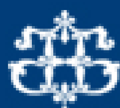
ANNUAL FINANCIAL STABILITY REPORT



National Bank of Serbia

2023

ANNUAL FINANCIAL STABILITY REPORT

2023

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Introductory note

Financial stability means that the financial system – financial intermediaries, financial markets and financial infrastructures – is capable of ensuring efficient allocation of financial resources and fulfilling its key macroeconomic functions even if financial imbalances and shocks occur in the domestic and international environment.

Under conditions of financial stability, economic agents have confidence in the banking system and ready access to financial services, such as payments, lending, deposits and risk hedging.

Articles 3 and 4 of the Law on the National Bank of Serbia (RS Official Gazette, Nos 72/2003, 55/2004, 85/2005 – other law, 44/2010, 76/2012, 106/2012, 14/2015, 40/2015 – CC decision and 44/2018) mandate the National Bank of Serbia to contribute, without prejudice to its primary objective, to maintaining and strengthening of the stability of the financial system, and to determine and implement measures and activities to that effect. In striving to achieve this statutory objective, the National Bank of Serbia actively cooperates with other relevant state and international institutions.

As part of the above measures and activities, the National Bank of Serbia undertakes regular and comprehensive analyses of macroeconomic environment and functioning of key financial institutions, markets and infrastructure; identifies risks that pose a threat to the stability of the financial system; identifies trends that may increase the vulnerability of the financial system; and launches debate on new regulatory initiatives and their potential effect on the financial system and the real sector of the economy. The National Bank acts both preventively and correctively by changing the financial regulatory framework. If necessary, the National Bank also manages the consequences of external shocks and other crisis situations, lessening potentially negative effects on financial stability.

The *Financial Stability Report* aims to provide information about the situation in the financial system, identify potential risks to financial stability and raise awareness of economic agents to those risks. We expect the Report to contribute to improved transparency and strengthened confidence in the domestic financial system, which will underpin its stability and support a stable and sustainable economic growth.

The analyses in the *Report* were prepared by the Financial Stability Department. The *Report* uses data available as at end-2023.

The *Financial Stability Report* was adopted by the National Bank of Serbia's Executive Board in its meeting of 13 June 2024. Earlier issues of the *Report* are available on the National Bank of Serbia's website (http://www.nbs.rs).

Executive Board of the National Bank of Serbia:

Jorgovanka Tabaković, Governor
Željko Jović, Vice Governor
Ana Ivković, Vice Governor
Dragana Stanić, Vice Governor
Nikola Dragašević, Vice Governor

ABBREVIATIONS

ARIMA – Autoregressive Integrated Moving Average
ASB – Association of Serbian banks
BIS – Bank for International Settlements
bn – billion
bp – basis point
CAR – Capital Adequacy Ratio
CESEE – Central, Eastern and Southeastern Europe
DvP – Delivery vs. Payment
EBA – European Banking Authority
ECB – European Central Bank
EMBI – Emerging Markets Bond Index
EU – European Union
FDI – foreign direct investment
Fed – Federal Reserves
GDP – gross domestic product
GSFR – Global Financial Stability Report
IFEM – Interbank Foreign Exchange Market
IMF – International Monetary Fund
lhs – left hand scale
IPS – Instant Payments Serbia
LtD – Loan-to-Deposit ratio
LtV – Loan-to-Value ratio
mn – million
NMIC – National Mortgage Insurance Corporation
NPL – non-performing loan
PD – probability of default
pp – percentage point
Q – quarter
rhs – right hand scale
RTGS – Real Time Gross Settlement
s-a – seasonally adjusted
VAT – value added tax
VPFs – voluntary pension funds
y-o-y – year-on-year

Other generally accepted abbreviations are not cited.

External risks:	Mitigating measures
– slower decline in global inflation and a delayed start or slower pace of monetary policy easing by leading central banks; – limited access to funding sources and high costs of the repayment of liabilities by the government, corporates and households, reflecting higher lending rates for an extended period of time; – intensified geopolitical fragmentation and restrictions on trade flows and capital movement; – weak global growth prospects, especially in euro area countries, which are our key trading partners; – heightened uncertainty in the international financial market, increased risk aversion of investors and lower inflow of capital to emerging markets; – limited access to funding sources of parent banks, reduction of interest income and profitability and potential decrease in solvency; – impact of new technologies and artificial intelligence on changes in the functioning of the financial system; – frequent cyber-attacks, which could undermine confidence in the stability of the financial system; – impact of climate change on mounting risks in the financial sector.	– assessment of the effects on domestic macroeconomic trends and potential monetary policy adjustment for the sake of ensuring inflation's stable return within the target band, while preserving economic growth; – maintaining relative exchange rate stability; – gradual and moderate fiscal consolidation, with support to vulnerable corporate and household sectors in order to overcome the consequences of a multidimensional global crisis, while coordinating fiscal and monetary policies; – maintaining a globally diversified economic structure and finding alternative markets for supply, export and sources of funding, while making an effort to maintain production and geographical diversification of FDIs which are mostly export-oriented by implementing active measures of economic policy; – continued cooperation with international financial institutions and supervisors of parent banking groups; – ensuring additional liquidity by central banks by concluding swap and repo transactions; – preserving the banks' domestic deposit base and continuing to ensure the coverage of loans by local deposits; – adequate conduct of macroprudential policy, by applying or mitigating relevant tools in order to strengthen financial sector stability; – continuous improvement of information systems, integration of innovative tools and technologies and strengthening of business processes in the financial market; – coordination with international organisations, investors, government authorities, financial and corporate sectors to encourage the reduction of harmful gas emissions and transition to renewable energy sources, as well as the improvement of the regulatory framework for mitigating the impact of climate risks on the financial system.

Internal risks:	Mitigating measures
– prolonged duration of inflationary pressures and uncertainty regarding the movement of energy and other primary commodity prices;	– adjusting the monetary policy restrictiveness, while taking into account the effects of past hikes in the key policy rate and required reserve ratios on inflation in the period ahead; – maintaining relative exchange rate stability; – preserving efficiency of the monetary policy transmission mechanism on interest rates in the money, lending and savings markets, as well as on inflation expectations of the financial and corporate sectors by applying appropriate measures and enhanced communication with the public;
– a high level of euroisation of the domestic financial system;	– preserving general macroeconomic and financial stability, as well as relative exchange rate stability, to strengthen confidence in the local currency; – continued implementation of the measures and activities envisaged by the Strategy of Dinarisation of the Serbian Financial System; – implementation of monetary, microprudential and macroprudential policy regulations and measures to encourage lending in the local currency; – continuous promotion of higher profitability of dinar compared to FX savings, and financial instruments in the local currency; – continuous promotion of FX hedging instruments; – continuous development of the capital market and higher volume of dinar government securities issues in the domestic market, in order to reduce currency risk in public debt management, including further lengthening of the maturity of issued dinar government securities in order to extend the dinar yield curve;
– deceleration of lending activity and a potential rise in new NPLs and their impact on banks' profitability;	– relaxing the applied macroprudential tools in order to facilitate lending to the corporate and household sectors and boost credit demand; – adopting new measures to support the most affected sectors in order to prevent a potential rise in new NPLs; – enhanced monitoring of banks' asset quality; – using bank profits to build additional capital reserves, which would enable sustainable lending amid the economic slowdown or mounting uncertainties;

Internal risks:	Mitigating measures
	– encouraging banks to additionally improve credit risk management, as the most prevalent risk in Serbia's banking sector; – strengthening insolvency framework and practice, and adopting measures for faster debt restructuring;
– uncertainty regarding residential and commercial real estate price movements;	– enhanced monitoring and analysis of real estate market trends, along with improved collection and distribution of data from the mortgaged real estate market; – continuous monitoring of collateral quality in the banking sector through adequate valuation of real estate serving as collateral; – adequate use of borrower- or capital-based macroprudential tools, aimed at increasing banks' resilience to risks from the real estate market;
– impact of climate change on economy and consequently on the financial sector through the materialisation of physical and transition risks.	– developing and improving the regulatory framework and taxonomy for climate risks in accordance with the best international practice, as well as monitoring and analysing the impact of climate change on financial stability; – further development of the institutional framework and the Serbian climate database; – defining measures and tools for mitigating consequences of climate risks on the financial system.

Contents

Overview 1

I International and domestic environment 9

I.1 International environment 9
I.2 Overview of domestic macroeconomic developments 16
I.3 Foreign exchange reserves 19
I.4 Fiscal policy, public and external debt 23
I.5 Corporate sector 29
Text box 1: ESG concept – from reputational opportunity to legal obligation 33
I.6 Household sector 38

II Financial sector 43

II.1 Banking sector 43
Text box 2: The cases of Silicon Valley Bank and Credit Suisse – the importance of adequate risk management 53
II.2 Macroprudential stress tests 56
Text box 3: Climate stress testing – quantitative analysis of the impact of transition climate risks on the Serbian banking sector 66
II.3 Non-bank financial sector 71
Text box 4: Artificial intelligence in financial institutions and central banking 81

III Financial markets 85

III.1 Money market 85
III.2 Bond and share market 87
III.3 Financial infrastructure 91
III.4 Real estate market 97
Text box 5: Residential real estate valuation in 2023 101

IV Financial stability 105

IV.1 Regulatory framework as support to financial stability 105
IV.2 Financial soundness indicators 112
Text box 6: Banking sector profitability of the Republic of Serbia, countries in the region and the EU 116

List of charts, tables and diagrams 119

Overview

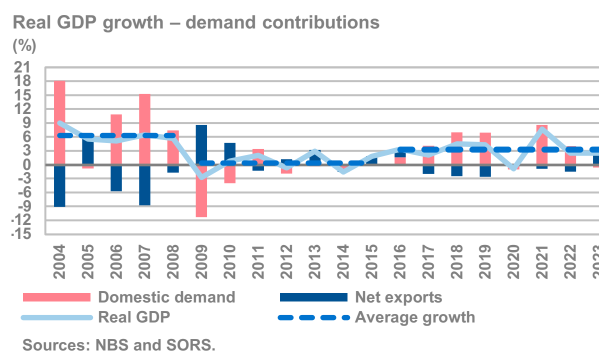
Heightened global uncertainties, elevated inflation and tightened monetary conditions had a weaker impact on global economic trends in 2023 than initially expected. In 2023, the global economy continued to expand at a rate of 3.2%, in parallel with the slowdown in global inflation. IMF's April 2024 projections forecast global economic growth in 2024 and 2025 at 3.2%, and global inflation declining from the annual average of 6.8% in 2023 to 5.9% in 2024 and 4.5% in 2025.

The global economy proved surprisingly resilient in the face of heightened global uncertainty in 2023. Despite the risks of stagflation and global recession, and after the majority of central banks considerably raised their interest rates with a view to curbing inflation, economic activity gradually increased, while global inflation lost pace. Nevertheless, elevated global inflation and tightened monetary and financial conditions, primarily in advanced economies, led to a global economic slowdown in 2023, to 3.2% (from 3.5% in 2022). Economic growth decelerated in advanced economies (from 2.6% in 2022 to 1.6% in 2023), while slightly picking up in emerging ones (from 4.1% in 2022 to 4.3% in 2023). It is expected that high interest rates, aimed at reining in inflation and reducing fiscal support due to high public debt, will impact the GDP growth dynamic in 2024, for which, same as for 2025, a 3.2% growth rate is forecast. Since July 2022, when it embarked on a cycle of policy rate hikes, until September 2023, the ECB increased its key rate by a total of 450 bp, so at end-2023, interest rates on main refinancing operations, on deposit and lending facilities, measured 4.50%, 4.00% and 4.75%, respectively. From March 2022 until July 2023, the US Federal Reserve System increased the federal funds rate range in several rounds, by a total of 525 bp, to 5.25–5.50% at end-2023.

In 2023, Serbia's real GDP grew by 2.5%, receiving positive contributions from all production and most service sectors. Average annual inflation in 2023 measured 12.1%, and average core inflation 9.1%. In 2023, the key policy rate was raised by a total of 150 bp, to 6.50%. Required reserve ratios and dinar allocations of FX required reserves were increased.

Serbian GDP increased by 2.5% in 2023. Positive contributors on the production side were agriculture, owing to better performance compared to last year's season, construction, thanks to higher government investment in transport infrastructure, as well as the industry, reflecting the rebound of production in the energy sector. On the expenditure side, in H1 2023 growth was dominantly led by net exports, while the major drivers in H2 2023 were fixed investments and private consumption. In 2024, real GDP growth is expected to pick up to 3.5%. Average annual inflation in Serbia in 2023 equalled 12.1%, and average core inflation 9.1%. Headline and core inflation peaked in March 2023, with both indicators trending on a stable downward path thereafter. At end-2023, inflation was twice lower than at end-2022, measuring 7.6%. The inflation decrease was underpinned by monetary policy measures, easing of global cost-push pressures, lower imported inflation and a

Real GDP growth – demand contributions



Sources: NBS and SORS.

good agricultural season. The inflation slowdown was also prompted by a reduction in short-term inflation expectations of financial and corporate sectors and anchoring of medium-term expectations of the financial sector within the bounds of the target. In 2023, the NBS continued the cycle of key policy rate hikes (initiated in April 2022 and preceded by monetary tightening through gradual raising of the weighted average interest rate in reverse repo auctions as of October 2021), but at a moderated pace compared to last year. In 2023, the key policy rate was raised in six rounds, by a total of 150 bp, reaching 6.50% in July 2023 and remaining at that level by the year end. Monetary tightening effectively passed through to interest rates in the money market. In September 2023, the NBS increased required reserve ratios and dinar allocations of required reserves, to support past monetary tightening through interest rate hikes. This helped absorb a portion of excess dinar liquidity of the banking sector, which enhanced the functioning of the money market.

Relative stability of the RSD/EUR exchange rate was preserved throughout 2023. The NBS was a net buyer of foreign exchange in the IFEM, which helped further boost FX reserves, to record high levels. Thanks to the credible economic policy, all three rating agencies affirmed Serbia's credit rating, with Standard & Poor's raising the outlook for investment grade.

In 2023, the NBS intervened by net purchasing EUR 3.9 bn worth of foreign currency, a record annual amount. Same as in previous years, this helped maintain the relative stability of the exchange rate and additionally build up FX reserves. October 2023 saw a first-time issuance of an 8Y government bond, which attracted record investor demand and entered a renowned J.P. Morgan bond index as of February 2024. As global uncertainty abated and domestic macroeconomic outlook improved, Serbia's risk premium on EUR and USD debt declined in 2023. All three rating agencies affirmed Serbia's credit rating at BB+ or Ba2, and in early April 2024 Standard & Poor's upgraded Serbia's outlook from stable to positive, indicating that this agency could award investment grade to Serbia in the coming period.

In 2023, fiscal policy measures continued to mitigate the negative consequences of heightened global uncertainties. Fiscal deficit measured 2.2% of GDP in 2023, down by 0.9 pp y-o-y. The share of central government public debt in GDP dropped to 52.0% at end-2023 relative to end-2022 (55.1%). Compared to 2022, the external debt share in GDP edged down by 4.1 pp, coming to 65.3%. 2023 also saw a record narrowing in the current account deficit share in GDP, to 2.6%, from 6.9% in 2022.

The Serbian government continued to enact adequate and timely measures aimed at mitigating the consequences of global economic slowdown, elevated inflation and global uncertainties on the domestic economy and households. More favourable circumstances in the energy sector and higher fiscal revenues created room for increasing capital investments and providing additional fiscal incentives to households, to raise their living standard. In 2023, general government fiscal deficit stood at RSD 181.1 bn, or 2.2% of GDP, considerably below the 2022 deficit. Central government debt at end-2023 equalled EUR 36.2 bn and its share in GDP stood at 52.0%, down by 3.1 pp compared to end-2022. At end-2023, external debt amounted to EUR 45.4 bn, or 65.3% of GDP, which is 4.1 pp below the end-2022 figure. Current account deficit decreased by close to EUR 2.4 bn relative to 2022, coming to EUR 1.8 bn in 2023. The share of the current

account deficit in GDP was brought down from 6.9% in 2022 to merely 2.6% in 2023, which is a record low value of the current account deficit share in GDP at the annual level. For the second year in a row, Serbia saw a record high FDI inflow of EUR 4.5 bn (EUR 4.2 bn net). The net FDI inflow is expected to continue to fully cover the current account deficit going forward, just like in the previous nine years. In 2023, the IMF concluded two successful reviews of Serbia's stand-by arrangement, which will be treated as precautionary in the remaining term, given the accumulation of a significant amount of FX reserves and creation of sufficient fiscal room for manoeuvring and sustainable financing of the balance of payments.

NBS FX reserves gained EUR 5.5 bn in 2023, reaching EUR 24.9 bn gross or EUR 20.8 bn net at end-December. Since 2018, FX reserves have recorded steady annual growth, cumulatively growing by 2.5 times over a six-year period, thus additionally strengthening the economy's resilience to external shocks. Different stress scenarios confirmed that even in case of extreme shocks, the level of FX reserves at end-2023 would be more than adequate to preserve the financial system stability.

At end-2023, gross FX reserves reached a new record of EUR 24.9 bn, while net FX reserves amounted to EUR 20.8 bn. Through application of different stress scenarios, it was confirmed that FX reserves would provide adequate protection to the domestic financial system even in case of materialisation of extreme shocks.

Domestic loans, excluding the exchange rate effect, recorded a y-o-y fall from May to November 2023, rebounding in December, so that year end saw an increase of 0.9%. Corporate loan growth at end-2023 was led by a rise in investment loans. Same as in the prior period, the dominant share was that of liquidity and working capital loans, followed by investment loans. Owing to the maturing of guarantee scheme loans, which were predominantly approved in dinars, the degree of dinarisation of corporate receivables edged down in 2023. By maturity, end-2023 saw the prevalence of long-term receivables, with an 88.2% share in total corporate loans, up by 6.4 pp relative to end-2022 and indicating a low refinancing risk for corporate liabilities. The share of NPLs in total corporate loans stayed unchanged at a relatively low level of 2.1%, same as the year before.

Corporate lending saw mild y-o-y growth at end-2023. The share of NPLs in total corporate loans remained low at end-2023, unchanged from the year before, suggesting that the rise in interest rates did not worsen the capacity of corporates to service their loan liabilities.

Positive labour market trends, such as increases in the net wage, average pension, and employment, as well as a further decline in the unemployment rate, extended into 2023. In Q4 2023, the unemployment rate dropped by 0.3 pp relative to the same period the year before, coming to 9.1%. In Q4 2023, the employment rate equalled 50.3%, up by 1.2 pp y-o-y. The rise in net wages in 2023 relative to 2022 was 14.8% in nominal or 2.4% in real terms. In the past eleven years, since the NBS has been implementing the Dinarisation Strategy, resident dinar savings have increased eightfold, reaching the record RSD 136.5 bn at end-2023. FX savings of residents came

Thanks to the preserved macroeconomic stability, key labour market indicators improved further in 2023. Dinar savings posted robust growth throughout the year and reached the highest level on record at end-2023, confirming the preserved household confidence in the domestic currency. Apart from that, in 2023 the NBS continued to apply numerous measures aimed at preserving the households' living standard.

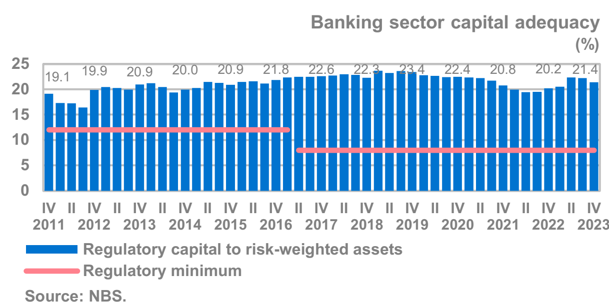
at EUR 13.4 bn at end-2023, which is a record high level, exceeding by EUR 0.6 bn the end-2022 figure. Total household receivables at end-2023 nominally increased by 1.1% relative to 2022. Certain measures which the NBS adopted, to facilitate the servicing of existing liabilities and access to new sources of funding for households, continued to apply throughout 2023 and some new regulations were also put in place to maintain households' living standard. Timely and adequate measures of the NBS and Serbian government contributed to staving off stronger negative effects of elevated inflation and higher interest rates on the households' ability to service their debt. The share of NPLs in total household loans amounted to 4.3% in December 2023.

General economic and geopolitical uncertainties dented the real estate demand in 2023 and consequently slowed down the rise in real estate prices. The value of construction works performed went up, while the number of new construction permits declined.

Based on the data of the Republic Geodetic Authority, the total volume of funds in the real estate market in 2023 amounted to RSD 6.5 bn, down by 13% relative to 2022, when the record turnover was recorded. Some 7% of all purchased real estate, or 17% of all purchased apartments were financed from loans. As opposed to a great number of European countries, the rise in Serbian real estate prices continued, though losing steam. The apartment price index for the Republic of Serbia equalled 158.66 in Q4 2023, up by 5.75% y-o-y. In 2023, housing loan demand declined, as indicated by the results of the bank lending survey. In banks' view, the rise in real estate prices and interest rates were the factors driving down household loan demand. On the supply side, household credit standards and conditions were tightened throughout a major part of 2023, except in the case of interest margins, which were reduced in the last quarter, as a result of the NBS's decision to temporarily cap the interest rates on housing loans.

Serbia's banking sector, accounting for around 91% of financial sector assets, remained stable during 2023 thanks to adequate capitalisation and high liquidity and profitability indicators.

Banking sector capital adequacy (%)



Source: NBS.

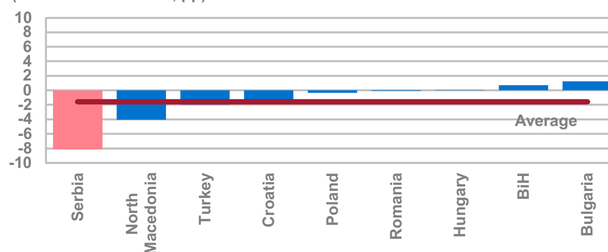
In 2023, the NPL share in total loans continued to move close to the historical minimum and at the end of the year amounted to 3.2%, which indicates that the growth in loan repayment costs did not aggravate bank asset quality, that the NBS measures were timely and adequate, and that

At end-2023, the capital adequacy ratio of the Serbian banking sector stood at 21.4%, slightly above the regional average. The average monthly liquidity ratio was significantly above the prescribed minimum (1.0) and in December 2023 it reached its ten-year high of 2.5. Banks posted a positive financial result in 2023, with ROA of 2.5% and ROE of 18.1%. The NPL share in total loans continued to move close to the historical minimum, amounting to 3.2% at year end, which is below the pre-pandemic level. Such NPL trend indicates that the growth in loan repayment costs did not negatively affect bank asset quality, and that the NBS measures were timely and adequate. This contributed to the preservation of financial stability, even amid heightened global uncertainties, higher loan repayment costs and economic slowdown. Domestic lending slowed in 2023, reflecting higher interest rates on loans due to monetary tightening by the ECB and the NBS, as well as tightened credit standards of banks, the maturing of loans under guarantee schemes

and high last year's base. At end-2023, total domestic loans, excluding exchange rate effects, increased by 1.0% y-o-y. Both households and corporates contributed positively to the y-o-y growth in total domestic loans in late 2023. The results of the bank lending survey suggest that during most of the year, banks tightened their household and corporate credit standards. The strengthening of the domestic deposit base, as indicated by the amount of deposits, which during 2023 was more than sufficient to cover the amount of loans, enabled banks to reduce their dependence on other sources of funding, and thus their exposure to external influences.

financial stability was preserved even in the period of a multidimensional global crisis that we have been facing in the last four years.

Change in gross NPL ratios, countries of the region
(2023 relative to 2008, pp)



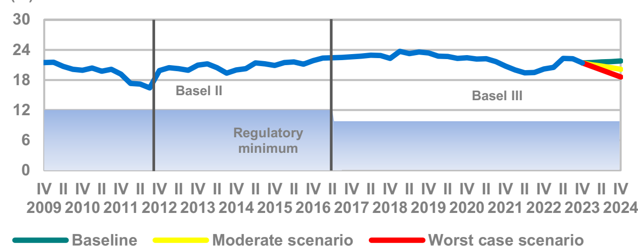
Sources: NBS and IMF – GFSR.

Domestic deposits dominate the structure of bank funding sources.

According to the results of macroprudential stress tests for end-2023, the Serbian banking sector would remain resilient, adequately capitalised and highly liquid even in the event of materialisation of the strongest assumed shocks. The capital adequacy ratio meets all the prescribed capital adequacy regulatory minimums and all requirements for the coverage of capital buffers. Based on the results of macroprudential stress tests of solvency, the regulatory capital adequacy ratio would remain above the regulatory minimum even in the case of the worst-case scenario. Also, the banking sector would remain liquid even in the conditions of the largest assumed outflow of deposits. The network structure indicates a low and stable component of systemic risk in the Serbian banking sector. Macroprudential stress tests confirm that the banking sector has sufficient capacities to mitigate the consequences of risks to which it may be exposed even in the case of the most adverse developments.

The results of the conducted macroprudential stress tests confirm that stability and resilience of the Serbian banking sector have been preserved even amid elevated global uncertainties. The banking sector as a whole remains highly resilient even to the strongest shocks assumed and has sufficient capacities to mitigate the consequences of the risks to which it may be exposed. The network structure indicates a low and stable systemic risk component, i.e. high resilience of the financial system in the event of individual shocks.

CAR by stress scenario*
(%)

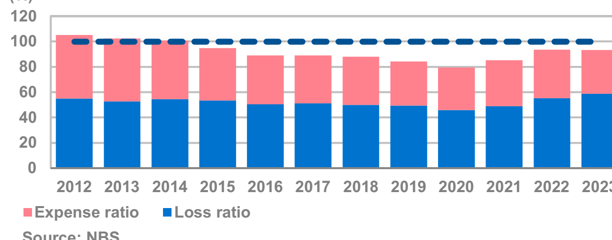


* NBS estimate.
Source: NBS.

The insurance sector ended 2023 with a positive net result after tax of RSD 10.2 bn. The end-2023 value of the combined ratio of non-life insurance undertakings equalled 93.4%, which indicates a premium level adequate for meeting obligations under insurance contracts. A positive trend was recorded in total premium, which equalled RSD 155.3 bn in 2023, up by around 15.9% from 2022. The Serbian insurance sector is adequately capitalised given the risks to which it is exposed. In 2023, the main capital adequacy ratio, i.e. the ratio of available to required solvency margin, was 208.6% for non-life insurance and 195.7% for life insurance.

The key performance indicators of the insurance sector, which pertain to total assets, technical reserves, capital and premium, recorded a positive trend in 2023 despite numerous challenges. The insurance sector remained solvent and profitable, continuously providing a wide range of services to its users.

Combined ratio in insurance
(%)



Source: NBS.

In 2023, the key performance indicators of voluntary pension funds recorded positive trends. The FONDex annual return was 8.1%, significantly higher compared to 2022. Monitoring the indicators of this sector is important for further development of the pension system of the Republic of Serbia.

Net assets of VPFs were on the rise in 2023, reaching RSD 53.8 bn at end-2023, up by 11.5% relative to end-2022. The main factor impacting net VPF asset growth was the return on investment worth RSD 3,906 mn, much above the 2022 level. The FONDex index measured 3,311.1 points at end-2023, up by 247.3 points y-o-y. The annual return on FONDex, which is the weighted average return of all funds, measured 8.1% in 2023, while the return since the start of operation of VPFs was 7.2% at end-2023.

The financial leasing sector continued to post positive results in 2023. The sector's balance sheet assets increased further and their quality improved thanks to a continued decline in non-performing receivables.

At end-2023, balance sheet assets of financial lessors stood at RSD 163.8 bn, up by 13.0% from end-2022. The share of non-performing in total receivables decreased further relative to 2022. At end-2023, gross past due outstanding receivables (RSD 2.9 bn) made up 1.9% of gross financial lease receivables. The pre-tax result came at RSD 2 bn. As in earlier years, the structure of lessees was dominated by companies, accounting for 84.6% of total receivables. Since 2021, the financing of passenger vehicles has been dominant in the composition of investments by lease asset. This share increased further, from 40.5% in 2022 to 43.2% in 2023.

In 2023, the development of the payment services market continued, as well as the trend of growing interest in electronic money. Three payment institutions were licensed to issue electronic money and thus, became electronic money institutions.

At end-2023, nine payment institutions were licensed by the NBS to provide payment services and there were six e-money institutions. According to data of all payment services providers for 2023, there was an increase in the number of almost all payment services provided, particularly of cashless payments. Relative to 2022, the total number of m-banking users increased by 18.08% and that of e-banking users – by 8.05%. The NBS has recognised the importance of new payment methods and the introduction of technological innovations in the market of payment services, which is supported by the further improvement and introduction of new infrastructure, as well as the regulatory framework.

During 2023, the NBS continued to determine and implement, within its remit, activities and measures to preserve and further strengthen financial stability, which helped mitigate the negative consequences of all global challenges in the last four years.

In 2023, the NBS continued to adopt numerous monetary and micro/macroprudential measures aimed at mitigating the consequences of elevated global uncertainty, soaring inflation, rising loan repayment costs and global economic slowdown. The decision facilitating access to housing loans and easing the repayment terms for natural persons was in force throughout 2023. Banks were able to offer borrowers relief in the form of extending the repayment term for housing loans for a maximum of five years, which, in an environment of a significant rise in interest rates, alleviated the pressure on users of variable-rate housing loans and constrained the NPL growth. Moreover, from December 2023 until end-2024, banks were enabled to grant a consumer loan, worth up to RSD 90,000 with a maturity of up to two years, to natural persons without the wage or pension transfer.

To preserve the household living standards amid elevated interest rates, in September 2023, the NBS temporarily capped interest rates on existing and new housing loans and enabled their early repayment without compensation.

Owing to past regulatory changes, banks are permanently enabled to restructure receivables based on an approved consumer, cash or other similar loan to financially distressed natural persons over a maturity three years longer compared to the current regulatory solutions.

To mitigate the risk of the occurrence or increase of a significant maturity mismatch between the sources of funding and bank loans, and to encourage reliance on longer-term sources of funding, the net stable funding ratio was introduced, which banks will be obliged to apply starting from 30 June 2024.

All decisions and measures were taken in a timely manner, helping preserve the capitalisation and liquidity of the banking sector, and making it easier for citizens and businesses to repay loans and access funding sources.

In 2023, the systemic stress indicator pointed to a period of low risk, accompanied by a low and stable systemic component. This indicator recorded a downward trend in 2023 and its average value was lower compared to 2022. The low indicator value suggests that even amid heightened global uncertainty, domestic financial markets continued to contribute to the preservation and reinforcement of financial stability.

The composite systemic stress indicator and other financial soundness indicators signal the resilience and preserved stability of the financial system as a whole.

I International and domestic environment

Pronounced geopolitical tensions, elevated inflation and tightened monetary conditions, as well as the many instabilities that emerged during 2023, impacted global economic developments less than anticipated. The global economy continued to grow while global inflation slowed. Serbia managed to preserve the stability of its economy and consumer and investor confidence, as attested to by the stable movements of key macroeconomic indicators. In 2023, real GDP growth measured 2.5%, FDI inflow reached a record high level (EUR 4.5 bn) and was higher than the current account deficit many times over, while employment and wages rose further. At end-December 2023, Serbia's risk premium on the dollar debt was 188 bp and on the euro debt 247 bp, which is less than at end-2022. At the level of 2023, average annual inflation measured 12.1%, and average core inflation, which trended below the headline throughout the year, stood at 9.1%. At end-2023, gross FX reserves reached their record at the time, measuring EUR 24.9 bn, up by EUR 5.5 bn from end-December 2022. That Serbia is seen as an attractive investment destination is attested to by the Standard & Poor's lifting Serbia's outlook for obtaining investment grade from stable to positive in early April 2024.

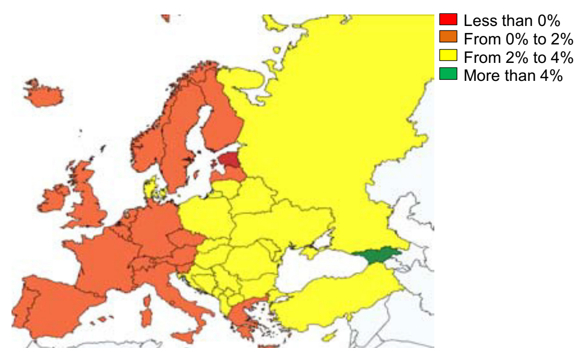
I.1 International environment

Economic growth in 2023 is estimated as higher than initially expected in the USA and some other emerging and developing countries. Also, due to favourable movements in global supply, inflation retreated faster than anticipated. As global inflation receded and growth remained stable, the likelihood of soft landing[1] increased, with risks to global economic growth being mostly balanced.

The global economic activity turned out to be surprisingly resilient despite pronounced global uncertainty during 2023. Against the backdrop of receding global inflation, following a record high level reached in mid-2022, economic activity was gradually on the rise despite risks of stagflation and global recession. The labour market remained stable, with a better alignment between labour force demand and supply. Though the majority of central banks raised their interest rates significantly with the aim of bringing inflation down, the global economy turned out to be more resilient than expected. Even so, elevated global inflation and tightened monetary and financial conditions notably in advanced countries acted as a drag on global economy in 2023, slowing it to 3.2% (from 3.5% in 2022). Economic growth in advanced countries decelerated (from 2.6% in 2022 to 1.6% in 2023), while in emerging countries it picked up slightly (from 4.1% in 2022 to 4.3% in 2023). High interest rates aimed at reining in inflation and reduced fiscal support because of high public debt are expected to affect GDP growth dynamics in 2024. GDP growth is forecast at 3.2% for both 2024 and 2025.[2]

Growth in the euro area, with which we have the most significant financial and trade ties, decelerated significantly in 2023, to 0.4% (3.4% in 2022). According to the IMF's data from April 2024, the highest GDP

Chart I.1.1 **GDP growth projections for 2024 − European countries**
(%)



Source: IMF.

[1] The soft landing metaphor means a cyclical slowing of economic growth while avoiding recession. A soft landing is the goal of a central bank when it seeks to raise interest rates just enough to stop and bring down high inflation, but not enough to cause a severe downturn.

[2] IMF WEO, April 2024.

growth rates in the euro area in 2023 were recorded by Malta (5.6%), Croatia (2.8%), Spain (2.5%) and Cyprus (2.5%). Growth of the largest euro area economies slowed down compared to 2022, with Germany recording a negative growth rate of 0.3% in 2023, while the French and Italian economies grew by 0.9%. In contrast, the biggest GDP fall in the euro area was recorded in Ireland (-3.2%) and Estonia (-3.0%). After economic activity slumped in 2022 due to the conflict in Ukraine, Russia and Ukraine recorded positive GDP growth rates in 2023, measuring 3.6% and 5.0%, respectively. Emerging and developing European countries recorded higher GDP growth rates in 2023 (3.2%) than euro area countries. The highest growth rates among emerging and developing European countries were recorded in Montenegro (6.0%), Ukraine (5.0%) and Turkey (4.5%). Of countries in the Balkan region,[3] the highest GDP growth rates were recorded in Montenegro (6.0%), Albania (3%) and Croatia (2.8%).

According to the IMF's assessment from April 2024, the anticipated growth in this year's global economic activity is low by historical standards due to short-term factors, such as the still high borrowing costs and the reduction of the fiscal support, as well as the long-term effects of the pandemic and the Ukraine conflict, weak productivity growth and exacerbated geopolitical fragmentation. The 3.1% global growth forecast for the next five years is the lowest in several decades.

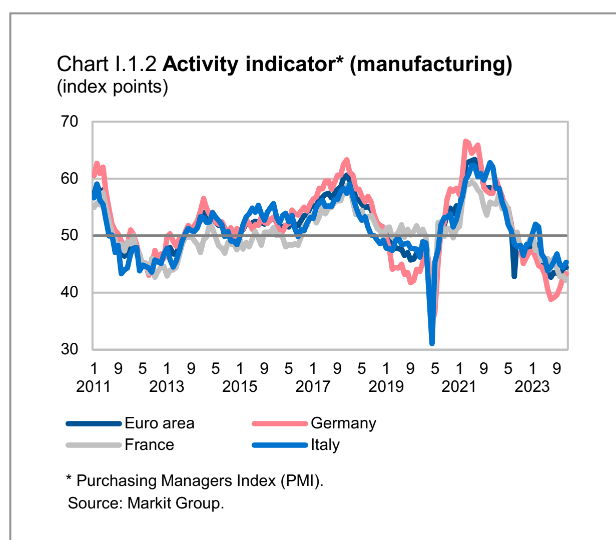
The IMF expects global inflation to fall from the annual average of 6.8% in 2023 to 5.9% in 2024 and 4.5% in 2025, while advanced countries will reach their inflation targets sooner than the emerging and developing ones. The pace at which medium and low income countries are approaching higher living standard has slowed, implying the continuation of global economic disparities. In April, the IMF projected the euro area's economic growth to recover from the low rate of estimated 0.4% in 2023 to 0.8% in 2024 and 1.5% in 2025, with household consumption lending a helping hand in the process. According to April projections, the pace of recovery in 2024 and 2025 was revised down relative to previous projections for some advanced euro area countries, such as Germany, while for other advanced euro area countries, including Belgium and Portugal, economic recovery is expected to be more intensive (Chart I.1.1).

According to the European Commission's forecast from May 2024, the EU's economic growth is estimated at 1.0% in 2024 and 1.6% in 2025, and for the euro area at 0.8% in 2024, after which it should pick up to 1.4% in 2025. With the exception of Estonia, where a negative growth rate is forecast, and Finland's zero growth rate, all other EU countries are expected to record positive growth rates in 2024. According to forecasts, inflation in the euro area should recede to 2.5% in 2024, and in the EU to 2.7%. The emphasis is on the fact that the disinflationary effect of energy prices dissipated at the end of last year and that due to the recent increase in energy prices, their growth will again be positive. The prices of food products and non-energy industrial goods are expected to be the primary drivers of disinflation during the projection horizon. In contrast, services prices have so far yielded only a small contribution to the disinflation process. However, the relatively weak economic activity and the slowdown in wage growth should curb growth of the prices of services. Core inflation is expected to recede, largely mirroring the pace of headline inflation.

Observed at the annual level, the US real GDP growth in 2023 measured 2.5%, or 1.9% faster than in 2022. In April 2024, the IMF estimated an additional pick-up in economic activity to 2.7% in 2024, after which it should slow to 1.9% in 2025.

In December 2023, the euro area's PMI Manufacturing[4] measured 44.4 points, which is less than at end-2022 (47.8 points). At end-2023, the indicator recorded the following values in leading euro area countries: Italy 45.3 points, Germany 43.3 points and France 42.1 points. During 2023, the PMI Manufacturing in the euro area dropped to its lowest level in July – 42.7 points (Chart I.1.2).

Chart I.1.2 **Activity indicator* (manufacturing)**
(index points)



* Purchasing Managers Index (PMI).
Source: Markit Group.

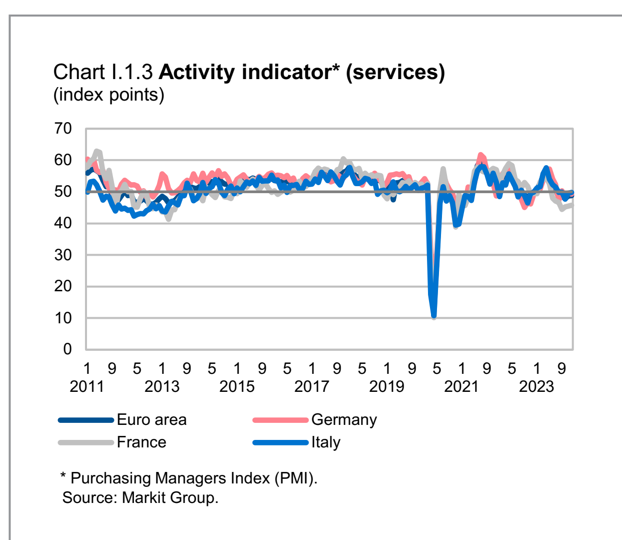
[3] Albania, Bosnia and Herzegovina, Bulgaria, Greece, North Macedonia, Serbia, Croatia and Montenegro.

[4] Values of PMI Manufacturing and PMI Services above 50 points indicate expansion, and below 50 points – contraction.

In December 2023, the PMI Services indicator equalled 48.8 points and was lower than at end-2022 (49.8 points). Of the largest euro area economies, the highest PMI Services value at end-2023 was recorded by Italy (49.8 points), and the lowest by France (45.7 points) (Chart I.1.3). The PMI Services dropped to its lowest level in September, measuring 44.4 points in France, while its lowest level in the euro area was recorded in October (47.8 points).

The euro area unemployment rate decreased from 6.7% at end-2022 to 6.5% at end-2023, its lowest level on record. The EU unemployment rate equalled 6.1% in December 2023, unchanged from end-2022. The lowest unemployment rate in December 2023 was recorded in the Czech Republic (2.8%), Malta (2.9%), Poland (3.0%) and Germany (3.1%), and the highest in Spain (11.9%) and Greece (10.4%). The euro area labour market continued to sustain economic activity given that the unemployment rate still hovers around the record low level, while employment and activity rates are slightly ascending.

The US unemployment rate rose from 3.5% in December 2022 to 3.7% in December 2023. The participation rate edged up from 62.3% in December 2022 to 62.5% in December 2023, while the employment rate remained unchanged (60.1%). Though the US labour market remains tight, the Fed estimated that the labour force supply and demand gap is narrowing, as attested to by the decline in the number of new job openings and slower growth in nominal wages. Assuming slower economic growth this year, with a further resolution of imbalances in the labour market, the Fed projected a 4.0% unemployment rate in 2024.



The global price of oil receded during 2023, equalling USD 77.6 per barrel at end-year, which is 4.6% less than at end-2022. The global price of oil moved dominantly on the downward path at end-2023 amid increased output by non-OPEC+ countries, high inventories in the US and lower than expected oil demand in Q4 2023. The oil price is expected to continue rising slowly in 2024 as well.

I.1.1 ECB and Fed's monetary policy and overview of economic developments in 2023

The ECB's key rates – main refinancing operations rate and the deposit and credit facilities rates – were continually raised until September 2023, reaching the level of 4.50%, 4.00% and 4.75%, respectively. After ten consecutive increases, they were kept unchanged until end-2023. Since July 2023, the Fed's federal funds rate moved within the 5.25–5.50% range, where it remained until end-2023. The fact that the Fed and the ECB kept the rates unchanged at their recent meetings indicates that the cycle of monetary policy tightening has come to a conclusion. Since these cycles were launched (in July and March 2022), the ECB and the Fed lifted their key rates by 450 bp and 525 bp, respectively.

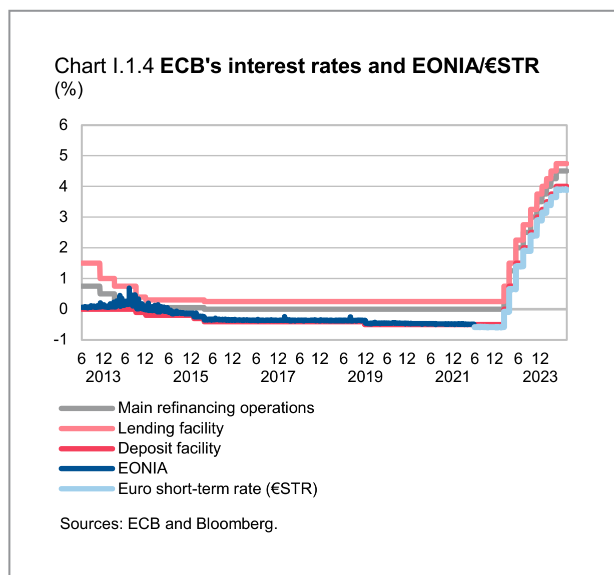
The ECB's key rates – main refinancing operations rate and the deposit and credit facilities rates – measured 4.50%, 4.00% and 4.75%, respectively, at end-2023. In 2023, in each meeting including the September one the ECB raised its main refinancing rate. When making the September decision to lift the rate, the ECB underlined that this hike helped reach the level that ensures more restrictive monetary conditions that will drive inflation down and bring it back to the 2% target over the medium term. Between September 2023 and April 2024, the ECB kept the rates unchanged, for five times in a row, after ten consecutive meetings in which the rates were increased. As of July 2022, when the interest rate hike cycle began, and until September 2023, the main refinancing rate was raised by a total of 450 bp. At the same time, the ECB continued unwinding its balance sheet as planned, at a moderate dynamic. It is also downsizing the portfolio of securities purchased within the Asset Purchase Programme (APP), as it is no longer reinvesting the

principal amounts of maturing securities since March 2023. As for the Pandemic Emergency Purchase Programme (PEPP), the ECB will fully reinvest the principal amounts of securities purchased within this programme during H1 2024, and in the remainder of the year the portfolio will be gradually downsized. Reinvestments will be entirely discontinued by end-2024. Also, the ECB is regularly monitoring the impact of the return of funds lent to banks within its targeted longer-term refinancing operations (TLTROs) on monetary conditions.

At end-2023, the Fed's federal funds rate moved within the 5.25–5.50% range, and the unwinding of the balance sheet unfolded in line with the established dynamics. Since March 2022, when the cycle of interest rate hikes began, the Fed lifted the federal funds rate by 525 bp. During 2023, the Fed raised its rate four times (by a total of 100 bp), the last time in the July meeting, whereafter it was kept in the 5.25–5.50% range and remained there at end-May 2024 as well. In the December 2023 meeting, the Fed said that the US economic growth in Q4 slowed in y-o-y terms, while the increase in the number of job openings, though slower in the previous months, also remained strong. It further stated that inflation will be significantly alleviated in 2024, though still at a higher level – the target level is expected to be attained in 2026. The Fed underlined it would continue to monitor economic data and stand ready to tailor its monetary policy appropriately in the event of risks that might threaten the achievement of its objectives. In the January, March and May 2024 meetings, the federal funds rate range was kept unchanged. According to the projection from March 2024, unchanged relative to the one from December 2023, the federal funds rate should reach the level of 4.6% (interval median 4.5–4.75%) at end-2024, which would imply three cuts of 25 bp each.

Of the observed central banks in the CESEE region, the central banks of Hungary, Poland and the Czech Republic started trimming their policy rates in H2 2023. After the last increase of 0.25 pp in January 2023, the Romanian central bank kept its policy rate unchanged at 7.0%, where it stood in May 2024, as well. The Hungarian central bank kept its 13.0% rate unchanged until October 2023, thereafter starting a trimming cycle for eight consecutive months. At the end of May 2024, the rate stood at 7.25%. The Polish central bank was the first of the observed banks to begin with monetary policy accommodation in September 2023, cutting the policy rate by 0.75 pp to 6.0%. After the subsequent decrease to

Chart I.1.4 **ECB's interest rates and EONIA/€STR**



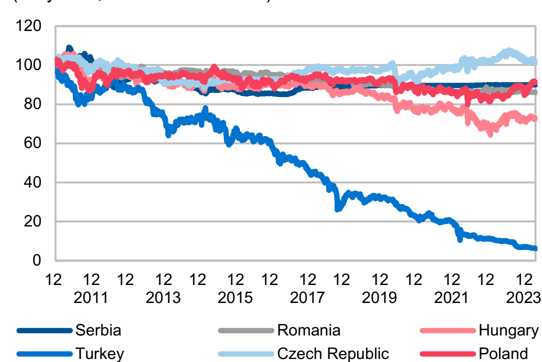
Sources: ECB and Bloomberg.

5.75% in October 2023, the central bank of Poland kept the rate on hold, hence it equalled 5.75% in May 2024. In December 2023, the central bank of the Czech Republic trimmed its policy rate by 0.25 pp to 6.75%. In February, March and May 2024 it was cut by another 50 bp each time, equalling 5.25% in early May 2024. In contrast, the central banks of Russia and Turkey lifted their policy rates during 2023. The Russian central bank raised its policy rate by 1.0 pp to 16.0% in December, keeping it there in May 2024 as well. The December increase was the fifth in a row, hence the total increase since July 2023 is 8.5 pp. After cutting the policy rate from 9.0% to 8.5% in February 2023, the central bank of Turkey lifted it to 42.5% as of June 2023, leaving it there until December 2023. It was raised further in January and March 2024, when it reached 50.0%, the same as in May.

In 2023 y-o-y inflation in the euro area averaged 5.5%, which is below the 2022 average (8.4%). After October 2022, when it touched its historical maximum (10.6%), the euro area inflation moved on a downward trajectory. In December 2023, euro area inflation was brought down to 2.9% y-o-y, significantly lower than in December 2022, when it measured 9.2% y-o-y. Core inflation (excluding the prices of food, energy, alcohol and cigarettes) also retreated in the euro area, to 3.4% y-o-y in December 2023, its lowest level since March 2022. Headline and core inflation in the euro area continued trending down in early 2024 as well.

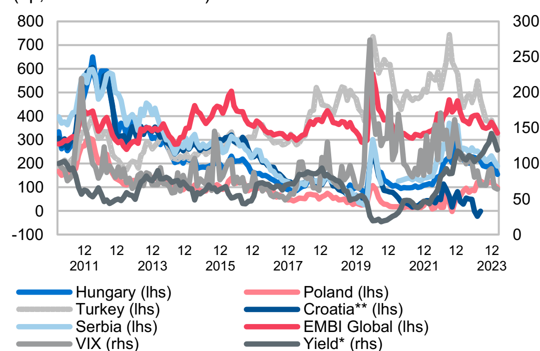
According to the ECB's March projection, average euro area inflation should retreat to 2.3% this year, and then additionally to 2.0% in 2025 and 1.9% in 2026.

