans whose LTV ratio ranges from 50 to 75% (in the third quartile)[39]. The structure according to LTV of non-performing housing loans[40] is similar. Banks' prudence in relation to the application of the LTV ratio provides greater security in terms of dealing with possible losses in conditions of a shock of a significant reduction of real estate prices.

Chart 35
Movement of the LTV ratio of housing loans

in thousands of denars

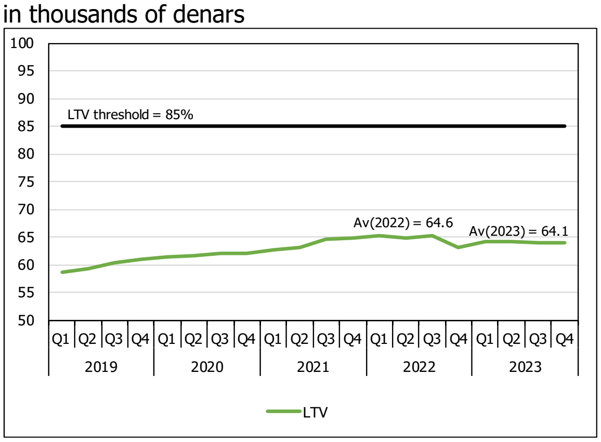
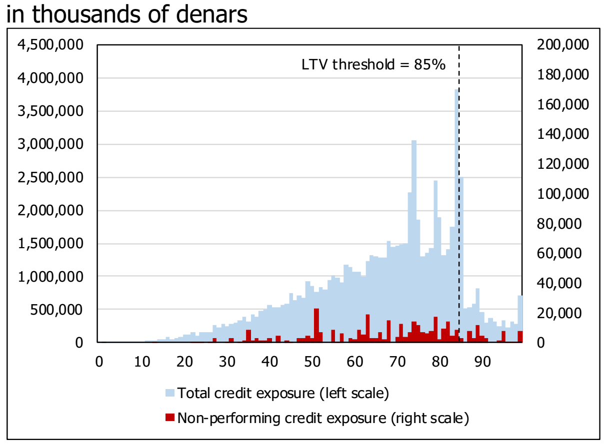


Chart 36
Credit exposure on the basis of housing loans by intervals of the LTV ratio
in thousands of denars



Source: Credit Registry of the National Bank.

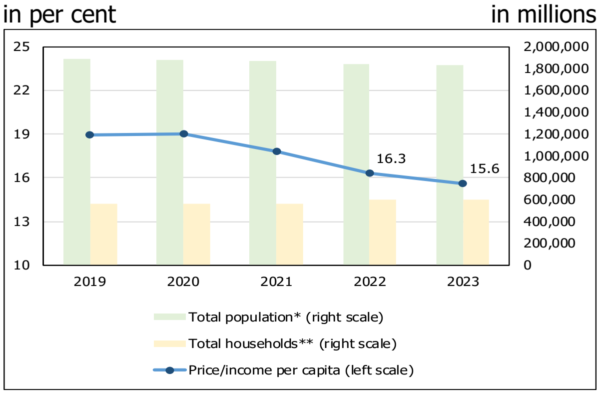
[39] The calculations are made on the basis of the data on housing loans whose LTV ratio ranges from 0 to 100% and whose credit exposure accounts for 86.2% of the total credit exposure. For the other credit exposures, the LTV ratio exceeds 100%.
[40] Within the non-performing housing loans, the bulk or 86.3% are with a LTV of over 50%, while this share in total housing loans is slightly lower and amounts to 82.6%.

In terms of the financing of the supply of apartments, there was significant slowdown in the growth in the loans to the construction sector, which is more pronounced than in housing lending. Loans to construction (including the activities related to real estate) in 2023 on average increased by 4.7% on an annual basis, which is by 14.3 percentage points less than the average growth rate in the previous year. The dynamics of the annual growth by quarters is volatile and shows signs of acceleration in the last quarter of the year. At the end of 2023, the rate of non-performing loans equaled 2.9% and remained unchanged compared to the end of the previous year.

The apartments in the Macedonian economy remain less available compared to the member states of the European Union. The availability of apartments is measured by the ratio of the apartment price per square meter and the disposable income of households[41] (price-to-income ratio), which in 2023 equals 13.6%, which is above the average for EU-CSEE, the European Union and the euro area, i.e. it is worse compared to these countries. Compared to the countries of the EU-CSEE, the availability of apartments on the Macedonian real estate market is better than that in the Czech Republic and Hungary. Price-to-income per capita[42] ratio in 2023 was 15.6%.

Chart 37
Housing availability indicator

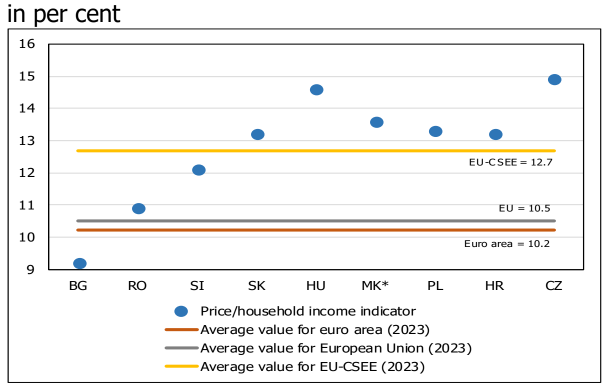
in per cent | in millions



Source: National Bank calculations based on data from the SSO.
* National Bank forecasts.
** Data from the census in 2002 for the period 2019-2021 and from the census in 2021 for the period 2022-2023.

Chart 38
Comparison of the housing availability indicator (price/income) with selected countries

in per cent



Source: Numbeo and National Bank calculations.
* National Bank calculation.

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[41] The smaller the level of this indicator, i.e. the smaller the share of the price per м2 in the disposable income per household, the greater the availability. The disposable income per household is the product of the disposable income per capita and the average number of employed persons per household, and the average number of employed persons per household is the quotient of the total number of employed persons and the total number of households. The average number of employees per household calculated in this way per year is as follows: 1.41 for 2019, 2020 and 2021, 1.16 for 2022 and 1.15 for 2023. Moreover, it should be noted that in 2021 there is a structural interruption due to the publication of data from the census in the same year, and these data are used for revision of the number of employees during 2022, therefore the calculated values of the derived indicators are not fully comparable to those in the previous years.

[42] The price-to-income per capita is a ratio between apartment price per square meter and the disposable income per capita.

Market to fundamental value of apartments[43] ratio on average for 2023 suggests that domestic apartment prices are overestimated, although the overestimation level registered a decrease compared to the previous year. According to the static borrowing capacity[44], the market value of apartments on average for 2023 was overestimated by 10.1%, which is a decrease of 1.7 percentage points compared to the average overestimation for 2022, but it is still above the overestimation of 4.4% in 2021. The results according to the dynamic borrowing capacity point to a higher average overestimation by 15.0% in 2023. These findings are the result of the prolonged increase in apartment prices and the growth of the interest rates on newly approved housing loans. They indicate that apartments with an average market value are not available to households with average disposable income given the current market conditions. In other words, apartments with an average market value are available to households with income above the average, while other households are forced to switch to apartments with a market value lower than the average value, i.e. with a lower price per square meter or with a smaller area.

Chart 39
Movement of the market and fundamental value of apartments
in denars

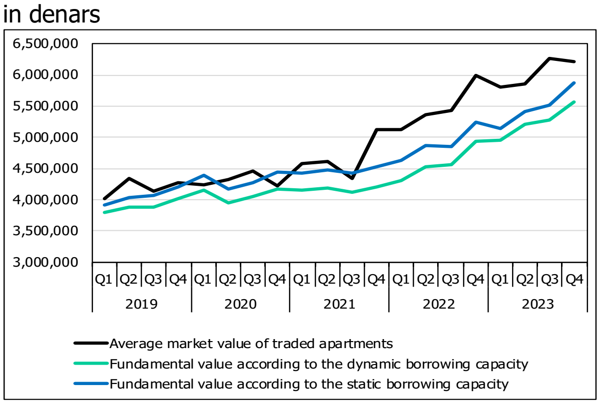
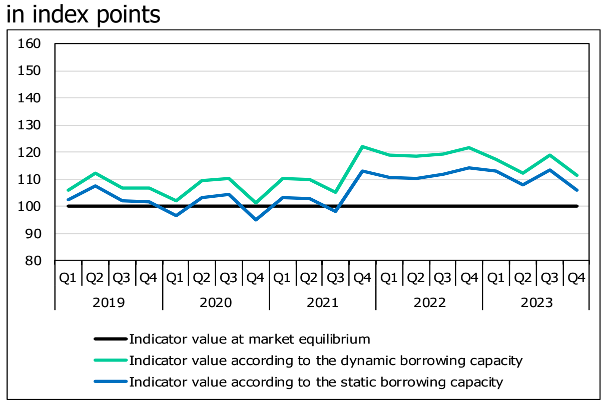


Chart 40
Ratio of the market and fundamental value of apartments
in index points



Source: Authors' calculations based on data from real estate agencies.

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[43] Market to fundamental value ratio AHI_t is an index calculated as

$$AHI_t = \frac{V_t}{F_t} \times 100$$

where V_t is the market value of apartments, and F_t is the fundamental value of apartments. The market prices of apartments are overestimated when $AHI_t > 100$, the market prices of apartments are underestimated when $AHI_t < 100$ and the apartment market is in balance when $AHI_t = 100$. The fundamental value of apartments F_t is calculated as

$$F_t = Y_t \frac{\bar{\alpha}_t}{\lambda_t} \frac{1 - r_t^{12s_t}}{r_t^{12s_t}(1 - r_t)},$$

where Y_t is the average disposable income of households, $\bar{\alpha}_t$ is the upper limit of the DSTI ratio, λ_t is the value of the LTV ratio, r_t is an interest rate factor calculated with an average interest rate of newly approved housing loans, and s_t is the average period of repayment of the housing loan (more details in Simeonovski, K.; Ramadani, G.; Unevska Andonova, D. (2023). Assessment of the fundamental value of apartments on the Macedonian real estate market. Working papers, NBRNM.)

[44] The static borrowing capacity aims to lay down a requirement for availability of the housing in the period of approval of the housing loan and therefore takes into account the market movements in that time period, while the dynamic borrowing capacity aims to determine the highest amount of a housing loan that the household can receive and will thereby be able to repay the loan during the entire repayment period (more details in Simeonovski, K.; Ramadani, G.; Unevska Andonova, D. (2024). Assessment of the fundamental value of apartments on the Macedonian real estate market. Working papers, NBRNM.).

Apartment prices are influenced by the ratio of the supply and demand, which do not point to a significant market disequilibrium. However, risks to financial stability associated with the housing market are present and arise from the uncertain future movement of apartment prices, as well as the geopolitical developments that can affect the future development of consumer prices. In addition, the latest data show a new acceleration in the growth of real estate prices, with the growth reaching 11.5% in the second quarter of 2024. However, the materialization of these risks is currently limited because the banks are profitable and adequately capitalized in order to absorb the risks, and the adoption of the macro-prudential measures in the area of the countercyclical capital buffer and the quality of credit demand further strengthen the resilience to shocks not only of banks, but also of borrowers. In the upcoming period, the National Bank will continue to closely monitor the real estate market movements and risks, and stands ready to take appropriate macro-prudential measures if deemed necessary to preserve financial stability.

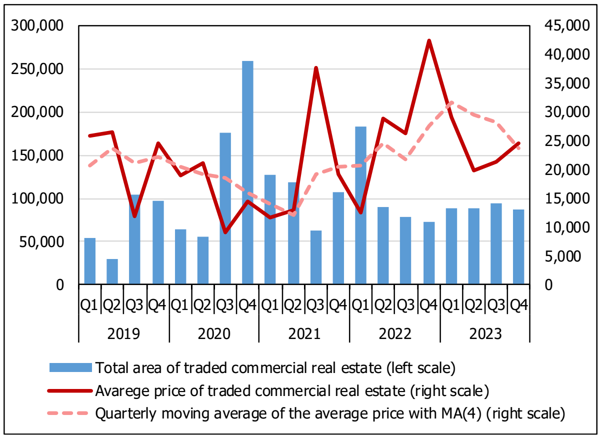
1.3.2. Commercial real estate market

The prices of commercial properties[45] in 2023 remained at the level of the previous year amid reduced demand and lower total turnover. The average price of traded commercial properties in 2023 was Denar 23,720 per m^2 and is by 0.3% higher than the average price in 2022. The total area of traded commercial properties decreased by 15.7% and is lower compared with the previous three years, with a similar decline in the total value of traded commercial properties. Due to the absence of data for the purpose of corporate loans, loans for the purchase of commercial property are not analyzed as a possible factor on the demand side for the downward movements in the total amount of traded commercial properties[46].

The supply of commercial properties registered no major changes in terms of the value of completed constructions. The total value of completed non-residential buildings in 2023 decreased by 0.4%. The total number of newly issued permits for the construction of non-residential buildings has been declining for the second consecutive year, although the decline is significantly smaller compared to the previous year. By types of commercial properties, the fall is most pronounced in office buildings and buildings in wholesale and retail trade. However, the total planned area of the constructions for which the building permits have been issued increased mainly as a result of the growth in the planned industrial buildings and warehouses.

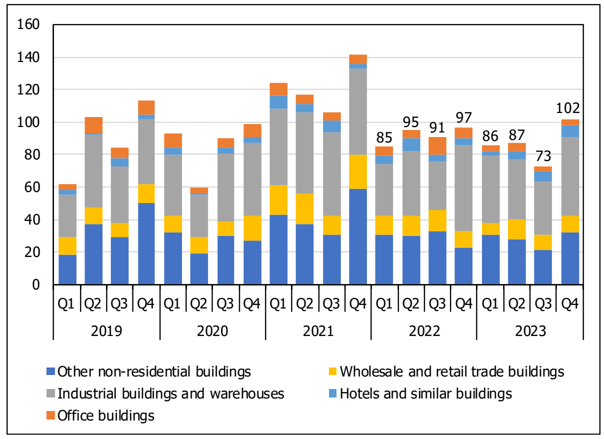
[45] According to the 2015 Nomenclature of Constructions and Construction Works of the State Statistics Office, commercial constructions are designated as commercial buildings and this group includes: hotels and similar buildings; office buildings; buildings in wholesale and retail trade; buildings for traffic and other communications; industrial buildings and warehouses; public entertainment, educational, hospital or institutional care buildings; and other non-residential buildings.
[46] The available data on household lending for purchase of commercial offices reveals that the share of these loans in total household loans as of 31.12.2023 is insignificant (about 0.4%) and historically stable, so the movements of this market segment are not a representative indicator to draw conclusions.

Chart 41
Total number of traded commercial properties and average prices
in m^2 in denars



Source: Real Estate Cadastre Agency and National Bank calculations based on data from the Real Estate Cadastre Agency.

Chart 42
Issued non-residential building permits
in unit



Source: State Statistical Office.

The importance of the commercial real estate market for the financial stability results from the significant share of loans secured by commercial property in total loans and the underdevelopment of this market. At the end of 2023, the credit exposure on the basis of loans secured by commercial property accounted for 38.4% of the total credit exposure, which is a slight decline compared to the end of the previous year. The share of corporate loans secured by commercial property amounted to 72.8%, while in household loans it accounted for 7.8%. The underdevelopment and insufficient liquidity of the domestic commercial real estate market as well as the lack of data for this market hampers its analysis, but it remains significant for financial stability, especially taking into account the trends in the European Union where the commercial real estate market registered a sharp decline.

1.4. Climate risks

The exposure of the banking sector to physical climate risks in 2023 largely stems from the significant share of the banks' credit activity in the areas assessed with a high level of risk of natural disasters. Moreover, about three quarters of the companies with debt in banks have a main office in these areas, and an additional source of exposure to physical risks is the high share of loans secured by material collateral (movable and immovable property) which are located in these areas. Also, the level of exposure to physical risks varies depending on the activity of the company, so the activities related to real estate, catering, construction and the energy sector have a higher exposure to physical risks. However, the possible losses from the materialization of physical risks are mitigated due to the higher coverage of the total credit exposure of banks with the value of the collateral.

The main source of transition climate risks is the banks' exposure to clients in the sectors with high greenhouse gas emissions, such as the energy-intensive sectors and the sectors that depend on solid fuels, which makes the companies in these sectors sensitive to national and international climate policies and measures. The energy-intensive sectors predominate in the manufacturing industry, and the emissions from these sectors are mostly indirect, which means that they result from the emissions in the dependent sectors through the value chains. An additional source of transition risks can be the rising prices of solid fuels, and the importance of these risks is evident because the greatest dependence on solid fuels is that of the sectors related to wholesale and retail trade to which banks have a significant credit exposure.

1.4.1. Physical risks[47]

The banks' credit exposure in the areas with a high level of risk of natural disasters at the end of 2023 amounted to around Denar 408 billion and accounted for 79.4% of the total analyzed credit exposure[48]. If the potential exposure to risk of natural disasters[49] is analyzed, it is slightly lower (below 100%) only for river floods (94.2%) and for the landslides (99.4%) because, for certain areas in the country, these natural disasters are assessed with a very low risk level. The average risk level is the highest for wildfires because the entire territory

[47] In this analysis, physical risks includes natural disasters, except in the analysis of the expected rate of lost value of the pledged real estate, which in addition to natural disasters also covers earthquakes.

[48] Only the credit exposure to residents for whom the municipality where they have reported residence or main office is known, which amounts to 97.9% of the total credit exposure to all clients (residents and non-residents), is taken into account.

[49] The potential exposure to risk of natural disasters $PEAR$ represents the part of the total credit exposure which is in the areas with low, medium or high risk level (only the credit exposure in the areas with a very low risk level is not taken into account) and is calculated with the formula

$$PEAR = \frac{\sum_{i=1}^{N}\left(EXP_i|RS_j(j>0)\right)}{\sum_{i=1}^{30} EXP_i},$$

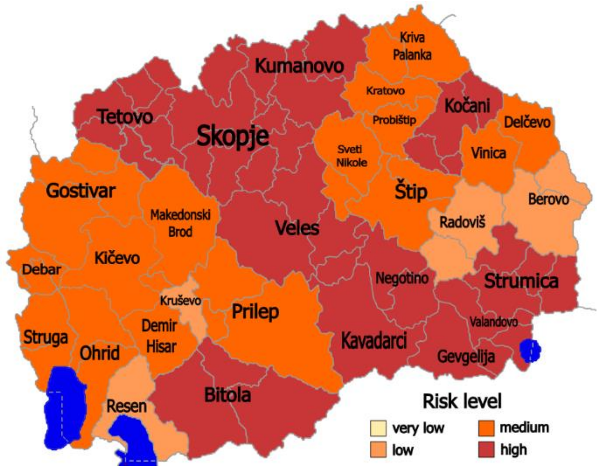
where i is the sign for the client, $j \in [0,3]$ is the risk level, EXP_i is the credit exposure and RS_j is the risk assessment calculated as

$$RS_j = \frac{\sum_{i=1}^{30} EXP_{i,j}}{\sum_{i=1}^{30} EXP_i}.$$

is exposed to high risk of this natural disaster, whereas it is lowest in the case of water scarcity and in those areas 38.4% of the credit exposure are placed.

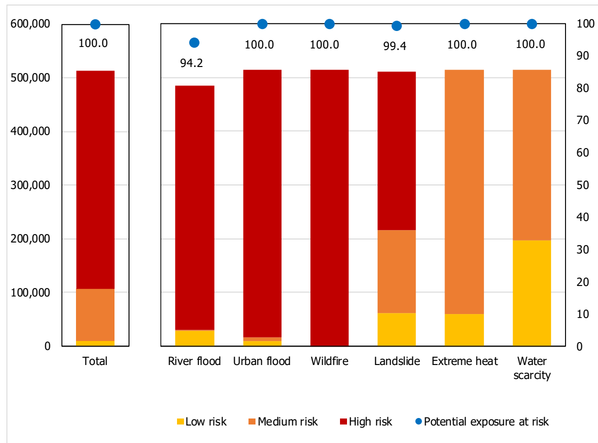
Banks' exposure to physical risks is more pronounced in companies, but the exposure is also high in households. The credit exposure to the corporate sector in the areas with a high level of risk of natural disasters accounted for 83.2% of the total credit exposure to this sector, while the share of households was 75.1%.

Chart 43
Map of areas according to the average level of risk of natural disasters[50]



Source: National Bank based on ThinkHazard cards.

Chart 44
Credit exposure for different risk levels by natural disasters



Source: National Bank.

About three quarters of the total number of companies with debt in banks at the end of 2023 were located in areas with a high level of risk of natural disasters. The fixed assets of these companies amounted to around Denar 825 billion and accounted for 49.1% of the total assets, which means that the other half of the assets is in the areas with a lower risk.

Banks' exposure to physical risks is the highest to the companies in the activities related to real estate, which was evident from the share of the credit exposure in the areas with a high level of risk of 95.1%, with a high share being registered in the energy sector (91.9%). In the sectors where the banks' credit exposure is the highest (wholesale and retail trade, and manufacturing industry), a significant portion of the companies are located in the areas with a lower level of risk and thus the banks' exposure to physical risks is lower.

[50] Natural disasters that are taken into account are the following: urban floods, rural floods, wildfires, landslides, extreme heat and water scarcity. The average risk level by city is set on the basis of the reference value calculated as the average of the risk levels for the individual natural disasters in the cities. The values for different risk levels are 0 for very low, 1 for low, 2 for medium and 3 for high risk. If the calculated average value for the risk level is from 0.00 to 0.75, then the risk is very low; if it is from 0.76 to 1.50, then the risk is low; if it is from 1.51 to 2.25, then the risk is medium; and if it is from 2.26 to 3.00, then the risk is high.

Chart 45
Credit exposure by sector and level of risk of natural disasters
in millions of denars in per cent

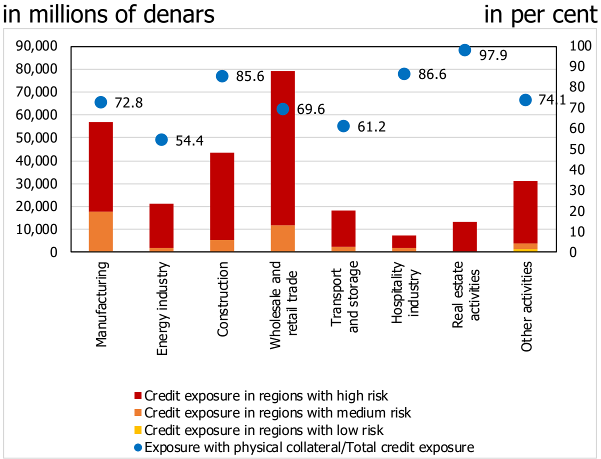
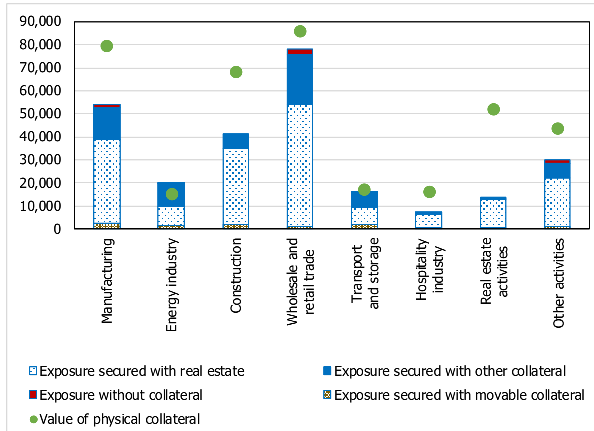


Chart 46
Credit exposure by sector and type of collateral
in millions of denars



Source: National Bank.

An additional source of exposure to physical risks is the high share of the credit exposure secured by immovable and movable property (material collateral). At the end of 2023, the exposure secured by material collateral accounted for 73.1% of the total credit exposure, while the value of material collateral was 91.2% of the total value of the collateral of corporate loans. Within the exposure with material collateral, the credit exposure secured by real estate has a dominant share (94.9%), with a similar ratio of the value of the pledged real estate in the value of material collateral (95.1%). Analyzed by individual sectors, the share of the credit exposure with material collateral is the highest in the activities related to real estate, catering and construction. However, the losses from the possible materialization of physical risks would be mitigated because the total value of material collateral is about 40% higher than the total credit exposure. In addition, this ratio is significantly more pronounced in the sectors with credit exposure in the areas with a high level of risk, so the value of material collateral in the real estate activities is almost four times higher than the credit exposure, and in transport and storage it is more than double.

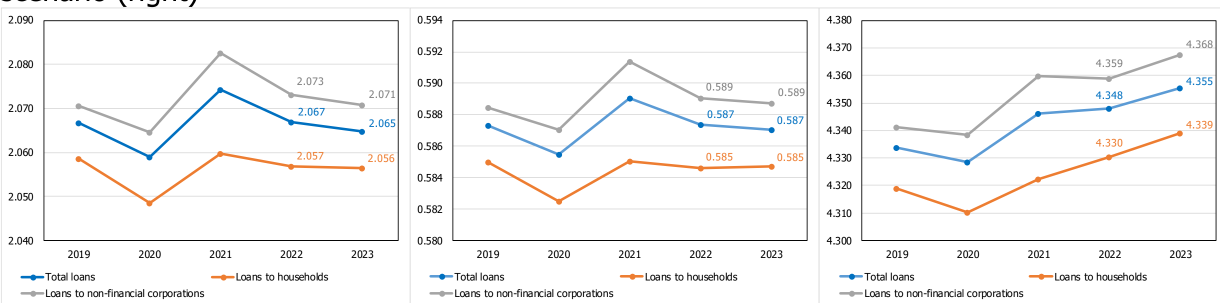
The expected loss ratio of pledged real estate as a result of materialization of the physical risks[51] for the entire country equals 2.065% in 2023 and registers slight decrease compared to the preceding year. This ratio is determined to large extent by the expected loss ratio of the pledged real estate in Skopje and its surrounding area (2.163%), because the largest part of the value of the collateralized real estate is located in that area (58.9%), but this share has decreased compared to 2022, when it was 60.2%. Under the optimistic scenario[52], the expected loss ratio remains unchanged on an annual basis and it equals

[51] The methodology for calculating the expected loss ratio on the pledged real estate as a result of materialization of the physical risks has been elaborated in detail in Finacial Stability Report in RN Macedonia in 2022. For the purposes of determining this rate, physical risks include the risk of earthquakes in addition to the climate risks. The degree of earthquake risk is medium on the entire territory of the country.

[52] An optimistic scenario includes reducing the degree of risk in each area by one degree and reducing the expected frequency of natural disasters and earthquakes. The pessimistic scenario assumes an increase in the degree of risk by one degree and an increase in the expected frequency of natural disasters and earthquakes.

0.587%, while under the pessimistic scenario, it increases and equals 4.355%. The expected loss ratio is somewhat higher for the pledged real estate for loans extended to enterprises (2.071%) than to households (2.056%).

Chart 47
Expected loss ratio on real estate in case of baseline (left), optimistic (middle) and pessimistic scenario (right)



Source: National Bank.

The analysis of the exposure of the enterprises to floods by applying damage functions

This analysis aims to investigate the impact of floods on the operations of enterprises that are bank borrowers. The procedure consists of the following steps: 1) determining the expected loss ratio through damage functions, 2) calculation of the expected loss ratio for the remaining loan repayment period and 3) calculation of normalized flood risk exposure and collateral-adjusted flood risk exposure as measures of expected losses in bank portfolios[53].

1) The flood damage function maps the maximum loss ratio for various flood depths. Huizinga et al. (2017)[54] have defined damage functions for several damage classes that refer mainly to continental areas. Loss ratios are given for nine flood depths (from 0 to 6 meters). This analysis takes into account the damage functions for residential, commercial and industrial buildings that refer to Europe. Since damage functions use nine flood depths, they were matched with the four degrees of risk in the following way: very low (0-0.5 m), low (1-1.5 m), medium (2-3 m) and high risk (4-6 m). The loss ratio for each risk grade is calculated as the average of the loss ratio for the corresponding depths.

2) The expected loss ratio for residual repayment period of the loans $EL_l(m)$ is calculated using to the formula

$$EL_{l,p}(m) = \left[1 - \left(1 - EL_{l,p}\right)^m\right],$$

where l indicates the real estate location which is pivotal for the risk degree, p is the type of real estate (damage class) to which the damage function applies, m is the residual maturity of the loan, and EL_l is the loss ratio for the corresponding type of real estate and the degree of risk according to the location.

3) The normalized exposure to flood risk $NEAR$ is calculated as

$$NEAR = \frac{\sum_{i=1}^{N}(FRR_i \cdot EXP_i)}{\sum_{i=1}^{N} EXP_i},$$

where i denotes the clients, EXP_i is credit exposure and FRR_i is financial risk coefficient, which is calculated as

$$FRR_i = \frac{FA_i}{TA_i},$$

where FA_i denotes all fixed assets of the client[55], and TA_i denotes the total assets of the client. The exposure to collateral-adjusted flood risk $CEAR$ is calculated as

$$CEAR = \frac{\sum_{i=1}^{N} \max\{0, LEXP_i - CV_i\}}{\sum_{i=1}^{N} EXP_i},$$

where $LEXP_i$ is anticipated credit loss calculated as

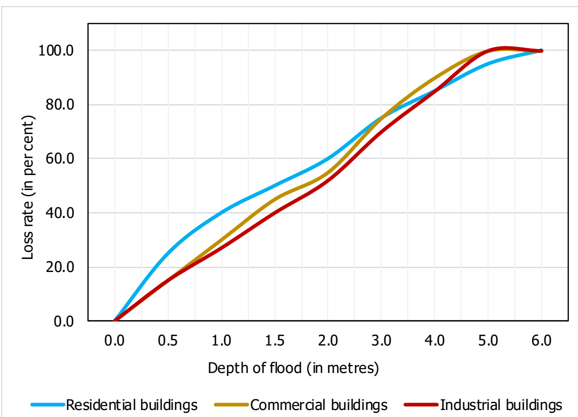
$$LEXP_i = EXP_i \cdot FRR_i \cdot EL_{l,p}(m),$$

and CV_i is the collateral value with which the bank can recover the credit losses, which is calculated by the formula

$$CV_i = \sum_{c=1}^{C} CVF_c + \sum_{c=1}^{C} [1 - EL_{l,p}(m)] CVP_c,$$

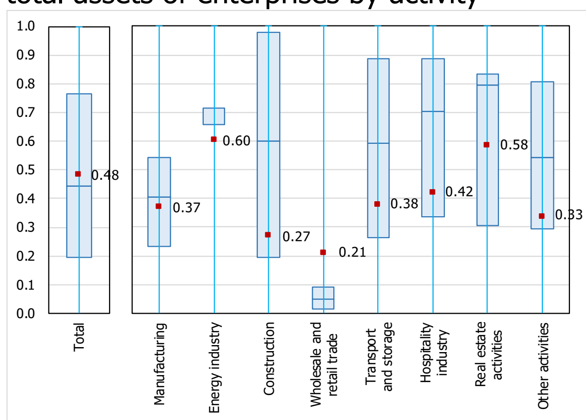
where c denotes the credit party, CVF_c is the value of the financial collateral of the credit, while CVP_c is the value of the tangible security of the credit.

Chart 48
Damage function curves by real estate type



Source: Huizinga et al. (2017).

Chart 49
Distribution of the share of fixed assets in total assets of enterprises by activity



Source: National Bank based on data submitted by the Central Registry.
Note The calculations were performed based on the data only for the enterprises for which there is available data pertaining to 2023.

The normalized risk exposure at the end of 2023 is 0.07%, which actually indicates the expected credit losses of banks as a result of floods. The agricultural sector significantly stands out with the highest normalized exposure of 2.82%, and a high normalized exposure of 0.60% was registered in the mining sector as well. The values of the risk exposure indicator adjusted

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[53] More details on the calculation of these measures of anticipated losses are given in the Statistics Committee Expert Group on Climate Change and Statistics and Working Group on Securities (2024). "Climate change-related statistical indicators". *ECB Statistics Paper Series No 48*.
[54] Huizinga, J., de Moel, H., Szewczyk, W. (2017). "Global flood depth-damage functions. Methodology and the database with guidelines". *Publications Office of the European Union*. doi: 10.2760/16510.
[55] Total fixed assets taken as a rough measure of assets held by enterprises exposed to physical risks in the absence of data on tangible fixed assets.

for the collateral are somewhat lower, so the expected credit losses would equal 0.06% of the banks' portfolios.

1.4.2. Transition risks

The banks' credit exposure to clients in the Climate Policy Relevant Sectors[56] in 2023 registered an increase of 6.8%, while the share of the exposure to these sectors increased to 56.6% (54.8% in 2022). Construction is a climate sensitive sector taking the highest share of 19.4%, followed by transport, energy-intensive sectors and utility services. **The banking sector is exposed to the transition risks of climate-related changes through credit exposure to clients in sectors with high greenhouse gas emissions.** Emissions of enterprises can be divided into three groups as follows: direct emissions (Scope 1), energy-related emissions (Scope 2) and indirect emissions (Scope 3). Having in mind that energy consumption is the main factor for greenhouse gas[57] emissions, enterprises with high energy intensity are of particular interest. At the end of 2023, 67.6% of the credit exposure in the mining sector and 48.8% of the credit exposure of the manufacturing industry were to energy-intensive sectors. At the same time, 93.8% of the credit exposure to energy-intensive sectors or about Denar 28.5 billion account for activities in the manufacturing industry, which represents 10.3% of the total credit exposure to enterprises. Emissions in the manufacturing industry mainly belong to Scope 3, that is, they arise from related activities through the value chains, and are therefore influenced by changes in consumer preferences as well as climate-related policies and measures. Having in mind that the exposure to manufacturing industry exceeds 20% of the total credit exposure to enterprises, the exposure to enterprises in these industrial activities represents a significant source of transition risks from climate change. However, it should be taken into account that precise conclusions cannot be drawn without calculating the emissions per enterprise in these activities, as well as the total emissions in Scope 3 of the entire value chain, due to the lack of adequate data on emissions per enterprise.

The increased prices of solid fuels can be a source of risk for the sectors that depend on them, and their prices can further rise considering the commitments to achieve the global climate goals. The wholesale and retail trade activities depend the most on solid fuels as of the end of 2023, and about 13.0% of the credit exposure in these trade activities accounts to activities that depended on solid fuels. This finding can represent a significant source of risk for financial stability considering that about 30% of the total credit exposure of banks to enterprises accounts for wholesale and retail trade customers.

[56] Climate Policy Relevant Sectors are considered important when implementing the climate-related policy and they is determined based on a classification presented in Battiston, S., Mandel, A., Monasterolo, I., Schütze, F., & Visentin, G. (2017). A climate stress-test of the financial system. *Nature Climate Change*, 7(4): 283–288. https://doi.org/doi:10.1038/nclimate325.

[57] The latest available data on the greenhouse gases for Macedonia are as of 2019. Long-term trends in the emissions data up to 2019 and the forecasts of future greenhouse gas emissions indicate that energy consumption is the largest contributor.

Chart 50
Connecting the basic economic with the climate sensitive activities
in per cent

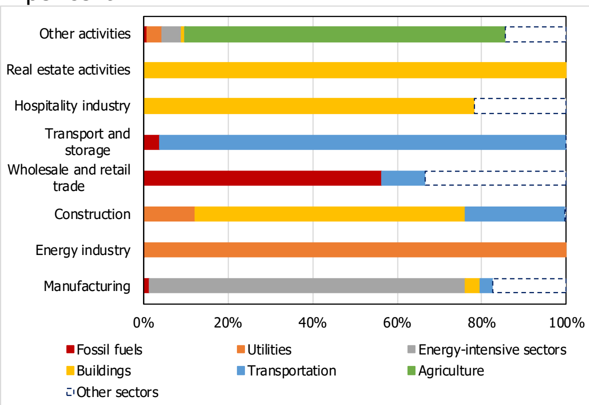
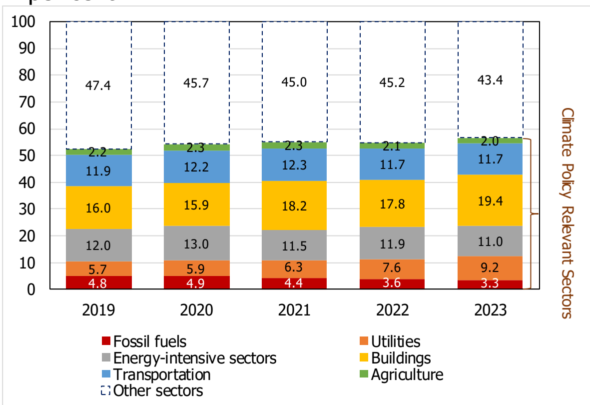


Chart 51
Credit exposure structure by climate-related sensitive activities
in per cent



Source: Credit Registry of the National Bank.

Transition paths for the Network for Greening the Financial System scenarios until 2050

This section analyzes the expected movements of the transition paths for different climate scenarios projected by the Network for Greening the Financial System until 2050. Transition paths have been made for several countries in the world, but this section lists only those that refer to RN Macedonia. The transition paths are made for four hypothetical climate scenarios, such as: 1) Net Zero 2050, 2) Delayed Transition, 3) Current Policies and 4) Fragmented World.

1) Net Zero 2050 is a climate scenario that belongs to the Orderly scenarios (low physical and low transition risks) and assumes the complete eradication of carbon dioxide emissions on a net basis by the middle of the 21st century.
2) Delayed Transition is a climate scenario that belongs to the Disorderly scenarios (low physical and high transition risks) and indicates delayed implementation of measures and insufficient commitment in fulfilling the obligations arising from the Paris Agreement.
3) Current Policies are a climate scenario that belongs to the Hot house world scenarios (high physical and low transition risks) and refers to the implementation of certain policies to deal with climate change that are not sufficient to halt significant global warming.
4) Fragmented World is a climate scenario that belongs to Too little, too late scenarios (high physical and high transition risks) and assumes delayed and divergent climate policies.

The transition paths time frame for the scenarios is 2020-2050 with a five-year frequency, so the projected movements are for the period 2025-2050, and 2020 is used as the reference starting point. Transition paths are created from forecasts generated using the REMIND-MAgPIE model[58].

The average surface temperature is expected to increase further in all four scenarios, with the increase being most pronounced in the Current Policies scenario. The impact of policies for global warming prevention would come to the fore after 2035, indicating that the necessary measures are long-term ones. Moreover, in the Net Zero 2050, the average surface temperature in the analyzed period would increase by 0.46 °C and reach 10.93 °C, which is a significant slowdown in temperature growth compared to other scenarios. On the other hand, in the Current Policy scenario, the average surface temperature would increase to 11.35 °C. The increase in the average temperature in the future is a source of physical risks, so taking timely measures to prevent global warming is important to mitigate possible losses.

Chart 52
Average surface temperature

in per cent

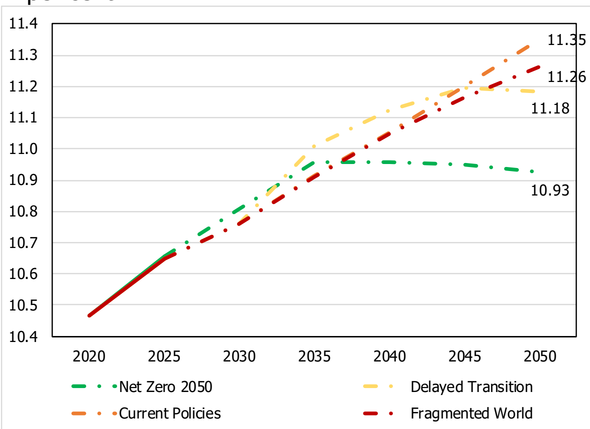
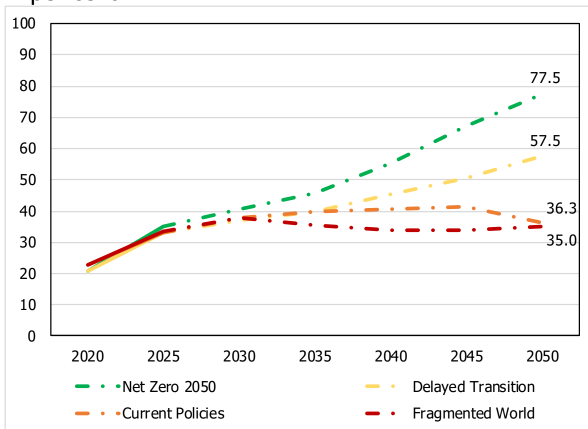


Chart 53
Share of the primary energy production from renewable sources in the gross primary energy production
in per cent



Source: Greening of the Financial System Scenario Portal (2023) and Scenario Browser in Phase 4 of the Network for Greening of the Financial System (2023).

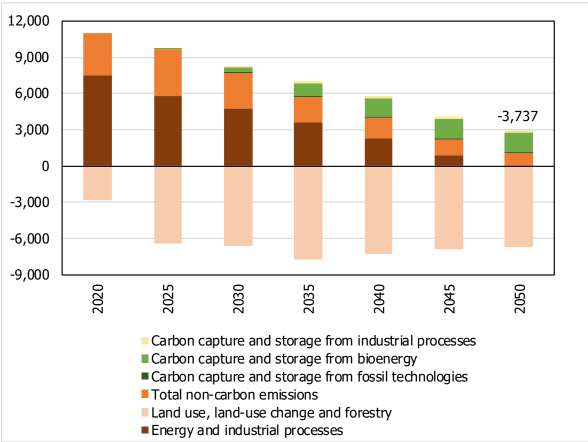
Gross primary energy production is not expected to change significantly and by 2050, it would remain at a similar level to 2020 in all scenarios, except for the Net Zero 2050 scenario where it is expected to slightly decline. However, significant differences between the scenarios occur in terms of sources used for energy production. In the Net Zero 2050 and Delayed Transition scenarios, more than half of total gross primary energy production in 2050 would be from renewable sources, while this share would register significantly smaller growth in the Current Policy and Fragmented World scenarios.

[58] „REMIND-MAgPIE" is a combination of abbreviations for the energy-economic model "REMIND", i.e. Regional Model of Investment and Development and the agricultural production model MAgPIE, i.e. Model of Agricultural Production and its Impact on the Environment.

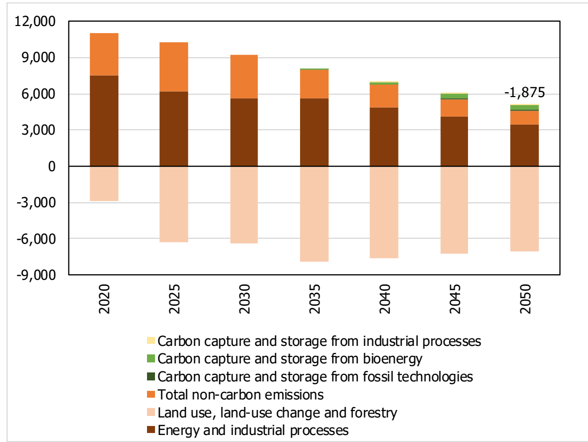
Chart 54

Structure of greenhouse gas emissions in the Net Zero 2050 scenario

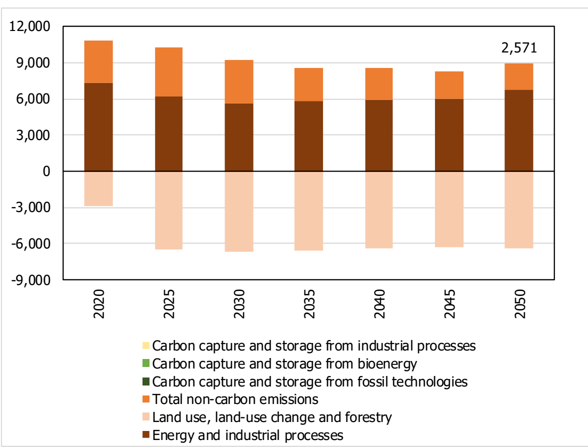
in gigagrams of CO_2 equivalents



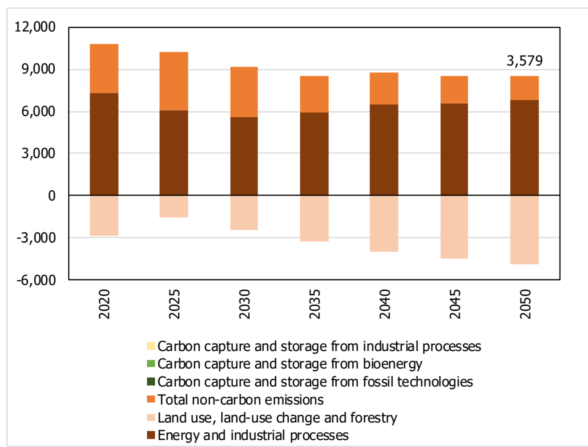
Structure of greenhouse gas emissions in the Delayed Transition scenario



Structure of greenhouse gas emissions in the Current Policy scenario



Structure of greenhouse gas emissions in the Fragmented World scenario



Source: Greening of the Financial System Scenario Portal (2023) and Scenario Browser in Phase 4 of the Network for Greening of the Financial System (2023).

Greenhouse gas emissions are expected to decline in all four scenarios mainly due to the increased positive contribution of forestry and other land uses. However, the long-term goal of net zero emissions by 2050 would only be achieved in the Net Zero 2050 and Delayed Transition scenarios where gradual reductions in energy and industrial process emissions, as well as non-carbon emissions are projected. In addition, these two scenarios assume the implementation of measures to introduce the process of carbon capture and storage[59] so that part of the emissions would fall to this process in the Net Zero 2050 scenario

[59] Carbon capture and storageis a process whereby a relatively clean stream of carbon dioxide (CO_2) from industrial sources is separated, processed and transported to a long-term storage site (IPCC, 2021). Annex VII: Glossary [Matthews, J.B.R., V. Möller, R. van Diemen, J.S. Fuglestvedt, V. Masson-Delmotte, C. Méndez, S. Semenov, A. Reisinger (eds.)]. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M.

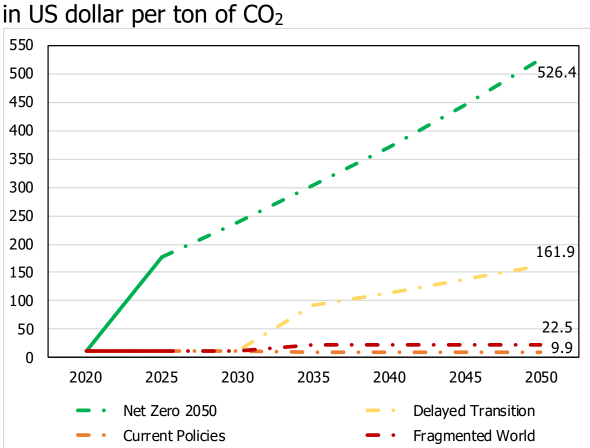
after 2025 and in the Delayed Transition scenario after 2035. Under the Current Policies and Fragmented World scenarios, non-carbon emissions are projected to slightly decrease by 2050, but emissions from energy and industrial processes are expected to remain at 2020 levels.

The price of carbon intensity is expected to be affected by the introduction of a carbon tax and the successfulness in implementing this measure. The Net Zero 2050 scenario assumes that such a tax would be introduced as soon as possible and its level would lead to a significant increase in the carbon price. In the Delayed Transition scenario, it is assumed that the tax would be introduced by 2030, after which the carbon price would start to increase, but at a slower pace than in the Net Zero 2050 scenario. The effects of introducing a carbon tax in the remaining two scenarios would be minimal, so the projected price in the analyzed period would remain almost unchanged.

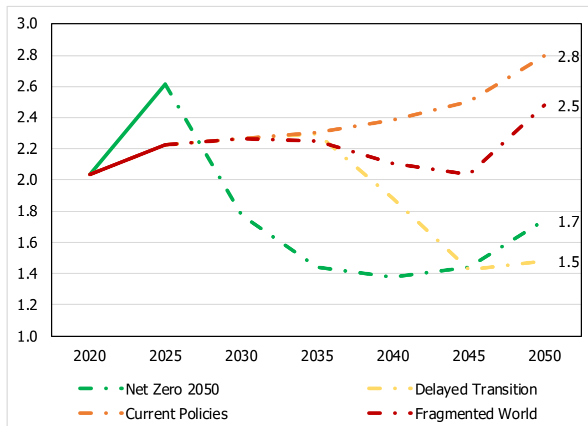
Chart 55

Carbon price movement

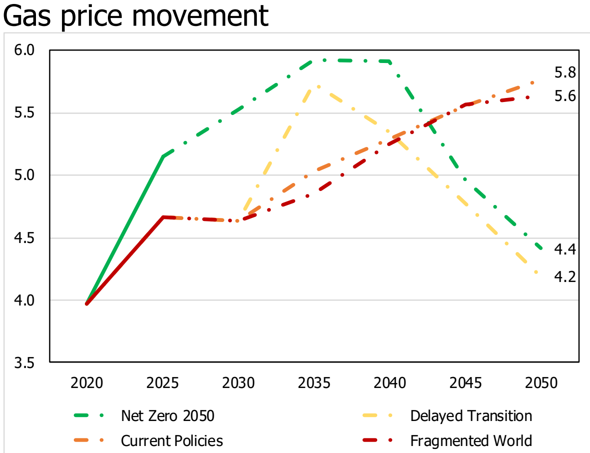
in US dollar per ton of CO_2



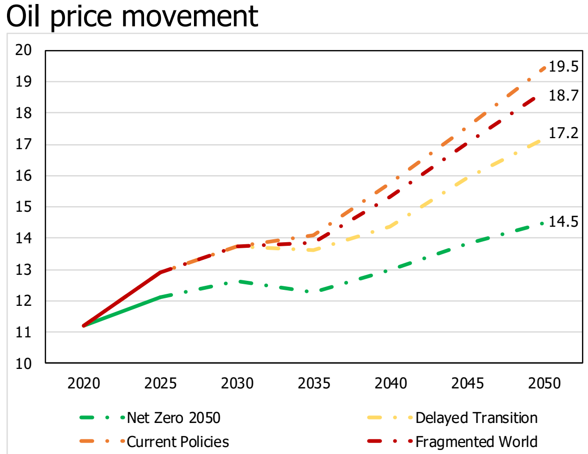
Coal price movement



Gas price movement



Oil price movement



Source: Greening of the Financial System Scenario Portal (2023) and Scenario Browser in Phase 4 of the Network for Greening of the Financial System (2023).

Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 2215–2256, doi: 10.1017/9781009157896.022.).

The projected price movements of solid fuels mainly follow different dynamics in different periods and under different scenarios, which is not only a result of the implementation of climate policies, but also of the demand for these fuels in energy production. The Net Zero 2050 scenario assumes a more significant increase in the price of coal until 2025 followed by a downward trend because of the reduced demand for this solid fuel due to the projected decline in its importance in energy production. The oil price is expected to increase due to the rising costs of its depletion, and the price of gas is projected to register more pronounced growth due to expectations for strong global demand for gas. Hence, it is important that the implemented policies are designed in a way that will simultaneously ensure the energy transition and maintain a low inflation rate.

1.5. Household sector

In 2023 the risks to financial stability related to household sector remained moderate. The households' behavior was influenced by favorable macro environment, registering gradual inflation deceleration, although over historical average, with stable foreign exchange market, but also decelerated economic growth. Solvency and liquidity ratios of the household sector remain within the level, which has been characteristic for the several previous years, indicating limited sensitivity of the households sector to shocks, with a relatively limited systemic vulnerability of this sector, which can be seen from the level of the aggregate indicator for the systemic risk.

Disposable income in nominal amount, which is the basis for the sustainability of the household debt as a whole, as well as for generating savings, taking financial risks through investments and subsequent increase in the financial funds, although at slower pace, continued to grow in 2023, as well. There was also a nominal increase in the accumulated financial assets, with the households' tendency to invest in deposits with banks, as well as on the basis of paid contributions to private pension funds. Such movements, with an upward shift in interest rates on deposits, contributed to a stronger growth of household savings. Household deposits recorded an accelerated annual growth in 2023, which was mostly in denars. The changes in currency and maturity structure of household deposits in favor of the savings in domestic currency and on longer terms point to significantly improved and stable expectations of economic entities.

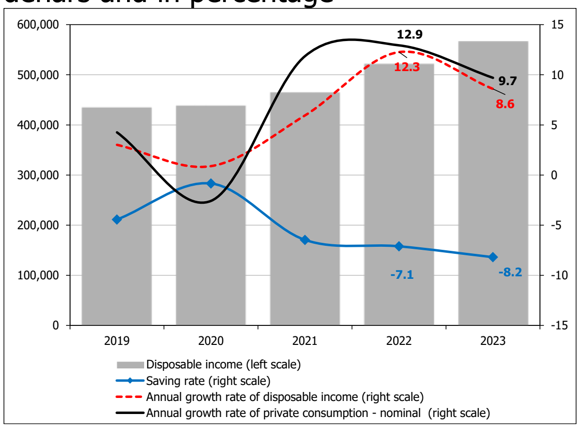
The household debt kept increasing registering faster growth rate, which was higher than the nominal GDP rate, however, the household debt ratio remained moderate and relatively stable at the level of about 30% of the GDP. The debt repayment indicators point to moderate risks to household creditors as well. Namely, in 2023, the credit risk from the household sector had no large impact on the quality of Macedonian banks' portfolios, which is still solid. In the households' credit portfolio, the rate of non-performing loans has been relatively low for a long time, and in 2023, it remained at the same level of 1.9%, as in the previous year. Household loans further grew, but in 2023 at a slightly slower pace compared to the last year. The new household borrowing is mainly in the form of long-term housing and consumer loans, where clients' creditworthiness is less certain. The careful monitoring of customers' creditworthiness, especially those that currently have higher level of indebtedness, have higher level of indebtedness and are more sensitive to environmental changes, remains to be on of the banks' priorities.

In order to contribute to the prevention of systemic risks accumulation in the household segment, including the real estate market, which could be realized in the form of credit losses at the banks, the National Bank in mid-2023, introduced macroprudential measures on the quality of the credit demand from natural persons that limit the amount of the DSTI indicators[60] (to 55% when approving a loan in

[60] DSTI indicates the ratio between repayment of liabilities based on loans and borrower's income on a monthly basis.

denars and 50% when approving a loan with a currency component) and LTV[61] (85% when approving a loan secured with a real estate). The purpose of the measures taken is to influence the quality of credit demand and prevent the excessive indebtedness of respective natural persons in conditions of price and interest rates growth. The bank data show that the level of the applied amount of DSTI and LTV indicators is relatively prudent and as of 31.12.2023 they are 34.3% and 67%, on average, respectively.

Chart 56
Disposable income, private consumption and savings rate of households, in million of denars and in percentage



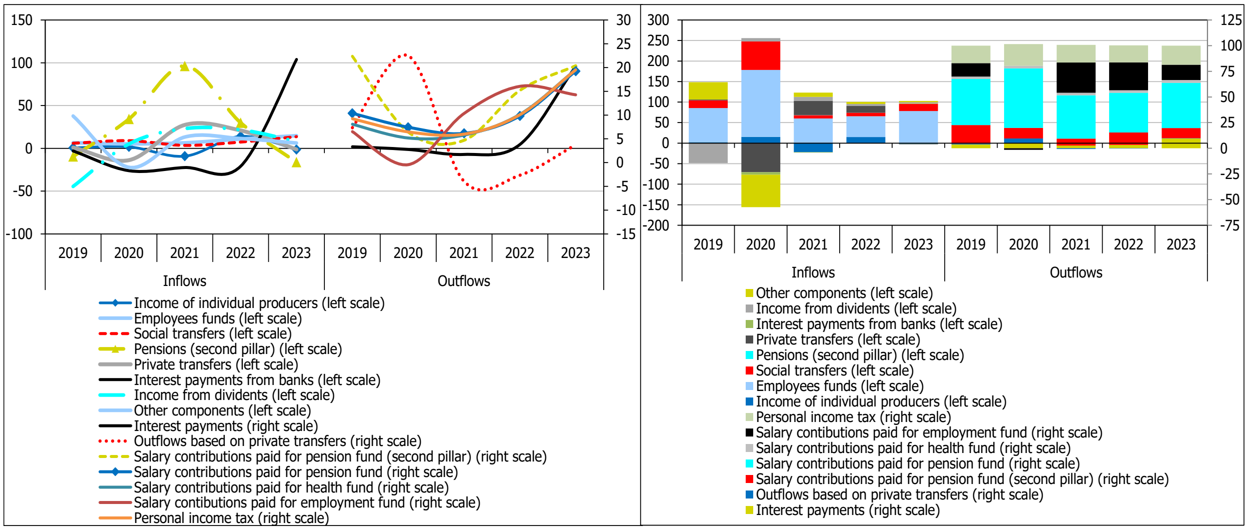
Source: National Bank calculations based on data from SSO, MF and CSD.

In 2023, **the annual increase in the nominal disposable income[62] of households sector decelerated** (from 12.3% in 2022, to 8.6% in 2023). The slowdown is mostly due to the more significant growth of wage contributions, as well as downward changes in private transfers. According to the individual components that form the disposable income, the largest contribution (over 50%) is made by the funds of employed persons, followed by social transfers and the income of individual producers (with a contribution of 13.9% and 11.4%, respectively). On the other hand, government expenditures occupy the largest part (almost 90%) of the total outflows that form the disposable income of the households sector. Thus, the growth of outflow components mainly stems from the higher amount of wage contributions, which is fully due to the intensified growth of the nominal average wage paid, amid increased minimum wage, as well as increase in the public sector wages[63]. The general growth in the minimum wage was driven by certain structural factors, such as lack of labor force in some labor market segments. However, in conditions of price growth during the

[61] LTV indicates the credit exposure to borrower-to-value of real estate pledged.
[62] Due to lack of data on disposable income in the official statistics, since 2007, the National Bank has been preparing an approximate data on the disposable income of households in the country, which is updated annually. For some of the components of disposable income for which there is no official data, estimates are made. Disposable income is the difference between the nominal amount of the estimated inflows and the outflows of cash to and from the household sector. Inflows include: gross amount of compensations of employees, income of individual producers, social transfers (pensions paid by the Pension and Disability Insurance Fund of North Macedonia, social welfare, unemployment benefits, sick pay compensations, etc.), second pillar pensions, private transfers from abroad, income from interests and from dividends, estimates for taxed income from other grounds (income from royalties and patent rights, income from property and property rights, realized capital gains, revenue from gains from games of chance and other prizes), income from regular repayments of denationalization bonds, interest payments from government securities and compensations of employees residents abroad. Outflows include: interest expenses, wage contributions for the Pension and Disability Insurance Fund of North Macedonia, for the second pension pillar, for the government health insurance, for unemployment insurance, private transfers to abroad and payments for personal income tax.
[63] In accordance with the latest amendments to the growth of the minimum wage (Official Gazette of the Republic of North Macedonia No. 58/23) from March 2023, the minimum net wage increased by Denar 2,175. The minimum gross wage, starting from March 2023 to February 2024, is Denar 29,739 (previously Denar 26,422), i.e. the minimum net wage is Denar 20,175 (previously Denar 18,000). In addition to the increase in the minimal wage in the economy (of 12.6% in March 2023), the annual wage growth mostly reflects the wage growth of the public sector employees, on several occasions during the yea (more details at the following linkr: https://vlada.mk/node/33942).

year, **the real growth rate**[64] of the disposable income halved also in 2023 and equaled 1.4% (3.2% in the previous quarter).

Chart 57
Annual rate of growth of components of inflows and outflows (left) and contribution of inflow and outflow components to the growth (right|), of disposable income
in %



Source: National Bank calculations based on data from SSO, MF and CSD.

The unspent part of the household disposable income, following the private consumption expenses, makes the household savings, which are the basis for calculating the rate of household savings[65]. In 2023, private consumption continued to increase, although at slower pace, primarily as a result of the growth in disposable income, credit support, as well as the government measures to support the economy and the living standard of households[66]. The faster growth of private consumption than the increase in the disposable income prevented full coverage of the private consumption with the disposable income. However, one should bear in mind that the disposable income is based on the National Bank estimations[67] and does not include estimation of the gray economy, so its allocation to private consumption and savings should be considered with caution. Thus, in 2023, a negative marginal propensity to save of the households sector is obtained, in circumstances of deposit growth of this sector with banks.

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[64] The real rate of change of the disposable income is adjusted by the private consumption deflator as an inflation measure.
[65] The rate of household saving is the ratio of the savings and the disposable income of households.
[66] In November 2023, the state's ninth set of measures worth Euro 662 million was adopted, which contained 26 support measures for vulnerable categories of citizens and companies, as well as support in conditions of increased and prolonged effects of the energy crisis. These measures covered 120,000 young people, over 74,000 socially vulnerable categories of citizens, over 187,000 pensioners, 40,000 farmers, almost 540,000 users of the My VAT application, 600,000 households and over 70,000 companies. This set also contains systemic measures that cover over 338,000 pensioners and 106,000 public sector employees in 2023 and 2024. By category, the package of measures intended for citizens, households and farmers is worth Euro 156 million. For more details, please visit the following link: https://vlada.mk/node/35289.
[67] Given that there is no officially published data on certain components of disposable income, the National Bank makes an assessment, which creates a possibility that the determined disposable income will not be comprehensive, which consequently affects the calculated savings rate.

Despite the gradual stabilization evident through the slowdown of inflation and the subsidence of inflationary pressures, in the next period, the environment risks will remain mainly related to inflation and economic activity, which can be reflected on the disposable income growth, and possible impacts also on private transfers from abroad. This may limit income flows for the households, especially those with lower income, which may affect household consumption and investment decisions, as well as the ability for regular debt servicing and use of part of the savings.

1.5.1. Financial assets of the household sector

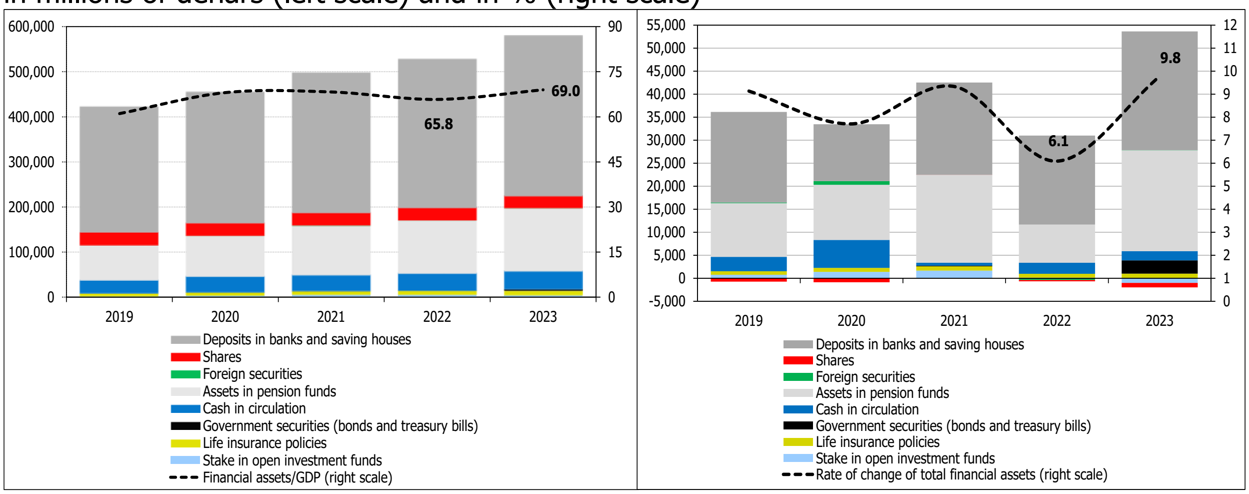
In 2023, financial assets of the household sector[68] continued to grow, yet at a faster pace compared to the previous year (increase of 9.8% as opposed to 6.1% in 2022). At the same time, the share of the financial assets of the household sector in the gross domestic product increased by 3.2 percentage points and reached the level of 69%. Most of the growth of financial assets resulted from household deposits in domestic banks and savings houses (a contribution of 49.9%), as well as investments in private pension funds (a contribution of 42.4%). Households are traditionally the most significant depositor in the Macedonian banking system and account for over 65% of the total bank deposits. In 2023, their funds invested in banks recorded growth (by Denar 25,730 million, or by 7.8%), which represents an accelerated growth compared to the previous year (when they increased by Denar 19,385 million, or by 6.3%). At the same time, the growth of denar deposits (from Denar 18,648 million, or by 11.9%) had the largest contribution (72.5%) in the annual increase of total household deposits The faster denar as opposed to foreign currency household deposits indicates preserved and enhanced confidence of the public in the banks and in the national currency, as well as recuperation of the deposit denarization process, which almost ceased during the preceding year due to higher uncertainty related to the initiation of the military conflict in Ukraine and the shock with the world primary products prices, especially energy products. In 2023, the favorable structural changes in savings are evident, in terms of both currency and deposit maturity. In conditions of growing returns and stable expectations, the household long-term deposits grew as well, after their long-lasting decrease, so their annual rate reached the record high of 25.7% in the last decade. These changes are supported by the changes in the reserve requirement instrument[69], which were aimed at increasing the denarization and deposit maturity.

[68] Clarification of some more specific components of financial assets: 1) cash in circulation - on the basis of the assessment that 80% of cash in circulation (outside of banks) is in households and is included in their financial assets; 2) domestic shares - the investments of resident natural persons in domestic shares are the sum of listed and non listed shares from domestic joint stock companies, at nominal value; 3) life insurance policies - the amount of the assets that cover the mathematical reserve on the appropriate cut-off date is taken as approximation for the claims of households on the basis of life insurance policies; 4) foreign securities - the stock of the investments of natural persons in foreign financial instruments is approximated through the difference between the inflows and outflows of the realized transactions, obtained through the notifications from the banks for the international payment operations.

[69] In 2023, the reserve requirement rate from liabilities in foreign currency increased from 19% to 21%, and the share of the reserve requirement in euros that is met in euros increased from 75% to 81%. In addition, the reserve requirement rate on liabilities in denars with FX clause also increased from 50% to 100%, and the banks will fulfill the reserve requirement for these liabilities in foreign currency. These changes in the reserve requirement, aimed at encouraging the saving in denars, and for the purpose of appropriate changes in the interest rate policy of the banks. Also in 2024 the National Bank will pursue with the measures regarding the reserve requirement, mainly directed towards further support of the denarization process of the banking sector and increaing the long-term saving in the banking system.

Households are net creditor of the domestic banking sector, while their positive net financial position[70] further strengthened during the year. This is due to the faster absolute deposit growth[71] compared to the growth of household debt[72] to banking sector. Household show a slight propensity to take market risks. Although, in the past years, amid low interest rates, there was a certain redirection of assets towards alternative financial instruments (such as voluntary pension funds, life insurance policies, stakes in open-end funds or foreign financial markets[73]), though increase in the investments in government bonds is registered (from Denar 14 million in 2022 to Denar 2,637 million in 2023), mainly in government civil bonds[74]. However, the share of these investments remains moderate compared to the bank deposits.

Chart 58
Financial assets of households (left) and annual growth of components (right)
in millions of denars (left scale) and in % (right scale)



Source: National Bank assessments and calculations based on data submitted by banks and savings houses, MF, CSD, MAPAS, SEC, ISA and SSO.

1.5.2. Household debt

In 2023, the trend of gradual increase in the household debt continued, which accelerated this year and equaled 8.4% (7.3% in the previous year). At the end of, the household debt to GDP, measured through the share of the total household debt in the gross domestic product, increased (by 1 percentage point compared to the end of the previous year)

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[70] Financial position of households to domestic banks is the difference between claims on domestic banks (deposits) and debt to domestic banks (loans). If the sector has excess financial assets, the net financial position is positive, i.e. the sector is a net creditor. If the sector has lack of financial assets, the net financial position is negative, i.e. the sector is a net debtor. According to this analysis, the household debt includes the loans that were subject to mandatory write-off as acquired by regulations.

[71] In 2023, household deposits grew by Denar 25,730 million or by 7.8%, which was higher compared to the growth in 2022 of Denar 19,385 million or by 6.3%.

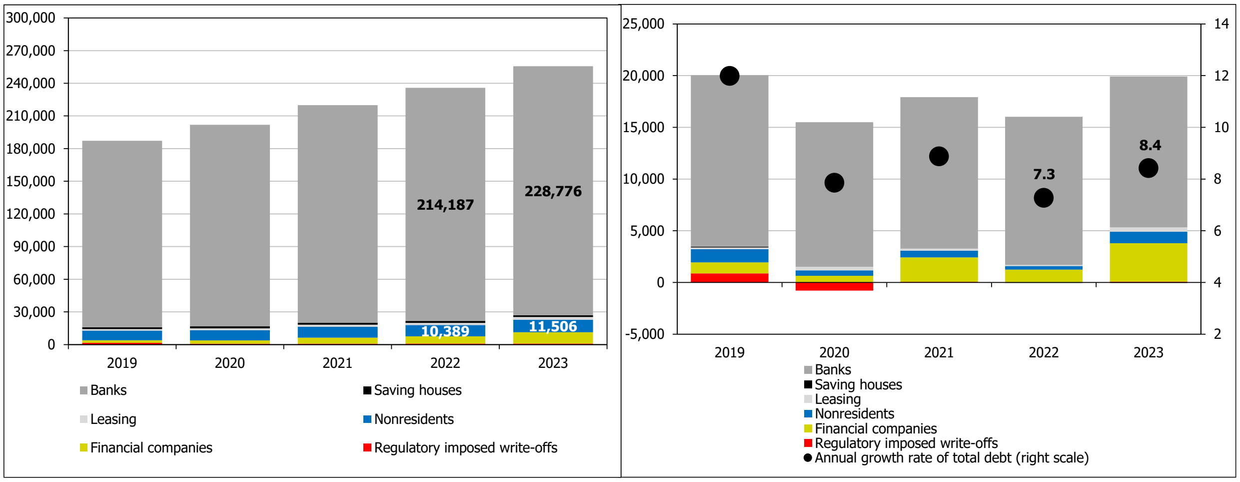
[72] The total household debt to domestic banks in 2023 increased by Denar 19,871 million, or by 8.4% compared to Denar 15,991 million, or 7.3% as it equaled in 2022.

[73] Investments of residents in financial instruments on foreign financial markets were enabled since early 2019 with the beginning of the second stage of the Stabilization and Association Agreement between our country and the EU.

[74] In 2023, apart from continuous government securities that are issued according to a regular procedure, households had the opportunity to invest in newly introduced bonds such as: Civil and green bond. More details on the maturity and interest on these bonds are stated under the title Financial markets.

and equaled 30.4% and it is at the level typical for countries with similar development levels, but lower than the developed countries and 30.4% and the derived vulnerability threshold[75].

Chart 59
Structure of household debt (left) and of the annual change in household debt (right)
in millions of denars and in %



Source: National Bank Credit Registry based on data submitted by banks, savings houses, MF, CSD, MAPAS, SEC and ISA.

In 2023, the household debt to almost all creditors[76] increased, yet it remained driven by the debt to domestic banks[77], which dominates the total household debt (with a share of 89.5%) and determines more than 70% of the total household debt. In 2023, there was a significant growth of the debt to financial corporations. However, their share in the total household debt remains low (around 4%), and does not indicate any vulnerability at the level of the total households, but can be a significant risk to some household categories with higher debt to income ratio.

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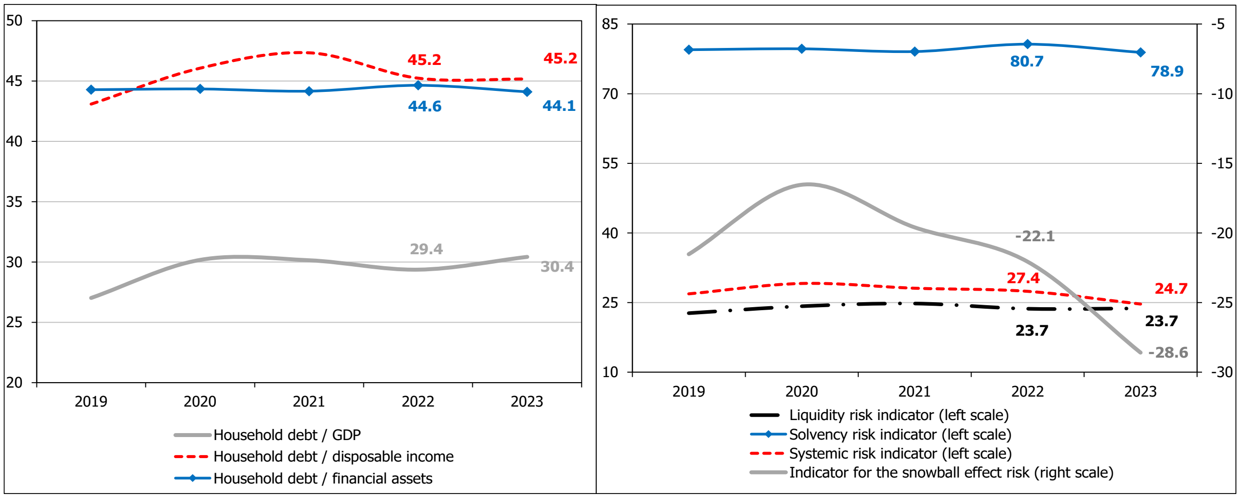
[75] Vulnerability threshold for household debt is derived from the MIP Scoreboard used by the European Commission to assess potential risks and macroeconomic imbalances in the EU countries. The MIP scoreboard sets a vulnerability threshold for total private sector debt at 133% of GDP. Vulnerability threshold of household debt of 35% of GDP is derived according to the ECB (ECB Financial Stability Report, November 2018), which decomposes the 133% threshold for total private debt into household debt and corporate debt threshold, based on the average share of household and corporate debt in total private sector debt. For the decomposition of vulnerability threshold for the Republic of North Macedonia, we used the average share of household and corporate debt for the period 2006–2023.

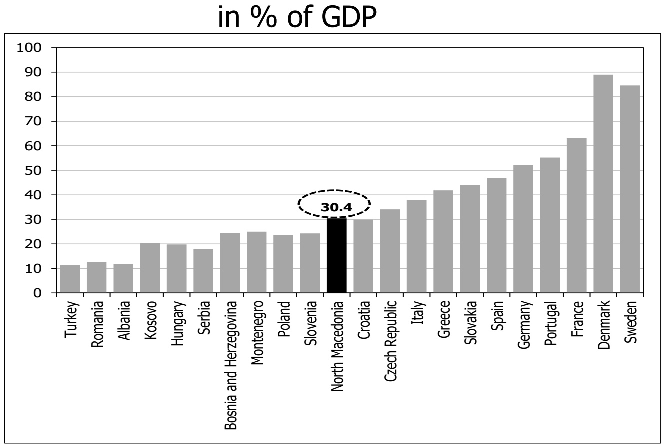
[76] The household debt increased to banks (by 8.4%), to domestic financial corporations (by 55.5%), to leasing companies (by 20.5%) and to non-residents (by 10.7%). Debt to savings houses decreased (by 2.4%).

[77] Debt to banks also includes mandatory write-offs, as required by regulations.

Chart 60
Indicators of the relative size of household debt (top left), indicators of risks and vulnerability of household debt (top right) and comparative analysis of the household debt in 2023, by country (bottom)
in %



in % of GDP



Source: National Bank's Credit Registry, based on data submitted by banks, savings houses, the MF, the CSD, the MAPAS, the SEC the ISA, as well as the State Statistical Office for the GDP data from the press release published on 3 June 2024 and Eurostat on the household debt by country.

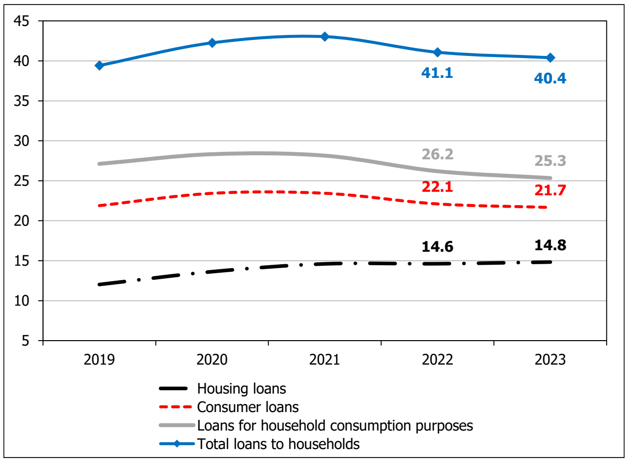
Note: $\boldsymbol{Liquidity\ risk\ ratio_t = 0.5\frac{Debt_t}{Disposable\ income_t} + 0.5\frac{Interest\ repayment_t}{Disposable\ income_t}}$. A higher value of this indicator denotes a higher ratio of debt to household disposable income.

Snowball effect risk ratio = $\frac{Interest\ repayment_t}{\frac{Debt_t+Debt_{t-1}+Debt_{t-2}+Debt_{t-3}}{4}}$ - $\left(\frac{Disposable\ income_t}{Disposable\ income_{t-4}} - 1\right)$. The snowball effect indicator has a negative value given the fact that the share of the cost of funds received as debt (interest payments) in the average debt for the last four years is lower than the average growth of disposable income for the same period.

The insolvency risk indicator is the correlation between the household debt and the net financial assets (the net financial assets represent difference between the financial assets and the household debt).

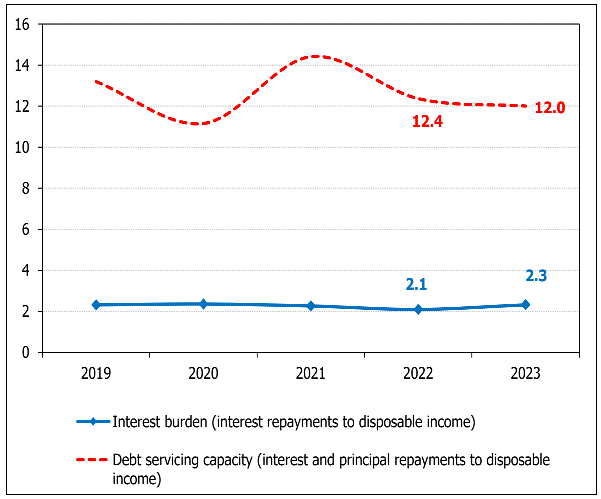
The systemic risk ratio is the average of the analyzed liquidity risk, insolvency risk and snowball effect risk ratios.

Chart 61
Household debt to disposable income ratio, on various bases
in %



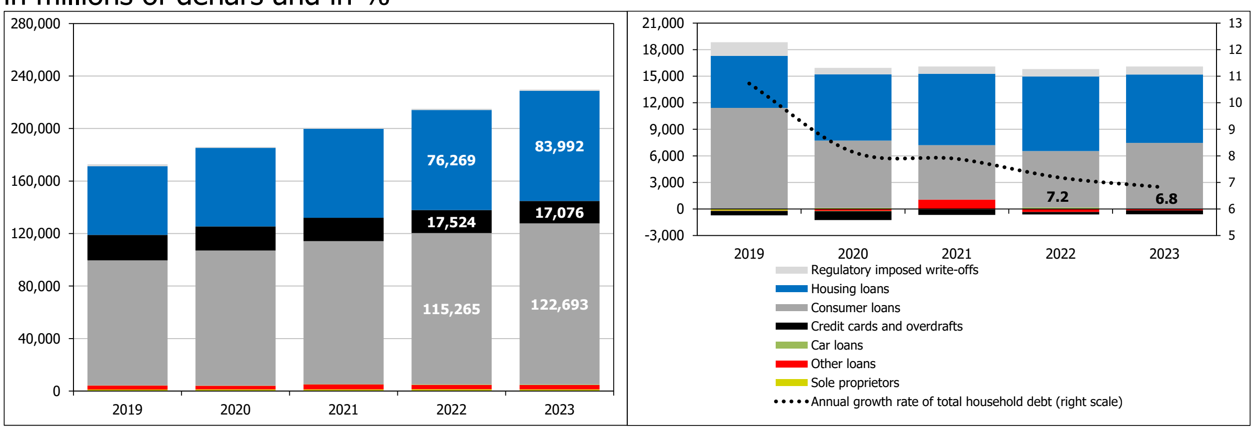
Source: National Bank's Credit Registry, based on data submitted by banks.

Chart 62
Household creditworthiness indicators
in %



Source: National Bank, based on the data submitted by banks.

Chart 63
Household debt to domestic banks by type of loan product (left) and annual growth (right)
in millions of denars and in %



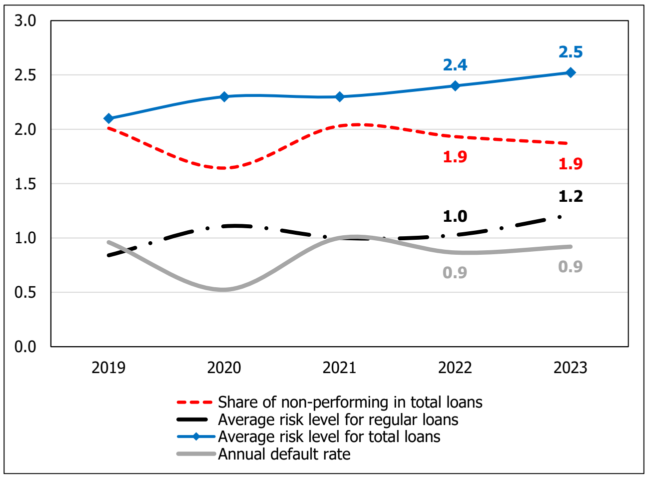
Source: National Bank, based on the data submitted by banks.

The level of household indebtedness, in addition to the GDP ratio, **should also be analyzed in the context of the volume of financial assets (which reflects the solvency) and the disposable income of the sector (as an indicator of liquidity), which for the time being enable solid creditworthiness of the sector in a whole.** In 2023, the banking system provided solid credit support to households[78], but slightly at slower pace compared to the previous year and at a slower pace compared to the increase in the nominal disposable income. This contributed towards maintenance of the households' liquidity position, as well as slight

[78] In 2023, lending to households made a contribution of 81.2% to the annual growth of lending to non-financial corporations by domestic banks. According to the National Bank's Lending Survey, in 2023 there is stronger net decrease in the demand for loans among households, registering a net tightening of credit conditions, compared to the previous year, after a longer period of net easing of the conditions in this sector.

improvement of the indicator of households ability for debt repayment based on principal and interest[79] in conditions of an increase in the liabilities based solely on interest. In addition, the solvency indicators improved, and generally, remained within the level characteristic for the past couple of years. Solid household solvency and the possibility for further borrowing was also confirmed by the relatively low systemic vulnerability of the household sector, reflected through the aggregate systemic risk indicator, which registered an improvement in 2023. However, the enduring uncertainty in conditions of still present price pressures despite inflation stabilization trends, as well as tight financial conditions, create risks for the future creditworthiness of the households, to which the lower income segments are particularly sensitive.

Chart 64
Household loan quality indicators
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

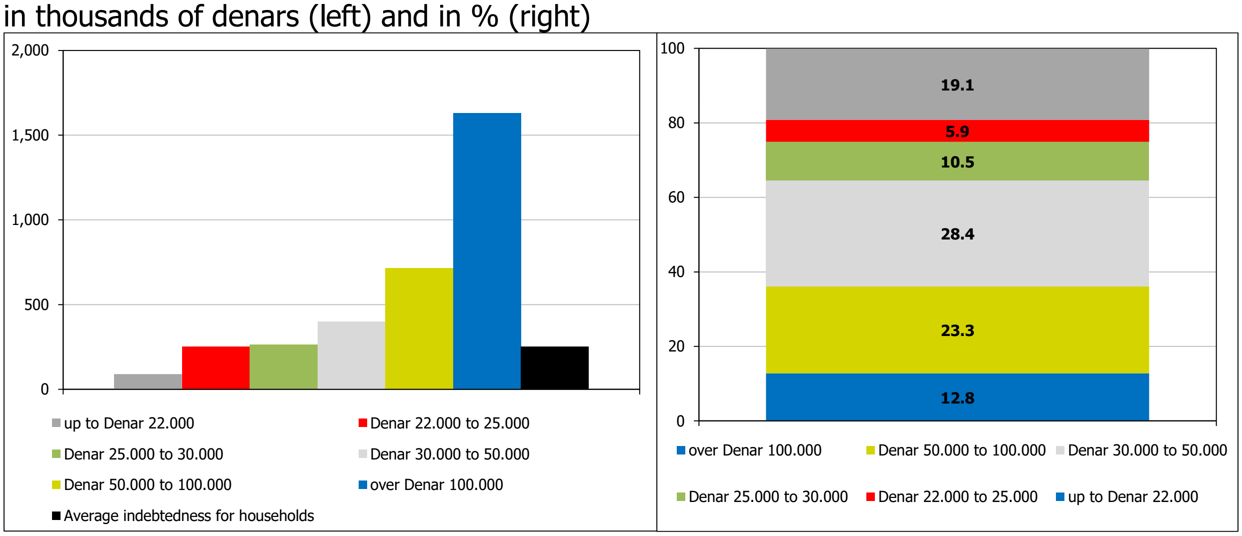
According to the type of the credit product that the households sector uses from domestic banks[80], 2023 also registered the largest annual increase in housing loans (by 10.1%), with a contribution of 52.9% to the growth of the total household debt to banking sector. They are followed by consumer loans with an increase of 6.4% and contribution of 50.9% to the growth of the total household debt to banks. Despite the accelerated growth of housing loans in the last couple of years, the structure of household debt to banks is still dominated (65%) by the debt, which finances household consumption[81]. On the other hand, in the higher developed countries, especially in the countries registering an extremely high household debt to gross domestic product ratio, usually the largest part of household debt refers to financing the purchase of real estate. Hence, the debt structural changes in the following period will depend on the disposable income dynamics, which directly determines the creditworthiness of households, i.e. determines the maximum volume of debt that they can settle, at the level of a borrower. The interest rates growth and the changes on the real estate market may also affect household decisions to borrow larger and long-term loans.

[79] For the purposes of this indicator we use the amount of newly granted household loans during the analyzed year. The newly granted loans in 2023 were higher by 1.8% compared to the previous year.
[80] The total household debt also includes the amount of mandatory write-offs made by banks due to the requirements in the regulations that refer to credit risk, because the written-off debt remains an obligation of households. The National Bank holds data on mandatory write-offs only by sectors (households and non-financial corporations), but not on their currency and maturity structure, nor on structure by type of credit product. Because of this, the effect of write-offs is included only in the total household debt, but not in the analyses according to its individual structural features.
[81] It refers to consumer loans, car loans, overdrafts, credit cards and other loans.

The household sector capacity for regular repayment of liabilities is significant for the level of credit risk[82] arising from this sector, which is one of more important risks to domestic financial institutions. In domestic banks, which are the most important creditor of the households, the quality of the overall credit portfolio composed of households is solid, which is evident from the dynamics of the rate of non-performing loans, which was relatively low for a longer period, while in 2023 it retained the same level of 1.9%, as it equaled the previous year. When exclude the effect of the mandatory write-offs[83], the rate of the non-performing loans to households equals 5.4%, which is almost equal to its ten-year average. This indicator decreased in most credit products, with the lowest rate of non-performing loans still being registered in loans for purchase of real estate. In 2023, for the second year in a row, the banks write off the households' non-performing loans more than to the non-financial corporations (57.8% share in total mandatory write-offs). However, their share in total household debt is insignificant (0.4%) and indicates no risk to household sector stability.

In 2023, for third consecutive year there is an increase in the households non-performing loans, in the amount of about Denar 140 million (i.e. 3.4%) and largely stems from non-performing

Chart 65
Average debt by household (left) and structure of household debt (right), by monthly income, as of 31.12.2023
in thousands of denars (left) and in % (right)



Source: National Bank, based on the data submitted by banks.

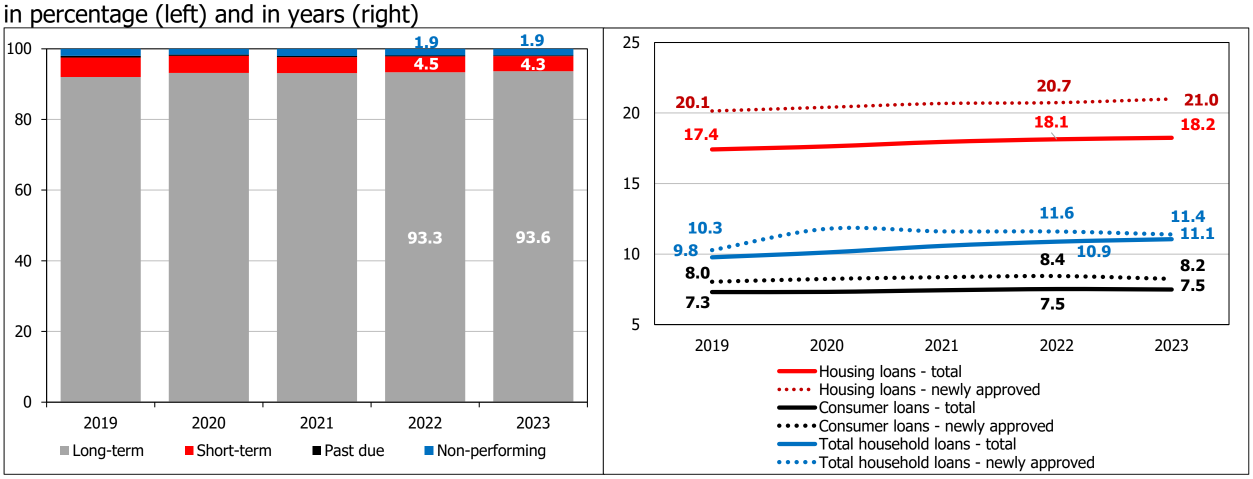
[82] Since the beginning of 2024, new Decision on the methodology for credit risk management, has entered into force, which provided further harmonization with the European Union and contribute to further strengthening of the stability of the banking system.. The Decision prescribes a new method of determining the non-performing credit exposures, strengthens the criteria for monitoring and control of the quality of the banks' credit portfolio and improves the rules for credit exposure restructuring. The methodological changes in determining the non-performing loans contributed to their growth in the initial period after the application of the Decision, i.e. in January 2024, which is the effect of the different approach in determining the non-performing status, and not the changed creditworthiness of the customers.

[83] The term *mandatory write-offs* refers to the amount of write-offs reduced by the collection of previous write-offs. In accordance with the regulation as of mid-2019, each bank has been required to write-off credit exposures where twelve months have passed from the date when the bank was obliged to make full impairment, or allocate special reserve. In the period from 2016 to 1 July 2019, banks were required to write-off credit exposures where twenty-four months have passed from the date when there was an obligation for full impairment, or allocation of special reserve.

loans to natural person for consumption financing[84]. Also, non-performing loans to natural person for financing the purchase of residential and commercial properties increased by 8.9% (or Denar 34 million) in 2023, with an increase in non-performing loans to retailers (by around Denar 3 million). However, regardless of the relatively moderate annual changes in the level of non-performing loans in 2023, in the context of a further vague environment and tightening of financial conditions, careful monitoring of the creditworthiness of customers, especially those who currently have a higher level of indebtedness and are more sensitive to changes in the environment, remains one of the main priorities of domestic banks.

The quality of the banks' credit portfolio pertaining to households, as well as the possibilities for its further growth, relates directly to the creditworthiness of the households. Moreover, the amount of income is an extremely important factor for the assessment of the household creditworthiness, since the risks of high indebtedness and occurrence of excessive indebtedness are usually far more pronounced with natural persons with lower monthly income. Namely, slightly over one third of the household debt is concentrated in the income group up to Denar 30,000, which includes the largest number of borrowers (around 68.4% of the total number of household borrowers from banks)

Chart 66
Maturity structure of household debt (left) and average weighted maturity of new household loans, and by credit product (right)
in percentage (left) and in years (right)



Source: National Bank's Credit Registry, based on data submitted by banks.