Chart I.1.5 **Exchange rates of selected national currencies against the euro***
(daily data, 31 Dec 2010 = 100)



* Growth indicates appreciation.
Sources: Central bank websites.

Chart I.1.6 **EMBI for Serbia and its regional peers, VIX and yields on US bonds**
(bp, 31 Jan 2011 = 100)



* On derived ten-year US bonds.
** Data for Croatia available until 30 June 2023.

Sources: J.P. Morgan and Bloomberg.

Inflation in the USA (measured by the change in the CPI[5]) equalled 3.4% y-o-y in December 2023. Inflation retreated at the end of the year under the impact of continued slowdown in food inflation and slower y-o-y growth in services prices which, coupled with the several months of slight y-o-y growth in industrial product prices, acted as a drag on core inflation in the USA (measured by the change in the CPI excluding food and energy), slowing it to 3.9% y-o-y in December, its lowest level since May 2021. Measured by the personal consumption indices (total and excluding food and energy), inflation was also reduced in y-o-y terms in Q4, wherefore the Fed revised down its previous projections of these measures of headline and core inflation in 2023 to 2.8% and 3.2%, respectively, while projections for 2024 equal 2.4% and 2.6%, respectively. Headline and core inflation are not expected to return to the target 2.0% before 2026. In March 2024, the Fed projected US inflation at 2.2% in 2025 and at 2.0% in 2026.

At the level of 2023, the euro gained on the dollar by around 4%. It appreciated vis-à-vis the dollar both at the start and end of the year, first amid hints at inflation peaking in the USA and that further federal funds rate hikes would not be needed, and then amid expectations by market participants that as of 2024 the Fed would start trimming the interest rates, while statements by ECB officials were more conservative in terms of premature monetary policy accommodation. On the other hand, the strengthening of the dollar in mid-2023 is mostly attributable to better economic performances in the USA relative to the euro area, as well as the role of the dollar as a safe haven currency and the persisting uncertainty in global markets.

During 2023 the dinar gained 0.1% vis-à-vis the euro in nominal terms. In the same period, as the euro gained against the dollar in the international financial market, the dinar also gained on the dollar by 4.0% annualised. The currencies of observed countries in the region displayed diverging movements against the euro. At the annual level, the Polish zloty and the Hungarian forint gained against the euro in 2023 (7.9% and 4.6%, respectively), while the Romanian leu, the Czech koruna and the Turkish lira weakened (0.5%, 2.5% and 39.2%, respectively) (Chart I.1.5).

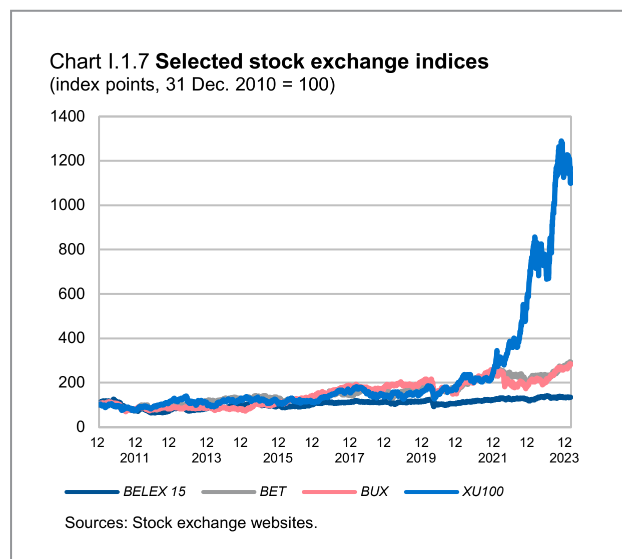
Volatility in the international financial market, measured by the implicit measure of financial market volatility (VIX) ranged from 20.7% (end-February 2023) to 12.5% (end-December) during the year (Chart I.1.6).

During 2023, the global risk premium recorded a fall against the backdrop of loosening global cost-push pressures, decelerating global inflation and monetary policy tightening by leading central banks. The EURO EMBIG Composite decreased by 7 bp to 200 bp during 2023, and remained there at end-December. The dollar risk premium decreased from 374 bp at end-2022 to 319 bp at end-2023.

The values of stock exchange indices on financial markets of countries in the region were at a higher level in Serbia and all observed countries at end-2023 relative to end-2022: Turkey, Hungary and Romania (Chart I.1.7).

[5] CPI – Consumer Price Index.

Chart I.1.7 **Selected stock exchange indices**
(index points, 31 Dec. 2010 = 100)



Sources: Stock exchange websites.

According to the January 2024 euro area Bank Lending Survey,[6] corporate credit standards were additionally tightened in 2023. Tightening the standards contributes to the significant cumulative tightening that has been underway since 2022 and, together with subdued demand, it contributed to dampened corporate lending growth. Higher risk perception as to economic prospects resulted in tighter corporate credit standards in the euro area. Banks also reported about tightening credit standards for household loans – less in respect to housing loans, but more pronounced for consumer loans. Risk perception was the main factor behind the tightening of standards for both loan categories, with higher risk aversion of banks leading to stricter credit standards for consumer loans. Corporate loan demand contracted in 2023 mostly as a result of higher interest rates and lower fixed investments, which is in line with subdued demand for long-term loans. In contrast, the need to finance inventories and working capital gave a somewhat positive contribution to loan demand. Demand for consumer and other household loans also contracted significantly, though less than housing loan demand, which was mostly the result of rising interest rates, lower consumer confidence and unfavourable outlook in the real estate market. In H1 2024, euro area banks expect the quality of corporate and consumer loans to result in a moderate tightening of credit standards, while the impact on housing loans will be neutral. They also expect the pressure in terms of regulatory requirements, lower risk tolerance and elevated risk perception to have a dominant impact on the quality of loans and credit standards and terms.

I.1.2 Lending in CESEE countries

During 2023, the CESEE region saw a slight increase in loan demand, and a decrease in loan supply. The trend of banking groups' exposures to the region remained unchanged during the year.

According to the CESEE Bank Lending Survey,[7] published in June[8] and December[9] 2023 by the EIB, loan demand went slightly up, while the supply deteriorated. The negative contribution of demand came from loans for fixed investment and household loans, notably for housing. The positive contribution to loan demand arose from corporate liquidity loans, especially loans for purchasing inventories and working capital. Going forward, loan demand is expected to go up on the back of the rising demand for fixed investment loans, despite the anticipated contraction in household lending demand, notably for housing and consumer loans.

Amid the Ukraine conflict, rising inflation, high interest rates and decelerating economic growth, lending standards were tightened since 2022, which continued in 2023 as well, though to a lesser extent. All lending segments were under the impact of tightened credit standards, especially in the SME segment. In H2 2023, credit standards were tightened because of growth prospects and EU regulations, while the quality of loans did not have a major effect. According to a survey from December 2023, going forward banks expect a deterioration in lending conditions on the supply side. They also expect the loan supply and demand gap to narrow, after being present for several years amid high loan demand and subdued supply.

Access to financing sources in CESEE countries remained favourable as in the prior period, with the main contribution stemming from corporate deposits. Still, central bank financing was reduced, with negative contributions of financing from the interbank market and by international financial institutions. Looking ahead, banking groups expect a major improvement in access to financing sources, when the main contribution will come from household and corporate deposits. Chart I.1.8 shows developments in the home markets of banking groups present in Serbia.

Contrary to expectations, credit quality continued to improve after a period of deterioration during the

[6] https://www.ecb.europa.eu/stats/ecb_surveys/bank_lending_survey/html/ecb.blssurvey2023q4~6d56dfebf7.en.html.

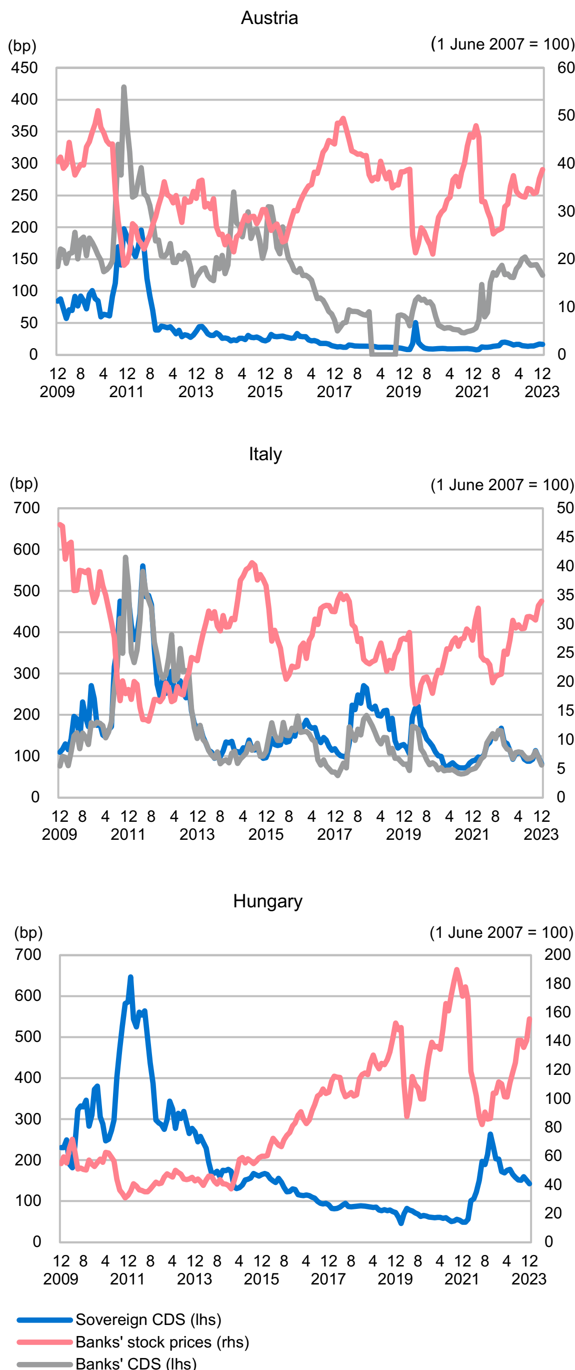
[7] The survey, published twice a year, was developed within the Vienna Initiative to monitor cross-border activities and deleveraging in the CESEE region.

[8] https://www.eib.org/attachments/lucalli/20230077_economics_cesee_bls_2023_h1_en.pdf.

[9] https://www.eib.org/attachments/lucalli/20230288_economics_cesee_bls_2023_h2_en.pdf.

coronavirus pandemic of 2020–2021. The results of surveys from June and December 2023 show that credit quality was additionally improved for household and corporate sectors. Even so, in conditions of uncertain economic prospects, banks expect credit quality to deteriorate by March 2024.

Chart I.1.8 **Developments in the home markets of selected banking groups present in Serbia***



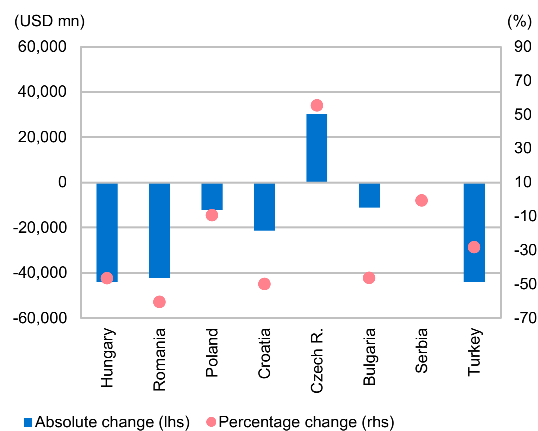
* Note: CDS spreads and stock prices are non-weighted average values for parent banks originating from each country. Monthly data represent daily data averages.
Sources: Bloomberg and Reuters.

Before 2017, banking groups deleveraged significantly, which resulted in a lowered LtD (loan-to-deposit) ratio, but in the previous several years deleveraging contracted. According to June and December 2023 survey results, more than a third of banks, which is the highest share in ten years, expect the LtD ratio to go up in the coming period.

December survey results showed that the majority of banks (64%) maintained the same level of cross-border exposure to CESEE countries, while 18% of them decreased or increased their exposure. In the next six months, 9% of parent banks expect to increase their exposure to the region (compared to 27% according to the June survey), 9% expect a reduction of exposure, while the majority of banks (82%) expect exposure to be maintained. The majority of banking groups (80–90%) expect exposure to capital and financing within the group to remain stable.

According to BIS data, in Q4 2023 relative to the beginning of the global financial crisis (Q3 2008), euro area banks reduced their cross-border exposure to countries in the region, except to the Czech Republic. In terms of percentage change, exposure was reduced the most for Romania, Croatia, Hungary and Bulgaria, and the least for Serbia and Poland (Chart I.1.9). Deleveraging by foreign banks in the wake of the 2008 global financial crisis in the CESEE region did not have major consequences on Serbia's financial stability thanks

Chart I.1.9 **Change of cross-border exposure to selected countries, Q3 2008 – Q4 2023**



Source: BIS, locational statistics, resident principle, gross.

to the strengthened domestic deposit base, as well as the NBS's adequate and timely measures. Relative to the period before the coronavirus pandemic (Q4 2019), exposure to Poland, Hungary, Croatia, Bulgaria, Romania and Serbia increased, and to Turkey and the Czech Republic decreased. Relative to Q4 2022, exposure to the Czech Republic and Turkey decreased in Q4 2023, and to Poland, Croatia, Hungary, Romania, Bulgaria and Serbia increased.

I.2 Overview of domestic macroeconomic developments

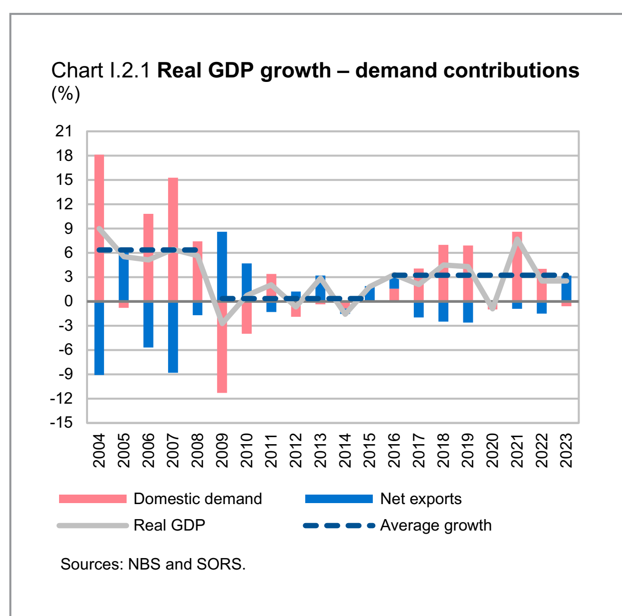
In 2023, real GDP growth amounted to 2.5%, with positive contributions coming from all production and most service sectors. Average annual inflation in 2023 measured 12.1% and average core inflation 9.1%.

GDP grew by 2.5% in 2023, receiving positive contributions from all production and most service sectors. On the production side, the agricultural season overperformed the last year's, adding 0.4 pp to GDP growth. Almost equal contributions came from construction, reflecting stepped-up government investment in transport infrastructure, and industry, thanks mostly to a production rebound in the energy sector and higher copper ore exploitation. Manufacturing also lent an impulse, despite the dented production of our key trade partners, primarily Germany. On the expenditure side, in the first half of 2023, growth was predominantly led by net exports, and in the second, by investments and private consumption.

In 2024, real GDP growth is expected to pick up to 3.5%. The main driver should be domestic demand, in addition to the expected exports increase as a result of past investments in export sectors and a gradual recovery of external demand. Private consumption should expand on the back of a continued rise in employment and wages, owing to higher productivity. An increase in investments will be mainly driven by the implementation of projects in the areas of transport, energy and utility infrastructure, as well as those associated with Expo 2027, whose implementation is due to start this year. Owing to the expected acceleration of investments and personal consumption, imports should rise faster than exports. Since economic upswing is expected in the following two years as well, GDP projection was raised to 4–5%, in view of the implementation of investments planned under the specialised exhibition Expo 2027.

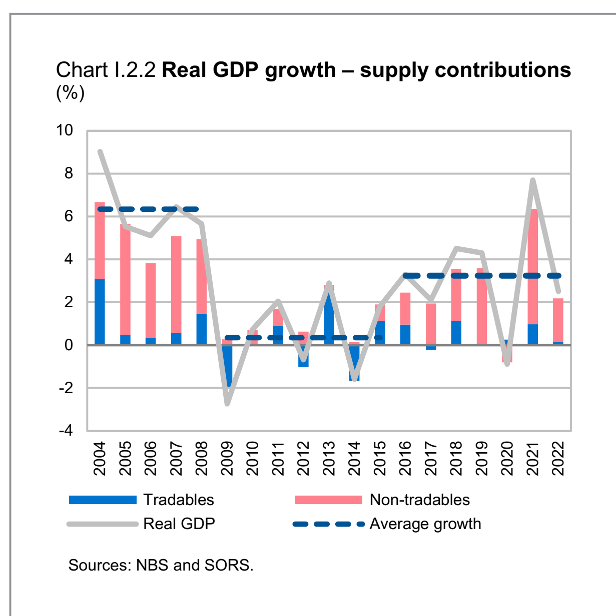
Average annual inflation in 2023 measured 12.1% and average core inflation 9.1%. After peaking in March, both headline and core inflation embarked on a steady downward path. Throughout 2023, core inflation moved below the headline, supported by the NBS's monetary policy measures. At end-2023, headline inflation was twice lower than at end-2022, measuring 7.6%. Its decline was supported by monetary policy measures, loosening of global cost-push pressures, lower imported inflation and a good agricultural season. Throughout the year, core inflation trended considerably below the headline, thanks, among other things, to long-term relative stability of the exchange rate, and equalled 6.5% y-o-y in December. Inflation slowdown was underpinned by a decrease in short-term inflation expectations of financial and

Chart I.2.1 **Real GDP growth – demand contributions**
(%)



Sources: NBS and SORS.

Chart I.2.2 **Real GDP growth – supply contributions**
(%)



Sources: NBS and SORS.

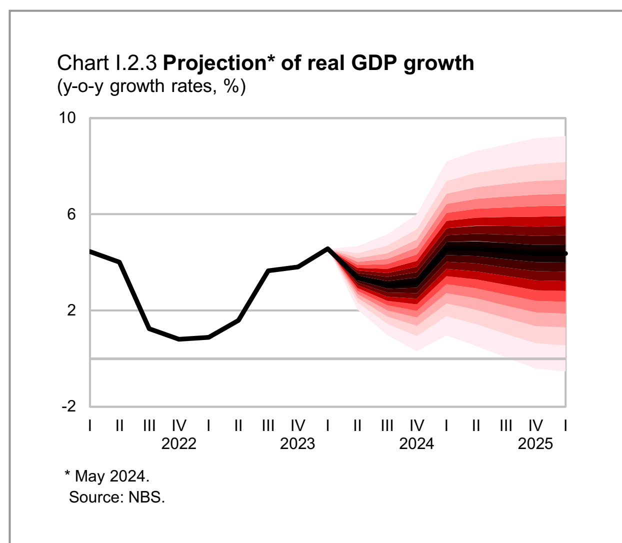


Chart I.2.3 **Projection* of real GDP growth**
(y-o-y growth rates, %)

* May 2024.
Source: NBS.

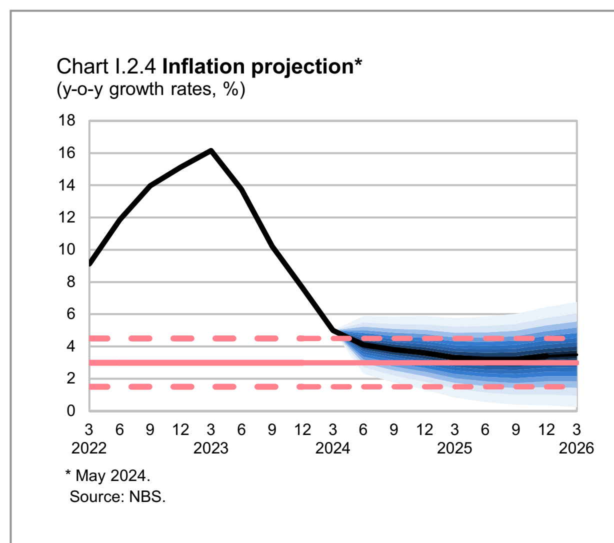


Chart I.2.4 **Inflation projection***
(y-o-y growth rates, %)

* May 2024.
Source: NBS.

corporate sectors, as well as the anchoring of the financial sector's medium-term expectations within the NBS's target band.

According to the central projection from May 2024, y-o-y inflation should return within the bounds of the target in May 2024, continue to decelerate thereafter and move around the target midpoint of 3% from the next year until the end of the projection horizon (Chart I.2.4). In the remainder of this year, inflation should remain on a downward path, mainly owing to several key factors – the effects of past tightening of monetary conditions, a further fall in inflation expectations, deceleration of imported inflation and the still negative output gap, primarily due to the subdued external demand. With the decline in current inflation, inflation expectations of all sectors are expected to go down, leading to a further fall in inflation.

Positive labour market trends continued in 2023. Labour market data indicate that in Q4 2023, the unemployment rate dropped by 0.3 pp y-o-y, to 9.1%. At the same time, the employment rate came at 50.3%, which is an increase of 1.2 pp relative to Q4 2022. At the level of 2023, the average unemployment rate measured 9.4% (down by 0.1 pp compared to 2022), and the average employment rate 50.2% (up by 0.7 pp from 2022).[10] In 2023, gross and net wages rose by 14.8% in nominal and by 2.4% in real terms relative to the previous year.

Similarly to other central banks, the NBS responded to heightened global inflationary pressures by increasing monetary policy restrictiveness. In October 2021, the NBS embarked on monetary tightening, by gradually lifting the weighted average interest rate in reverse repo auctions. The cycle of key policy rate hikes started in April 2022 and continued in 2023, though at a moderated pace compared to the previous year. In 2023 the key policy rate was increased in six rounds, by a total of 1.5 pp, reaching 6.50% in July 2023 and remaining at that level by the year end.

The relative stability of the dinar exchange rate against the euro was preserved in 2023, with appreciation pressures prevailing throughout a major part of the year. January saw heightened depreciation pressures, driven mainly by seasonally increased demand of energy importers for foreign currency, but in the remainder of the year, FX supply by far outstripped the demand, which resulted in stronger appreciation pressures. In 2023, the dinar nominally gained 0.1% against the euro. In the same period, due to the euro's strengthening against the dollar in the international market, the dinar grew 4.0% stronger against the dollar. In 2023, the NBS intervened in both directions, alleviating pressures on the dinar and contributing to its relatively stable movement against the euro throughout the year. Except in January and November, when FX demand outstripped supply and the NBS net sold foreign currency, in the remaining months the NBS was a net buyer in the FX market. The rise in FX supply was mostly underpinned by the purchase of foreign cash and resident FX supply, mainly owing to the further increase in exports and FDI. The amount of net FX purchases based on NBS interventions in the IFEM

[10] Since 2021, the Statistical Office of the Republic of Serbia (SORS) has conducted the Labour Force Survey according to the new, redesigned methodology of the Eurostat.

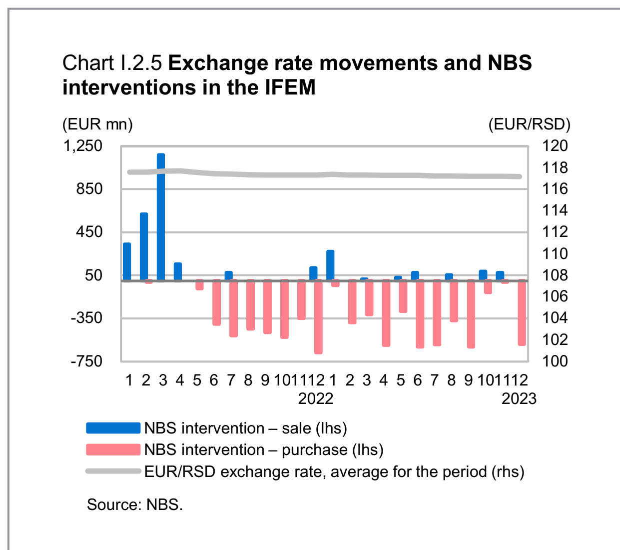


Chart I.2.5 **Exchange rate movements and NBS interventions in the IFEM**

Source: NBS.

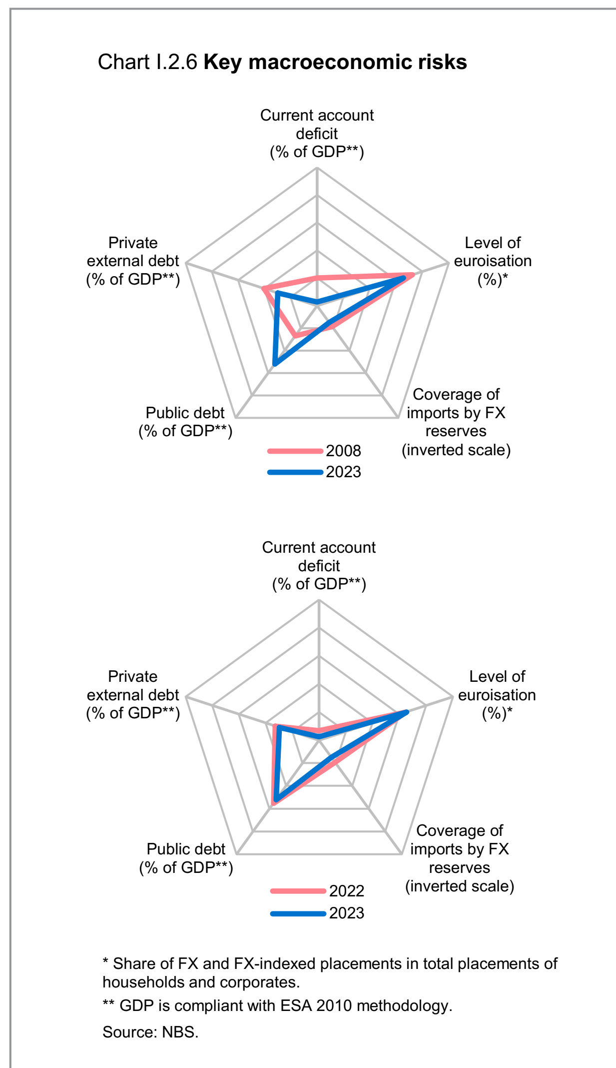


Chart I.2.6 **Key macroeconomic risks**

* Share of FX and FX-indexed placements in total placements of households and corporates.

** GDP is compliant with ESA 2010 methodology.

Source: NBS.

reached EUR 3,940 mn in 2023, the record annual net purchase amount.

At end-2023, gross FX reserves reached a record-high end-of-year level of EUR 24.9 bn, up by EUR 5.5 bn from end-2022. The rise reflected primarily NBS interventions of net FX purchases. Since 2018, FX reserves have recorded a constant annual growth and in a period of six years (2018–2023) they increased 2.5 times cumulatively, i.e. by EUR 15 bn. Such level of FX reserves ensured a 166.6% coverage of money supply M1 and 6.7 months' worth of the country's goods and services imports, which is more than twice the level prescribed by the adequacy standard.

Global risk premium decreased in 2023, as a result of the weakening of global cost-push pressures, slowdown in global inflation and monetary tightening of leading central banks. EURO EMBIG for Serbia dropped by 142 bp and measured 247 bp at end-2023 (389 bp at end-2022). At the same time, EMBI for Serbia measured 188 bp, down by 82 bp from end-2022 (270 bp), continuing to move below EMBI Composite, which measured 319 bp at end- 2023 (374 bp at end-2022). Serbia's five- and ten-year eurobonds issued in dollars in January 2023 were included in J.P. Morgan's EMBI Global on 31 January 2023.

In April and October 2023, Standard & Poor's affirmed Serbia's credit rating at BB+, with a stable outlook, only to upgrade it from stable to positive in April 2024, which indicates that this rating agency could assign an investment grade to Serbia in the coming period. Such a decision was made in view of the strong 2023 macroeconomic outturns, proven resilience of our economy in previous years and improved fiscal performance and external position. In February and August 2023, and February 2024, Fitch kept Serbia's credit rating at BB+, one step away from investment grade, with a stable outlook. The agency's decision was motivated by Serbia's credible economic policy framework, higher level of economic development measured by GDP per capita compared with 'BB+' medians, as well as orderly public finances and downward public debt trajectory. In September 2023, Moody's kept Serbia's credit rating at Ba2, with a stable outlook. When making the decision, Moody's took into account the favourable growth outlook over medium run underpinned by a strong and diverse FDI inflow, economic resilience to unfavourable trends from the international environment, sound public finances and fiscal room for responding to potential shocks, as well as success in the implementation of structural reforms.

The financial system vulnerability indicators[11] suggest much strengthened resilience of the financial system in 2023 compared to 2022, as indicated by a decrease in the share of public debt in GDP (from 55.1% to 52.0%), a decline in the share of private external debt in GDP (from 32.7% to 29.7%) and a significant fall in the current account deficit share in GDP (from 6.9% to 2.6%). The 2023 share of the current account deficit in GDP was the lowest thus far and was covered by net FDI inflow multiple times. The resilience of the financial system was also aided by the higher coverage of the goods and services imports by FX reserves, which was more than twice the level prescribed by the reserve adequacy standard. The current account deficit contracted on account of a decrease in the goods deficit and the surplus on the services account which widened further.

The degree of euroisation of the domestic financial system, measured by FX and FX-indexed receivables from corporates and households in total bank receivables, edged up negligibly in 2023, by 0.6 pp to 65.5% at year end. On the other hand, the share of FX and FX-indexed deposits in total corporate and household deposits contracted (from 59.9% at end-2022 to 55.6% at end-2023).

I.3 Foreign exchange reserves

During 2023, NBS FX reserves increased further, reaching their new highest end-of-year level and strengthening the resilience of the domestic financial system to the shocks from the international environment, which is particularly important amid present geopolitical tensions. Gross FX reserves equalled EUR 24.9 bn at end- 2023, up by EUR 5.5 bn from the end of the previous year, while net[12] FX reserves amounted to EUR 20.8 bn. Different stress scenarios lead to the conclusion that FX reserves are high enough to safeguard the domestic financial system even in the event of extreme scenarios.

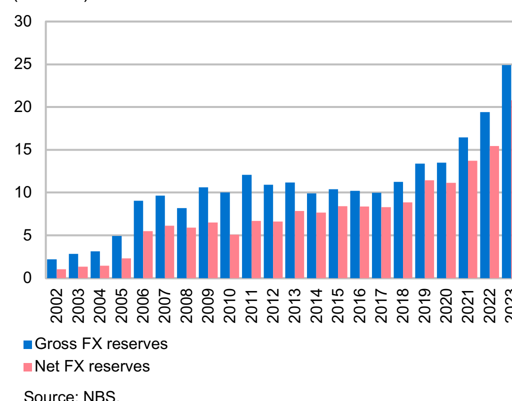
At end-2023, gross NBS FX reserves stood at EUR 24.9 bn, their highest end-of-year level so far (Chart 1.3.2). They increased by EUR 5.5 bn from end-2022, driven largely by the inflows from the NBS's interventions of net FX purchase in the IFEM. FX reserves have recorded constant annual growth since 2018 and from end-2017 increased cumulatively 2.5 times, i.e. by EUR 15 bn (Chart 1.3.1).

Table I.3.1 **Indicators of FX reserves adequacy, end-2023**

	Adequate level (EUR bn)	Coverage of adequate level with gross FX reserves
Average three-month imports of goods and of services	11.1	223%
Short-term external debt at remaining maturity	7.8	321%
20% money supply M3	7.8	321%
"Right measure for Serbia"	8.9	280%
FX reserves		
Gross	24.9	
Net	20.8	

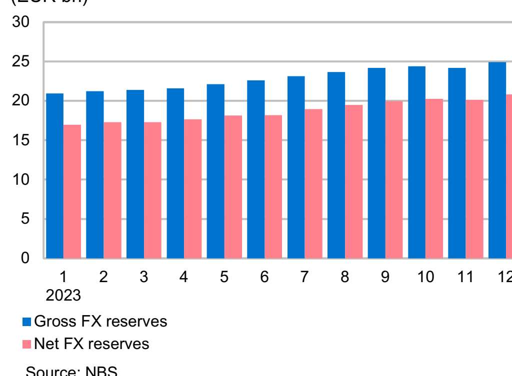
Source: NBS.

Chart I.3.1 **National Bank of Serbia FX reserves**
(EUR bn)



Source: NBS.

Chart I.3.2 **National Bank of Serbia FX reserves in 2023**
(EUR bn)



Source: NBS.

[11] Chart I.2.6 shows the main financial vulnerability indicators for the Republic of Serbia, i.e. changes in the current account deficit, private external debt, public debt, the degree of euroisation and FX reserves adequacy (inverted value of the number of months of coverage of imports by gross FX reserves). Increased distance from the centre for each indicator warns of elevated risk and poses a threat to stability. Increased surface indicates higher vulnerability of the economy.

[12] Net reserves are total reserves less banks' FX balances on account of required reserves and other grounds.

As an institution mandated to safeguard and strengthen the stability of the financial system, the NBS manages and maintains an adequate level of FX reserves, in line with liquidity and security principles. FX reserves are used for the preservation of the dinar exchange rate and financial sector stability, settlement of government liabilities to foreign creditors, and in times of crisis, for financing potential, more considerable balance of payments imbalances.

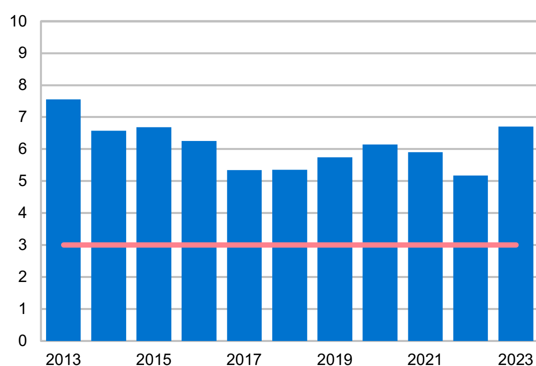
The adequacy of FX reserves is assessed by various analyses and indicators, from the aspect of materialisation of an individual risk or a mix of several risks. The most significant risks, based on which relevant indicators are constructed are hindered financing of the imports of goods and services and external debt of one-year maturity in the event of reduced capital inflows from abroad due to the limited access to the international capital market, and the withdrawal of a portion of deposits from the banking sector.

Traditional indicators of FX reserves adequacy analyse the protection against individual risks. The indicator of FX reserves import coverage compares FX reserves and the size and market openness of the economy. The level of FX reserves is considered adequate if it covers three months' worth of imports of goods and services. In addition to import coverage indicator, protection against individual risks is also measured by an indicator known as the Greenspan–Guidotti rule,[13] which shows the capacity of a country to service its external debt in the course of one year. The adequate level is achieved when a country can cover at least 100% of its short-term external debt in case it is cut off from the international capital market for the duration of one year.

To measure the degree of protection against the risk of withdrawal of domestic currency deposits, we use an indicator that measures the ratio of FX reserves to monetary aggregates. The optimal level is achieved if FX reserves cover at least 20% of broad money (M3). At end-2023, Serbia's FX reserves were at a more than adequate level to serve as a protection against individual risks. They provided for the financing of almost seven months' worth of imports of goods and services, 320.5% coverage of external short-term debt at remaining maturity and 64.2% coverage of broad money M3.

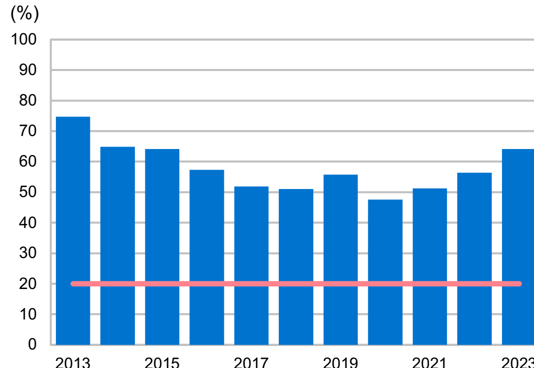
In order to make a comprehensive assessment of the adequacy of FX reserves, we developed "the right measure for Serbia" indicator[14] that takes into account the specificities of the Serbian economy. It implies the coverage of the sum total of short-term external debt at remaining maturity, the current account deficit adjusted for FDI, 15% of FX and FX-indexed deposits and 5% of dinar deposits of corporates and households. At end-2023, "the right measure for Serbia" indicator was also considerably above the optimal 100% (280.2%). The increase in this indicator relative to last year (176.1%) was driven by both a higher level of gross FX reserves and a lower current account deficit (only 2.6% of GDP). The share of the current account deficit in GDP in 2023

Chart I.3.3 **Months of imports covered by gross FX reserves**



Source: NBS.

Chart I.3.4 **Money supply M3 covered by gross FX reserves**

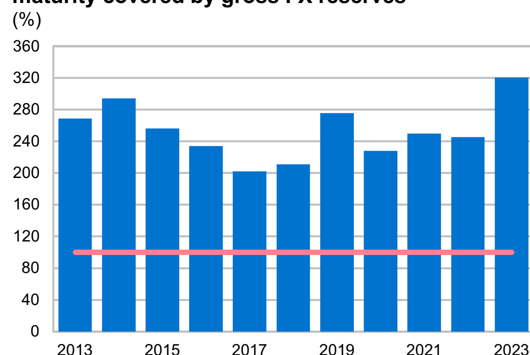


Source: NBS.

[13] Guidotti, Pablo, Sturzenegger, Federico and Augustin Villar (2004), On the Consequences of Sudden Stops, Economia, vol. 4, no. 2, p.171–203.

[14] For more details on this indicator, see the *Annual Financial Stability Report – 2011*.

Chart I.3.5 **Short-term external debt at remaining maturity covered by gross FX reserves**
(%)



Source: NBS.

Table I.3.2 **Stress scenarios for FX reserves**

Symbol	Parameter	Scenario 1	2	3	4	5
γ	Damage caused by sudden stop	7%	7%	7%	7%	7%
r	Yield on reserves	2.5%	2.25%	2.0%	1.75%	1.5%
g	Average GDP growth	3.5%	3%	2.5%	2%	1.5%
σ	Risk aversion	2	2	2	2	2
δ	Opportunity cost	1%	1%	1%	1%	1%
π	Probability of sudden stop	10%	10%	10%	10%	10%
λ	Size of shock (% of GDP)	20%	20%	20%	20%	20%
ΔQ	Real depreciation	0%	2.5%	5%	7.5%	10%
	Optimal level of reserves (EUR bln)	15.2	16.0	16.8	17.5	18.2
Gross NBS FX reserves (2023, EUR bn)				24.9		

Source: NBS.

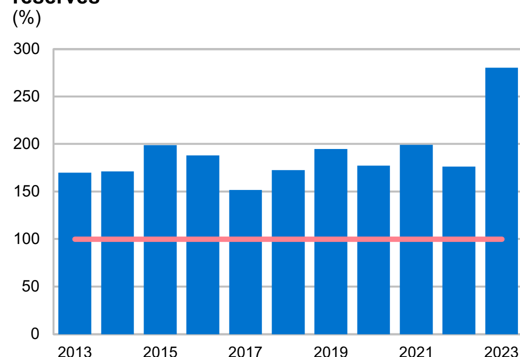
was the lowest so far and the deficit was multiple times covered by the net FDI inflow.

The Jeanne–Ranciere model[15] determines an optimal level of FX reserves as a share in GDP (ρ), depending on the size of the shock (λ), probability of a sudden stop (π), damage caused by the sudden stop of capital flows (γ), real depreciation (ΔQ), risk aversion (σ), return on reserves (r), opportunity cost of holding reserves (δ) and real GDP growth (g).

The model assumes that in a small and open economy, vulnerable to sudden stops to capital flows, economic policy makers set the adequate level of FX reserves. In the event of a sudden stop to financial flows, resulting in the impossibility of external debt rollover, it is assumed that a higher level of FX reserves will mitigate the decline in output and ensure smooth consumption. In this model, the optimal level of reserves is determined by the size and likelihood of a sudden stop to capital inflows, the potential output and consumption losses, the opportunity cost of holding reserves, and the degree of risk aversion.

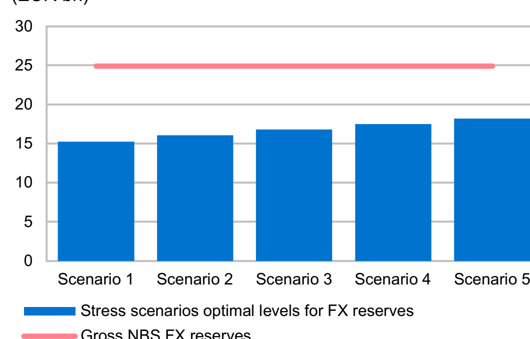
Table I.3.2 gives an overview of stress scenarios for FX reserves, according to the Jeanne-Ranciere model, where the fifth scenario is extreme, i.e. least likely to occur.

Chart I.3.6 **"Right measure for Serbia" for gross FX reserves**
(%)



Source: NBS.

Chart I.3.7 **Optimal levels of FX reserves under stress scenarios, December 2023**
(EUR bn)

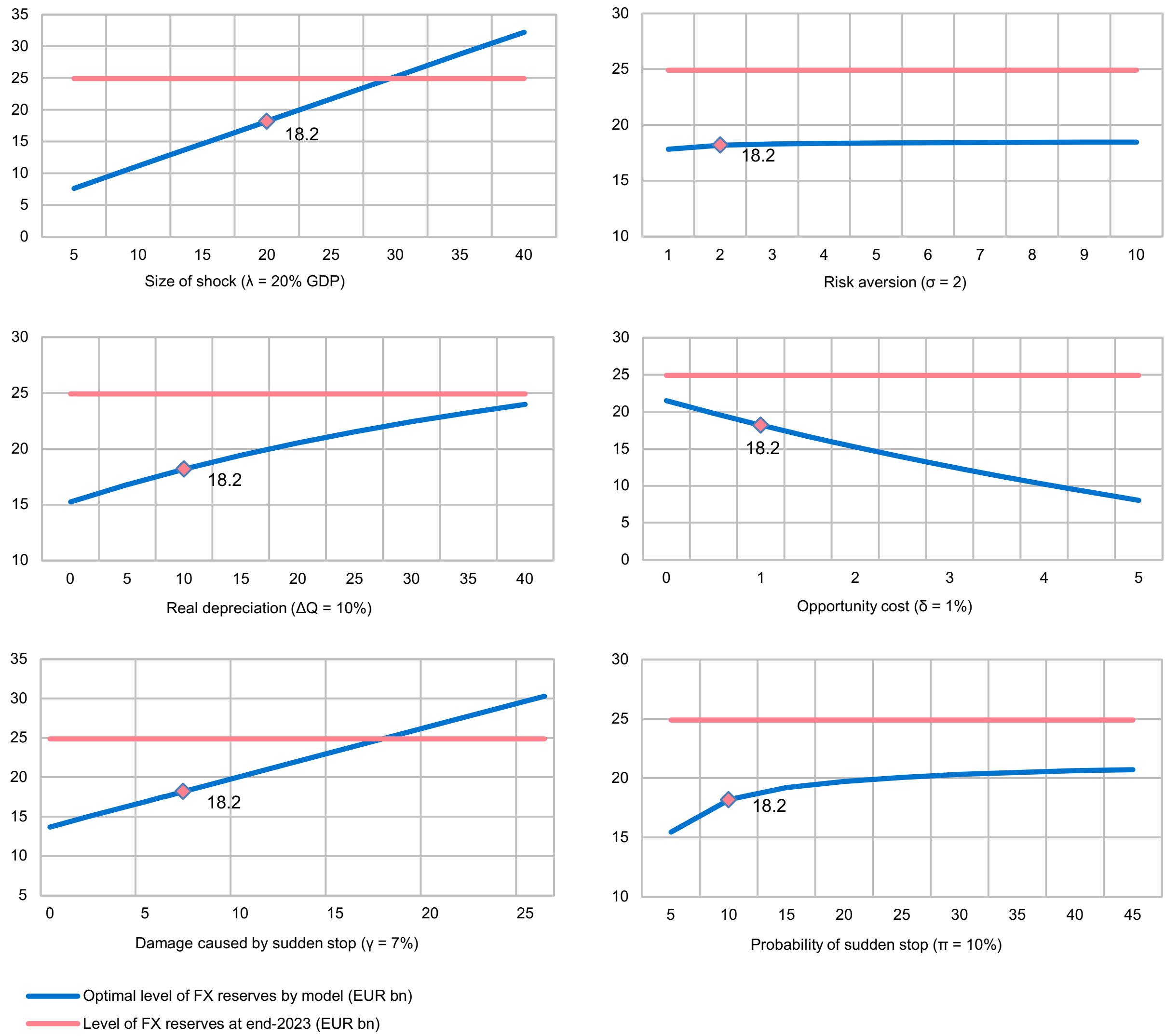


Source: NBS.

[15] See O. Jeanne, R. Ranciere (2008): The Optimal Level of International Reserves for Emerging Market Countries: A New Formula and Some Applications, *CEPR Discussion Papers 7623*, and the *Annual Financial Stability Report – 2011*.

All five scenarios run on the used adequacy model, including all indicators of FX reserves adequacy, confirmed that the level of FX reserves at end-2023 was more than adequate. Chart I.3.8 shows the optimal level of FX reserves in case the fifth scenario, which is the most extreme, materialised. And the conclusion is that even in this scenario Serbia would have an adequate level of FX reserves.

Chart I.3.8 **Sensitivity analysis of FX reserves adequacy model parameters, based on the fifth stress scenario**



Source: NBS.

I.4 Fiscal policy, public and external debt

In 2023 as well, fiscal policy measures mitigated the negative economic consequences of heightened global uncertainty and elevated inflation. The fiscal deficit amounted to 2.2% of GDP, down by 0.9 pp from 2022. The share of central government public debt in GDP contracted from 55.1% at end-2022 to 52.0% at end-2023. At the same time, the share of external debt in GDP decreased by 4.1 pp from 2022 to 65.3% in 2023. Serbia's credible and responsible economic policy is confirmed also by the maintained credit rating and an improvement in outlook by Standard & Poor's from stable to positive.

I.4.1 Fiscal policy

Amid slowing global growth, elevated inflation and global uncertainty, the Government of the Republic of Serbia continued taking appropriate and well-timed measures to mitigate the effects from the international environment on the economy and population. More favourable circumstances in the energy sector and a rise in fiscal revenues relative to the previous year created space for increased capital investment and an additional fiscal stimulus to improve living standards.

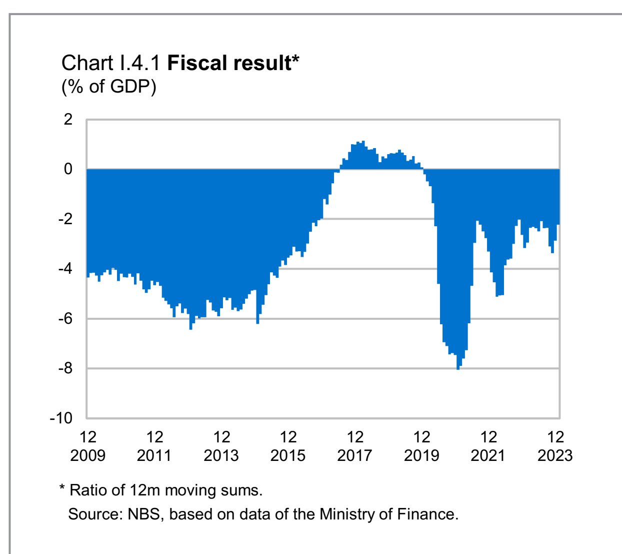
Amendments to the Law on the Budget System,[16] adopted in late 2022, which among other things redesigned the set of fiscal rules, contribute to the stability of public finances and the sustainability of the fiscal framework. A special emphasis was placed on modifying the general rules relating to public debt and general government deficit, which cap the government debt at 60% of GDP and target a medium-term fiscal deficit of 0.5% of GDP. Full application of the general fiscal rules is envisaged for 2025. On the other hand, special fiscal rules, keeping the key categories of public expenditure in check (wages and pensions), are in force from 2023. These rules place outlays for wages at no more than 10% of GDP and envisage the indexation of pensions depending on their share in GDP.

General government fiscal debt amounted to RSD 181.1 bn or 2.2% of GDP, much lower than in 2022 when it equalled RSD 224.8 bn or 3.2% of GDP (Chart I.4.1). Looking at different government levels, the highest deficit was recorded by central government budget – RSD 179.3 bn.

The primary fiscal result,[17] as an indicator of the efficiency of the current fiscal policy and its impact on public debt, came at RSD 31.8 bn (0.4% of GDP) in 2023, continuing the downward trend of the primary deficit both in the absolute amount and as a share in GDP relative to the previous year, when it equalled RSD 117.6 bn or 1.7% of GDP.

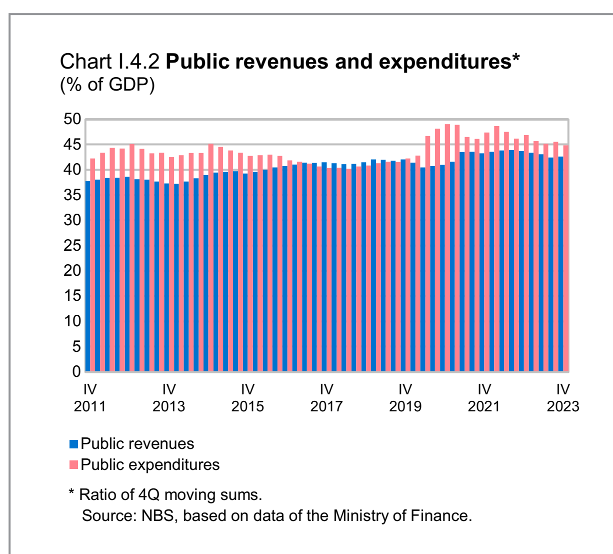
The fiscal deficit narrowed in 2023 amid an increase in both fiscal revenues and expenditures relative to the year before, with a more dynamic increase in revenues than expenditures. Total public revenues of the general

Chart I.4.1 **Fiscal result***
(% of GDP)



* Ratio of 12m moving sums.
Source: NBS, based on data of the Ministry of Finance.