The faster growth of household debt mostly on longer terms[85] in which the creditworthiness of the clients is more uncertain is also a risk factor for the quality of this segment of the banks' loan portfolio, especially in conditions of increased inflation and rising interest rates. The average weighted maturity of newly approved household loans is around eleven years, which is an increase compared to the period of about

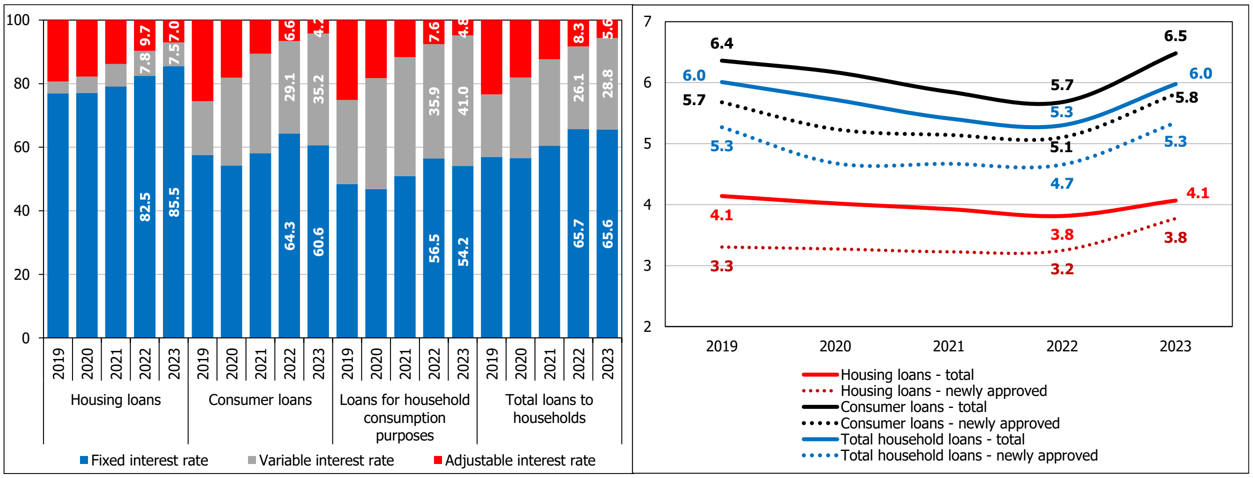
[84] The non-performing loans for consumption financing increased by Denar 117 million, mainly due to the growth of non-performing consumer loans of Denar 117 million, amid smaller growth of Denar 18 million in other credit products (car and other loans), while the non-performing loans in overdrafts on payment accounts and loans based on credit cards decreased by Denar 24 million.
[85] As of the end of 2023, long-term household loans accounted for 93.6% of total household loans.

ten years ago (for instance, in 2012 it was about eight years). The average maturity of both housing and consumer loans grew.

Chart 67

Structure of household debt by certain credit products, by type of interest rate (left) and average interest rate on total and newly approved loans to households, by type of credit product (right)

in %



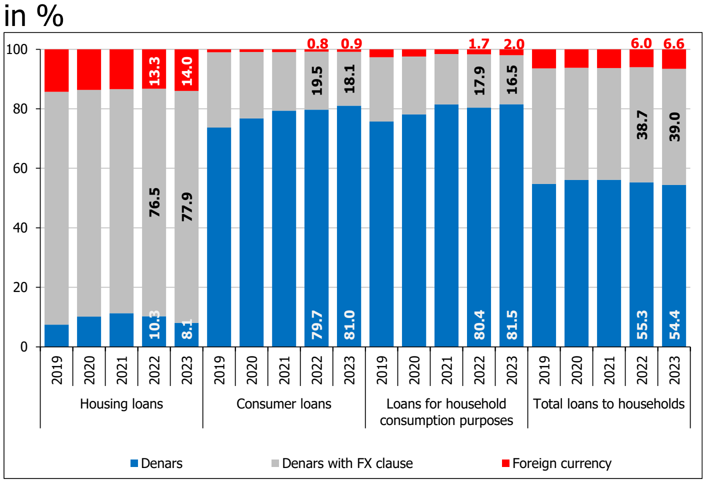
Source: National Bank's Credit Registry, based on data submitted by banks.

The high share of the longer maturity in the household debt to domestic banks increases the significance of the household exposure to interest rate risk, and accordingly, to banks' indirect credit risk, due to possible excessive debt burden for borrowers amid growth of interest rates. This results from the significant share of interest rates that could be changed (adjustable and variable interest rates) in credit agreements with households (34.4% in total loans to households, with a larger share, 45.8%, in loans for consumption financing). The interest rate risk is pronounced amid current interest rate growth, which has intensified in household loans since the beginning of 2023. This poses risks to the volume of liabilities, not only the current ones, but also the future household liabilities that expose banks to indirect credit risk associated with the interest rate risk. Therefore, as before, banks need to remain cautious when manage these risks.

Chart 68

Currency structure of household debt to banks, by credit product

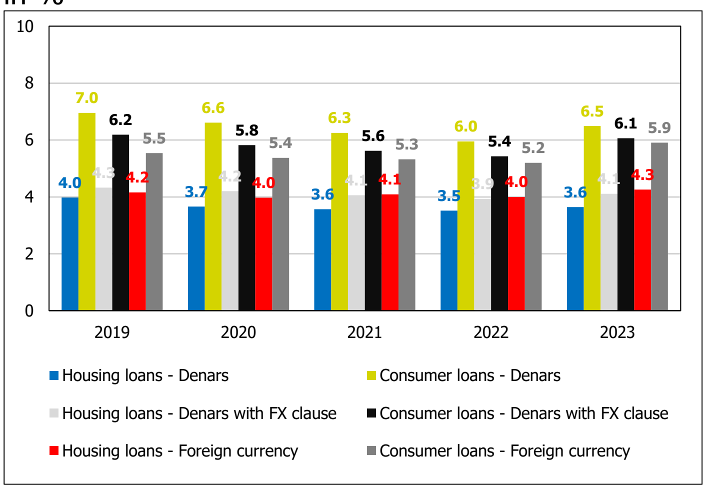
in %



Source: National Bank's Credit Registry, based on data submitted by banks.

The currency component is still present in household debt, which highlights the household exposure to currency risk. In 2023, there are no significant changes in the currency structure of household loans (around 45% of household loans are with a currency component, predominantly in denars with a currency clause). The interest difference between denar loans and loans with a currency component underlines the importance of the cost factor (interest rate) when choosing the currency of financing by households, which maintains the demand for loans with a currency component, especially in housing loans. In other credit products mainly intended for consumption, the debar lending prevails. On the other hand, the deposits, as opposed the two previous years, when there was greater propensity for foreign currency deposits due to uncertainty, in 2023 the households denar deposits registered higher annual growth compared to foreign currency deposits (increase of 11.9% in households denar deposits, against the increase of 4.1% in foreign currency deposits). Such changes in the currency inclinations of depositors to keep their funds in denars, in addition to higher returns and stable expectations, were also encouraged by the measures taken by the National Bank, mainly through the reserve requirement instrument, thus stimulating savings in domestic currency. Although the households sector as a whole is close to a matched currency position, it is very likely that most of the depositors are not bank credit users at the same time. Hence, the different household categories may have individually high short currency positions, i.e. higher exposure to currency risk. In circumstances when the sources for repayment of this debt, i.e. most of the households' income is generated in denars, the stability of the denar exchange rate, which has been successfully maintained, is important for maintaining the level of the households' debt and their ability for repayment of the debt to the financial sector.

Chart 69
Interest rates, by credit product
in %



Source: National Bank.

1.6. Corporate sector[86]

In 2023, the profitability of the corporate sector continued to increase, but at a slower pace, with a greater decrease in expenses as opposed to the decline in operating income. Such movements are largely the result of the "normalized" operating in certain activities, primarily in the energy sector, in conditions of gradual depletion of the effects of the energy and price crisis, which in the previous year had an impact on the high revenues and profit growth resulting from the operations. The indebtedness of the corporate sector measured through debt to GDP ratio is slightly higher compared to the previous year. The non-resident sector remains the main creditor for the domestic corporate sector. However, the debt to domestic banks registered decelerated increase, in conditions of reduced offer of, as well as demand for credits. Variable interest rates represent a significant part of the corporate debt (47%) indicating an exposure to interest rate risk, which becomes particularly relevant in the current environment of higher interest rates. The currency risk is important for the domestic corporate sector, having in mind the dominant share of the debt with currency component, which is, however, limited due to the exchange rate targeting strategy.

The risks for the corporate sector operating remain to be associated with the possible deterioration of the geopolitical and economic context, which can disrupt the financial position of the companies, and the risks are especially high for the most financially vulnerable and highly indebted entities. An additional challenge for the performance of the domestic corporate sector is the lack of adequately qualified labor force. The vulnerability of the corporate sector is even more emphasized if we take into account the environment of tight financing conditions and traditionally low liquidity, with a worsening regularity in the execution of debt-creditor relationships within the corporate sector, which emphasizes the exposure to the "contagion" risk within the sector in the event of a shock, but also the transfer of problems to creditors from the financial sector. For the time being, good financial results limit the risks for debt sustainability of the corporate sector, whose debt towards the banking sector remains mostly in the optimal zone, taking into consideration the ability to repay the debt. However, the risk-exposed debt[87] is growing, thus increasing the sensitivity to shock of these entities. Hence, vigilance and prudent debt management, accompanied by sustainable measures and policies that will improve productivity and competitiveness in operations, as well as in the context of climate-related risk, are needed as important factors for the sustainability of the corporate sector in the medium and long run.

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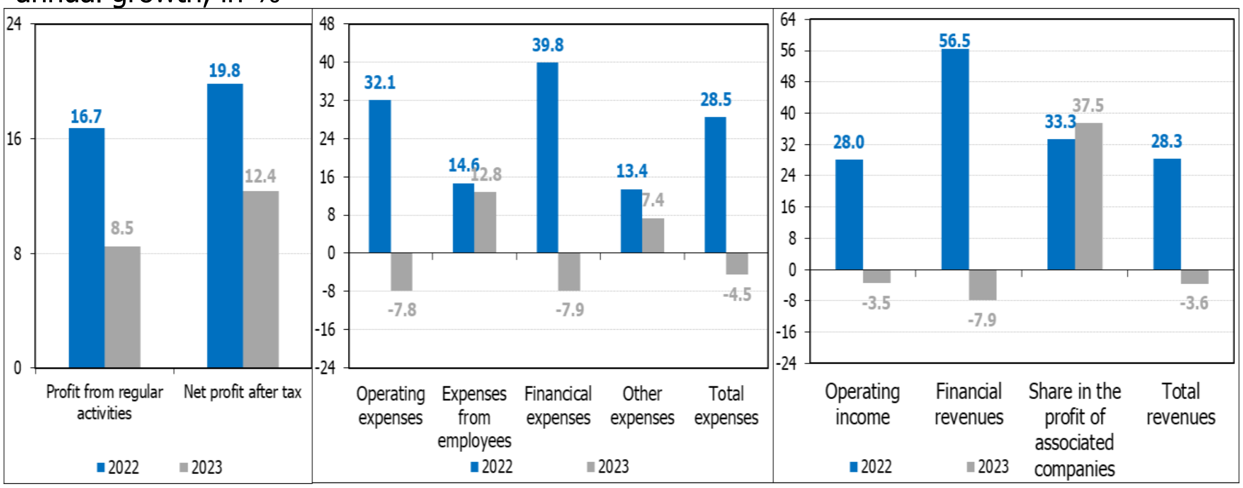
[86] Corporate sector includes companies and sole proprietors whose main activity, according to the National Classification of Activities (NCA), is industry (which includes entities with main activities of mining and quarrying, supply of electricity, gas, steam and air conditioning and water supply, sewerage, waste management and environmental recovery activities), wholesale and retail trade, and repair of motor vehicles and motorcycles, construction, agriculture, forestry and fishing, transport and storage, information and communications, accommodation and food services, real estate activities, professional, scientific and technical activities and administrative and ancillary services. The corporate sector does not cover legal entities that have registered prevailing activity in: financial and insurance activities; public administration and defense, compulsory social security; education; health and social care activities; arts, entertainment and recreation; other services; activities of households as employers; activities of households that produce different goods and perform various services for their own needs; and extraterritorial organizations and bodies.

[87] It refers to the part of the debt where the indicator of coverage of interest expenditures with operating gain is lower than 1.

Chart 70
Revenues, expenditures and profit of the corporate sector
annual growth, in %



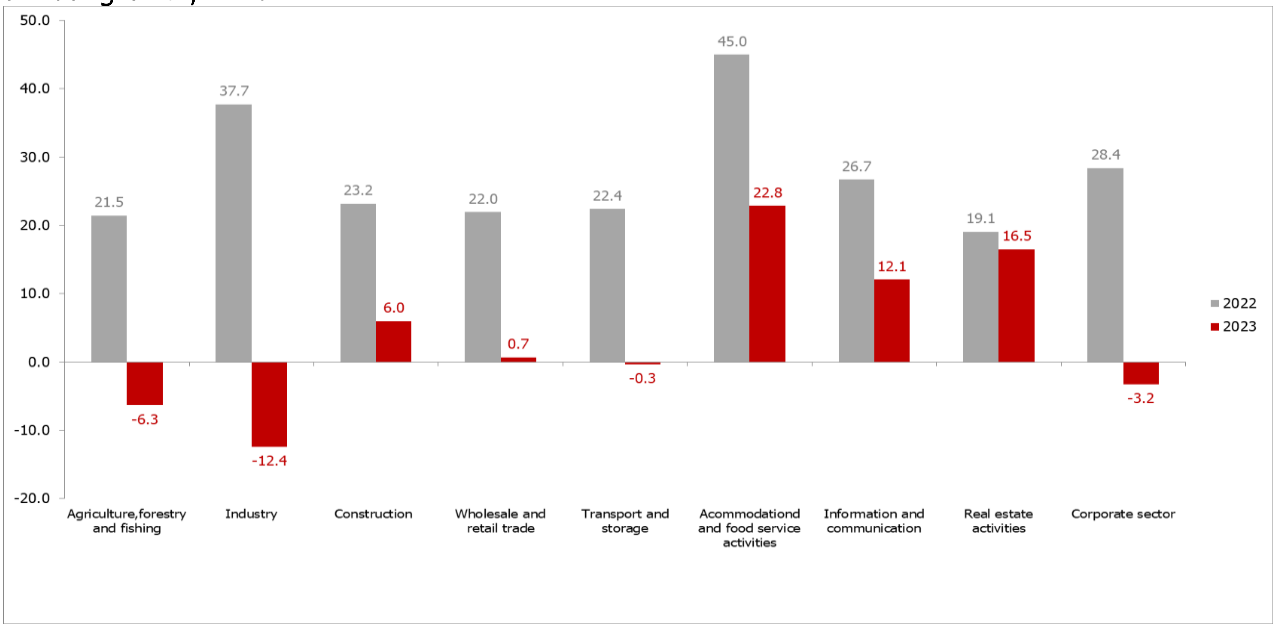
Source: Central Registry of the Republic of North Macedonia.

After high growth in the previous two years, the total revenues of the corporate sector in 2023 decreased (by 3.6%), with a decline also being registered in expenses (of 4.5%), primarily influenced by the reduction in the costs of raw materials and purchase of goods. Such movements are mostly due to the performance in industry and within its framework, in the energy sector, the income of which dropped significantly, after the high growth in the previous year, when it was influenced by the high energy prices and the increased domestic production of electricity in conditions of energy crisis. **In most other activities, sales revenues continued to grow during 2023, although at a slower pace compared to the previous year.** Within the corporate sector expenditures, against the reduced costs of raw materials and procurement of goods, the employee expenses kept up growing, with a decelerated, but double-digit growth rate compared to the previous year (in conditions of accelerated growth of the average gross wage[88] and almost unchanged number of employees[89]), and the environment of tight financing conditions was reflected through higher interest costs.

[88] The average gross wage in the corporate sector in 2023 increased by 16.4% annually. The growth of average monthly wages is registered in all of the corporate sector activities, with the highest growth rate being registeredi in construction (19.2%) and activities related to real estate, professional, scholar, technical, administrative and auxiliary services (18.3%). The growth in wages is partly due to the increase in minimum wage of 12.6% in March 2023.

[89]The number of employees in the corporate sector increased by 0.1% on annual basis, after the more significant decrease of 14.3% in the preceding year. The decrease in employment is most evident in the activity of agriculture, forestry and fishing, while the increase arises from the construction sector.

Chart 71
Sales revenue, by activity
annual growth, in %

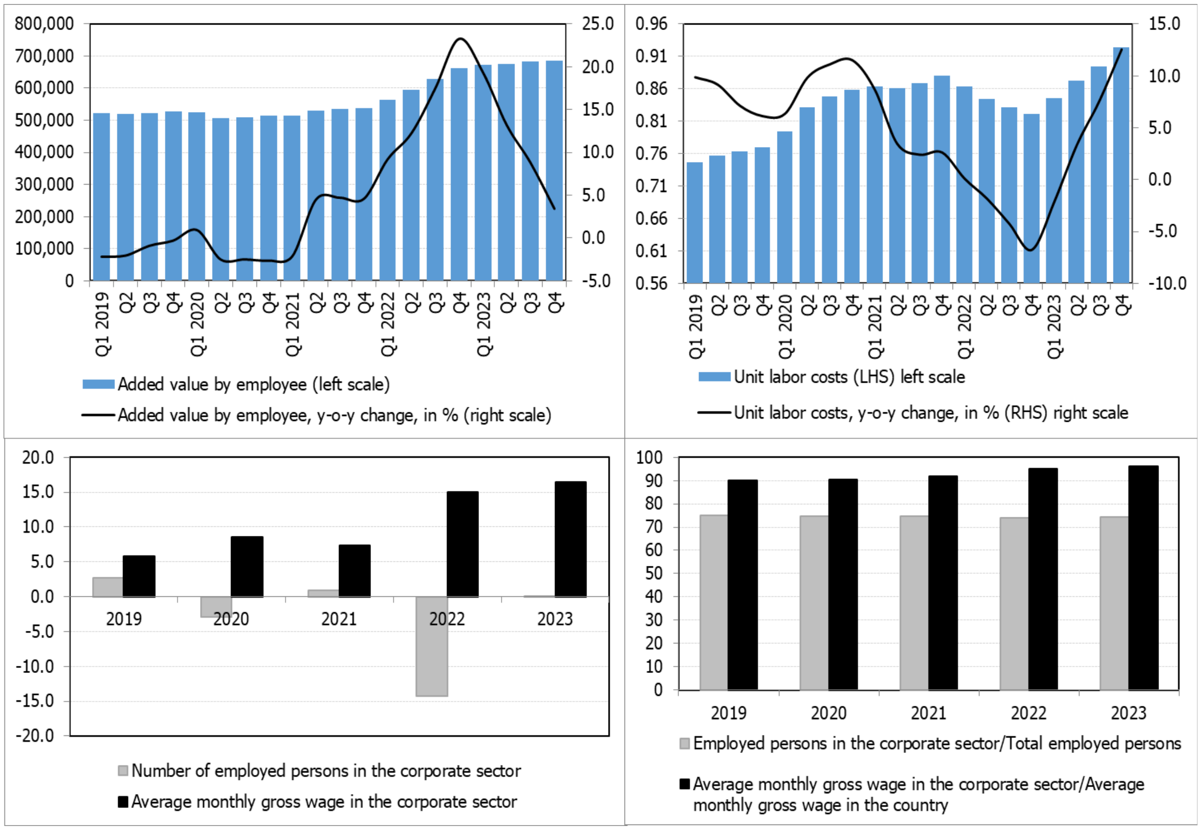


Source: Central Registry of the Republic of North Macedonia.

Analyzed by competitiveness indicators, the productivity of the corporate sector, monitored through the added value per employee, registered a solid growth (11.2%), although slower than the previous year (when it increased by 15.6% mainly due to the reduced number of employees). On the other hand, the faster wage growth[90] (which is also higher than the productivity growth), in conditions of stagnation of the number of employees in the sector, contributed to the increase of unit labor cost[91] (of 5.3% compared to the decrease in the previous year of 3.2%). Such movements indicate the need of productivity improvement which will support wage growth, without jeopardizing the competitiveness of the sector.

[90] The amendments to the Law on Minimum Wage (Official Gazette of the Republic of North Macedonia No. 58/23) of March 2023, the minimal net paid wage increased by Denar 2,175. The minimum gross wage, from March 2023 to February 2024, is Denar 29,739 (previously Denar 26,422), i.e. the minimum net wage is Denar 20,175 (previously Denar 18,000). In doing so, the minimum wage will be adjusted to the increase in the average wage paid in the RNM for the previous year and the consumer price index - 50% of the increase in each indicator, respectively. Moreover, it is defined that the minimum wage cannot be lower than 57% of the average net wage paid in the RNM for the previous year.
[91]Unit labor costs are calculated as the ratio of the average monthly gross wage and the value added per employee in the sector, based on SSO data.

Chart 72
Corporate sector competitiveness indicators: added value by employee (up, left), unit labor costs (up, right), annual growth of the number of employees and wages (down, left) and indicators for the importance of the corporate sector for the domestic labor market (down, right)
in % and in denars



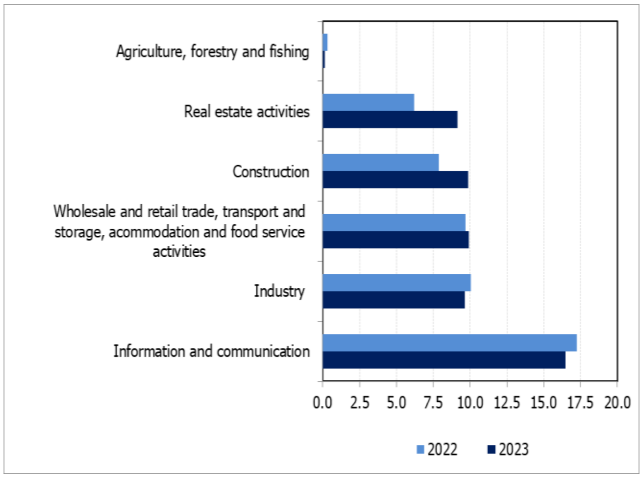
Source: State Statistical Office of the Republic of North Macedonia and National Bank calculations.

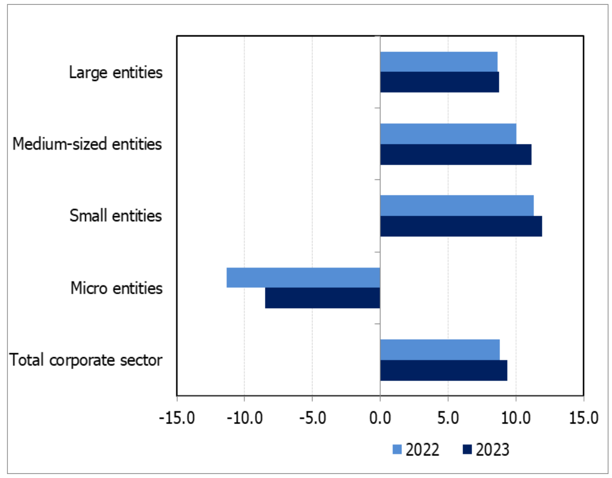
The decrease in expenditures, which is greater than the decrease in operating income, contributed to the further growth of the net profit of the corporate sector, although at a slower pace compared to the previous year (12.4%, against 19.8% in the previous year). The profitability indicators improved, registering return on assets (ROA) in 2023 of 4.7%, while the return on equity and reserves (ROE) equaled 9.4% (an increase of 0.3 and 0.6 percentage points, respectively, on an annual basis). The main driver of the growth of the net profit of the domestic corporate sector was medium and small enterprises, with a joint contribution of 82.6%, which together account for slightly more than half (52.9%) of the registered net profit of the corporate sector, while the remaining half refers to large enterprises. Micro entities[92] continue registering operating loss, but in 2023 it is lower than in the pandemic 2020[93], as well as compared to the previous year, which may point to a certain recovery of this most vulnerable group of corporate entities. Thus the share of corporate entities that reported

[92] Micro entities in 2023 account for 61.5% of the total number of corporate entities, followed by small entities with a share of 35.8%, medium-size entities (1.8%) and large entities (0.8%).
[93]Micro entities were affected the most by the COVID-19 pandemic.

loss additionally decreased slightly in 2023 and accounted for 31.5% of the total number of corporate entities as opposed to 31.9% in the previous year.

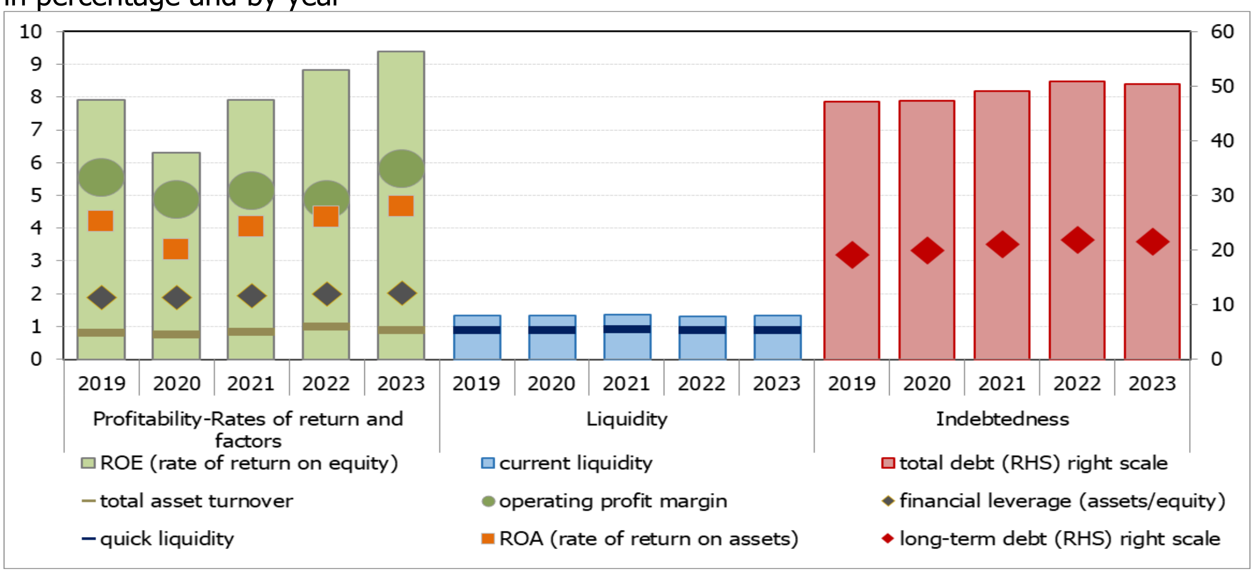
Chart 73
Rate of return on equity by activity (left) and by size of corporate entities (right)
in %





Source: Central Registry of the Republic of North Macedonia.

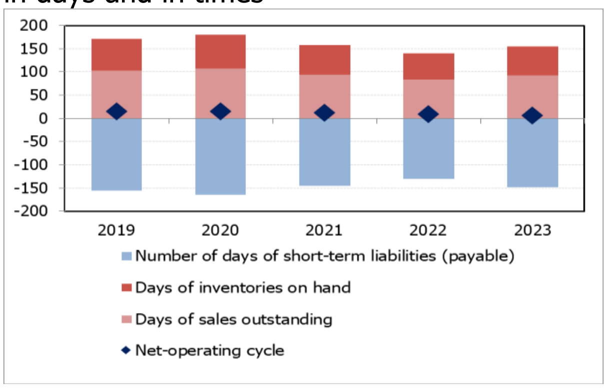
Chart 74
Indicators of the financial stability of the domestic corporate sector
in percentage and by year

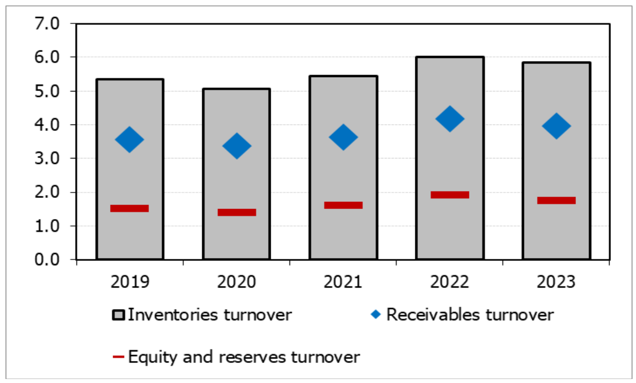


Source: Central Registry of the Republic of North Macedonia.

Liquidity management and improvement of operational efficiency remain the focus of the domestic corporate sector, the improvement of which would enable enhancement of the overall financial soundness of the sector. Liquidity indicators remained stable, at their ten-year average, but below the level that is theoretically considered satisfactory[94]. Micro entities and entities from the agriculture sector are most vulnerable to liquidity shocks, which is perceived through the lower level of the current liquidity compared to other entities and to the sector average. In 2023, stopped the two-year reduction in the delay in the collection of claims and payment of liabilities[95], which this year recorded a growth that if continues in the next period, could worsen the liquidity position of the corporate sector. The possible deterioration of the liquidity of the corporate sector may affect its ability to service liabilities and deteriorate the prospects for the sustainability of the corporate sector debt in the medium and long run.

Chart 75
Selected indicators of operational efficiency of the corporate sector
in days and in times





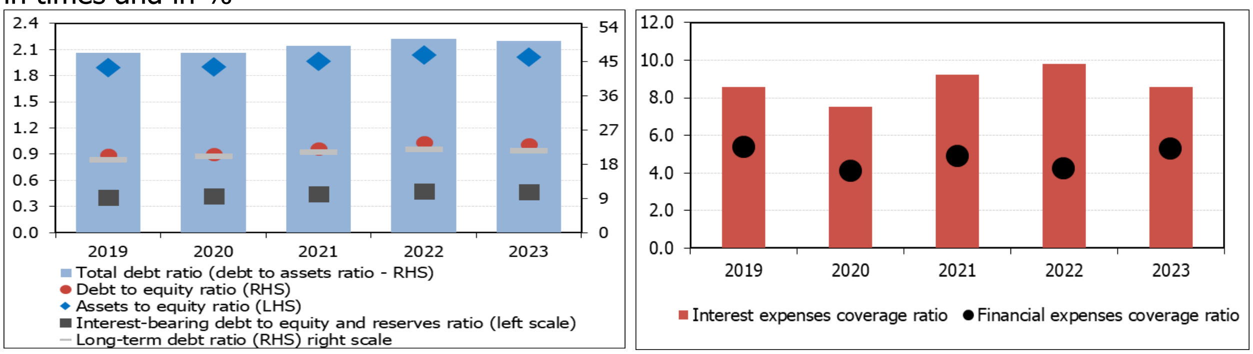
Source: Central Registry of the Republic of North Macedonia.
*Net operating cycle is the average time from the payment to suppliers to the collection of claims on customers, including the time needed for transforming raw materials into finished products through a production process.

The total exposure[96] of the corporate sector as a whole, for the time being does not indicate high risks for the solvency of the sector, with the indebtedness indicators being stable and showing slight decrease. Thus, the total indebtedness of the corporate sector equaled 50.4% (50.9% in 2022), keeping the indebtedness with interest-bearing debt at the same level as the previous year (23.2% of total assets), and a minimal reduction is evident also in long-term debt, which in 2023 equaled 21.6% of total assets. Debt to equity and reserves ratio is at stable level 1, in conditions of decelerated growth of the capital of domestic corporate sector. The coverage of interest expenses with profit from regular activities is solid, although reduced on an annual basis, in conditions of tight financial conditions and growth of financing costs. The debt to the banking sector is still for the most part in the optimal zone according to the ability for debt repayment[97]. Also, **the number of legal entities against which bankruptcy proceedings has been initiated in 2023 recorded a small increase** with a

[94]For a level that is usually considered satisfactory, 1 is used for moment liquidity, i.e. 2 for current liquidity. The indicator for the moment liquidity of the domestic corporate sector in 2023 was 0.9, while the current liquidity indicator was 1.3.
[95] During the year, the domestic corporate sector took an average of about 3 months to collect the claims, and 5 months to pay off short-term liabilities (compared to 2022, when the domestic corporate sector took an average of 2.5 months to collect claims, and 4 months for payment of short-term liabilities).
[96] Total debt is determined based on annual accounts of the corporate sector, as a share of the corporate debt (or total assets reduced by principal and reserves) to total assets. The method of calculation of indicators is shown in the Annexes to this report.
[97] According to the interest coverage ratio (ICR), see chart Structure of the corporate sector debt to domestic banks.

stable rate of bankrupt legal entities[98] of 1.3%, which for the time being indicates a limited insolvency risk of the sector. However, the risk-exposed debt[99] increases, thus increasing the sensitivity to shock of these entities. Vulnerability is also pronounced in micro entities that still have negative working capital and realize operating loss, although they have stable indebtedness and an improved liquidity position. Such situations point to the need for increased vigilance in debt management in the next period, especially in the context of the uncertain macroeconomic environment, with still tight financial conditions.

Chart 76
Selected corporate debt indicators
in times and in %



Source: Central Registry of the Republic of North Macedonia.

Chart 77
Corporate debt structure to domestic banks by interest coverage ratio (ICR)
in % of total debt

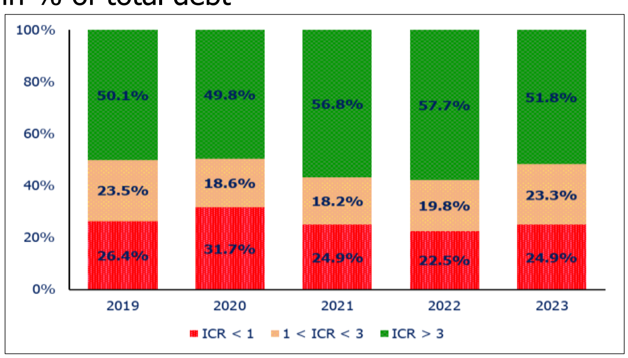
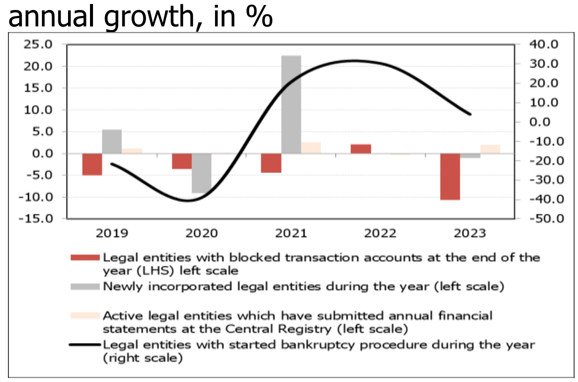


Chart 78
Newly established, bankrupted, active and legal entities with blocked accounts
annual growth, in %



Note: The value of the ICR that is higher than 3 is considered to be in the optimal zone, that is, the corporate sector has an optimal ability to repay the debt; the value of the ICR that is in the interval between 1 and 3 is considered to be in the sub-optimal zone, with certain risks for debt repayment; the value of the ICR that is lower than 1 is considered to be a low value of the ratio with pronounced risks for debt repayment and this is the part of the debt that is considered as debt exposed to risk.
Source: National Bank calculations, based on data submitted by the Central Registry of the Republic of North Macedonia.

[98] The rate of bankrupted legal entities (so-called bankruptcy rate) is the ratio between the number of legal entities that entered into bankruptcy during the year (which is data from the Central Registry of the Republic of North Macedonia) and the average annual number of active legal entities, which is the average of the number of active legal entities (registered entities that submitted an annual account to the Central Registry of the Republic of North Macedonia) at the end and the beginning of the respective calendar year.
[99] It refers to the part of the corporate debt where the interest coverage ratio is lower than 1.

1.6.1. Indebtedness of the corporate sector

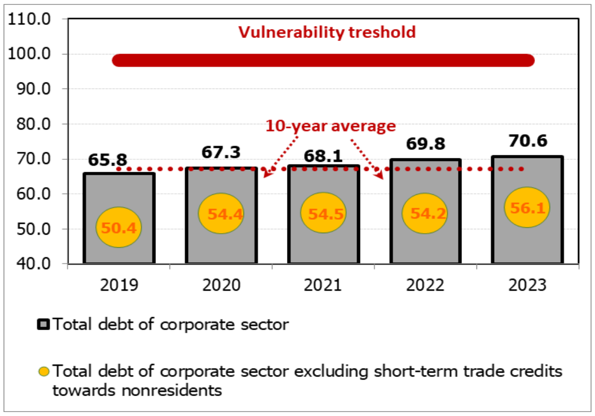
The total debt[100] of the domestic corporate sector in 2023 is growing moderately, registering a decelerated annual rate of 5.9% (12.8% in 2022). Thus, the indebtedness ratio[101] of the corporate sector registered minimal increase to the level of 70.6% (as opposed to 69.8% in the previous year) and remains below the derived vulnerability threshold[102], but exceeds the average of the indebtedness in the past ten years. If the debt of the domestic corporate debt is presented without short-term trade credits[103], as an instrument for financing foreign trade, which is usually interest-free, then the total domestic corporate debt at the end of 2023 is moderately higher compared to the preceding year and equals 56.1% of the GDP (increase of 1.9 percentage points).

During 2023, the annual growth of the corporate sector indebtedness was driven by the higher debt financing from abroad, i.e. the external debt, which although decelerated, accounted for over 70% of the annual growth of the overall debt. Thus, the external debt to GDP ratio increased and amounted to 41.7% (40.9% of GDP in the previous year). The domestic debt[104] also decelerated the growth pace in 2023, which is largely a result of the decelerated lending activity of the banking sector as the main domestic creditor of the corporate sector. The share of the non-banking financial institutions in domestic corporate sector financing increased, but still remains moderate (a share of 2.2% of the total debt). In the domestic corporate sector, there is no practice of financing through the issue of debt securities on the domestic or foreign financial markets.

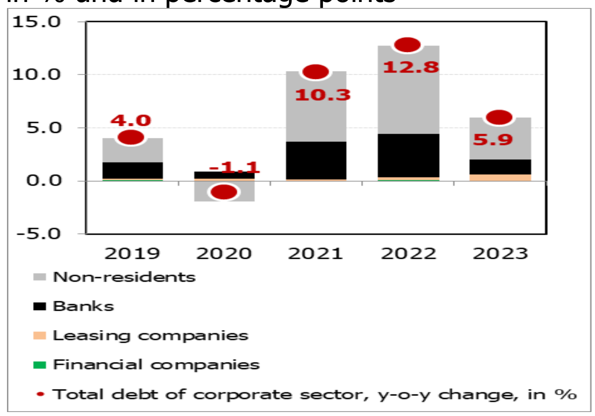
[100] At the end of 2023, the total debt of the corporate sector was Denar 593,701 million, compared to Denar 560,371 million, as it was at the end of the previous year. For the needs of this analysis, the total corporate debt includes: liabilities to banks based on loans, interest and other claims, including the cumulative amount of written-off debt, in accordance with the banks' regulatory obligation for write-off of the exposures that have been fully provisioned for more than one year), the liabilities to non-residents, value of active lease contracts and liabilities based on active contracts with financial companies.
[101] The debt ratio is shown through its share in GDP.
[102] Vulnerability threshold for corporate debt is derived from the MIP Scoreboard used by the European Commission to assess potential risks and macroeconomic imbalances in the EU countries. The MIP scoreboard sets a vulnerability threshold for total private sector debt at 133% of GDP. Vulnerability threshold for corporate debt of 99% of GDP is derived according to the ECB (ECB Financial Stability Report, November 2018), which decomposes the 133% threshold for total private debt into household debt and corporate debt threshold, based on the average share of household and corporate debt in total private sector debt. For the decomposition of vulnerability threshold for the RN Macedonia, we used the average share of household and corporate debt for the period 2006 - 2023.
[103] At the end of 2023, short-term trade credits represent 20.6% of the total debt of the corporate sector and 34.9% of the debt of the corporate sector to non-residents.
[104] Domestic corporate debt amounts to Denar 243,485 million at the end of 2023, as opposed to Denar 232,175 million at the end of the previous year, which is twice smaller increase of 4.9% (10.4% increase in 2022).

Chart 79
Debt of the corporate sector (up left), contribution to the annual growth of the total debt of the corporate sector, by type of creditor (up right) and structure of corporate debt, by type of creditor (down left and right)

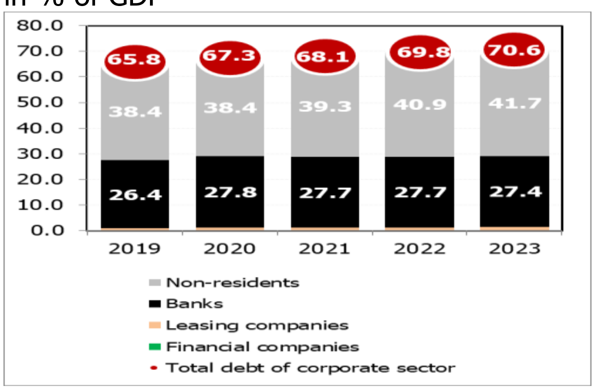
in % of GDP



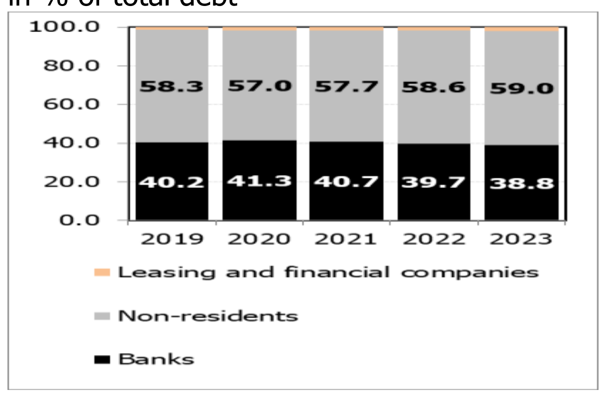
in % and in percentage points



in % of GDP



in % of total debt



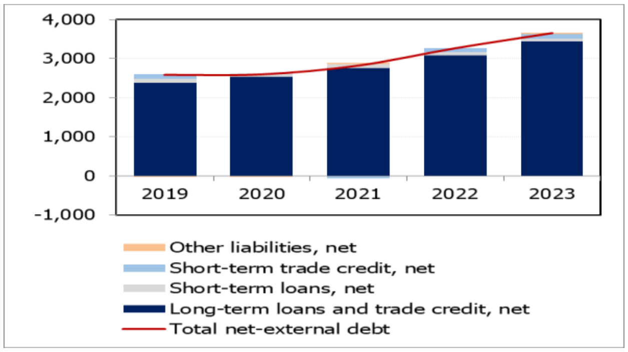
Source: National Bank, Ministry of Finance and State Statistical Office.

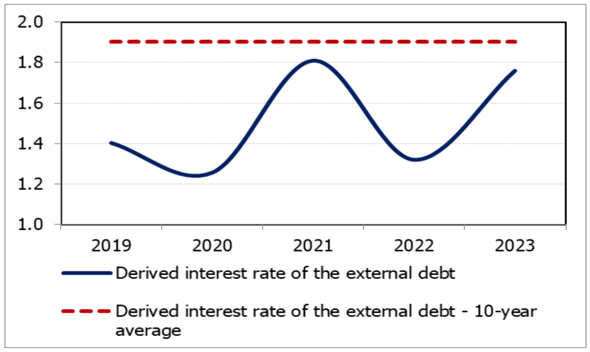
Regarding the external debt, the growth generator were the long-term loans, which are mainly in the form of intercompany borrowings from foreign parent companies. Thus in the external debt structure, the long-term borrowing increased (a share of 62.9%), which contributes to relatively favorable debt repayment with longer maturity, which reduces the risk of debt re-financing at less favorable terms, especially in the current environment of increased financing costs. On the other hand, **the short-term trade credits**[105] prevail in the total short-term liabilities of the corporate sector to abroad with a share of 94.1%. **The analysis of creditors shows that slightly more than half (52.4%) of the total external debt refers to the intercompany lending between connected entities,** which additionally reduces the risk of refinancing the external debt of the domestic corporate sector, under the assumption that these conected entities will continue with regular activities. Within the intercompany lending,

[105]Trade (commercial) credits denote relations between residents and non-residents (claims or liabilities) arising from direct loan approval from the supplier (supplier) to the buyer (receiver) on the basis of trade in goods and services, advance payments for trade in goods and services or for performing works.

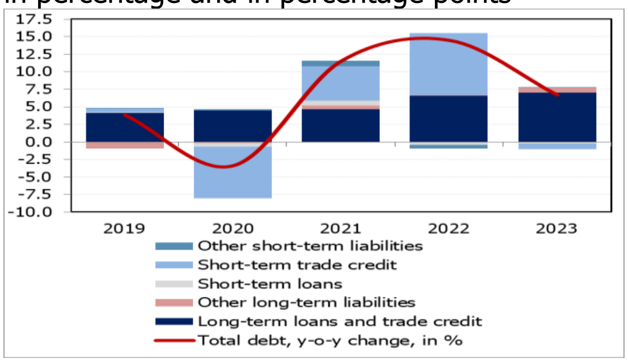
67.1% account for long-term liabilities, while short-term liabilities almost entirely refer to trade loans (a share of 91.4%, while the rest are short-term loans).

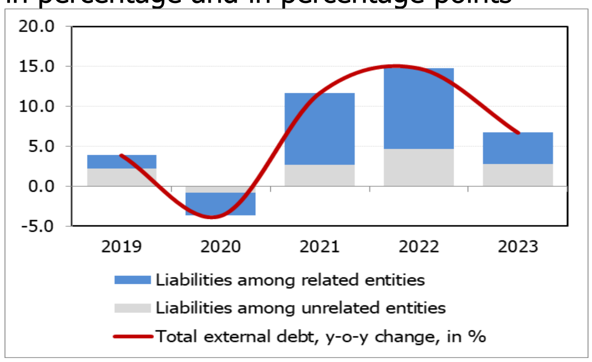
Chart 80
Net external debt of the corporate sector (up left), derived interest rate of the external debt (up right) and contribution to the annual growth of the debt of the corporate sector to non-residents, by maturity (down left) and creditors (down right)
in millions of euros | in %





in percentage and in percentage points | in percentage and in percentage points





Source: National Bank.
Note: Net external debt is calculated as the difference between the gross external debt and gross external claims of the corporate sector.
The derived interest rate of the external debt is calculated as the ratio of paid interest on used loans from non-residents by the corporate sector and total liabilities on used loans from non-residents by the corporate sector. The red dashed line represents the ten-year average of the derived interest rate of the external debt.

In 2023, the increase in the corporate sector debt to the domestic banking sector[106] continued, but at a slower pace, so that the share in the GDP is minimally reduced and in 2023 it amounts to 27.4% (27.7% of the GDP in the previous year). The growth of the debt to banks in its entirety results from long-term loans, share of which in the total debt of the corporate sector to domestic banks increased and equaled 62.2%, while the short-term loans decreased on an annual basis. Such developments were realized in conditions of gradual depletion of the effects of price and energy shock, which reduced the liquidity needs of the

[106] The focus of the analysis of the domestic corporate sector debt is the debt to the banking sector, since the rest of the non-bank creditors have an insignificant share in the corporate sector funding.

domestic corporate sector. According to the Lending Survey of the National Bank[107] the decelerated increase in the loans of the banking sector is also a result of factors on the supply side (tightened lending terms) and the loans demand side (reduced demand for loans). According to the data of the annual accounts of the corporate sector[108], the number of companies using loans from banks in 2023 fell by 13.4%[109], so the banks have credit exposures to 31.7% of the total number of active entities.