Chart I.4.2 **Public revenues and expenditures***
(% of GDP)



* Ratio of 4Q moving sums.
Source: NBS, based on data of the Ministry of Finance.

[16] RS Official Gazette, Nos 54/2009, 73/2010, 101/2010, 101/2011, 93/2012, 62/2013, 63/2013 – correction, 108/2013, 142/2014, 68/2015 – other law, 103/2015, 99/2016, 113/2017, 95/2018, 31/2019, 72/2019, 149/2020, 118/2021, 118/-2021 – other law, 138/2022 and 92/2023.

[17] The primary fiscal result is the fiscal result adjusted for the impact of paid and charged interest and it shows whether the realised fiscal revenues suffice to cover fiscal expenditures other than those arising from public debt servicing.

government climbed by RSD 370.0 bn y-o-y. The strongest growth was recorded for current revenues (by RSD 343.5 bn), and within that category for those originating from tax (by RSD 319.0 bn). When it comes to tax revenues, the key impetus to growth came from contributions (which increased by RSD 108.6 bn y-o-y owing to favourable labour market developments) and VAT, notably VAT in the country (by RSD 92.3 bn). A considerable rise was also registered in corporate profit tax revenue which turned out 30.1% higher than a year ago.

Total public expenditure of the general government increased by RSD 326.2 bn relative to 2022, driven mainly by current and capital spending. Current expenditure went up by RSD 409.9 bn from the previous year, reflecting primarily higher expenditures for social assistance and transfers (RSD 172.4 bn), due above all to higher outlays for pensions, as well as expenditures for employees (RSD 80.0 bn) and the purchase of goods and services (RSD 71.1 bn). On the other hand, spending on budget loans decreased in 2023 by RSD 132.2 bn owing to a better situation in the energy market.

Spending on subsidies increased considerably relative to 2022 (by RSD 53.3 bn or 33.2%) and its share in GDP reached 2.6% (2.3% in 2022). Most of the subsidies in 2023 went to agriculture.

Amid mounting cost of funding, interest payment expenses climbed by RSD 42.1 bn from 2022 to RSD 149.3 bn in 2023.

Rising by RSD 42.5 bn on the year before, capital investment reached an all-time high in 2023. At 15.6%, the share of capital expenditure in total general government expenditure remained close to the level recorded in 2022 (15.8%), while its share in GDP contracted from 7.4% in 2022 to 7% thanks to the 2023 growth. Given the importance of infrastructure improvements for long-term sustainable economic growth, as well as planned infrastructure investments, the maintenance of the achieved level of investment in capital expenditures will remain a fiscal policy priority going forward. Investments in transport, utility and energy infrastructure are expected to continue in the medium term, as well as projects associated with the Expo 2027.

At the meeting held on 19 December 2022 the IMF Executive Board approved to the Republic of Serbia a Stand-by Arrangement (SBA) worth 290% of the country's quota in the IMF, which is equivalent to around SDR 1.89 bn or EUR 2.4 bn. The arrangement was approved for a 24-month term, in support of the agreed economic programme. In the course of 2023, the IMF concluded two reviews of Serbia's performance under the SBA. The first review was concluded in June, with the IMF stating that Serbia's performance under the arrangement was on track and that all the relevant criteria were met. On the same occasion, the IMF concluded Article IV consultations with Serbia, which are implemented in member countries within the IMF's regular surveillance activity. The previous round of Article IV consultations with Serbia took place in 2021.

The second review was concluded in December. Given the considerable accumulation of reserves, the creation of fiscal room and sustainable financing of the balance of payments, the Serbian authorities decided to treat the SBA as precautionary in the remainder of the arrangement, which is one review earlier than expected at the time of SBA approval. In March 2024, the IMF mission and the Serbian delegation held talks within the third review of the implementation of the agreed economic programme. It was concluded that macroeconomic outturns remained strong against the background of growth recovery, a solid fiscal position, disinflation, record high FX reserves and a robust labour market, as well as that all quantitative targets for end-2023 were met and that good progress was made on structural reforms. It was also stated that macroeconomic results in 2023 exceeded expectations despite numerous challenges from the global and regional environment.

In the medium run, fiscal policy will remain focused on a gradual and moderate consolidation, with the implementation of targeted measures to support vulnerable categories of households and businesses, continuation of government investment in infrastructure and strengthening of capital investment in the energy sector.

I.4.2 Public debt

Despite the impact of the international energy crisis on the growth in budget expenditure and energy procurements, the share of public debt in GDP has been on a downward trajectory since 2021. At end-2023, the share of central government debt in GDP came at 52.0%, down by 3.1 pp from end-2022 (Chart I.4.3). At the same time, the share of general government debt, which includes the non-guaranteed debt of local governments and AP Vojvodina, amounted to 52.3% of GDP, or 3.2 pp less than a year ago.

Observed in absolute amounts, central government debt equalled EUR 36.2 bn at end-2023 (EUR 33.3 bn at end-2022) and general government debt EUR 36.4 bn (EUR 33.6 bn at end-2022).

The share of debt in foreign currency at end-2023 was high (78.3%), indicating the presence of FX risk (Charts I.4.4 and I.4.5).

Relative to the previous year, the dinar share of public debt shrank by 3.5 pp, to 21.7%, while the euro share expanded by 1.9 pp, to 57.7%. The share of public debt in the US dollar contracted by 0.9 pp, to 13.4%.

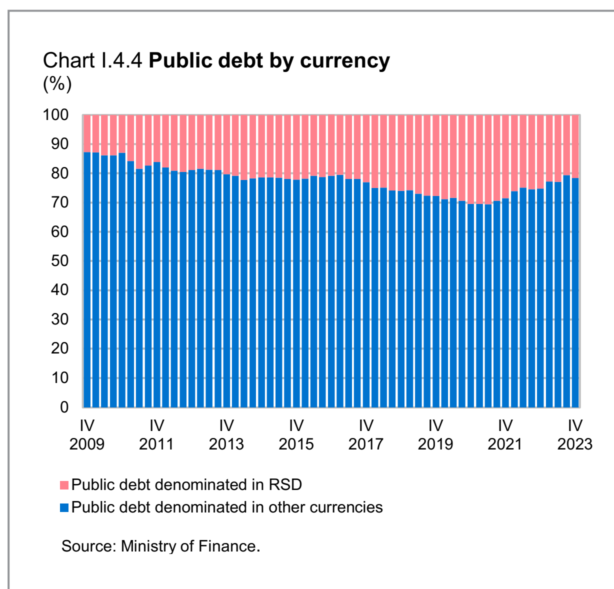
The share of debt at a fixed interest rate declined by 9.7 pp y-o-y, to 72.6% at end-2023 (Chart I.4.6). Despite the decline, the share of debt at a fixed interest rate remains relatively high, which means that public debt is not significantly exposed to the risk of interest rate changes.

In the course of 2023, the government borrowed also by selling securities in the local and international market. The share of government securities in total central government public debt measured 50% in 2023 (Chart I.4.7).

In January 2023, the Republic of Serbia tapped the international financial market by a dual tranche of dollar eurobonds, with 5Y and 10Y maturity, worth USD 1.75 bn in total, at the coupon rates of 6.25% and 6.50%, respectively. The demand for these bonds was more than six times higher than the issue size (over USD 11 bn). Also, with a view to managing public debt efficiently, Serbia immediately concluded swap (hedging) transactions, whereby it converted the liabilities arising from the issue of dollar eurobonds into euros. This not only reduced exposure to the FX risk (movements of the EUR/USD exchange rate), but also the cost of Serbia's borrowing.

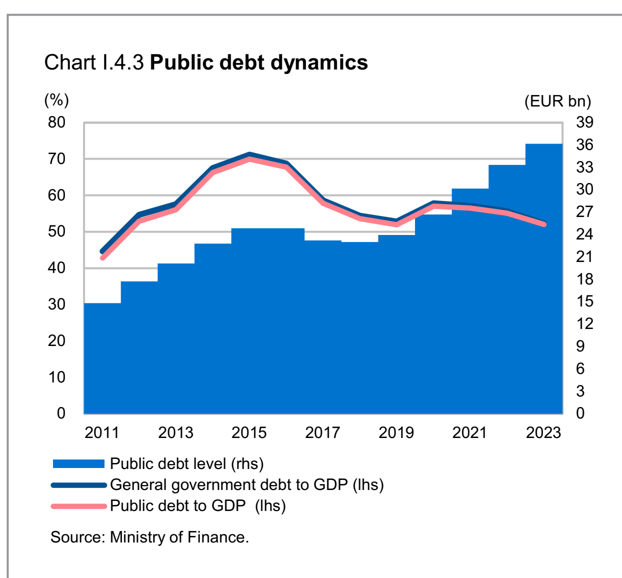
In late October 2023, the government issued for the first time an 8Y dinar bond. In addition to financing the budget deficit and refinancing due liabilities in respect of public debt, the funds raised will be used to finance projects within the Expo 2027. Due to record high investor demand, the initial volume of the issue was increased in late January 2024 by additional RSD 40 bn, to RSD 150 bn in total. The bonds were issued at a coupon rate of 7%, while effective rates on issue re-openings receded from 6.39% (first auction in October 2023) to 6% in the last auction held in March 2024. By the end of February 2024, the new 8Y dinar bond was included in the renowned J.P. Morgan GBI-EM Index, which already included three benchmark dinar government bonds (from June 2021). This inclusion is a clear signal to international investors about the attained level of development of our economy and market and will have multiple positive effects on the local financial market and enable even better financing conditions for Serbia. Additional diversification of the

Chart I.4.4 **Public debt by currency**



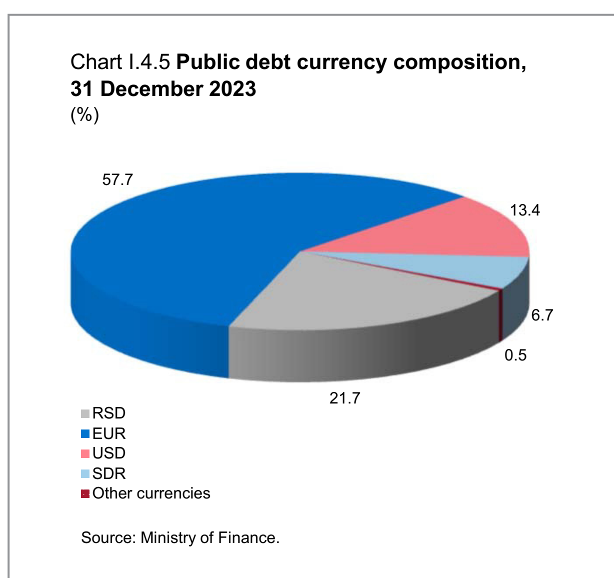
Source: Ministry of Finance.

Chart I.4.3 **Public debt dynamics**



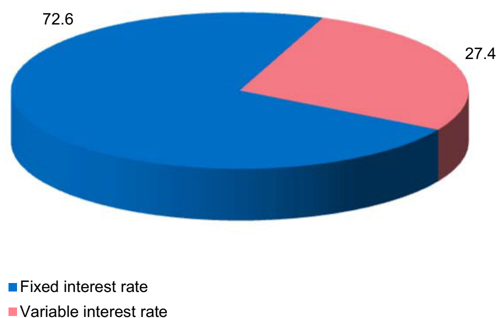
Source: Ministry of Finance.

Chart I.4.5 **Public debt currency composition, 31 December 2023**



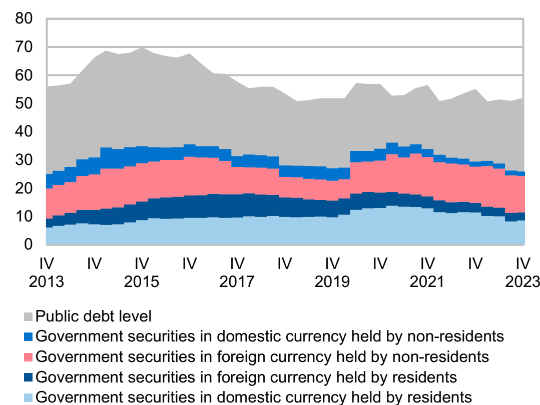
Source: Ministry of Finance.

Chart I.4.6 **Public debt interest rate composition, 31 December 2023**
(%)



Source: Ministry of Finance.

Chart I.4.7 **Public debt in government securities**
(% of GDP)



Source: NBS, based on data of the Ministry of Finance.

already broad investor base is also expected as the inclusion of dinar bonds in the said index significantly contributes to Serbia's attractiveness as an investment destination.

In mid-January 2023, for the second time the Republic of Serbia issued restitution bonds,[18] which regulate its liabilities in accordance with the Law on Property Restitution and Compensation.[19] Namely, the government issued 5Y, 10Y and 12Y bonds in the total amount of EUR 40.1 mn.

The positive perception of Serbia as an investment destination is also indicated by the credit rating maintained at a step away from investment grade, despite heightened uncertainty in the international environment. Standard & Poor's kept Serbia's credit rating in April and October 2023 at BB+, with a stable outlook. In early April 2024, Standard & Poor's again affirmed Serbia's rating at BB+, a notch below investment grade, but raised the outlook from stable to positive. In its reports, the agency stated that Serbia's rating is underpinned by a moderate public debt level and a credible monetary policy framework, as well as that uncertainty in the international environment remains considerable, but that Serbia manages to offset external challenges by favourable domestic trends and appropriate economic policies.

In February and August 2023 and in February 2024, Fitch Ratings kept Serbia's credit rating a step away from investment grade, at BB+ with a stable outlook. Fitch explained the decision by a credible economic policy framework, higher GDP per capita compared to rating peers, as well as orderly public finance and a downward trajectory of public debt.

In September 2023, Moody's affirmed Serbia's credit rating at Ba2, as well as a stable outlook. Moody's stressed favourable growth outlook over the medium run underpinned by considerable and diverse FDI inflow, economic resilience to unfavourable trends from the international environment, sound public finances and fiscal room for responding to potential shocks, as well as progress in the implementation of structural reforms.

I.4.3 External debt

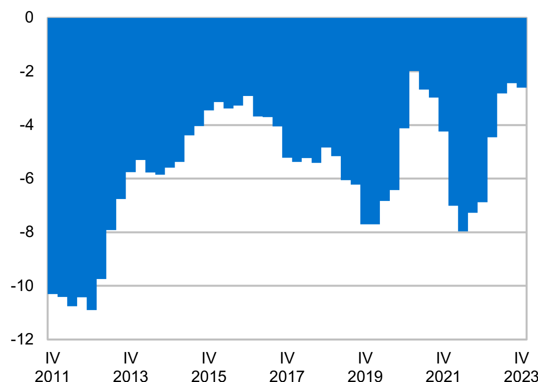
External position improved in 2023 owing to a decrease in the deficit on trade in goods and an increase in the surplus on trade in services. The current account deficit was cut by almost EUR 2.4 bn – from EUR 4.2 bn in 2022 to EUR 1.8 bn in 2023. The share of the current account deficit in GDP was slashed from 6.9% in 2022 to only 2.6% in 2023, this being a record low share of the current account deficit in GDP at the annual level (Chart I.4.8). The deficit narrowing in 2023 can be put down to a lower deficit on the energy balance, thanks to a decline in global energy prices, smaller import quantities and increased electricity exports.

Despite a decrease in demand from the EU and the region, Serbia's exports of goods and services showed resilience in 2023 as well, rising by 7.9% y-o-y on the back of product- and geography-diversified and export-oriented

[18] Restitution government bonds were issued for the first time in January 2022.

[19] RS Official Gazette, Nos 72/11, 108/13, 142/14, 88/15 – CC decision, 95/18 and 153/20.

Chart I.4.8 **Current account***
(% of GDP)

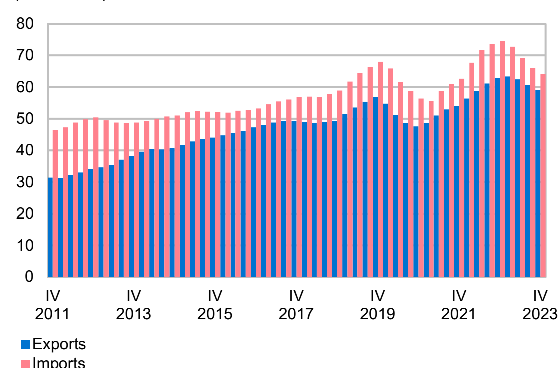


* Moving sums for the last four quarters.
Source: NBS.

investment. EU countries remained Serbia's key trade partners, absorbing 63.2% of its exports and 56.9% of imports. The largest share in exports in 2023, according to SITC sections, was that of electrical machinery, apparatus and appliances (12.6%).[20]

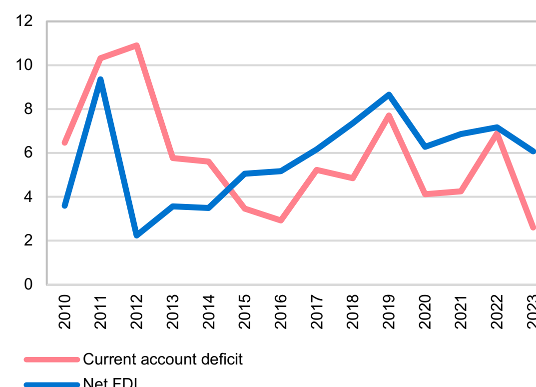
Imports of goods and services dropped by 1.0% y-o-y (Chart I.4.9), reflecting, inter alia, lower imports of intermediate goods, a category that includes energy (energy imports decreased by EUR 1.7 bn relative to 2022). On the other hand, imports of services increased considerably in 2023, led by the imports of tourist and other business services, as well as transport services.

Chart I.4.9 **Exports and imports***
(% of GDP)



* Moving sums for the last four quarters.
Source: NBS.

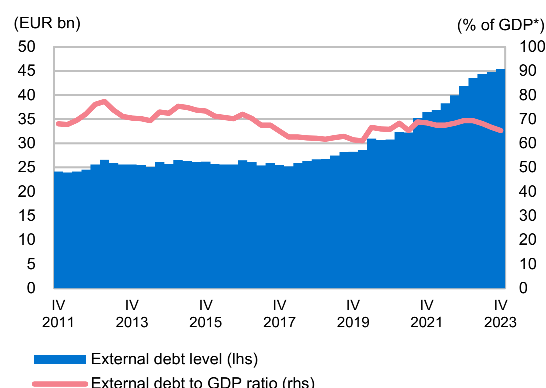
Chart I.4.10 **Current account deficit financing via FDIs**
(% of GDP)



Source: NBS.

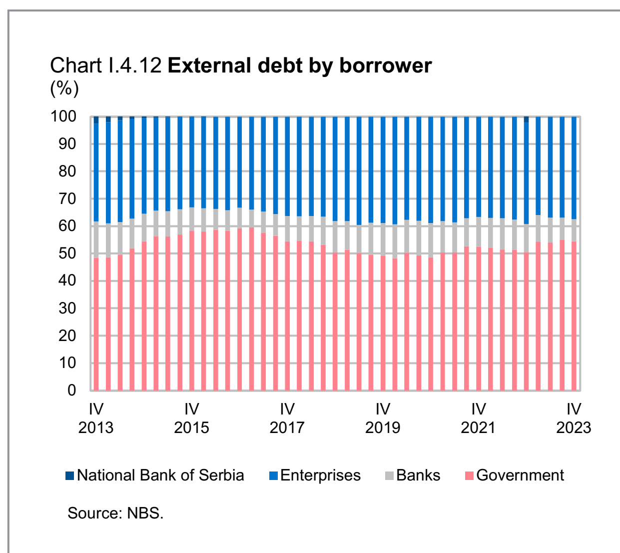
Macroeconomic and financial stability and structural reforms have created an environment conducive to FDI. In 2023, for the second year in a row, FDI inflow touched a new high, amounting to EUR 4.5 bn (in net terms, EUR 4.2 bn or 6.1% of GDP) (Chart I.4.10) and covering the current account deficit multiple times. Investments remained geographically dispersed, with a growing share of countries from Asia, in addition to the EU as the main trade partner of Serbia. FDI is mostly channelled to export-oriented sectors. Looking at their structure, the bulk of investments went to manufacturing (in the branches recording a strong increase in employment, production and exports), construction, mining and trade. A significant portion of FDI took the form of equity and reinvested

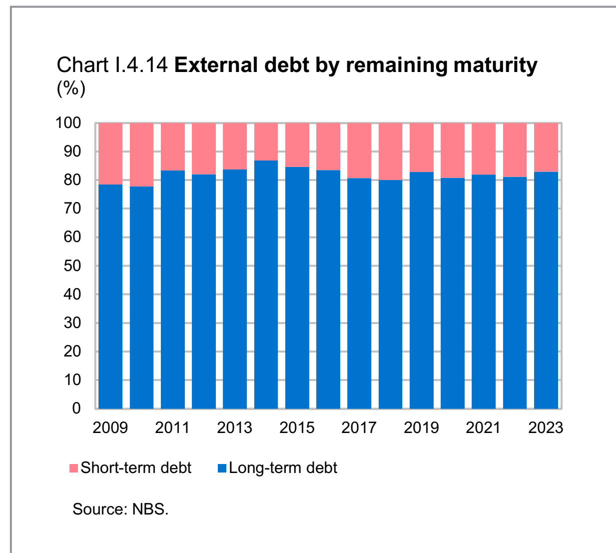
Chart I.4.11 **External debt dynamics**



* Moving sums for the last four quarters.
Source: NBS.

[20] https://www.mfin.gov.rs//upload/media/wpx5G7_65f1851683af0.pdf.





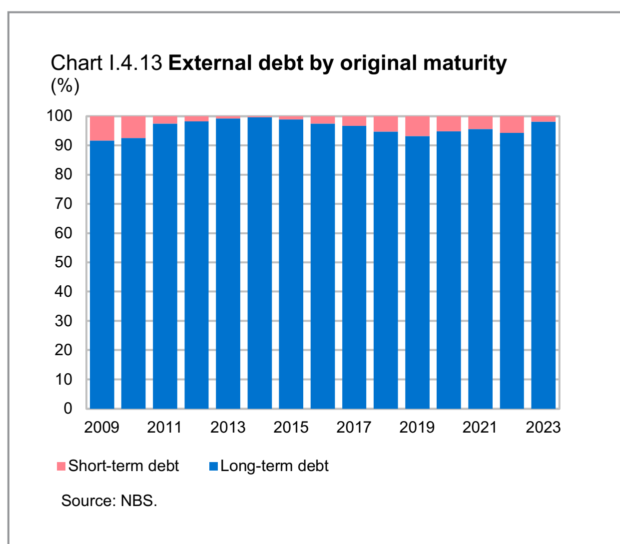
earnings, attesting to investors' unwavering commitment to Serbia. Net FDI inflow is expected to continue fully covering the current account deficit in the period ahead, just as it did in the past nine years (2015–2023).

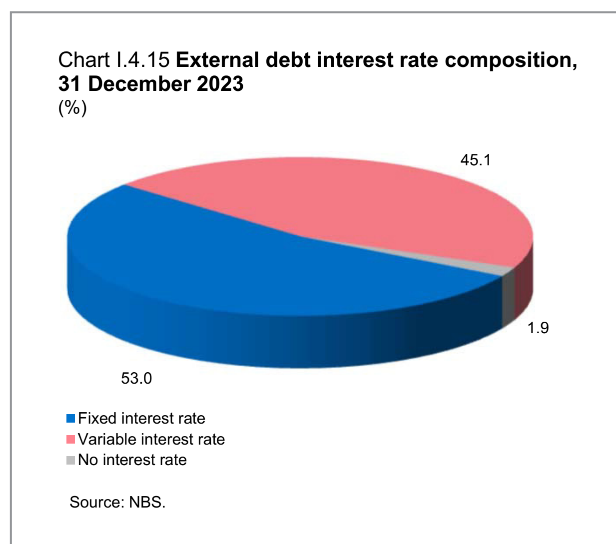
At end-2023, external debt amounted to EUR 45.4 bn or 65.3% of GDP. Relative to end-2022, total external debt increased by EUR 3.5 bn, while its share in GDP contracted by 4.1 pp (Chart I.4.11).

External debt increase in 2023 is due to both public and private sector borrowing. Relative to the previous year, public sector external debt went up by EUR 3.6 bn.[21] At the same time, private sector debt climbed by EUR 0.9 bn, with banks downsizing their debt by EUR 0.6 bn and corporates and households increasing their debt by EUR 1.5 bn (Chart I.4.12).

The risk of external debt refinancing is relatively low, given that its maturity structure is favourable. The share of external debt with original and remaining maturity of over one year is high, measuring 98.1% at end-2023 (Chart I.4.13) and 82.9% (Chart I.4.14), respectively.

Of the total external debt, 53.0% of liabilities are agreed at a fixed interest rate, 45.1% at a variable rate and 1.9% at no interest rate at all (Chart I.4.15). Relative to 2022, the share of external debt paid at a fixed rate contracted by 2.3 pp. The share of external debt paid at variable rates is concentrated in the banking sector (91.7%), while in the public, corporate and household sectors the largest share is that of debt paid at a fixed rate.





[21] Excluding the NBS's debt in respect of arrangement with the IMF.

I.5 Corporate sector

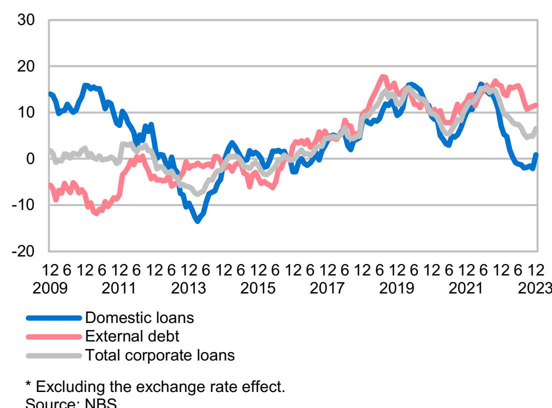
Corporate lending slowed down in 2023, recording by the end of the year a mild y-o-y growth. The share of corporate NPLs at end-2023 remained low, unchanged from last year, indicating that the rise in interest rates did not worsen the corporate capacity to service liabilities arising from loans.

Corporate lending activity lost pace in 2023 due to the monetary tightening by the NBS and the ECB and banks' tightened credit standards, coupled with the maturing of guarantee scheme loans and high last year's base. Excluding the exchange rate effect,[22] domestic corporate loans[23] posted a y-o-y drop in the period May–November 2023, only to recover in December 2023. Thus, they increased by 0.9% y-o-y at year end (Chart I.5.1). Excluding the exchange rate effect, the rise in total corporate lending, which includes external debt as well, measured 6.0% y-o-y at end-2023. External corporate debt increased by 10.6% in 2023 (Chart I.5.1).

The increase in corporate loans in late 2023 was led by investment loans. As in the previous period, the dominant share in corporate lending at end-2023 pertained to liquidity and working capital loans (46.8%), followed by investment loans (41.9%).

Total bank receivables[24] from the corporate sector at end-2023 rose 0.9% in nominal terms relative to end-2022, driven mostly by receivables from the sectors of real estate, scientific and service activities, art, entertainment and recreation worth RSD 14.1 bn (or by 7.9%), followed by construction worth RSD 12.0 bn (or by 8.3%). Conversely, the sharpest decline was recorded by electricity, gas, steam supply and air conditioning, followed by agriculture, forestry and fishing (by RSD 6.1 bn each). The bulk of bank receivables from corporates at end-2023 were receivables from the sector of mining, manufacturing and water supply worth RSD 467.2 bn (27.7% of total receivables), followed by the sectors of wholesale and retail trade, and repair of motor vehicles and motorcycles worth RSD 381.2 bn (22.6% of total receivables), as well as transport and warehousing, accommodation and food services, and ICT worth RSD 224.9 bn (13.3% of total receivables) (Chart I.5.2).

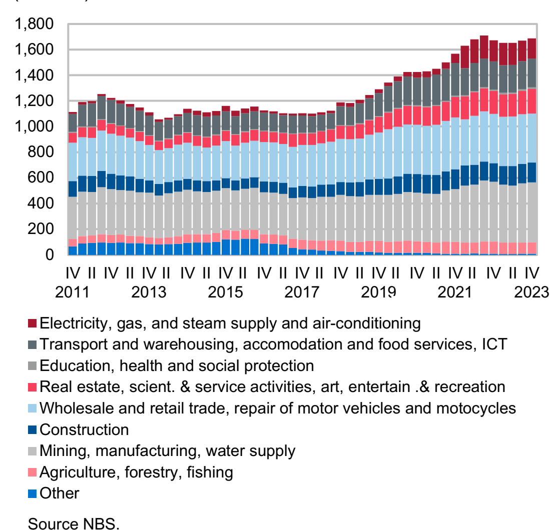
Chart I.5.1 **Corporate credit activity***
(y-o-y growth rates, %)



* Excluding the exchange rate effect.
Source: NBS.

The Bank Lending Survey indicates that in 2023 banks kept tightening corporate credit standards amid a rise in the cost of funding, uncertainty as to the overall economic situation and stronger risk aversion, NPLs and the quality of required collateral, as well as lower competition in the banking sector due to mergers. The tightening affected mostly FX and FX-indexed loans, and in terms of the size of enterprises, it mostly affected large enterprises. Conditions for corporate loan approval were

Chart I.5.2 **Bank claims on corporates, by sector**
(RSD bn)



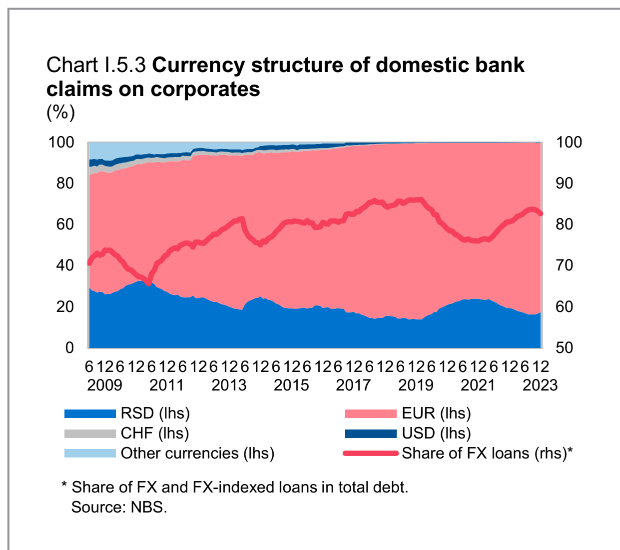
Source NBS.

[22] Calculated at the dinar exchange rate against the euro, Swiss franc and US dollar as at 31 October 2022 (the programme exchange rate used for monitoring the performance under the stand-by arrangement with the IMF), taking into account the currency structure of loan receivables.

[23] The corporate sector includes the public non-financial sector, companies and the non-financial sector undergoing bankruptcy.

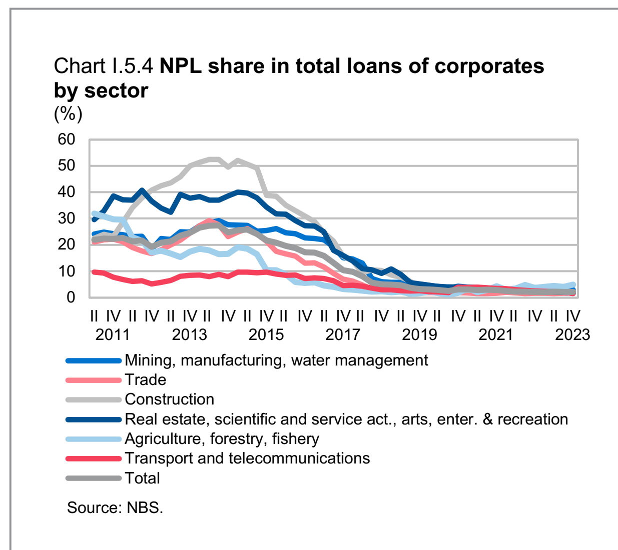
[24] Receivables include loans, securities, interests, fees and shares.

Chart I.5.3 **Currency structure of domestic bank claims on corporates**



* Share of FX and FX-indexed loans in total debt.
Source: NBS.

Chart I.5.4 **NPL share in total loans of corporates by sector**



Source: NBS.

tightened in parallel (maximum loan amount, collateral requirements, fees and commissions). On the other hand, banks assessed that interest margins on corporate loans decreased in Q4 2023, for the first time since end-2020.

Loans approved to micro enterprises and SMEs[25] accounted for 59.1% of total corporate loans at end-2023. In y-o-y terms, the volume of lending to medium-sized enterprises increased by 4.1%, while it dipped in the case of small and micro enterprises, by 6.1% and 6.2%, respectively. Loans granted to large enterprises accounted for 40.9% of total corporate loans, recording 4.4% y-o-y growth.

By maturity, at end-2023, long-term receivables were dominant. The share of long-term loans in total corporate loans measured 88.2%, up by 6.4 pp relative to end-2022, indicating a low risk of refinancing in the corporate sector.

As guarantee scheme loans, predominantly approved in dinars, were maturing in 2023, the degree of dinarisation of corporate sector receivables dropped. At end-2023, the share of dinar receivables in total bank receivables from corporates equalled 17.3%, down by 2.1 pp from end-2022 (Chart I.5.3). Almost all FX and FX-indexed receivables pertain to euro receivables, whose share rose by 2.1 pp. To reduce exposure of the corporate sector to the currency risk, the NBS is actively promoting the use of hedging instruments, attempting to lower the risk of exchange rate volatility and in turn contribute to the strengthening of financial stability. Hedging instruments offered in the market are FX forward contracts (FX forwards), covered FX forward purchases (covered forwards) and currency swaps.

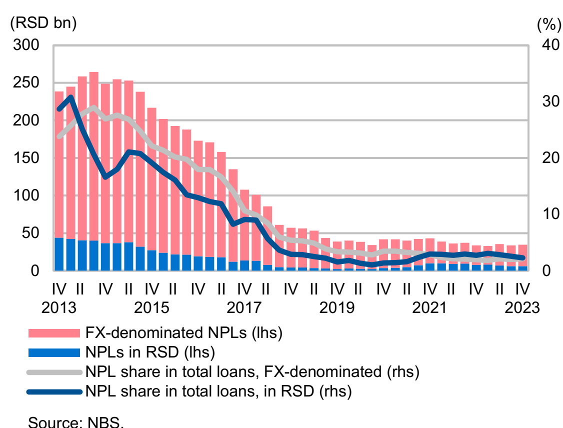
The share of NPLs in total corporate loans (companies and public non-financial sector) measured 2.1% at end-2023. This share remained low, unchanged from last year, indicating that the rise in interest rates did not worsen the corporate capacity to service liabilities arising from loans. Unchanged share of NPLs in total corporate loans in 2023 was recorded amid an increase in the amount of the sector's NPLs by RSD 0.9 bn (2.6%) and a rise in total corporate loans by RSD 14.7 bn (0.9%).

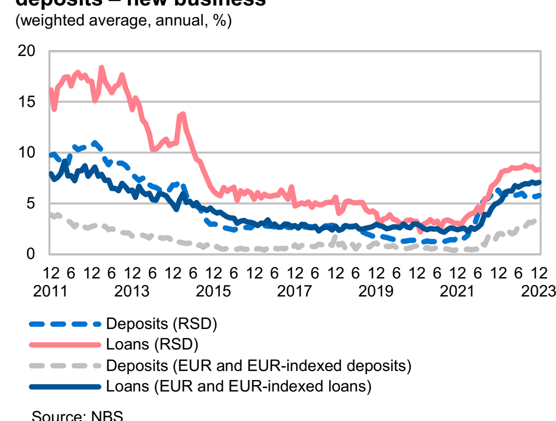
Since the adoption of the NPL Resolution Strategy in August 2015, the share of NPLs of this sector dropped by 22.3 pp at end-2023. The share of NPLs declined in all economic branches, mostly in construction (by 47.6 pp) and real estate, scientific and service activities, arts, entertainment and recreation (by 36.5 pp).

The persistent low share of NPLs in total corporate loans even amid geopolitical risks, rising costs of loan repayment and economic slowdown, is yet another confirmation of the effectiveness of the systemic approach to NPL resolution in Serbia. Also, the fact that this share is below the pre-pandemic level indicates that well-timed and adequate NBS measures during the pandemic prevented an adverse impact on the corporate sector and, in turn, on financial stability.

The share of NPLs in total loans to companies edged up negligibly by 0.1 pp to 2.4% at end-2023 relative to end-

[25] Legal persons are classified in line with the provisions of the law governing accounting.





2022, while the share of NPLs of the public non-financial sector fell by 0.5 pp to 0.2%.

Observed by sector, 2023 saw the sharpest decline of NPLs in transport and warehousing, accommodation and food services, and ICT by RSD 1.9 bn (a drop in the share by 1.0 pp to 1.5%) and in construction by RSD 1.1 bn (a decline in the share by 1.0 pp to 2.2%). The highest increase in 2023 was recorded in mining, manufacturing, water supply, waste management and similar activities by RSD 3.4 bn (an increase in the share by 0.7 pp, to 2.9%) and wholesale and retail trade by RSD 0.9 bn (a rise in the share by 0.2 pp, to 1.8%) (Chart I.5.4).

Sector-wise, at end-2023 the sharpest y-o-y decline in the share of NPLs in total loans to companies was recorded in construction (by 1.1 pp), and the strongest rise in agriculture, forestry and fishing (by 1.1 pp).

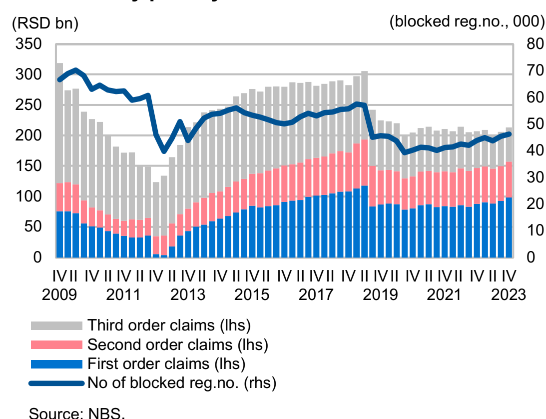
In terms of the currency structure (Chart I.5.5), the share of corporate FX-denominated NPLs stood at 2.1% at end-2023, up by 0.1 pp y-o-y. The share of dinar NPLs stood at 2.3% at end-2023, down by 0.5 pp.

In 2023, banks wrote off RSD 3.6 bn[26] and sold RSD 1.4 bn of corporate NPLs to entities outside the banking sector.

In 2023, borrowing costs of corporates increased, albeit to a lesser degree relative to 2022 (Chart I.5.6). Observing the costs of borrowing in dinars, in December 2023, the weighted average interest rate on new dinar loans stood at 8.33%, up by 1 pp from December 2022. The weighted average rate on new euro and euro-indexed loans also increased to 7.07% in December 2023 (2.0 pp higher than in December 2022). The interest rate on term dinar deposits of the corporate sector decreased by 0.55 pp y-o-y, to 5.77% in December 2023, while that on euro deposits rose by 1.03 pp y-o-y, to 3.03%.

At end-2023, there were 46,157 corporates with blocked accounts (Chart I.5.7), up by 5.5% from 2022. The amount of blocked funds in the accounts increased from last year by 2.9%, to RSD 212.9 bn in 2023.

In 2023, the NBS Enforced Collection received from competent commercial courts 404 decisions to open bankruptcy proceedings against debtors (down by 34



[26] Including write-offs of NPLs of the non-financial sector undergoing bankruptcy.

from 2022), and 336 decisions to close bankruptcy proceedings (down by 26 from 2022). Further, it also received: 17 decisions on suspension of the bankruptcy proceedings (15 in 2022) and 45 decisions on suspension of the proceedings in order to sell the debtor's assets (61 in 2022). In addition, the NBS received 51 decisions on instituting a preliminary bankruptcy procedure with safeguard measures (65 in 2022), and 14 decisions on the adoption of the pre-pack reorganisation plans (19 in 2022).

In 2023 the Government announced public calls for the allocation of grants within the programme to encourage the development of entrepreneurship (for young people, women and start-ups) and the programme to support small businesses. As in the previous years, in 2023 the Government announced allocations of grants within the Programme for stimulating entrepreneurship through development projects. Entrepreneurs, micro enterprises, SMEs and cooperatives registered with the Business Registers Agency, who have not operated with losses in the past two years and meet the requirements of this programme, have the right to apply for this grant and the right to apply for a loan from the Development Fund of the Republic of Serbia. Grants worth RSD 900,000,000 were provided for the implementation of this programme, intended for:

1) purchase, construction, extension, reconstruction, refurbishment, repairs, investment maintenance of production or business premises which are part of production premises or warehouse for own products, raw materials and intermediate goods;

2) purchase of machinery and equipment, including tools, as well as for delivery vehicles for transporting own products and other means of transport used in the production process;

3) permanent working capital, which does not exceed 10% of the total investment;

4) procurement of software and computer equipment.

The objective of this programme is to increase the value and volume of production and turnover, encourage balanced regional development, support employment, strengthen competitiveness and protect the environment.

In September 2023, the Republic of Serbia signed the agreement on participation in the EU Single Market Programme. Joining this programme enables local companies to participate in calls for projects which raise the competitiveness of SMEs. Serbian companies will be on an equal footing with organisations from full-fledged EU member states when applying for EU funds provided by the Single Market Programme.[27]

[27] https://www.mfin.gov.rs/aktivnosti/mali-potpisan-sporazum-izmeu-eu-i-srbije-o-ueu-nae-zemlje-u-programu-jedinstvenog-trita-eu.

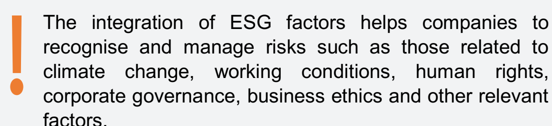
Text box 1: ESG concept – from reputational opportunity to legal obligation

The ESG (Environmental, Social and Governance) concept is a set of factors related to the environment, social responsibility and corporate governance, which companies consider when managing their operations and investors when making investments, and which relate to the associated risks, impacts and opportunities.[28] This concept gained particular importance after 2004, when the United Nations, in cooperation with key financial institutions – examining the importance of responsible and sustainable business when making investment decisions – published the report "Who Cares Wins".[29] Significant progress has also been achieved since the *Transforming our World: the 2030 Agenda for Sustainable Development*[30] was adopted in 2015, incorporating 17 Sustainable Development Goals to be achieved by 2030, and pertaining to all three dimensions of sustainable development: economic growth, social inclusion and environmental protection.[31]

The term ESG includes three groups of elements – environmental, social and governance elements. The first element of the ESG principle – environmental, or the environmental conservation element, focuses on assessing how a company manages environmental challenges and covers a wide range of topics such as climate change, environmental pollution, waste management, carbon dioxide emissions, use and conservation of natural resources, opportunities to use and invest in clean technology, renewable and green energy, etc. The second element – social, i.e. the social responsibility element, pertains to how the company manages its relations with employees, customers, suppliers, local communities and other stakeholders. This includes aspects such as fair working conditions, diversity and inclusion, occupational health and safety, community relations and a positive social impact. The third element of governance evaluates the structure and mechanisms of company management and includes topics such as business ethics and culture, gender equality, ownership structure, adequate selection of board members in terms of age, gender, education and professional experience, anti-monopoly and anti-corruption practices, tax and accounting transparency, risk management, internal control mechanisms, etc.

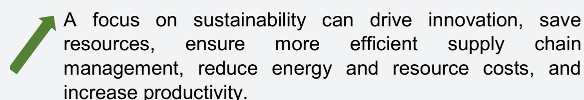
The benefits of doing business in accordance with ESG criteria

Reducing risk and increasing resilience



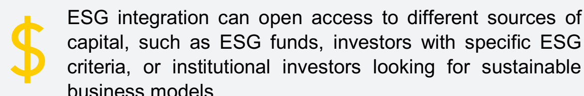
The integration of ESG factors helps companies to recognise and manage risks such as those related to climate change, working conditions, human rights, corporate governance, business ethics and other relevant factors.

Better performance



A focus on sustainability can drive innovation, save resources, ensure more efficient supply chain management, reduce energy and resource costs, and increase productivity.

Access to investments and capital



ESG integration can open access to different sources of capital, such as ESG funds, investors with specific ESG criteria, or institutional investors looking for sustainable business models.

Building trust and reputation

A commitment to sustainability, responsible practices and transparency in reporting can significantly improve reputation and influence building trust with stakeholders, including customers, suppliers, employees, investors and public. Companies that are recognised as socially responsible are more likely to attract loyal customers and talent.

Compliance with regulatory requirements

Authorities and regulatory bodies are increasingly introducing regulations requiring companies to report on ESG factors or meet certain sustainability standards. ESG integration enables businesses to adapt to those requirements in a timely manner and ensure regulatory compliance. This can reduce the risk of fines, legal problems and damage to the company's reputation.

Source: *The Short Guide to ESG*, UNDP

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[28] The definition of the International Finance Corporation (https://www.ifc.org/content/dam/ifc/doc/mgrt/ifc-esg-guidebook.pdf).
[29] Who Cares Wins – Connecting Financial Markets to a Changing World, Global Compact.
(https://www.unepfi.org/fileadmin/events/2004/stocks/who_cares_wins_global_compact_2004.pdf).
[30] Transforming our World: the 2030 Agenda for Sustainable Development (A/RES/70/1).
(https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf).
[31] UN: The 17 goals (https://sdgs.un.org/goals).

With mounting ESG challenges, particularly the rise of global temperatures, which are reaching record levels, and growing inequalities among the population, the need to undertake numerous measures and activities to protect the environment, society and corporate governance is becoming increasingly apparent. The integration of ESG principles into a company's business strategy brings numerous advantages – from reducing risk and increasing resilience, through better performance, easier access to investments and capital, to building consumer trust and reputation, and compliance with regulatory requirements.[32]

Companies that define an appropriate ESG strategy stand out as companies with a long-term vision, credibility among consumers and clients, additionally motivated and engaged employees, including other advantages. A better and more transparent ESG risk management practice creates value in the long term, increases consumer loyalty and strengthens stakeholder support.[33]

By impacting the real economy, ESG factors are increasingly influencing the financial system as well. Financial institutions, as well as companies from other sectors, affect the environment, society and governance through their operations. However, the role of financial institutions in this process is even more significant, since they can provide financing for the transition to a sustainable economy. Compliance with ESG business principles is an important criterion when making investment decisions, given that investors often choose to invest in the so-called green financial instruments or in companies that operate in accordance with these principles or, on the other hand, refuse to invest in projects or in companies that adversely affect the environment, society and governance. Given the role that banks play in regional and national economies, they are in a position to lead the ESG transition within the financial sector, primarily as investors, but also as advisors. From the financial aspect, banks can give priority to sustainable economy projects and channel their funds either to projects that are already aligned with ESG principles, or to those that are transitioning to a sustainable economy. Also, using advanced technologies, banks can create environmentally friendly products and services and thus support their clients in their ESG transition. This is why companies, as clients of banks, consider the impact of ESG factors on their business when making business, especially long-term plans. On the other hand, by offering their experience and knowledge through professional and educational programmes to the public, communities and clients, banks can increase and raise awareness of ESG operations. Experience in working with different industries, as well as with large databases, creation of methodologies and predictive models, aimed at identifying potential risks and their minimisation, are extremely important for clients in order to better plan their business.[34] In addition to their basic role of investors, banks thus have an equally important advisory role.

Given that issues related to the environment, social responsibility and corporate governance can significantly affect the performance of companies, they can consequently lead to risks to financial stability, primarily through the exposure of banks and insurance undertakings to these companies. In this regard, climate risks are particularly pronounced, which due to physical (a negative impact of natural disasters on company's operations and assets) or transition (a negative impact of tightening regulatory requirements for certain technological processes) risks can lead to large losses of the company, and thus to the deterioration in the credit quality of banks and an increase in insurance claims, which may result in the loss of financial institutions.[35] Risks created by social inequalities can influence economic policy makers to facilitate household borrowing for consumption, which may give rise to financial instability in the medium term.[36]

Given the exposure of the financial sector to the above risks, supervisors and central banks integrate ESG principles, especially risks related to climate change, into the monitoring and assessment of financial stability, and their scenario analyses (stress testing).[37] In order to preserve monetary and financial stability, supervisors and central banks may apply microprudential and macroprudential, as well as similar measures to mitigate ESG risks, if necessary. It is evident that the role of supervisory authorities and central banks, either as economic policy makers and supervisors or as advisors, is

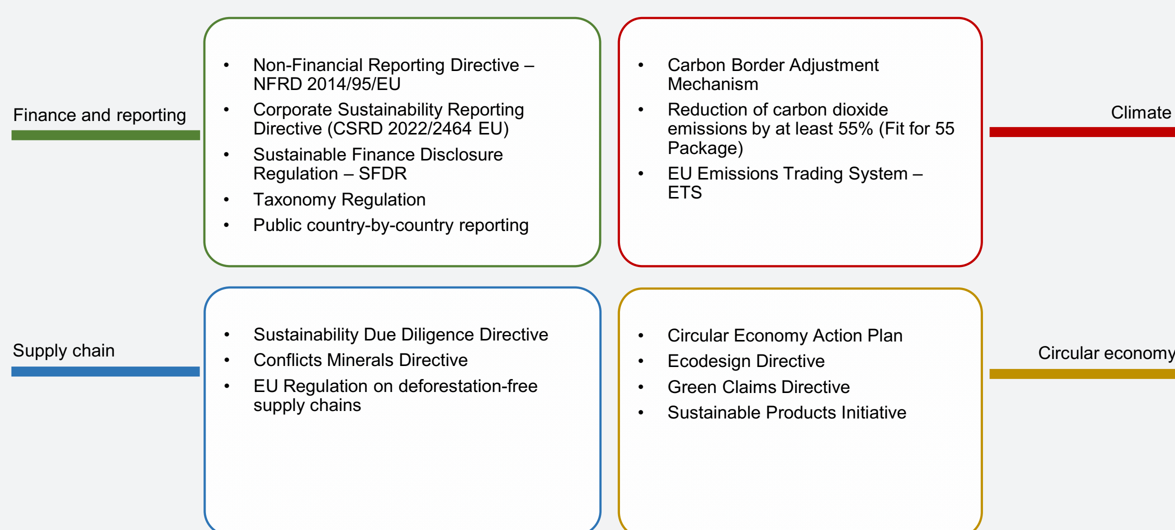
[32] The Short Guide to ESG (https://ras.gov.rs/uploads/2023/08/undp-esg-kratki-vodic-final.pdf).
[33] See stakeholders: The Short Guide to ESG (https://ras.gov.rs/uploads/2023/08/undp-esg-kratki-vodic-final.pdf).
[34] UNDP Serbia: ESG Business Principles Important for Both Banks and Investors (https://www.undp.org/ESGBankeInvestitori).
[35] For more information about the impact of climate risks on the operation of financial institutions see: Annual Financial Stability Report – 2020, Text box 4: Transition towards a green economy.
[36] Connecting the Dots Between Sustainable Finance and Financial Stability, https://www.imf.org/en/Blogs/Articles/2019/10/10/Blog-connecting-the-dots-between-sustainable-finance-and-financial-stability.
[37] For more information see Text box 3: Climate stress testing – quantitative analysis of the impact of transition climate risks on the Serbian banking sector.

significant for the development of standards, recognition and management of risks, transparency of reporting and, ultimately, for promoting the integration of the ESG concept into investment and business decisions of companies and financial institutions.

With a significant impetus of an increasing number of regulatory requirements that direct companies towards sustainable business practices, ESG topics have become a current trend in modern business. The EU is one of the leaders in the implementation of ESG regulations, which are applicable even to companies outside the EU. Numerous regulations at the EU level were adopted in order to achieve the goals defined by the so-called European Green Deal,[38] which envisages transforming the EU into a modern, efficient and competitive economy, ensuring net zero greenhouse gas emissions by 2050.

With this aim, the EU has adopted a large number of rules that regulate this area, including defining taxonomy, reporting requirements and standards, ESG benchmarks and ratings, reporting requirements for companies, recommendations on fostering a long-term approach to corporate governance, directing capital flows into sustainable economic activities, etc. A set of public policies that have been adopted or are in the process of being adopted at the EU level define new requirements and high expectations for companies in terms of transparency, reduction of carbon dioxide emissions and respect for human rights, which is also reflected in international supply chains.[39]

Overview of EU regulations with a strong impact on ESG



Source: *The Short Guide to ESG*, UNDP.

A significant EU regulation in this area was adopted in 2020 and relates to the EU taxonomy.[40] It established a classification system, i.e. criteria for defining economic activities, which are in accordance with ecological goals, in order to facilitate the directing of investments in economic activities most needed for the transition to a sustainable economy.

Also, the Corporate Sustainability Reporting Directive,[41] which will be applied starting from financial reporting for 2024, aims to increase transparency on ESG compliance, as well as to improve and standardise the publication of non-financial reports. The "double materiality" principle, which the EU insists on, is one of the backbones of this Directive. This principle

[38] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en#transforming-our-economy-and-societies.
[39] *The Short Guide to ESG (https://ras.gov.rs/uploads/2023/08/undp-esg-kratki-vodic-final.pdf).*
[40] EU taxonomy for sustainable activities (https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en#legislation).
[41] Corporate Sustainability Reporting Directive, CSRD (EU) 2022/2464 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022L2464).

implies that relevant topics for companies are determined both in terms of the risk to their business and in terms of the impact that companies have on society. In accordance with EU regulations, all large companies listed on the stock exchange (except for micro enterprises listed on the stock exchange) are required to disclose information on risks and opportunities arising from social and environmental issues, as well as on the impact of their business on society and environment. This Directive will also, through interdependencies in supply chains, indirectly affect other companies outside the EU.

In early 2022, Corporate Sustainability Due Diligence Directive was adopted,[42] defining the requirements related to the prohibition of human rights violations, as well as the requirements related to the preservation of the environment. The Directive, among other things, obliges companies to recognise, prevent and mitigate potential negative impacts on human rights and the environment along the entire supply chain, including subsidiaries, suppliers and business partners, to introduce a mandatory risk assessment process, and to report publicly and transparently about their efforts in this area. The Directive also affects small and medium-sized enterprises from Serbia that wish to have access to the European market and become part of the supply chains of large European companies.[43]

In order to encourage investors' confidence in companies' compliance with ESG principles and to facilitate cross-comparison of companies, an agreement was reached on the proposal of the ESG Ratings Regulation in early 2024. ESG ratings are an increasingly common tool used in sustainable finance, designed to provide useful information to investors about a company's ESG performance and the management of associated risks and opportunities, guiding them through the decision-making process. The aim of the Regulation is to establish the transparency of the methodology and improve the quality of information. According to the new rules, ESG rating providers must be authorised and supervised by the European Securities and Markets Authority, with the obligation to provide transparent information about the methodology used and sources of information.

Given all the above, it is clear that ESG is very much in focus and has grown into a global phenomenon. However, as recent global trends have been characterised by a high degree of uncertainty in terms of macroeconomic trends and the further development of geopolitical tensions, and as the focus in such situations inevitably shifts to solving crisis situations, as well as preserving the monetary and financial stability of countries, further integration of ESG principles should be implemented measuredly and in a way that does not threaten the stability and security of institutions, the economy and society as a whole. In this sense, we wish to quote the sentence with which NBS Governor Jorgovanka Tabaković opened the First Western Balkans Sustainable Investing Forum with the central theme "Response to the corporate sector challenges in turbulent times": "Although *green and digital* are and must be among the priorities of policy makers in this century, the key priority remains *safe and stable*. Because, without stability, there can be no sustainable investing, which we recognise in Serbia."[45]

Keeping pace with world trends and taking into account the well-being of the country, but also of each individual, Serbia is a signatory to important international agreements on the environment, which it has ratified, including the 2030 Agenda for Sustainable Development, the UN Framework Convention on Climate Change, the Paris Agreement on Climate Change, the Kyoto Protocol and the Doha Amendment to the Kyoto Protocol. The Republic of Serbia has played an active role and showed its commitment to the 2030 Agenda from the very beginning as a member of the Open Working Group on Sustainable Development Goals and the Intergovernmental Committee of Experts on Sustainable Development Financing. Serbia was the first European country outside the EU to issue a green instrument in September 2021. The issue of the green eurobond was carried out in accordance with the Green Bonds Principles of the International Capital Market Association, with a clear obligation that the funds be used exclusively for projects in the fields of renewable energy, energy efficiency, transport, water management, pollution prevention and control, circular economy, protection of biodiversity and the environment, as well as sustainable agriculture.

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[42] Corporate Sustainability Due Diligence Directive (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2022:0042:FIN).
[43] NALED: What does the start of applying ESG criteria in the EU from 2024 mean for Serbia (https://naled.rs/vest-sta-za-srbiju-znaci-pocetak-primene-esg-kriterijuma-u-eu-od-2024-8425).
[44] https://www.consilium.europa.eu/en/press/press-releases/2024/02/05/environmental-social-and-governance-esg-ratings-council-and-parliament-reach-agreement/.
[45] Governor Jorgovanka Tabaković's address at the First Western Balkans Sustainable Investing Forum (https://www.nbs.rs/en/scripts/showcontent/index.html?id=18551).

Given the importance of the involvement of financial institutions in the process of green transformation and in general in the concept of sustainable and responsible business, the Association of Serbian Banks, in cooperation with the International Finance Corporation (IFC), conducted a survey among banks in 2022 and 2023 with the aim to determine the extent of banks' need for education in the segment of ESG and sustainable financing, and adopted the Guidelines for Strengthening the Capacity to Implement ESG Practices.[46] In order to achieve sustainable financing, banks are recommended to direct their financial flows into sustainable activities, as well as to introduce periodic monitoring of the ESG performance of the portfolio of loans and/or investments, i.e. policies and procedures that will accompany green products, i.e. products focused on sustainability. When it comes to bank clients, the Guidelines stipulate regular training on ESG standards and practices, including green, social and sustainable products.

The NBS is also committed to sustainable development and intensively monitors the activities of central banks and other relevant institutions in terms of fight against climate change. Also, in managing FX reserves, the NBS keeps in its portfolio green bonds of top international first-class issuers. The NBS also publishes the Report on Social Responsibility on its website,[47] which supports the principles of human and labour rights protection, environmental protection and the fight against corruption. In its capacity as a regulator and supervisor, the NBS conducted a survey among banks in the Republic of Serbia on how climate-related risks affect their operations and what activities banks undertake in this regard. The commitment of the NBS to strengthening the resilience of the financial system to climate risks, as well as its engagement and support for the development of a green and sustainable economy, has been confirmed by its participation in numerous international bodies (the Network for Greening the Financial System and the Workstream on scaling up green finance; it also acts as an observer in the Vienna Initiative Working Group on Climate), as well as cooperation with other European central banks, for the purpose of exchanging experiences and applying best practices in this area.

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[46] Papadakis, M.: "Achieving ESG Practices – Voluntarily and Together", Bankarstvo (https://www.casopisbankarstvo.rs/files/Uvodnik.pdf).
[47] NBS | Social responsibility (https://nbs.rs/en/o_nbs/drustvena-odgovornost/index.html).

I.6 Household sector

Key labour market indicators improved further in 2023 owing to preserved macroeconomic stability. Total household savings continued up, strengthening the deposit base of the banking sector. Dinar savings posted record levels in 2023, reaching their all-time peak at year end, which confirms citizens' preserved confidence in the domestic currency. In the past eleven years dinar savings were more profitable than FX savings. The NBS continued to implement many measures in 2023 with a view to preserving the living standard of households.

Positive labour market developments continued in 2023, reflected in rising net wages, average pension, employment, as well as a further decline in the unemployment rate. According to the Labour Force Survey, the employment rate went up by 1.2 pp from Q4 2022, to 50.3% in Q4 2023. Compared to the previous year, the unemployment rate declined, falling by 0.3 pp y-o-y, to 9.1% in Q4 2023. The average monthly net wage in the Republic of Serbia in 2023 equalled RSD 86,007, having risen 14.8% in nominal and 2.4% in real terms compared to 2022.[48] The average pension in 2023 equalled RSD 38,320, which is a nominal increase of 21.9% from the previous year.[49]

On many occasions the Serbian government provided one-off assistance to socially vulnerable groups to reduce the negative impact of the multidimensional crisis from the international environment, sustain aggregate demand and stimulate economic growth. In addition, in 2023 pensions were raised on two occasions, in January and October, by 12.1% and 5.5%, respectively.

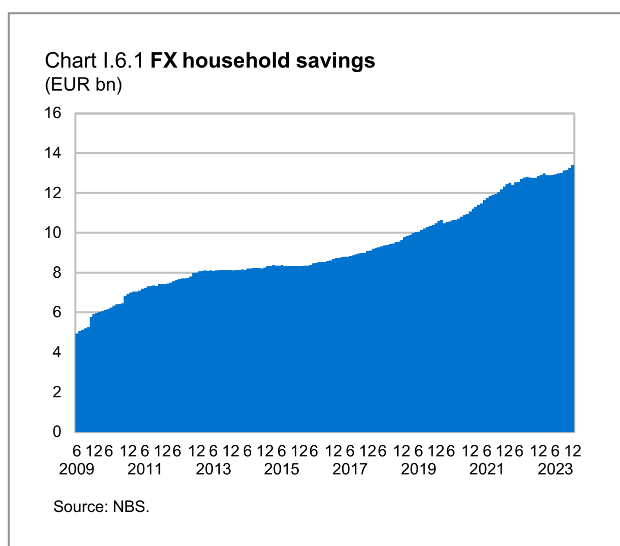
Both dinar and FX savings went up in 2023, thanks to the preserved macroeconomic and financial stability and higher interest rates. Total savings wept up, even amid global uncertainty, strengthening the banking sector deposit base as the main source of loan financing.

FX savings reached record EUR 13.4 bn at end-2023, up by EUR 0.6 bn from end-2022 (Chart I.6.1). The maturity structure of FX savings shows that the share of long-term savings in total FX savings went up by 7.2 pp, to 18.4% in 2023 (Chart I.6.2).[50]

Since the NBS has been implementing the strategy of dinarisation of the financial system, savings in dinars rose eight times, to RSD 136.5 bn at end-2023, up by as much as RSD 40.8 bn from end-2022. Chart I.6.3 shows that in 2023 the maturity structure of dinar savings changed in favour of long-term savings and their share in total dinar savings equalled 28.7% at the end of the year, up by 8.2 pp from end-2022.

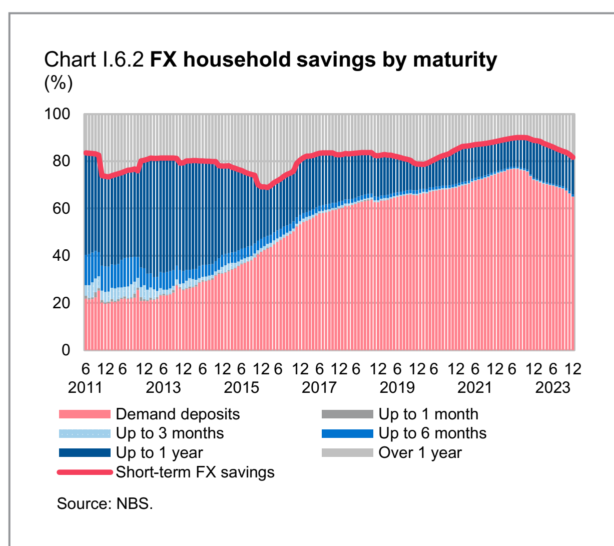
Promoting savings in the local currency and emphasizing their higher profitability is a part of the NBS strategy of dinarisation of the financial system. Robust growth in dinar savings in the past eleven years, during the implementation of this strategy, led to a considerable increase in the dinarisation of household deposits. This bolsters financial stability given that a higher degree of

Chart I.6.1 **FX household savings**
(EUR bn)



Source: NBS.

Chart I.6.2 **FX household savings by maturity**
(%)



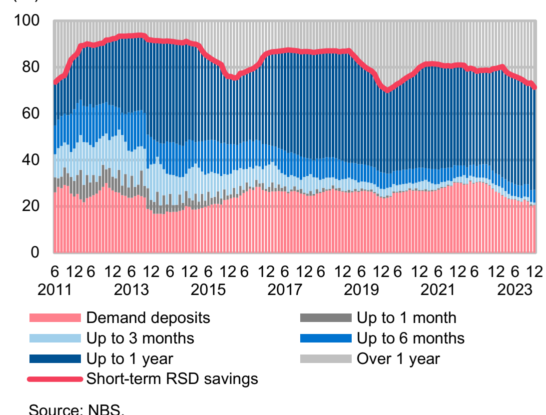
Source: NBS.

[48] Source: SORS.

[49] Source: Pension and Disability Insurance Fund of the Republic of Serbia.

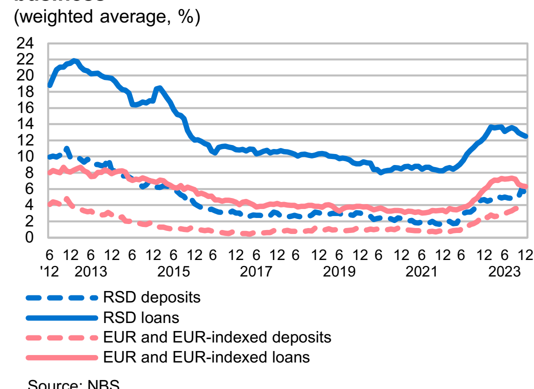
[50] In the years preceding the leap years, annual term savings mean savings termed for a period of 366 days, which is statistically reflected in the (temporary) growth of long-term savings, and thus their share in total savings.

Chart I.6.3 **RSD household savings by maturity**
(%)



Source: NBS.

Chart I.6.5 **Interest rates on RSD, EUR and EUR-indexed household loans and deposits – new business**
(weighted average, %)



Source: NBS.

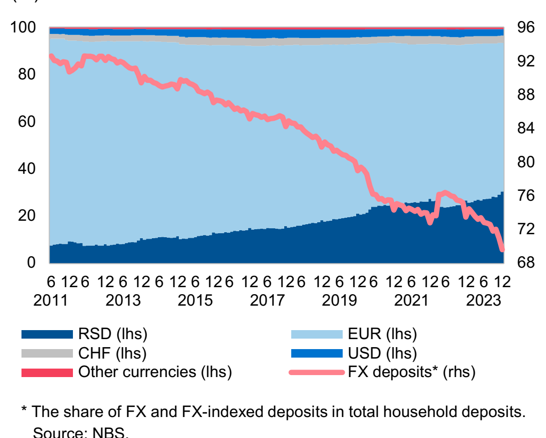
dinarisation of the financial system ensures greater efficiency of monetary policy measures and resilience to the risk of exchange rate volatility, as well as reduced exposure to risks from the international environment.

The analysis of savings profitability[51] shows that in the past eleven years dinar savings were more profitable than euro savings both in the short and long run, reflecting the preserved macroeconomic and financial stability, higher interest rates on savings in dinars than in euros, and a more favourable tax treatment of income from savings in the domestic currency compared to savings in foreign currency.

The share of dinar deposits in total household deposits[52] increased by 3.9 pp from end-2022, to 30.4% at end-2023. Euro deposits continued to account for the bulk of deposits (63.1%), while their share was 3.3 pp lower than at end-2022. At end-2023, the share of dollar and Swiss franc deposits was low and amounted to 2.8% and 3.1%, respectively (Chart I.6.4).

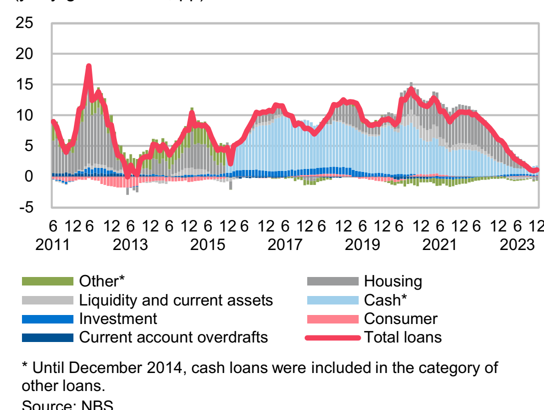
The cost of household borrowing and interest rates on household savings with banks increased compared to the previous year, though this growth was less pronounced than in the previous year. This is in line with the slower pace of the NBS and ECB monetary policy tightening, with the NBS last increasing its key policy rate in July

Chart I.6.4 **Currency structure of household deposits**
(%)



* The share of FX and FX-indexed deposits in total household deposits.
Source: NBS.

Chart I.6.6 **Contributions to growth in bank receivables from households, by purpose**
(y-o-y growth rates, pp)



* Until December 2014, cash loans were included in the category of other loans.
Source: NBS.

[51] https://www.nbs.rs/export/sites/NBS_site/documents-eng/publikacije/dinarizacija/analize/analiza_isplativosti_dds_e_II_2023.pdf.

[52] In addition to savings, household deposits also include transaction deposits. The calculation includes the household sector without non-profit institutions serving households.

and the ECB in September 2023. The cost of household borrowing declined at the end of the year, as a result of the application of the temporary decision to cap the rates on housing loans to natural persons[53], and promotional cash loan offers of some banks. Interest rates on new dinar household loans in 2023 went up by 0.18 pp, to 12.50% in December. In the same period, interest rates on new euro-indexed and euro loans increased by 0.37 pp to 6.30% (Chart I.6.5). The interest rates on new dinar deposits rose by 0.55 pp, amounting to 5.25% in December 2023. The interest rates on euro deposits went up by 1.04 pp y-o-y, to 3.75% in December 2023.

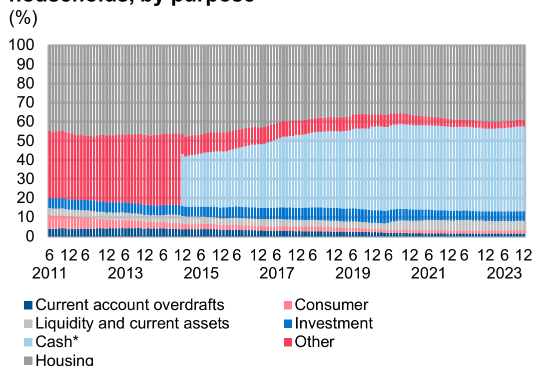
Total receivables[54] from the household sector[55] at end-2023 rose 1.1% in nominal terms relative to a year earlier (Chart I.6.6). Broken down by purpose, the highest contribution to the nominal growth in household receivables came from the rise in cash and consumer loans (1.5 pp and 0.2 pp, respectively). Housing loans provided a negative contribution to growth (0.5 pp), reflecting elevated cost of borrowing, higher real estate prices, but also the accounting treatment of housing loans due to the application of the temporary measure to limit interest rates on these loans, since the value of receivables was reduced based on the modification of contractual cash flows. The reduced amount will be gradually returned to the stock of housing loans during the application of the temporary measure (until end-2024). At end-2023, the number of housing loans totalled 157,716. Their gross value was RSD 575.6 bn and they made up 39.1% of total bank household receivables, which is 1.0 pp less than in 2022. The share of receivables under cash loans in total household receivables rose by 1.0 pp, to 44.5% at end-2023 (Chart I.6.7).

The volume of new loans to households (non-profit institutions included) in 2023 contracted by 1.3% from 2022. In 2023, households were mostly granted cash loans (63.9%), up by 5.6 pp from 2022. New housing loans made up 16.6% of new household loans in 2023, down by 7.0 pp from 2022.

As for the currency composition, the bulk of new household loans (75.4%) was granted in dinars (up by 7.2 pp from 2022), much as a result of NBS regulations,[56] which encourage borrowing in dinars. In the category of cash loans, new dinar loans accounted for almost 100% of total new loans in 2023, which is supportive of the dinarisation process. Relative to end-2022, the share of dinar receivables in total household receivables rose by 1.0 pp to 54.1% (Chart I.6.8), as a result of the rise in cash loans, predominantly approved in dinars. This share moved above the share of FX and FX-indexed receivables (45.9% at end-2023), among which euro-indexed and euro loans were prevalent (accounting for 45.8% of total bank receivables from households).

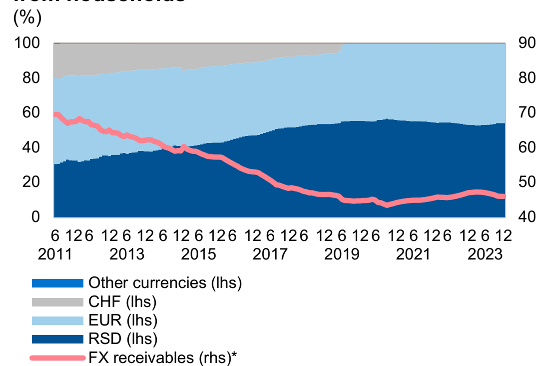
The share of gross NPLs of the household sector in total household loans (gross NPL ratio) measured 4.3% in December 2023, up by 0.4 pp from end-2022. At end-

Chart I.6.7 **Structure of bank receivables from households, by purpose**



* Until December 2014, cash loans were included in the category of other loans.
Source: NBS.

Chart I.6.8 **Currency structure of bank receivables from households**



* The share of FX and FX-indexed receivables in total receivables on households.
Source: NBS.

[53] Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).

[54] Receivables include loans, interests, fees and other receivables.

[55] The household sector comprises domestic natural persons, foreign natural persons – residents, private households with employed persons, registered farmers and entrepreneurs.

[56] Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, Nos 34/2015, 114/2017 and 84/2020).

2023, gross NPL ratio for housing loans rose by 0.2 pp relative to the previous year, to 1.7%, and 0.6 pp for cash loans, to 6.5%. Timely and adequate NBS and Serbian government measures helped avoid larger negative effects of heightened geopolitical tensions, elevated inflation and the consequently higher interest rates on households' creditworthiness.

The majority of housing loans (61.9%) were insured by the National Mortgage Insurance Corporation. At end-2023, there were 97,596 insured loans, down by 3,839 from end-2022. The initially insured amount was EUR 3.3 bn, of which EUR 2.0 bn was outstanding. At the end of 2023, the Corporation portfolio contained 287 past due loans worth EUR 12.4 mn. These loans were declared past due because of difficulties in repayment, and until the mortgaged property is sold, the Corporation is the one paying the annuities. Compared to 2022, the number of these loans decreased by 47, while the outstanding amount of insured past due loans went down by EUR 1.3 mn. As at December 2023, a total of 718 mortgages under insured housing loans were foreclosed since the Corporation began operating.

To safeguard citizens' living standards amid rising interest rates, in September 2023 the NBS adopted a Decision[57] that enabled a temporary restriction of housing loan interest rates. The temporary measure allowed a freeze on the nominal interest rate for first-time beneficiaries of a housing loan in the amount of up to EUR 200,000 with a variable interest rate. The rate would be held unchanged for the next 15 months, starting from the instalment for October 2023. The Decision set out that the interest rate for housing loans approved before and inclusive of 30 July 2022 may not exceed 4.08%. For housing loans approved as of 31 July 2022 and until the effective date of this Decision, citizens will pay a lower instalment, at the rate from the original repayment plan. Banks may not charge to the borrower any difference in the interest rate that occurred as a result of the Decision's implementation. During the period of the Decision's validity, i.e. until end-December 2024, interest rates on new housing loans will also be limited, therefore for loans with a variable interest rate, the fixed part of the nominal interest rate (bank's margin) may not be higher than 1.1%, whereas for loans with a fixed interest rate, the nominal rate is limited to 5.03%. In addition to these measures, the Decision also envisages early repayment for all beneficiaries of housing loans and they do not have to pay the early repayment fee. This measure resulted in a decrease in the interest rate on new housing loans from 6.45% at end-September to 5.0% at end-December.

The Decision on Temporary Measures for Banks to Facilitate Access to Financing for Natural Persons[58] continued to be applied in 2023. Until end-2023, the Decision reduced the minimum degree of completion of a building that can be the subject of a housing loan with preferential treatment. It also enabled an extension of housing loan repayment terms by maximum five years. Banks were encouraged to approve housing loans as they were able to exclude exposures for loans meeting the prescribed conditions when establishing capital conservation buffer and systemic risk buffer. The implementation of the provisions of this Decision enabling simplified lending to natural persons who do not receive their wage or pension via an account with the lending bank in the amount of up to RSD 90,000 and the maturity of maximum two years was extended until end-2024. Also, as of 2020, banks are allowed to reduce the downpayment for first-time home buyers from 20% to 10%.[59]

In addition, since December 2022 borrowers facing problems in settling their liabilities were granted an extension of the payment deadline by another three years relative to the valid regulatory solution.[60] In this case, the payment term for cash and consumer loans may be extended by up to nine years, and for motor vehicle purchase loans by up to eleven. Banks may restructure their receivables from natural persons on account of consumer, cash or other loans without any impact on their capital. This procedure does not increase the outstanding amount of debt and the restructuring can be implemented only once.

As so far, the NBS continues to monitor developments in this sector and implement all the necessary measures aimed at protecting the interests of households and preserving the stability of the financial system.

The table below contains the main indicators for the household sector for 2011–2023.

[57] Decision on Measures for Safeguarding and Strengthening Stability of the FinanciDecision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).

[58] Decision on Temporary Measures for Banks to Facilitate Access to Financing for Natural Persons (RS Official Gazette, Nos 108/2020, 119/2021, 137/2022 and 110/2023).

[59] Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, Nos 34/2011, 114/2017 and 84/2020).

[60] Decision Amending the Decision on Capital Adequacy of Banks (RS Official Gazette, No 137/2022).

Table I.6.1 **Household sector performance indicators**
(%, unless indicated otherwise)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bank receivables from households													
RSD bn	601.7	652.7	673.7	724.6	759.1	838.6	904.2	1,017.3	1,111.3	1,243.0	1,374.2	1,457.5	1,473.8
EUR mn	5,750.5	5,739.5	5,876.3	5,990.6	6,240.8	6,792.0	7,632.1	8,606.8	9,450.6	10,571.5	11,687.2	12,423.1	12,578.3
Total deposits of households													
RSD bn	855.2	988.7	1,044.6	1,125.9	1,165.5	1,258.0	1,275.9	1,393.5	1,558.7	1,751.6	1,989.3	2,048.7	2,255.8
EUR mn	8,172.7	8,694.2	9,111.6	9,308.6	9,582.9	10,188.8	10,769.6	11,789.9	13,254.7	14,897.1	16,918.7	17,462.6	19,251.3
FX bank receivables to total receivables[1]	67.4	65.0	62.1	59.0	57.2	53.0	48.3	46.4	44.7	44.1	45.4	46.9	45.9
FX to total deposits[1]	90.7	92.1	89.4	88.7	87.1	85.1	84.2	81.8	79.0	74.3	72.8	73.5	69.6
FX deposits to FX bank receivables[1]	191.2	214.7	223.3	233.4	233.9	241.0	246.2	241.3	248.1	237.7	232.1	220.2	231.9
LTV ratio - flats	n/a	n/a	n/a	n/a	n/a	60.5	57.3	63.2	52.2	61.1	63.2	63.6	58.5
Average loan per resident													
RSD thousand	80.6	87.8	91.0	99.9	105.3	117.4	127.7	144.5	158.8	177.9	198.7	213.2	220.7
EUR	770.1	771.9	793.4	826.3	865.7	950.5	1,077.6	1,222.8	1,350.8	1,513.3	1,689.6	1,817.4	1,883.7
Average loan amount													
RSD thousand	439.6	460.4	489.9	511.1	472.2	483.9	483.8	516.3	553.1	564.0	575.6	586.6	579.9
EUR	4,201.4	4,049.0	4,273.1	4,225.3	3,882.5	3,918.7	4,083.5	4,368.4	4,703.4	4,796.5	4,895.5	5,000.1	4,949.3
Average loan per user													
RSD thousand	530.9	570.1	612.0	644.7	614.6	634.7	646.9	701.7	747.9	786.7	824.9	853.1	859.1
EUR	5,073.9	5,012.9	5,338.8	5,329.8	5,053.1	5,140.5	5,460.1	5,936.5	6,359.7	6,691.0	7,015.8	7,271.5	7,332.0

[1] FX receivables and deposits include FX-indexed claims and deposits.
Sources: SORS, ASB and NBS.

II Financial sector

Accounting for around 91% of financial sector assets, the Serbian banking sector was stable in 2023 owing to adequate capitalisation, high liquidity and profitability. In 2023, banks posted a positive net financial result, with 2.5% RoA and 18.1% RoE. Domestic lending activity continued up, with an evident slowdown in growth rates, and recorded a 1.0% y-o-y rise at end-2023. The share of NPLs in total loans continued moving close to the historic minimum in 2023, and measured 3.2% at year end, indicating that increased costs of loan repayment did not lead to a deterioration of bank asset quality, that NBS measures were timely and adequate and that financial stability was preserved even in the period of the multidimensional crisis we have been facing in the last four years.

II.1 Banking sector

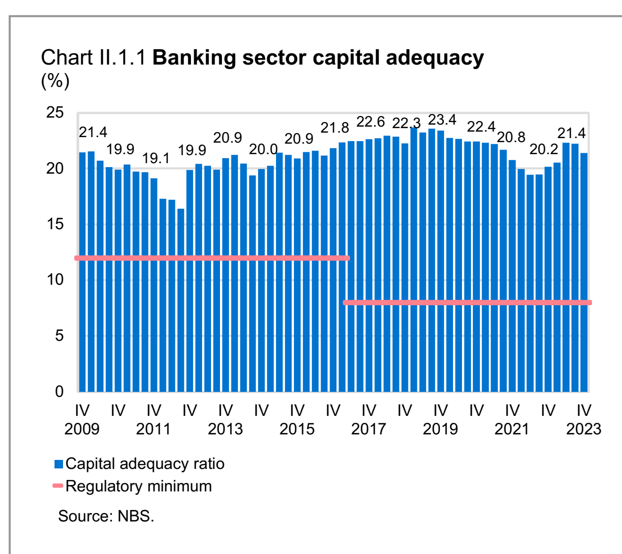
II.1.1 Capital adequacy

In 2023, the Serbian banking sector was highly capitalised, as confirmed by CARs, which moved considerably above the prescribed regulatory minimums. At end-2023, CAR measured 21.4% (Chart II.1.1), somewhat above the regional average (Chart II.1.2). Owing to a favourable capital structure, high levels of Common Equity Tier 1 (CET 1) capital ratio (19.6%) and Tier 1 capital adequacy ratio (19.7%) were recorded.

At end-2023, CAR went up by 1.2 pp y-o-y, thanks to the rise in regulatory capital. Regulatory capital increased by RSD 65.5 bn in 2023 to RSD 706.1 bn at end-2023, while banks' CET 1 rose by RSD 51.9 bn, to RSD 648.1 bn. In 2023 risk-weighted assets rose by RSD 124.0 bn, to RSD 3,302.8 bn.

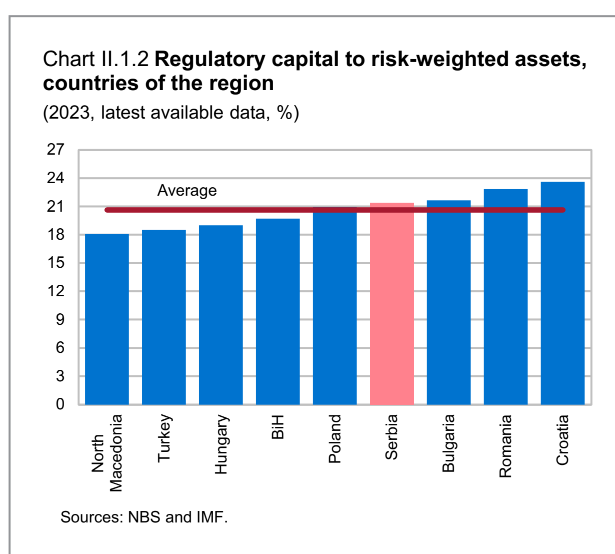
In 2023, banks were allowed to exclude 70% of net unrealised losses and gains based on the change in value of debt instruments from the calculation of CET 1 capital, in line with the temporary measure[61] which the NBS adopted in June 2022 enabling banks to mitigate the adverse impact of changes in the prices of securities on capital. The amendments to the decision from December 2023 envisage that the percentage of net unrealised losses which can be excluded from the calculation of CET 1 capital is reduced, first to 50% by June 2024, and then to

Chart II.1.1 **Banking sector capital adequacy**
(%)



Source: NBS.

Chart II.1.2 **Regulatory capital to risk-weighted assets, countries of the region**
(2023, latest available data, %)



Sources: NBS and IMF.

[61] Decision on Temporary Measure Regarding the Calculation of Bank Capital (RS Official Gazette, Nos 72/2022, 124/2022 and 110/2023).

25% by end-2024. The measure was initially adopted in order to maintain the balance between the tightening of monetary conditions required for limiting the effects of inflationary pressures and stimulating bank lending activity to continue supporting the real sector and further economic growth. This facility will be gradually abolished, however, once the cycle of monetary policy tightening is wound up.

According to end-2023 reports, banks allocated RSD 190.4 bn worth of CET 1, or 5.8% of risk-weighted assets by means of the combined capital buffer[62]. Maintenance of capital buffers above the prescribed regulatory minimums increases bank resilience to losses, decreases excessive exposures and limits capital distribution in order to contain systemic risks in the financial system. To facilitate access to housing loans for natural persons, in August 2020 the NBS allowed banks to use a portion of allocated capital buffers (capital conservation buffer and systemic risk buffer) for financing this form of lending. This measure was temporary and it was implemented until end-2023.[63]

Bank business models in Serbia are traditional and based on corporate and household lending. Hence, credit risk was the most dominant risk in the Serbian banking sector in 2023. Credit risk accounted for 86.6% of risk-weighted assets, while the shares of the operational risk and market risks were significantly lower – 12.9% and 0.3%, respectively.

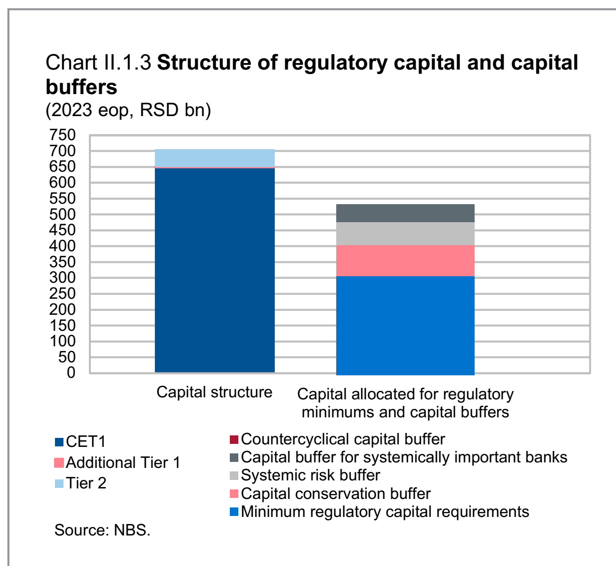
High capitalisation of the banking sector is also evidenced by the leverage ratio[64], introduced in Serbia's regulatory framework by Basel III implementing regulations, which measured 10.3% at end-2023.

II.1.2 Level, structure and quality of assets

Twenty banks operated at end-2023 (21 banks at end-2022). At end-2023, banking sector net assets amounted to RSD 5,941.2 bn (around 73% of GDP). In terms of the ownership structure of the banking sector, the largest share was held by foreign-owned banks (76.9%), while domestic private and state-owned banks accounted for 14.5% and 8.6%, respectively.

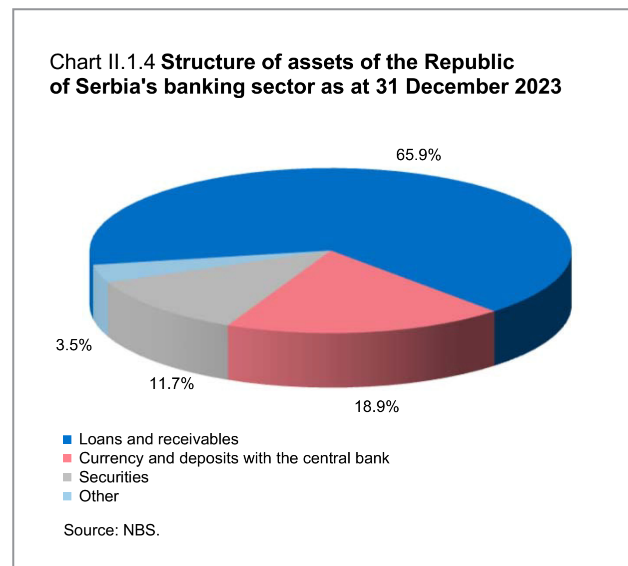
Loans and receivables accounted for the bulk of total net assets of banks (65.9%), reflecting traditional bank business models based on credit-deposit activities. Loans and receivables from clients accounted for 53.7% of assets, while loans and receivables from banks and other financial organisations made up 12.2%. The remainder related to cash and deposits with the central bank (18.9%) and securities (11.7%), primarily securities of the Republic of Serbia.

Chart II.1.3 **Structure of regulatory capital and capital buffers**
(2023 eop, RSD bn)



Source: NBS.

Chart II.1.4 **Structure of assets of the Republic of Serbia's banking sector as at 31 December 2023**

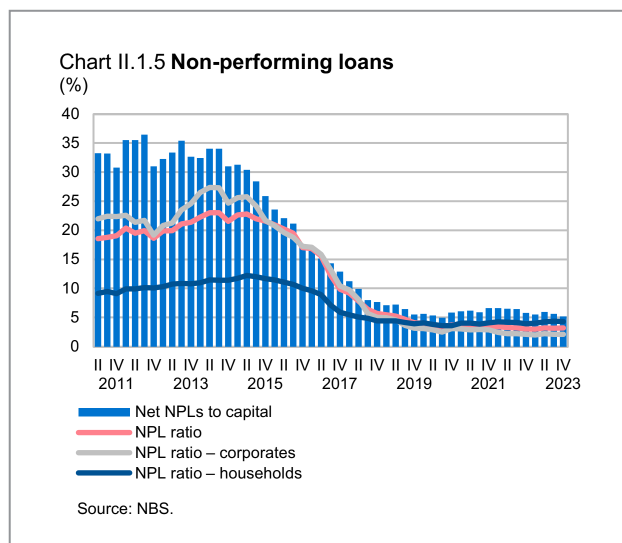


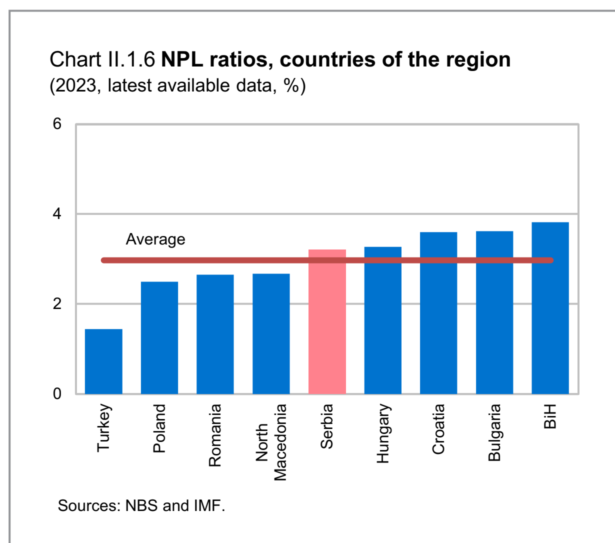
Source: NBS.

[62] The combined capital buffer consists of the capital conservation buffer, countercyclical capital buffer, capital buffer for systemically important banks, and systemic risk buffer.

[63] Decision on Temporary Measures for Banks to Facilitate Access to Financing for Natural Persons (RS Official Gazette, Nos 108/2020, 119/2021, 137/2022 and 110/2023).

[64] The leverage ratio is calculated as a ratio of Tier 1 capital and a bank's total exposure amount.





At end-2023, the credit portfolio[65] was worth RSD 3,609 bn. The bulk of the portfolio related to corporate[66] (43.3%) and household loans[67] (39.1%). Total net corporate loans stood at RSD 1,564 bn, of which 85.3% was in foreign currency, i.e. 85.1% in euros. Total net household loans were worth RSD 1,411 bn, of which RSD 619 bn (44%) relating to cash loans and RSD 568 bn (40%) to housing loans. The share of loans in dinars in total household loans was 52.9%, while loans in foreign currency were almost entirely related to euro loans.

As loans account for a dominant share of total balance sheet assets of the domestic banking sector, the NPL ratio is a significant measure of asset quality. During 2023, the share of NPLs in total Serbian banking sector loans continued moving close to the historical minimum. Keeping this indicator close to the minimum, but also below the pre-pandemic level, signals that the increase in interest rates did not deteriorate bank asset quality, nor did the termination of some measures[68] which supported the corporate and household sectors in the past period. In 2023, the NBS continued to facilitate the servicing of private sector credit liabilities. Banks were encouraged to extend the repayment term for cash, consumer and other similar loans for citizens in financial distress. In addition, until end-2023, banks were able to extend the repayment term for housing loans by additional five years relative to the initially contracted maturity and thus facilitate the conditions for repayment of citizens' housing loans. In September 2023, a measure[69] was adopted which temporarily capped the interest rates on housing loans and enabled early repayment of housing loans without fees during the validity of these facilities, i.e. until end-2024. The NBS's measures were timely and prevented a greater adverse effect on corporates and households, thereby contributing to the preservation of financial stability in the period of the multidimensional crisis we have been facing in the past four years.

At end-2023, the share of NPLs in total Serbian banking sector loans stood at 3.2%. In y-o-y terms, this indicator edged up by 0.2 pp due to the increase in gross NPLs by 7.8% or RSD 7.8 bn, while total gross loans went up by 1.3% or RSD 41.7 bn.

The years-long downward trend of NPLs, even amid heightened geopolitical tensions, higher costs of repayment of loans and economic slack, is a result of a systemic approach to addressing NPLs that was initiated in 2015 with the adoption of the NPL Resolution Strategy. Such approach has continuously yielded excellent results. The share of NPLs at end-2023 was reduced by 19.0 pp relative to August 2015 when the NPL Resolution Strategy was adopted. The main channels of reducing NPLs were collection, write-off and assignment (sale) to third persons.

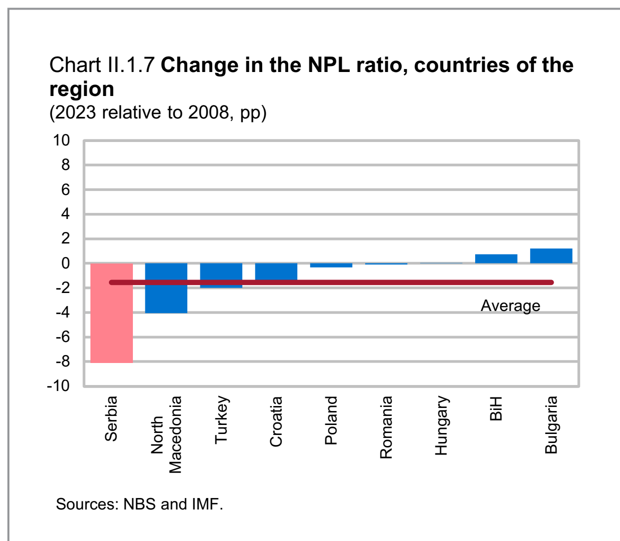
[65] Net bank loans approved to the finance and insurance sector, the public non-financial sector, companies, entrepreneurs, general government, households, foreigners, private households with employed persons and registered farmers and other legal persons.

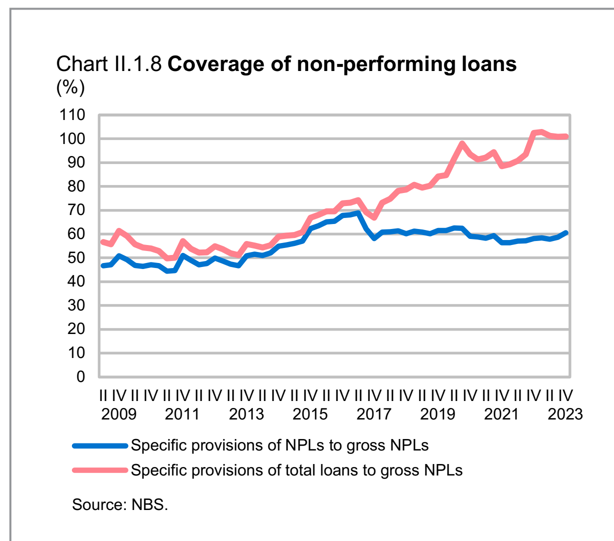
[66] The corporate sector includes public non-financial sector, corporates and companies in bankruptcy.

[67] The household sector includes domestic natural persons, foreign natural persons – residents, private households with employed persons, registered farmers, entrepreneurs and entrepreneurs in bankruptcy.

[68] In the past period, the NBS applied numerous measures, including moratorium on loan repayments, facilities for debtors who experienced difficulties in the repayment of liabilities due to the coronavirus pandemic, rescheduling of farmers' obligations, etc. For more information, visit:
https://nbs.rs/en/drugi-nivo-navigacije/pres/covid19/index.html and
https://nbs.rs/en/drugi-nivo-navigacije/propisi/propisi-kpb/index.html.

[69] Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).





In 2023, RSD 12.7 bn worth of gross NPLs were written off and RSD 1.4 bn assigned/sold.

The share of NPLs in total loans to corporates (companies and public non-financial sector) stood at 2.1% at end-December 2023, unchanged relative to the same period last year. In terms of individual categories, the share of NPLs in total loans to companies went up by 0.1 pp, to 2.4%, while the share of NPLs in total loans to public non-financial sector declined by 0.5 pp y-o-y, to 0.2% at end-2023. An unchanged share of NPLs in total corporate loans in 2023 was recorded amid an increase in the amount of the sector's NPLs by 2.6% (RSD 0.9 bn), and a rise in total corporate loans by 0.9% (RSD 14.7 bn). In 2023, the amount of NPLs declined the most in transport and warehousing, accommodation and food services, information and communication (by RSD 1.9 bn, and their share in total gross loans of this sector by 1.0 pp, to 1.5%), as well as in construction (by RSD 1.1 bn, and their share in total gross loans of this sector by 1.0 pp, to 2.2%). The highest increase was recorded in mining, manufacturing, water supply, waste management and similar activities (by RSD 3.4 bn, and their share in total gross loans of this sector by 0.7 pp, to 2.9%), as well as in wholesale and retail trade, repair of motor vehicles and motorcycles (by RSD 0.9 bn, and their share in total gross loans of this sector by 0.2 pp, to 1.8%).