The level of credit risk arising from the corporate sector[110] in 2023 decreased, so that non-performing loans of this sector fell by 2.8%[111]. Consequently, the rate of the non-performing loans in 2023 declined by 0.2 percentage points (from 3.9% to 3.7%)[112]. The decrease in the non-performing loans rate was registered in most of the important prevailing activities, except industry, where the rate increased moderately to the level of 4.3% (3.7% in 2022). From the aspect of the size of the non-financial corporations[113], in 2023, the rate of non-performing loans registered a decrease with large companies, as opposed to increase in medium-size, small and micro enterprises.

According to the maturity characteristics of the total debt of the corporate sector, in 2023, the main growth driver was the long-term debt, which retained and further strengthened the leading share in the total debt of the corporate sector (63.3% at the end of 2023). At the same time, about two-thirds of the annual growth of long-term corporate debt is conditioned by non-resident creditors. Short-term credits in 2023 decreased mostly under the influence of the fall in short-term trade credits.

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[107] The National Bank's Lending Survey is conducted on a regular quarterly basis. For the purposes of this section of the Financial Stability Report, the Survey results are analyzed as average results of the four quarterly surveys for each calendar year. For more information about the results from the lending surveys, visit the National Bank website.

[108] Performance indicators of the total corporate sector and by groups of entities by size are given in the annexes to this report.

[109] Out of a total of 59,682 active legal entities in 2023, there are 480 large entities, 1,104 are medium-size entities, 21,379 are small entities, and there are 36,719 micro entities. Banks have credit exposure to 77.5% of the total number of active large entities to 81.9% of the medium-size entities, to 52.5% of the small-size entities and to 17.5% of the micro entities.

[110] The corporate non-performing loans dominate the total non-performing portfolio with a share of 63.5% at the end of 2023 (65.5% in 2022).

[111] If the effect of the mandatory net write-offs is excluded, non-performing corporate loans will register minimal annual decrease of 0.2%.

[112]If the effect of the mandatory net write-offs is excluded, the rate of non-performing loans in this sector also decreases and it equals 12.3%, which is below its ten-year average (15.5%).

[113] The criteria for classification of entities into large, medium, small and micro commercial entities are defined in Article 470 of the Law on Trade Companies.

Table 3.
Structure and changes to components of the domestic corporate debt

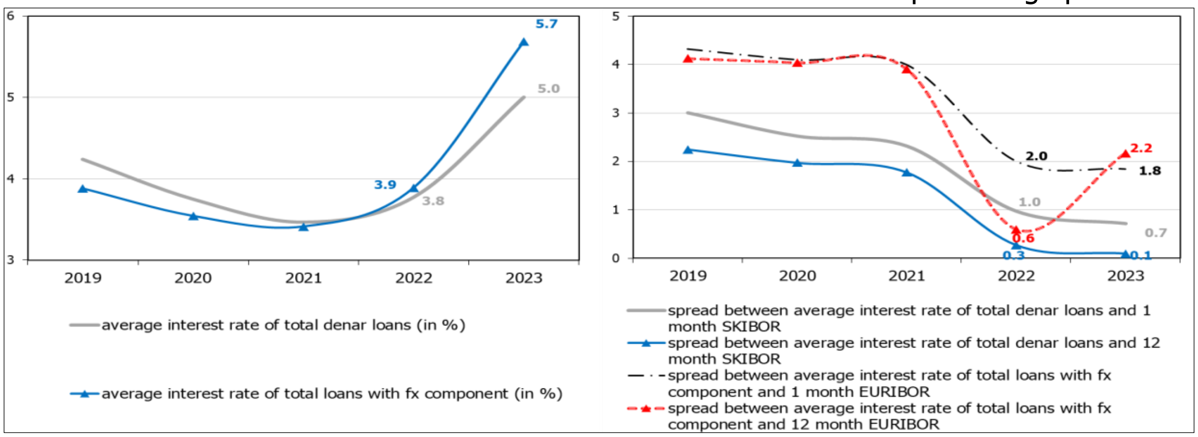
Type of debt		Structure (in %)			Absolute change (in Denar millions)			Relative change (in %)		
		2021	2022	2023	2021	2022	2023	2021	2022	2023
Currency	Denar debt	22.5	21.3	21.8	12,153	7,363	10,078	12.2	6.6	8.5
	FX debt	66.6	68.8	68.8	34,069	54,352	23,524	11.5	16.4	6.1
	Denar debt with FX clause	6.6	6.1	5.7	-694	992	-30	-2.1	3.0	-0.1
	Cummulative of regulatory imposed write-offs to domestic banks	4.3	3.9	3.7	688.9	194.0	311	3.3	0.9	1.4
Maturity	Short-term debt	32.6	34.4	31.6	21,348	30,405	-4,724	15.2	18.8	-2.5
	Long-term debt	61.2	60.2	63.3	24,281	32,889	38,735	8.7	10.8	11.5
	Other debt (past due and nonperforming)	1.9	1.6	1.5	-100	-322	47	-1.1	-3.5	0.5
	Cummulative of regulatory imposed write-offs to domestic banks	4.3	3.9	3.7	688.9	194.0	311	3.3	0.9	1.4
Type of interest rate	Debt with fixed interest rate	41.2	42.5	40.9	9,608	21,028	5,569	6.5	13.3	3.1
	Debt with variable interest rate	46.1	45.3	46.5	21,420	14,078	18,803	13.8	8.0	9.9
	Debt with administratively adjustable interest rate	1.7	1.1	0.5	-6,304	-1,921	-2,366	-49.1	-29.4	-51.3
	Other - interest free debt towards nonresidents	5.7	6.3	7.4	4,272	4,543	6,786	24.2	20.7	25.6
	Cummulative of regulatory imposed write-offs to domestic banks	5.3	4.9	4.6	631.0	162.8	271	3.2	0.8	1.3

Source: The National Bank on the corporate debt to banks and nonresidents, the Ministry of Finance on the corporate debt to leasing companies and financial entities.
Note: In the maturity structure of the debt, the share of other (past due and non-performing) debt is obtained based on the data for the indebtedness of the corporate sector to banks, due to unavailability of data on the non-performing debt to other creditors. The structure of the debt by type of interest rate is obtained according to the debt to the banking system and debt on the basis of the principal of loans to non-residents. The item for the written off indebtedness by the domestic banks presents that part of the indebtedness of the domestic corporate sector which was written off by banks in accordance with the regulatory obligation for write-off of exposure that has been fully covered by impairment for more than one year.

The analysis of the interest structure of the total debt of the corporate sector shows that it is sensitive to the interest rate risk, which is even more pronounced in the current environment of tight financial and credit conditions. Thus, almost half (47%) of the total corporate debt is with variable interest rate (including the debt with adjustable[114] interest rate). The interest rate risk is less pronounced in the case of external debt, where slightly more than half of the debt is with a fixed interest rate (53.2%), and an additional 15% refers to interest-free debt. In contrast to this, most of the debt of the domestic banks is with variable or adjustable interest (their joint share is 68.1%), which means accentuated sensitivity of the corporate sector to possible higher interest rates on loans and an increased burden for debt repayment.

[114] The debt with adjustable interest rate continued to decrease and at the end of 2023 the share of this debt was negligible and amounted to 0.5% of total corporate debt.

Chart 81
Average interest rates on total corporate loans by domestic banks (left) and spread of average interest rates over the basic interbank interest rates (right)
in % in percentage points

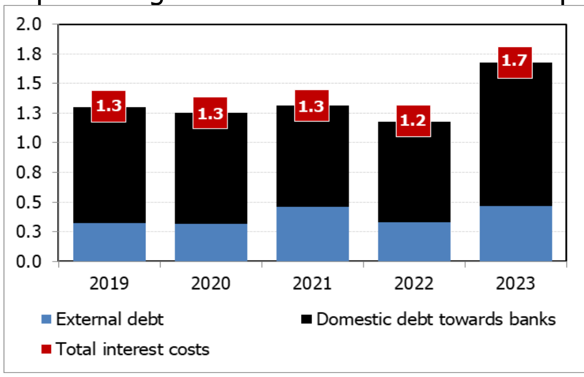


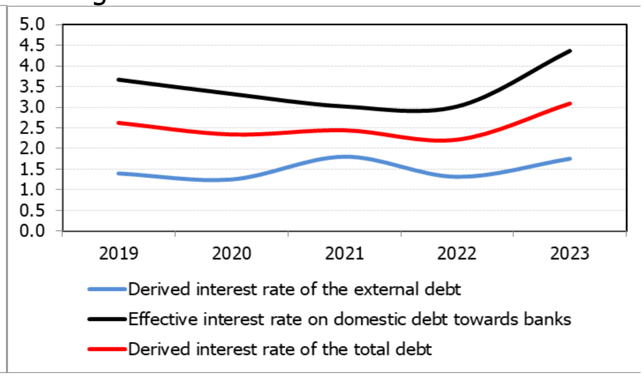
Source: Credit Registry of the National Bank, based on data submitted by banks and National Bank calculations.

In 2023, amid tight monetary and financial conditions, interest costs for servicing corporate debt to domestic banks increased by 0.4 percentage points and amounted to 1.2% of GDP[115]. Such movements were registered in conditions of interest growth on both denar loans and loans with a currency component, and at a faster rate of growth than the growth of interbank interest rates, which contributed to the narrowing the spread between them for most interest rates. Simultaneously, also the external debt interest payments increased, thus contributing for increasing the total interest expenses to the level of 1.7% of GDP. The derived interest rate on the domestic debt[116] in 2023 increased by 1.4 percentage points to the level of 4.4%, with the derived interest rate on the external debt[117] which equals 1.8% registering an increase of 0.5 percentage points compared to the previous year

[115] Refers to derived interest costs which for the external debt include the paid interest on the basis of loans used by the corporate sector during the year, while for the domestic debt, the banks' income from non-financial entities during the year is taken into account. The share of interest costs on external debt amounted to 0.5%, which is a growth of 0.2 percentage points.
[116]The derived interest rate of the domestic debt is calculated as the ratio of the banks' interest income from non-financial entities and the total bank loans to the corporate sector.
[117] The derived interest rate of the external debt is calculated as the ratio of paid interest on used loans from non-residents by the corporate sector and total liabilities on used loans from non-residents by the corporate sector.

Chart 821
Interest costs of the corporate sector (left) and derived interest rate of the debt of the corporate sector (right)
in percentage of GDP in percentage





Source: National Bank, based on data submitted by banks and external debt data.
Note: Interest costs are based on the data submitted by banks and external debt data. Interest costs for the external debt include the paid interest on the basis of loans used by the corporate sector during the year, while for the domestic debt, the income that banks have earned from non-financial companies during the year is taken.
The derived interest rate of the domestic debt is calculated as the ratio of the banks' interest income from non-financial companies and the total bank loans to the corporate sector. The derived interest rate of the external debt is calculated as the ratio of paid interest based on used loans from non-residents by the corporate sector and total liabilities based on used loans from non-residents by the corporate sector as of 31.12.2023 (excluding possible borrowings repaid in 2023).

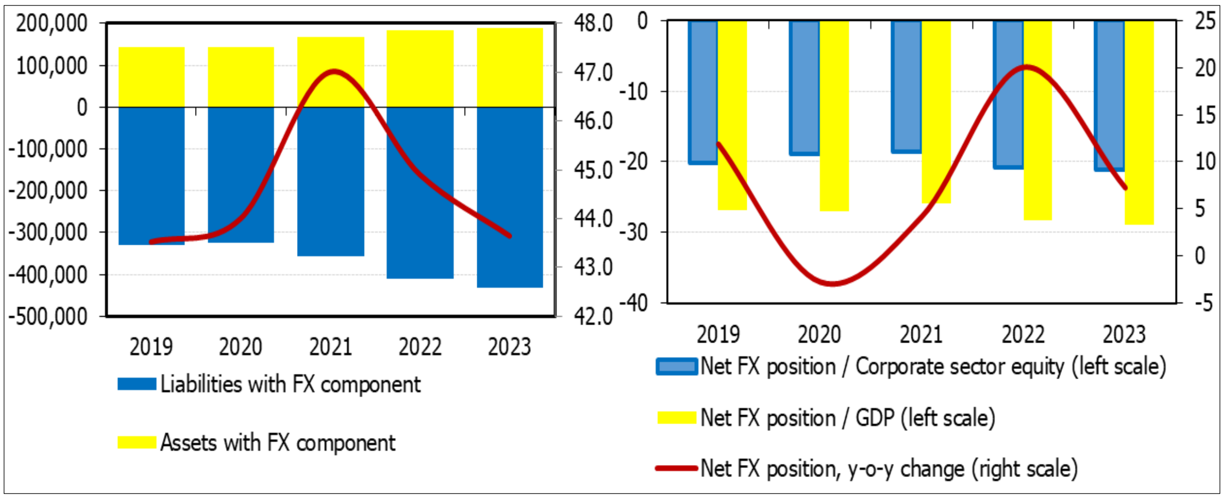
The currency risk remains significant to the corporate sector, given that foreign currency debt dominates the total corporate debt. The debt with currency component accounted for 74.7%[118] at the end of 2023 as the driver of the new borrowing. Such movements are mainly due to the increased external debt (which accounts for 66.9% of the total debt, i.e. 93.9% of the foreign currency debt growth), whose share in total corporate debt with currency component at the end of 2023 increased to 79.1%. The domestic banks' credit support slightly contributed to the growth of the currency exposure, which fully resulted from foreign currency loans, amid reduced placements in denar loans with FX clause. The euro is the leading currency in the structure of external debt and debt to domestic banks with currency component (share of 81.5% and 98%, respectively) which makes the strategy for maintaining a stable exchange rate of the denar against the euro vital in limiting the vulnerabilities of the economic entities to currency risk materialization. The US dollar is second important currency which as of 2023 accounts for 17.7% of the total external debt and modest 0.8% of the domestic banks' exposure to corporate sector, while the share of other currencies is insignificant. During the year, the US dollar moderately depreciated against the euro, while its exchange rate against the euro and subsequently the denar, was freely established on the foreign exchange market and the debt in US dollars actually represents the essential exposure of domestic companies to currency risk.

In 2023 there was a moderate worsening of the coverage of liabilities with currency component with assets with currency component of the corporate sector to the level of 43.6% (44.9% in the previous year), continuing the trend from the last

[118]It refers to the joint share of foreign currency debt and denar debt with foreign exchange clause.

year. Hence the **minor deepening of the short (negative) net currency position**[119], which in 2023 amounted to 28.9% of GDP, with an annual growth of 0.7 percentage points. The annual widening of the net currency position was due to the more dynamic increase in liabilities with currency component of the corporate sector, compared to the growth of its funds with currency component. Hence, maintaining a stable exchange rate of the denar against the euro is important for the preservation of the long-term sustainability of the corporate debt.

Chart 2
Net currency position of the corporate sector
in millions of denars and in %



Source: National Bank, State Statistical Office and the Central Registry.

[119] Net currency position is calculated as the difference between assets and liabilities with currency component (in foreign currency and in denars with FX clause) of the corporate sector, which is positive, i.e. long, when the assets are greater than liabilities, and negative, i.e. short, when the liabilities with currency component exceed assets. Assets with currency component include deposits with currency component, total claims on non-residents including cash on accounts abroad and investments abroad. Liabilities with currency component include: credits with a currency component from domestic banks and total liabilities to nonresidents. The stock of investments abroad as of 31.12.2023 is based on data as of 31.12.2022, since the data for 2023 becomes available in the second half of 2024.

II. DOMESTIC FINANCIAL SYSTEM

2.1. Structural features and concentration of the financial system

In 2023, the financial system assets and almost all its individual segments grew compared to the previous year. The banking system, the mandatory private pension funds and the insurance companies remain with the highest share in the financial system assets, with the largest contribution to its growth. The other segments of the financial system, individually and together, further occupy a very small portion of the total assets of the financial sector, although some of them almost constantly register a relatively fast percentage growth. Despite the continuous growth of the financial system, the comparative analysis of the levels of financial intermediation with other countries of Central and Southeastern Europe indicates a modest size of the domestic financial sector. The concentration in the individual financial segments, as well as the ownership structure registers no significant changes in 2023, with the largest and the most significant financial system segments being predominantly owned by foreign entities.

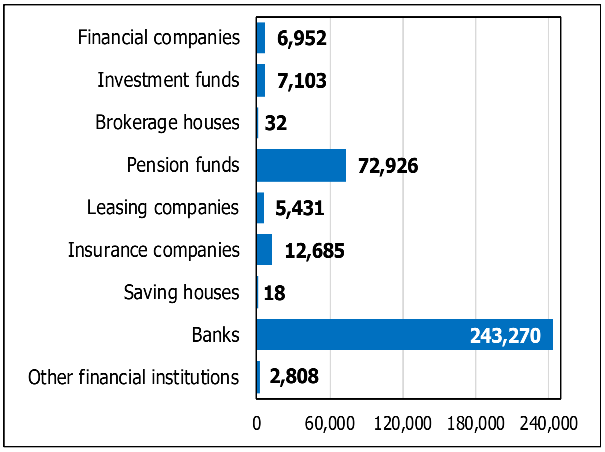
Table 4.
Structure of total assets of the financial sector in the Republic of North Macedonia

Type of financial institutions	Total assets (in millions of Denars)		Structure (in %)		Change 31.12.2023 / 31.12.2022		Number of institutions		Share in GDP (in %)	
	2022	2023	2022	2023	in millions of Denars	in %	2022	2023	2022	2023
Deposit takers	**686,286**	**748,806**	**79.2**	**77.9**	**62,520**	**9.1**	**15**	**15**	**85.5**	**89.1**
Banks	684,255	746,739	79.0	77.7	62,485	9.1	13	13	85.2	88.8
Saving houses	2,031	2,066	0.2	0.2	35	1.7	2	2	0.3	0.2
Non-deposit takers	**179,783**	**212,331**	**20.8**	**22.1**	**32,548**	**18.1**	**150**	**157**	**22.4**	**25.3**
Insurance companies	30,389	34,054	3.5	3.5	3,665	12.1	16	18	3.8	4.1
- Non-life insurance companies	18,834	20,990	2.2	2.2	2,156	11.4	11	12	2.3	2.5
- Life insurance companies	11,555	13,064	1.3	1.4	1,508	13.1	5	6	1.4	1.6
Insurance brokers	2,791	3,211	0.3	0.3	420	15.0	41	42	0.3	0.4
Insurance agents	165	163	0.02	0.02	-1	-0.7	10	12	0.02	0.02
Leasing companies	8,238	10,354	1.0	1.1	2,116	25.7	8	7	1.0	1.2
Pension funds	116,957	138,867	13.5	14.4	21,910	18.7	7	7	14.6	16.5
- Mandatory pension funds	113,882	135,267	13.1	14.1	21,385	18.8	3	3	14.2	16.1
- Voluntary pension funds	3,075	3,600	0.4	0.4	525	17.1	4	4	0.4	0.4
Pension funds management companies	1,754	1,908	0.2	0.2	154	8.8	4	4	0.2	0.2
Brokerage houses	169	173	0.02	0.02	4	2.2	5	5	0.02	0.02
Investment funds	11,103	13,481	1.3	1.4	2,378	21.4	20	22	1.4	1.6
Investment funds management companies	451	462	0.1	0.05	11	2.5	5	5	0.06	0.05
Private funds management companies	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Financial companies	7,766	9,659	0.9	1.0	1,893	24.4	34	35	1.0	1.1
Total	**866,069**	**961,137**	**100.0**	**100.0**	**95,068**	**11.0**	**165**	**172**	**107.8**	**114.3**

Source: for each institutional segment, the competent supervisory authority (the NBRNM, the SEC, the MAPAS, the ISA and the Ministry of Finance) and the SSO (GDP data).
*Development Bank of North Macedonia AD Skopje operates on the basis of a license issued by the Governor of the National Bank, but performs specific activities as a bank and does not collect deposits from the public.

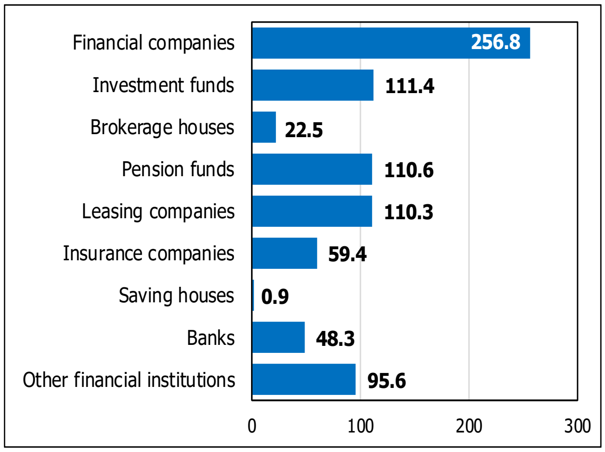
In 2023, the financial system assets increased by Denar 95,068 million or 11%, which is an acceleration compared to the growth registered in 2022 (growth of 7.3% or Denar 59,059 million). The annual changes in the assets of the banking system and the mandatory private pension funds, made the greatest contribution to the total growth of the financial system assets, of 65.7% and 22.5%, respectively. They are followed by the insurance companies, investment funds, leasing and financial companies, which made a moderate contribution to the absolute change in the financial system assets of 3.9%, 2.5%, 2.2% and 2%, respectively. Moreover, all segments of the financial system, except insurance agencies, increased the volume of activities in 2023, which grew faster compared to the previous year. The highest growth rates in 2023, of 25.7%, 24.4% and 21.4% were registered in the assets of leasing companies, financial companies and investment funds assets respectively, with relatively high percentage growth in other segments as well (the annual growth exceeds 15% in pension funds and insurance brokerage companies). Analyzing the last five years, the fastest growth was registered in financial companies, which increased the scope of their activities multiple times[120].

Chart 84
Cumulative absolute growth of the assets of the individual financial system segments, for the last five years
in millions of denars



Source: National Bank calculations based on data submitted by banks, savings houses, SEC, MAPAS, ISA and the Ministry of Finance.

Chart 85
Cumulative percentage growth of the assets of the individual financial system segments, for the last five years
in %

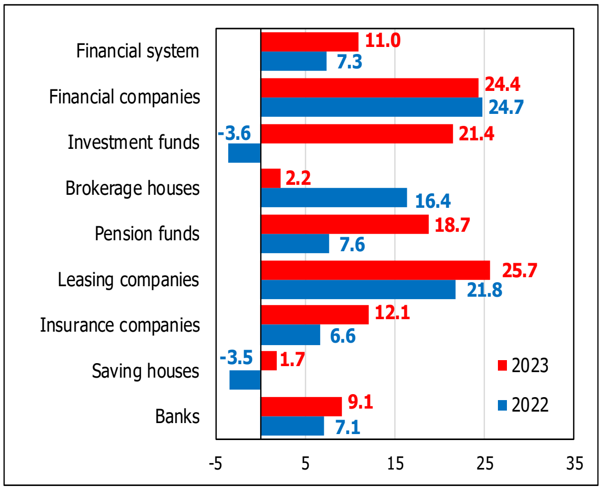


Source: National Bank calculations based on data submitted by banks, savings houses, SEC, MAPAS, ISA and the Ministry of Finance.

The share of the assets of the financial system in GDP increased by 6.5 percentage points and reached a level of 114.3%, for 2023. The level of financial intermediation in our country is still modest, which particularly comes to the fore in the comparative analysis with the countries of Central and Southeastern Europe. The lower levels of financial intermediation, coupled with the simple structure of the financial system, show that **there is room for greater support from the financial sector for the economic growth and development of the country**. In contrast, the simple structure of the financial sector with traditional business models of financial institutions, the small interdependence of its segments and the small integration with the international flows make it more resistant to external shocks, and its modest size additionally limits the potential returning negative effects from the financial system to the economy.

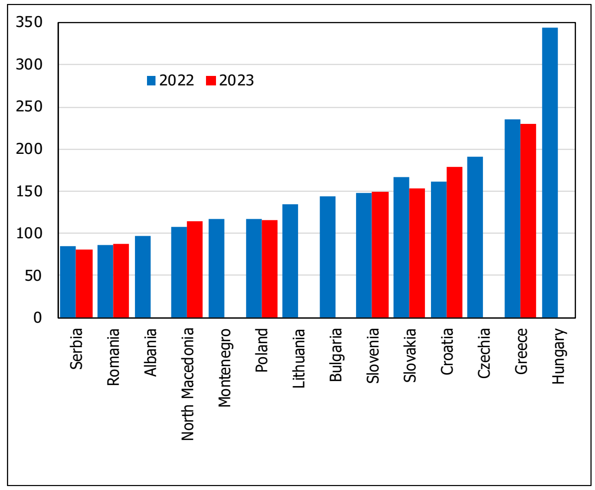
[120] In the last five years, the total assets of the financial system increased by Denar 351,225 million, or by 57.6%.

Chart 86
Comparison between the growth rates of the assets of the financial system in 2022 and 2023
in %



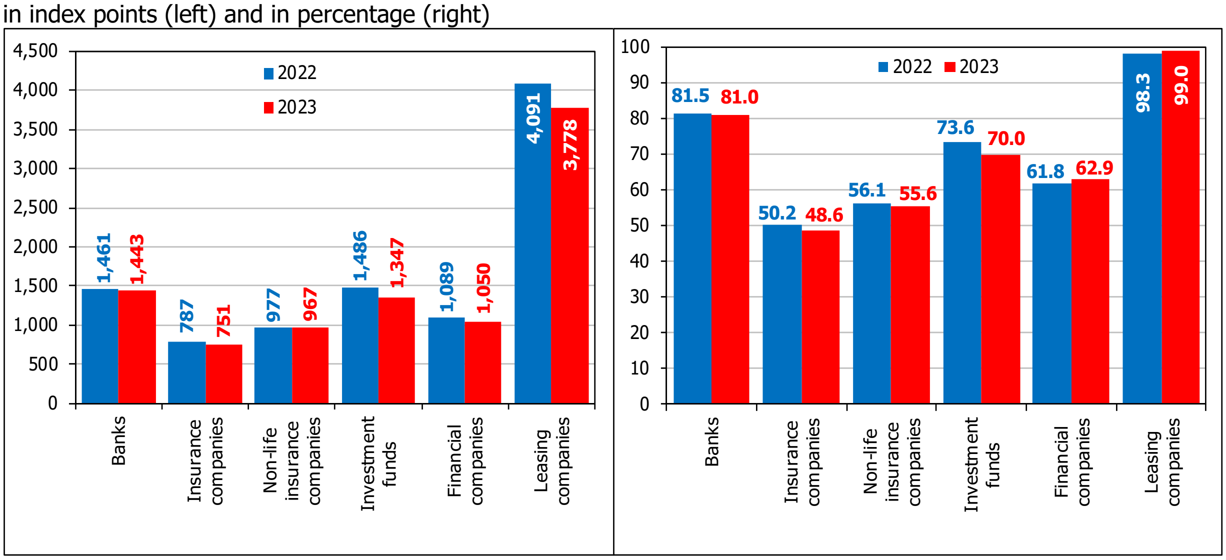
Source: National Bank calculations based on data submitted by banks, savings houses, SEC, MAPAS, ISA and the Ministry of Finance.

Chart 87
Financial system assets to GDP ratio, by country
in %



Source: for North Macedonia, National Bank calculations based on data submitted by banks, savings houses, SEC, MAPAS, ISA, SSO and the Ministry of Finance. For the other countries, the websites of Eurostat (https://ec.europa.eu/eurostat) and the central banks from the individual countries. Given that the data for 2023 is not available for all countries, for the purpose of better comparability between the countries, the data for 2022 is also presented.

Chart 88
Herfindahl index (left) and CR5 index (right) for the total assets, by segment of the financial system
in index points (left) and in percentage (right)



Source: National Bank calculations, based on data from banks, the ISA, the SEC and the CR.

The concentration in the financial system slightly decreased in most of its segments, as measured by the Herfindahl index and the CR5 indicator[121]. More evident decrease in the concentration measured by the Herfindahl index was registered in leasing companies.

The number of financial system institutions increased by seven, compared to the previous year, thus the number of leasing companies reduced by one, while the number of institutions in the other financial system segments increased by eight (two insurance companies, two insurance agencies, two investment funds, one insurance brokerage company and one financial company).

Leasing companies registered major changes in 2023, when they were predominantly owned by foreign shareholders[122], while in the investment fund management companies[123]the shares of the shareholders in domestic and foreign ownership were almost equal (unlike the pronounced dominance of foreign owners in the previous year). **The largest and the most significant financial system segments** (banks, pension fund management companies and insurance companies) **are predominantly owned by foreign financial institutions.**

Table 5.
Ownership structure of financial institutions
in %

Owners	Banks	Saving houses	Insurance companies	Brokerage houses	Leasing companies	Pension funds management companies	Investment funds management companies	Financial companies
Domestic owners	***20.7***	***100.0***	***28.6***	***86.5***	***43.6***	***13.4***	***49.9***	***54.8***
Non-financial legal entities (including civic associations)	7.2	100.0	0.4	45.5	3.3	0.0	13.1	26.5
Banks	0.1	0.0	20.8	0.0	36.9	8.1	21.0	0.0
Other financial institutions	0.3	0.0	1.1	0.0	0.0	5.3	0.0	0.0
Natural persons	7.0	0.0	6.2	41.0	3.4	0.0	15.8	28.2
Public sector	6.2	0.0	0.03	0.0	0.0	0.0	0.0	0.0
Foreign owners	***79.0***	***0.0***	***71.4***	***13.5***	***56.4***	***86.6***	***50.1***	***45.2***
Natural persons	1.4	0.0	0.4	8.9	0.0	0.0	0.0	12.7
Non-financial legal entities	6.6	0.0	2.6	4.5	13.2	0.0	14.9	0.0
Banks	69.3	0.0	0.0	0.0	19.4	0.0	0.0	0.0
Other financial institutions	1.7	0.0	68.3	0.0	23.7	86.6	35.2	32.5
Undefined status	**0.3**	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
Total	***100.00***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: National Bank calculations based on data submitted by banks, savings houses, SEC, websites of pension funds management companies, ISA, CSD and the Ministry of Finance.
Note: The share by type of owner in the ownership structure refers to shareholder capital / core capital of the financial institutions.

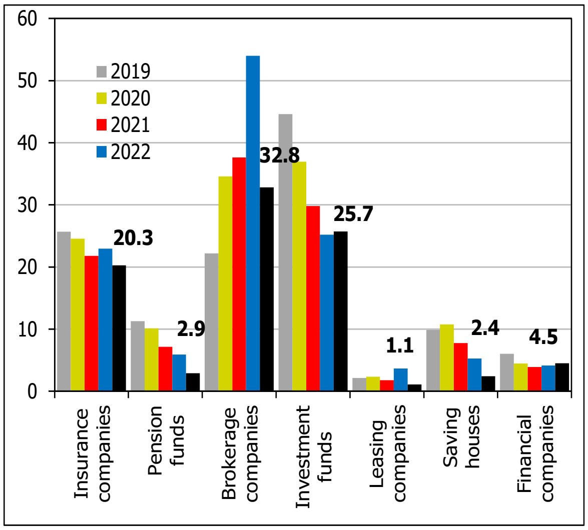
[121] The analysis takes into account those segments of the financial system where at least six institutions actively operate and where data on the amount of assets by individual institution are available.
[122]Due to the decrease in the number of leasing companies by one and increased deposits in two leasing companies by the founders.
[123]There was a recapitalization of one of the companies.

2.2. Cross-sector relation, "contagion" channels and their impact on financial stability

The financial system of the Republic of North Macedonia is characterized by a unique structure, low cross-sector relation among individual institutional segments and consequently low exposure to contagion risks, as well as lack of more complexed financial instruments and services. The banking sector is the main financial system segment, where savings of the non-financial sector and the liquidity of other financial institutions are concentrated, hence it is crucial for the financial stability of the country.

Chart 89
Deposits of non-banking financial segments in banks to total assets

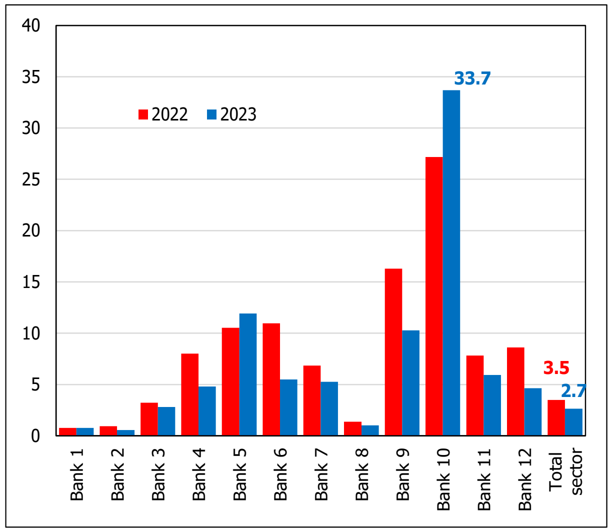
in %



Source: National Bank calculations, based on data from balance sheets from other financial institutions published within the National Bank monetary statistics, data submitted by banks and savings houses and SEC (on the assets of brokerage companies).

Chart 90
Shares of the total deposits from the non-banking financial segments in the total liabilities of the banks and the banking system

in %



Source: National Bank calculations, based on data submitted by banks.
Note: The analysis does not include the DBNM AD Skopje, because it does not accept deposits.

Significant part of the assets of non-banking financial institutions were placed in bank deposits (Denar 16,556 million)[124]. This is especially noted in brokerage companies, investment funds and insurance companies, where more than 20% of their assets are invested in deposits with domestic banks. The nature of the activities of the non-banking segments of the financial system, the development of domestic financial markets, as well as regulatory opportunities and limits are some of the main reasons for the relatively high placements of these institutions in bank deposits. Thus, the stability of the non-banking financial institutions is largely conditioned by the banking system's solvency and liquidity, as a crucial channel for spillover of risks from banks to these financial institutions. Analyzed at the aggregate level, the deposits of the domestic non-bank financial institutions account for only 2.7% of banking system's total liabilities and their assumed withdrawal would have a significant influence on the liquidity and stability of the banking system. However, deposits of the non-banking financial institutions remain a significant source of financing with three domestic banks having a share of over 10% in their total liabilities (the total joint market share of these three banks in total assets of the banking system equals 3.1%). In terms of these banks, deposits of non-banking financial institutions are a potential channel for liquidity consequences, if they are simultaneously withdrawn, having in mind that deposits of financial institutions are treated as a less stable funding source.

Bank loans granted to non-banking financial institutions, although insignificant, are yet another potential contagion channel in the financial system. At the end of 2023, bank loans approved to these institutions equaled Denar 1,476 million and accounted for only 0.3% of total loans to banks (these share does not exceed 1.6%, by bank). On the other hand, bank loans are a significant source of finance of part of the non-banking financial segment activities. Thus, bank loans in insurance brokerage companies[125], open-end investment funds management companies[126] and leasing companies[127] account for 14%, 11.8% and 10.9%, of their total funding sources, respectively. They are followed by financial companies, where bank loans account for 4.1% of the sources of finance, while in the rest of the non-banking financial institutions, the share of bank loans does not exceed 2% of total funding sources.

The contagion risk among banks through their mutual claims and liabilities is relatively insignificant. The total claims among banks equaled Denar 18,769 million, or 2.5% of the total assets of the banking system. Most of them (89.9%) account for DBNM AD Skopje, which places the loans obtained from the international financial institutions and from the government to end users through domestic banks (due to which most of its assets consists of claims on other banks). Only under an extreme assumption, of the DBNM AD Skopje not being able to collect claims from most of the banks, the contagion risk with this bank would materialize. As for the other banks, the interbank claims do not exceed 5.2% of total assets of individual banks, while bank-by-bank analysis of liabilities shows that the highest share of interbank liabilities equals 7.7%. The analysis of the turnover on the interbank market for collateralized and uncollateralized deposits confirms the relatively **low exposure of the banks to the risk of spillover of possible problems, from one bank to another.** In 2023, the banks predominantly traded in uncollateralized deposits segment (only two repo transaction in the amount of Denar 204 million were concluded), in the amount of Denar 2,435 million, which is only 0.4% of the total assets of the banking system, at the end of 2022. However, the trade in deposits among domestic banks usually increases in conditions of deteriorated environments and increased uncertainty (for example, in 2022, in conditions of geopolitical turmoil, energy crisis and high inflation growth, the turnover on the interbank deposit market reached Denar 49,307 million or 7.7% of the assets of the banking system). Even in such conditions, the stock of interbank claims and liabilities on banks' balance sheets usually remains stable (as of

[124]Deposits also include payment accounts of other institutional segments in the banks. As of 31.12.2023, 17.1% of the total deposits of the non-bank financial institutions are funds on a payment account with a bank or are in the form of demand deposits.
[125]Most of the liabilities based on bank loans are concentrated in one insurance-brokerage company, with three large banks as creditors. Bank loans make up 21.4% of this company's total funding sources.
[126]This involves the borrowing in one open-end investment funds management company, where the share of bank loans is 26.3% in total funding sources. One large bank is a creditor.
[127]Loan-based liabilities are distributed among four leasing companies, with a different bank being a creditor. There is no data available on the percentage share of loan-based liabilities in total funding sources of each leasing company.

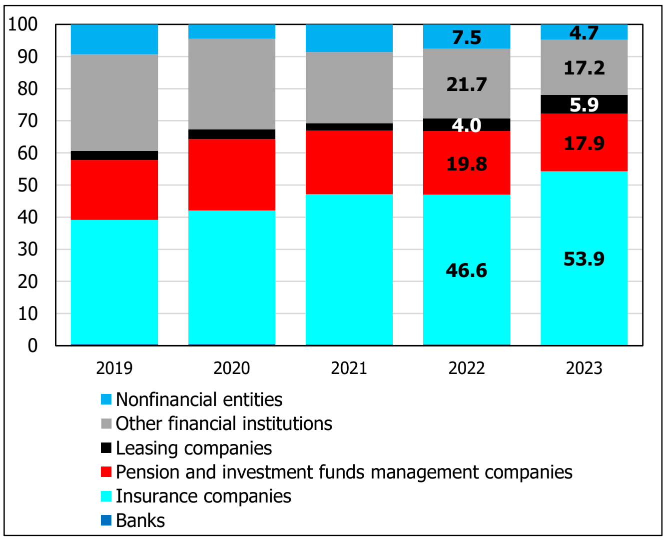
31.12.2022 they accounted for only 2.4% of the total assets of the banking system) and confirms the relatively low exposure of banks to cross-contagion risk.

Same number of banks, compared to the previous year, used the **bancassurance** in 2023 (seven banks). The cooperation between banks and insurance companies based on an agreement for representation in insurance gradually grows, with a minor to moderate importance for both segments. The gross written premiums collected by banks make up 6.6% of total insurance companies' premiums in 2023 (5.9% in 2022), for which banks have collected commissions which account for only 2.3% of their total commission income for 2023 (2.2% for 2022)[128]. Banks' exposure secured by a life insurance policy reached 20.2% of the total credit exposure to natural persons[129] or 23.4% of the exposure to natural persons excluding credit cards and overdrafts on payment accounts which is a slight upward change compared to the previous year (in 2022, these shares amounted to 18.6% and 21.8%, respectively). Significant growth is registered in bank loans insured against default with some insurance company, which reached almost Denar 29 billion (Denar 20 billion as of 31.12.2022)[130], or 6.5% of total loans to non-financial entities (4.7% as of 31.12.2022). The insurance companies will cover banks' damages from a possible risk materialization in these loans, in accordance with the amount insured[131]. Also, the potential damage to loan collateral, protected by property insurance policy (as of 31.12.2023, in 73.1% of the banks' total credit exposure to non-financial companies secured with property, the collateral is secured with property insurance policy[132]) is yet another potential channel for connection between the insurance and banking sectors. The banks' collection of these claims, by taking foreclosure activities, could be jeopardized only in case of possible natural disasters, which would cause great damages that cannot be paid by the insurance companies.

[128]Banks' services for selling insurance policies are relatively expensive to insurance companies since the commission income that banks charge for this service is almost 30% of total gross written premium charged through them. This could be a limiting factor for greater cooperation between insurance companies and banks in selling insurance policies.
[129] In 2023, risk event covered with life insurance policy occurred in 0.1% of loans secured with life insurance (and banks collected damages from insurance companies, according to the insured amount).
[130]The annual growth of these loans is almost entirely concentrated in one bank. Source: data submitted by banks.
[131]In 2023, banks collected a minimal amount of damages from insurance companies on the basis of credit risk materialization.
[132] Source: data submitted by banks.

The insurance sector has business relationship with other segments of the financial system. Thus, due to the regulatory obligation of the leasing user to insure the subject of leasing with the insurance company, there is a natural connection between the insurance and leasing companies. Also, in the recent period, there is a growing use of unit-link products offered by insurance companies, as combination of life insurance and collective investment, i.e. life insurance where the investment risk is borne by the insuree and is directly determined by and related with the performances of the investment funds (in the structure of the total gross written premiums of life insurance companies, the collected unit-link premiums account for 23.6%[133]).

Chart 91
Structure of banks' investments in equity instruments, in subsidiaries and associates, by the type of domestic legal entity
in %



Source: National Bank calculations based on data from banks.

The equity investments of the banks in other domestic , financial and non-financial legal entities equal Denar 2.538 million, or 0.3% of the total assets of the banking system (by bank, this share does not exceed 1.4%). Banks are the predominant or significant owner of an insurance company in the country, an open-end investment fund management company, a pension fund management company and three leasing companies[134]. This is a confirmation that the banking sector is crucial for the financial stability.

[133] This share was 21.7% for 2022.
[134] Banks have (joint) investments also in other domestic financial institutions, such as the Macedonian Stock Exchange, the CSD, KIBS, CaSys.

2.3. Deposit-taking institutions

2.3.1. Banks[135]

In 2023, the banking sector preserved its stability and operating security, with improved solvency and liquidity and good credit portfolio quality. The capital adequacy of banks in 2023 reached 18.1%, which is the record high in the past 17 years, which is crucial for stability maintenance in dealing with risks, as well as for lending and support to households and non-financial companies. The liquidity positions of the banking system further improved, amid high growth of deposits and decelerated lending activity. The quality of the banks' credit portfolio is solid and shows no signs of significant credit risk materialization, while the share of non-performing to total loans of 2.8% is at the historic low. The banking system is profitable, with increased profit in 2023.

However, the environment is still uncertain amid geopolitical turmoil and there is a need for further prudent risk monitoring and policy conduct. In addition to financial risks, banks are exposed to risks related to developments on the real estate market, while the importance of climate change and cybersecurity risks is increasing.

In 2023, the environment the banks operated in was characterized by a gradual inflation slowdown, which remained above the historical average, a stable foreign exchange market and slow economic growth. At the same time, the risks arising from the setting and the uncertainty related to their materialization remained and were mainly related to the external environment. In 2023, the global economy faced several challenges, such as the consequences of the monetary tightening of the central banks of the leading economies, the temporary concern about the stability of the banking systems in the USA and Europe and the subsequent turbulences on the global financial markets, the further military actions in Ukraine, and later the tensions in the Middle East, as well. The direct effects of the developments in the international environment on the Macedonian banking system are usually limited, given its low exposure and external liabilities[136], the application of the traditional business model by banks[137], as well as relatively low placements in securities[138]. However, the effects of the development in the international environment are relatively quickly transferred to the domestic, small and open economy and affect the environment they operate in, the decisions and the business behavior of the economic agents, including banks' clients, which in turn adequately reflects the decisions of the policy makers in the country. The response of the National Bank monetary policy to the developments in the international environment did not differ significantly from the policy direction of the most influential central banks. The cycle of monetary policy tightening continued also in 2023, when the policy rate increased on six

[135]For more details on the developments in the banking system in 2023 visit the following link: Report on the risks in the Banking System of the Republic of North Macedonia in 2023 (nbrm.mk).
[136]As of 31.12.2023, the share of claims on non-residents in total assets was 4.8%. At the same time, liabilities to non-residents accounted for 8.1% of total assets.
[137]On the liabilities side, deposits of non-financial entities make up 72.3%, while in assets, loans to non-financial entities account for 56.6%.
[138]As of 31.12.2023, the share of total placements in securities in total assets was 13%. Investments in government securities issued by the Republic of North Macedonia (81.2%) and placements in CB bills with the National Bank (10.2%) dominate their structure.

occasions for a total of 1.55 pp to the level of 6.30% The monetary policy was even more underpinned by the changes in the reserve requirement, aimed at encouraging saving in denars, as well as by the adopted macroprudential measures, which further strengthen the banking system resilience.

In conditions of monetary tightening, banks were relatively cautious and gradually increased the interest rates on loans and deposits, which prevented the materialization of the risks on both sides of their balance sheets. The increase in banks' interest rates was lower compared to the interest rates on monetary instruments, which made the transmission of the monetary policy effects on banks' interest rate policies incomplete. The possible extension of the conditions for maintaining the policy rates higher for longer could extend the transmission of the effects of the monetary policy instruments and additionally increase banks' interest rates. The higher prices of the sources of finance and banks' loans would have corresponding effects on the scope of activities, credit risk materialization and profitability.

Chart 92
Cumulative change of selected interest rates, as of April 2022 onwards
in percentage points

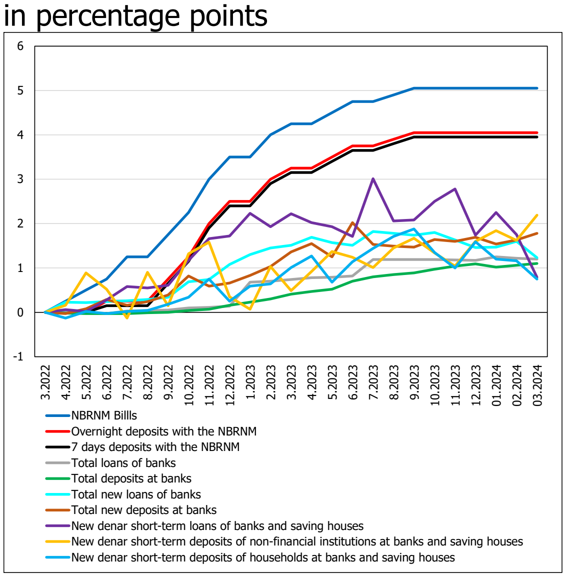
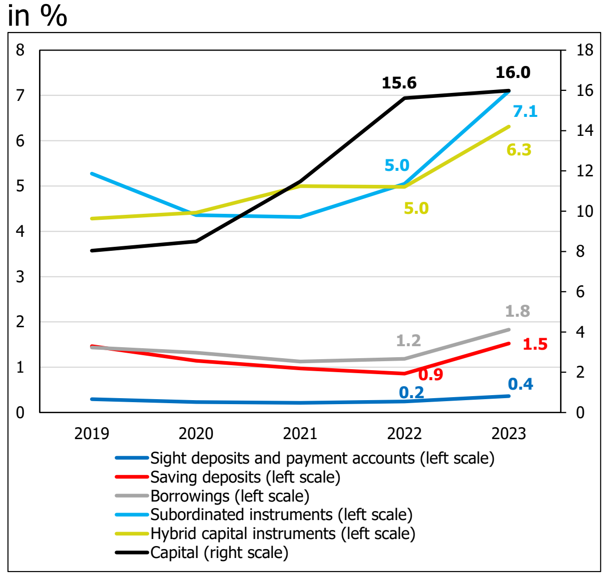


Chart 93
Costs of financing by category of sources of funds*
in %

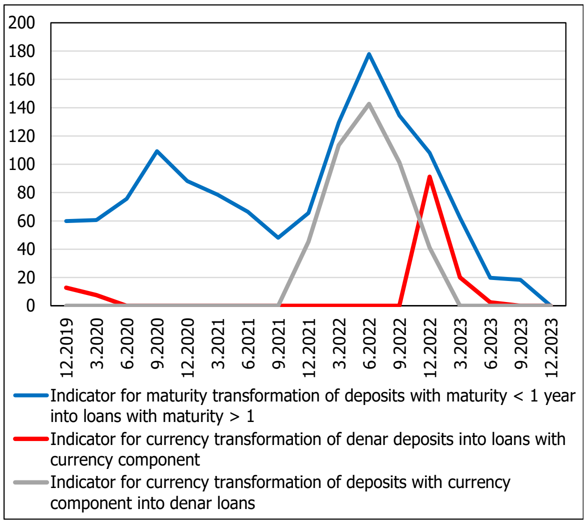


Source: The National Bank, based on data submitted by banks and NBRM calculations.
*The costs of financing by category of liabilities are calculated as a ratio between the annual interest expenses and the average amount of the appropriate interest-bearing liabilities.
The cost (price) of the capital is determined by applying the Capital Assets Pricing Model, on a sample of seven banks whose shares are listed on the official Macedonian Stock Exchange Market.

The higher interest rates made the banks' sources of finance more expensive, but they encouraged faster deposit growth amid more favorable maturity and currency structure of the new deposits. Thus, deposits grew sharply by 9.2% (5.4% in 2022), amid several times higher annual growth of denar (13%), compared to foreign currency (4.8%) deposits. Such structural changes result from the measures taken by the National Bank, mainly through the reserve requirement instrument, which stimulate saving in domestic currency[139]. Favorable structural changes in savings are evident in terms of deposit maturity as well. In conditions of growing long-term interest rates and stable expectations, long-term deposits grew as well, after their long-lasting decrease, so their annual rate reached the record high of 25.7% in the last decade.

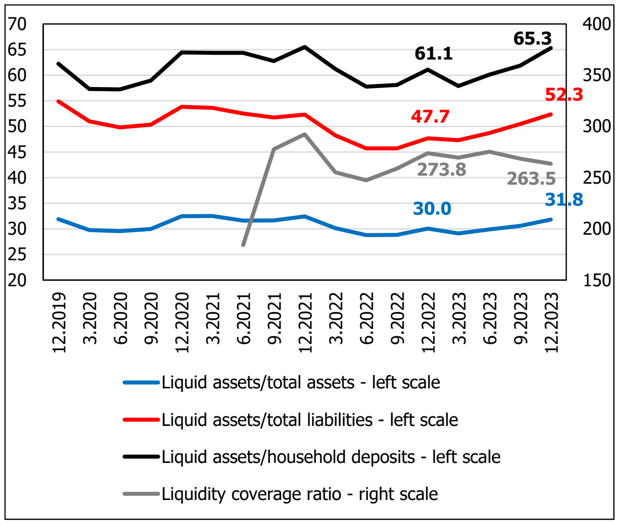
The indicators of maturity and currency transformation conducted by banks, amid their deposit-credit activity, decreased. These indicators reduced during the year and as of 31.12.2023 reached level zero, which indicates an equilibrium between annual changes of deposits and loans, analyzed by their maturity and currency[140]. At the same time, the presence of currency component (foreign currency and FX clause) in banks' balance sheets registered a decrease, amounting to 42.4% in assets and 41.2% in liabilities at the end of the year (as of 31.12.2022: 43.5% and 43.1%, respectively).

Chart 94
Maturity and currency deposit transformation indicators
in %



Source: National Bank, based on the data submitted by banks.

Chart 95
Indicators of liquidity of the banking system
in %



Source: National Bank, based on the data submitted by banks.

[139] In 2023, the reserve requirement rate from liabilities in foreign currency increased from 19% to 21%, and the share of the reserve requirement in euros that is met in euros increased from 75% to 81%. The reserve requirement rate on liabilities in denars with FX clause was also increased from 50% to 100%, thus in accordance with the change, banks will fulfill the reserve requirement, calculated from these liabilities, in euros.

[140] It includes the following indicators:

1. Indicator of maturity transformation of deposits with maturity < 1 year in loans with maturity >1 year: (Annual growth of loans with maturity >1 year - annual growth of deposits with maturity > 1 year) / annual growth of deposits with maturity < 1 year;
2. Currency transformation indicator of denar deposits into loans with currency component: (Annual growth of loans with currency component - annual growth of deposits with currency component/ annual growth of denar deposits;
3. Transformation indicator of deposits with currency component into denar loans: (Annual growth of denar loans - annual growth of denar deposits) / annual growth of deposits with currency component.

All three indicators include annual changes of loans and deposits of/ from non-financial sectors and range from zero upwards. The higher the indicator level the higher the maturity, i.e. the currency transformation of deposits, and vice versa.

Despite of the lack of imbalances between the annual changes of both, deposits and banks' loans, analyzed by their currency, the exposure to currency risk increased. The open (long) currency position of the banking system in 2023 grew and reached 10.7% of own funds (6.7% as of 31.12.2022). The widening of the open currency position is mainly a result of the increase in assets on foreign currency accounts with the National Bank (payment account and reserve requirement), which mostly results from the previously mentioned changes in the reserve requirement instrument. The exposure of the banking system to currency risk is still far below the regulatory prescribed limit of 30% relative to own funds, while the implementation of the strategy of a stable exchange rate reduces the materialization of this risk.

The movements on both sides of the balance sheet of the banking system had positive implications on banks' liquidity positions as well. The significant deposit growth, amid slower lending activity enabled a solid double-digit growth of liquid assets (15.3%), following the reduction (-0.9%) in 2022. Such movements improved the banking system liquidity positions even more, whose high-quality liquidity assets cover the net cash outflows which would be registered under stressful conditions for a period of 30 days (determined according to the Basel 3 definition) several times (263.5%).

The increase in interest rates reduces the Economic Value of Equity, since it reduces the current value of interest-sensitive positions of assets more than liabilities[141]. In the absence of developed secondary markets for certain interest bearing financial instruments and amid aggregate long position in interest rate risk management in the banking book, the increase in interest rates highlights the significance of the risk of lost potential yield and risk of higher prices of funding sources. Thus, as of 31.3.2022, shortly before the start of the policy rate increase cycle, 21.4% of the total interest sensitive positions in banks assets had a period longer than 2 years until the next reassessment of the interest rates (practically, after 31.3.2024[142]). At the same time, on the side of interest-sensitive positions in banks liabilities, the share of positions where the interest rate is to be changed for a period longer than 2 years was two times lower and amounted to 10.7%. As of 31.12.2023, the gap between these two shares is significantly narrowed (from 10.7 to 4.9 percentage points[143]). This points out that in the recent period, the banks were more actively involved in asset-liability management in the interest rate risk segment, in order to gradually adjust the structure of the balance sheet amid the growing interest rate environment, which reduced the overall banking system exposure to interest rate risk in the banking book (which dropped to 9% from 10.1% as of 31.12.2022,

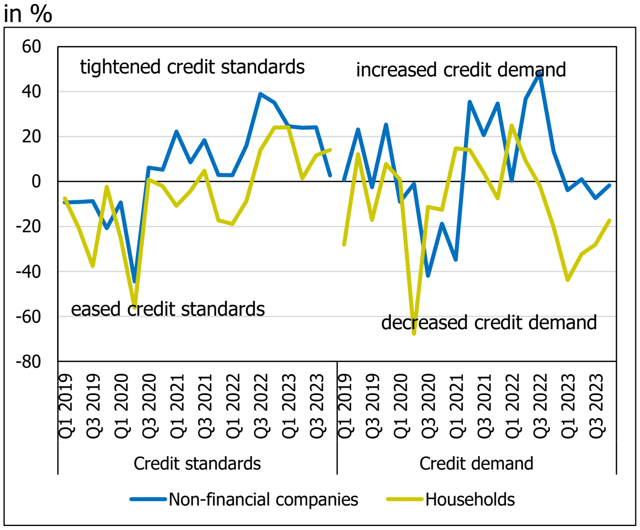
[141]The economic capital value is calculated as the difference between all expected cash flows from assets and all expected cash flows from liabilities, calculated at their present value by applying a corresponding interest rates for individual assets and liabilities. Taking into account that banks' assets are usually placed on longer terms compared to their sources (liabilities), amid growth in interest rates, the present value of assets is reduced more compared to the reduction of the present value of liabilities. There are also other factors that affect the change of the economic value of banks' capital amid change in interest rates (depositors' sensitivity of changes in interest rates, structure of assets and liabilities by type of interest rate etc.).

[142]The interest rates may be reassessed earlier, if banks liquidate (sell) financial instruments on the market before the expiry of these 2 years (practically before the due date) and renewed, by applying new, higher interest rates. However, 70% of these positions account for loans with almost no secondary trading, while the rest of 30% account for debt securities, where the fair (market) value decreases with the growth of interest rates and their sales before maturity is mainly unprofitable for banks. In conditions of increased interest rates, the premature payment of liabilities to banks is also unprofitable for banks' clients.

[143]In terms of assets, the interest rates will change after 2 years in 19.8% of the interest-sensitive positions, while in liabilities, the share of these positions equaled 14.9% (this percentage share mostly grows due to the increase in time deposits in the time zone from two to three years).

amid regulatory prescribed limit of this indicator of 20% of own funds). In fact, the adequate asset-liability management and the gradual and cautious adjustment of interest rate policies made the effects of the banks' income statements from materialization of risk of lost potential yield and higher prices of funding sources almost insignificant, amid significantly improved profitability in 2023. The reduction of the fair value of placements in debt securities (which are mostly included in the calculation of liquid assets[144]), amid growth in interest rates, exposes banks to market liquidity risk. However, there was no significant materialization of this risk in 2023, since banks faced no liquidity pressures and did not need outright or repo sales of significant amounts of debt securities on the secondary market or with the National Bank.

Chart 96
Results from Bank Lending Surveys, related to credit standards and credit demand
in %

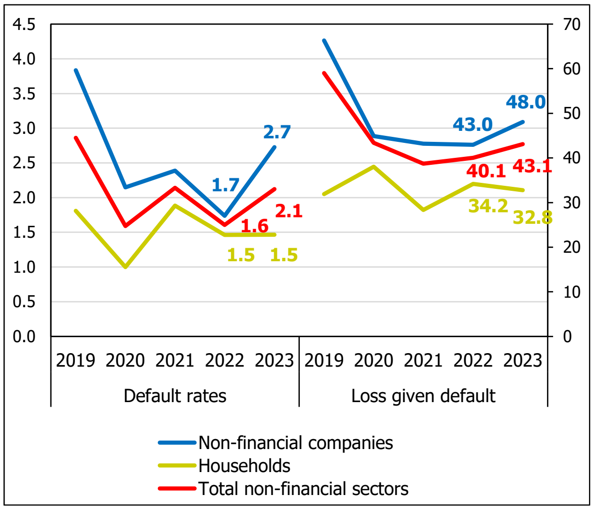


Source: National Bank, based on the data submitted by banks.
Note: The chart shows net percentage. In the credit standards section, net percentage is calculated as the difference between the percentage of banks that have reported tightened credit standards and the percentage of banks that have reported eased credit standards. In the credit demand section, net percentage is calculated as the difference between the percentage of banks that have reported increased credit demand and the percentage of banks that have reported decreased credit demand.

The credit growth decelerated in 2023 amid increased interest rates and overall net tightening of credit standards and net decreased demand[145]. Thus, in 2023, loans to non-financial sector decelerated their growth to the level of 4.3% (10.1% in 2022). Greater contribution to the slower credit growth was made by lending to non-financial corporations, whose growth rate significantly decreased from 11.8% in 2022, to 3.2% in 2023. Household loans also decelerated the annual growth, but moderately (from 7.7% in 2022, to 6.9% in 2023).

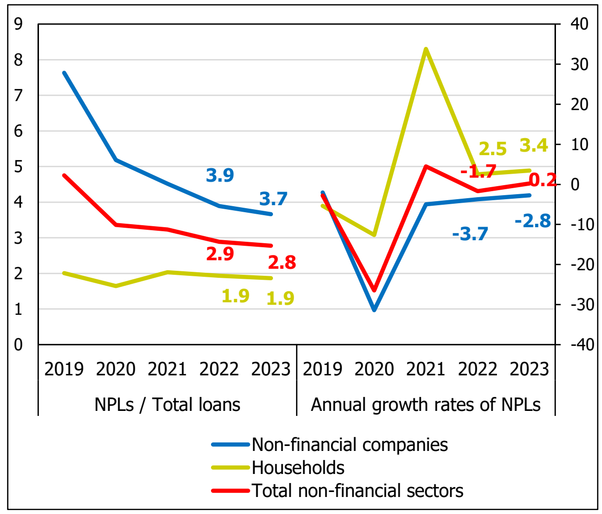
[144]In the structure of banks' liquid assets, debt securities account for 41.4%, of which 65.7% are classified as held to maturity and measured by amortized cost.
[145]According to the results of the Lending Surveys published on the National Bank website.

Chart 97
Credit risk parameters



Source: National Bank, based on the data submitted by banks.
*Default rates for each year shown as average percentage of regular credit exposure which during the year acquired non-performing status.

Chart 98
Non-performing loans



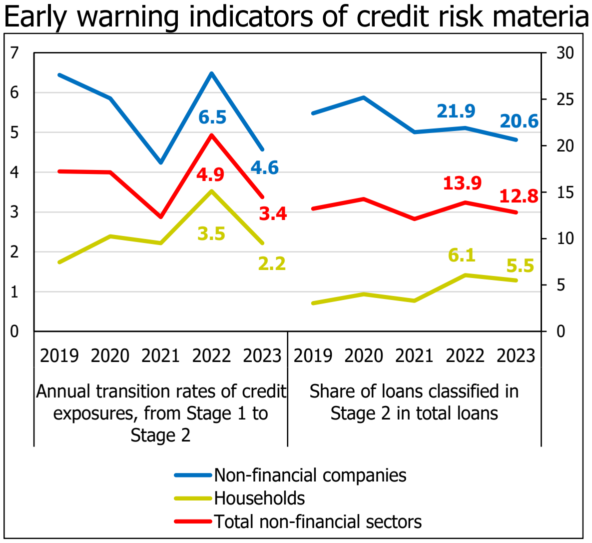
Source: National Bank, based on the data submitted by banks.

In addition to the decelerated growth of the credit support, the gradual and cautious harmonization of the interest rate policies enabled small and controlled credit risk materialization. Although 70% of the loans are with variable or adjustable interest rate, banks have been relatively cautious and gradually increased the interest rates on loans, which prevented a more significant materialization of credit risk in 2023, as a result of higher interest payments of the clients[146]. The basic parameters of the credit risk in 2023, measured by the default rate during the year and the loss given default rate slightly increased in non-financial sectors. The increase in these parameters was entirely concentrated in non-financial corporations and was mostly due to single event of credit exposure default of one major client[147]. Non-performing loans to non-financial sectors slightly increased, by 0.2% in 2023, but their share in total loans continued to decrease and at the end of the year reduced to the record low (2.8%). Non-performing loans to non-financial corporations further decreased, while non-performing household loans moderately grew (3.4%), for the third year in a row, which amid solid growth of total loans to this sector had no impact on the share of non-performing in total loans. The low shares of non-performing to total loans and their high coverage with impairment (70.1% in 2023) limited the influence on the banking system solvency from a possible complete default of non-performing loans, whose non-provisioned amount accounted for only 3.8% of own funds. The early warning indicators for credit risk

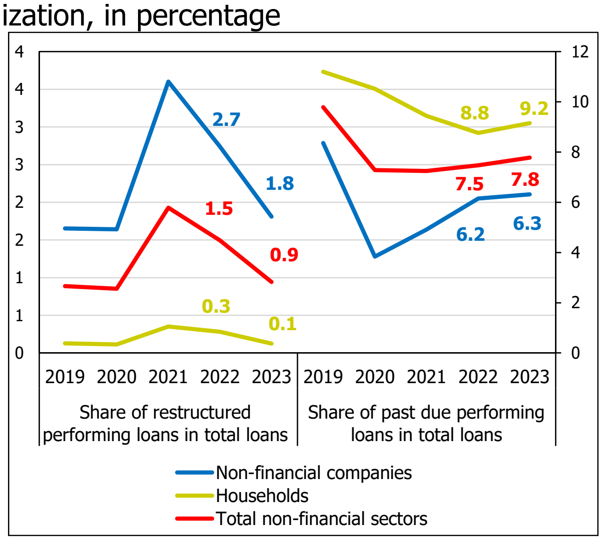
[146]In addition, part of the loans with variable and adjustable interest rate (around 16% of loans) are currently in a period of fixed interest rate application (loans that are envisaged to be regulated by combined application of fixed and variable/adjustable interest rate), which after the expiration of the period (usually several years) will be replaced with variable/ adjustable interest rate.
[147]In the last quarter of the year, a significant amount of claims on a major client received a non-performing status and was subsequently, in the same quarter, closed by foreclosure. In 2024, the foreclosed assets for claims from customers were sold.

materialization (the share of group 2 loans[148] in total loans, the migration rates of credit exposure from group 1 to group 2, the share of restructured regular loans in total loans and the share of regular loans with delay in payment in total loans) generally decreased in 2023 and, analyzed in the short term, signal no significant credit risk materialization in the following period due to disrupted creditworthiness of clients. The indicator for the share of regular loans with a delay in payment in total loans, which registered a certain increase in 2023, is an exception. However, in the structure of these loans, the delayed servicing of liabilities is mainly concentrated in the segment of up to 31 day (6.9% of total loans to non-financial sectors), while loans with a delay in the period from 32 to 90 days account for only 0.9% in total loans, which is unchanged compared to the end of 2022. Since the beginning of 2024, new Decision on the methodology for credit risk management has been enforced[149] which strengthens the rules in regard to the regularity monitoring of settlement of liabilities by clients, the method of counting the days of delay in particular. Thus, certain methodological changes have been introduced in determining the non-performing loans which contributed to their growth[150] in the initial period after the implementation of the Decision, which is rather an effect of the different approach in counting the days of delay, than of the changed creditworthiness of the customers. Hence, it is important for borrowers to be aware of these regulatory changes, which provide further harmonization with the regulatory requirements that are applied in the EU, in order to be orderly in servicing their liabilities and not to make their borrowing from the banks more difficult in the future.

Chart 99
Early warning indicators of credit risk materialization, in percentage



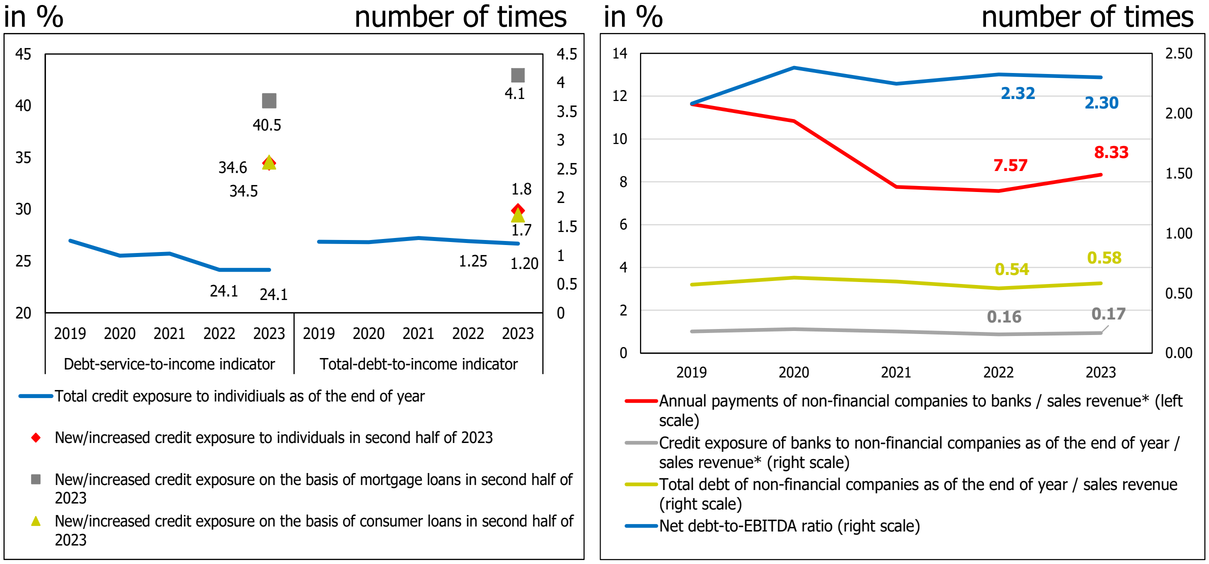
Source: National Bank, based on the data submitted by banks.



Source: National Bank, based on the data submitted by banks.

[148]These are loans with regular status, classified in B and C risk categories, where there was a significant worsening in the creditworthiness after the initial recognition, but there is no objective evidence of impairment.
[149] Available at: [Odluka_metodologija__za_krediten_rizik_nova.pdf (nbrm.mk)]
[150] The first single effect in January 2024 is increase in the non-performing loans by about 12% on both, annual and monthly basis.

Chart 100
Selected indicators of creditworthiness of natural persons and non-financial corporations (right), that are banks' clients



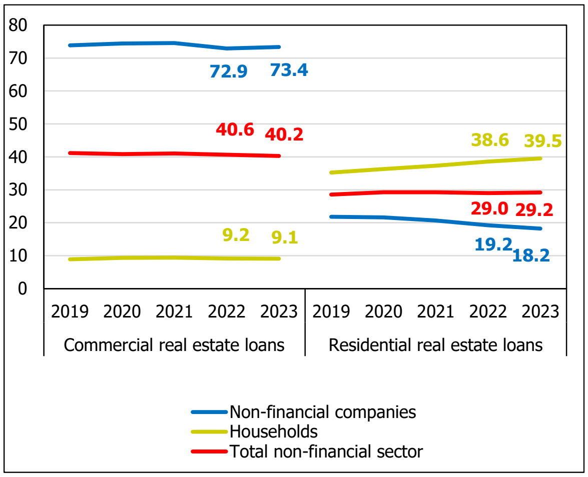
Source: National Bank, based on the data submitted by banks and CR.
Note on the left chart: The DSTI and TDTI ratios of total credit exposure to individuals as of the end of the year (blue lines on the chart) take into consideration only the credit exposure of banks, to all their clients-individuals at the end of the respective year. The other three indicators are calculated only for individuals that (additionally) borrowed from banks in the second half of 2023, since the new Decision on borrower-based macroprudential instruments, in accordance with the rules specified in the Decision (according to the provisions of the Decision, the credit exposure of natural person to all banks, savings houses and other financial institutions is taken into account when calculating DSTI and TDTI ratios). The major difference between indicators calculated for all natural persons-banks' clients and those calculated only for natural persons that (additionally) borrowed in the second half of 2023 arises from a number of natural persons in the banks' portfolios with low amount of (remaining) debt to banks.
Note on the right chart: The indicators marked with an asterisk take into consideration only part of the debt (liabilities) of non-financial corporations to banks, while the other two indicators are calculated by using the total debt of these companies, to banks and all other creditors.

The creditworthiness of banks' clients measured through their liabilities (stock or flow)-to-income ratio remained stable, indicating a relatively satisfactory level. Thus, among bank clients from non-financial corporations, the total net debt to EBITDA remained at a prudent level of 2.30[151]. Moreover, "credit exposure of banks to non-financial companies as of the end of year / sales revenue" slightly increased to the level of around 17%, while the "total debt of non-financial companies (to banks and other creditors) as of the end of year / sales revenue" for 2023 accounted for around 58%. As for the natural persons who are banks' clients, the DSTI ratio on a monthly basis and the TDTI ratio on an annual basis at the end of 2023 remained at the same level as of 31.12.2022 (24.1% and 1.2% respectively). In order to prevent excessive indebtedness of individuals, as of 1.7.2023, the National Bank introduced borrower-based macro-prudential measures. As of this date, banks have been

[151] Each level below 4.00 is considered as low and indicates a satisfactory capability to handle the debt burden and to have capacity for additional borrowing.

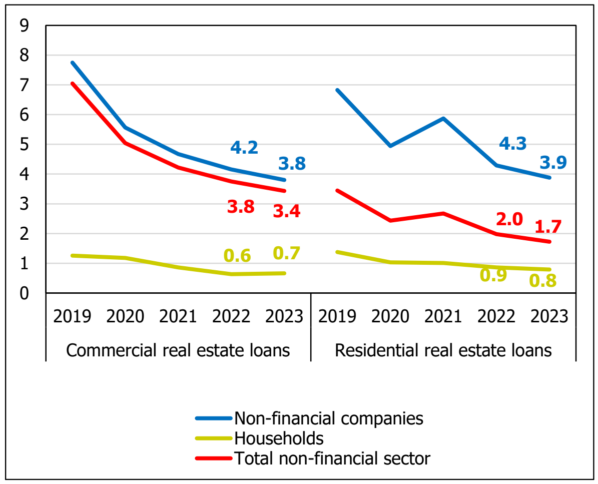
required to notify the National Bank of the amount of the DSTI[152], TDTI[153] and LTV[154] ratios, calculated according to the unified methodology, amid new approval of exposures to individuals. In addition, a limit has been set on the amount of DSTI (to 55% and 50% depending on whether they are denar or FX component loans) and LTV ratios (85%, when approving exposure secured with real estate). Thus, by influencing the borrower-based ratios, these measures prevent the accumulation of systemic risks in the household segment and real estate market, which could be materialized as loan losses with banks. Therefore, banks are cautious and apply lower indicators than the prescribed ones.

Chart 101
The share of real estate related loans in total loans to non-financial sectors.
in %



Source: National Bank, based on the data submitted by banks.

Chart 102
The share of non-performing to total real estate related loans
in %



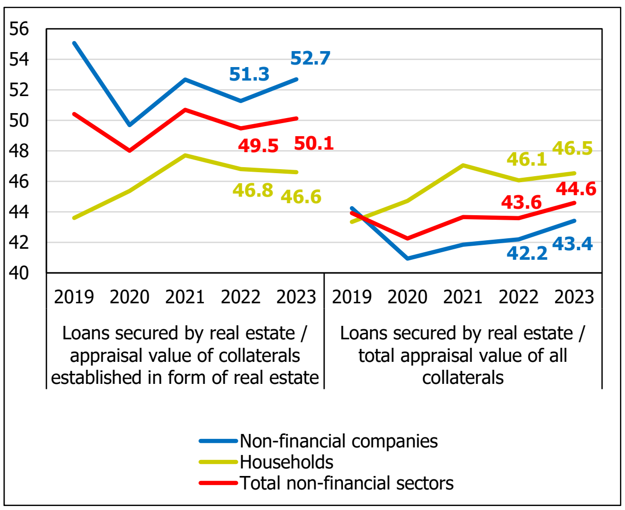
Source: National Bank, based on the data submitted by banks.

The exposure of the banking system to risks arising from real estate market developments is significant. The share of residential and commercial real estate loans[155] in total loans to non-financial sectors are relatively high, although generally stable in the past five-year period, excluding the share of residential real estate loans in total household loans, registering an upward trend (given the faster growth of housing loans in the past period). Risks to the banking system and its clients (non-financial companies and households), are mainly related to the possible sharper shift of the cycle, i.e. possible rapid and strong downward correction of the real estate prices. Such movements may affect the liquidity of the pledged real estate with banks, as a secondary source of loan repayment, which will directly reflect the banks' exposure to credit risks, their profitability, the contractual terms when approving new loans and subsequently the scope of lending activity. The possible rapid and sharp decline of

[152]DSTI indicates the ratio between repayment of liabilities based on loans and borrower's income on a monthly basis.
[153]TDTI indicates the ratio between total borrower-based liabilities and total borrower's income on an annual basis.
[154]LTV indicates the credit exposure to borrower-to-value of real estate pledged.
[155]In accordance with the IMF guide for the compilation of the financial stability indicators, residential real estate loans include loans that are collateralized by residential real estate, while commercial real estate loans include loans collateralized by commercial real estate, as well as loans which are not secured with this type of collateral, but are granted to legal entities from construction and development of real estate activities.

real estate prices would have adverse effect on the wealth and the financial position of households and non-financial companies and their access to banking loans under favorable contractual terms in the assumed amount, which would have reversible negative effects on their capacity to perform the corresponding economic activity. Moreover, the relatively aggravating factor in the analysis of the real estate market developments, especially on the commercial real estate market, is having no timely, uniform, detailed and overall statistical data base for these markets, which would help in timely identification of certain phases of the movement cycles of these markets' different segments and better understanding of the influencing factors in both directions.

Chart 103
The ratio between loans secured by real estate and the value of the collateral at the end of the year.
in %



Source: National Bank, based on the data submitted by banks.

However, loans secured by real estate have a relatively favorable (low) loan to value ratio, which mitigates the negative effects on banks from possible decline in real estate prices. Thus, the real estate prices pledged as collateral should reduce by 45-55% on average, so their value can match the balance of loans secured by real estate[156]. In addition, this segment of banks' credit portfolio registered no significant credit risk materialization and the non-performing to total loans ratio registered a downward trend in the past period. Also, the developments on the real estate market do not point to more significant signals of risk materialization related to this market[157].

The exposure of the banking system to the climate-related risks and earthquakes is significant. Just over half of the credit exposure of banks to non-financial companies is to entites from climate-sensitive activities i.e. activities that are sensitive to changes in policies, regulations, technological development, consumer behavior and similar, due to the transition to an economy with lower greenhouse gas emissions. The exposure of banks to physical climate risk drivers which arise from climate-related events is also significant, as well as the exposure to earthquake risk. These exposures can be direct, through the possible effects on banks' business premises or indirect, through the effects on banks' clients and their property and are especially important given that our country is exposed to high risk of floods and forest fires, while risk of extreme heat and earthquake is assessed as medium. Thus, the geographical distribution of banks' business units, their clients and real estate pledged as collateral are a significant factor in terms of the exposure to climate and earthquake risks, but taking into account the small size of the country, the probability of such

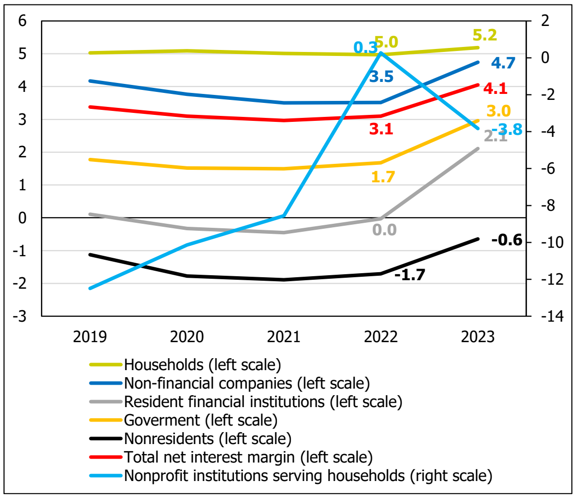
[156]Moreover, the LTV ratio on new/ increased loans to natural person approved during the second half of 2023 (since the new Decision on borrower-based macroprudential instruments has been applied) averaged 66.3% (69.3% on housing loans and 59.4% on consumer mortgage loans).
[157]For more details around the developments on the real estate market see the special section of the Financial Stability Report dedicated to this market.

risk events is similar on the entire territory of the country. In addition, the analysis of the geographical distribution in this context indicates a relatively high concentration to the Skopje region, which beside the risks typical for the entire country, is also marked as a region with high risk of floods and landslides. Hence, although these risks are long-term, where the frequency of risk occurrence is once every five, ten, or more years, still, the common material damages of such events may cause significant financial losses for banks and their clients, as well as for the overall economy. In this area, the National Bank has undertaken several activities to increase awareness of the effects of climate change, and the measures for constant strengthening of the banking system resilience, also increase its ability to support the transition to green economy. Thus, the National Bank has adopted a Medium-Term Climate Change Action Plan, 2023 - 2025, Guidelines on managing climate-related risks, and has recently started publishing a dashboard of the so called "green" indicators, in order to improve the climate data availability which is crucial for the analysis and policy making in this domain. In addition, there were changes in determining the reserve requirement[158], which encouraged "green" lending. This lending increased for several times in the past five years, but still accounts for modest 4.5% of total loans to non-financial sector (8.8% of loans to non-financial companies and 0.5% to households). For more detail on climate risks see the special section of this Report.

In conditions of rapid digitization of banking operations, cyber risks are becoming increasingly significant. The increasingly prevalent digitization of banking operations and services offered to their clients, increases the efficiency and productivity and enables better access to banks' services and resource-saving. However, the high connection and dependence of the digitization on IT systems and electronic communication is increasing the risks of new, advanced cyber threats, which have the potential to disrupt the functioning of certain institutions, as well as the financial and banking system as a whole. Hence, along with the new trends of digitization of operations and introducing new types of digital services to clients, there is a need for continuous introduction of appropriate organizational and technical measures against threats from the digital space, such as the use of sophisticated software tools for protection by applying artificial intelligence, increased mutual cooperation, engagement of high-quality staff etc. In this area, the National Bank has been undertaking a series of activities to strengthen banks' resilience to cyber threats. Thus, National Bank has been currently preparing a new Decision on the Methodology for IT Security, harmonized with the European Banking Authority (EBA) guidelines for security-related risk management of IT systems. This Decision would be an introduction to activities for preparation and implementation of a new Law for improved digital operational resilience in the financial sector, harmonized with DORA (Digital Operational Resilience Act). The new law is expected to improve several key areas about the IT risk and IT incident management, the risk of transferring the performance of operational functions or outsourcing services and their supervision, as well as the testing of cyber resilience, the exchange of information, etc. The developments in term of cyber threats in the domestic banking system are relatively stable, with a small number of significant security incidents and insignificant financial damage.

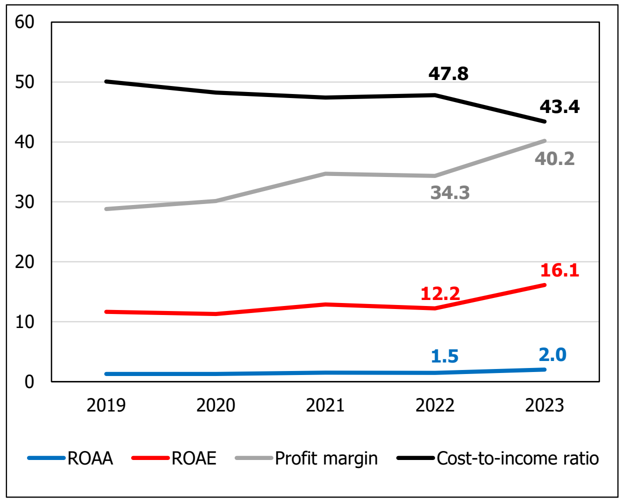
[158]According to the currently valid Decision on reserve requirement, the reserve requirement base from banks' liabilities in domestic currency shall be reduced by the amount of the claims on the basis of newly approved loans to legal entities intended for financing projects for the construction of new facilities or for increasing the installed power of the existing facilities for domestic production of electricity from renewable sources.

Chart 1043
Net interest margin*, in %



Source: National Bank, based on the data submitted by banks.
*Net interest margin is calculated as the share of net interest income that banks obtained from certain types of clients and the average amount of interest-earning assets placed with these clients (or placed in financial instruments issued by clients).

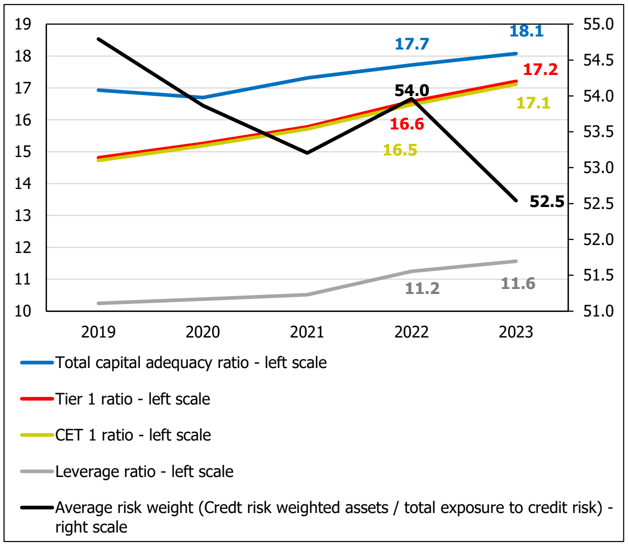
Chart 105
Profitability indicators, in %



Source: National Bank, based on the data submitted by banks.

The profitability of the banking system improved in 2023. Amid growth in interest rates and interest earning assets, the higher profit (by 47.8% in comparison with the previous year) was conditioned the most by the increased net interest income (42.4%), the growth of which was supported by the interest income from almost all sectors. The growth of main expenditure items was way lower, with operating costs, which amid still high inflation increased by 14.6%, while the impairment costs slightly increased (3.2%), amid lack of significant credit risk materialization. The high profit growth positively affected the basic operational profitability and efficiency ratios of the banking system, which improved. Banking system earnings are a significant source of its activities, as well as an important determinant of its solvency, in conditions when around 72% of banking system own funds, on average, in the past five-year period, arise from reinvested profits.

Chart 106
Solvency indicators, in %



Source: National Bank, based on the data submitted by banks.

The banking system solvency improved in 2023. The capital adequacy ratio during 2023 reached the highest levels since 2007. The growth of capital positions is mostly due to reinvested profits and conducted recapitalizations. At the same time, the growth of risk-weighted assets slowed down, due to the lower risk weight of new activities, amid decelerated growth of lending to non-financial sector and intensified investments in liquid instruments. The higher solvency ratios are mainly driven by the measure to introduce and increase the countercyclical capital buffer[159], due to further strengthening of the banking system resilience, in the absence of risk materialization in banks' balance sheets and their solid profitability. By increasing the capital requirements, the banks are expected to retain the trend of improvement of the banking system solvency in the following period, as well.

[159]Since 1 August 2023, the countercyclical capital buffer of banks has equaled 0.5%, starting from January 2024 this rate equals 0.75%%, 1% from July 2024, 1.25% as of November 2024 and 1.5% as of January 2025.

2.3.2. Macro stress testing of the Macedonian banking system-scenario with changes in the macroeconomic and macro-financial environment

The National Bank prepared a new methodological framework to conduct macro stress testing of the Macedonian banking system, which enables prospects and analysis of its sensitivity and resilience to different shocks in macroeconomic and macrofinancial variables in domestic and global context. The new methodological approach is based on building and use of several satellite models for the credit risk measures and the key variables from banks' balance sheets. These methodological changes represent a methodological upgrade which is currently used and reflects recommendations in the IMF Technical Mission Report from 2021 to improve the stress testing in the Macedonian banking system. The main changes in the methodological framework are given in the box within this part of the Report.

Review of the changes in the methodological framework for macro stress testing of the Macedonian banking system

The key changes in the methodological framework include the following:

1) An econometric model with fixed effects instead of the current GMM model is used since this model enables more appropriate coverage of the heterogeneity among banks, i.e. the differences in their sensitivity to the economic and financial environment. This also provides a special forecast path of the future movement of dependent variables for each bank. The empirical analysis uses a balanced panel of 12 banks[160] by using quarterly data, from 2010 up to 2023.

2) The elasticity estimates in the satellite models uses the ordinary least squares method with standard errors calculated according to Driscoll and Kraay (1988). The main reason for choosing this method is that it assumes that the structure of the standard errors is robust in case when the residuals are heteroskedastic and autocorrelated to certain lags, as well as in case of cross-sectional dependence between units that create the data panel. In addition, the use of this method is consistent in case the time dimension is bigger than the number of cross-sectoral units in the panel, i.e. $t > n$.

3) The granularity of the analysis is increased by creating special equations for various banking book segments. Thus, instead of one equation for total loans, there are several equations for loans to non-financial companies, loans to natural persons for the purchase of residential and/or commercial real estate, and loans to natural persons for consumption financing. This additionally includes the remaining segments of credit exposure – to retailers, to the government, and to financial institutions – for which satellite models were not developed and the estimation of shock effects was made by using simpler methods.

4) Number of variables are used to express the developments in the domestic and external macroeconomic and macrofinancial environment, out of which final variables from the satellite models are selected, thus increasing the sensitivity to the results of the environmental changes.

5) Instead of using the previous non-performing loan rates as a dependent variable, the satellite credit risk models use credit exposure transition rates transformed into the so-called logit form[161], especially for the transition of the exposures from performing to non-performing (i.e. from Stage 1 and 2 to Stage 3) and exposure transition from the so-called Stage 1 to Stage 2 (using the migrated exposure from risk category A to B and C-regular as a benchmark) of the accounting records and exposure classification. In this way, the credit risk measures applied are closest to the theoretical definition of default rates. Furthermore, considering that the projected amount of expected credit loses depends on the transition rates from high quality to low quality exposure[162], there is a more precise forecast of the latest expected credit losses and their clearer connection to the environmental changes defined by independent variables in the credit risk satellite models.

6) The new credit losses acquired by the satellite credit risk models get a treatment of fully recognized item in the income statement of individual banks, directly reducing the relevant components of the risk

weighted assets and thus directly reflecting the future capital adequacy forecast. There is a difference compared to the approach where the new expected credit losses were treated as unrecognized by banks and directly reduced their own funds as deductions.
7) The amount of banks' written-off claims which would occur during the forecast horizon is being projected on the basis of assumptions concerning changes in the structure of the credit risk exposure classified in D according to the level of coverage with expected credit losses at the beginning of the forecasting period. Moreover, there is an assumption of a proper evolution of the exposure, which is initially classified in risk categories C-non-performing and D to E during the forecast horizon. Such assumptions lead to certain increase in the course of the expected credit losses for the non-performing exposure and reflect the banks' income statement.
8) Special satellite models are used to forecast the future movement of banks' deposits in regular terms, which will be later used as benchmarks in the forecast of their movements amid shocks where the assumed reaction of depositors is properly included and based on the result of the historic VaR simulation with confidence level of 95% and 99% on data about the annual deposit growth on a daily basis for the period from 1.12.2011 to the end of 2023.
9) The difference between the projected change in banks' deposits and loans affects liquid assets, which implies that there are no new non-deposit sources of finance of banks during the forecast horizon.
10) The income statement is projected by individual bank and requires special satellite models for net interest margin and net commission margin of banks (expressed both in logit and non-logit form, whose final results on the development of the net interest income and net commission income are averaged) compared to the currently used dynamics modelling approach of rate of return on average equity. The forecasts on the rest of the income and expenditure components of the income statement are based on the comparison between their available and long-term ratio with the net interest income or the average assets, excluding the expenses for employees which are expected to remain constant in the forecast horizon and it is assumed the current tax regulations will not be changed.
11) The forecast horizon of the changes in independent variables and banks' income statement and consequently in own funds and capital adequacy equals two years. Within this period, it is assumed that there will be no new external capital injection into banks, i.e. own funds cannot increase by issuing new shares or other capital instruments.

The basic satellite model for elasticity coefficients estimation is in the following form:

$$y_{i,t} = \alpha + \beta_k X'_{k,i,t-l} + fe_i + u_{i,t}$$

where i stands for bank, t for time period, $l = \{0, \dots, L\}$ is the number of lags, $y_{i,t}$ is the dependent variable, $X'_{k,i,t-l}$ is a time-variant transposed matrix of k independent variables with $i \times k$ dimensions, β_k is a regression coefficient matrix of k independent variables with $k \times 1$ dimensions, α is the free term (constant), fe_i denotes the fixed effects by bank and $u_{i,t}$ is the error term (residual).

The forecasts include two scenarios: baseline scenario and stress scenario. The baseline scenario assumes that future movements of the macroeconomic variables would be in accordance with the National Bank regular macroeconomic forecasts and additional forecasts on certain macroeconomic and macrofinancial variables outside the regular framework of the National Bank macroeconomic forecasts.

[160] DBNM AD Skopje is not included in the macro stress testing because of its specific business model and it does not collect deposits from the public. Banks that ceased operations during the analyzed period have not been taken into account, while those that have joined or merged with other banks have been taken on an aggregated basis for the entire time period.
[161] The log transformation of the dependent variable $y_{i,t}$ is done through $\ln\frac{y_{i,t}}{1+y_{i,t}}$. The logarithmic transformation is good when the domain of the variable has zero as a lower bound, i.e. when the variable may not be negative.
[162] The amount depends on the assumed changes in the level of coverage and the coverage with expected credit losses by each stage.

For the purpose of the stress scenario, forecasts on their future movements are used amid shock in the initial assumptions or by using various methods for their future trajectory.

The projection of the expected credit losses by using the satellite models developed refers to three segments of the banks' credit exposure – the credit exposure to non-financial corporations, credit exposure to natural persons based on loans for purchase of residential and/or commercial real estate, and the credit exposure to natural persons for consumption financing. In the baseline scenario on the credit exposure to retailers, the transition rates from performing to non-performing exposure and from Stage 1 to Stage 2 are calculated as long-term averages of annual transition rates in the period 31.3.2010-31.12.2023, while in the stress scenario, the long-term average of transition rates increases by two standard deviations. For the credit exposure to government, the expected credit losses are calculated by using the formula $ECL = EAD \times PD \times (1 - RR)$, where ECL represents the expected credit losses, EAD is the amount of credit exposure, PD is the probability of default which is assumed to equal a twelve-month average migration rate from the rating category to default and RR is the recovery rate of the previous exposure at default which is assumed to be equal to the average historical recovery rate of the previous exposure at default weighted by exposure value. In the baseline scenario, the probability of default and the exposure at default which correspond to the country's credit rating are based on international credit rating agencies[163] which correspond to the current credit rating of the country. The stress scenario assumes sudden changes in the sentiment of the global investment public, which would reduce their risk appetite and consequently the spreads would widen. Practically, this suggests that the annual default rate for each credit rating category would worsen, i.e. it would exceed its long-term average in the amount that corresponds to the long-term average of the next lower credit rating category. The same procedure is applied to banks' credit exposure to financial institutions, except that it uses data published by Moody's Ratings on corporate issuers in banking.