Relative to the period before the NPL Resolution Strategy, the sharpest drop was recorded in construction, where the share of NPLs in total loans of this sector went down by 47.6 pp and in real estate business, scientific and supporting service activities, art, entertainment and recreational activities by 36.5 pp to 1.7% at end-2023.

At end-2023, the share of NPLs in total gross loans to households[70] came at 4.3%, going up by 0.4 pp from end-2022. The y-o-y increase is a result of a rise in gross household NPLs by 11.5% (RSD 6.6 bn), and a concurrent increase in total gross household loans by 1.1% (RSD 15.8 bn). As for the most significant household loan categories, the NPL ratio for cash loans increased by 0.6 pp y-o-y, to 6.5% at end-2023, while the NPL ratio for housing loans increased by 0.2 pp y-o-y, to 1.7%. The increase in the share of cash NPLs reflects a rise in the amount of these loans by RSD 4.8 bn in 2023. At the same time, total cash loans went up by RSD 18.9 bn. On the other hand, NPLs in housing construction went up by RSD 1.3 bn y-o-y in 2023, while total housing loans declined by RSD 7.4 bn. This reflects the accounting treatment of housing loans due to the application of the decision on capping interest rates on these loans,[71] since a part of receivables has been temporarily reduced amid a modification of contractual cash flows.

At end-2023, the coverage of total gross NPLs with allowances for impairment of NPLs stood at 60.5% on average, and the coverage with allowances for impairment of total loans measured 101.0%. The level and solid coverage of NPLs with allowances for impairment moderate the NPL channel as the possible source of instability in the financial system. This is also confirmed by the macroprudential solvency stress-tests conducted by the NBS, which project changes in the trajectory of the NPL ratios over a one-year horizon in

[70] The household sector includes, in addition to households, entrepreneurs, private households with employed persons and registered farmers.

[71] Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).

order to assess the resilience of the banking sector. The banking sector remains adequately capitalised even under the worst-case scenario.[72]

II.1.3 Lending activity

Domestic lending activity continued growing, but at a noticeably slower pace. Higher interest rates on loans due to the ECB and NBS monetary policy tightening, as well as tightened bank credit standards, the maturity of guarantee-scheme loans and the high last year's base were a drag on the growth in lending activity which even slipped into the negative territory from September to November 2023. However, in December, lending activity recovered and at end-2023 total domestic loans rose by 1.0% y-o-y, excluding the exchange rate effect.[73] The contribution of household loans to the y-o-y increase in domestic loans was higher in comparison to that of corporate loans.

Excluding the exchange rate effect, domestic corporate loans increased by 0.9% in 2023 from a year earlier. The slowdown in corporate lending growth in H1 2023 and its mild drop in the May-November period were driven, inter alia, by the maturity of guarantee-scheme loans, with the sharpest impact felt in H1, which then weakened gradually as the amount of maturing loans declined.

The growth in domestic household loans was decelerating almost until the end of 2023, primarily because of rising interest rates and as of September also because of the accounting treatment of receivables due to the cap on interest rates on housing loans to households.[74] Excluding the exchange rate effect, domestic household loans increased by 1.2% in 2023 from a year earlier.

The share of dinar loans in total corporate loans recorded a declining trend in the first three quarters of 2023, partly as a result of the repayment of guarantee-scheme loans, granted primarily in dinars, and partly of intensified foreign currency lending to large enterprises in mining and manufacturing industries. In the last quarter, the rise in dinar and a decline in FX and FX-indexed corporate loans pushed up the share of dinar loans in total corporate loans. Since May 2023, the share of dinar loans in total household loans resumed its upward trend, driven by dinar loans, while FX loans dropped in this period chiefly on account of lower approval and/or maturity of housing loans.

Bank lending surveys show that in 2023 banks continued tightening corporate credit standards motivated by the higher costs of the sources of financing, uncertainty regarding the overall economic situation and consequently lower risk appetite, but also by NPLs, quality of the required collateral and reduced banking sector competition amid mergers. The tightening affected mainly FX and FX-indexed loans, while in terms of the size of enterprises, it mostly impacted large enterprises. Parallel with standards, conditions for corporate loan approval were also tightened (maximum loan amount, collateral requirements, fees and commissions). On the

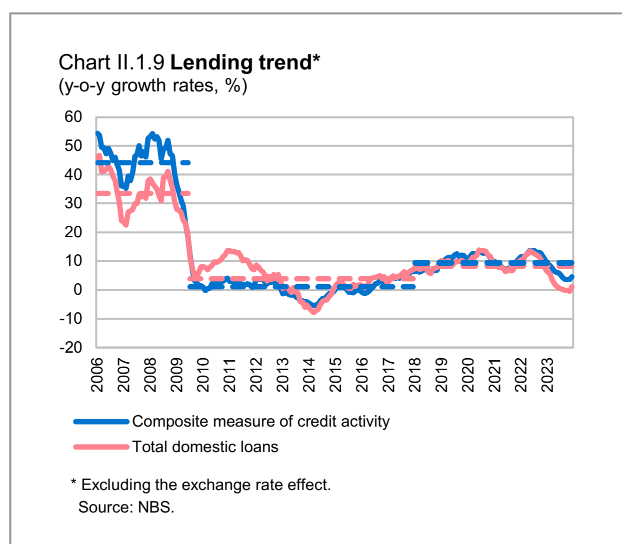


Chart II.1.9 **Lending trend***
(y-o-y growth rates, %)

* Excluding the exchange rate effect.
Source: NBS.

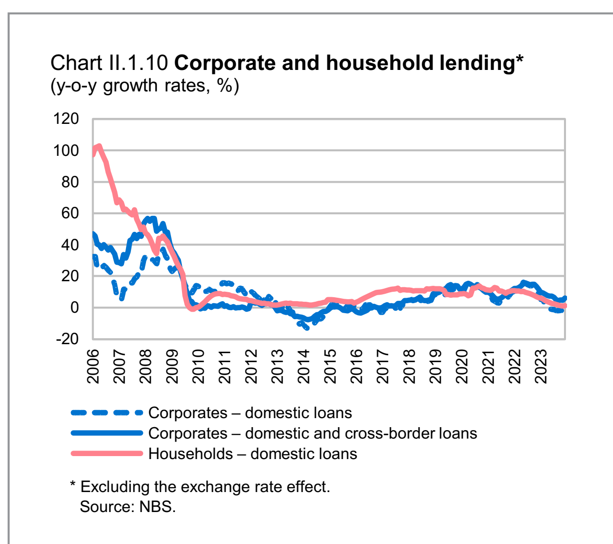


Chart II.1.10 **Corporate and household lending***
(y-o-y growth rates, %)

* Excluding the exchange rate effect.
Source: NBS.

[72] For a more detailed account of macroprudential stress-tests, see Chapter II.2 Macroprudential stress testing.

[73] Calculated at the dinar exchange rate against the euro, Swiss franc and US dollar as at 31 October 2022 (the programme exchange rate used for monitoring the performance under the arrangement with the IMF), taking into account the currency structure of loan receivables.

[74] Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).

other hand, banks assessed that interest margins on corporate loans declined in Q4 2023 for the first time since end-2020.

Household credit standards were tightened in the first three quarters of 2023. In addition to the factors driving the tightening of corporate credit standards, this was a result of the situation in the real estate market, i.e. rise in the prices of real estate. However, in Q4 2023, household credit standards stayed unchanged, owing to improved expectations regarding the overall economic activity, while the costs of the sources of financing worked in the opposite direction because of rising interest rates on savings. Household loan approval conditions did not change significantly, but in H2 banks cut their interest margins due to NBS decision to temporarily cap interest rates on housing loans.

Banks estimate that lower capital investments and corporate activity in terms of mergers and acquisitions dampened corporate sector demand for loans for most of the year. The exception is Q2 2023 when the demand went slightly up on account of rising farmers' demand and the need for financing working capital and debt restructuring. On the other hand, household sector demand for loans dropped in Q1 and Q3, while in Q2 and Q4 it went up, largely owing to the rise in demand for cash and consumer loans, as well as refinancing loans. The real estate market situation and labour market factors (employment and wages) pushed the loan demand down, while the need to refinance current liabilities worked in the opposite direction.

II.1.4 Profitability

The Serbian banking sector posted a positive financial result in 2023. Banking sector profit at year end

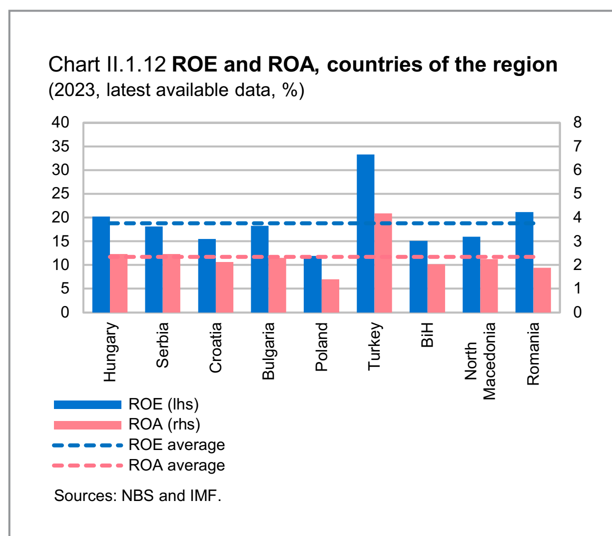


Chart II.1.12 **ROE and ROA, countries of the region**
(2023, latest available data, %)

Sources: NBS and IMF.

produced a 2.5% RoA and an 18.1% RoE. RoA was slightly above the region's average, while RoE was somewhat below, as a result of high capitalisation of the domestic banking sector.

In 2023, high profitability, measured by RoA, was posted by foreign banks from EU countries, followed by domestic private banks and non-EU foreign banks, while somewhat lower profitability was recorded by domestic state-owned banks (Chart II.1.13).

Banking sector net profit before tax amounted to RSD 138.2 bn in 2023, rising by RSD 38.5 bn (or 38.7%) from 2022. Total profit of RSD 138.3 bn was made by 19 banks (99.9% of banking sector net assets), while only one bank operated at a loss of RSD 0.1 bn. Around 77% of profit was generated by five banks.

Given the traditional character of domestic banks' business and their reliance on credit and deposit operations, the net interest income is the dominant

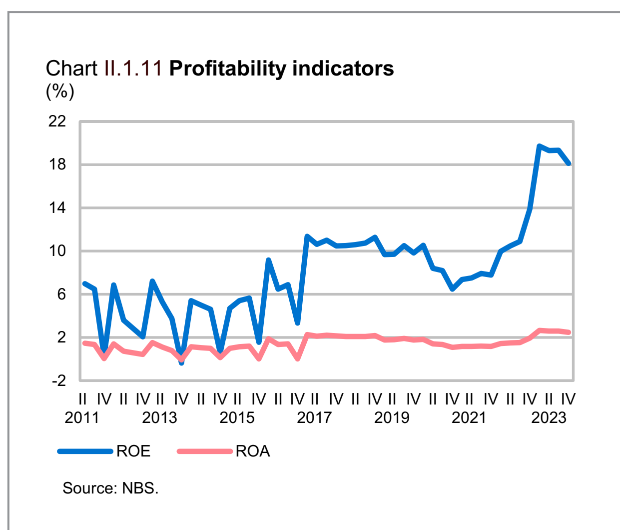


Chart II.1.11 **Profitability indicators**
(%)

Source: NBS.

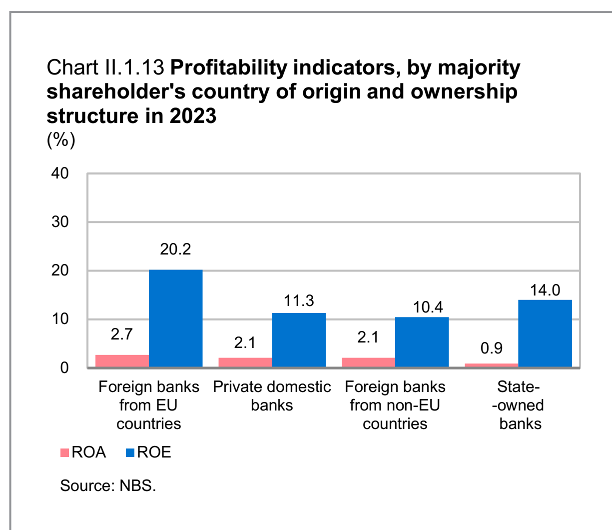
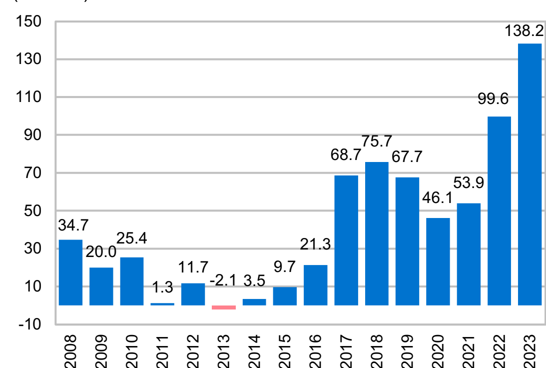


Chart II.1.13 **Profitability indicators, by majority shareholder's country of origin and ownership structure in 2023**
(%)

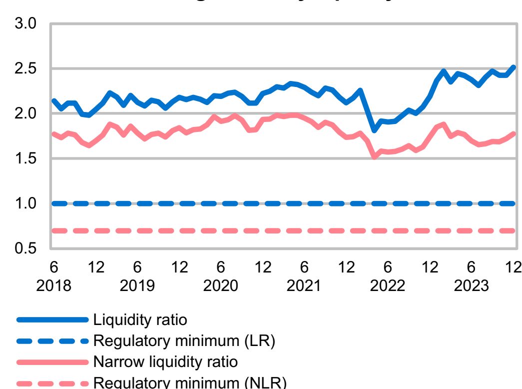
Source: NBS.

Chart II.1.14 **Pre-tax profit/loss of the banking sector**
(RSD bn)



Source: NBS.

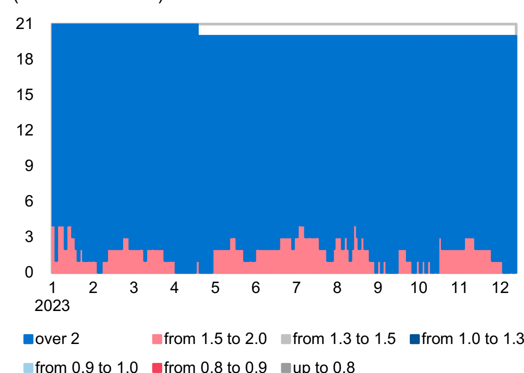
Chart II.1.15 **Average monthly liquidity ratio**



Source: NBS.

category in the structure of the final result. Rising by RSD 77.7 bn amid higher interest rates, net interest income provided the major boost to the y-o-y growth in bank net profit in 2023. Net income from fees and commissions increased by RSD 7.7 bn. The reduction in other income (which was elevated in 2022 on account of a one-off bank merger effect) by RSD 24.5 bn worked in the opposite direction. The increase in net expenses from impairment of financial assets not carried at fair value through income statement by RSD 5.0 bn y-o-y, mostly due to the accounting treatment of receivables amid the cap on interest rates on housing loans[75] affected the result adversely.

Chart II.1.16 **Distribution of liquidity ratio**
(number of banks)



Source: NBS.

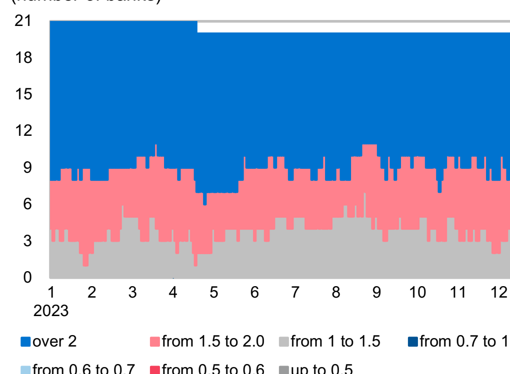
II.1.5 Liquidity

Serbian banking sector liquidity remained high in 2023. At year end the average monthly liquidity ratio equalled 2.5, which was the maximum value of this ratio during last nearly ten years and considerably above the prescribed minimum (1.0). The average monthly narrow liquidity ratio of 1.8 was also considerably above the regulatory minimum (0.7). The average monthly liquidity ratio is presented in Chart II.1.15, while Charts II.1.16 and II.1.17 show the distribution of liquidity ratios across banks.

At 193.7%, the liquidity coverage ratio was considerably above the regulatory minimum (100%) also confirming the high banking sector liquidity.

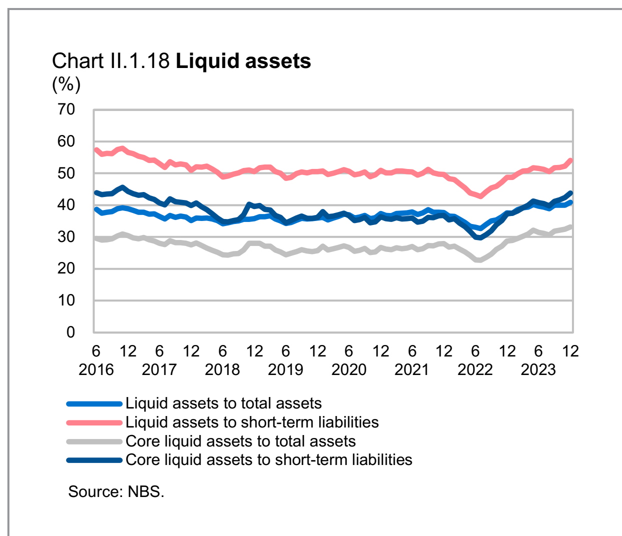
Banking in Serbia is traditional, i.e. deposits are the main source of financing bank activities. Given that

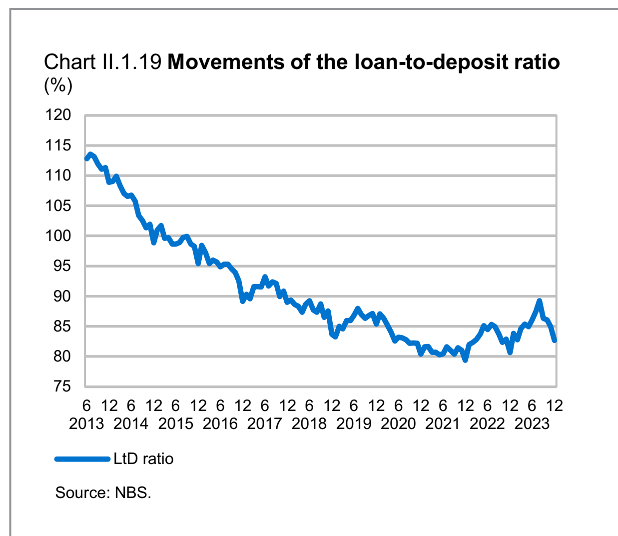
Chart II.1.17 **Distribution of narrow liquidity ratio**
(number of banks)



Source: NBS.

[75] Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).





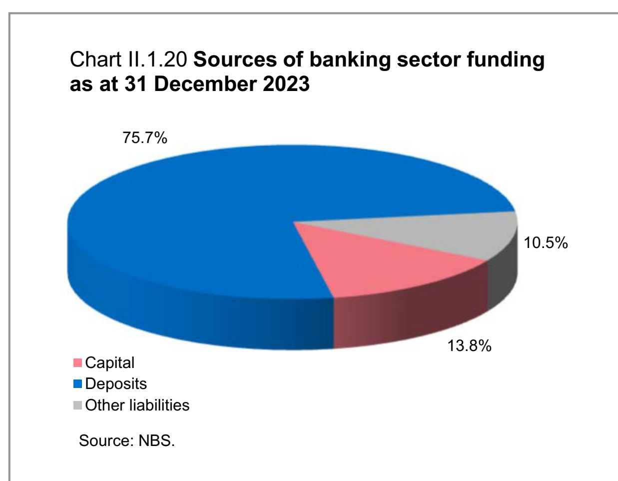
macroprudential stress-tests show that the banking sector would remain highly liquid even amid an extreme deposit outflow, there are no risks to financial stability in this respect.

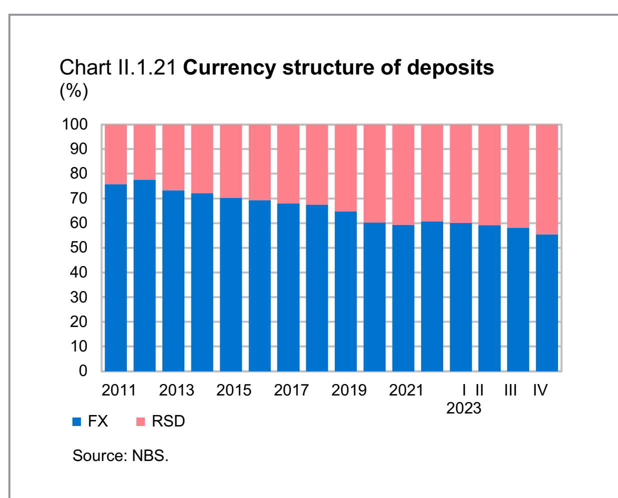
At end-2023, liquid assets accounted for 41.0% of total assets and covered 54.0% of short-term liabilities. As for liquid assets in the narrow sense, their share in total assets and their coverage of short-term liabilities stood at 33.2% and 43.8%, respectively. During the year, liquidity ratios were balanced, exhibiting no major volatility and slightly rising in Q4. The Serbian banking sector holds substantial provisions of liquid assets, which contributes to its stability. However, while the high share of liquid assets carries low risk, it also brings lower returns than investment in lending activity.

II.1.6 Sources of funding

Banks operating in Serbia rely mostly on domestic, stable sources of funding. The LtD ratio stood at 82.6% at end-2023 (Chart II.1.19). In 2023, the amount of deposits was sufficient to cover the entire amount of loans. The strengthening of the domestic deposit base helps banks reduce their reliance on other sources of funding, e.g. on parent bank financing. This decreases domestic banks' exposure to risks from the international environment. In particular, it decreases risk of a sudden withdrawal of money by parent banks, which was one of the challenges faced by countries of the region in the wake of 2008.[76] Macroprudential liquidity stress-tests confirm that even in the event of a deposit withdrawal due to domestic banks' deleveraging to parent banks, banking sector liquidity would not be jeopardised.

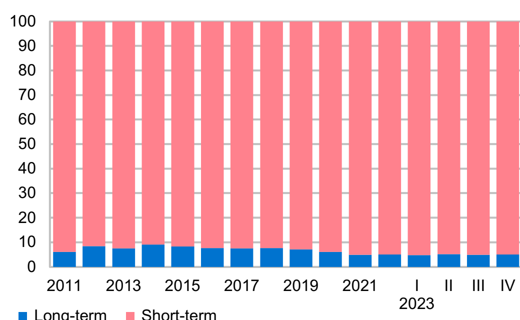
Deposits accounted for 75.7% and capital for 13.8% of the total banking sector liabilities at end-2023 (Chart II.1.20). The share of dinar deposits in total bank deposits





[76] *Annual Financial Stability Report – 2012*, Chapter I.1 International environment.

Chart II.1.22 **Maturity structure of deposits***
(%)

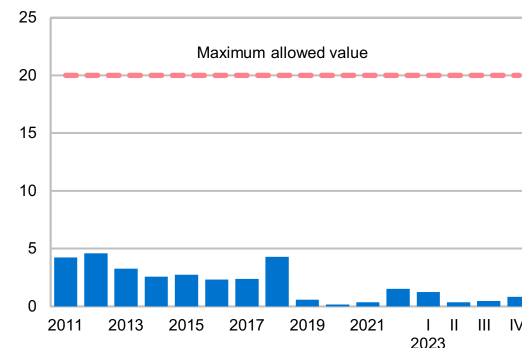


■ Long-term ■ Short-term

* Long-term deposits consist of deposits maturing in over 1 year, while short-term deposits consist of deposits maturing within the next year, matured and sight deposits.

Source: NBS.

Chart II.1.23 **Foreign exchange risk ratio**
(%)



■ Foreign exchange risk ratio

Source: NBS.

increased from 39.3% at end-2022 to 44.5% at end-2023 (Chart II.1.21). In terms of maturity composition, short-term deposits made up the largest share (94.9%) (Chart II.1.22).

II.1.7 Sensitivity to market risks

Serbia's banking sector exposure to market risks was minimal.[77] Exposure to market risks was lower than the year before, accounting for only 0.3% of total risk-weighted assets.

The FX risk indicator expressed as net open FX position to regulatory capital (Chart II.1.23) amounted to 0.8%[78] at end-2023, down by 0.7 pp from a year earlier, and considerably below the regulatory limit of 20.0%.

Mostly reliant on FX sources of funding, banks hedge against the FX risk by extending loans indexed to a foreign currency. In this regard, banks' FX position is well-balanced and without direct exposure to the FX risk. However, they are exposed to this risk indirectly, as the approval of FX-indexed loans to clients with a debt-income currency mismatch may generate FX-induced credit risk. In view of the structure of banks' portfolio, the risk of negative effects on banks' financial result and capital due to the direct impact of interest rate and exchange rate changes is judged to be minimal.

Table II.1.1 **Serbia: Financial sector structure**

	2015			2016			2017			2018			2019			2020			2021			2022			2023		
		Assets			Assets			Assets			Assets			Assets			Assets			Assets			Assets			Assets	
	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%	No.	RSD billion	%
Financial sector	77	3,329	100	76	3,556	100	73	3,714	100	72	4,179	100	70	4,532	100	69	5,078	100	66	5,555	100	63	5,985	100	62	6,534	100
(in % of GDP)		*77.1%*			*78.5%*			*78.0%*			*82.4%*			*83.6%*			*92.3%*			*88.6%*			*84.4%*			*80.2%*	
Banking system	30	3,048	91.6	30	3,242	91.2	29	3,369	90.7	27	3,774	90.3	26	4,084	90.1	26	4,601	90.6	23	5,048	90.9	21	5,455	91.1	20	5,941	90.9
State-owned banks	6	550	16.5	6	561	15.8	6	544	14.6	5	660	15.8	4	686	15.1	3	325	6.4	2	368	6.6	2	427	7.1	2	509	7.8
Local private banks	1	179	5.4	2	195	5.5	2	236	6.4	2	266	6.4	3	305	6.7	3	319	6.3	2	290	5.2	2	468	7.8	3	860	13.2
Foreign-owned banks	23	2,319	69.7	22	2,486	69.9	21	2,590	69.7	20	2,848	68.1	19	3,093	68.3	20	3,958	77.9	19	4,390	79.0	17	4,561	76.2	15	4,572	70.0
Italian	2	796	23.9	2	884	24.8	2	928	25.0	2	1,008	24.1	2	1,094	24.1	2	1,204	23.7	2	1,284	23.1	2	1,408	23.5	2	1,564	23.9
Austrian	3	453	13.6	3	494	13.9	2	427	11.5	2	495	11.8	2	550	12.1	2	665	13.1	2	752	13.5	3	1,051	17.6	3	1,153	17.6
Hungarian	1	45	1.4	1	48	1.3	2	196	5.3	2	221	5.3	2	551	12.1	2	615	12.1	1	666	12.0	1	744	12.4	1	829	12.7
Slovenian	2	38	1.1	1	34	1.0	1	44	1.2	1	57	1.4	1	72	1.6	2	540	10.6	2	574	10.3	1	548	9.2	1	589	9.0
Greek	4	395	11.9	4	403	11.3	2	210	5.6	1	169	4.1	1	177	3.9	1	196	3.9	1	290	5.2	1	303	5.1	0	0	0.0
Other	11	592	17.8	11	622	17.5	12	786	21.2	12	896	21.4	11	649	14.3	11	738	14.5	11	824	14.8	9	507	8.5	8	436	6.7
Nonbank financial institutions	47	281	8.4	46	315	8.8	44	344	9.3	45	406	9.7	44	448	9.9	43	477	9.4	43	507	9.1	42	530	8.9	42	593	9.1
Insurance companies	24	192	5.8	23	216	6.1	21	233	6.3	21	279	6.7	20	300	6.6	20	314	6.2	20	334	6.0	20	337	5.6	20	376	5.7
Pension funds	7	29	0.9	7	33	0.9	7	36	1.0	7	40	1.0	7	45	1.0	7	47	0.9	7	49	0.9	7	48	0.8	7	54	0.8
Leasing companies	16	60	1.8	16	66	1.9	16	75	2.0	17	87	2.1	17	103	2.3	16	115	2.3	16	124	2.2	15	145	2.4	15	164	2.5

Source: NBS.

[77] Market risks include price, foreign exchange and commodity risk.
[78] Calculated under net principle.

Table II.1.2 **Serbia: Key macroprudential indicators**
(in % unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Capital adequacy																
Regulatory capital to risk-weighted assets	21.9	21.4	19.9	19.1	19.9	20.9	20.0	20.9	21.8	22.6	22.3	23.4	22.4	20.8	20.2	21.4
Regulatory Tier 1 capital to risk-weighted assets	17.9	16.5	15.9	18.1	19.0	19.3	17.6	18.8	20.0	21.6	21.1	22.4	21.6	19.7	18.8	19.7
Nonperforming loans net of provisions to regulatory capital	15.5	26.9	35.5	52.1	52.3	55.9	56.0	44.0	27.1	17.7	9.7	6.3	6.7	7.6	6.5	6.0
Regulatory Tier 1 capital to assets	16.8	13.1	12.8	11.5	11.6	11.2	10.1	10.7	11.6	13.7	13.5	14.4	13.1	11.8	11.0	10.9
Large exposures to capital	-	-	-	110.1	104.5	90.4	130.5	115.7	86.0	69.3	77.4	66.5	73.8	86.0	86.7	85.8
Regulatory capital to assets	20.5	17.1	16.1	12.2	12.2	12.2	11.4	11.9	12.7	14.4	14.2	15.1	13.6	12.4	11.7	11.9
Asset quality																
Nonperforming loans to total gross loans	11.3	15.7	16.9	19.0	18.6	21.4	21.5	21.6	17.0	9.8	5.7	4.1	3.7	3.6	3.0	3.2
Sectoral distribution of loans to total loans – Deposit takers	1.1	0.6	0.1	0.1	0.3	0.3	0.8	0.1	0.5	0.3	0.4	0.4	0.3	0.0	0.7	0.2
Sectoral distribution of loans to total loans – Central bank	6.6	10.9	2.8	6.5	2.1	5.8	0.4	1.6	1.7	2.1	0.7	2.8	1.1	1.5	3.3	11.0
Sectoral distribution of loans to total loans – General government	0.9	1.7	3.5	3.4	3.0	2.3	2.3	1.7	1.5	1.3	1.1	1.5	1.6	1.7	2.2	2.7
Sectoral distribution of loans to total loans – Other financial corporations	0.7	0.5	1.2	1.6	1.6	1.6	0.5	0.7	0.9	0.9	0.8	0.8	0.8	0.6	1.1	1.0
Sectoral distribution of loans to total loans – Nonfinancial corporations	52.4	53.3	57.0	54.9	58.2	54.1	56.3	55.9	52.6	50.5	50.0	49.2	49.6	49.3	47.6	43.4
Sectoral distribution of loans to total loans – Agriculture	3.3	3.1	3.0	2.8	3.0	2.7	3.5	3.7	3.6	3.5	3.5	3.5	3.3	3.0	2.8	2.4
Sectoral distribution of loans to total loans – Industry	18.4	17.9	19.3	17.2	17.9	18.4	19.2	18.4	16.5	16.2	16.5	15.0	15.0	15.5	18.4	16.4
Sectoral distribution of loans to total loans – Construction	5.7	5.3	6.9	6.2	5.8	4.6	4.2	3.8	4.1	4.0	4.2	4.8	5.1	4.9	4.1	4.0
Sectoral distribution of loans to total loans – Trade	16.9	17.3	16.6	14.7	15.0	13.5	13.9	13.9	14.3	14.6	14.0	13.7	13.3	12.5	10.7	9.4
Sectoral distribution of loans to total loans – Other loans to nonfinancial corporations	8.1	9.8	11.3	13.9	16.5	14.9	15.6	16.2	14.1	12.2	11.8	12.3	13.0	13.4	11.7	11.2
Sectoral distribution of loans to total loans – Households and NPISH	35.3	32.2	33.3	31.9	33.0	34.8	38.3	39.1	41.5	42.9	44.3	43.8	45.0	45.0	43.2	39.4
Households and NPISH of which: mortgage loans to total loans	13.9	13.7	15.4	15.0	16.1	16.8	18.0	18.1	17.9	16.9	16.8	15.8	16.4	17.4	17.4	15.5
Sectoral distribution of loans to total loans – Foreign sector	2.8	0.8	2.0	1.6	1.9	1.1	1.4	0.9	1.4	2.0	2.6	1.5	1.6	1.9	2.0	2.3
IFRS provision for NPLs to gross NPLs	56.9	50.9	47.2	51.0	50.0	50.9	54.9	62.3	67.8	58.1	60.2	61.5	59.0	56.3	58.1	60.5
IFRS provision of total loans to total gross loans	8.2	9.6	9.1	10.8	10.2	11.9	12.7	14.4	12.4	6.6	4.5	3.4	3.5	3.2	3.1	3.2
Earnings and profitability																
Return on assets	2.1	1.0	1.1	0.0	0.4	-0.1	0.1	0.3	0.7	2.1	2.2	1.8	1.1	1.2	1.9	2.5
Return on equity	9.0	4.6	5.3	0.2	2.0	-0.4	0.6	1.5	3.3	10.5	11.3	9.8	6.5	7.8	13.9	18.1
Interest margin to gross income	60.5	62.6	64.2	67.3	64.4	67.5	66.6	65.7	64.6	58.4	60.0	58.8	60.6	58.2	50.9	63.7
Noninterest expenses to gross income	62.3	65.6	65.7	67.5	65.9	68.3	66.9	64.9	67.7	63.2	62.1	63.4	66.3	71.0	58.7	53.7
Personnel expenses to noninterest expenses	36.8	37.3	37.4	35.9	35.7	35.1	33.6	33.0	33.4	32.9	34.0	32.5	33.8	30.2	28.5	29.2
Liquidity																
Core liquid assets to total assets	47.8	48.2	41.8	40.3	35.2	36.1	35.7	32.5	30.5	27.5	28.0	25.7	26.7	27.9	28.7	33.2
Core liquid assets to short-term liabilities	75.7	73.8	67.1	67.3	58.9	58.3	56.3	49.3	44.3	39.9	39.6	36.1	36.4	36.8	37.2	43.8
Liquid assets to total assets	47.8	49.0	43.7	42.3	38.9	41.0	42.2	40.5	38.9	35.1	35.7	36.0	37.3	37.7	37.5	41.0
Liquid assets to short-term liabilities	75.7	75.1	70.1	70.6	65.0	66.4	66.7	61.3	56.6	50.9	50.5	50.5	50.9	49.6	48.7	54.0
Customer deposits to total (noninterbank) loans	82.7	88.3	80.1	83.1	84.9	92.3	95.7	99.7	108.1	106.9	110.6	109.2	116.4	119.5	120.5	132.1
Foreign currency-denominated loans to total loans	73.9	75.8	76.8	69.8	74.1	71.6	70.1	72.3	69.4	67.5	68.5	67.1	64.7	63.2	65.5	59.7
Average monthy liquidity ratio	1.8	1.9	2.0	2.2	2.1	2.4	2.2	2.1	2.1	2.0	2.0	2.2	2.2	2.1	2.2	2.5
Average monthy narrow liquidity ratio	1.2	1.2	1.3	1.5	1.6	1.8	1.7	1.7	1.7	1.7	1.7	1.8	1.9	1.7	1.7	1.8
Sensitivity to market risk																
Net open position in foreign exchange to regulatory capital	4.2	1.1	1.6	4.2	4.6	3.3	2.6	2.8	2.3	2.4	4.3	0.6	0.2	0.4	1.5	0.8
Foreign currency-denominated liabilities to total liabilities	74.3	77.7	81.8	79.0	80.1	76.7	74.7	72.7	71.1	69.7	69.3	66.6	62.3	61.4	62.1	57.9
Classified off-balance sheet items to classified balance sheet assets	56.2	43.3	33.9	32.0	26.1	28.7	27.6	30.6	32.4	36.4	36.8	39.7	36.3	39.1	39.6	45.2

Source: NBS.

Text box 2: The cases of Silicon Valley Bank and Credit Suisse – the importance of adequate risk management

In the aftermath of the global financial crisis of 2007/2008, financial sector regulation was significantly improved. Responding to the global crisis, in early 2009 the Basel Committee on Banking Supervision (BCBS) developed a set of new regulatory standards aimed at strengthening regulations, supervision and risk management in the banking sector. The new regulatory rules bolstered banking sector resilience and proved adequate in the wake of the global financial crisis. Higher quality and levels of capital and liquidity helped banks absorb the negative effects of the coronavirus pandemic, enabling smooth operation of banking systems' core functions.[79] Faced with a marked increase in interest rates in the post-pandemic period and at times of heightened geopolitical tensions, the global financial system as a whole remained stable. However, risk management proved inadequate in the case of individual financial institutions.

Banks are exposed to various risks in their operation, as well as to the challenges which increase the probability of risk materialisation, such as market fluctuations, regulatory amendments, economic slowdown or contraction. The collapse of two major banks in the US and Europe's banking sectors in March 2023 is an example showing that some financial institutions were unprepared for major changes in market conditions. The Silicon Valley Bank in the US was the first to go bankrupt in early March 2023, while in Europe, the second largest bank in Switzerland, Credit Suisse, was soon to follow with the acquisition agreement.[80] The problems in these banks started with a sudden run on deposits, i.e. when a huge number of depositors suddenly decided to withdraw their deposits from the mentioned banks. The cases of these two banks instilled instability in financial markets, alerting all financial system participants that banking regulations implemented since 2008 called for improvements to further bolster banking system's resilience to shocks.

The collapse of the **Silicon Valley Bank** was the largest bankruptcy of a **US bank** since 2008. The sixteenth largest bank in the US, specialising in financial services and technology startups was closed by the regulators on 10 March 2023. Namely, based on public reports, 44% of technology and healthcare initial public offerings in 2022 were clients of the Silicon Valley Bank. The bank mainly funded its operations from deposits deficient in sectoral and geographical diversification, the bulk of which were uninsured, which made them sensitive to interest rate volatility. On the other hand, it invested a considerable portion of assets into long-term securities, which are also considerably exposed to the interest rate risk. On top of that, this bank was not subject to the same level of regulatory oversight as systemically important banks in the US and was exempted from the obligation to maintain the prescribed liquidity coverage ratio and conduct annual stress tests to assess how adverse circumstances would reflect on the bank's operations.[81] The bank's collapse resulted from several factors, including the devaluation of investments and a huge deposit flight. Operating problems started to crop up when bank clients, mainly technological companies, began to withdraw their deposits. The bank had to sell bonds from its portfolio to pay out the deposits, but due to the interest rate hike and the consequent fall in bond market value, it recorded sizeable losses. The Silicon Valley Bank was taken over by the regulators and in the aftermath of the collapse, they promised to make all depositors whole, even for those funds that weren't protected by the Federal Deposit Insurance Corporation (FDIC). At end-March 2023 a deal was struck with the First–Citizens Bank & Trust Company to buy up and take over all the deposits and loans of the Silicon Valley Bank. At the time of the collapse, the Silicon Valley Bank had around USD 167 bn in total assets and around USD 119 bn in total deposits. Of that, around USD 72 bn in assets were taken over by the First–Citizens Bank & Trust Company, while around USD 90 bn worth of assets remained at FDIC's disposal.[82]

The collapse of the Silicon Valley Bank was one of the biggest shocks after the global financial crisis, which induced significant market instability. Stock prices of small and regional US banks plummeted and market volatility soared abruptly. The stress spread quickly to the short-term funding market, triggering a sudden financial tightening. Depositors

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[79] https://www.bis.org/bcbs/publ/d521.htm.

[80] Mérő, K. (2023), „Shall we reconsider banking regulations? Some lessons drawn from the failure of Silicon Valley Bank and Credit Suisse", Economy and Finance, 10(2), 101–119.

[81] The US Banking Sector since the March 2023 Turmoil: Navigating the Aftermath, https://www.imf.org/en/Publications/global-financial-stability-notes/Issues/2024/03/04/The-US-Banking-Sector-since-the-March-2023-Turmoil-Navigating-the-Aftermath-544809.

[82] https://www.fdic.gov/news/press-releases/2023/pr23023.html.

and investors started to worry first about the liquidity and soon after the stability of banks too, given the large deposit outflow, high concentration of uninsured deposits, high debt reliance and increased tapping into liquid assets, as well as considerable unrealised losses and high exposure to commercial real estate.[83]

The examples of other banks, such as Signature Bank and the First Republic Bank corroborate these findings. The Signature Bank, with USD 110 bn in assets, faced regulatory criticism in late 2022 due to excessive reliance on uninsured deposits, which made up 90% of total deposits. This bank was also significantly exposed to volatile crypto assets and commercial real estate. Soon after the collapse of the Silicon Valley Bank, the regulators announced that Signature Bank was also shutting down. The First Republic Bank with USD 212 bn worth of assets also faced liquidity shortage in March 2023. Like the above two, this bank was also heavily financed by uninsured deposits. Though large US banks, led by JP Morgan Chase, deposited USD 30 bn in this bank in mid-March 2023 to bolster its liquidity, the general view on the stability of the First Republic Bank did not improve, which led to its closing in less than two months after the collapse of the Silicon Valley Bank and Signature Bank. This ushered in some additional measures, such as the Bank Term Funding Program[84], stricter supervision and consideration of higher capital requirements for medium-sized banks in order to stabilise the market after deposit outflow and preserve banking sector stability.

US regional banks significantly recovered after the developments in March 2023. Financial indicators signal improvements and deposit outflows have stabilised. However, vulnerabilities in the US banking sector persist. Banks are also faced with the shaken investor confidence. The most affected are those with a high level of unrealised losses due to the recent interest rate hike and those exposed to high liquidity risk due to the high share of uninsured deposits.

The risks and problems in the US banking sector in March 2023 caused global uncertainty, sending ripples outside the US continent and triggering global plummeting in banks' stock prices and the rise in risk premiums. **The collapse of the Swiss bank Credit Suisse** was soon to follow. This bank was set up in 1856 with the original purpose to finance the expansion of the Swiss railroad network. For more than 150 years Credit Suisse gradually developed into a systemically important bank on a global scale and the second largest bank in Switzerland. However, as of 2021 it faced operating problems, such as constant losses, scandals, wrong business strategies and poor risk management. The bank management embarked on numerous strategic changes in the operations, which were inconsistently implemented. Reorganisation, high costs, fines and losses weakened the bank's capital base. The bank's profit was unstable and even in years with great loses, variable fees remained high. These problems undermined the bank's reputation and shook the confidence of clients, investors and markets in the viability of its business model. In February 2023 Credit Suisse announced that in 2022 it had realised the largest annual loss since the global economic crisis in the amount of CHF 7.3 bn, with sizeable deposit outflows in Q4, exceeding CHF 110 bn. This caused a sharp drop in the value of the bank's shares.[85] Struggling to recover the shaken confidence, Credit Suisse had to resort to the central bank's assistance, after which its acquisition by the UBS Group AG was agreed in mid-March 2023. The takeover was completed in June 2023.[86] Though the Swiss Financial Market Supervisory Authority (FINMA) had increasingly intensified its supervisory and enforcement activities in the bank, imposing all the stricter measures,[87] Credit Suisse failed despite the high capitalisation. The measures taken by the Swiss authorities in March 2023 were effective in preserving financial stability and client trust. They ensured that creditors were protected and that financial markets continued smooth operation.[88] Nevertheless, saving this bank was a significant potential fiscal risk, while its consolidation with the main rival created a larger, systemically important bank whose assets exceed the government's rescuing powers in case of potential operating problems.

[83] The US Banking Sector since the March 2023 Turmoil: Navigating the Aftermath, https://www.imf.org/en/Publications/global-financial-stability-notes/Issues/2024/03/04/The-US-Banking-Sector-since-the-March-2023-Turmoil-Navigating-the-Aftermath-544809.
[84] A temporary liquidity provision tool based on which US banks were able to obtain relatively favourable loans from the Fed with a repayment term of up to one year. The program was designed to ensure liquidity for financial institutions following the crisis in the US banking sector and alleviate risks associated with unrealised losses in banks' balance sheets. The program was implemented until 11 March 2024. For more details see: https://www.federalreserve.gov/newsevents/pressreleases/files/monetary20240124a1.pdf.
[85] https://www.reuters.com/business/finance/credit-suisse-logs-worst-annual-loss-since-global-financial-crisis-2023-02-09/.
[86] https://www.ubs.com/global/en/media/display-page-ndp/en-20230612-ubs-credit-suisse-acquisition.html.
[87] https://www.finma.ch/en/news/2023/12/20231219-mm-cs-bericht/.
[88] https://cepr.org/voxeu/columns/global-lessons-demise-credit-suisse.

The reforms of the regulatory and financial reporting frameworks are typically a consequence of crisis materialisation. As opposed to the global financial crisis of 2008, which engulfed the entire financial system, the problems in operations of the abovementioned banks remained contained. Recent developments demonstrated that client confidence is key during turmoil. Though the problems which emerged in banks' operations resulted from their inadequate risk management and insufficient diversification of the sources of funding and of investments, the depositors lost trust despite adequate capitalisation of banks even before the losses materialised. Also, in the mentioned banks the risks materialised very quickly due to the increasing use of financial innovations, social media, digital banking etc. These examples show that financial innovations added to the importance of preserving financial system's reputation and confidence in its functioning. A combination of quick information spreading and easy client access to funding can make financial institutions more vulnerable. Depositors can quickly withdraw large amounts, causing liquidity crisis, without leaving enough time for regulators to respond and lend a hand to financial institutions. Given that the above banks were pushed to bankruptcy by a sudden run on deposits, the majority of which were uninsured in case of the US banks, the existing deposit insurance system is in need of a major overhaul in order to strike a balance between the benefits of preventing bankruptcy and protecting depositors on the one hand and the costs of achieving market discipline and potential burdening of taxpayers on the other.[89] Also relevant would be reforms to the crisis management framework, especially regarding the appeals for urgent liquidity supply, and strengthening the tools and powers of banks' supervisory bodies. It is also necessary that banks efficiently diversify their portfolios by maturity and currency and efficiently operate, averting financial losses, all with a view to preserving client confidence and preventing bankruptcy.[90]

Banks in the Republic of Serbia were not connected with US banks and Credit Suisse, so the closing of these banks had no direct or indirect effects on the Serbian banking sector. The domestic banking sector preserved high liquidity and solvency and all the relevant bank performance indicators are far above the regulatory requirements of the NBS. As opposed to US banks, all banks operating in the Republic of Serbia are covered by the NBS's macroprudential stress tests which show that the banking sector as a whole remains highly resilient to even the strongest of shocks assumed, and that it has a sufficient capacity to absorb the consequences of potential risks.[91] Also, unlike US banks, all domestic banks are required to maintain the prescribed liquidity ratios, and the liquidity coverage ratio, which is applied in order to ensure banks' resilience to liquidity stress.

To prevent the occurrence or deepening of a wide maturity mismatch between the sources of funding and investments of financial institutions in Serbia and encourage the reliance on stable (longer-term) sources of funding, the Net Stable Funding Ratio (NSFR) was introduced in November 2023, with mandatory application planned as of 30 June 2024.[92] The NSFR is a macroprudential tool requiring the coverage of the bank's required stable funding by its available stable funding (during one year while financial system is under stress). The NBS constantly and carefully watches and analyses developments in the domestic and international financial sectors and, as so far, remains determined to take all the necessary measures to preserve monetary and financial stability and thus macroeconomic stability as a whole amid heightened uncertainties in the international market.

[89] Park, S. (2023), „Bank Runs and Design Flaws of Deposit Insurance", Economic Analysis Letters, 2(3) 18–25.
[90] Yan, S. (2023), „Banking Crisis: An Insight from the Collapses of SVB and Credit Suisse", Proceedings of the 7th International Conference on Economic Management and Green Development, 42(1), 33–40.
[91] For more information about the results of macroprudential stress tests see Chapter II.2 Macroprudential stress tests.
[92] Decision on Liquidity Risk Management by Banks (RS Official Gazette, No 100/2023).

II.2 Macroprudential stress tests

The results of macroprudential stress tests confirm the stability and resilience of Serbia's banking sector even amid globally heightened geopolitical uncertainty in 2023. The entire banking sector remains highly resilient even to the strongest of the shocks assumed and has sufficient capacity to mitigate the consequences of the financial risks to which it might be exposed. Also, the network structure indicates a low and stable systemic risk component, i.e. the system's high resilience to individual shocks.

Macroprudential stress tests are used as one of the tools to assess the key risks and vulnerability of the financial system as a whole, as well as of individual financial institutions. Also, in order to assess systemic risk in Serbia's banking sector, based on network modelling, the dynamics of banks' mutual relations is considered and potential ways of the transfer of risks between financial institutions are analysed. The assumptions underlying macroprudential stress testing in 2023 were made in line with macroeconomic movements.

Basel III[93] standards and NBS regulations require that banks also use stress tests to assess their capital adequacy. Stress tests are based on plausible but highly improbable assumptions, or events that may produce negative consequences for the financial system. Therefore, poor stress test results do not necessarily mean that the sector, an individual bank or a group of banks are faced with major risks, but rather indicate the capacity of banks to continue operating smoothly in case such events do take place.

Macroprudential stress tests conducted by the NBS enable the following:

Table II.2.1 **Elasticity coefficients of NPLs and contributions of independent variables from Q4 2022 to Q4 2023**

	Elasticity coefficients	Contributions of independent variables (pp)
Nominal exchange rate	0.80	-0.01
Key policy rate	0.02	1.13
Seasonally-adjusted real net wages	-0.15	-0.13

Source: NBS.

– measurement of banking sector resilience to an increase in credit risk caused by the assumed adverse macroeconomic developments;

– measurement of the liquidity risk caused by the loss of depositors' confidence and withdrawal of funds from banks;

– application of network modelling to assess systemic risk in the banking sector and the systemic importance of individual financial institutions;

– application of network modelling to assess the transfer of systemic risk from the real to the financial sector and the systemic importance of groups of connected enterprises.

Three parts of the analysis of the impact of the assumed shocks on banking sector stability are presented in this *Report*. *The first part* involves credit risk assessment in relation to predefined scenarios which are based on assumed macroeconomic developments. *The second* involves the assessment of whether, in case of significant deposit withdrawals and additional liquidity needs, the banking sector is able to continue operating normally. *The third part* involves assessment of systemic risk in the banking sector – whether the current structure of banks' interconnectedness is conducive to the propagation of shocks across the entire banking sector, i.e. the assessment of how resilient the entire system is to potential shocks.

Solvency stress testing

Of the large set of variables eligible for econometric analysis,[94] with the potential to impact the monthly movement of NPLs, three showed reliable predictive power: (1) the nominal exchange rate, (2) s-a real net wages in dinars and (3) the key policy rate. Elasticity coefficients (assessing the impact of each variable on NPLs) and individual contributions of each variable to any change in NPLs are presented in Table II.2.1. According to model specification, the factors which would have the greatest impact on a change in gross NPLs are changes in the exchange rate (elasticity coefficient of 0.80), changes in s-a real net wages (-0.15) and in the key policy rate (0.02).

For stress test purposes, three macroeconomic scenarios are assumed over a one-year horizon (Table II.2.2). All three scenarios of key policy rate movements are

[93] The regulatory framework of Basel III standards came into force on 30 June 2017.

[94] A detailed explanation of the applied econometric model is available in the *Financial Stability Report* – 2017, Text box 3.

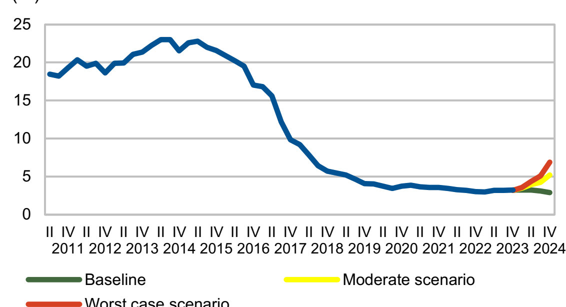
conditional on the assumed path of the exchange rate and its impact on inflation. The projection of nominal net wages was made independently, based on the ARIMA model. The projection of real net wages was made by excluding the impact of projected inflation on wage growth, under relevant scenarios.

Table II.2.2 **Overview of scenarios**

	Baseline	Moderate	Worst case
Y-o-y growth in NPL ratio (pp)	-0.30	2.01	3.68
Y-o-y depreciation of RSD against EUR (%)	0.02	16.49	34.02
Y-o-y change in key policy rate (pp)	-1.00	9.00	20.00
Y-o-y growth in real net wages (%)	4.53	-9.44	-17.61

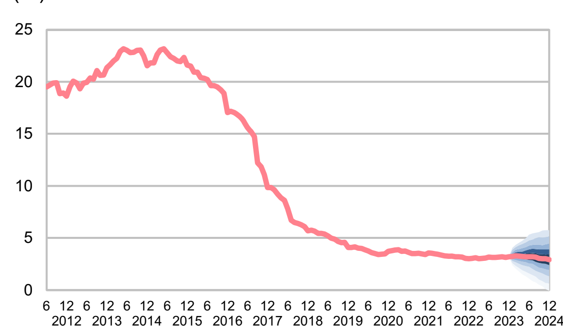
Source: NBS.

Chart II.2.1 **Share of gross NPLs in baseline, moderate and worst case scenario***
(%)



* NBS estimate.
Source: NBS.

Chart II.2.2 **Projection of the share of gross NPLs in total loans***
(%)



* NBS estimate.
Source: NBS.

Chart II.2.1 shows the projected change in the share of NPLs in total loans for the three scenarios: -0.30 pp, 2.01 pp and 3.68 pp, respectively. The projected movement with confidence intervals of 90% for the baseline scenario (the most probable scenario) is presented in Chart II.2.2.

Assessment of the resilience of the banking sector and individual banks assuming a profit buffer

For the purposes of this analysis, banking sector resilience is defined as a change in the capital adequacy ratio (CAR) at assumed changes in variables which directly and indirectly impact the CAR level. If the CAR remains above the regulatory minimum over the entire projection period, the banking sector as a whole can be considered resilient.

The CAR level is directly affected by the changes in risk-weighted assets, as well as by the changes in capital positions due to the inclusion of the financial result, issuance of new shares or, for instance, increase in deductibles from capital. However, there are also significant indirect effects, the most important being those of the exchange rate and projected profit, amendments to regulations, etc. In solvency macroprudential stress testing, the financial result before tax is projected depending on movements in macroeconomic variables. When projecting profit, the write-off of receivables is also taken into consideration assuming a deterioration in asset quality. The impact of the exchange rate on the share of NPLs is not the only channel through which the exchange rate affects capital adequacy (Diagram II.2.1).

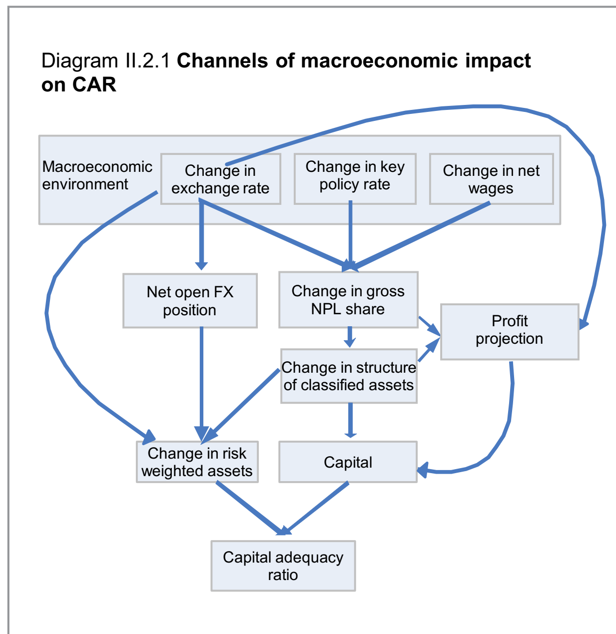
The exchange rate also affects the level of capital requirements for FX risk coverage. Given the high level of asset euroisation, the exchange rate affects the revaluation of risk-weighted assets. Finally, the exchange rate influences banking sector profits which serve as a buffer against losses, and it also affects the level of capital allocated to cover capital buffers.

According to the Decision on Capital Adequacy of Banks,[95] banks are required to always maintain their CAR at no less than:

– 4.5% for CET 1 capital adequacy ratio;
– 6% for Tier 1 capital adequacy ratio;
– 8% for regulatory capital adequacy ratio.

[95] Decision on Capital Adequacy of Banks (RS Official Gazette, Nos 103/2016, 103/2018, 88/2019, 67/2020, 98/2020, 137/2020, 59/2021, 67/2022, 137/2022, 48/2023 and 110/2023).

Diagram II.2.1 **Channels of macroeconomic impact on CAR**



Also, in addition to meeting these requirements, banks are required to maintain their capital at all times at a level necessary to cover all risks to which they are or may be exposed in their operations, i.e. at least at the level necessary for maintaining increased capital adequacy ratios, if such higher than prescribed capital adequacy ratios were set by the NBS, in line with the Decision on Capital Adequacy of Banks.

Capital buffers are additional CET 1 capital that banks are obliged to maintain above the prescribed regulatory minimum. The goal of introducing capital buffers is to mitigate the cyclical dimension of systemic risk (countercyclical capital buffer and capital conservation buffer) and its structural dimension (systemic risk buffer and capital buffer for systemically important banks).

Capital buffers include:[96]

– capital conservation buffer (2.5% of risk-weighted assets);

– countercyclical capital buffer (0% of risk-weighted assets);

– systemic risk buffer (3% of FX and FX-indexed bank exposures to corporates and households in Serbia);

– capital buffer for systemically important banks (1% or 2% of risk-weighted assets).

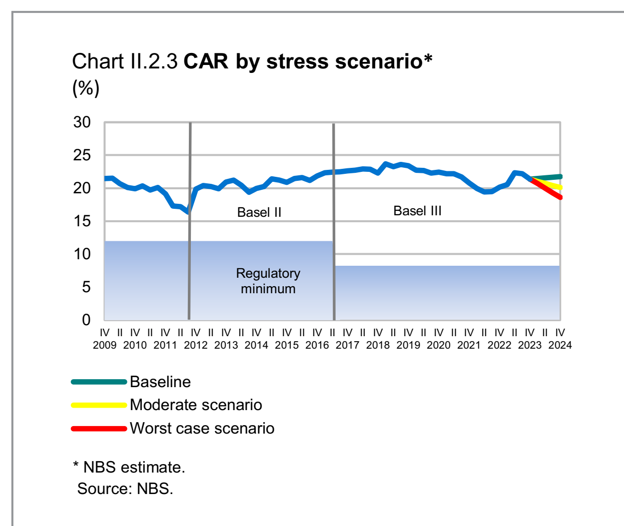
As at 31 December 2023, CET 1 capital adequacy ratio and regulatory capital adequacy ratio for the Serbian banking sector measured 19.62% and 21.38%, respectively.

Under the baseline scenario, CET 1 capital adequacy ratio would be 20.00%, and regulatory capital adequacy ratio – 21.76%.

Under the moderate scenario, these ratios would measure 18.49% and 20.12%, respectively.

Under the worst-case scenario, implying a powerful but highly improbable shock, CET 1 capital adequacy ratio would be 17.09%, and regulatory capital adequacy ratio – 18.60%.

Chart II.2.3 **CAR by stress scenario***
(%)



* NBS estimate.
Source: NBS.

Needs for recapitalisation and/or reduction in risk-weighted assets by scenario

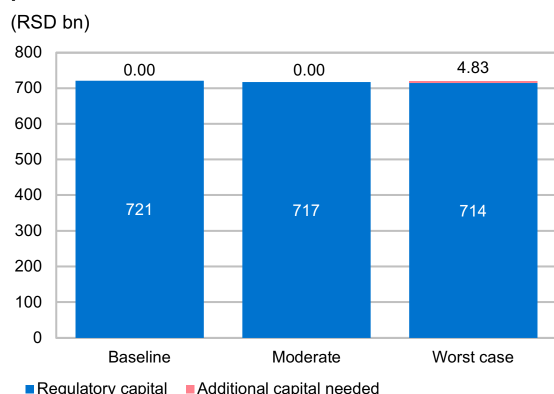
Based on data as at 31 December 2023, and under the **baseline** and **moderate scenario** assumptions, there is no need for the recapitalisation of banks in order to meet the requirements for CET 1 capital ratio of 4.5% of risk-weighted assets, Tier 1 capital ratio of 6% of risk-weighted assets and regulatory capital adequacy ratio of 8% of risk-weighted assets, or the increased capital adequacy ratios in line with the Decision on Capital Adequacy of Banks. Also, all banks would have sufficient CET 1 capital for the coverage of all prescribed capital buffers.

Under the **worst-case scenario**, banks would need additional capital of around RSD 4.83 bn, or 0.68% of the

[96] https://nbs.rs/en/ciljevi-i-funkcije/finansijska-stabilnost/zastitni_slojevi_kapitala/index.html.

Chart II.2.4 **Capital levels by scenario with projected profit buffer***

(RSD bn)



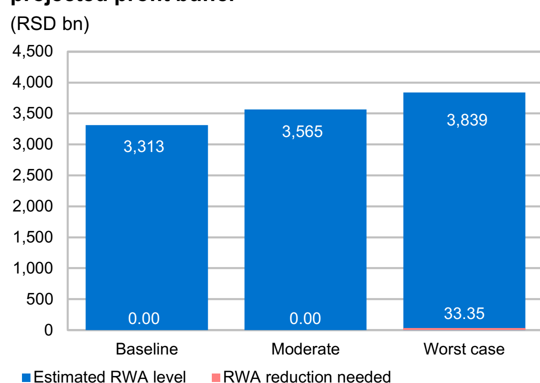
* NBS estimate.
Source: NBS.

regulatory capital at banking sector level. An alternative to capital increase would be a RSD 33.35 bn decrease in risk-weighted assets, which accounts for 0.87% of the banking sector's risk-weighted assets.[97]

Assuming a projected profit buffer,[98] Chart II.2.4 shows the movement in the level of regulatory capital by scenario, while Chart II.2.5 shows the movement in the value of risk-weighted assets by scenario.

Chart II.2.5 **Risk-weighted assets by scenario with projected profit buffer***

(RSD bn)



* NBS estimate.
Source: NBS.

NPLs that bring CAR to threshold

The final stage of solvency stress tests aims to determine the share of NPLs that would bring the banking sector CAR down to the threshold, with all of the prescribed regulatory minimums, and/or higher capital adequacy ratios in line with the Decision on Capital Adequacy, plus the established capital buffers, being met. In conditions of a projected significant deterioration in the macroeconomic environment which would drive the share of gross NPLs in total loans up by 5.03 pp, the banking sector's regulatory capital adequacy ratio could drop from the initial 21.38% to the threshold level of 17.39% over a one-year span.

However, it should be noted that the probability of such an increase in the share of NPLs in total loans, which would bring the CAR down to the threshold, is very low.

Leverage ratio values by scenario

According to the Decision on Reporting Requirements for Banks,[99] banks are required to compile and submit to the NBS quarterly reports about the ratio of their Tier 1 capital and total exposure amount – the leverage ratio. The introduction of the leverage ratio aims to limit the amount of capital which banks may use and to ensure complementary measures for capital assessment regardless of the risk estimated by banks. Under Basel III, the leverage ratio should be kept at no less than 3%.

The leverage ratio for the Serbian banking sector at end-2023 equalled 10.33%. Under the baseline scenario, the leverage ratio would measure 10.39%, while under the moderate and worst-case scenarios, this ratio would amount to 9.44% and 8.57%, respectively, i.e. well above the 3% minimum.

Liquidity stress tests

The liquidity risk in Serbia's banking sector is not as pronounced as the credit risk. However, the sudden withdrawal of deposits in late 2008 as a result of the global financial crisis and a temporary loss of confidence in the European parents of banks operating in Serbia indicates the importance of monitoring this risk.[100]

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[97] Banks which fail to meet the combined capital buffer requirement are subject to restrictions on profit distribution and are obliged to submit to the NBS a capital conservation plan in accordance with the Decision on Capital Adequacy of Banks (RS Official Gazette, Nos 103/2016, 103/2018, 88/2019, 67/2020, 98/2020, 137/2020, 59/2021, 67/2022, 137/2022, 48/2023 and 110/2023).

[98] Depending, inter alia, on macroeconomic variables, a projection is made of the pre-tax financial result, or of the profit buffer, as the first line of defence from assumed losses. In case of an insufficient amount of the profit buffer, the losses would reflect negatively on the bank's capital.

[99] RS Official Gazette, Nos 125/2014, 4/2015, 111/2015, 61/2016, 69/2016 103/2016, 101/2017, 46/2018, 8/2019, 27/2020, 67/2020, 137/2020, 59/2021, 60/2021, 67/2022, 48/2023 and 100/2023.

[100] For a more detailed description of the deposit withdrawal in late 2008, see the *Annual Financial Stability Report – 2012*.

Liquidity stress testing aims to determine whether the Serbian banking sector could continue to operate normally in case of the same or a stronger shock. In addition to deposit withdrawal, other factors can also depress liquidity on the liabilities side, including the inability to refinance, or strained access to new sources of funding. Likewise, factors on the assets side may include the unexpected use of credit lines, market liquidity squeeze, fall in asset value, etc., which would further impair banks' liquidity position.

The analysis of the deposit withdrawal shock in domestic banks that lasted from September 2008 to January 2009 served to create the following scenarios:

– déjà vu scenario, envisaging a deposit withdrawal worth around RSD 480 bn (11% of total deposits) and the same structure of deposits withdrawn as recorded in the above period;

– risk spillover scenario, implying the spillover of the liquidity crisis from parent groups into Serbia's financial sector; in addition to the deposit withdrawal in October 2008, this scenario also envisages a lack of support from parent banks due to the international banking crisis, which raises total deposit withdrawal to around RSD 663 bn (15% of total deposits);

– worst-case scenario, envisaging a shock two times stronger than in October 2008, i.e. a deposit withdrawal of around RSD 948 bn (21% of total deposits).

For the purposes of the analysis, deposits are divided into two main groups – demand and time deposits. Deposit withdrawal assumptions for all three scenarios are presented in Table II.2.3.

According to the initial data, the liquidity ratios of all banks would be above the regulatory minimum.

In the scenarios described above, the banking sector liquidity ratio would range from 2.58, where it stood on 31 December 2023, to 1.60 in the worst-case scenario (Chart II.2.6).

The Decision on Liquidity Risk Management by Banks,[101] applied as of 30 June 2017, introduced a new liquidity ratio – Liquidity Coverage Ratio. This ratio was introduced in order to ensure banks' resilience to liquidity shocks over a 30-day span. According to bank reports as at 31 December 2023, all banks disclosed the liquidity coverage ratio, aggregately by all currencies, above the regulatory minimum, while at the banking sector level this ratio stood at 1.94.

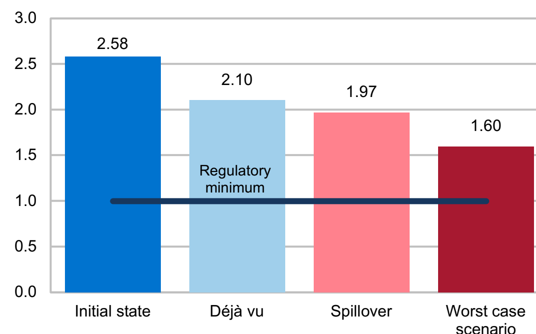
The Decision on Liquidity Risk Management by Banks,[102] applied as of 30 June 2024, introduces the Net Stable Funding Ratio (NSFR).[103]

Table II.2.3 **Assumptions of deposit withdrawals by sector**

DEPOSIT WITHDRAWAL	Déjà vu 2008	Spillover	Worst case
Banks – demand	0%	60%	60%
Corporate – demand	10%	10%	20%
Household – demand	12%	20%	24%
Government – demand	23%	23%	35%
Other demand deposits	11%	15%	22%
Time deposits	11%	13%	20%
Marketability of 2nd class liquid assets	100%	100%	80%
Stocks and bonds listed on the stock exchange	100%	100%	40%
Total of deposits withdrawn (RSD bn)	480	663	948
Share in total deposits (%)	11%	15%	21%

Source: NBS.

Chart II.2.6 **Liquidity ratio for the banking sector by stress scenario***



* NBS estimate.
Source: NBS.

Liquidity needs by scenario

Based on reported data as at 31 December 2023, there was no need for additional first-order liquidity.

[101] RS Official Gazette, No 103/2016.
[101] RS Official Gazette, No 100/2023 (applied as of 30 June 2024).

[103] NSFR is the ratio of elements that provide and those that require stable funding. Banks are required to maintain this ratio, aggregated in all currencies, at no less than 100%.

Under the déjà vu and risk spillover scenarios, as well as under the worst-case scenario, there would be no need for first-order liquidity in any bank.

Deposit withdrawal values that bring liquidity ratio to threshold

The liquidity risk analysis aims to determine the values of deposit withdrawals from the banking sector and individual banks that would lower the liquidity ratio from the initial level to 1.5 and 1.0, respectively.

Based on Table II.2.3, the structure of deposit withdrawal by deposit category in total withdrawn deposits was derived for the déjà vu scenario (Table II.2.4).

At the banking sector level, under the déjà vu scenario assuming deposit withdrawal structure of around RSD 1,177.1 bn or 26.2% of total deposits (RSD 861.2 bn demand and around RSD 315.9 bn time deposits), the liquidity ratio would measure 1.5. In case of a withdrawal of RSD 1,855.5 bn, i.e. 41.4% of total deposits (of which around RSD 1,357.5 bn in demand and around RSD 498.0 bn in time deposits), the liquidity ratio would fall to 1.

Table II.2.4 **Derived structure for share of deposit withdrawals by depositor category in total deposits withdrawn**

	Déjà vu
Withdrawal of demand deposits	73%
Withdrawal of time deposits	27%
Structure of total demand deposit withdrawal	
Banks	0%
Other depositors	84%
Household savings	16%

Source: NBS.

Banking sector survival period in case of sudden deposit withdrawal

The period in which we observe the effects of a strong shock is defined as the survival period, and it consists of two stages. The first is a short period of high-intensity stress, lasting for several days. During that time an evaluation is made of the bank's ability to cover liquidity outflows amid reduced possibility of obtaining new liquid assets and changing the business model. The second stage is a longer period, marked by weaker but more persistent shocks, lasting for over a month.

Table II.2.5 **Assumed daily deposit withdrawal**

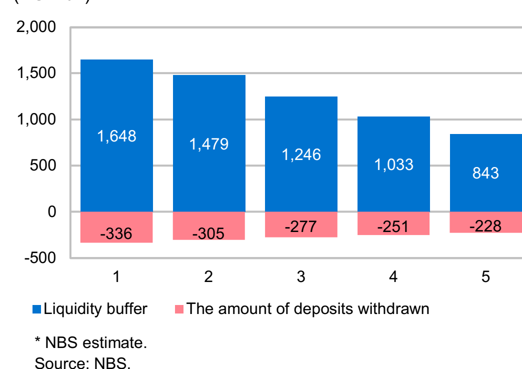
DEPOSIT WITHDRAWAL	Moderate scenario	Worst case scenario
Demand deposits – daily	10%	15%
Time deposits – daily	2%	5%
Availability of liquid assets – daily	95%	95%
Availability of non-liquid assets – daily	1%	1%

Source: NBS.

This group of liquidity tests aims to determine the longest period of banking sector survival in case of large daily deposit withdrawals – in the stage of a short and strong liquidity shock. The main withdrawal assumptions for the moderate and worst-case scenarios are presented in Table II.2.5.

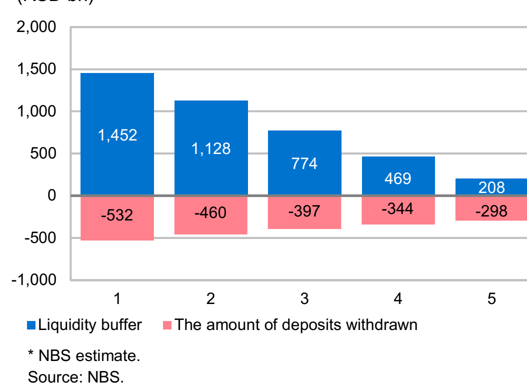
Charts II.2.7 and II.2.8 show available liquid assets and the amount of deposits withdrawn at the banking sector level in the first five days (the amount of liquid assets remaining after liquidity needs are satisfied) for both scenarios. Charts II.2.9 and II.2.10 give the deposit structure by day.

Chart II.2.7 **Liquidity buffer – daily for moderate scenario***
(RSD bn)

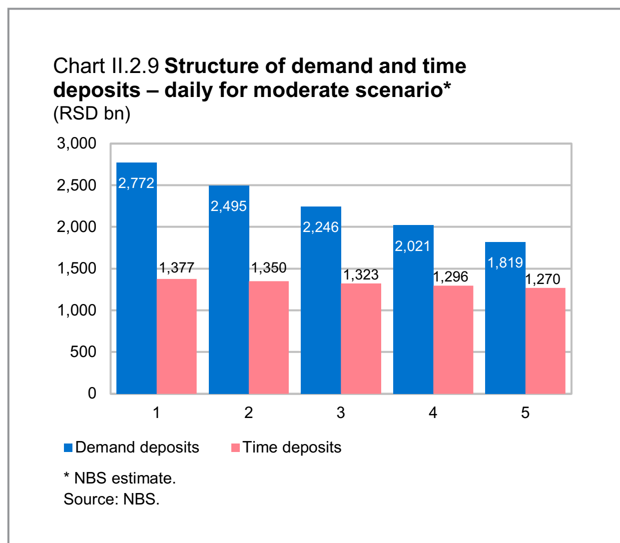


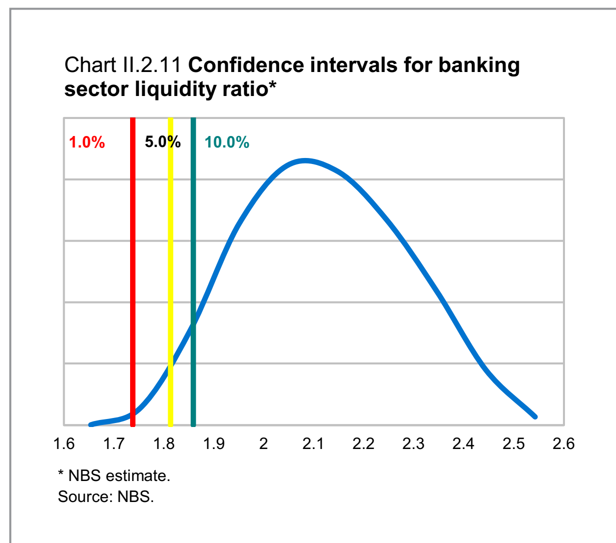
* NBS estimate.
Source: NBS.

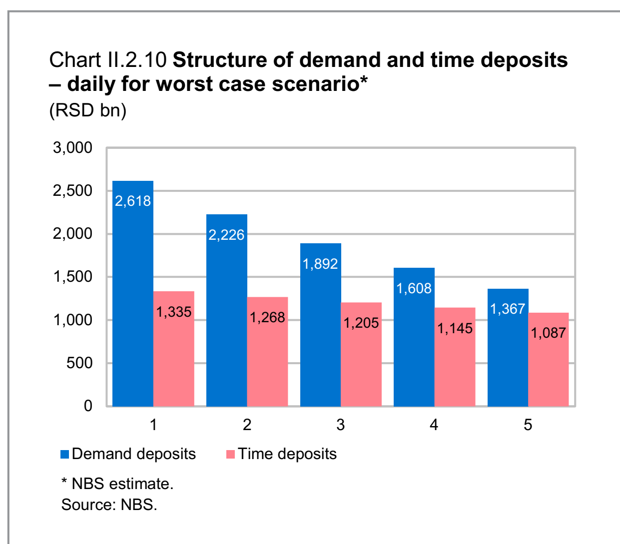
Chart II.2.8 **Liquidity buffer – daily for worst case scenario***
(RSD bn)



* NBS estimate.
Source: NBS.







According to the results of liquidity stress tests as at 31 December 2023, the entire banking sector can withstand twelve business days[104] in conditions of daily deposit withdrawal in the moderate scenario, or six business days in the worst-case scenario.

Simulations of the liquidity shock

This analysis aims to determine the probability of movement of banking sector liquidity ratios under the assumed negative effects, i.e. various randomly selected values of deposit withdrawals.

The liquidity ratios are obtained based on tens of thousands of different scenarios, which imply the statistical sampling of the assumptions of deposit withdrawal by sector, from zero to the worst-case scenario value (Table II.2.4). Since only assumption values with a negative effect are observed, the tentative values of the variable under assumed negative effects are calculated. This enables an efficient modelling of a large number of simulations of low-probability shocks to Serbia's banking sector liquidity for test purposes.

These simulations produced a distribution of liquidity ratios of the banking sector at various combinations of assumptions (Chart II.2.11).

With the given confidence interval of 10%, the liquidity ratio equals 1.86, while for confidence intervals of 5% and 1%, it equals 1.81 and 1.74, respectively.

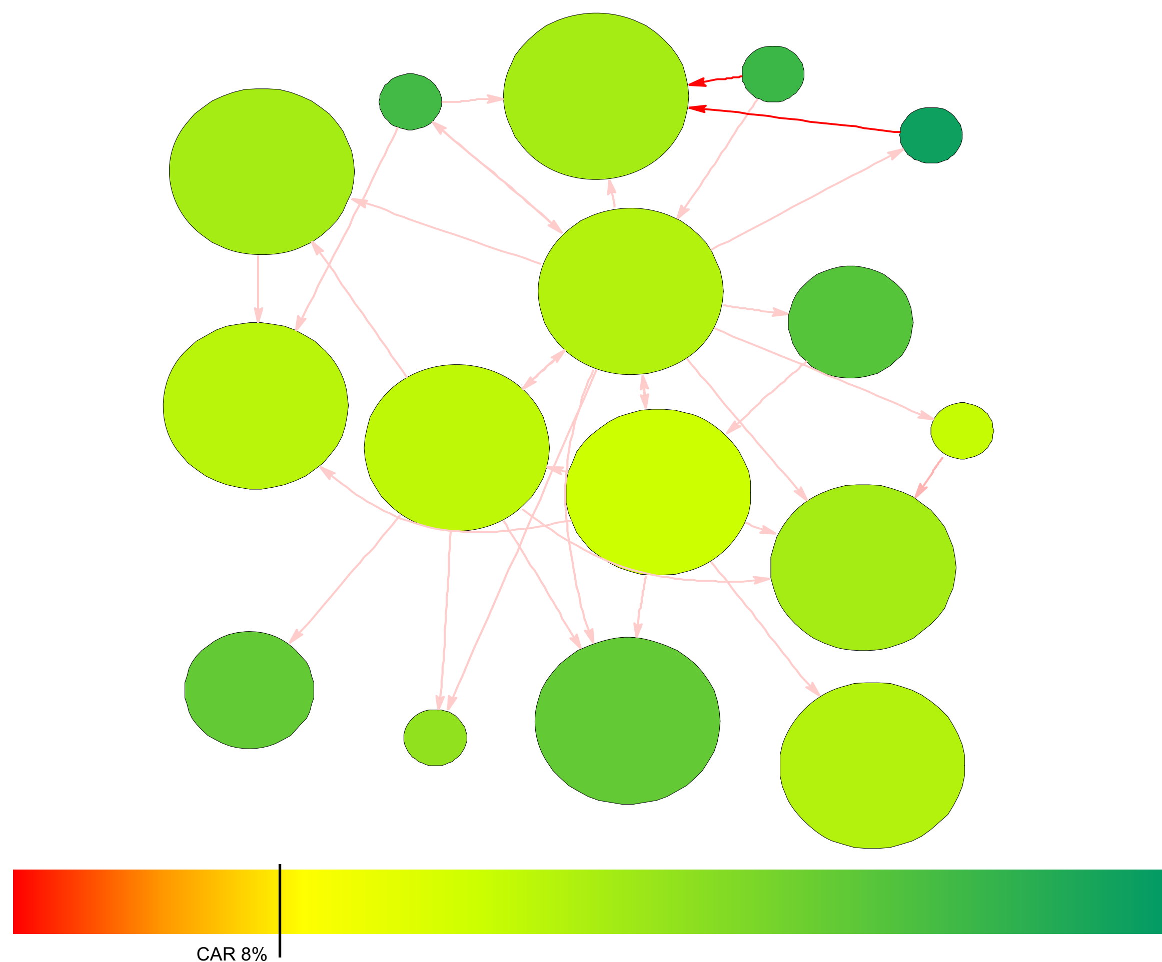
In other words, it can be asserted with a 90% certainty that the liquidity ratio will not fall below 1.86 in various combinations of deposit withdrawal assumptions. Moreover, there is a certainty of 99% that the ratio will not fall below 1.74.

Network modelling in the assessment of banking sector systemic risk

The 2008 global financial crisis revealed the importance of observing the interdependencies among financial institutions for the purpose of determining the systemic component of risk. In terms of the systemic risk, it is important to determine which financial institutions are systemically important, whether the existing structure of

[104] The IMF's recommendation about the bank survival period after deposit withdrawal is a period of five business days. After this period, it is believed that a bank will have sufficient time to consolidate its operations.

Chart II.2.12 **Banking network of the Republic of Serbia**



Source: NBS.

interconnectedness is conducive to the transmission of the shock through the system, and above all, to what extent the entire system is resilient to potential shocks. Therefore, the financial system cannot be observed only from the aspect of a single institution; rather, information on the interinstitutional dependencies must be included as well.

The network structure describes the domestic banking sector in the context of mutual on- and off-balance sheet exposure of banks. The network of Serbia's banking sector, in accordance with the given definition,[105] is presented in Chart II.2.12.

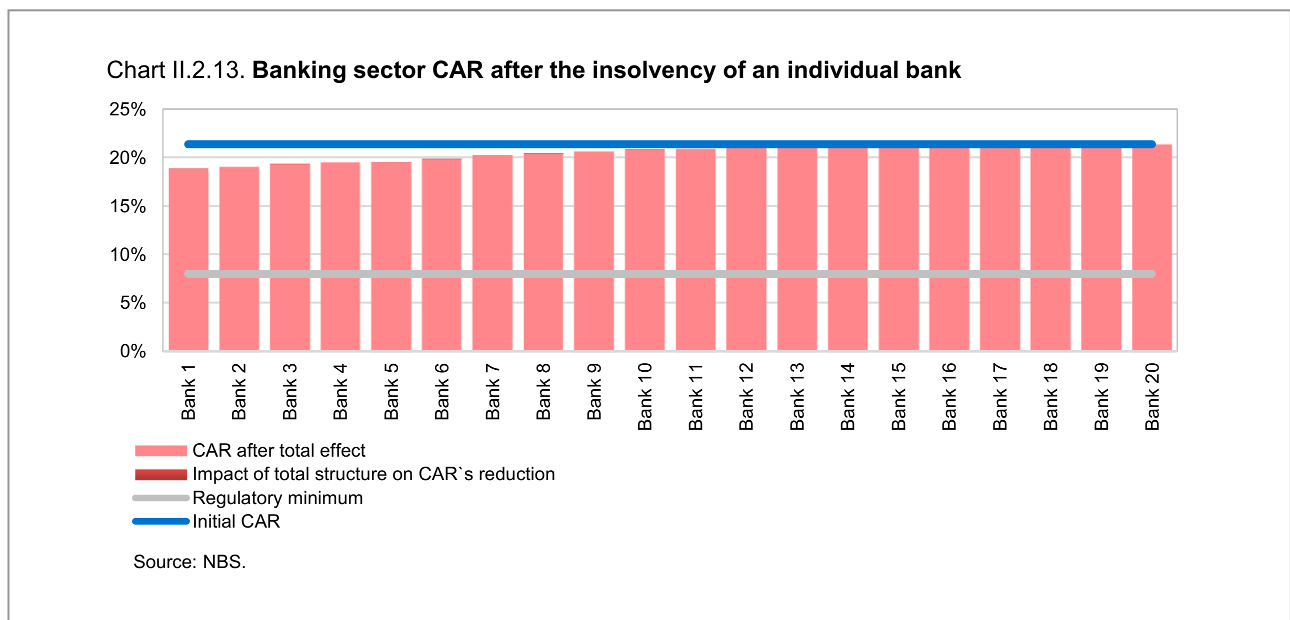
Global efficiency indicates the banking sector's network capacity in terms of shock transmission and equals 0.15. As global efficiency ranges between 0 and 1, where values close to 1 indicate high conductivity of shocks through the network, a global efficiency of 0.15 does not indicate a high network potential for shock transmission.

[105] The edge weight from bank *i* to bank *j* represents the potential increase in allowances for loan impairment relative to the regulatory capital of bank *i*, in case of insolvency of bank *j*. The intensity of the edge colour indicates its weight – the greater the weight, the more intense its colour. The edge direction is determined as follows: the edge from node *i* to node *j* relates to potential growth in allowances for impairment relative to the regulatory capital of bank *i* in case of a decrease in the solvency of bank *j*. The size of the circle that represents the bank shows the amount of its regulatory capital – the greater the circle, the higher the amount of regulatory capital. The circle colour indicates the level of CAR. In the spectre from red to green, red corresponds to the minimum observed CAR of 0%, while green corresponds to CAR of 36%. Values above 36% are considered exceptionally high and are therefore not taken into account when forming the scale of CAR.

The impact of the network structure on shock transmission is simulated as follows: assuming the insolvency of a pre-determined bank, the expected increase in allowances for loan impairment is calculated for each bank in the system. An increase in allowances for impairment results in a lower CAR, already in the first iteration of shock transmission. In each following iteration, based on the CAR values obtained in the previous iteration, new probabilities of default were obtained for each bank in the system (which did not become undercapitalised up to that point). Based on this, the expected increase in allowances for impairment and a new reduction in risk-weighted assets, capital and the CAR were calculated again. A shock is considered neutralised when further iterations register no change in regulatory capital and risk-weighted assets of any of the banks. Assuming the insolvency of an individual bank and the transmission of a particular shock through the system, as was explained, the effect on each individual bank, and therefore on the system, originates from two different sources. One relates to the initial iteration following the insolvency of a pre-determined bank – to its elimination from the system and the immediate impact on banks exposed to it. The other relates to shock transmission in the following iterations, i.e. the domino effect, which measures the impact of the structure of the banking sector network on the transmission of insolvency through the system.

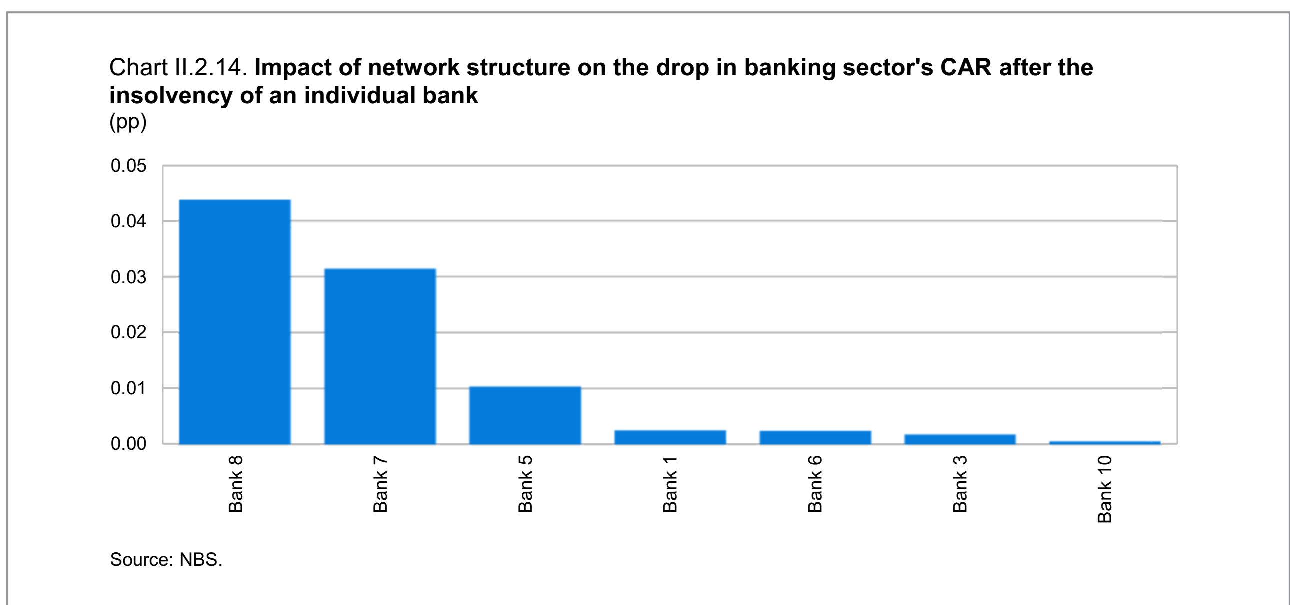
Chart II.2.13 shows the banking sector's CAR immediately after the assumed insolvency of each individual bank in the sector and the total effect of the

Chart II.2.13. **Banking sector CAR after the insolvency of an individual bank**



Source: NBS.

Chart II.2.14. **Impact of network structure on the drop in banking sector's CAR after the insolvency of an individual bank**
(pp)



Source: NBS.

existence of the network structure. Chart II.2.14 shows the impact of the network structure on shock transmission, reflected in a reduction in the CAR of individual banks and/or sector, in all iterations following the first one.

The results shown in Charts II.2.13 and II.2.14 indicate that, in case of insolvency of any bank, the banking sector's CAR would stay in the safe zone, i.e. above the regulatory minimum. Also, the impact of the network structure on shock transmission is relatively weak, which is conducive to the maintenance of financial stability.

Conclusion

The Serbian banking sector would remain resilient, adequately capitalised and highly liquid even in case of the strongest assumed shocks against the backdrop of globally heightened uncertainty. Further strengthening of the financial stability function, protecting depositors, as well as building public trust in the banking system mandates continuous and systemic monitoring of risks in the banking sector.

The results of macroprudential stress testing indicate that the regulatory capital adequacy ratio of the banking sector would remain above the regulatory minimum even in the worst-case scenario.

The banking sector would stay liquid even in conditions of the largest assumed deposit outflow. However, in case the assumed scenarios materialise, the NBS has the instruments to ensure additional liquidity. The application of Basel III standards implies new regulatory requirements in terms of liquidity risk management and minimum liquidity ratios for banks. These regulatory requirements function as both micro and macroprudential instruments that are used to prevent the occurrence of or increase in the maturity mismatch between financial institutions' sources of funding and investment.

As the interconnectedness of financial institutions may lead to a contagion or shock transmission in the banking sector, it is of particular importance to assess the connection among banks and the potential systemic risk arising therefrom. The results of the network modelling indicate that there is no significant systemic risk component in the Serbian banking sector.

In terms of preserving financial stability, the NBS aims to achieve a full coordination between monetary and macroprudential policy. The NBS uses available macroprudential tools with the aim of making the financial system more resilient, limiting the accumulation of vulnerabilities and mitigating systemic risk. This approach contributes to the stability, resilience and lower procyclicality of the financial system and works towards increasing the efficiency of monetary policy transmission.

The NBS started the development of an analytical framework for analysing the effects of climate change on financial stability. To this end, a quantitative scenario analysis of the impact of transition risks on the solvency of individual banks was carried out, as well as on the entire Serbian banking sector. For details on the effect of climate change, see Text box 3. The response to the risks stemming from climate change must be well-measured, given the uncertainty regarding the time and manner in which these risks will play out and the size of direct and indirect damage they may cause. It is of key importance to recognise the broadest possible scope of the risks (both physical and transition) and the channels of their impact on specific sectors of the economy, geographical regions, population categories and, ultimately, on GDP and financial system stability.

Text box 3: Climate stress testing – quantitative analysis of the impact of transition climate risks on the Serbian banking sector

Climate changes may engender new risks to the financial system, with two types standing out from the central bank perspective: physical and transition risks. Physical risks pertain to the negative impact of adverse weather conditions on corporate assets, infrastructure and operations. Transition risks arise from policy tightening through imposing of various restrictions or taxes aimed at lowering harmful gases emissions and supporting transition toward a green economy. The key element of provisions laid down by the Paris Agreement of 2015[106] is pricing carbon dioxide (CO_2) emissions to discourage climate-harmful behaviours and strengthen country capacity to cope with climate change impact. To reach national and international climate goals, national governments tighten their policies in order to stimulate corporates and other carbon emitters to reorient toward renewable energy sources and endorse new technologies to reduce harmful gases emissions. Policy tightening can generally go along two paths. The first is imposing limits on carbon emission in certain sectors through licensing. The second is imposing a carbon tax, thus directly pricing the emissions and increasing production costs. Entities emitting large quantities of harmful gases will tend to offset a part of tax-imposed expenses by increasing the final product price, but they cannot fully offset all additional costs, because a price rise will dent demand for the product. A combined effect of rising expenses and a contraction in the turnover would lead to lower corporate income and profitability. Consequently, this effect would be higher in sectors that are intensive carbon emitters or those unable to incorporate a significant part of the rise in production costs into final prices without reducing the volume of production. In case of considerable exposure to sectors with high harmful gas emissions, financial institutions could be affected by credit losses, which might undermine their capital positions.

The impact analysis of transition climate risk on banking operations carries several challenges. As opposed to traditional impact analysis, such as the impact of a rise in NPLs on a bank’s capital or of deposit withdrawal on a bank’s liquidity positions, in the case of transition climate risk there are no adequate historical data that would enable calibration of their economic effects.[107] To quantify the effects of transition climate risks, scenarios need to be devised relying on assumptions about climate policies and technological changes, as well as the channels of transmission onto prices, taxes and energy demand. The main idea behind this approach is that a carbon tax would raise production costs and reduce demand for products of companies from the affected sectors.

The analysis below estimates the impact of transition climate risks on the probability of default of companies which are bank debtors[108] and consequently the effects on key bank indicators and the banking sector as a whole in the medium term, due to the increase in carbon tax. It draws on data from banks’ regulatory reports, performance indicators of companies and public enterprises and publicly available data of the SORS relating to annual national accounts and carbon emissions. The analysis was conducted in four phases.

Phase I – Non-performing model

The non-performing model (NP model) is a rating model based on logistic regression[109] aimed at estimating the probability of corporates’ non-performance over a one-year period, based on their performance indicators. The main methodological challenge is the selection of a core set of relevant indicators with the sufficient predictive power for estimating the probability of non-performance. The basis for the analysis and construction of financial performance indicators of corporates in the NP model were data from regular annual financial statements for 2021 which companies and public enterprises submitted to the Business Registers Agency,[110] followed by banks’ reports on the classification of balance

[106] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.
[107] Climate Stress Testing, Federal Reserve Bank of New York Staff Reports, June 2023 (https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1059.pdf).
[108] For the purposes of this Text box, probability of default is approximated by the probability of shift of unsecured part of a borrower’s exposures from favourable to unfavourable classification categories in accordance with the Decision on Classification of Bank Balance Sheet Assets and Off-Balance Sheet Items, RS Official Gazette, Nos 94/2011, 57/2012, 123/2012, 43/2013, 113/2013, 135/2014, 25/2015, 38/2015, 61/2016, 69/2016, 91/2016, 101/2017, 114/2017, 103/2018, 8/2019 and 10/2024.
[109] Random sampling of 100 logistic regressions, applying the backward selection method on a sample of 50 : 50 of companies which meet their liabilities vs. those which do not meet their liabilities.
[110] https://www.apr.gov.rs.

sheet assets and off-balance sheet items, reports on the structure of banks' NPLs,[111] and reports of companies subject to enforced collection[112].

Based on the NP model, out of a large number of financial performance indicators of the corporate and public non-financial sectors, three demonstrated statistical significance for estimating the probability of non-performance over a one-year time horizon, namely:

1. **Asset turnover ratio** is the ratio of operating revenue and average operating assets, indicating the efficiency with which a company is using its total operating assets to generate operating revenue, primarily sales revenue;
2. **After-tax return on assets** is an indicator of a company's profitability, as the ratio of a company's net profit/loss and total operating assets;
3. **Borrowed capital ratio** is the ratio of total obligations and long-term provisions in total liabilities of a company. Higher values of this ratio suggest that the company relies more heavily on borrowed funds in its operation, which increases the probability of problem occurrence in case of materialisation of a particular shock.

Phase II – Sectoral carbon price model

As a measure of transition climate risk, i.e. impact on corporate financial performance indicators, we used the outputs from the sectoral carbon price model, estimating the effects of introduction of carbon tax on expenses and the volume of production by economic sector.

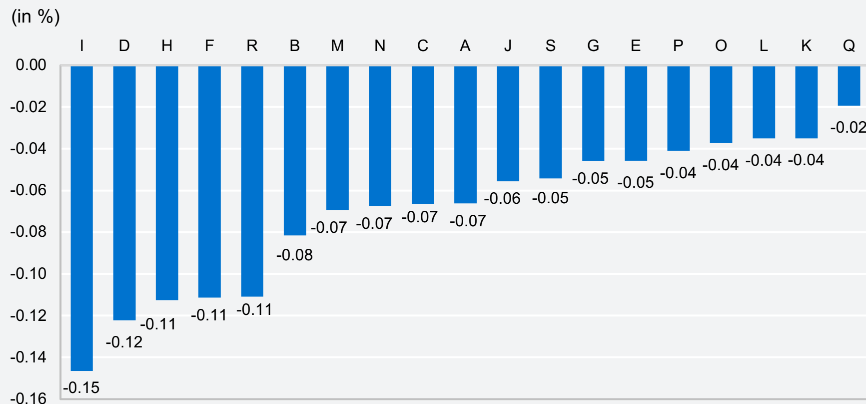
The sectoral carbon price model was implemented as an input-output analysis,[113] one of the most frequently used economic analyses for the estimate of interdependencies between different sectors of a national economy, based on supply and use tables. The supply tables pertain to goods and services flows either produced in the domestic economy or imported from every industry that is considered a producer toward every industry that is considered a consumer and which form a use table, including the industry of the producer as one of the consumers of those products. The use table shows the consumption of goods and services by sector, used in final consumption, investments and exports, with prices valued at sale prices. It may be expanded for certain non-industrial inputs, such as taxes, salaries, import and similar.[114] Economic sectors differ considerably by the intensity of carbon emission, and would therefore be differently affected by tax introduction. Input-output analyses may cover the pass through of the cost shock caused by the carbon tax on all industries and components of final demand (private and government consumption, investments, exports). It is assumed that companies would continue to produce with the same input structure but would cut down production due to changes in costs and demand under the impact of carbon prices.