The baseline scenario indicates that the credit exposure which is subject to transition is covered with expected credit losses by credit risk category at the same level as on the latest available date. On the contrary, the stress scenario indicates adequate upward correction of the level of coverage with expected credit losses of the exposure by phase of accounting classification (Stage 1, Stage 2 and Stage 3). This assumption practically means that banks will act more conservatively in the credit risk assessment. This can be explained by the changes in the macroeconomic and financial ambiance which are assumed in the scenario, as well as by the generally accepted fact that the market value of the current exposure collaterals manifests sensitivity to negative disruptions in the macroeconomic and macrofinancial environment. The correction of the current level of coverage with expected credit risk losses is an increase (expressed in percentage points) of the latest available data on the exposure coverage with expected credit loses which is determined and applied in each bank for each segment of the exposure to which the satellite models are applied. The amount of this upward correction depends on the ratio between the latest available data on the level of coverage and the long-term average of the coverage with expected credit losses. If the deviation is in the direction of lower latest available indicator compared to its long-term average and the deviation is higher than two standard deviations, then the current average level of coverage is corrected by two standard deviations. If the deviation is in direction of lower latest available indicator than its long-term historical average by more than one but less than two standard deviations, then the correction is by one standard deviation. If the deviation is in the direction of lower latest available indicator than its long-term historical average by less than one standard deviation, then the correction of the current average level of coverage is by half a standard deviation. If the current indicator value is equal to or higher than its long-term average, then there will be no correction of the latest available data. The new credit risk exposure, i.e. its periodic increase is assumed

[163] Data on the probability of default are provided from Standard & Poor's Global Ratings, while data on the exposure at default from Moody's Ratings.

to be classified in risk category A and consequently the coverage with expected credit loses will correspond to the coverage of this risk category with expected credit losses.

Some of the new expected credit losses may occur due to the projected future write-offs. Depending on the level of coverage of non-performing exposure in risk category E with expected credit loses, the schedule of the new write-offs will be as follows:
- non-performing exposure which is fully (100%) covered with expected credit losses at the beginning of the forecast horizon, 80% of which is written-off in the first year, while 20% in the second forecast year;
- non-performing exposure which is covered with expected credit losses between 90% and 100% at the beginning of the forecast horizon, 80% of which is written-off in the second forecast year and 20% in the third forecast year (i.e. after the two-year horizon), which means previous adequate full coverage with expected credit losses in the relevant years preceding the year of write-off; and
- non-performing exposure which is covered with expected credit losses between 70% and 90% at the beginning of the forecast horizon, two-thirds of which is written-off in the second forecast year and one-third in the third forecast year (i.e. after the two-year horizon), which means previous adequate full coverage with expected credit losses in the relevant years preceding the year of write-off.

New expected credit losses may arise from the expected reclassification of the non-performing exposure from credit risk categories C-non-performing and D in category E. The transition rates from categories C-non-performing and D in category E show the long-term average of transition rates calculated for the period 31.3.2010-31.12.2023. The projection of the new expected credit losses from future write-offs is identical to the baseline and the stress scenarios due to the reclassification within the non-performing exposure.

Total assets of banks are assumed to increase with the larger absolute amount of forecasted growth of loans and deposits. Practically, if deposits grow with larger absolute amount of loans, the difference will increase the banks' liquid assets, otherwise it will reduce the liquid assets. The assumed changes in liquid assets adequately reflect the projected amount of banks' exposure to government and to financial institutions. In case of outflow of liquid assets outside the banks, either as a depositors' response or due to faster credit growth compared to deposit growth, the change in liquid assets equally reflects the banks' credit exposure to government (by reducing the investments in government securities) and credit exposure to financial institutions (by reducing the assets on accounts abroad).

The forecast of banks' income statements is carried out as follows:
- net interest income and net commission income are projected by using the developed satellite models on net interest and net commission margins by using the forecasts on the variables in the baseline and the stress scenarios;
- other income items are projected on the basis of their share in relation to net interest income, thus the baseline scenario uses the share calculated as of 31.12.2023, while the stress scenario uses the smaller share of the latest available data as of 31.12.2023 and the long-term average of this indicator calculated for the period 2010 – 2023;
- total expected credit losses are projected as a sum of expected credit losses of segments for which satellite models have been developed, segments for which other methods have been used, as well as of the expected credit losses from projected future write-offs and the evolution within non-performing exposures;
- other operating costs are projected on the basis of their share in relation to the average assets, thus the baseline scenario uses the share calculated as of 31.12.2023, while the stress scenario uses: 1) the share calculated as of 31.12.2023 if it is higher than the long-term average of the moving average of the annual share calculated for the period 2010 – 2023; 2) the share calculated as of 31.12.2023 increased by one standard deviation if the absolute amount of the negative deviation between the share

as of 31.12.2023 and the long-term average is higher by one standard deviation; and 3) the long-term average if the absolute amount of the negative deviation is lower than one standard deviation; and
- the effective tax rate which is applied in both scenarios is higher than the long-term average effective tax rate for the period 2010 – 2023 and the average effective tax rate for the last five years.

When forecasting own funds, their amount increases with the effective profit distribution from 2023 (share intended for increasing own funds), as well as in case of re-purposing of earnings from previous years in earnings not available for dividend payment to shareholders. This ratio of the profit distribution which increases own funds will be used in each following forecast year if banks operate at profit. When forecasting risk-weighted assets, the growth in exposure, the new non-performing exposure and the new expected credit losses for each segment of the exposure adequately reflect the risk weighted assets, thus using the average risk weight and the average weight of non-performing exposures by segment.

Macro stress testing of the banking system, 2023 – scenario description and results

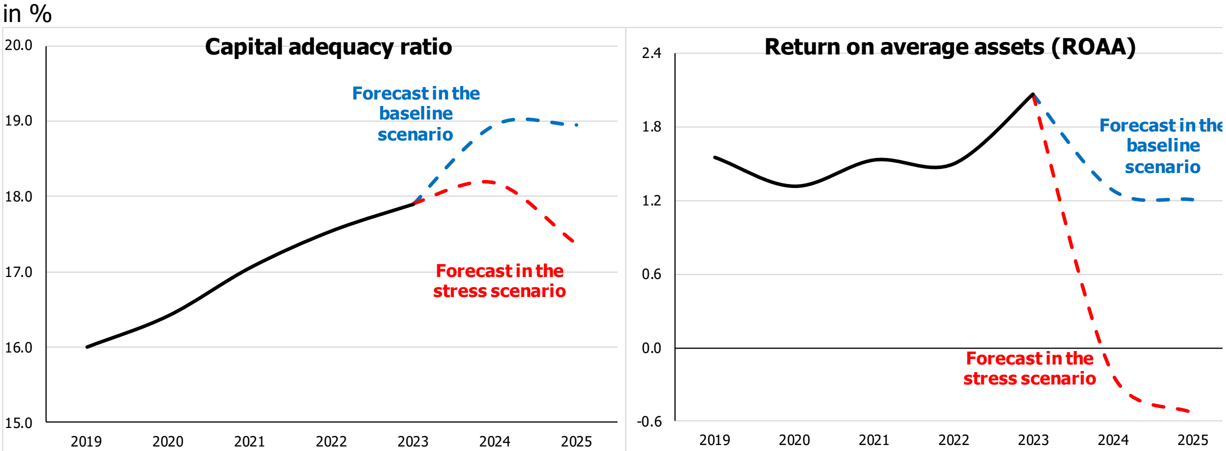
The stress scenario includes a number of different income assumptions, which chart the expected trajectory amid shocks from different macroeconomic and macrofinancial variables from the domestic and international environment. The stress scenario is based on the stagnation of the economic growth in the two-year period of forecast amid slightly higher inflation than the initially forecasted and slight increase in unemployment by staying on the projected track of change in the nominal wages, yet with a slightly milder growth. There is also an assumption for "freezing" of the domestic real estate market by reducing the real annual growth rate of the real estate price indices. Furthermore, the policy rates of the internationally important central banks would increase and consequently the yields on securities on international financial markets by levelling and deflection of the securities yield curve in the euro area. The tightened conditions on the international financial markets would reflect the credit risk revaluation by investors, which suggests widening of the credit risk premia. In terms of the domestic economy, it would decrease the gross external debt as a combination of the decrease in the new borrowing and accelerated repayment of the current private sector debt (due to the effect of the increased financing costs). In such conditions, the credit growth of domestic banks would continue at a slightly faster pace. In the second year of the forecast horizon, there is a reaction from the banks' depositors, which would reduce the annual growth of deposits in banks at the tail end of the historic distribution of the annual growth rates.

On the basis of the dynamics of the macroeconomic and macrofinancial variables in the baseline and the stress scenarios, the trajectories of their movements by individual quarters are projected accordingly or are expressed as quarterly rates of change. These changes in the two-year forecast horizon lead to cumulative growth in real gross domestic product by 0.6%, which corresponds to 10.8% of the historic distribution of the two-year cumulative rates of quarterly GDP change for the period of Q4 2022 to Q4 2024 by size. This indicates that as a historic benchmark, the stress scenario is slightly weaker than the standard statistical definitions for shocks, which usually operate with the tails of the distribution (below 5% or below 1% which are usually used in market risks measurement, such as VaR).

The results of the conducted macro stress testing show a high degree of resilience of the domestic banking system to shocks in the defined scenario of the coherent and comprehensive changes in the macroeconomic and macrofinancial environment. The resilience largely stems from the relatively high initial profitability of banks and the large space it creates to cover potential credit losses due to materialization of chocks[164]. Furthermore, the high initial operating profitability of banks (i.e. financial result before the effect of the expected credit losses) leads to the fact that even in conditions of shock, part of the banks will continue to operate at profit, the assumed distribution of which would additionally increase their own funds in the following year and would contribute to the maintenance of the capital adequacy level.

In the stress test scenario, the capital adequacy ratio, from the initial 17.90% at the end of 2023, would manifest a slight decline of 17.36% at the end of the two-year forecast horizon. This would be lower by 1.59 percentage points compared to the evolution of the capital adequacy in the banking system in the baseline scenario. The relatively high initial level of profitability of the domestic banking system enables absorption of the negative effects from environmental shocks and consequently shows steeper decline. Thus, the rate of return of average assets in the stress scenario would show negative values and, from the initial 2.07% at the end of 2023, would amount to -0.21% at the end of 2024 and -0.53% at the end of 2025. The cost of risk ratio would also worsen, expressed as the ratio between the costs based on the expected credit losses in the income statement and the credit exposure to net non-financial entities of the expected credit losses at the beginning of the period from the initial 90.6 basis points to 286.7 basis points at the end of the forecast horizon.

Chart 107
Forecast movement of capital adequacy and return on average assets of the banking system.
in %

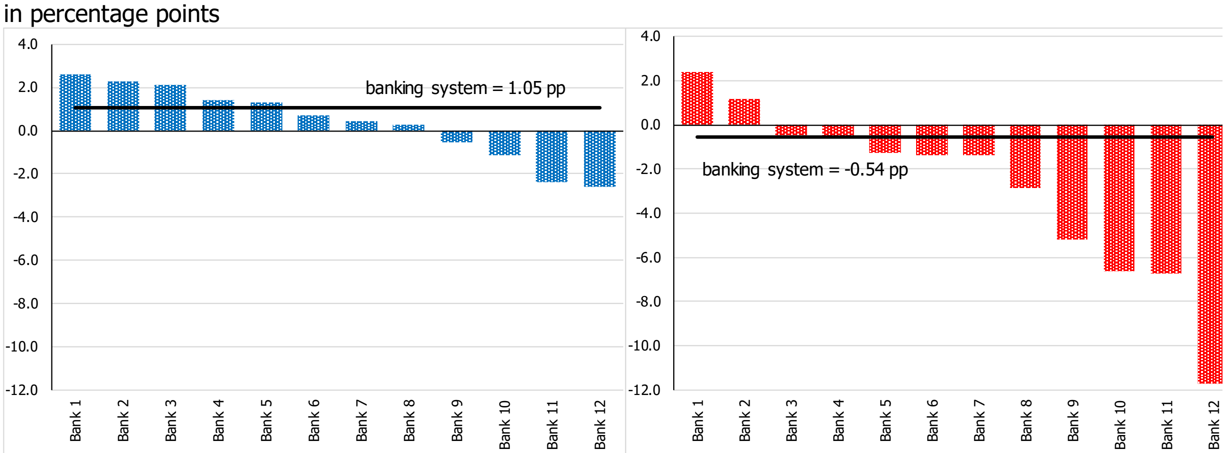


Source: Internal calculations of the National Bank.
Note: The analysis does not include DBNM.

[164] Macro stress testing of banks is conducted on the balance sheet, the income statement, the exposure to credit risk by segments and the expected credit losses reported by banks to the National Bank as of 31.12.2023 as an initial date of the forecast horizon. This means that the preparation of the stress test is not preceded by an asset quality review of banks, which could potentially change the initial input values and the final results of the stress test.

The analysis by bank shows that decrease in the capital adequacy ratio in the stress scenario at the end of 2025 compared to the initial position from 2023 was registered in ten banks, ranging from -11.72 percentage points to -0.47 percentage points.

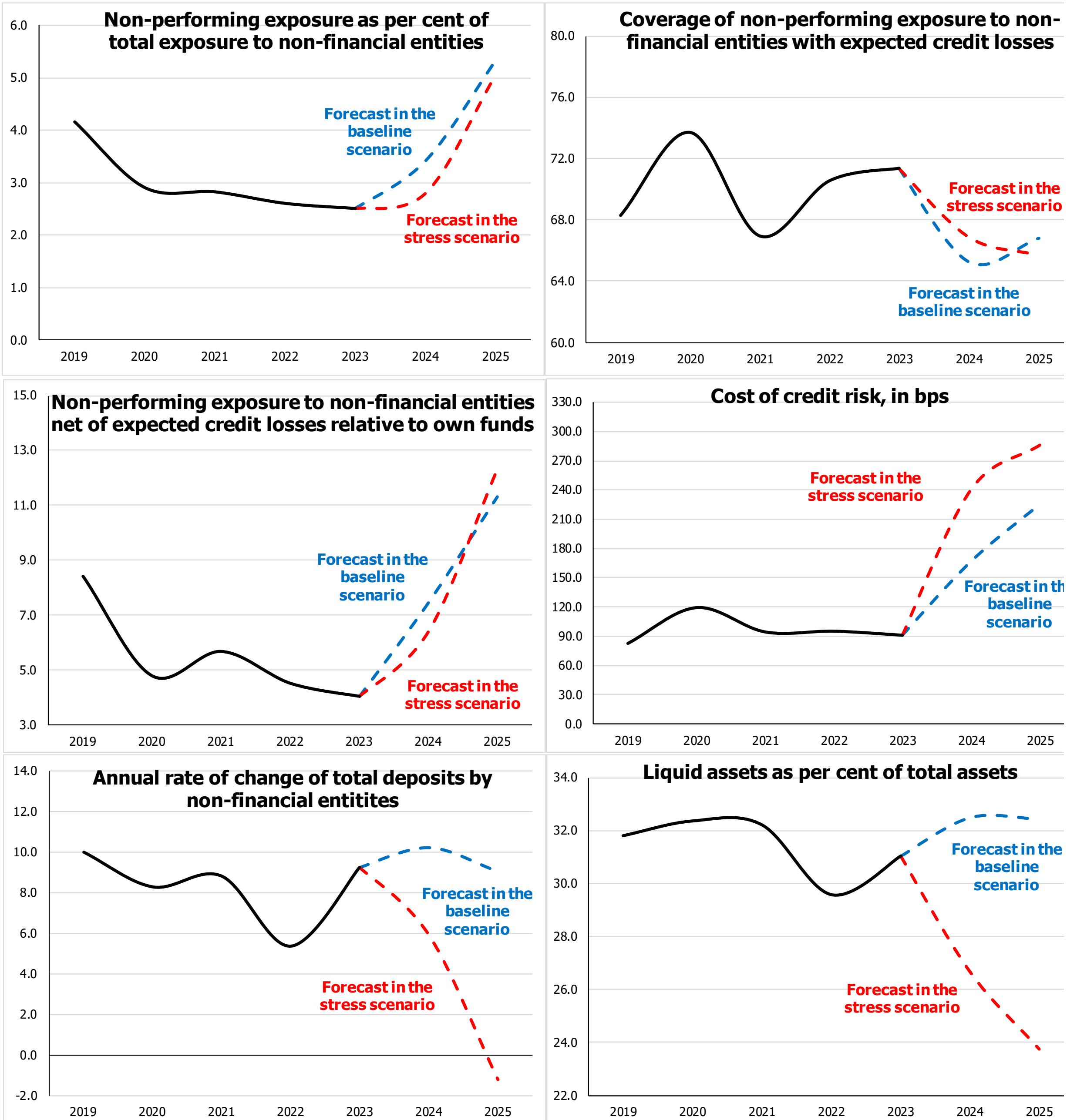
Chart 108
Change in the capital adequacy ratio by bank at the end of the two-year forecast horizon, in the baseline scenario (left) and in the stress scenario (right)
in percentage points



Source: Internal calculations of the National Bank.
Note: The analysis does not include DBNM.

There is a significant response of the credit risk indicators of the banking system, which practically highlights the banks' credit profile sensitivity to changes in the macroeconomic and macrofinancial environment. While the cumulative growth of non-performing exposure across the banking system in both forecast years would be about 128%, the non-performing exposure to total exposure at the end of the forecast horizon (2025) would reach 5.07%, which is an increase of 2.57 percentage points compared to the opening balance at the end of 2023. The analysis by bank shows that the non-performing exposure ratio for the two-year forecast horizon would range from 2.15% to 11.21%, which is a change ranging from -0.13 to 6.59 percentage points. The coverage of non-performing exposure to non-financial entities with expected credit losses would slightly decrease, but would still remain relatively high. At the end of the two-year forecast horizon, the coverage of non-performing exposure with expected credit losses by bank would range from 61.56% to 81.85% at the end of the two-year forecast horizon (as of 31.12.2023 it ranged from 56.85% to 78.94%). The part of non-performing credit exposure not covered by expected credit losses relative to own funds would rise from the initial 4.04% to 6.39% at the end of 2024 and to 12.30% at the end of 2025. Observing each credit exposure segment and other sources of new expected credit losses, the largest contribution was made by the exposure to non-financial corporations with about 45% of the new expected credit losses during the two-year forecast horizon, followed by the exposure to natural persons for consumption financing with a contribution of about 30%.

Chart 109
Forecast movement of banks' credit risk and liquidity ratios in the baseline and stress scenarios
in %



Source: Internal calculations of the National Bank.
Note: DBNM is excluded from the analysis and therefore, the banking system data for the previous years also exclude the DBNM.

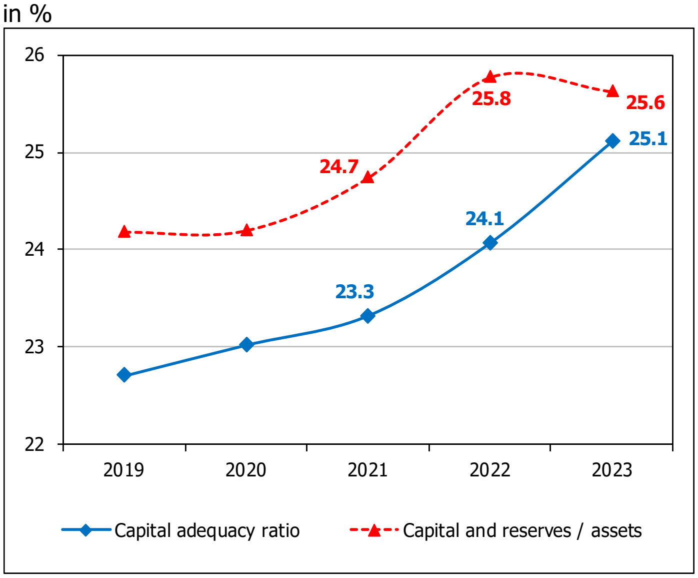
Due to the assumption of depositors' response in the second year of the forecast horizon, the effect of the shock materialization would be more pronounced on the banks' liquid assets. Thus, the banks' liquid assets in the two-year forecast horizon would decrease by 17.29% cumulatively. However, the banking system still holds sufficient liquid assets to carry out its activities, which is confirmed by the share of liquid assets in total assets in a stress scenario that would amount to 23.77% at the end of 2025 and would be by 7.28 percent points less compared to the initial year of 2023. Compared to the baseline scenario, at the end of 2025, liquid assets to total assets would be lower by 8.68 percentage points at the end of 2025. Analyzed by bank, liquid assets to total assets ratio at the end of the two-year horizon would range from 8.1% to 44.4%.

2.3.3. Savings houses

Savings houses constitute a minor segment of the financial system, both by number and scope[165]. However, they are somehow important for the financial inclusion, as they cover the underbanked segment of credit demand. Moreover, savings houses are deposit-taking institutions, and therefore their performance, and primarily reputation, are relevant for the overall financial stability. However, the danger of risk materialization in savings houses is small, primarily due to the small volume of activity and deposit insurance, as well as high solvency. The credit portfolio quality of savings houses improved compared to the previous year. Savings houses have lower operational efficiency compared to banks, and by using the opportunity provided for in the payment services regulation, they will be able to diversify and increase their income and expand the range of services.

In 2023, the solvency of both savings houses remained high, and the capital adequacy ratio further improved, reaching 25.1%. The largest contribution was made by the growth of own assets due to the reinvestment of 2022 profits of the two savings houses, as well as the reduced risk-weighted assets by 2.7%, due to lower lending[166].

Chart 110
Solvency ratios of savings houses
in %

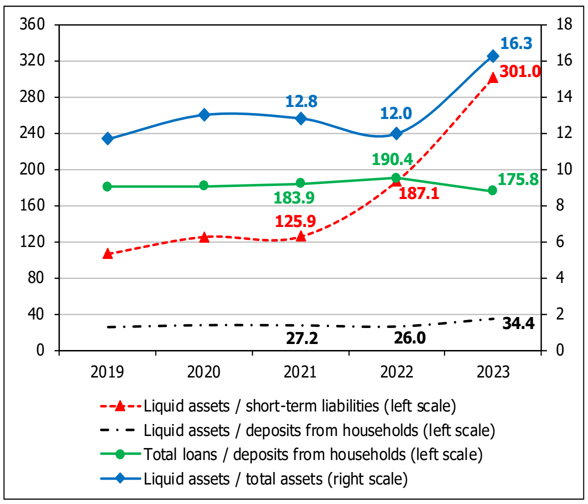


Source: National Bank, based on data submitted by the savings houses.

Savings houses maintained a satisfactory liquidity position, ensuring seamless day-to-day operations. Savings houses liquidity assets (as a percentage of total assets) are considerably lower compared to banks, which primarily results from the specifics in savings houses operations (for example, accepting deposit from natural persons, limited options for investing liquid financial instruments[167], etc.). However, they ensure full coverage of short-term liabilities[168], which results from the preference of savings houses depositors to save in longer terms (90% of savings deposited in savings houses are long-term deposits). In 2023, the savings houses liquid assets recorded an increase (of Denar 93.9 million or 38.6%), which is mostly the result of the growth of deposits (of 4.8% in 2023) and consequently, the growth of placements in the central bank[169] (Denar 137 million). Having in mind that 79.4% of the savings houses assets are comprised of lending claims, there is constantly high loan to deposit ratio, where except by deposits, the lending activity is also financed by the savings houses equity, and loan liabilities. In addition, the loan quality and the orderly provision of cash inflows from loan collection is a particularly significant prerequisite for maintaining adequate savings house liquidity.

Chart 111
Liquidity ratios of savings houses

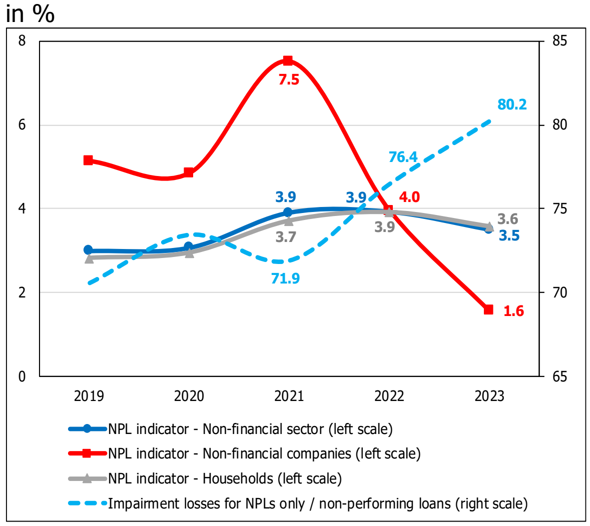
in %



Source: National Bank, based on data submitted by the savings houses.

Chart 112
Non-performing loans to total loans and coverage of non-performing loans with impairment

in %



Source: National Bank, based on data submitted by the savings houses.

Credit risk is the most significant risk for the savings houses. Given that the savings house landing is primarily to households[170] (96.3%), the credit default risk has been dispersed among many users, at smaller amounts. The level of credit risk materialization, as measured by non-performing loans-to-total loans to non-financial entities is moderate and register improvement due to the decrease in non-performing household and corporate loans by Denar 9.5 million, or by 13.6% compared to 2022. As in the banks, the new credit risk management methodology applicable since early 2024, has somewhat increased the non-performing loans in savings houses[171], which does not reflect the changed creditworthiness of their customers,

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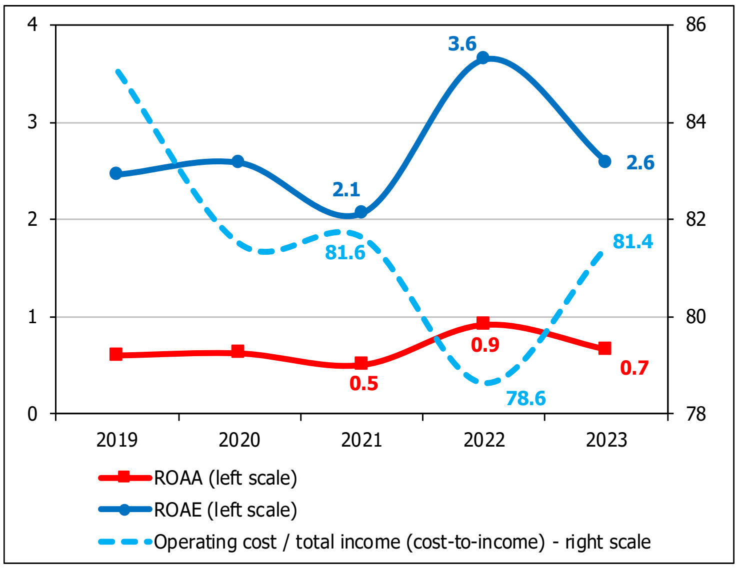
[165] For more details, see "Structural features and concentration of the financial system" of this Report.
[166] Loans approved by savings houses registered a downtrend that intensified over the years, reducing to 3.2% in 2023.
[167] One of the two savings houses does not have a license and accordingly, does not invest in government securities.
[168] For comparison, the coverage of short-term liabilities with liquid assets at banks equals 52.3%.
[169] Towards the end of 2022, savings houses were allowed to participate in the National Bank's CB bill auctions and invest in the National Bank's deposit facilities, thus increasing their opportunities to place free funds in liquid financial instruments that generate income.
[170] In 2023, total household loans decreased by 2.4% (1.9% reduction in 2022).
[171] The first single effect in January 2024 was the increase in non-performing loans by about 4%, which does not affect the non-performing loan rate.

but is mainly due to the regulatory changes[172], which, among other things, fully harmonize the approach in determining the non-performing status of exposures with the EU acquis.

The high coverage of non-performing loans with impairment minimizes the effects on the savings house solvency, assuming that these loan are in default (in such simulation, only 2.1% of the savings houses own funds would be used, which would inconsiderably reduce the capital adequacy by 0.5 percentage points).

Chart 113
Selected profitability indicators
in %



Source: National Bank, based on data submitted by the savings houses.

Savings houses report low profitability and operational efficiency, which worsened in 2023 due to lower profits which mainly result from lower remaining regular income[173] (by Denar 5.2 million or by 15.3%) and increased operating costs (by Denar 5 million or by 3%). The net interest margin of savings houses (8.3% for 2023) is 2.5 times higher than that of banks, which is significant in the process of profit formation. Wide net interest margins alarm about significantly lower competitiveness of savings houses compared to banks. Savings houses also have a relatively low operational efficiency, as seen through the high share of operating costs in total revenues (81.4% as of 31.12.2023). The new Law on Payment Services and Payment Systems (applicable from 1.1.2023) allows for other eligible institutions, besides banks, to offer payment services prescribed in this Law. This law, upon harmonizing with the Banking Law, will allow savings houses to expand their scope of payment services, which in turn would create an additional source of (non-interest) income.

[172] Available at: https://www.nbrm.mk/content/Regulativa/Odluka_metodologija_%20za_krediten_rizik_nova.pdf
[173] Mainly due to the smaller amount of collected previously written-off claims, compared to 2022.

2.4. Fully funded pension insurance

Domestic private pension funds in 2023 operated in far more conducive capital market environment compared to 2022 and achieved solid annual nominal and real rates of return that exceed the 7-year and 10-year returns, reckoned annually. Moreover, private pension funds continued accumulating assets, thereby rising their relative importance in the domestic financial system. At the end of 2023, the total assets of private pension funds amounted to about Denar 138 billion or 16.5% of GDP, recording a solid growth of 18.7% compared to the previous year. Mandatory pension funds kept dominating the structure of assets and their growth. The strategic allocation across asset classes remained the same during 2023. Investment in domestic government bonds still constitute most of the debt instrument portfolio, with somewhat larger investment in foreign government securities. The structure of equity instrument portfolio of the pension funds is still dominated by investment in foreign investment funds listed on the stock market. Amidst expected gradual decline in policy rates of the most relevant foreign central banks, reinvestment risk comes into the spotlight due to the unreinvestability of inflows from contributions and due securities at the same or similar interest rates.

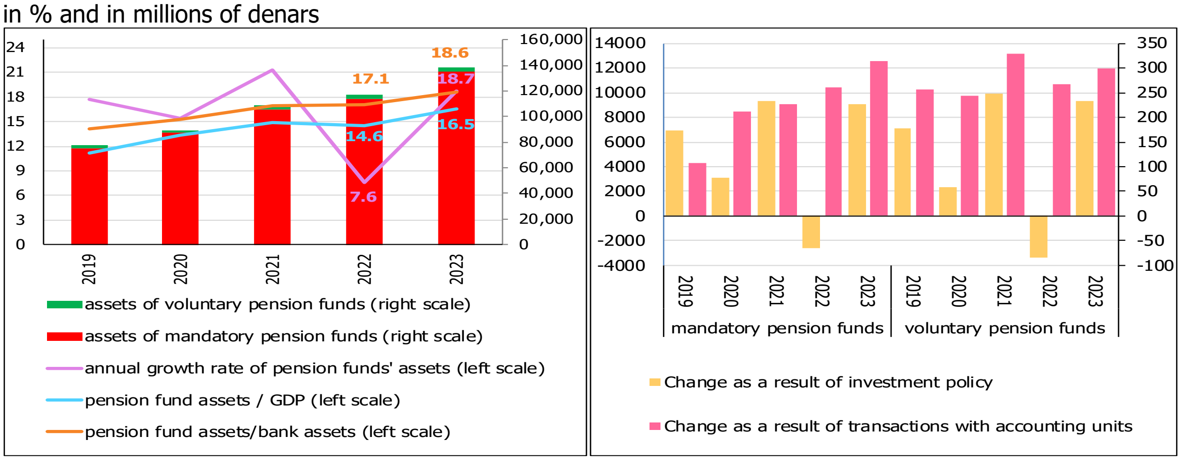
2.4.1. Assets of the fully funded pension insurance

The total funds in the system of private fully funded pension insurance at the end of 2023 amounted to Denar 138 billion, registering an annual growth of Denar 22 billion, i.e. 18.7%[174]. Accordingly, **an increase was noted in the total assets of pension funds to GDP.** At the end of 2023, total assets of pension funds accounted for 16.5% of GDP, which compared to the end of 2022, is by 2 percentage points higher. Unlike the mandatory pension insurance, which at the end of 2023 covered a solid part of the number of employees (86.2%), the coverage of population with voluntary pension insurance is trivial and at the end of 2023 was 4.6% of the number of employees.

Chart 114

Annual growth rate of assets of private pension funds (left) and structure of absolute growth of net assets of private pension funds (right)

in % and in millions of denars

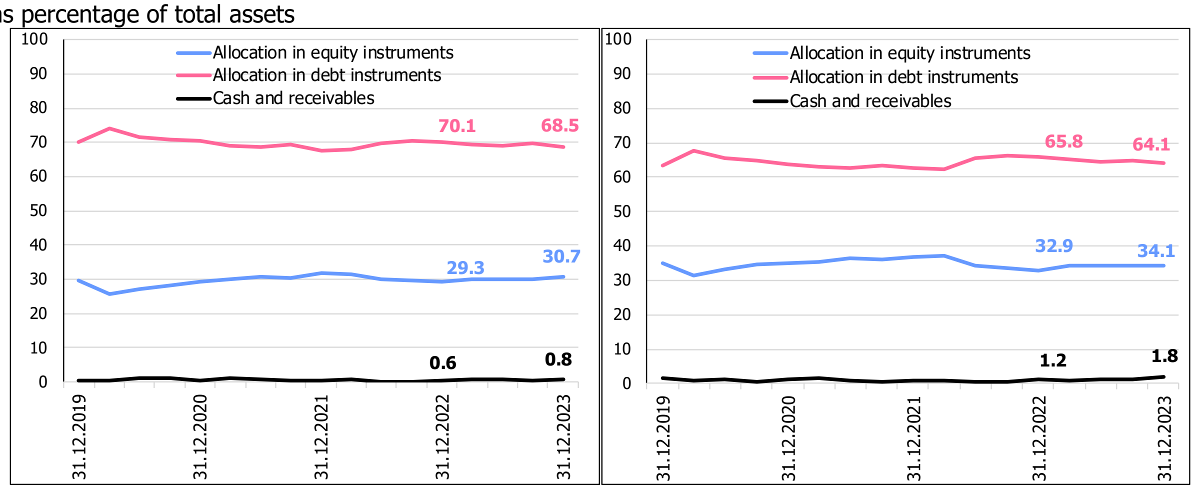


Source: Internal National Bank calculations based on MAPAS data.

The largest portion (over 97%) of the total assets in fully funded private pension insurance is still with the mandatory private pension funds, which is due to the mandatory membership of majority of newly employed in this system, but also due to the low interest of the domestic economic agents[175] (the population and legal entities) in the voluntary fully funded pension insurance. Given that private pension funds have relatively small liabilities, their net assets are almost equal to their total assets[176]. The growth of net assets of private pension funds last year was largely due to the net inflows from contributions paid (56.1%), with a solid positive contribution of the effect of the implementation of the asset investment policy (43.9%).

In 2023, the assets[177] of pension funds were mainly within the framework of the strategic allocation between equity and debt financial instruments, in the ratio of 30% equity: 70% debt financial instruments with mandatory pension funds, i.e. 35%: 65% with voluntary pension funds[178].

Chart 115
Structure of assets by asset class of mandatory (left) and voluntary (right) pension funds
as percentage of total assets



Source: Internal National Bank calculations based on MAPAS data.

Analyzing by type of instrument, domestic government bonds still have the largest individual share in total assets of the pension funds, which at the end of 2023 climbed to 64% in mandatory pension funds (growth of 1.1 percentage point

[174] In 2023, the assets of mandatory pension funds and the voluntary pensions funds grew by 18.8% and 17.1% (2022: 7.6% and 7.0%), respectively. The total contributions paid to private pension funds in 2023 equaled Denar 13,860 million (Denar 11,553 million in 2022), i.e. 1.6% of the estimated GDP. Of these contributions, 96.9% were paid into the mandatory pension funds (with an annual growth of 20.4%), and 3.1% were paid into the voluntary pension funds (with an annual growth of 7.9%).

[175] The population can participate in the system of voluntary pension insurance through individual membership by concluding a membership agreement with the pension company and opening a voluntary individual account or through professional pension schemes which, in accordance with the law, can be established and financed by an employer (at the expense of its employees) or by associations of citizens (for the account of their members), and by opening a professional account. As of 31.12.2023, about 49% of the total members (31,500) of voluntary pension funds are members with a voluntary individual account, and about 51% are members through professional pension schemes.

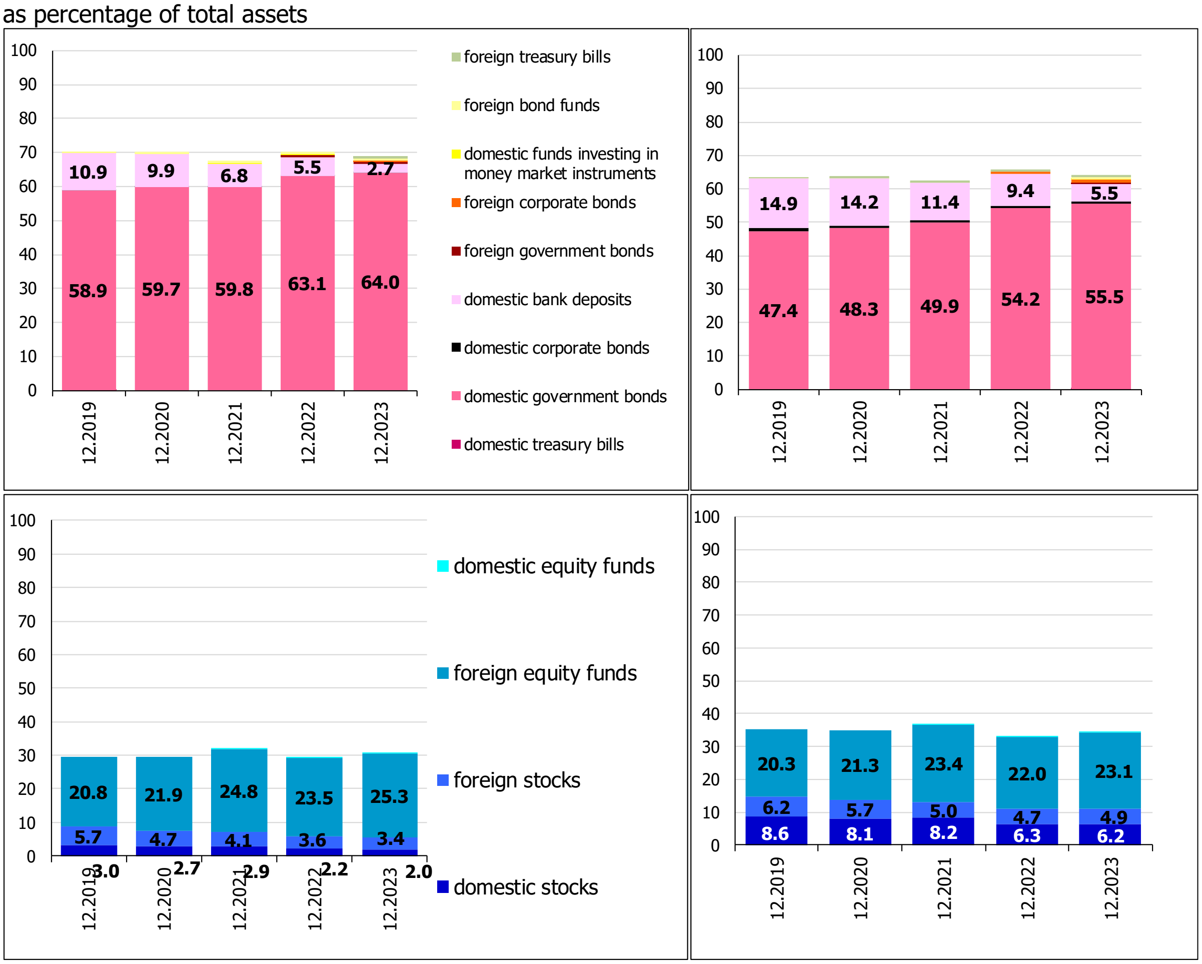
[176] At the end of 2023, the net assets of the private pension funds equal Denar 138.3 billion, which is 99.9% of their total assets.

[177] For more details about the structure of assets of the pension funds by asset class and by type of financial instruments, see the annexes to this report.

[178] Besides equity and debt financial instruments, the pension funds' claims and funds in a custodian bank also form a special "residual" category, which has a negligible share in total assets and does not affect the general levels of the strategic asset allocation.

compared to of 2022) and 55.5% in voluntary pension funds (growth of 1.3 percentage points compared to 2022). The growth of the structural share of government bonds in 2023 was due to the reduced share of deposits in domestic banks from 5.5% to 2.7% in mandatory, and from 9.4% to 5.5% in voluntary pension funds[179].

Chart 116
Asset allocation by type of debt instrument of mandatory (top, left) and voluntary (top, right) pension funds and by type of equity instrument of mandatory (bottom, left) and voluntary pension funds (bottom, right)
as percentage of total assets



Source: Internal National Bank calculations based on MAPAS data.

At the end of 2023, the structure of debt instrument portfolio of pension funds witnessed for the first time investment in foreign treasury bills, with a modest share of 0.6% and 0.2% of mandatory and voluntary pension funds, respectively, in total assets. The tight monetary policy of central banks and the increased policy rates raised the attractiveness of the risk-return ratio for government securities[180], especially on the short-term maturity buckets of the yield curve,

[179] The share of deposits in domestic banks in the debt instrument portfolio at the end of 2023 was 6.8% for mandatory pension funds and 12.3% for voluntary pension funds and compared to the end of 2022, it was lower by 1 pp and 2.1 pp, respectively.
[180] To illustrate, during 2023, as a yield proxy of low-risk assets in the euro area, the yield to maturity on one-year bonds increased from 2.633% as of 31.12.2022 to 3.191% as of 31.12.2023, while the yield on ten-year German bonds decreased by 2.5645% as of

which result in presence of short-term foreign government securities in the structure of pension fund investments. **The portfolio of equity instruments of pension funds is dominated by investment in international funds that invest in stocks in the form of so-called exchange traded funds (ETF)[181].** At the end of 2023, their share in total assets is 25.3% and 23.1%, respectively, in the mandatory and voluntary pension funds[182] recording an annual increase of 1.8 pp and 1.1 pp, respectively. Such instruments allow for a greater diversification of idiosyncratic risk from investing in instruments from individual issuers, therefore making the yield from the equity portfolio largely affected by general market movements. The share of direct investments in foreign or domestic stocks shows little changes[183].

2.4.2. Performance of private pension funds

In 2023, the rates of return[184] on investments of domestic pension funds were affected by the switch on the capital markets in 2023, which mitigated certain risks they encountered during the investment.

Against the negative market sentiment that prevailed in 2022, during 2023, particularly its last quarter, the market landscape was completely different. Inflation rates were still high, yet decreasing and stabilizing, which elevated investor optimism and expectations for gradual monetary easing. Hence, the annual weighted nominal rates of return at the end of 2023 were 6.6% for the mandatory and 6.8% for the voluntary pension funds, thus exceeding the returns generated for a period of seven and ten years, reckoned annually. With such movements in nominal returns and the slowdown of inflation, the annual weighted real rates of return of pension funds at the end of 2023 were in the positive zone and amounted to about 3%. However, the environment, especially the external one, still remains uncertain and accompanied by risks, which requires vigilant monitoring of pension fund risks.

31.12.2022 to 2.0280% as of 31.12.2023. The movement in US government securities was similar, yields to maturity on six-month treasury bills and one-year bonds rose from 4.767% and 4.733% as of 31.12.2022 to 5.262% and 4.770% as of 31.12.2023, while the yield on ten-year bonds fell down from 3.879% as of 31.12.2022 to 3.866% as of 31.12.2023.

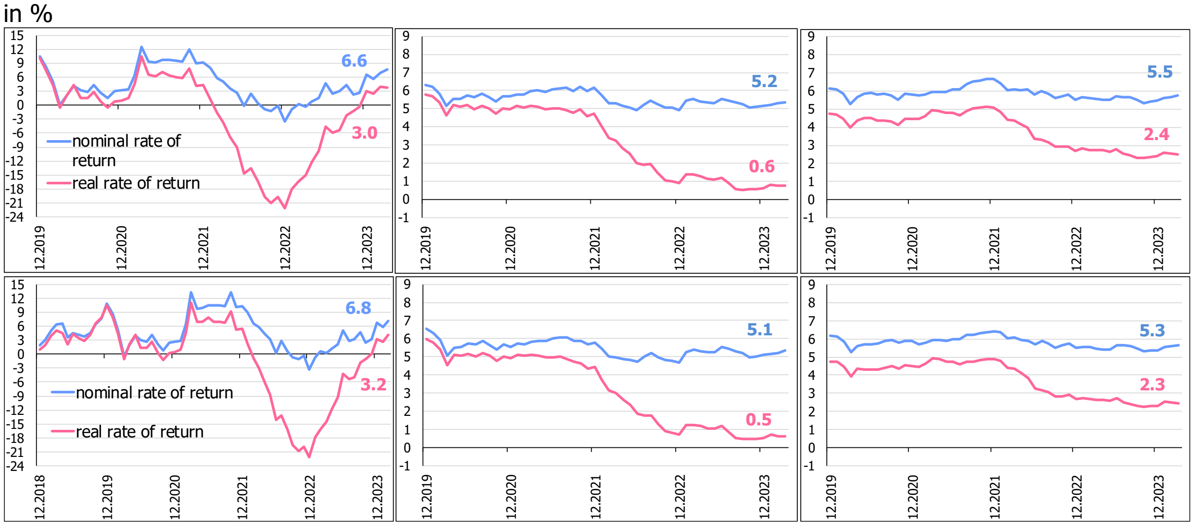
[181] A significant part of investments in exchange-traded funds that invest in stocks is actually a replication of the return bore by a specific stock market index, as the very investment mandate of these exchange-traded funds implies tracking a selected stock market index.

[182] The share of investments in international funds that invest in stocks in the equity instrument portfolio at the end of 2023 was 82.3% for mandatory and 67.6% for voluntary pension funds. Compared to the end of 2022, their share increased by 2.2 and 0.8 percentage points in the mandatory and voluntary pension funds, respectively.