The source of data for the sectoral carbon price model is a symmetric input-output table at basic prices by sector (industry),[115] published by the SORS, containing data about a total of 65 different economic sectors. The 2015 table was used, to ensure compliance with the latest available data on carbon emissions[116] in the Republic of Serbia. The model and tables on price elasticity were compiled on the model of the Oesterreichische Nationalbank – a carbon price shock for the Austrian banking sector.[117]

The results of the carbon price model, applied to data for the Republic of Serbia, under the assumption of an additional carbon price of EUR 200 per tonne show a potential reduction in production volume by sector[118] (Chart O.3.1). The estimated fall in the production volume is a consequence of either intensive CO_2 emission or high elasticity of demand for products or

[111] Decision on Reporting Requirements for Banks (RS Official Gazette, Nos 125/2014, 4/2015, 111/2015, 61/2016, 69/2016, 103/2016, 101/2017, 46/2018, 8/2019, 27/2020, 67/2020, 67/2020, 137/2020, 137/2020, 59/2021, 59/2021, 60/6021, 60/2021, 67/2022, 67/2022, 48/2023 and 100/2023).
[112] Decision on the Manner of Enforcement of Claims by Debiting the Client's Account (RS Official Gazette, Nos 14/2014, 76/2016, 8/2020 and 21/2021).
[113] Miller, R. E. and P. D. Blair (2009), "Input-Output Analysis. Foundations and Extensions", *Second Edition, Cambridge University Press. New York.*
[114] https://www.stat.gov.rs/en-US/vesti/20190930-nacinalnitabponudeiupotrebe.
[115] https://www.stat.gov.rs/en-US/oblasti/nacionalni-racuni/godisnji-nacionalni-racuni-ponuda-i-upotreba.
[116] https://data.stat.gov.rs/Home/Result/25040101?languageCode=en-US.
[117] https://www.oenb.at/dam/jcr:2c2077e8-9729-441a-bb43-3b7a50ec2228/05_FSR_42_OeNB-climate-risk-stress-test.pdf.
[118] A – Agriculture, forestry and fishing; B – Mining; C – Manufacturing; D – Electricity, gas, steam and air conditioning supply; E – Water supply; sewerage, waste management and remediation activities; F – Construction; G –Wholesale and retail trade; repair of motor vehicles and motorcycles; H – Transportation and storage; I – Accommodation and food service activities; J – Information and communication; L – Real estate activities; M – Professional, scientific and technical activities; N – Administrative and support service activities; P – Education; Q – Human health and social work activities; R – Arts, entertainment and recreation; S – Other service activities.

Chart O.3.1 **Reduced volume of production due to higher tax on CO_2 emission, by economic sector**
(for CO_2 price of 200€/t CO_2)



* NBS assessment.
Sources: SORS, OeNB and NBS.

services of certain sectors (e.g. accommodation and food services sector, which will undergo a significant contraction in demand, should the prices go up). The results of the analysis show that the sectors that would be exposed to the most severe losses are accommodation and food, electricity, gas, steam and air conditioning supply, transportation and storage, as well as construction, while health and social welfare would be least affected.

Phase III – Analysis of corporate financial performance indicators in the NP model assuming materialisation of transition climate risk

The results obtained in the carbon price model which pertain to the reduction in the volume of production by economic sector were used as starting assumptions for stress testing of corporate financial performance indicators in the NP model.

A reduced volume of production in a particular sector due to the imposing of carbon tax, in accordance with the sectoral model, would lead to reduced operating income in this sector, as well as reduced operating expenses, because the companies that are unable to fully transfer the increase in costs onto the product price would respond to lower demand by scaling down their production volume. The analysis shows that due to the estimated losses in the volume of production by economic sector (in Phase II), the asset turnover ratio would decline by around 6 pp in the overall economy relative to the initial value of this indicator, and after-tax return on assets rates would edge down by 0.4 pp relative to the initial value. In this model, the reduced production volume would not directly affect the borrowed capital ratio which will be used in the next stages of climate stress tests for estimating the feedback effect on the price of borrowing.

Based on stressed values of these ratios, in case of imposing a carbon tax, the NP model arrived at the probabilities of non-performance for every sector in the economy. The default probability in all sectors would go up compared to the initially estimated probability, suggesting that carbon taxation would lead to an increase in expected credit losses of banks.

Phase IV– Solvency stress testing of the banking sector against transition climate risk

Solvency stress testing of the banking sector against transition climate risk is based on the estimate of the impact of companies' probability of non-performance on the capital adequacy ratio of Serbia's banking sector. It is conducted under the assumption of materialisation of transition climate risk within the time horizon of five years, according to the top-down methodology[119] using the NBS's framework for macroprudential stress testing.

[119] Top-down stress tests rely on individual bank reports, single methodology and assumptions. In order for stress tests to produce reliable results, close cooperation is necessary between teams conducting macroprudential and supervisory stress tests and between banks and the central bank (supervisory authority).

The input data used in this segment of the analysis include the probability of non-performance for every economic sector obtained from the NP model, banks' reports on the classification of balance sheet assets and off-balance sheet items by borrower and banks' regulatory reports used in macroprudential stress testing, concluding with December 2022. A database with some 20,000 individual items was created (receivables from the corporate and public non-financial sector), classified according to the Decision on the Classification of Balance Sheet Assets and Off-Balance Sheet Items. Expected credit losses (EL) are obtained by multiplying borrower's probability of non-performance (PNP), exposure amount at the time of non-performance and the share of exposures that are expected to remain outstanding due to the non-performing status. Increased allowances for impairment of balance sheet assets and provisioning for losses under off-balance sheet items represent the difference of expected credit losses arising from transition risk, as presented by equation:

$$EL_2 - EL_1 = \frac{PNP_2}{PNP_1} * EL_1 - EL_1$$

EL_1 – expected losses without taking into account transition climate risk,

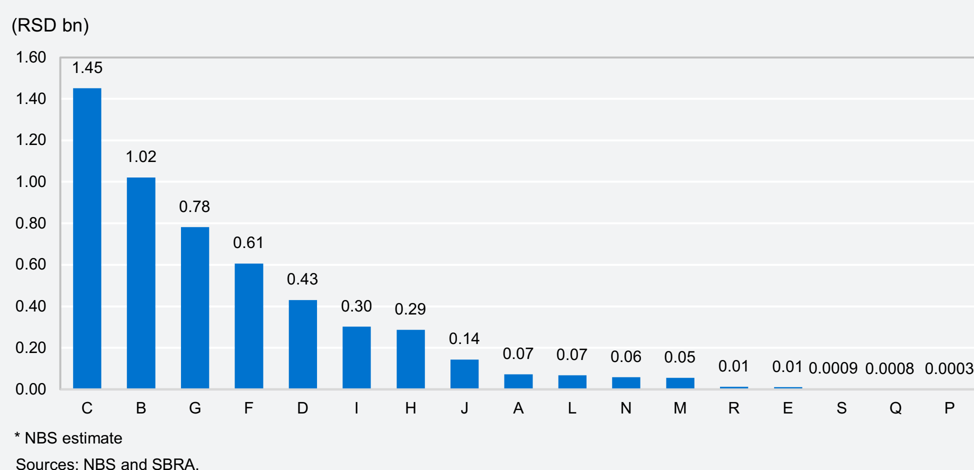
EL_2 – expected losses taking into account transition climate risk,

PNP_1 – a borrower's probability of non-performance without taking into account transition climate risk,

PNP_2 – a borrower's probability of non-performance taking into account transition climate risk.

Based on the calculation, the model projects a rise in expected losses of individual banks and the banking sector for each sector in the economy, under the assumption of materialisation of transition climate risk (Chart O.3.2).

Chart O.3.2 **Projected rise in expected losses of the banking sector assuming materialisation of transition climate risk, by economic sector**
(based on data concluding with December 2022)

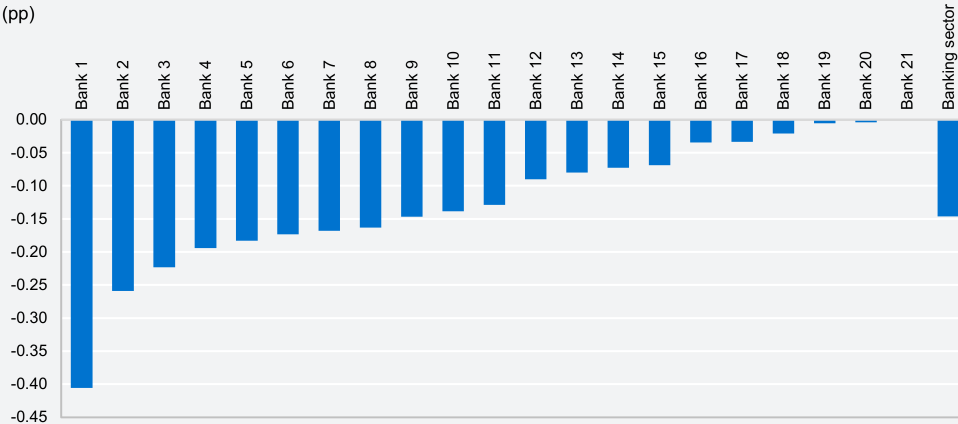


* NBS estimate
Sources: NBS and SBRA.

In calculating the impact on the capital adequacy ratio as part of macroprudential solvency stress testing of individual banks and the banking sector as a whole, the capital was adjusted also by risk-weighted assets for the projected increase in expected losses arising from transition climate risk and a comparison was made with projections without the impact of this risk. Profit was also projected, as an average pre-tax financial result for the period of five years, from 2018 until 2022.

The projections show that in case of imposing carbon tax, the capital adequacy ratio for the banking sector as a whole and for each individual bank would be below the value of this indicator without the impact of transition climate risk (Chart O.3.3). Under the assumption of transition climate risk, observed by individual bank, the sharpest fall in capital adequacy ratio would amount to 0.41 pp. The results show that, due to the transition climate risk, the capital adequacy ratio at the banking sector level would be around 0.15 pp lower compared to the case where this risk did not materialise, observing the five-year time horizon.

Chart O.3.3 **Changes in projected CARs assuming materialisation of transition climate risk**
(based on data concluding with December 2022)



* NBS estimate.
Source: NBS.

The conducted analysis shows that the introduction of a carbon tax would result in a reduction of banks' capital adequacy ratio, especially in cases of large exposure to sectors with high carbon emission. Each of the observed individual banks would have a capital adequacy ratio above the regulatory minimums prescribed and would remain in the zone of adequate capitalisation even with transition climate risk effects included. Furthermore, the effects of transition climate risks on credit losses of domestic banks in the medium term would be limited and would not undermine the stability of Serbia's banking sector as a whole.

II.3 Non-bank financial sector

II.3.1 (Re)insurance undertakings

Key business indicators of the insurance sector, total assets, technical provisions, capital and premium recorded a positive trend in 2023 despite numerous challenges. The insurance sector has preserved its solvency and profitability, continuously providing a wide range of services to its users.

The share of the balance sheet assets of the insurance sector in the balance sheet total of the financial sector supervised by the NBS (banks, financial lessors, (re)insurance undertakings and VPFs)[120] was 5.7% at end-2023, a slight increase from end-2022 (5.6%). After the dominant banking sector, insurance is the second largest segment of the Serbian financial system.

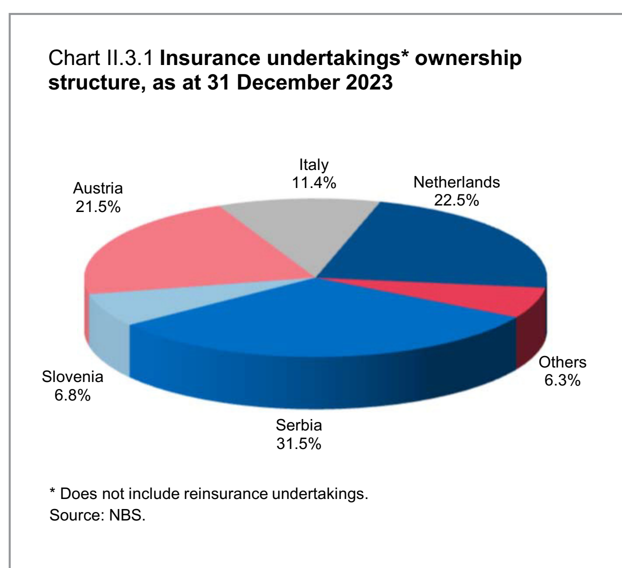
At end-2023, there were 16 insurance undertakings and four reinsurance undertakings in Serbia.[121] Among insurance undertakings, four were engaged in life insurance, six in non-life, and six provided both life and non-life insurance services. Of the total number of undertakings, 15 were in majority foreign ownership. Major foreign owners were from Austria (21.5%) and the Netherlands (22.5%). Insurance undertakings in majority domestic ownership accounted for 31.5% of all insurance undertakings[122] (Chart II.3.1), up by 0.8 pp from 2022.

In addition to insurance undertakings, in 2023, the sales network included 15 banks, nine financial lessors, and one public postal operator, all of them licensed to carry on insurance agency activities, 114 legal persons (undertakings for insurance brokerage and insurance agency activities), and 77 insurance agents (natural persons – entrepreneurs).

Given the development level of this sector in the neighbouring countries and EU member states, it can be concluded that Serbia's insurance market has a significant potential for further development. Insurance undertakings recognise this potential for growth and development by creating and promoting better quality products, which is a key factor in achieving success in developed economies. During this process, it is important to offer products that meet the needs of the insured, while protecting their rights and interests as users of these services. According to data of the Swiss Re Institute, in 2022, the penetration ratio (gross written premium as a percentage of GDP) at the EU level[123] stood at 6.4%[124], while the same ratio in Serbia measured 1.9%.[125] Also, Serbia's density ratio (the average premium per capita spent on insurance) of USD 180[126] was much lower than the EU's USD 2,377[127] in 2022[128] (Chart II.3.2).

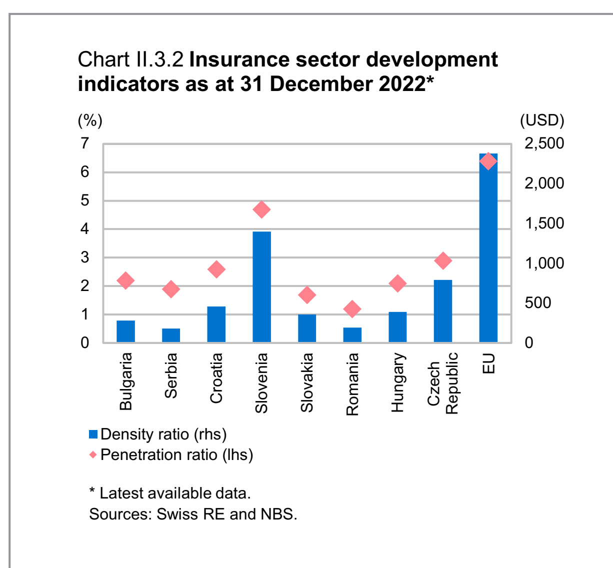
A positive trend was also recorded in the total premium, which measured RSD 155.3 bn in 2023, having risen by 15.9% from 2022. However, Serbia lags behind the

Chart II.3.1 **Insurance undertakings* ownership structure, as at 31 December 2023**



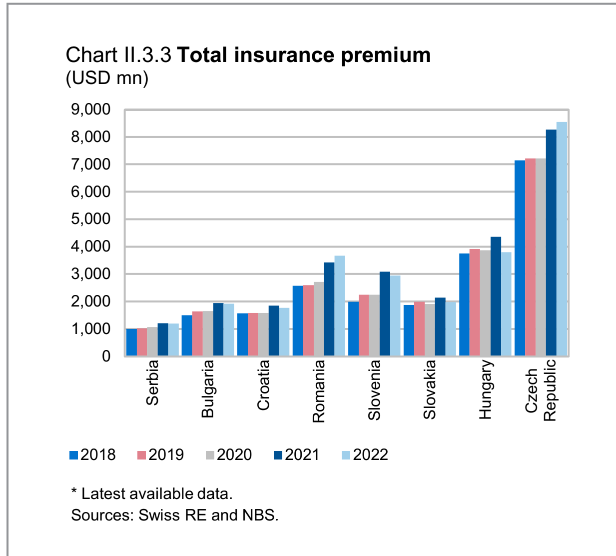
* Does not include reinsurance undertakings.
Source: NBS.

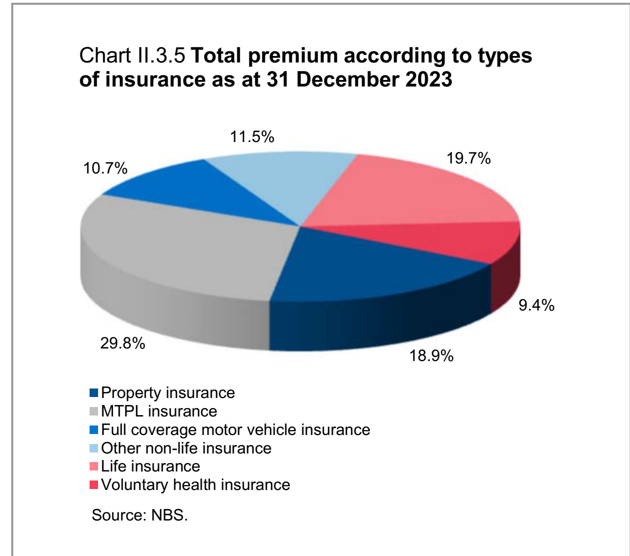
Chart II.3.2 **Insurance sector development indicators as at 31 December 2022***



* Latest available data.
Sources: Swiss RE and NBS.

[120] Excluding payment institutions, e-money institutions and virtual currency service providers.
[121] https://nbs.rs/en/finansijske-institucije/osiguranje/registar/index.html.
[122] Excluding reinsurance undertakings.
[123] Latest available data.
[124] Source: Swiss Re Sigma 3/2023.
[125] Source: NBS.
[126] Latest available data.
[127] Source: Swiss Re Sigma 3/2023.
[128] Source: NBS.

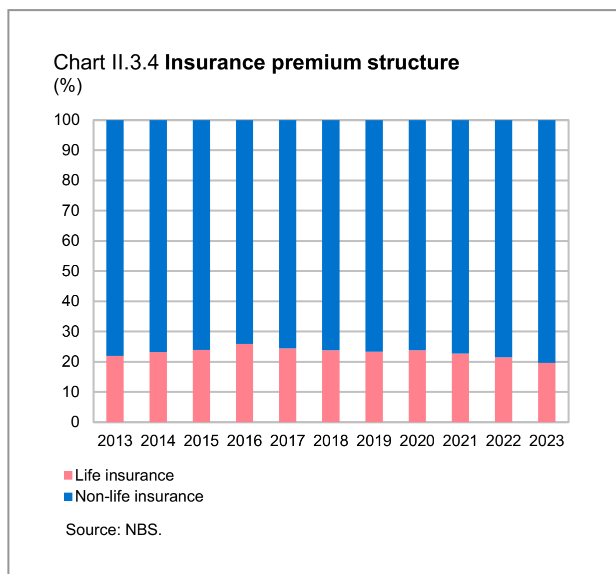




neighbouring countries in terms of the absolute amount of the total premium (Chart II.3.3).

Owing to higher nominal growth in non-life than in life insurance premium, the share of life insurance premium decreased from 21.4% in 2022 to 19.7% in 2023 (Chart II.3.4).

At end-2023, within the total premium, motor third party liability insurance was still dominant (29.8%), followed by life insurance (19.7%), property insurance (18.9%) and full-coverage motor vehicle insurance (10.7%) (Chart II.3.5). In the post-pandemic period, there was also a noticeable increase in the share of voluntary health insurance premium, which at end-2023 accounted for 9.4% of the total premium, confirming a significant change in the awareness of the insured about the importance of health.

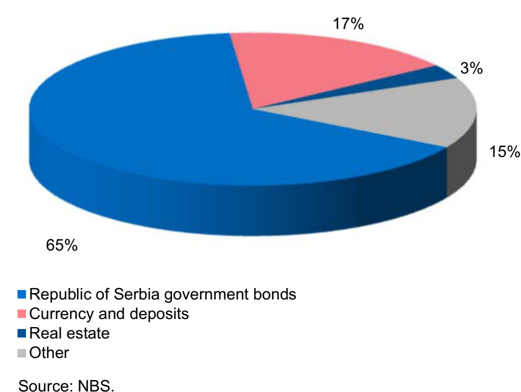


The Serbian insurance sector is adequately capitalised despite the risks to which it is exposed. The available solvency margin (guarantee reserve) is the amount of assets that an insurance undertaking must provide to be able to permanently perform its obligations. According to the Insurance Law, it must be at the level of at least the required solvency margin. Given that in 2023 the core CAR was 208.63% for non-life and 195.73% for life insurance, it can be concluded that the capital adequacy of Serbian insurance undertakings was satisfactory.

The leverage ratio (capital to asset ratio), which reflects the level of exposure of insurers' capital to risks, also confirms that the Serbian insurance sector is well-capitalised. At end-2023, this ratio edged up slightly in undertakings mainly engaged in non-life insurance to 22.35% (from 22.01% in 2022). This ratio dropped in undertakings carrying out life insurance to 17.84% (from 19.04% in 2022).

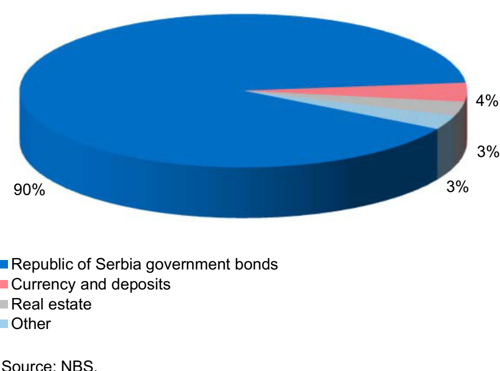
For an insurance undertaking to be able to protect the interests of the insured and injured third parties, i.e. to timely settle claims, it must create an adequate amount of technical provisions and invest them in such a way so as to ensure that their real value is maintained and increased so that the undertaken insurance obligations can be fully and timely met. To be able to settle all its liabilities, an undertaking must invest its assets in line with its investment policy, while taking into account the risks of such policy. Technical provisions must be invested into the prescribed types of assets. At end-2023, technical provisions of all (re)insurance undertakings stood at RSD

Chart II.3.6 **Non-life insurance technical provisions coverage as at 31 December 2023**



Source: NBS.

Chart II.3.7 **Life insurance technical provisions coverage as at 31 December 2023**



Source: NBS.

256.0 bn, rising by 11.4% in nominal terms relative to 2022. Mathematical reserve[129] kept the dominant share in technical provisions, with a mild growth rate of 1.8% at end-2023.

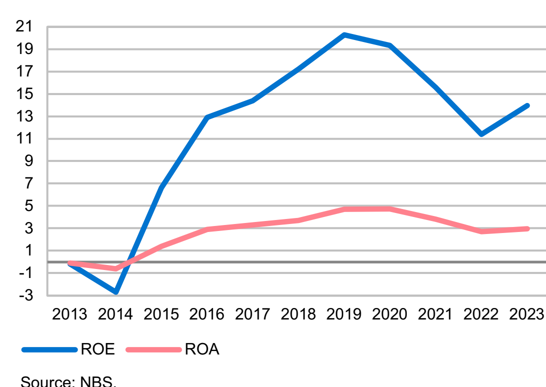
The bulk of technical provisions of non-life insurance was invested in government securities (65% at end-2023) (Chart II.3.6). Technical provisions of life insurance were also predominantly invested in government securities (90% at end-2023) (Chart II.3.7). The high share of Serbian government securities in non-life and life insurance indicates a low level of investment credit risk.

The liquidity of insurance undertakings is also an important factor in assessing the quality of assets. Setting an adequate liquidity level is extremely important for the timely settlement of liabilities. Apart from liquid forms of assets, insurance undertakings also invest in instruments of limited liquidity, such as intangible assets, real estate, non-tradable securities and receivables. In 2023, the indicator of less tradable assets (share of less liquid assets in total assets) in undertakings mainly engaged in non-life insurance measured 20.27%, similar to 2022 (20.31%). In undertakings engaged mainly in life insurance, this indicator equalled 7.28%, edging up slightly from 2022 (7.17%).

The insurance sector ended 2023 with a positive after-tax net result[130] amounting to RSD 10.2 bn. Profitability indicators are higher than in 2022. In 2023 ROE in non-life insurance undertakings was 13.95% (11.38% in 2022), and ROA was 2.94% (2.66% in 2022) (Chart II.3.8). Life insurers' ROE was 9.28% (6.30% in 2022) and ROA 1.68% (1.32% in 2022) (Chart II.3.9).

The profitability of insurance undertakings is indicated by the combined ratio.[131] The ratio value below 100% indicates that an undertaking is able to pay out claims and cover expenses from the collected premiums. If the ratio value is above 100%, it is assumed that an insurer determines the level of the premium by considering the potential investment income from the financial and real estate markets, which makes it vulnerable to additional market risks. In undertakings predominantly engaged in

Chart II.3.8 **Profitability ratios of non-life insurance undertakings**
(%)

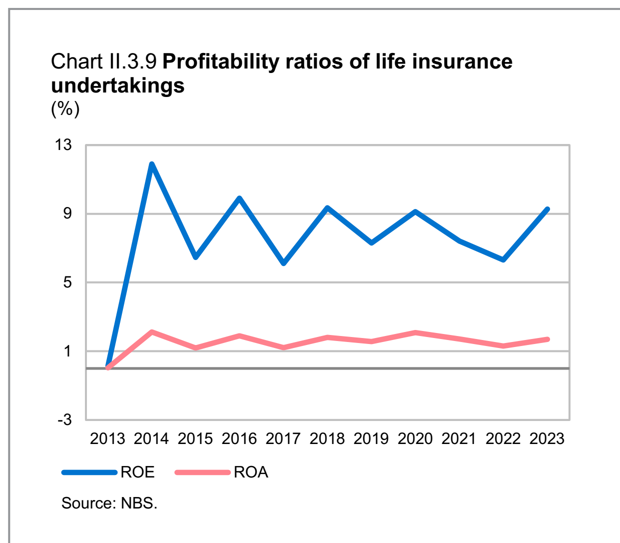


Source: NBS.

[129] Mathematical reserve means technical provision of insurance undertakings intended for meeting the present value of future liabilities under life insurance contracts (as well as under multi-year non-life insurance contracts accumulating savings or funds for risk coverage in future years and to which probability tables and calculations are applied same as in life insurance).

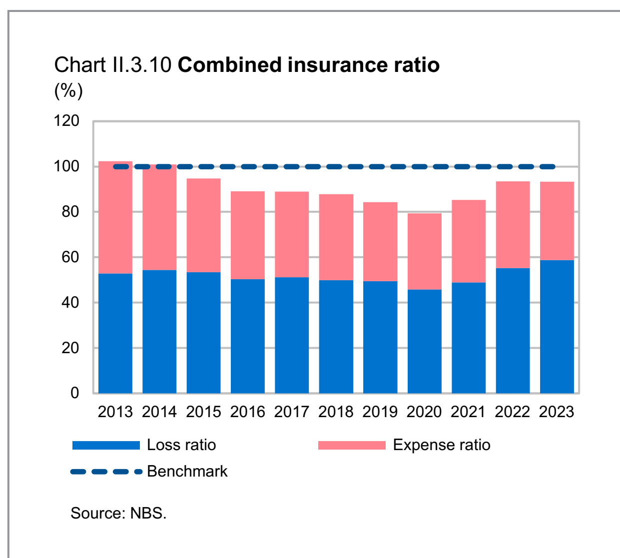
[130] Includes only tax expenses which (re)insurance undertakings disclosed by the time the data were submitted to the NBS.

[131] Self-retention is the portion of contractual risks that the insurance undertaking always carries under its own cover and that it can cover with its own funds.



non-life insurance, the combined ratio at end-2023 edged down slightly from the year before, to 93.36% (end-2022: 93.42%) (Chart II.3.10). The ratio value indicates that the premium level is adequate to meet the liabilities from insurance contracts and that the readiness to take risks does not compromise the fulfilment of both assumed and future liabilities.

The expense ratio (ratio of insurance administration expenses to premium earned) dropped from 38.18% at end-2022 to 34.59% at end-2023, which suggests improved efficiency in cost administration. The loss ratio (the ratio of losses incurred in claims to premium earned) indicates the adequacy of the price policy of insurance undertakings. It is a measure of an undertaking's ability to cover claims from the premium income. This ratio rose from 55.24% at end-2022 to 58.77% in 2023.



In the regulatory area, in December 2023, the NBS adopted the Decision Amending the Decision on the Content and Layout of Financial Statement Forms for Insurance Undertakings (RS Official Gazette, No 115/2023) and the Decision Amending the Decision on the Chart of Accounts and Contents of Accounts in the Chart of Accounts for Insurance Undertakings (RS Official Gazette, No 115/2023). These amendments ensure more accurate and timely reporting by insurance undertakings.

The current insurance regulations in the Republic of Serbia laid the legislative groundwork for a further convergence of the Serbian insurance sector to that of the EU. Full alignment of local regulations with the Directive on insurance distribution (EU 2016/97) (IDD) and implementation of Solvency II (Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance) will result in significant changes of the regulatory framework in the area of insurance supervision.

Amid slowdown in global growth, pronounced geopolitical tensions and elevated interest rates, the insurance sector plays a very important role in protecting the insured, i.e. households. Over the past years, stable business conditions have been created and adequate reserves built, which is important for the resilience to risks this sector has been facing or may face, as well as for insurance undertakings to smoothly fulfil their obligations to the insured, insurance service consumers and injured third parties. (Re)insurance undertakings should continue with adequate capital and risk management, especially bearing in mind the uncertainties coming from the international environment.

Serbian insurance undertakings recognise the potential for further growth and are focused on creating and marketing higher quality insurance products, which should be in line with the needs of the insured, protecting their rights and interests. The NBS, as usual, will continue to monitor developments in this segment of the financial system and protect the interests of insurance service consumers, as well as the stability of operation of (re)insurance undertakings.

II.3.2 Voluntary pension funds

Despite the economic and geopolitical challenges, in 2023 the stability and profitability of the Serbian VPF sector was preserved. Unlike the previous year, the key VPF indicators exhibit positive trends. The VPF sector has potential for further growth and could play an important role in the future of the Serbian pension system.

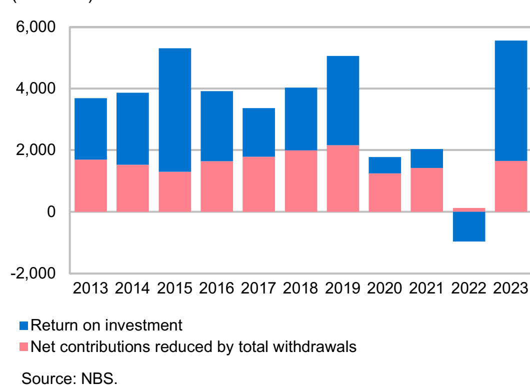
VPFs[132] are collective investment institutions that collect pension contributions and invest them into various types of assets in order to generate private pensions, i.e. they represent long-term saving for old age. These funds are based on the defined contribution principle, where future benefits are not defined in advance and depend on the amount of contributions paid, level of fees, the return on invested VPF assets, and the length of the accumulation phase. VPFs are managed by management companies, which engage in setting up and managing of VPFs as their sole activity. Founders of management companies are insurance undertakings and commercial banks. VPF assets are separated from the assets of a management company and are kept in accounts with custody banks.[133]

The number of management companies and VPFs did not change in 2023 – at the end of the year there were four management companies in Serbia in charge of managing the assets of seven VPFs. The assets of all VPFs were kept in accounts with two custody banks in 2023. In 2022, a single custody bank performed custody services for all seven VPFs.

From the start of operation of VPFs (2006), their total net assets have been almost constantly increasing. The exception was end-2022, when a fall was recorded for the first time relative to a year earlier. This was a one-off effect of the general increase in interest rates which led to a fall in the value of the financial instruments. As the pace of interest rate hikes slowed down, net VPF assets grew constantly in 2023, and equalled RSD 53.8 bn at end-2023, up by 11.5% y-o-y (or around RSD 5.6 bn). Changes in the value of net fund assets depend on members' contributions, collected fees, withdrawals of accumulated funds and return on VPF investment (Chart II.3.11). Return on investment was the main driver of the rise in net VPF assets in 2023, and measured RSD 3,906 mn, significantly more relative to the negative result in 2022 (-RSD 972 mn). Given the structure of VPF investment, the return is influenced by: a change in the yield curve on government debt instruments,[134] change in the value of shares, change in the value of investment units of open investment funds, level of the key interest rates of the NBS and the ECB and banks' interest rates, and changes in the dinar exchange rate against the euro.

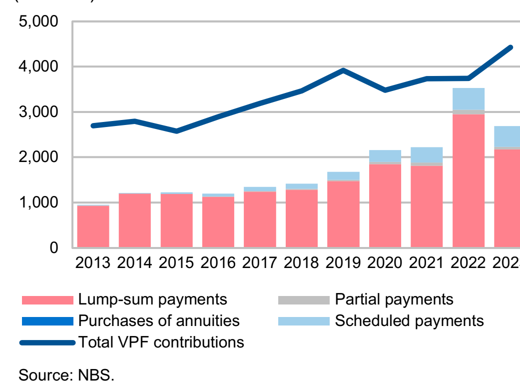
Total contributions in 2023 amounted to RSD 4,432.6 mn (RSD 694.1 mn more than in 2022), total withdrawals to RSD 2,685.6 mn (RSD 844.5 mn less than in 2022) (Chart II.3.12). Assets are largely paid out as a lump sum,

Chart II.3.11 **Annual increase in net VPF assets and net contributions**
(RSD mn)



Source: NBS.

Chart II.3.12 **Annual VPF contributions and withdrawals**
(RSD mn)



Source: NBS.

[132] Pursuant to the Law on Voluntary Pension Funds and Pension Schemes (RS Official Gazette, Nos 85/2005 and 31/2011).

[133] A bank that keeps a VPF's account performs other custody services on behalf of the VPF and acts upon the VPF management company's orders in compliance with the Law on Voluntary Pension Funds and Pension Schemes.

[134] A decline in the interest rate leads to an increase in the prices of debt instruments and vice versa. The prices of longer-maturity instruments are more sensitive to interest rate changes.

usually as soon as the member reaches the age limit for the withdrawal of accumulated funds. The share of lump-sum withdrawals in total withdrawals amounted to 80.7% in 2023, down by 2.9 pp from the previous year. Since withdrawals are made by the members who fulfil the requirements, and are usually not long-standing fund members, their accumulated sum is relatively small, and this kind of withdrawal is expected, even though it is not in accordance with the nature of VPFs, which assumes the use of accumulated funds over a longer period. As the accumulation period lengthens and the accumulated sums increase, the share of scheduled withdrawals increases as well. In 2023, these withdrawals made up 17.1% of total withdrawals, up by 3.4 pp from the year before.

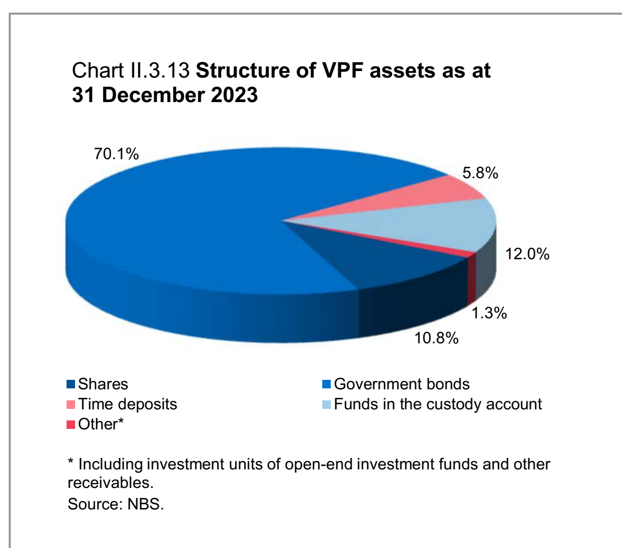
The total number of VPF users went up by 5,263 from the previous year to 220,714 at end-2023. These users concluded a total of 304,821 contracts on membership. In 2023, the number of active users (users that regularly pay contributions) increased, but their share in the total number of users in the accumulation stage is still relatively low, at 36.1% in December 2023. The average age of VPF users in Serbia is around 48 years, with users aged 40–60 making up the dominant share of around 62%. The percentage of users above the age of 53 was similar as in prior years, accounting for 31.4%, while the percentage of those aged above 58 was 18.6%. The share of VPF users in the total number of employees was 9.6%, which indicates that this sector is still underdeveloped, though there is room for the development of this financial market segment.

At end-2023 the bulk of VPF assets (70.1%) were again invested in government bonds of the Republic of Serbia (Chart II.3.13). Given that government bonds are issued by the Republic of Serbia, credit risk is low and has been declining further, thanks to preserved macroeconomic and financial stability. However, due to the high share of long-term debt instruments and deposits with banks in the funds' portfolios, the bulk of funds' assets are exposed to the interest rate risk. At end-2023, time deposits and custody bank assets made up 17.8% of total assets (12.6% at end-2022). The portion of shares in total VPF assets (10.8% at end-2023) stayed almost unchanged from end-2022 (10.9%). The domestic capital market and new long-term financial instruments need to be further developed in the period ahead. In 2021, the Government adopted the Capital Market Development Strategy in the Republic of Serbia for the 2021–2026 Period, setting the goals and measures for the development of the Serbian capital market. The relevant secondary legislation of the NBS, governing the investment of VPF assets and aimed at protecting VPF users' interests and securing their assets, leave enough room for the diversification of VPF investments.

At end-2023, 21.8% of total VPF assets were in euros (RSD 11.7 bn), and 78.2% in the domestic currency (RSD 42.1 bn).

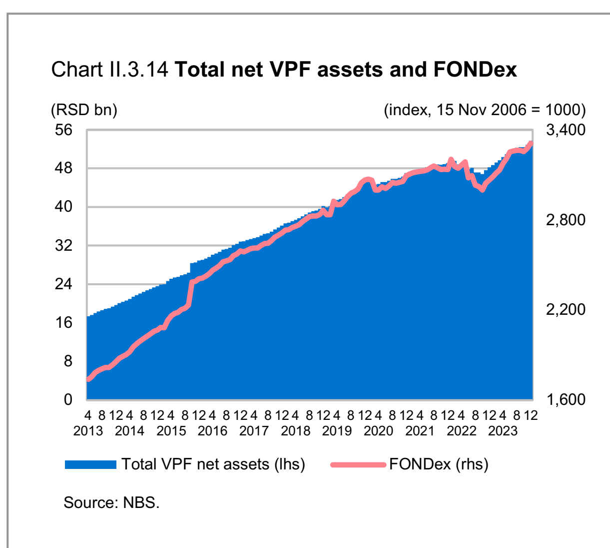
At end-2023, FONDex[135] reached the value of 3,311.07 points (Chart II.3.14), which was 247.33 points higher than a year earlier. The annual FONDex return, as the

Chart II.3.13 **Structure of VPF assets as at 31 December 2023**



* Including investment units of open-end investment funds and other receivables.
Source: NBS.

Chart II.3.14 **Total net VPF assets and FONDex**



Source: NBS.

[135] FONDex indicates movements in the value of investment units of all VPFs in the market. The initial FONDex value on the first business day of the first VPF, 15 November 2006, was 1,000.

weighted average return of all funds, equalled 8.1% in 2023 (-2.2% at end-2022). At end-2023, FONDex return since the start of VPF operations equalled 7.2%.

Fees charged by VPF management companies include contribution fees and management fees. Though the contribution fee is front-loaded, it is not the largest cost for the members. Calculated daily, the management fee made up 87% of total collected fees in 2023. Total management fees amounted to RSD 633.4 mn in 2023, significantly higher than in 2022 due to the rise in the value of VPF assets – RSD 599.03 mn.

VPF contributions have been continuously increasing over the last couple of years. Though individual contributions are possible, most contributions are made through employers who, in this way, display a high level of responsibility towards their staff. Ample potential for further growth in the membership base are companies with high staffing levels. Tax incentives have also exerted a positive impact on the VPF sector. In 2023, payments made by employers in the amount of up to RSD 7.529[136] were exempt from income tax and contributions for mandatory social insurance, as well as payments in the same amount made by the employer through wage garnishment. This is an additional incentive for employees and employers to allocate a part of the wage to long-term saving in VPFs.

Consideration of a private pension depends on individual factors and broader market-economic trends, such as interest rates and inflation. That is why the first step of those interested is to determine how much they can set aside for this type of additional retirement savings. On its website, in the section "Be ready for the retirement",[137] the NBS pointed out the important aspects that should be taken into account when making a decision on a private pension.

II.3.3 Financial leasing

The financial leasing sector continued recording positive results in 2023. The sector's balance sheet assets increased further and improved in quality owing to an additional reduction in non-performing receivables.

Financial leasing is a type of financial intermediation. The lessor keeps the ownership of the lease asset, while transferring to the lessee, in exchange for the lease payment, the right to hold and use the asset with all the risks and rewards of ownership.

At end-2023, there were 15 lessors in the Serbian financial leasing sector, two of which undergoing voluntary liquidation.

The bulk of lessors (11) are owned by banks, banking group members or other financial institutions. Seven lessors are entirely or largely owned by foreign legal entities, while eight lessors are in the majority ownership of domestic entities, of which seven are owned by domestic banks with foreign capital. At end-2023, the financial leasing sector employed 386 people.

Lessors' balance sheet assets continued up. At end-2023, they stood at RSD 163.8 bn, up by 13.0% from end-2022 (RSD 145.0 bn).

The share of non-performing receivables in total receivables was further reduced. At end-2023, gross receivables past due (RSD 2.9 bn) made up 1.9% of gross financial leasing receivables (2.1% at end-2022). The share of net carrying value of these receivables in total net receivables contracted negligibly relative to end-2022 (0.87% at end-2023). Receivables past due more than 90 days accounted for the bulk of total receivables past due. At end-2023, these receivables measured RSD 1.4 bn. Their share in total gross receivables from financial leasing equalled 0.94% (1.09% at end-2022). The net carrying value of receivables past due more than 90 days made up 0.10% of the total net portfolio.

Total lessors' capital at end-2023 equalled RSD 13 bn, up by 9.3% from end-2022.

The pre-tax result of the financial leasing sector increased from RSD 1.4 bn in 2022 to RSD 2 bn in 2023. Net profit came at RSD 1.4 bn, with most lessors posting a positive net result (10). Total revenues and profit in 2023 equalled RSD 10.1 bn, up by 85.5% from the year before, and total expenses and losses – RSD 8.1 bn, up by 102.8% relative to 2022.

At end-2023, ROA and ROE were higher than at end-2022. ROA rose from 1.06% to 1.27%, and ROE from 12.96% to 15.78%.

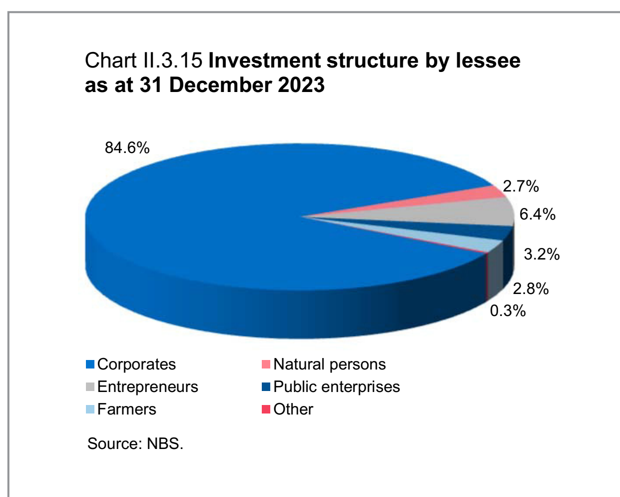
[136] Under the Government decision, this amount is adjusted with previous-year inflation once a year.
[137] https://tvojnovac.nbs.rs/cirilica/korisno/penzija/.

Structure of lessees

The structure of lessees stayed broadly unchanged. As in the previous years, the most important lessees were companies outside the financial sector, with an 84.6% share in total investment, slightly higher than in 2022 (82.9%).

As can be seen in Chart II.3.15, entrepreneurs accounted for 6.4% of total investment (6.3% in 2022), public enterprises for 3.2% (4.3% in 2022), natural persons for 2.7% (3.2% in 2022) and farmers for 2.8% (2.9% in 2022).

Chart II.3.15 **Investment structure by lessee as at 31 December 2023**

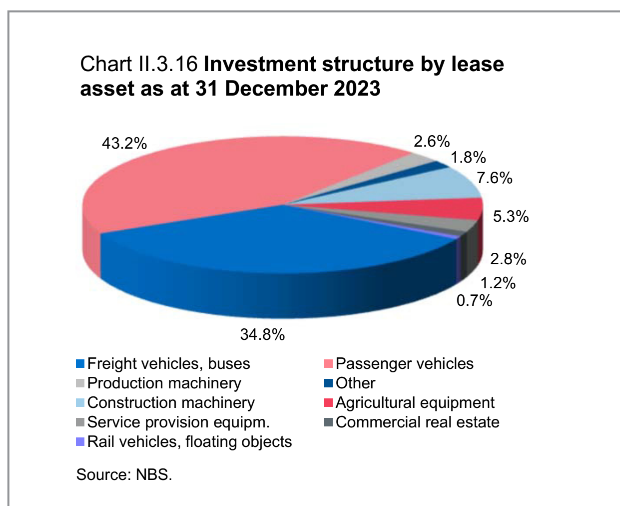


Source: NBS.

Structure of investment by lease asset

As Chart II.3.16 indicates, the financing of passenger vehicles, which has had the largest share in the structure of investment by the lease asset since 2021, grew further in 2023 (from 40.5% in 2022 to 43.2% in 2023). In contrast, the financing of freight vehicles, minibuses and buses decreased from 35.9% at end-2022, to 34.8% at end-2023. The share of financing agricultural machinery and equipment decreased negligibly (from 6.0% in 2022 to 5.3% in 2023).

Chart II.3.16 **Investment structure by lease asset as at 31 December 2023**



Source: NBS.

The share of balance sheet total of this sector in the balance sheet total of the NBS-supervised segment of the financial sector (banks, financial lessors, (re)insurance undertakings and voluntary pension funds) came at 2.5% at end-2023, a somewhat higher level than at end-2022 (2.4%).

A dynamic business environment requires a continuous improvement and modification of lessor services. The global trend of transitioning to green energy asks for a timely response and technological progress from all stakeholders. Digitalisation is also significant for the future of leasing as it brings changes and creates new possibilities, transforming industry by automating processes and improving customer experience, which enables modification of the offer for customers and further development of this sector.

II.3.4 Payment institutions, electronic money institutions and virtual currency service providers

The development of the payment services market continued in 2023, and so did the interest in e-money. As a result, having acquired the licence to issue e-money, three payment institutions were transformed to e-money institutions.

Pursuant to the Law on Payment Services[138] (in force since early October 2015), special institutions registered to provide payment services[139] and issue e-money operate in Serbia – payment institutions and e-money institutions. Payment institutions may only be companies, in accordance with the law governing companies, with the headquarters in the Republic of Serbia and licensed by the NBS to provide payment services.

Given their significant role in the AML/CFT system, in assessing the applications for licences for the provision of payment services and e-money issuing, the NBS pays

[138] RS Official Gazette, Nos 139/2014 and 44/2018.

[139] Payment services include services that enable cash payments to and from payment accounts, and all services required to open, maintain and close those accounts, services of transfer of funds to and from payment accounts, execution of payment transactions where funds are covered by a credit line, services of issuance and/or acceptance of payment instruments, money remittance services and the execution of payment transactions where the payer gives consent by means of a telecommunication, digital or IT device.

special attention to the aspects of these applications relating to the prevention of money laundering and terrorism financing.[140] At end-2023, nine payment institutions[141] were licensed by the NBS to provide payment services. Of these, eight also provided payment services through a network of their agents. The domestic payment institutions act as representatives of world-renowned companies as well, which enables the transfer of money in a short time in a great number of countries across the globe.

An e-money institution may be only a company, in accordance with the company law, with the headquarters in Serbia, authorised to issue e-money subject to the NBS's licensing. The first licence for the issuing of e-money was granted in 2016. At end-2023, there were six institutions licensed to issue e-money in the Serbian market.[142] In addition to e-money issuing, e-money institutions can also provide payment services both at their location and through the network of their agents. Unlike licensed domestic e-money institutions, the services of e-money institutions from third countries[143] operating in line with the Law on Foreign Exchange Operations[144] may be used only in foreign payment transactions (for payments and collection of payments in e-purchases/sales of goods and services). Pursuant to the Law on Digital Assets,[145] applied since end-June 2021, the NBS issued the first two licences for virtual currency service provision in 2022. This enabled the use of virtual currency services covered by these licences through domestic licensed companies which are comprehensively supervised by the NBS and are fully in line with international standards. A digital asset service provider may only be a legal person, in accordance with the law governing companies, with the headquarters in the Republic of Serbia and licensed by the NBS and/or the Securities Commission to provide one or more digital asset services. The NBS is in charge of issues referred to in the Law on Digital Assets which pertain to decision-making in administrative procedures, the adoption of bylaws, supervision of operations and exercise of other rights and obligations of the supervisory body relating to virtual currencies as a type of digital assets.

In addition to licensing, the NBS also supervises all payment institutions and/or e-money institutions, as well as one postal operator, i.e. a portion of their operations which refers to the provision of payment services and/or e-money issuing. In addition to licensing, the NBS also supervises virtual currency service providers and issuers as well as holders of virtual currency as a type of digital assets. At end-December 2023, the NBS adopted a Decision on the Content, Deadlines and Manner of Submitting Data on Virtual Currencies to the National Bank of Serbia.[146] This Decision sets forth the content, deadlines and manner of submitting data on virtual currencies to the National Bank of Serbia by digital asset service providers in relation to the segment of virtual currency operations, as well as by banks, other payment service providers and card payment systems.