[183] The share of direct investments in stocks in the total equity instrument portfolio at the end of 2023 was 17.5% for mandatory and 32.4% for voluntary pension funds, and compared to the end of 2022, it decreased by 2.2 and 0.8 percentage points, respectively.

[184] For more data on the rates of return of mandatory and voluntary pension funds, see the annexes to this report.

Chart 117
Dynamics of rates of return of mandatory (top) and voluntary (bottom) pension funds, generated over a period of one year (left), seven years (middle) and ten years (right), reckoned annually
in %



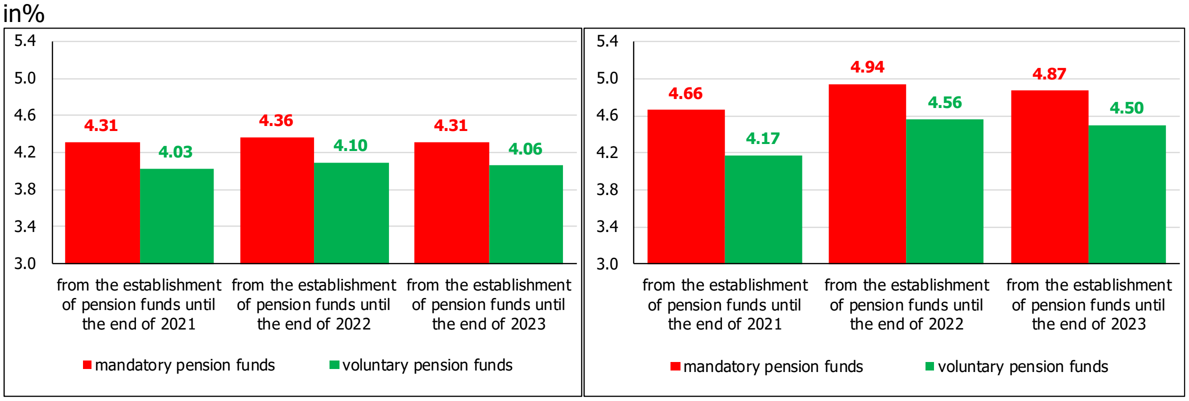
Source: Internal National Bank calculations based on MAPAS data and data from audited financial statements on mandatory and voluntary pension funds. Calculations of rates of return use only data for pension funds that operated for the entire period of rate calculation and by weighting with the share of each pension fund in the total net assets of the pension funds. Real rates of return were calculated using the inflation rate for the period for which the nominal rate of return is calculated.

The better performance in 2023 had a moderate impact on the movement of the rates of returns of pension funds generated for longer periods. The nominal rates of return of mandatory and voluntary pension funds for a seven-year period (reckoned annually) increased during 2023 by 0.3 and 0.4 percentage points, respectively. Given that, as a rule, the period of seven years is considered a rule of thumb for the duration of a market cycle, this period can be considered the most representative for the analysis of the long-term performance of private pension funds. Given the inflation, the real rates of return for a period of seven years (reckoned annually), at the end of 2023 equaled to 0.6% and 0.5% for the mandatory and voluntary pension funds, respectively, registering on an annual decrease of 0.3 and 0.2 percentage points, respectively. Such extremely low real rates of return actually indicate the need of adjusting both the investment policy of the funds and the setting of the current strategic allocation of their assets. For the entire period from the establishment of the pension funds[185] until the end of 2023, the nominal rates of return, annually, were 5.3% and 5.6% for the mandatory and voluntary pension funds, respectively (by 0.1 and 0.3 percentage points more compared to the previous year). Real rates of return for the entire period from the establishment of pension funds to the end of 2023 equal 2.3% and 2.6% respectively, which is almost unchanged for mandatory pension funds and an increase of 0.2 percentage points for voluntary pension funds compared to the previous year.

[185] The nominal rate of return for the entire period since the establishment of the private pension funds has been calculated by weighting the share of each pension fund in the total net assets of the pension funds, while the real rates of return have been calculated using aggregate inflation for the entire period since the establishment of pension funds, reckoned annually. The first mandatory private pension funds have been effectively operating since 31.1.2006, and the first voluntary private pension fund, since 30.6.2009.

Domestic pension funds in 2023 witnessed a decline in the historical volatility of their rates of return. The decline in historical volatility was more pronounced in real rates of return due to the moderate stabilization of inflationary movements during 2023.

Chart 118
Average weighted historical volatility of nominal (left) and real (right) returns of domestic private pension funds, reckoned annually, for the period from the pension funds establishment to the end of the respective calendar year
in%



Source: Internal National Bank calculations based on MAPAS data. The calculation is based on weighting the historical volatility of each pension fund with their share in total net assets of pension funds, using a simple average of monthly logarithmic rates of return.

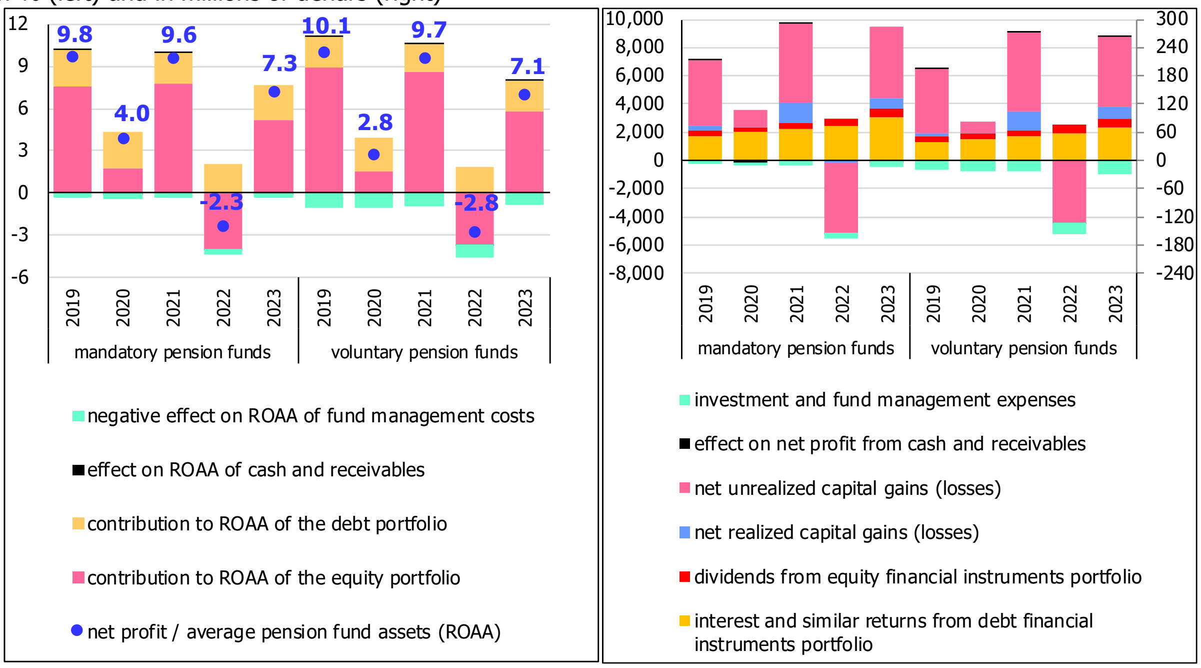
The favorable movements of international financial markets in 2023 had a positive effect on the domestic pension funds, which reported a profit of Denar 9,304 million in their financial statements for 2023[186]. The profit practically implied positive annual rates of return on average equity of 7.1% and 7.0%, respectively for mandatory and voluntary pension funds. Analyzed by asset class, drivers of the positive financial result in 2023 were the equity instruments that also have a significantly higher volatility of the rates of return[187]. Observing by financial result component, unrealized capital gains constitute most of the profit. The management fees[188] to average assets ratio in 2023 in the mandatory pension funds remained similar to the previous year (0.4%). Moreover, in voluntary pension funds, this ratio in 2023 remained unchanged (0.9%) and is still significantly higher, compared to mandatory pension funds.

[186] The share of mandatory pension funds in the total profit was 97.5% (Denar 9,071 million denars) in 2023. For more data on the structure of the financial result of pension funds, see the annexes to this report.
[187] The low volatility of the return of debt instruments results from the fact that many of them are measured at amortized cost.
[188] The Law on Mandatory Fully Funded Pension Insurance, as well as the Law on Voluntary Fully Funded Pension Insurance, regulate the distribution of investment and asset management costs among pension funds and the fund management companies, i.e. determine which costs are to be borne by pension fund. According to the audited financial statements of pension companies and pension funds, in 2023, 89.2% of the total costs borne by private pension funds include direct management costs for pension companies (88.5% in 2022), followed by the costs for custodians with a share of 7.8% (8.8% in 2022), and the remaining 3% include brokerage commissions, interest and similar costs borne by the fund (2.8% in 2022).

Chart 119

Distribution of rate of return by asset class (left) and components that form the net profit of private pension funds (right)

in % (left) and in millions of denars (right)



Source: Internal National Bank calculations based on data published by MAPAS and data from audited financial statements of mandatory and voluntary pension insurance funds.

Note: The contribution to the formation of the return on assets is calculated in relation to the average assets of pension funds, calculated as an average for trailing twelve months (TTM), by using a series of quarterly data. The effect of the revaluation of financial instruments, recognized by fair value through the other comprehensive income, is not included in the calculation of the return rate. Interest income also includes the effect of depreciation of the discount or premium from debt securities.

The rates of return on the equity instruments portfolio in 2023 were positive and equaled 17.3% for mandatory (-13.1% in 2022) and 17.1% for voluntary pension funds (-10.6% in 2022), while the rates of return on the debt instruments portfolio were 3.5% for mandatory (2.9% in 2022) and 3.3% for voluntary pension funds (2.9% in 2022). Positive rates of return on equity instruments result from net unrealized capital gains mainly from investment in foreign investment funds, and in part from direct stock investment[189]. In the debt instruments portfolio, the return mainly derives from interest income, government securities in particular. Moreover, the rates of return by type of financial instruments in 2023 (Table 1) do not show major difference between mandatory and voluntary pension funds.

[189] For more data about the structure of net realized capital gain and net unrealized capital gain by financial instrument, see the annexes to this report.

Table 6
Rates of return on asset class and on major types of financial instruments in which the private pension funds invest
in %

Rate of return	Mandatory pension funds					Voluntary pension funds				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Debt instruments	**3.7**	**3.7**	**3.3**	**2.9**	**3.5**	**3.6**	**3.6**	**3.2**	**2.9**	**3.3**
domestic government securities	3.8	3.9	3.4	2.8	4.1	3.7	3.9	3.3	3.1	3.4
domestic bank deposits	2.8	2.8	2.6	3.3	2.5	3.3	3.1	2.9	2.6	3.1
Equity instruments	**26.0**	**6.2**	**25.4**	**-13.1**	**17.3**	**25.0**	**4.7**	**23.8**	**-10.6**	**17.1**
domestic shares	27.0	7.2	26.7	-1.8	8.8	21.9	0.4	18.8	3.9	11.8
foreign equity financial instruments	25.9	6.1	25.3	-12.3	20.2	26.0	6.1	25.3	-14.3	18.3

Source: internal calculations of the National Bank, based on data published by MAPAS and data from audited financial statements

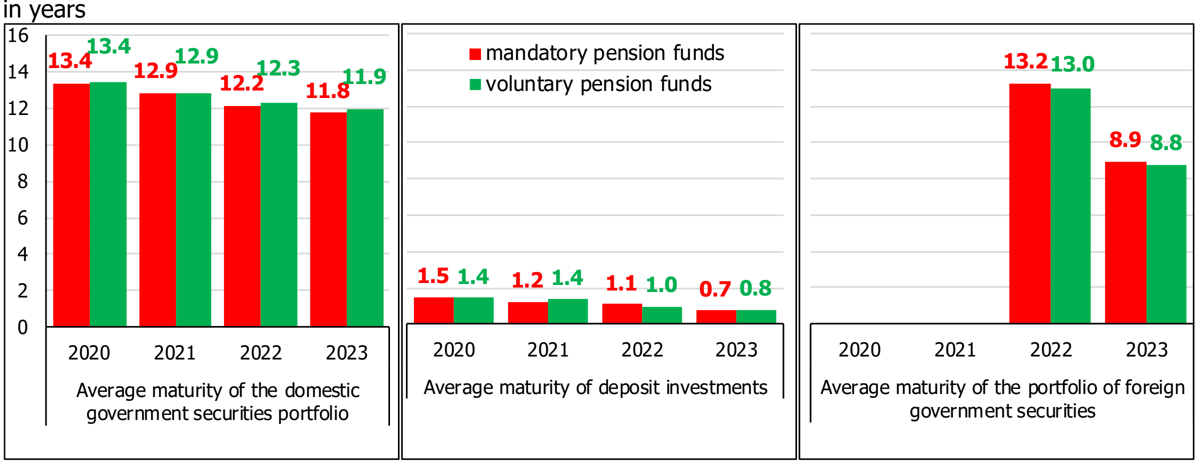
2.4.3. Exposure of pension funds to financial risks

Amid stabilization of market interest rates and formation of expectations among financial market participants for the beginning of the policy rate cut by the major global central banks in 2024, the significance of **interest rate risk for domestic pension funds increased** (inflows from existing debt financial instruments in the funds' portfolio or cash inflows from contributions paid by members could not be invested at the same or higher rates of return than those prevailing in the market in the last year). On the other hand, the interest rate risk to the domestic pension funds seems to be lower as most of the pension funds' debt instruments are measured at amortized cost without regular revaluation by their fair value (i.e. the changes in the terms of financial markets, i.e. market interest rate pace does not directly affect their accounting value[190]).

So far, liquidity risk has not been relevant for pension funds given the relatively young membership and the level of fundraising of the mandatory pension funds, which leads to minor liquidity need to pay pensions[191]. Voluntary pension funds have a slightly greater need for liquidity[192], but for now, they meet it relatively easily, given that the inflows from annual membership contributions are almost three times higher than the outflows for payment of pension benefits.

[190] Moreover, pension funds also do not calculate expected credit risk losses for investments in debt instruments, which is an IFRS 9 requirement.
[191] Audited financial statements data of the mandatory pension funds show that the total cash outflows for pension payments from mandatory pension funds in 2023 amounted to Denar 141.6 million (Denar 168.7 million in 2022), accounting for 0.1% of the average assets in 2023 calculated as a trailing twelve-month average (0.2% in 2022).
[192] Audited financial statements data of the voluntary pension funds show that the total cash outflows for pension benefits in 2023 amounted to Denar 122.6 million (Denar 120.8 million in 2022), accounting for 3.7% of the average assets in 2023 calculated as a trailing twelve-month average (4.1% in 2022).

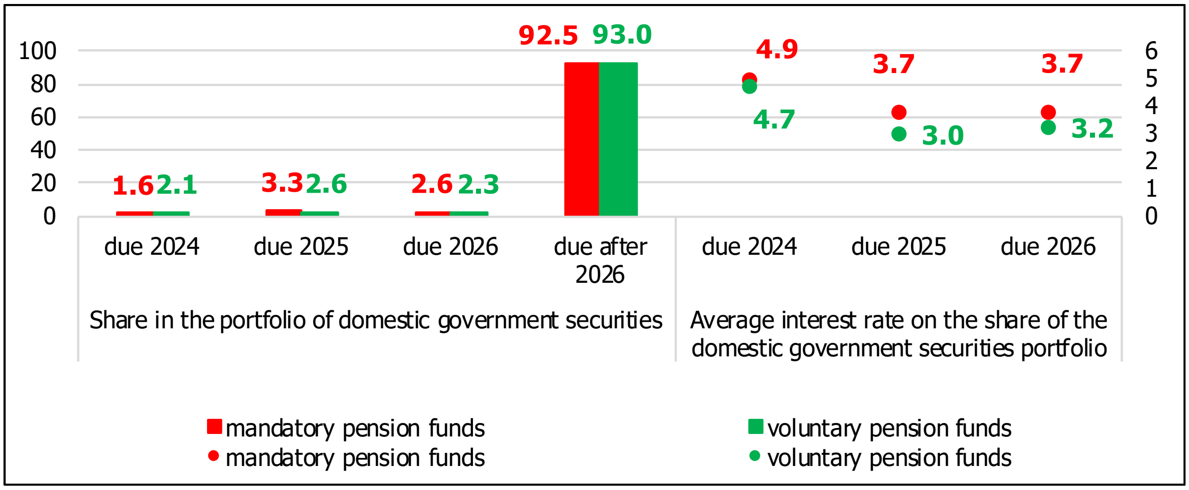
Chart 120
Weighted average residual maturity of the important types of financial instruments within the debt portfolio of the private pension funds
in years



Source: Internal National Bank calculations based on MAPAS data and data from audited financial statements on mandatory and voluntary pension funds.
Note: Average maturity is calculated by weighting the average maturity of the respective financial instruments of each pension fund with its structural share in total investments in the same financial instruments of all pension funds. Average maturity of the respective financial instruments for each pension fund is calculated by allocating each financial instrument into annual maturity buckets by the residual contractual years to maturity, where the value of each maturity bucket which is an average of the marginal remaining years to maturity of the maturity bucket, is weighted by its share in total investment in the respective financial instrument of the pension fund.

The trivial need for funding sources to satisfy liquidity outflows to the members immediately encourages pension companies to have a relatively high interest risk tolerance, measured through the weighted average maturity of the major financial instruments that are included in the debt instruments portfolio as the closest value to their duration. The weighted average remaining maturity of domestic government securities as the single most important component in the debt instruments portfolio at the end of 2023 decreased by approximately five months for both mandatory and voluntary pension funds. Moreover, while expecting a reduction in interest rates, the risk of reinvestment of inflows from due debt instruments comes to the fore. However, this is mitigated as a small portion of the portfolio of domestic government securities with an average interest rate of 3% to 4.9% falls due in 2024, 2025 and 2026. In addition, pension funds took advantage of the period of high interest rates and invested in domestic government securities with long maturities, protecting against potential reinvestment risk, while reducing their weighted average residual maturity of other instruments (by investing in short terms at higher interest rates). A faster decrease was seen in the average weighted maturity of foreign securities at the end of 2023, which already have a shorter residual maturity compared to domestic government securities. The lowest residual maturity was registered in pension funds’ investment in deposits with domestic banks, most of which fall due in 2024.

Chart 121
Weighted average interest rate and share in the portfolio of domestic government bonds by maturity date of the instruments within the debt portfolio of the private pension funds
in %



Source: Internal National Bank calculations, based on data submitted by MAPAS.

The structure of assets of the domestic private pension funds, primarily the large share of debt financial instruments, including the domestic government securities, highlights the importance of credit risk to the pension funds, as well as the dynamics of spreads that present credit risk premium as an important generator of the future expected return on their assets. At the end of 2023, in accordance with the strategic allocation between equity and debt instruments, **about 70% and 65% of the total assets of the mandatory and voluntary pension funds, respectively, were invested in financial instruments that bear exposure to credit risk. These assets are dominated by debt instruments with non-investment credit rating, primarily due to investments in domestic government securities[193].**

The share of assets with an investment credit rating in the asset structure which is exposure to credit risk decreased from 3.9% and 7.2% at the end of 2022 to 2.9% and 5.3% at the end of 2023 for mandatory and voluntary pension funds, respectively. There was also a decrease in instruments without credit rating, which mainly result from investments in deposits with domestic banks (only one domestic bank has a credit rating from international active credit rating agencies). The annual decrease in the relative share of assets with investment rating and assets without an investment rating in the assets of pension funds representing exposure to credit risk was at the expense of the increase in share of assets with a non-investment credit rating, which at the end of 2023 accounted for 93.8% and 85.7% of the assets bearing exposure to credit risk in mandatory and voluntary pension funds, respectively (89.4% and 80.9% at the end of 2022).

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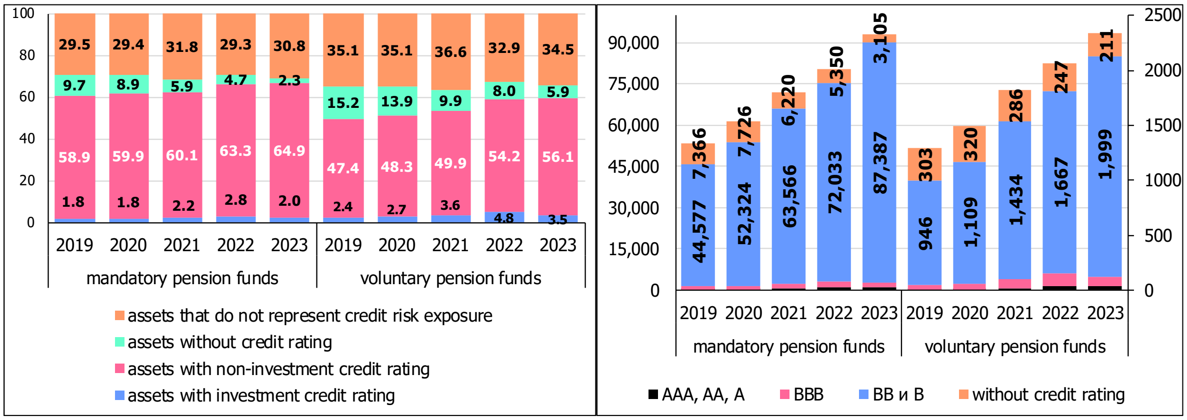
[193] RN Macedonia, as an issuer of securities, has been assigned a long-term credit rating of BB+ (with a stable outlook) by Fitch Ratings at the last revision of the credit rating dated 17.04.2024 (the report is available at https://finance.gov.mk/wp-content/uploads/2024/05/Fitch-Republic-of-North-Macedonia-2024-04-17-1.pdf) and long-term credit rating BB- (with a stable outlook) by S&P Global Ratings during the last credit rating revision as of 29.1.2024 (the report is available at RatingsDirect_NorthMacedonia_3118625_Jan-29-2024-1.pdf (finance.gov.mk)).

Chart 122
Structure of pension fund assets by credit risk (left) and allocation of pension fund assets that bear credit risk exposure according to the credit rating of the financial instrument issuer (right)
in % and in millions of denars



Source: National Bank calculations based on MAPAS disclosures, audited financial statements of the funds and publicly available data on the credit rating of financial assets issuers.
Note: Equities are assets that do not represent credit risk exposure. All instruments that imply credit risk exposure are classified according to the credit rating of their issuer or creditor obtained by the international credit rating agencies Fitch Ratings, S&P Global Ratings, or Moody's Ratings. If the credit rating assigned by these three agencies differs, an average of the available ratings is calculated, by rounding to the lower rating. The credit rating of investments in domestic investment funds that invest in money market instruments and investments in foreign investment funds that invest in debt instruments is determined by applying the look-through approach (identifying the structure of their investments by credit rating and proper distribution of total market value of such investments of the pension fund in accordance with the structure of these investments of the investment funds according to the credit rating) in accordance with the latest publicly available data.

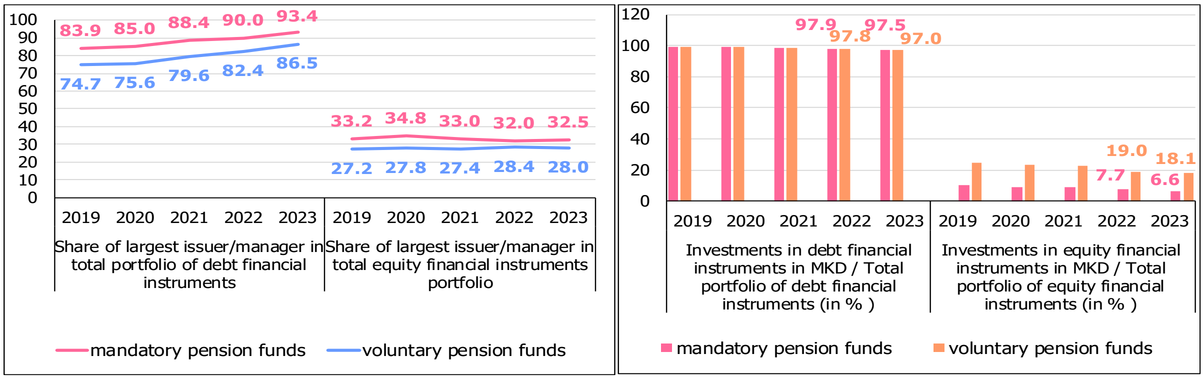
The portfolio of debt instruments of the domestic private pension funds shows high concentration[194]. The share of debt instruments of their largest single issuer (government) is 93% and 87% for mandatory and voluntary pension funds, respectively. Also, the geographical concentration of the debt instruments portfolio is extremely high, i.e. about 97% of the investments are in instruments of domestic issuers, with a negligible annual decrease. The absence of satisfactory diversification of their portfolio of debt financial instruments actually means that almost the entire portfolio is influenced by identical risk factors, primarily the credit risk of the country, the movement of interest rates in the domestic economy and the inflation expectations. Despite the fact that in 2023 pension funds continued to modestly invest in foreign government securities, making at least the geographical concentration to record a minimal annual decline, there is still room for diversification of the debt portfolio and, accordingly, further decrease in concentration.

[194] For more data on concentration ratios of investment of private pension funds, see the annexes to this report.

Chart 123

Concentration by issuer / portfolio manager of debt and equity instruments of mandatory and voluntary pension funds (left) and geographic concentration (right)

in %



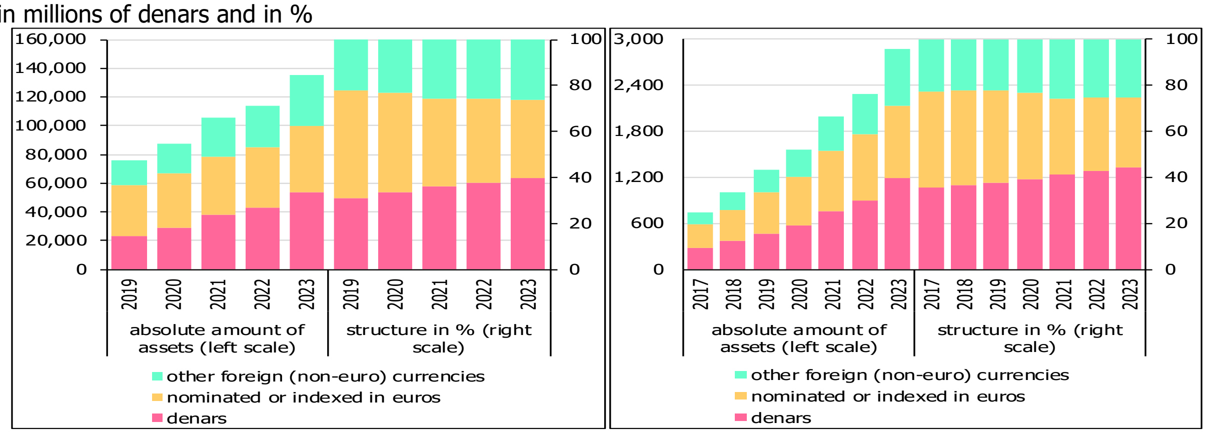
Source: Internal National Bank calculations based on MAPAS data and data from audited financial statements of the pension funds.

In the equity portfolio, the concentration by issuer/manager is lower[195]. Thus, the single largest management company of foreign investment funds traded on the stock market, at the end of 2023, accounted for 32.5% and 28% of the equity portfolio of the mandatory and voluntary pension funds, respectively. The geographic concentration of equity portfolio compared to the debt instruments portfolio is significantly smaller, while compared to mandatory pension funds, voluntary pension funds register more pronounced share of investments in domestic equity instruments. The equity portfolio reported higher concentration per instrument compared to the debt instruments portfolio. Thus, the share of each ten largest equity instruments in total equity portfolio of each pension fund at the end of 2023 ranged from 50.6% to 97.4%. However, this concentration mitigates considering that the majority of these financial instruments are stock market traded funds with a high level of diversification of exposure to single instruments within their portfolio.

Chart 124

Exposure of domestic mandatory (left) and voluntary (right) pension funds to currency risk.

in millions of denars and in %



Source: Internal National Bank calculations based on regular periodic data disclosures by pension companies.

195 For more data on concentration ratios of investment of private pension funds, see the annexes to this report.

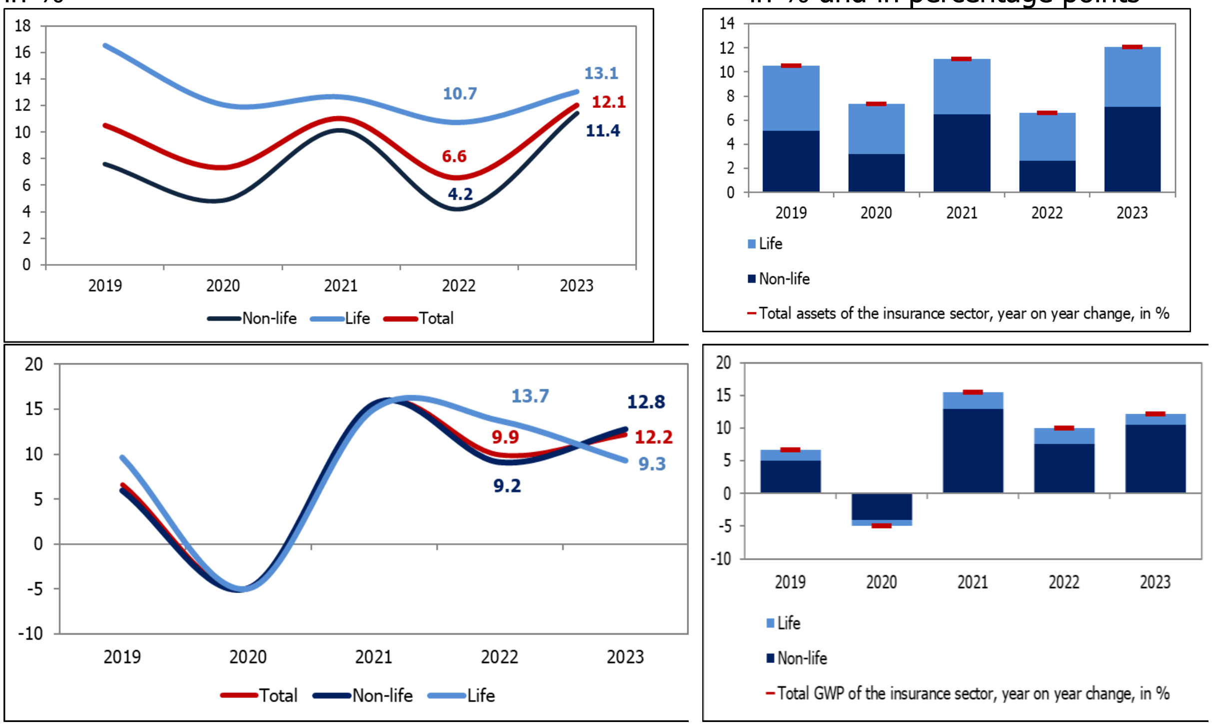
The exposure to currency risk of domestic pension funds in 2023 reduced, as seen through the decline in the share of FX-denominated or -indexed assets in the total assets of pension funds. In 2023, the assets with a currency component to total assets ratio of mandatory and voluntary pension funds decreased by 2.1 and 1.5 percentage points to 60.2 and 55.8, respectively. However, the exposure to currency risk is limited with the strategy of exchange rate peg of the denar against the euro, when more than half of the assets with a currency component are denominated or indexed in euros. A more specific currency risk indicator would be obtained by analyzing the dynamics of non-euro denominated assets to total assets ratio, for which there is an objective possibility of value fluctuations due to a change in their exchange rate against the euro, and accordingly, against the denar. However, the non-euro denominated assets to total assets ratio at the end of 2023 was 26.4% for mandatory and 25.1% for voluntary pension funds. Compared to the end of 2022, this is an increase of 0.8 percentage points in mandatory and almost unchanged in voluntary pension funds, which indicates an increase in the currency risk of pension funds.

2.5. Insurance sector[196]

During 2023, the insurance sector reported growth in all segments, improved the financial result and maintained solvency at an appropriate level. Total insurance investments continued to grow, which was supported by both insurance groups, with non-life insurance still leading. Claim settlement also grew, in both number and amount, which indicates readiness of insurance companies to settle the incurred liabilities. This is an important prerequisite for further insurance market development, the potential of which is shown by the increase in the number of insurance companies[197] in 2023. Alongside the growth of activities, insurance companies increased their financial investments, but without major changes in their structure, which continues to expose them to concentration risk in two types of financial instruments (deposits and government securities) and interest rate risk. The insurance sector maintains good solvency, which is the basis of its stability and resilience to environmental shocks. The solvency ratios of the insurance sector are by several times higher than the legislative requirements in this area, which is in the process of harmonization with the latest international standards and practices in this field. However, solvency maintenance and enhancement requires sustainable profitability, which, although improving in the last two years, is still under the pressure of structural weaknesses of the sector related to the weak operational efficiency and high insurance costs. In the long term, the insurance sector is exposed to climate-related and digital security risks.

In 2023, the insurance sector continued to grow at an annual rate of 12.2% of total GWP[198], compared to 9.9% in the previous year. The new insurance policy investments were in non-life insurance (12.8% annual growth of GWP), with further solid growth of life insurance premiums (of 9.3% annually). Non-life insurance still prevails in the structure of the domestic insurance market making up 61.6% of total assets and 82.7% of total GWP of the insurance sector.

Chart 125
Annual growth rates and contribution to the annual growth of assets (up) and GWP (down) of the insurance sector
in % in % and in percentage points



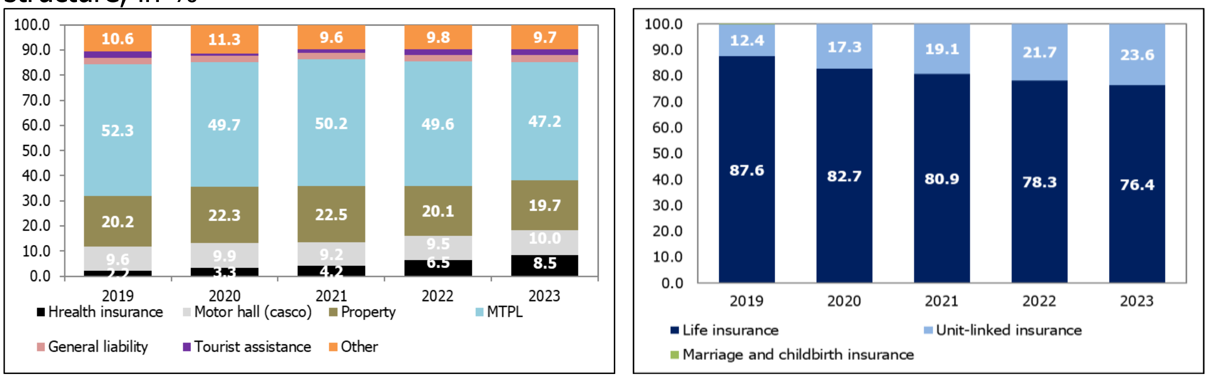
Source: National Bank, based on data from the Insurance Supervision Agency

Within non-life insurance, liability car insurance still dominates, as a compulsory insurance class, which accounts for almost half of the total sales of insurance policies. The second most important is property insurance (with a share of close to 20%), which once again recorded a solid growth, after the slight drop in sales in the previous year. Within the remaining non-life insurance classes, health insurance continues to lead in growth, which in 2023 reached 8.5% of the total investments in non-life insurance, which is an almost fourfold increase compared to pre-pandemic. In 2023, **in the life insurance segment**, policyholders invested mostly in classic life insurance, which includes riziko insurance[199] (which is usually linked to bank loans) and insurance with a savings component. Alongside, life insurance with an investment

[196] The insurance sector analysis is in accordance with the data submitted by the Insurance Supervision Agency of the RNM in May 2024.
[197] During 2023, the Insurance Supervision Agency (ASO) issued two founding and operating licenses to insurance companies, one for non-life and one for life insurance. One of the companies started operating at the end of 2023 and the other in the first quarter of 2024. Thus, as of the first quarter of 2024, eighteen insurance companies operated on the insurance market (twelve non-life and six life insurance companies).
[198] Gross written premium.
[199] *Riziko* is a special type of life *insurance* that covers risk only in the event of death for the duration of the insurance; it is not saving and is without profit payment. This means that in the event of death of an insured who is the beneficiary of a bank loan, the insured amount is paid to the beneficiary of the insurance. However, if the risk does not materialize before the expiry of the insurance policy, all the invested funds are retained by the insurance company that assumed the risk of paying funds in the event of death of the insured.

component continued to increase[200], reaching 23.6% of the total GWP of the life insurance in 2023.

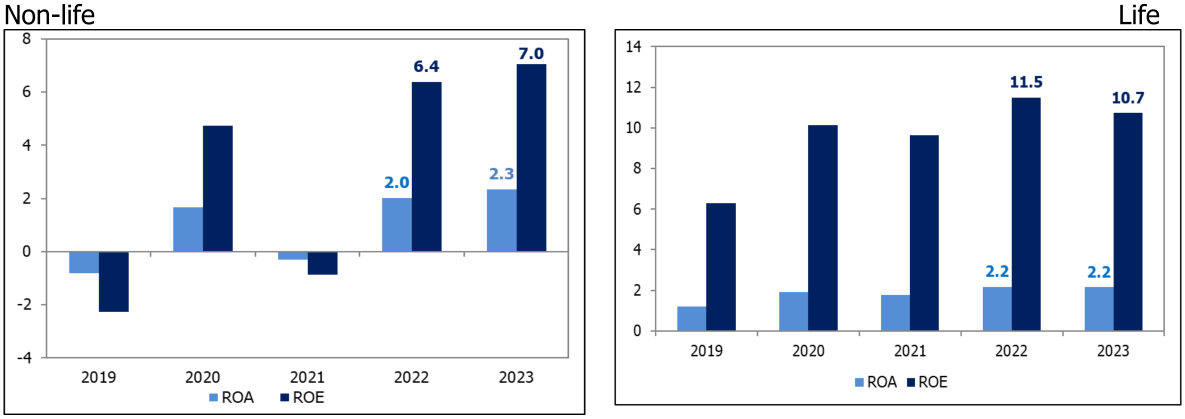
Chart 126
Gross written premiums, by non-life (left) and life (right) insurance classes structure, in %



Source: National Bank, based on data from the Insurance Supervision Agency

During 2023, the insurance sector profitability continued to improve, which was largely driven by non-life insurance performances. With increased operating profit, the rate of return on non-life insurance assets was 2.3% (2% in the previous year), while the rate of return on equity increased to 7% (6.4% in the previous year). **The life insurance developments were also positive**, reporting a moderately higher operating profit, and relatively stable and solid profitability ratios (rates of return on assets and equity of 2.2% and 10.7%, respectively, compared to 2.2% and 11.5%, respectively, in 2022).

Chart 127
Profitability ratios of the domestic insurance sector, in %



Source: National Bank, based on data from the Insurance Supervision Agency

Insurance sector profitability risks are still mainly structural, associated with the weak operational efficiency and the high administrative costs of insurance.

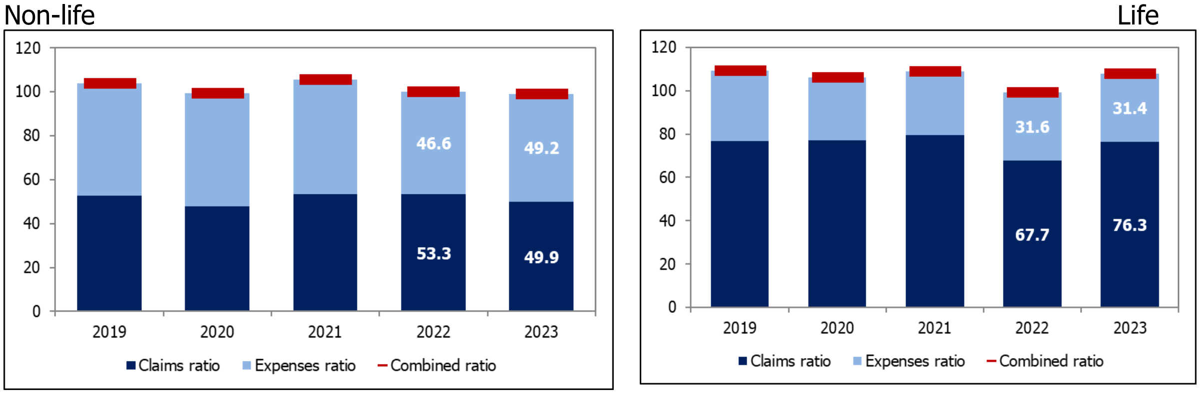
200 This is a life insurance product with an investment component, where funds are invested in units of investment funds, and the investment risk is borne by the insured.

Operating costs continued to grow in 2023, which deteriorated insurance sector operational efficiency. Within their framework, again there is high growth of commission costs, which in 2023 reached 15.8% of total GWP of non-life insurance (15.3% in the previous year). Thus, they increased the non-life insurance cost ratio[201], which in 2023 equaled 49.2% (46.6% in the previous year). In 2023, the life insurance cost ratio equaled 31.4% (31.6% in the previous year) amid growth of commission costs compared to total GWP (share of 16.2% v.s. 14.5% in the previous year). The improvement of operational efficiency remains a priority for the insurance sector, especially in the current context of protracted environmental risks, the materialization of which could disrupt the ability of the sector to generate operating profit.

Chart 128

Technical ratios of the domestic insurance sector, in %

Non-life Life

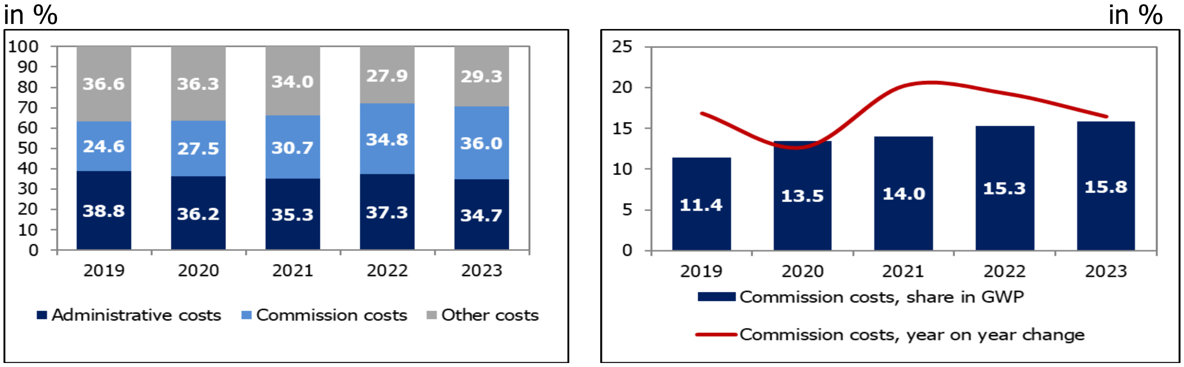


Source: National Bank, based on data from the Insurance Supervision Agency

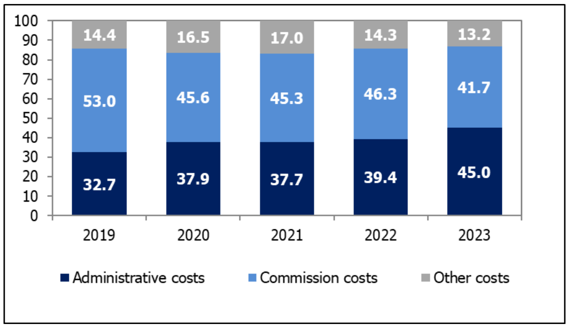
Chart 129

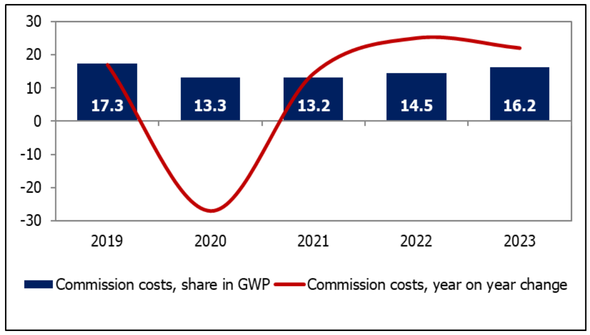
Structure of administrative costs and insurance implementation costs (left) and commission costs (right) of non-life insurance (up) and life insurance (down)

in % in %



[201]The cost ratio is the ratio between insurance implementation cost and net premium. The combined ratio represents the sum of cost ratio and claims ratio.





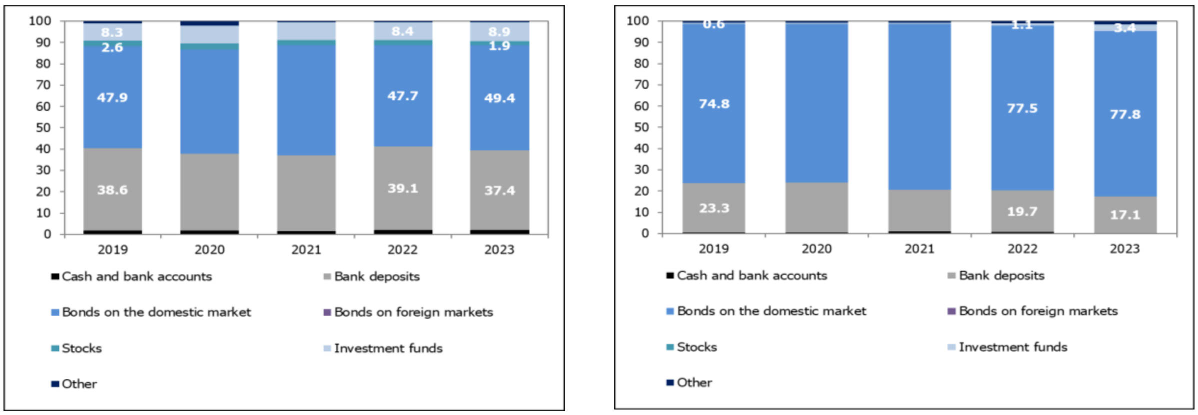
Source: National Bank, based on data from the Insurance Supervision Agency

Improving operational efficiency is also important in the context of growth in insurance company activities, which increases the costs of claims arising from insurance contracts. In 2023, the claims increased in terms of both number and volume of funds paid out, and insurance companies showed ability to settle the incurred liabilities. **The volume of claims paid was higher in non-life insurance**, which is proportional to the higher volume of activities in this segment. The largest contribution to the growth of non-life insurance claims was made by the higher costs for claims in health insurance and casco and compulsory motor insurance. However, the growth in non-life insurance claims was slower compared to premium income, which reduced claims ratio[202] to 49.9% in 2023 (53.3% in the previous year). **In the life insurance segment**, the claims ratio increased to 76.3% (67.7% in the previous year). The structure of gross liquidated damage claims is still dominated by classic life insurance claims paid, with further growth in damage claims paid on life insurance with investment component, although more moderate compared to the previous year.

Insurance companies have successfully overcome the challenges posed by higher inflation and the growth of interest rates over the past two years, as factors that may affect the amount of claims and the availability of insurance, i.e. the policyholders' preferences for investing in various financial instruments. This is also seen through the dynamics of terminated and redeemed life insurance policies whose rate decreased in 2023 to 13.3% of the total number of concluded insurance contracts[203] (26.8% in the previous year). In the non-life insurance segment, the rate of terminated and redeemed policies is maintained low at around 0.5%, and in 2023, it decreased to 0.3%.

[202] The damage claims ratio is the ratio between damages inflicted in the period and net-premium written.
[203] The higher rate of terminated and redeemed life insurance policies is partly due to the possibility of early redemption of life insurance policies, where the purchase value of the policy is paid to the insured person.

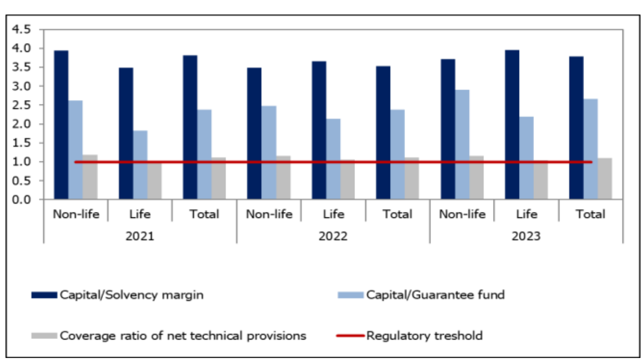
Chart 130
Investment of technical and mathematical provisions, structure in %
Non-life Life



Source: National Bank, based on data from the Insurance Supervision Agency

During 2023, the domestic insurance sector increased financial investments and maintained their structure with the majority of investments in domestic fixed income financial instruments. Insurance companies mostly invest in domestic government securities and bank deposits, which together make up 86.7% of total non-life insurance investment, i.e. 94.9% of life insurance investment. The portfolio is particularly concentrated in life insurance companies, where domestic government securities account for 77.8% of total investments, while in non-life insurance companies this share is 49.4%. The exposure to international financial markets is very low, with the share of investment in foreign financial instruments of 2% among non-life insurance companies, while life insurance companies have almost no investment in foreign financial instruments. The positive side of such investment structure is that it protects the insurance companies against risks arising from financial market volatility. On the other hand, it exposes them to concentration and interest rate risks. This especially applies to investment in government bonds, the valuation of which at fair (market) value affects the general financial result of insurance companies amidst increased volatility of the interest rates on these instruments when issued.

Chart 131
Coverage ratios of the insurance companies solvency margin and technical provisions requirements
times



Source: National Bank, based on data from the Insurance Supervision Agency

The insurance sector solvency remains at an appropriate level, exceeding manifold the minimum requirement. At the end of 2023, the insurance sector capital exceeded the level of the solvency margin by 3.7 times in non-life insurance and by 4 times in life insurance. Insurance companies also maintain adequate coverage of the guarantee fund[204] with capital and net technical provisions by investing in permitted asset categories. The insurance sector capitalization and solvency levels underlie its stability and shock resistance, emphasizing the importance of maintaining a sound solvent position in the period ahead. In this context, it is especially important to harmonize the domestic legislation with the European Solvency Directive as soon as possible, which will contribute to improving risk management and further strengthening of solvency of the domestic insurance sector.

2.6. Financial leasing

Leasing sector plays a minor role, with little significance for the domestic financial system[205] and is not an important channel for risk spillover to other financial system segments, both for its small volume and weak connection with other financial system segments. Leasing companies are one of the fastest growing segments of the financial system and grew even faster (25.7%) compared to the previous year, mainly due to new borrowings. In 2023, one of the leasing companies ceased operating.

Credit risk is the most significant risk to the leasing companies, while the indicators of this risk somewhat deteriorated in 2023. Liquidity ratios point to a generally favorable liquidity position, given the positive total asset-liability maturity gap up to 1 year (both by original and by remaining maturity), which is still largely determined by the success in collection of claims based on leasing contracts. Leasing companies report a high short currency position, and almost all lease agreements are in denars with an FX clause. This underlines the importance of the policy of *de facto* peg of the denar against the euro for the stability of these institutions (both for maintaining the stock of companies' liabilities and for the exposure of lease companies' clients to currency risk). Capitalization ratio of leasing companies, measured as equity and reserves to total assets ratio somewhat decreased in 2023, whereas profitability, although positive, has been decreasing for a second consecutive year.

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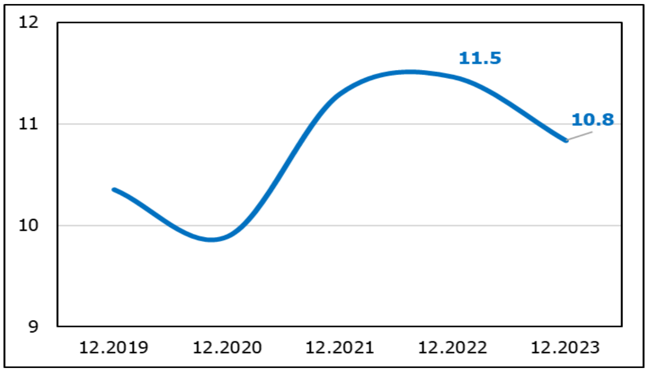
[204] Pursuant to Article 77 of the Law on Insurance Supervision, the guarantee fund consists of items included in the calculation of the insurance company capital, which consists of core, and additional capital, calculated in accordance with the Law. The guarantee fund must not be lower than one third of the solvency margin requirement, calculated in accordance with the Law. In addition to this provision, the insurance company guarantee fund minimum requirement is set between Euro 2 million and Euro 4.5 million, depending on the class of insurance and the scope of activities performed by the company.

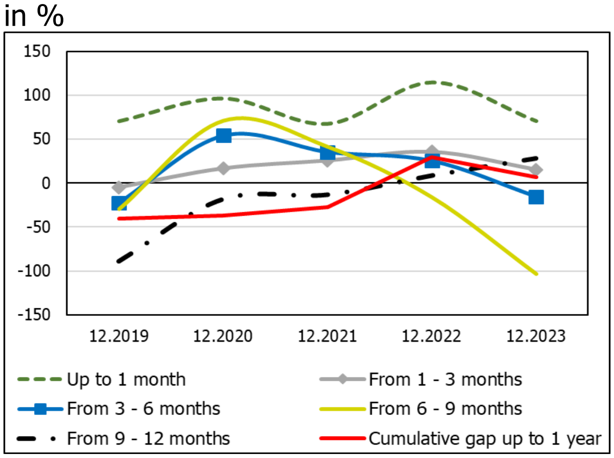
[205] More details in the Financial System Structure of this Report.

Chart 132
Equity and reserves to total assets ratio, in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

Chart 133
Financial asset-liability maturity gap to total financial assets, by maturity bucket, according to the contractual residual maturity
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

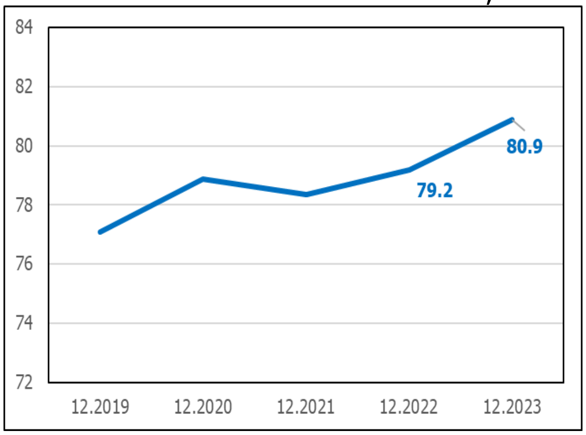
The capitalization ratio[206] **of leasing companies, measured as equity and reserves to total assets ratio, decreased** compared to 2022 (by 0.7 percentage point), mainly due to the faster growth of assets (25.7%), compared to equity and reserves (18.8%).

Liquidity risk exposure ratios remained relatively favorable in 2023. The asset-liability maturity gap with a remaining contractual maturity of up to one year recorded a more significant decrease, but remained positive at the end of 2023. Such reduction results from the significant widening of the negative asset-liability gap with maturities between 6 and 9 months and the transition of the asset-liability gap with maturities between 3 and 6 months to negative. Analyzed by contractual original maturity, short-term assets (with a maturity of up to 1 year) are almost four times higher, compared to short-term liabilities (with a maturity of up to 1 year). Having in mind that 79% of the leasing companies' assets constitute of claims on customers, the liquidity of these companies is largely conditioned by the success in claim collection.

The leasing companies' liabilities further increased, so that the credits and loans used by these companies to finance their

[206] There is no special regulation that requires from leasing companies to maintain a certain capitalization or solvency rate, but only a regulatory requirement for a minimum share capital for incorporation of a financial lease provider, of Denar 6 million (the share capital of a leasing company may not fall below this amount).

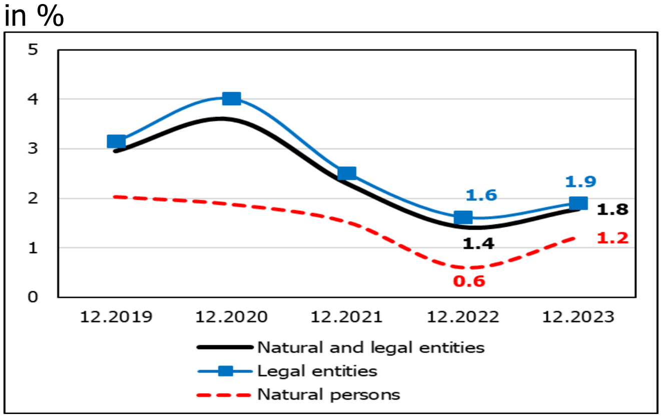
Chart 134
Credits and loans to total assets ratio, in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

activities reached 80.9% of the total assets of the companies. In 2023, the debt increased due to the long-term credit and loan liabilities (by Denar 1,859 million or by 30.0%), 59.2% of which are from foreign and 40.8% from domestic entities.

Chart 135
Value of active lease agreements with clients uncollected for longer than 90 days from the due date to total value of active lease agreements
in %

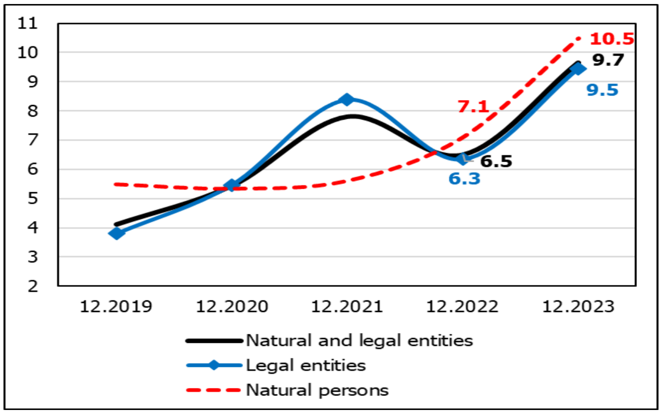


Source: National Bank calculations, based on data submitted by the Ministry of Finance

The ratios of leasing companies' exposure to credit risk show a certain deterioration, but remain low. Only 1.8% of total value of all active leasing contracts are settled with a delay longer than 90 days, which is an increase of 0.4 percentage points primarily due to the growth of these claims on legal entities (of Denar 89 million or 62.7 %)[207]. The ratio between canceled[208] lease agreements in the current year to the value of active lease agreements at the end of the previous year significantly increased[209] mostly due to the legal entities - leasing beneficiaries[210]. The impairment cost in the profit and loss accounts makes up 11.4% of the leasing companies' profit (11.0% in 2022).

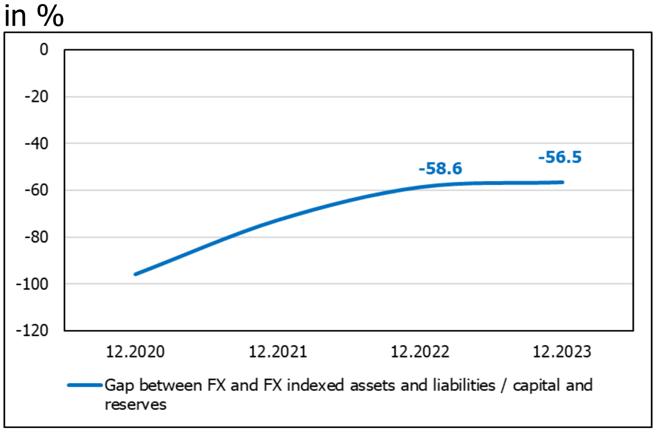
[207]Uncollectible claims on natural persons recorded an annual growth of Denar 17 million or more than double.
[208] Lease agreements are not always canceled due to default by the lessees, but also due to non-fulfillment of obligations arising from agreements by the lessor (leasing company).
[209]In 2023, this indicator equaled 9.7%, which is by 3.2 percentage points higher, compared to 2022 (6.5%).
[210]About 79% of the value of canceled lease agreements results from agreements concluded with legal entities.

Chart 136
Value of canceled lease agreements in the current year to value of active lease agreements at the end of the previous year
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

Chart 137
Financial asset/liability gap with a currency component to equity and reserves
in %



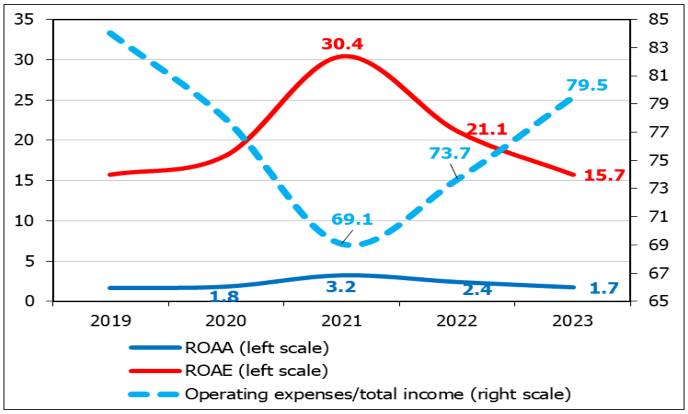
Source: National Bank calculations, based on data submitted by the Ministry of Finance

Leasing companies are exposed to currency risk, both directly and indirectly, due to the exposure of their borrowers to this risk. The direct exposure to currency risk results from the high gap between asset and liability positions with a currency component in the balance sheets of leasing companies. On an aggregated basis, they have a short currency position due to the predominance of liabilities to non-residents, which exposes them to denar depreciation risk and underlines the importance of the *de facto* fixed exchange rate policy of the denar against the euro. In 2023, the companies' asset-liability gap narrowed[211], which alongside the growth of capital positions decreased its relative share (decrease in the share of currency gap in equity and reserves by 2.1 percentage point). In the portfolio of active lease agreements, almost all agreements (99%) are in denars with foreign exchange clause, which exposes the leasing companies to a credit risk, amid possible materialization of the currency risk their clients are exposed to.

The profitability of leasing companies decreased in 2023, mainly due to the high growth of operating costs. Operating costs increased by 26.5% or Denar 166 million, which outpaced the increase in total income of Denar

[211]The narrowing arises from the higher growth in assets with currency component (by Denar 1,333 million) relative to the increase in liabilities with currency component (by denar 1,413 million).

Chart 138
Selected profitability indicators
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

147 million or 17.2% in 2023. The growth of these costs reduces the profit of this financial system segment and significantly deteriorated the operational efficiency. Despite the decrease, the leasing companies generate solid return on assets and invested equity.

2.7. Financial corporations

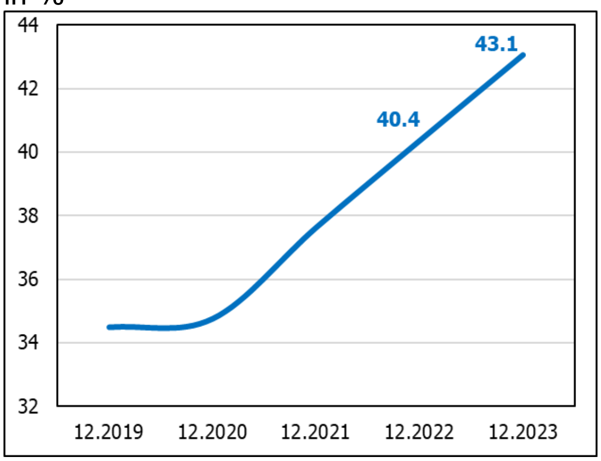
Financial companies are one of the most dynamic segments of the financial system, whose assets have been constantly growing in the last few years. In 2023, the assets of this segment increased by 24%, within which, the approved loans (mainly to individuals) grew by 26%. However, these companies still constitute a marginal part of the financial system and are nor risky for the overall financial stability, but pose other risks, primarily to certain layers of the population. Financial companies are well capitalized non-deposit institutions with insignificant connection with other financial system segments. The credit activity of these companies is aimed at domestic entities who mostly find it difficult to meet the tighter credit standards of the banks or who have an urgent and short-term need for funds. Borrowing with these companies is easier, but the debt to financial companies is much more expensive, which poses a risk of over-indebtedness of certain layers of the population, especially those with lower incomes. The legal amendments of July 2023 laid grounds for tightening regulatory requirements and standards for founding and operating financial companies aimed to reduce operating weaknesses and exposure to reputational risk of these companies, due to which they were criticized in the public. Thus, these amendments tightened the requirements for financial company management and capitalization[212], for risk management, credit risk in particular[213], as well as the requirements for identification of credit beneficiaries[214]. Moreover, they introduced a limit on the maximum amount of

[212]The minimum core capital of a financial company increased from Denar 6 million to Denar 30 million, and it cannot be secured by loans and credits. Financial companies are required to comply with this requirement by the end of July 2024.
[213]There is a regulation that prescribes the manner of credit risk management, measurement, control and monitoring, which, as one of the more important measures, includes the creditworthiness indicator and the total debt indicator of each natural person to all creditors.
[214] There is an applicable procedure for identifying and updating customer data that helps reduce legal and reputational risk, which, before adoption of the amendments to the Law, was at a high level due to information in the public about the misuse of personal

additional credit costs[215]; however, the debt burden on the borrower from these companies remains high, because the prescribed amount of all credit costs, including interest, reaches the amount of credit principal.

In 2023, the number of financial companies remained the same compared to 2022[216]. In 2023, financial companies reported better credit risk exposure ratios, but still a relatively large part of their credit portfolio is charged with delay. Liquidity risk exposure depends on the quality of loans and their timely servicing, and is mitigated through the liabilities structure that reports significant share of equity positions and sources from connected parties. Financial companies register high short currency position, which underlines the importance of *de facto* peg of the denar to the euro for preserving the level of their liabilities. Financial companies are highly profitable, although their operational efficiency deteriorated in 2023.

Chart 439
Equity and reserves to total assets ratio
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

The capitalization ratio of financial companies, measured as equity and reserves to total assets ratio, increased (by 2.7 percentage points), compared to 2022, mainly due to the faster relative growth of equity and reserves compared to the growth of assets[217]. Taking into account the legal lending limit (the ratio between total claims on loans, guarantees, factoring and credit cards should not exceed 10 times of equity and reserves), there is considerable room for growth of lending by financial companies because at the end of 2023, this ratio was 2.2 (2.3 in 2022). Company alignment with the new higher capital requirement could further reduce this ratio.

The liquidity risk exposure of financial companies depends on

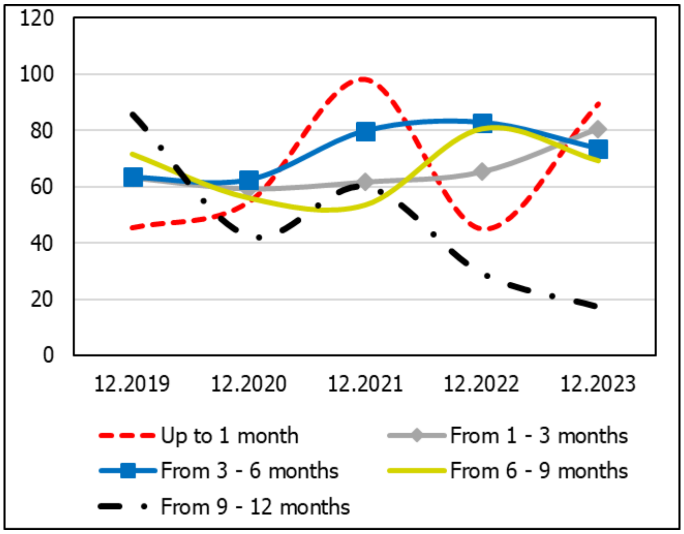
data of natural persons by other persons when taking online loans from financial companies. Also, a company licensed for organizing games of chance under the Law on Games of Chance and Entertainment Games, may not be a credit intermediary of a financial company.

[215]The amendments to the Law on Financial Companies (Official Gazette of RNM No. 154/2023) does not allow financial companies to conclude a consumer loan agreement, if the agreement or related services requires payment of a fee or multiple fees that are not factored in the average total costs, which alone or in combination with any other fees exceed or may exceed 60% of the amount of the approved loan.

[216] In 2024, the Ministry of Finance revoked the operating license of five financial companies, two of which in dominant foreign ownership.

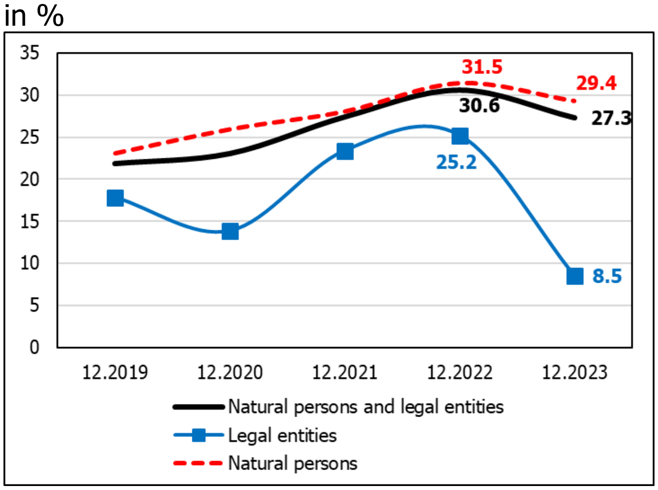
[217] Equity and reserves increased by Denar 1,024 million or by 32.7%, while the growth of assets amounted to Denar 1,893 million or 24.4%.

Chart 140
Financial asset/liability gap to total financial assets, by maturity bucket, according to the contractual residual maturity
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

Chart 141
Claims under active agreements not collected for more than 90 days to total claims
in %

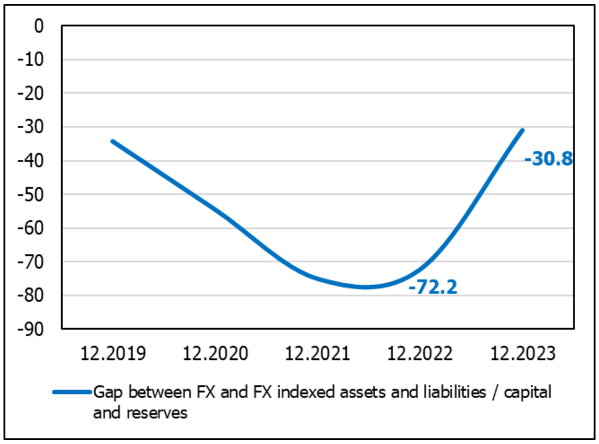


Source: National Bank calculations, based on data submitted by the Ministry of Finance

the quality of companies' credit portfolio. Analyzing the contractual original maturity, financial companies report full coverage of liabilities with a contractual original maturity of up to one year (assets with original maturity of up to one year are 2.2 times higher than liabilities with the same original maturity, and at the end of 2022, this ratio was 1.7 times). Thus, the most liquid part of the financial corporations assets (cash and cash equivalents) covers 18.3% of total short-term liabilities. Analyzed by the contractual residual maturity, in all analyzed maturity buckets up to one year, the assets/liabilities gaps are positive, which indicates solid liquidity of financial corporations, assuming that claim collection and liabilities repayment follows the agreed dynamics and scope. Having in mind that more than 90% of the financial companies assets are claims on customers, the liquidity of these companies largely depends on the success of claim collection as agreed. On the other hand, liabilities are dominated by capital positions, which together with liabilities to related entities (which are mainly long-term), make up nearly 60% of liabilities. The remaining liabilities are long-term credit and loan liabilities from foreign banks (7%), short-term loan and credit liabilities (16%) and other liabilities (17%).

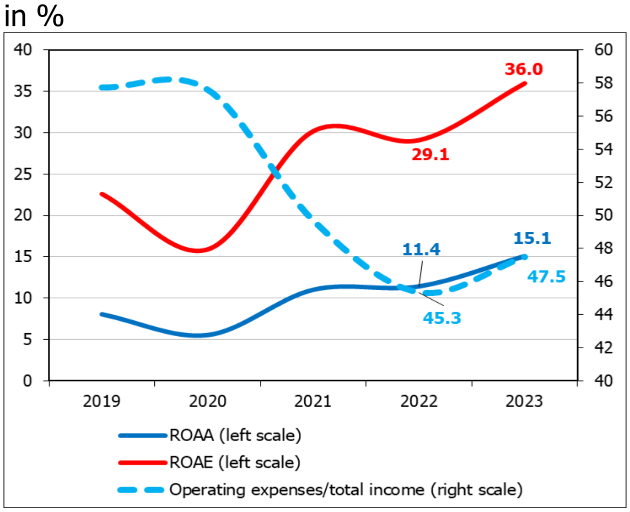
In 2023, the indicators of financial company exposure to credit risk have improved, but are still high. Around 57% of the financial companies' claims were settled with a certain time delay (61.2% in 2022), while slightly

Chart 142
Financial asset/liability gap with a currency component to equity and reserves
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

Chart 143
Selected profitability indicators
in %



Source: National Bank calculations, based on data submitted by the Ministry of Finance

above one quarter (27.3%) of total claims were settled with a delay longer than 90 days (30.6% in 2022). Moreover, the loan loss provision coverage ratio was relatively low and amounted to about 3.5%.

To improve the operations of financial companies, in July 2023, the Ministry of Finance adopted a Regulation specifying the method of credit risk management, applicable from 1 May 2024. This Regulation, *inter alia*, includes a procedure for assessing the creditworthiness of a loan applicant, while macroprudential measures were introduced through the DSTI[218] and LTV[219] ratios, which are milder compared to the prescribed level of these two indicators for banks and savings banks[220].

Financial companies were exposed to currency risk, which can be seen through the short currency position, which accounted for 30.8% of their equity and reserves. In 2023, the negative gap between the loan and deposit positions with a currency component in this segment was halved, mostly due to the much larger growth of assets (of Denar 1,448 million), relative to the growth of liabilities with a currency component (of Denar 465 million).

The rates of return on assets and equity of financial

[218]DSTI determines the maximum amount of repayments that borrowers can make in proportion to their regular net monthly income, that may not exceed 70% at the approval of a new loan.
[219]LTV determines the maximum amount of credit that borrowers can borrow in proportion to the market value of the property pledged, that may not exceed 90%.
[220]In the banking sector, the DSTI limit is 50% and 55%, depending on whether the loan is approved in denars or with an FX component, and the LTV limit equals 85%.

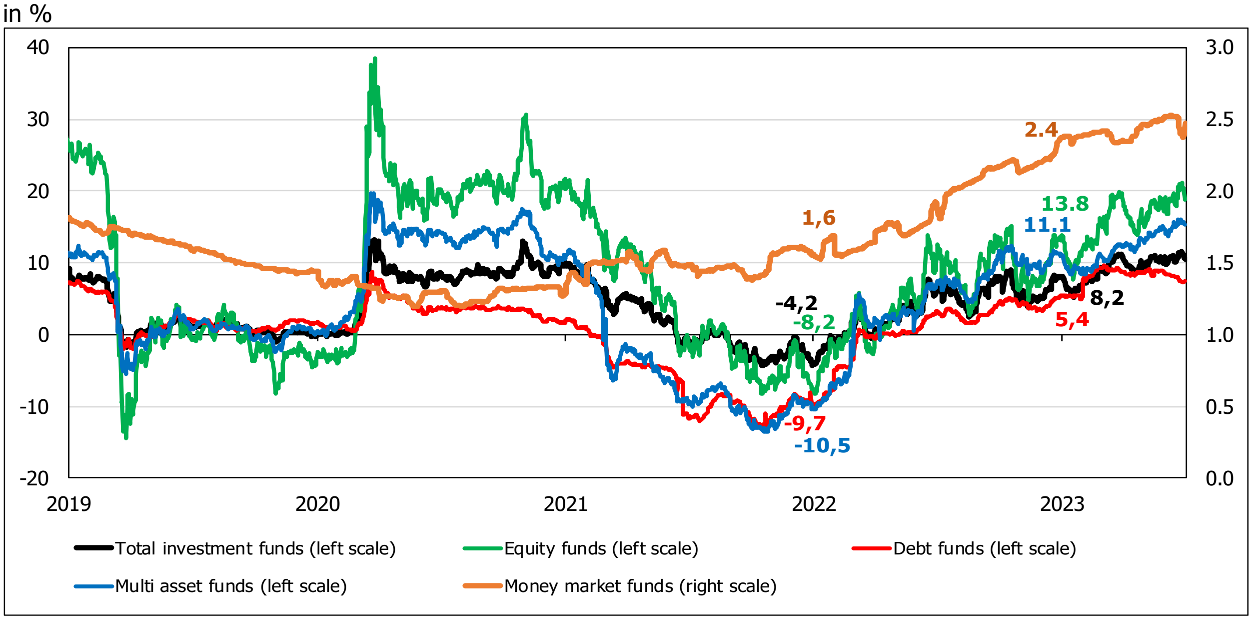
companies were high and further improved in 2023. This was due to the higher relative growth of net profit[221], compared to the growth of average assets and average equity and reserves in 2023[222]. On the other hand, operating expenses outpaced the growth of total revenues (46.0% and 39.4%, respectively), which increased their share in total income by 2.2 percentage points, i.e. **deteriorated the operational efficiency of companies**.

[221]In 2023, the net profit increased by 64.6% or Denar 515 million.
[222]In 2023, average assets increased by 24.5% or Denar 1,716 million, while average equity and reserves increased by 33.3% or Denar 908 million.

2.8. Open-end investment funds[223]

Open investment funds constitute a small segment of the overall financial system[224] and have relatively little significance for the overall financial stability. The investments of domestic investors in investment funds are quite small compared to the total assets they have at their disposal on an aggregated basis, so that the potential operating problems of investment funds (illiquidity, high downward correction of property value, etc.) would not have significant spillover effects on the non-financial sector as a whole. Most of the investment funds' assets have been invested in fixed income instruments, that is, deposits in domestic banks and domestic debt securities. Hence, domestic banks stability and liquidity, interest rates movement primarily in the domestic economy, as well as sustainability and efficiency of public finance management are factors that are relevant for the performance of investment funds. Analyzed by type of fund, equity funds continued to prevail in 2023. The positive sentiment that prevailed in the capital markets in 2023 mitigated certain risks that these funds are exposed to when investing.

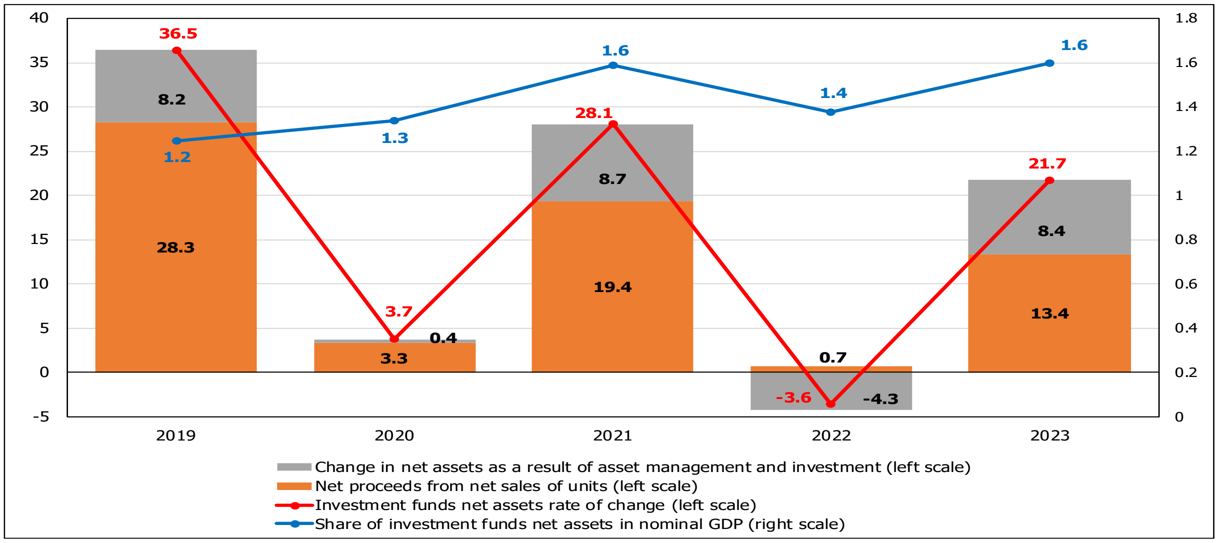
Chart 144
Annual rates of return on investment funds, by type of investment fund
in %



Source: National Bank calculations, based on data from the website of the Macedonian Stock Exchange and SEC.
Note: funds are classified by the structure of fund portfolios at the end of 2023.

More favorable capital market developments in 2023 contributed to offsetting the negative rates of return on funds from last year. Aggregately, the annual rate of return of investment funds[225] reached 8.2% at the end of 2023 (-4.2% as of 31.12.2022). The highest rate of return of 13.8% was reported by stock funds, followed by combined funds, which reported a positive return of 11.1% primarily due to the growth in the value of shares and the return of market optimism. Monetary funds also reported positive rates of return as an effect of increased interest rates on bank deposits and government securities on the primary market.

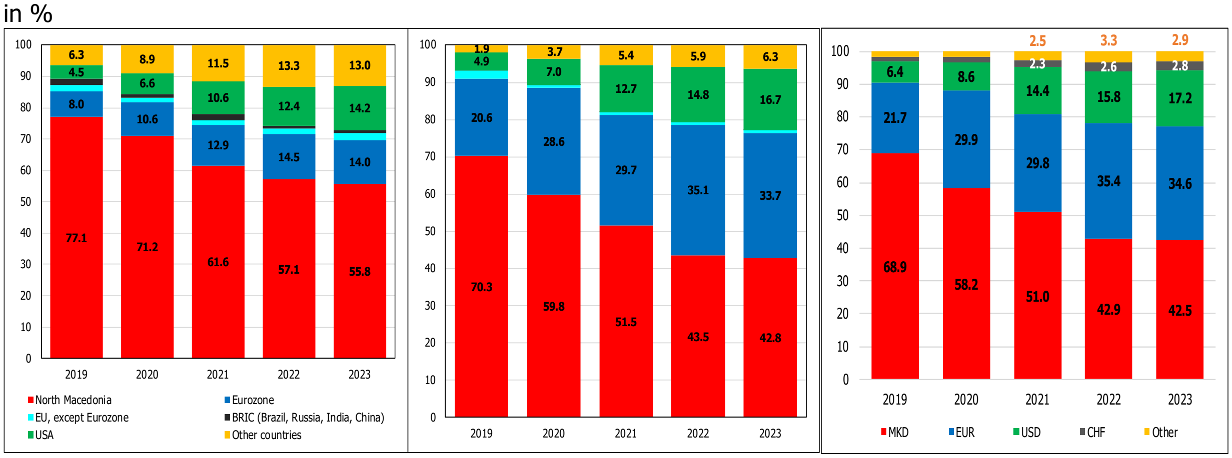
Chart 145
Annual growth structure of net assets of investment funds
in %



Source: National Bank calculations, based on data submitted by SEC.

The net assets of investment funds reported a positive growth rate of 21.7% in 2023, which is largely due to the net inflows from the sale of share certificates (13.4%), with a positive contribution of the asset management and investment (8.4%). As a result, the share of net assets of investment funds in GDP increased by 0.2 pp, but remains relatively low (1.6%).

Chart 146
Structure of assets of open-end investment funds by country of origin of the instrument issuer (left), by country of instruments trade (middle) and by currency structure of investment (right)
in %

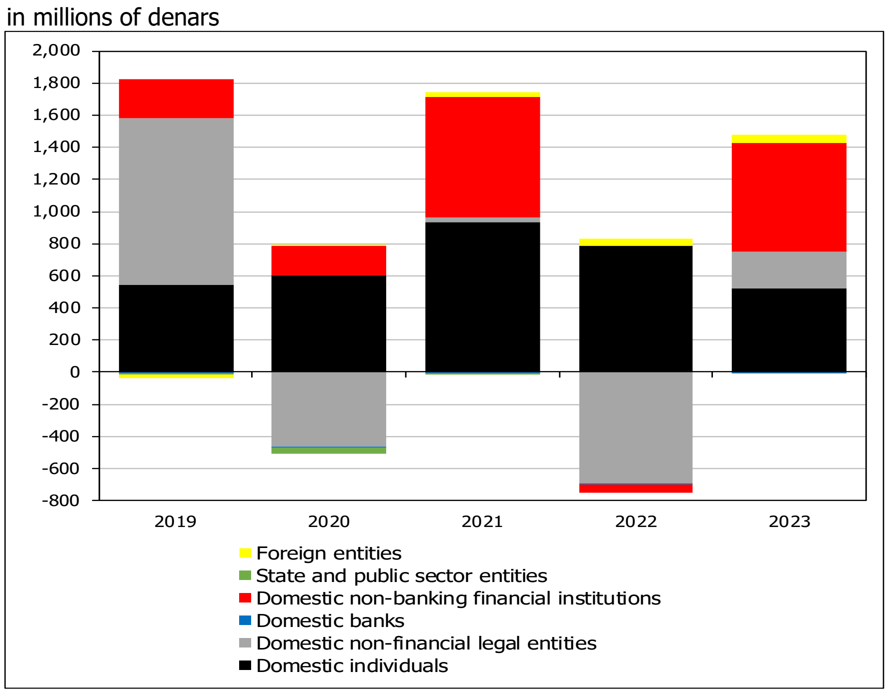


Source: National Bank calculations, based on data from the SEC website.

[223]Private investment funds and fund management companies are not included in this report, because according to the regulation, they are not required to submit reports to the regulator, nor are they subject to control and supervision. Therefore, only open investment funds are included in this analysis.
[224] For more details, see "Structural features and concentration of the financial system", herein.
[225] The annual rate of return is the weighted average of the annual growth rates of the price of unit certificates of the funds. The share of net assets of each fund in total net assets of all (or types of) funds is used as a weight.

In 2023, the funds' portfolio continued diversifying as seen through the continuous downtrend of share of instruments whose issuer or trading country is the Republic of North Macedonia and the euro area, at the expense of the growth of investments in instruments whose issuer and trading country is the United States. The share of investments in US dollars has increased, accordingly, but funds' assets denominated in denars and euros still have a dominant share in the currency structure of investments (of 77.1%), which mitigates the funds' exposure to currency risk due to the strategy of fixed exchange rate of the denar against the euro.

Chart 147
Structure of net inflows from transactions with unit documents

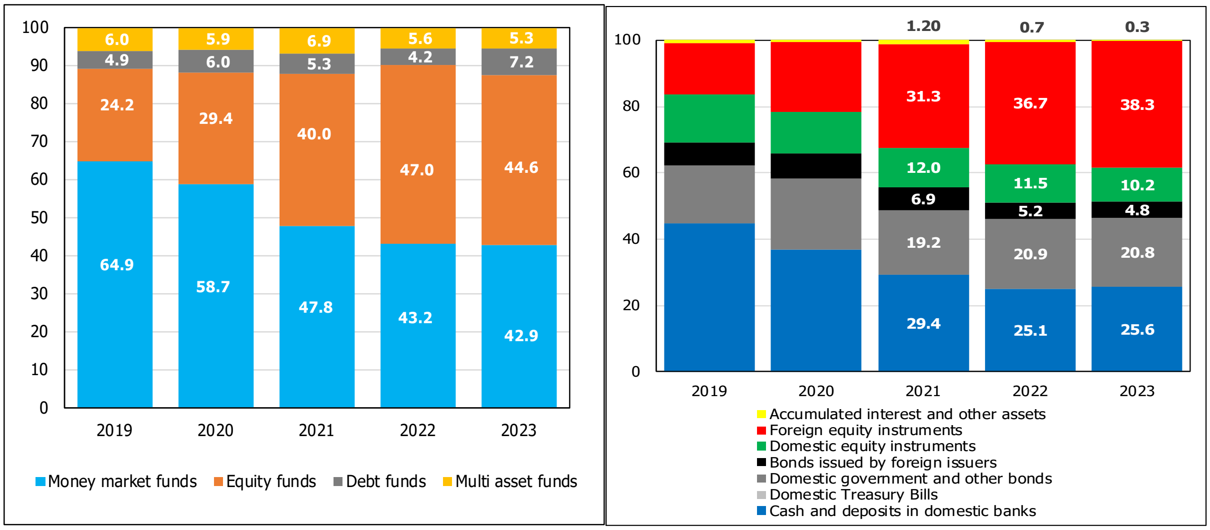


Source: National Bank calculations, based on data submitted by SEC.

In 2023, investment funds, net[226], reported net inflows from all types of investors, but mostly from domestic non-banking financial institutions, domestic natural persons and domestic non-financial legal entities, which still prevail, making up 96.7% of the net assets of investment funds. On an aggregate basis, these investments of domestic investors in investment funds are quite small, compared to the total assets at their disposal[227].

[226] It refers to the value of purchased unit certificates in investment funds less the value of sold unit certificates in investment funds.
[227] Investments of domestic non-financial legal entities and domestic natural persons in investment funds accounted for less than 1% of the assets of the domestic corporate sector and of the financial assets of the households. Moreover, investments of non-banking financial institutions in investment funds made up less than 1% of the assets of non-banking financial institutions.

Chart 148
Structure of open-end investment funds assets by type of fund and by type of instrument
in %



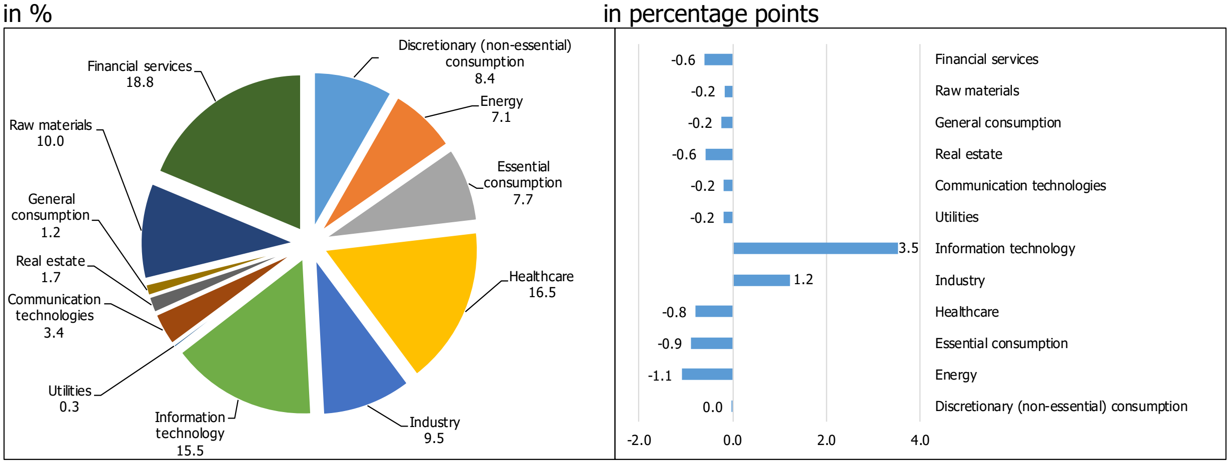
Source: National Bank calculations, based on data submitted by SEC.

Analyzed by categorization and investment strategy, equity funds retained the largest share (44.6%) in the structure of the funds' total net assets in 2023, despite its decrease of 2.4 percentage points. Money funds follow with a share of 42.9% (a decrease of 0.3 p.p.), while the remaining 12.5% of the structure of the funds' total net assets are bond and combined funds, together. **By type of instrument, the uptrend in the share of foreign equities** (38.3%) in the assets of investment funds continued, followed by cash and deposits with domestic banks (25.6%) and domestic bonds (20.8%).

The optimism on the capital market, at the end of 2023 in particular, accelerated the growth of placement share in foreign equities in total investment funds' assets, whose growth propelled the growth of the total investment funds' assets. At the end of the year, investments in equity instruments reached 48.5% in the total funds' assets, which is by 0.3 percentage points more compared to 31.12.2022. **However, investments in instruments with a fixed predetermined payment dynamics and income still dominate the total investment funds' assets, although their share in the investment funds' assets remains unchanged compared to the previous year.** These instruments constitute 51.2% of the investment funds' assets, primarily preserving the value of invested assets and ensuring efficient management of investors' cash (i.e. achieving an optimal rate of return on investment in highly liquid assets). The most common fixed income instruments are deposits with domestic banks (including demand deposits), with a share of 25.6%. Given the expectations for a downtrend of interest rates, this portfolio segment, which has a regulated maximum maturity of one year and fixed income, was exposed to interest rate risk and reinvestment risk, just like investments in government bonds and bonds from foreign issuers, which on 31.12.2023 made up 20.8% and 4.8% of the property, respectively. On the other hand, any reversal of the monetary policy (interest rate reduction) will have a positive effect on the value of debt instruments portfolio measured at fair value with long maturities and high coupon rates.

Equities of financial sector companies dominate the structure of equity securities with 18.8% at the end of 2023, which is decreasing (by 0.6 pp). IT companies follow with share of 15.5%, which is the highest annual growth of 3.5 percentage points, compared to the previous year. Shares issued by energy companies recorded the fastest annual decline (1.1 p.p.).

Chart 149
Structure of equities, by activity in 2023 (left) and change in shares compared to last year (right)



Source: National Bank calculations, based on data from the SEC website.