Data on services rendered by all service providers

The NBS website offers to users an overview of the fees charged for specific services linked to a payment account, as well as comparable data on fees charged by payment service providers.[147] By enhancing transparency, the NBS enabled users to get better information on the level of fees charged for the services. At the same time, this contributes to stronger competition among payment service providers in terms of their price policy with the aim of providing competitive and reduced prices in the market so as to attract new and keep current clients.

According to the data for 2023, the number of almost all payment services provided and, especially cashless payments, increased. In 2023, the total number of m- and e-banking users went up from 2022 by 18.08% and 8.05%, respectively. The rise in the relative importance of m-banking can be seen in the y-o-y increase in the number of transactions executed by natural and legal persons as well as entrepreneurs by 29.18%. On the other hand, the number of e-banking transactions executed by natural and legal persons, as well as entrepreneurs, fell by 8.36% y-o-y.[148]

[140] In this procedure, it is particularly considered whether the origin of capital of the applicant can be identified, and/or the source of funds for acquiring a qualifying holding and whether these persons or persons related to them have been associated with money laundering and financing of terrorism – based on the information submitted by the body competent for the prevention of money laundering and financing of terrorism, or other information available. In this regard, the NBS particularly assesses whether a prospective acquirer of a qualifying holding is a public official, a close family member or a close associate of a public official within the meaning of the law governing the prevention of money laundering and terrorism financing.

[141] https://www.nbs.rs/en/finansijske-institucije/pi-ien/registar-pi/index.html.

[142] https://www.nbs.rs/en/finansijske-institucije/pi-ien/registar-ien/index.html.

[143] https://nbs.rs/export/sites/NBS_site/documents-eng/platne-institucije/lista_ien_trece_drzave_en.pdf.

[144] RS Official Gazette, Nos 62/2006, 31/2011, 119/2012, 139/2014 and 30/2018.

[145] RS Official Gazette, No 153/2020.

[146] RS Official Gazette, No 119/2023.

[147] https://nbs.rs/sr_RS/novac-i-placanja/platne-usluge/naknade/.

[148] An overview of data about payment services provision and e-money issuance for 2022–2023, https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/pregled-pu-ien/pu-ien_e_IV_23.pdf.

As for the number of distance contracts on financial services concluded electronically, a total of 176,090 contracts were concluded in 2023, up by 13.6% from 2022. Of this number, 37,427 contracts were concluded using video identification of users, which is a 73.4% increase from the year before.

The NBS has recognised the importance and potential of this financial market segment and improved the regulatory framework for payment services provision to achieve greater efficiency and transparency in the provision of these services, as well as to ensure a higher level of information and protection of payment services users.

The NBS has also recognised the significance of new payment methods and the introduction of technological innovations in the payment services market and supported the process by an adequate infrastructure and regulatory framework. Owing to continuous multi-annual activities, appropriate conditions have been created for the modernisation and improvement of payment transactions in the Republic of Serbia.

Text box 4: Artificial intelligence in financial institutions and central banking

Over the past decade, artificial intelligence (AI) has transformed the global financial market by increasing efficiency and reducing operating costs. Though useful and important, AI may pose a risk to financial stability as it fuels operational risks concerning data security and control, privacy and information security, while also carrying a potential risk to decision-making.[149] In financial institutions, AI has found its application in areas such as risk management, credit rating processing and assessment of borrower risk, detecting financial fraud and compliance with regulations.[150] While the majority of financial institutions remain oriented toward traditional methods and technologies, the financial sector has also witnessed a trend of endorsement of new technologies. The new technologies are offering unprecedented opportunities for raising efficiency through improved client service, process automation and creation of new data analysis tools for central banks and supervisory authorities.[151]

Among other uses, Artificial Intelligence/Machine Learning (AI/ML) models can be used in the financial sector to project the movement of macroeconomic and financial indicators. Sophisticated tools are in use that predict customer behaviour and personalise offer based on prior customer needs. AI/ML models allow for a greater flexibility compared to traditional statistical and econometric models, offering additional possibilities for exploring inter-indicator relationships which would otherwise be difficult to detect. AI is especially important in the banking sector, which has accelerated its use due to enhanced competition from fintech companies.[152] While new technologies bring certain advantages for financial service providers, their inherent risks, should they materialise, could undermine the credibility of financial institutions and financial system stability. The use of these technologies therefore calls for enhanced supervision.

Like in many other business fields, AI is gaining prominence in central banking as well. AI/ML model-based applications help central banks to recognise and upgrade business processes, while simultaneously reducing operating costs. Many central banking processes are suitable for AI/ML model application, given the broad data availability and the central banks' need for advanced analysis.[153] In central banking, AI found its greatest use in the following areas: automated data collection, macroeconomic and financial analysis to support monetary policy, oversight of payment systems, supervision and financial stability.[154]

Data and information collected through central banks' reporting systems can be used for the assessment of systemic risks and trends by using AI/ML models, which can improve the monitoring of systemic risks and potentially help predict their accumulation, as well as facilitate a timely and adequate response in crisis situations.[155] Oversight of payment systems by AI/ML models can help detect payment irregularities, which is an important aspect for identifying financial risks, cyber-attacks, as well as irregular financial transactions. AI/ML models can also help central banks upgrade their market operations through a more efficient grasp of economic and financial factors and contribute to the alignment of monetary and macroprudential policies.

Central banks are actively engaged in research on AI application, striving to overcome the challenges associated with complex models. The financial system may seem like an ideal source of data for AI/ML models, given the **large volumes of data** generated in operations, which can be fed into these models for learning purposes. Nevertheless, financial data compilation is a complex process which may engender **inconsistency due to data coverage**,

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[149] The Financial Stability Oversight Council (FSOC) was to the first to recognise, in its 2023 Report, the use of AI in financial services as a financial system vulnerability (https://home.treasury.gov/system/files/261/FSOC2023AnnualReport.pdf).
[150] https://www.techtarget.com/searchenterpriseai/feature/AI-in-banking-industry-brings-operational-improvements.
[151] Danielsson, Jon and Uthemann, Andreas, "On the use of artificial intelligence in financial regulations and the impact on financial stability" (February 3, 2024).
[152] Boukherouaa, E. B., Shabsigh, M. G., AlAjmi, K., Deodoro, J., Farias, A., Iskender, E. S., Mirestean, M.A.T & Ravikumar, R. (2021), "Powering the digital economy: opportunities and risks of artificial intelligence in finance", International Monetary Fund.
[153] https://www.bis.org/publ/bisbull84.pdf.
[154] Ibid.
[155] Boukherouaa, E. B., Shabsigh, M. G., AlAjmi, K., Deodoro, J., Farias, A., Iskender, E. S., Mirestean, M.A.T & Ravikumar, R. (2021), "Powering the digital economy: opportunities and risks of artificial intelligence in finance", International Monetary Fund.

resulting in data that are not representative or organised in a pre-defined way, thus not lending themselves to traditional analysis. Given the volume and variety of data used, AI/ML models have the infrastructure relying on numerous parameters, so model interpretation in itself can be challenging.

Regarding systemic risk assessment, the **uniqueness of the causes of financial crises** may pose a problem. Even though global financial crises occur rarely, such as the global financial crisis of 2007/2008 or the coronavirus pandemic of 2020, every economic crisis is unique, having different consequences for the financial system and the society at large. Due to such diversity, the dataset used for training the model can be limited and unrepresentative. By using **publicly available data** (mostly unstructured[156]), such as social media and financial news, central banks obtain significant information, but this may also create legal challenges and undermine privacy. **The transparency of the process** of using AI arises as an additional risk in explaining AI model-based decisions.

Advanced AI/ML and GenAI[157] models can reach high forecasting accuracy but lack the ability of interpretation of obtained outcomes. The **hallucination problem**[158] can also occur, as these models are frequently trained on derived or inaccurate data. AI/ML models offer a wide array of possibilities to central banks, but their development and ethical use calls for significant investment in **IT and human resource infrastructure**. While AI may improve productivity, staff expertise and training remain a prerequisite for its adequate use.

Central banks worldwide are already actively applying AI and ML algorithms in their processes and projects. The Bank of England uses mutually interconnected neural networks for disaggregating inflation in the services sector to components such as the past inflation dynamics, inflation expectations, output gap and prices in international markets, each network containing several economic variables relevant for every individual component. The model can analyse much more indicators compared to traditional econometric methods and can also capture nonlinearity in inter-indicator relations.[159] Apart from that, the project Gaia,[160] the result of collaboration between the BIS Innovation Hub,[161] Banco de Espana, Deutsche Bundesbank and ECB, uses artificial intelligence to analyse climate-related risks in the financial system, by using GenAI and LLM models (Large Language Model[162]). By automating information extraction and processing, Gaia contributes to a more efficient analysis of 20 climate change indicators for 187 financial institutions. It also uses data of different central banks, offering transparency and comparability of information. Actively collaborating with central banks, BIS plays an important role in enabling a cohesive and efficient AI implementation in the financial sector. In the area of payment systems oversight, neural networks are used to detect money laundering and terrorism financing. BIS's project Aurora[163] uses a synthetic dataset that mimics money laundering activities, helping to compare different AI models.

The supervision of financial institutions calls for analysis of a broad spectrum of data, such as textual documents, including banks' internal documents, supervisory assessments or publicly available information, which gives rise to development of AI/ML-based models that facilitate and speed up the process. The ECB created the Athena platform,[164] a set of tools relying on BERT models (Bidirectional Encoder Representations from Transformers)[165] adjusted to the supervisory content together with natural language processing techniques to classify public and supervisory documents, analyse opinions and views of financial service users and recognise current trends and challenges.

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[156] Unstructured data are not organised according to a specific data model. Unstructured data are often called qualitative data because they cannot be analysed or processed in traditional ways by using methods that are applied to structured data.
[157] Generative Artificial Intelligence – GenAI is a specific machine learning subset distinguished by its ability to generate new content. GenAI is also able to process large and diverse datasets and generate results in user-friendly formats. It contributes to faster adoption of AI in the financial sector, offering numerous advantages, such as increased efficiency of financial service provision and risk prediction (https://www.imf.org/en/Publications/fintech-notes/Issues/2023/08/18/Generative-Artificial-Intelligence-in-Finance-Risk-Considerations-537570).
[158] AI hallucination is a phenomenon of AI models offering an inaccurate response with a high degree of certainty which can, therefore, be wrongly interpreted as accurate.
[159] https://www.bis.org/publ/bisbull84_annex.pdf.
[160] https://www.bis.org/publ/othp84.pdf.
[161] https://www.bis.org/about/bisih/about.htm.
[162] A Large Language Model is a category of basic models that is trained on large data quantities which makes it capable of understanding and generating natural language (Natural Language Processing), i.e. the language of clear communication, and to perform a wide spectrum of tasks (https://www.ibm.com/topics/large-language-models).
[163] https://www.bis.org/about/bisih/topics/fmis/aurora.htm.
[164] https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog230928~3f76d57cce.en.html.
[165] https://inria.hal.science/hal-02131630v1/document.

In the area of financial supervision, the **National Bank of Serbia** relies on AI/ML model tools in an early warning system assessing the probability of occurrence of problem conditions in banks by using ML techniques (self-organising maps and logistic Lasso regression).[166] In the monetary policy area, 2021 saw the launch of an NBS nowcasting model using big data on prices from the Internet,[167] initially for individual components, and as of March 2022 also for headline inflation. Given that the model is oriented toward collecting the greatest possible quantity of information about products included in the CPI basket (around 130 websites), the focus is on automated download (web scraping) and processing of a vast data quantity, which enables a more reliable measurement of inflation movements. In the area of macroprudential policy, an AI model is used to assess and project macroeconomic environment for scenario validation in stress-testing of the banking sector, as well as an additional tool in projecting the reference guide when determining the countercyclical buffer rate. Speaking of AI use in payment systems, AI/ML models are used within the instant payment system (IPS) to detect irregular money flows.

The application of new technologies and AI/ML models is becoming an integral part of the financial landscape for all participants in the financial system. Keeping pace with the best global practices and innovation trends, the NBS will continue to develop its analytical framework to enhance the reliability of projections and analyses, thus offering quality and well-timed information to decision-makers through the use of new technology tools.

[166] https://www.nbs.rs/en/scripts/showcontent/index.html?id=18981.
[167] https://www.nbs.rs/export/sites/NBS_site/documents-eng/publikacije/wp_bulletin/wp_bulletin_03_23.pdf.

III Financial markets

Despite many uncertainties in 2023, global financial markets proved to be more resilient than expected initially. Inflation in Serbia has been on a downward trajectory since April 2023. It returned to single-digit levels in October 2023 and slowed down to 7.6% y-o-y in December. The NBS key policy rate has been kept unchanged since August 2023. The relative stability of the exchange rate of the dinar against the euro was preserved in 2023 owing to the NBS's interventions of net FX purchases in the IFEM which helped boost FX reserves to all-time highs. In October 2023, the Republic of Serbia issued for the first time an 8Y government dinar bond, which was in record high demand of investors, and was included in the renowned JP Morgan bond index in February 2024. Owing to the credible economic policy, all three rating agencies maintained Serbia's credit rating, while in early April 2024 Standard & Poor's upgraded its outlook for investment grade from stable to positive.

III.1 Money market

Despite the consequences of the pandemic and energy crisis which disrupted the international food and energy markets and pushed global inflation up, triggering monetary tightening, in 2023 the global economy proved to be more resilient than expected initially by relevant international financial institutions. Global inflation slowdown was mainly driven by lower global energy and food prices during the year and by the effects of past monetary tightening which will contribute to lower domestic inflation going forward. Considering the downward inflation trajectory and its expected movement in the coming period, it is estimated that the monetary tightening cycle of leading central banks is probably over, while, on the other hand, some inflation-targeting central banks in the region have already embarked on monetary easing. Despite the multidimensional crisis which lasted for four years, Serbia managed to preserve economic stability and ensure smooth functioning of the domestic financial market.

The NBS continued implementing the managed float exchange rate regime, with the possibility to intervene in the FX market with a view to easing excessive short-term volatility of the exchange rate, maintaining price and financial stability and an adequate level of FX reserves. In January 2023, FX demand was higher than supply in the local market, reflecting mainly the seasonally heightened demand of energy importers for foreign currency. However, as of February until the end of the year, FX demand was by far outstripped by supply, which resulted in dominant appreciation pressures. The rise in FX supply was mostly driven by the net purchase of foreign cash and the FX supply by residents, with residents being net FX sellers at the annual level for the first time, primarily owing to a further increase in exports and FDI.

In 2023 the dinar gained 0.1% against the euro in nominal terms. Relative to end-2022, the dinar appreciated by 4.0% against the US dollar as a result of the euro's strengthening against the dollar in the international financial market. In 2023 the NBS intervened by net buying foreign currency worth EUR 3.9 bn (EUR 4.545 mn bought and EUR 605 mn sold), which is a record high annual amount of net purchase. As in previous years, this sustained the relative exchange rate stability. Observed at the end of the month and end of the year, gross FX reserves at end-2023 reached an all-time high of EUR 24.9 bn (net EUR 20.8 bn), up by EUR 5.5 bn from end-December 2022. The key boost to FX reserves in 2023 came from inflows generated by NBS interventions in the IFEM, net inflows from FX reserve management, donations, other sources, and positive net market effects.

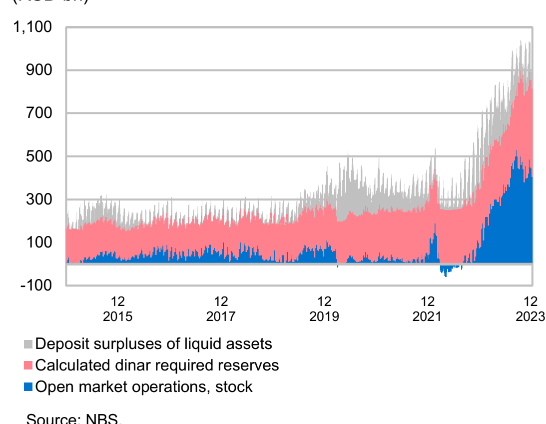
Global risk premium declined during the year because of weaker global cost-push pressures, deceleration of global inflation and monetary policy tightening by leading

central banks. Serbia's risk premium measured by EMBI (dollar debt) stood at 188 bp at end-2023 (vs. 270 bp at end-2022). Throughout the year Serbia's risk premium moved below EMBI Composite which came at 319 bp at end- 2023 (374 bp at end-2022). At end-2023 EURO EMBIG for Serbia (euro debt) equalled 247 bp compared to 389 bp at end-2022. Dollar-denominated eurobonds of the Republic of Serbia with 5Y and 10Y maturity issued in January 2023 were included in JP Morgan's EMBI Global on the last day of that month.

In April and October 2023, Standard & Poor's affirmed Serbia's credit rating for long-term borrowing in the domestic and foreign currency at BB+ level, with a stable outlook. In its reports, Standard & Poor's emphasised that Serbia's rating was supported by moderate public debt levels and a credible monetary policy framework, and that uncertainties from the international environment remain significant, but Serbia manages to offset external challenges with favourable domestic trends and adequate economic policies. In early April 2024, Standard & Poor's affirmed Serbia's credit rating at BB+, only a step away from investment grade, but changed the outlook from stable to positive, indicating that it might assign investment grade to Serbia in the future. In February and August 2023 and February 2024, Fitch Ratings preserved Serbia's credit rating for long-term borrowing in the domestic and foreign currency at BB+ (a step away from investment grade), with a stable outlook. The decision to keep the rating was motivated by a credible economic policy framework, a higher level of economic development measured by GDP per capita compared to rating peers, as well as sound public finances and a declining public debt trajectory. In September 2023, Moody's kept Serbia's credit rating at Ba2, with a stable outlook. In making this decision, the agency considered the favourable growth outlook over medium run underpinned by considerable and diversified FDI inflow, economic resilience to unfavourable trends from the international environment, sound public finances and fiscal room for absorbing potential shocks, as well as progress in the implementation of structural reforms.

The NBS responded to strong global inflationary pressures with continued monetary policy tightening but at a more moderate pace than last year. In 2023, the key policy rate was increased six times by 1.5 pp in total, to 6.5% at the end of the year. The July 2023 hike was the last, 15th consecutive rise since April 2022, which resulted in a 5.5 pp higher key policy rate overall. The rates on

Chart III.1.1 **Selected NBS monetary policy instruments**
(RSD bn)



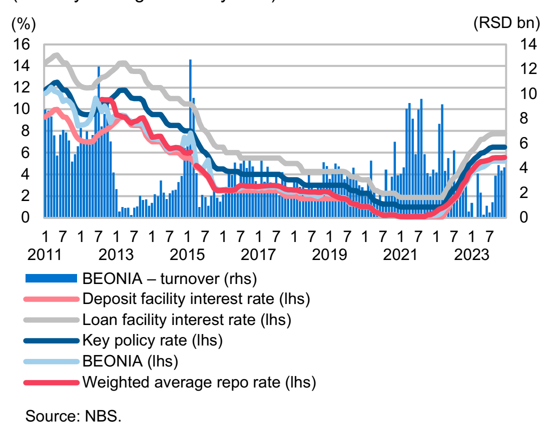
Source: NBS.

deposit and lending facilities also went up to 5.25% and 7.75% at end-2023, respectively.

To absorb excess dinar liquidity of the banking sector, in 2023 the NBS continued to implement reverse repo transactions (repo sale of securities with one-week maturity) as its main open market operations. The weighted average interest rate at the last one-week repo auction in 2023 was 5.56% (4.16% at the last auction in 2022). Compared to end-2022, in 2023, banks posted a considerable increase in their stock of NBS T-bills used for reverse repo transactions (from RSD 110 bn to RSD 405 bn), amid higher excess dinar liquidity in the banking system, generated mainly by NBS net FX purchases in the IFEM on account of appreciation pressures on the dinar (Chart III.1.1).

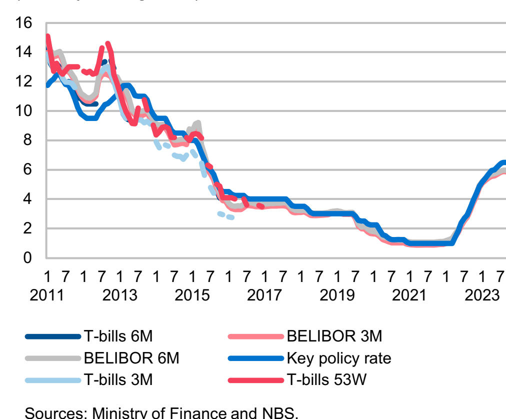
In 2023, the average daily turnover in the interbank overnight money market equalled RSD 2.1 bn, which is below the average daily turnover in 2022 (RSD 4.0 bn) (Chart III.1.2). A lower average turnover was recorded in the first three quarters of the year (RSD 1.5 bn), but it increased considerably in Q4 (to RSD 4.0 bn) following the upward revision of the required reserve rates and the percentage of dinar allocations of FX required reserves by the NBS in September aimed at supporting the past monetary policy tightening through the key policy rate hike. In this way, a portion of excess dinar liquidity was withdrawn from the banking sector (around RSD 114 bn), contributing to better functioning of the money market and increasing the representativeness of its benchmark rates.

Chart III.1.2 **Key policy rate, BEONIA and interest rates on deposit and loan facilities**
(monthly averages of daily data)



Source: NBS.

Chart III.1.4 **Interest rates in the money market and auctions of dinar T-bills**
(monthly averages, %)

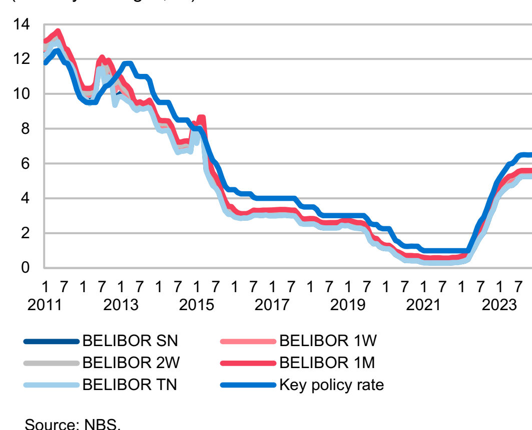


Sources: Ministry of Finance and NBS.

Monetary policy tightening pushed up the interest rates in the domestic market. The average value of BEONIA[168] came at 5.25% in December 2023, up by 147 bp from December 2022. The average value of BELIBOR ranged between 5.25% for the shortest and 5.80% for the longest maturity compared to 3.93% and 4.94%, respectively, in December 2022 (Chart III.1.3).

In 2023, the NBS continued purchasing/selling foreign currency from/to banks in bilateral swap transactions, introduced in early 2022. These transactions proved to be a more efficient support to banks in their dinar and FX liquidity management than regular swap auctions (suspended in August 2022) as the timing and maturity of these transactions offer more flexibility.

Chart III.1.3 **BELIBOR interest rates**
(monthly averages, %)



Source: NBS.

In 2023, the NBS bought and sold EUR 563.0 mn each in bilateral swap transactions with banks (in 2022, swap purchase measured EUR 966.6 mn and swap sale EUR 653.6 mn). There were no swap transactions between banks in 2023 (EUR 56.1 mn in 2022).

No dinar and euro T-bills were issued in 2023.

III.2 Bond and share market

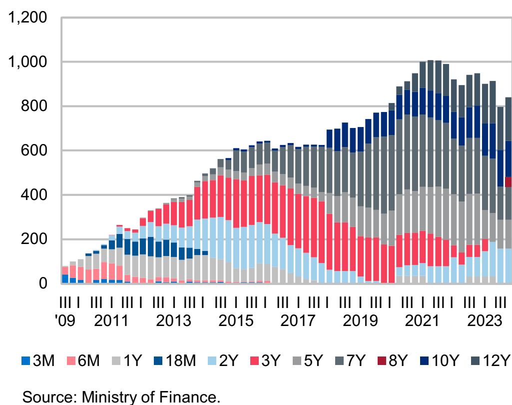
The government bond market is one of the most important segments of the domestic financial market. The primary sale of government bonds is organised by the Public Debt Administration of the Ministry of Finance using the single interest rate auction method. Through the sale of dinar bonds in the domestic market, the government reduces exposure to the FX risk and contributes to further dinarisation of the financial system. In the past eleven years, on the basis of this type of financing, the average maturity of dinar government securities increased, reducing the exposure to the refinancing risk.

Early March 2023 saw an early buyback of 7Y dinar bonds of the Republic of Serbia (coupon rate of 5.75%), coming due on 21 July 2023, in the amount of RSD 6.8 bn.

The stock of sold dinar government bonds with over-1Y maturity stood at RSD 839.7 bn at end-2023, down by

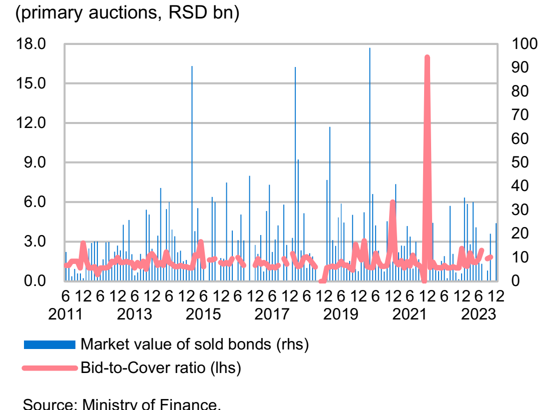
[168] The weighted average overnight rate in the interbank money market in the Republic of Serbia.

Chart III.2.1 **Stock of dinar government securities**
(nominal value, RSD bn)



Source: Ministry of Finance.

Chart III.2.2 **Market demand for dinar government bonds**
(primary auctions, RSD bn)



Source: Ministry of Finance.

8.3% from end-2022 (Chart III.2.1). Looking at the composition of dinar government bonds with over-1Y maturity at end-2023, the largest share was that of 12Y bonds – 23.3%, which is an increase from end-2022 (15.9%). The second largest share was that of 10Y bonds, making up 19.6% (15.9% in 2022).

The issue of benchmark bonds, first launched in 2016, continued into 2023. When issuing benchmark bonds, the planned sales volume is only a portion of the total issue, with multiple reopenings planned throughout the year. These issues boost the volume of secondary trading. Also, the issuance of benchmark bonds is one of the requirements for the inclusion of government securities in the Local Currency Government Bond Emerging Market Indices. After the inclusion of three dinar benchmark bonds of the Republic of Serbia, with the original maturities of 7Y, 10Y and 12Y, in the renowned JP Morgan GBI-EM family of indices in June 2021, a new 8Y dinar benchmark bond was added at end-February 2024. Inclusion in the index implies higher potential inflow of foreign portfolio investors. This index is one of the most frequently followed benchmark indices of emerging economies' bonds issued in local currencies. By being included in this index, the Republic of Serbia strengthened the liquidity of the secondary market of government securities.

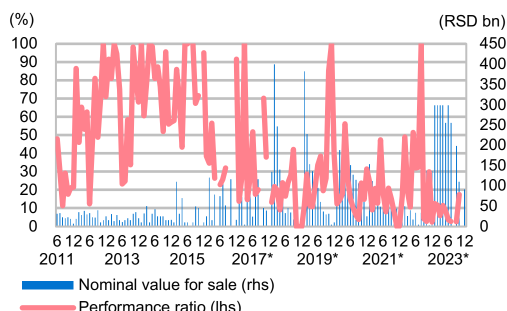
In 2023, the bid-to-cover ratio at primary auctions reached its highest value (2.3) in July (Chart III.2.2).

In 2023, the government auctioned dinar government securities with the original maturities of 2Y, 8Y, 10Y and 12Y. End-January saw a new auction of 2Y dinar government bonds maturing on 25 January 2025. Effective rates on 2Y dinar government bonds declined during the year, moving in the range from 4.86% to 5.95%. At end-October 2023, an 8Y dinar government bond was issued for the first time, maturing on 26 October 2031 with the initial[169] issue size of RSD 110 bn. In two auctions, bonds with this maturity achieved the effective rates of 6.39% and 6.30%. In government bonds with the original 10Y maturity (due in February 2028), the effective rate declined from 6.75% (auction held in December 2022) to 5.25% (July 2023 auction). In early May 2023, the Public Debt Administration adopted the decision on the issue of long-term government securities for the sake of consolidating 10Y bonds issued in 2023 (in the nominal value of RSD 18.4 bn) into a single issue with bonds initially issued on 6 February 2018, i.e. it additionally sold bonds with the same characteristics relating to the currency, coupon rate and maturity date. The effective rate on government bonds with original maturity of 12Y increased from 3.24% (at the previously held auction in September 2021) to 6.20% (September 2023 auction).

The coupon rate on 2Y dinar government bonds equalled 5.00%, and on 8Y dinar government bonds – 7.00%. The coupon rate on 10Y dinar government bonds (5.875%) was unchanged, because all auctions in 2023 were the reopenings of the issue that was first launched in February 2018. Unchanged was also the coupon rate on 12Y government dinar bonds (4.50%), because all auctions in 2023 related to reopenings of the issue that was first launched in February 2020.

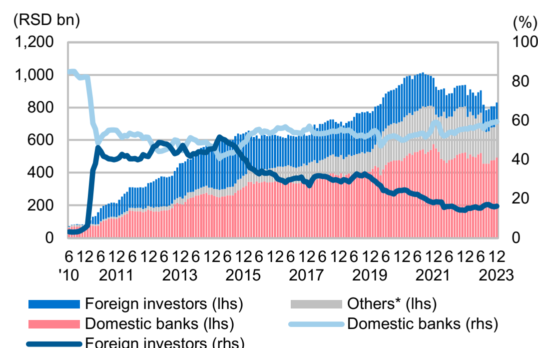
[169] The Public Debt Administration launched on 29 January 2024 an additional issue of 8Y bonds in the volume of RSD 40 bn, which were consolidated in a single issue with the initially issued government bonds, so that the total issue volume for 8Y bonds after this additional round amounted to RSD 150 bn.

Chart III.2.3 **Performance ratio in auctions of dinar government bonds**



* For benchmark bonds the total value of issue is shown and performance is expressed as a percentage of that value. The planned sale volume at these auctions was lower than the total amount issued.
Source: Ministry of Finance.

Chart III.2.4 **Structure of the portfolio of dinar government bonds**



* Custody banks, insurance undertakings, pension funds, natural persons and other legal entities.
Source: Central Securities Depository and Clearing House.

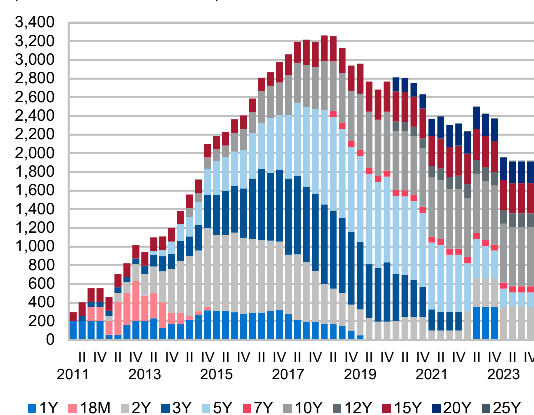
As can be seen in Chart III.2.4, foreign investors' share in the portfolio of dinar government bonds rose during the year from 14.1% in December 2022 to 16.2% in December 2023. Since end-2015, domestic banks have been major dinar government bond holders. Banks' share in the portfolio of dinar government securities at end-2023 increased by 3.6 pp relative to December 2022, measuring 59.4%. The share of other domestic investors (insurance undertakings, pension and investment funds etc.) has increased over the past years, slightly slowing down in 2023. Nevertheless, other domestic investors remain represented, though to a lesser extent, as holders of dinar government bonds. Further diversification and strengthening of the base of domestic institutional investors will continue to be an important factor of improvement of the government bond market in the coming period and of reducing the vulnerability of this market segment to movements in the international environment.

In 2023, 2Y government bonds of the Republic of Serbia denominated in euros and maturing on 23 January 2025 were offered in one auction. They were issued at the 2.50% effective rate, equal to the coupon rate. The previous auction of 2Y euro-denominated government bonds[170] was held in mid-May 2022 at the effective rate of 0.81% and coupon rate of 0.85%.

In mid-January 2023 the Republic of Serbia issued for the second time government bonds to settle compensations for confiscated property,[171] regulating the state's obligations under the Law on Restitution of Confiscated Property and Compensation.[172] This included the issuance of 5Y, 10Y and 12Y bonds, in the total amount of EUR 40.1 mn. At end-January, the BSE decided to include long-term securities[173] in the Prime Listing of its regulated market, in the market segment Prime Listing-Bonds. Specifically, this refers to bonds issued to settle the Republic of Serbia's liabilities under compensations for confiscated property.

At end-March 2023, a 53-week eurobond issued through private placement[174] at end-June 2022 was bought back

Chart III.2.5 **Stock of euro government bonds**
(nominal value, EUR mn)



Source: Ministry of Finance.

[170] With 2.5Y maturity.

[171] The Government for the first time issued bonds to service compensations for confiscated property in January 2022.

[172] RS Official Gazette, Nos 72/11, 108/13, 142/14, 88/15 – CC decision 95/18 and 153/20.

[173] Available at: Belgrade Stock Exchange (https://www.belex.rs/).

[174] A private placement, stipulated by the Decree on General Terms and Conditions for the Issuance and Sale of Government Securities in the Primary Market (RS Official Gazette, No 59/2022), enables the Government to sell government securities to domestic or foreign qualified investors, in the country or abroad.

Chart III.2.6 **Belgrade Stock Exchange market capitalisation**

Sources: Belgrade Stock Exchange and NBS.

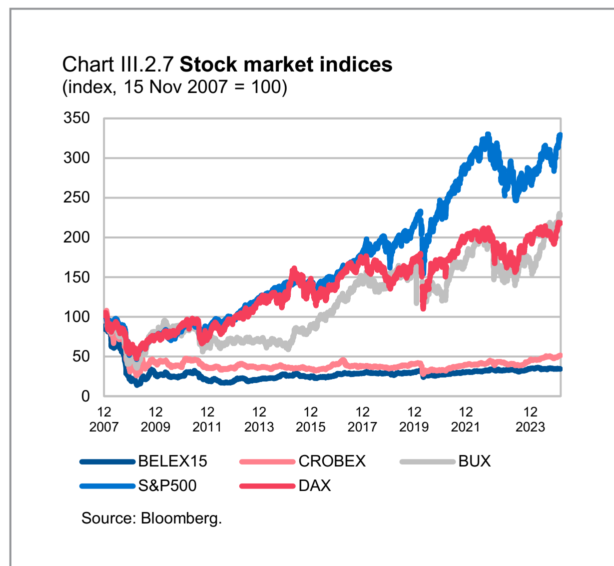


Chart III.2.7 **Stock market indices**

Source: Bloomberg.

early in the nominal value of EUR 350 mn, at the coupon rate of 2.40%.

In 2023, the stock of over-1Y eurobonds decreased by EUR 98 mn from 2022, coming at EUR 1.9 bn in December (Chart III.2.5). The greatest share in the total portfolio of government bonds in euros was that of 10Y (32.9%), 2Y (18.4%) and 15Y (16.8%) securities.

In the second half of January 2023, the Republic of Serbia issued a dual tranche of US dollar eurobonds in the international financial market. This included 5Y and 10Y eurobonds in the total amount of USD 1.75 bn (USD 750 mn for 5Y and USD 1.0 bn for 10Y). Total investor demand for these securities exceeded USD 11 bn, attesting to foreign investors' confidence in long-term stability and sustainability of our country's economic indicators. A 5Y eurobond was issued at the coupon rate of 6.25% and 10Y eurobond at 6.50%. To efficiently manage public debt, hedging transactions were concurrently concluded, i.e. liabilities under dollar bond issue were immediately converted into euro liabilities, thus reducing exposure to the USD/EUR FX risk. Apart from reducing exposure to the FX risk, the cost of borrowing of the Republic of Serbia was effectively brought down.

At RSD 187.3 bn, the volume of trading in the secondary market of dinar government securities in 2023 slightly surpassed the 2022 figure (RSD 186.1 bn). Secondary securities trading amounted to EUR 206.4 mn (EUR 346.6 mn in 2022). Total trading in long-term government bonds included in the BSE prime listing (in RSD and EUR) equalled RSD 17.8 bn in 2023. The development of secondary trading in government bonds in the regulated market should contribute to greater transparency and liquidity of the secondary market of government bonds, enabling more efficient valuation of these securities.

BSE market capitalisation at end-2023 measured RSD 425.0 bn (5.2% of GDP) (Chart III.2.6). Market capitalisation increased in 2023 relative to 2022 – in the open market segment by RSD 132.8 bn and in the listing segment by RSD 26.6 bn, while declining in the MTP segment[175] by RSD 144.0 bn.

At end-December 2023, BELEX 15 (the index of the most liquid shares) measured 875.66, up by 6.2% from end-2022 (824.61). BELEXline was up by 10.0% in the same period, coming to 1,914.04 (1,739.86 at end-December 2022) (Chart III.2.7).

Total shares turnover on the BSE amounted to RSD 3.1 bn in 2023, down by RSD 8.3 bn from 2022. The largest share turnover was recorded in the Open market segment (RSD 1.8 bn).

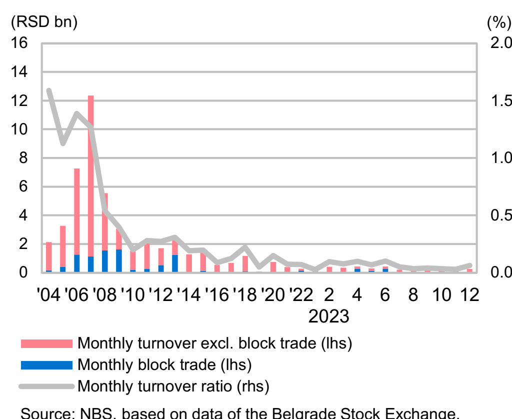
In December 2023, the average monthly share turnover ratio[176] equalled 0.06%, a slight decrease from the year before (0.07%), indicating low liquidity of the BSE (Chart III.2.8).

The number of transactions in the BSE in 2023 (19,471) declined from 2022 (22,760).

[175] MTP – multilateral trading platform.

[176] Calculated as the ratio between the total monthly shares turnover and the average stock of market capitalisation of shares at two points in time (the end of the month observed and the end of the previous month).

Chart III.2.8 **Belgrade Stock Exchange share turnover**



Source: NBS, based on data of the Belgrade Stock Exchange.

Foreign investor participation in total BSE turnover in 2023 stood at 5.5%, down by 59.3 pp from 2022. In 2023, foreign investors were more active on the sale (6.5%) than on the purchase side (4.5%).

The new Law on the Capital Market,[177] adopted in December 2021, has been applied since January 2023. The law aims to lay the groundwork for further development of the capital market and secure additional sources of financing for Serbian companies. It is aligned with the EU regulations governing financial instruments markets (MiFid II), the prospectus, investor compensation schemes, transparency, settlement finality in securities settlement systems and market abuse.

With the adoption of the Law on Digital Assets in December 2020, Serbia became one of the first countries in the world to create a regulatory framework for digital assets.[178] In December 2023, the NBS adopted the Decision on the Content, Deadlines and Manner of Submitting Data on Virtual Currencies to the National Bank of Serbia[179] specifying which data must be submitted by service providers, banks, other payment service providers and card payment systems, to enable the monitoring of the development of the virtual currency market and supervision of service providers. After the Securities Commission approved two publications of the white paper[180] for the initial public offerings of tokens in 2022, at end-March 2023 it also approved the first two applications for the licence to provide services related to digital tokens.[181]

After the first three alternative investment funds were set up in 2022,[182] the development of this market segment continued into 2023, when another three funds were established. Alternative investment funds are primarily intended for professional and semi-professional investors.

Developed capital markets play a key role in the financing of economic growth and exert a positive influence on financial system stability. Development of the domestic financial market may be further supported by new financial instruments. Moreover, continued financial education of the population and further advancement of financial inclusion remain important avenues for increasing the investment of domestic natural persons in the domestic financial market. Also, the introduction of the primary dealer function should contribute to the advancement of the primary and secondary market of government securities.[183]

III.3 Financial infrastructure

It is the task of central banks to ensure reliable and stable functioning of national payment systems. An efficient payment system has a bearing on the speed of economic flows, costs and liquidity of participants and represents a channel for the transmission of monetary policy measures. Its inadequate functioning can, on the other hand, undermine public trust in the overall financial system.

In order to keep step with accelerated development of new technologies and digitalisation, particularly in the area of finance, central banks are increasingly interested in and focused on integrating new products and raising the standard of security and reliability in financial exchange, shaping the future of the payment systems.

Pursuant to Article 4 of the Law on the National Bank of Serbia (RS Official Gazette, Nos 72/2003, 55/2004, 85/2005, 44/2010, 76/2012, 106/2012, 14/2015, 40/2015 – CC Decision and 44/2018), the NBS regulates, supervises and promotes the functioning of payment

[177] RS Official Gazette, No 129/2021.

[178] RS Official Gazette, No 153/2020.

[179] RS Official Gazette, No 119/2023.

[180] White paper means a document published at the issuance of digital assets, which contains a information on the issuer of digital assets, information on the digital assets, and the risks associated with the digital assets, so that investors are able to make an informed investment decision.

[181] Digital token is a type of digital assets and means any intangible property representing, in digital form, one or more property rights, which might include the right of a digital token user to specific services.

[182] Pursuant to the Law on Alternative Investment Funds (RS Official Gazette, No 73/2019).

[183] The function of primary dealers was introduced in the domestic regulatory framework in early December 2018 by the Law Amending the Law on Public Debt (RS Official Gazette, No 95/2018).

operations in the Republic of Serbia. The NBS also has a key role in modernising payment systems in Serbia.

Serbia's payment system infrastructure comprises: (1) NBS RTGS payment system[184]; (2) NBS clearing system; (3) NBS IPS system; (4) NBS interbank clearing of foreign exchange payments; (5) NBS international clearing of foreign exchange payments; (6) DinaCard clearing system; (7) ASB cheque clearing; and (8) ASB direct debit clearing.

The NBS is the operator of: (1) NBS RTGS payment system; (2) NBS IPS system; (3) NBS clearing system; (4) NBS interbank clearing of foreign exchange payments; (5) NBS international clearing of foreign exchange payments; and (6) DinaCard payment system.

The key functions of a payment system include: (1) transfer of money – payment systems enable the transfer of money between participants, financial institutions and other participants, which is of key importance for everyday economic transactions; (2) processing and settlement of transfer orders – payment systems process and settle money transfer orders, including verification of order validity, transfer of funds, and notification of participants about a successful transaction; (3) transmission of monetary policy measures – a payment system is a channel for the transmission of monetary policy measures and payment system efficiency has a direct bearing on monetary policy implementation; (4) public confidence – safe and sound payment system operation promotes public confidence in money and the financial system; (5) liquidity maintenance – payment systems make it possible for participants to timely dispose of their money.

The Law on Payment Services (RS Official Gazette, Nos 139/2014 and 44/2018) and regulations on the payment system and payment services[185] define the NBS RTGS payment system and NBS clearing system as important payment systems, significant for the stability of the overall financial system, in which settlement finality is guaranteed in case of a participant's inability to meet its liabilities.

Sound, safe and efficient operation of the NBS RTGS payment system is of special importance for ensuring the stability of the financial system of the Republic of Serbia. Its systemic importance is also reflected in the fact that it is a system for real time money transfer where all interbank payment transactions exceeding RSD 300,000 ("large-value payments") are mandatorily executed. The system also serves for settling money obligations and/or receivables originating from other payment systems and for settling the monetary segment of transactions in respect of trade in financial instruments.

Participants in this system are: (1) the NBS, (2) banks headquartered in the Republic of Serbia holding an operating licence issued by the NBS, in accordance with the law regulating banks, (3) the ministry in charge of finance – Treasury Administration, (4) the Association of Serbian Banks (ASB), as the operator of the direct debit and cheque clearing systems; (5) the Central Securities Depository and Clearing House, as the operator of the system for the settlement of financial instruments.

RTGS participants are able to adequately manage the risks they are exposed to since settlement is executed in real time on a gross basis. As mutual transactions are settled in the domestic currency, participants are not exposed to credit and liquidity risk. Participants must have sufficient funds in their accounts to execute transactions smoothly. Accordingly, RTGS participants can manage their liquidity risk as well, as the system enables them to view all their transactions and account balances and to change the sequence of payment orders execution depending on priority.

An important indicator of the significance of the RTGS system for the national economy is the value of payment transactions executed in the system over a period of time. In 2023, 99.79% of the total value of payment transactions in the Serbian financial infrastructure was executed in this system.

The value of turnover in the RTGS system in 2023 measured RSD 198,756.7 bn, with 212.2 mn payments executed (91.2% of the total number of payments in the NBS RTGS and clearing systems). The value of turnover in the NBS clearing system was RSD 414.2 bn, or 0.2% of the total value of both systems. Of the total number of payments, 20.6 mn or 8.8% are payment orders executed in the clearing system.[186]

The average daily value of turnover in the RTGS system was RSD 788.7 bn, and the average daily value of turnover in the clearing system was RSD 1.6 bn.[187] The highest

[184] Payment system for the transfer of dinar funds among system participants on a real time gross settlement basis, up to the amount of the account cover.

[185] https://www.nbs.rs/export/sites/NBS_site/documents-eng/propisi/zakoni/law_nbs.pdf.

[186] https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/statistika/rtgs/stat_23.pdf.

[187] https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/statistika/rtgs/stat_23.pdf.

Table III.3.1 **Value and number of payments in the NBS RTGS system**

	Average for period 2010–2022	2023
NBS RTGS		
Value, RSD bn	60,116.21	198,756.74
Number of payments, mn	157.85	212.22

Source: NBS.

Table III.3.2 **Value and number of payments in the NBS IPS system**

	Average for period 2019–2022	2023
NBS IPS		
Value, RSD bn	298.74	717.27
Number of payments, mn	31.94	66.96

Source: NBS.

monthly value of turnover in the RTGS payment system in 2023 was recorded in August (RSD 21,528 bn).[188]

Another indicator of importance of this type of system for the national economy is the value of payments executed (total value of turnover) relative to GDP. In 2023, RTGS turnover was around 24.4 times the value of Serbia's GDP.

The availability of the NBS RTGS and clearing systems is one of the key factors affecting the stability of the financial market. Out of a total of 252 business days, i.e. 141,000 minutes of production, the availability of the RTGS and clearing systems was 100.00%.[189]

To boost innovation in the financial sector and support digitalisation and development of cashless payments at home, the NBS developed the infrastructure – the NBS IPS payment system which enables state-of-the-art, efficient and reliable execution of money transactions. That this is an important opportunity created for the Serbian households and businesses by the NBS is evident from the fact that, at the time of its launch, such payment systems were a rarity in the world. The system started to operate in late October 2018 and its manner of work, functionalities and the applied technical and technological solutions are consistent with the latest payment system trends.

Direct participants in the NBS IPS system are: (1) banks headquartered in Serbia; (2) the NBS; and (3) the ministry in charge of finance – Treasury Administration, i.e. participants which, in line with the regulations and operating rules of the RTGS, can have accounts in this system.

Other payment service providers can be indirect participants if they render services which include credit transfers.[190] There are two forms of indirect participation – entities directly connected to the NBS IPS payment system which deliver and/or receive transfer orders in the NBS IPS system directly, and entities with indirect access which are not directly connected to the system, with direct participants delivering and/or receiving transfer orders in the NBS IPS system on their behalf.

By end-2023, JP Pošta Srbije was the only indirect participant with indirect access. One payment institution and two e-money institutions initiated activities in order to join the NBS IPS system.

Instant payments have provided a constantly rising contribution to the expansion of cashless payments at home. In 2023, 67 mn instant payments were executed in the Republic of Serbia, by a quarter more than in 2022. Already in late October 2023, the volume of payments reached 53.5 mn, the level recorded throughout 2022.[191] The average daily number of payments was 183,460 in 2023, which is almost 37 thousand payments more than in 2022.[192] To make these payments, citizens relied on the services offered by the NBS IPS system.

The total value of turnover in this system in 2023 measured RSD 717.3 bn, with 66.96 mn payments executed, which is around 25% more than in 2022. The highest monthly turnover in 2023 was recorded in December (RSD 78.2 bn).[193] The record-high daily number and value of transactions in 2023 was on 29 December 2023, when there were 370,462 payments worth RSD 6.4 bn.[194]

[188] https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/statistika/rtgs/pp_08_23.pdf.

[189] https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/statistika/rtgs/stat_23.pdf.

[190] Credit transfer means a payment service where the payer instructs the payment service provider to initiate the execution of one or more payment transactions, including the issuing of a standing order (Article 4, paragraph 2 of the Law on Payment Services).

[191] https://www.nbs.rs/en/scripts/showcontent/index.html?id=19619.

[192] https://www.nbs.rs/en/scripts/showcontent/index.html?id=19619.

[193] https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/statistika/IPS/ips_12_23.pdf.

[194] https://nbs.rs/en/scripts/showcontent/index.html?id=19446.

In addition to sending instant credit transfers to any recipient with a current account in a bank, the IPS system also enables the following services:

– payment of monthly bills for utility and other services by scanning the unique NBS IPS QR code printed on the bill/invoice;

– *IPS scan* and *IPS show* payments at physical and online points of sale;

– *IPS scan* payments at online points of sale, made with a few clicks using deep link technology;[195]

– *Transfer* service payments – by specifying the mobile phone number of the recipient;[196]

– Generator and Validator services are available at the NBS website, enabling the generating (technical preparation) of the NBS IPS QR code and the validation (technical verification) of an already prepared NBS IPS QR code.

To ensure more efficient and cost-effective execution of euro payment transactions for households and businesses, the NBS operates NBS Interbank Clearing of FX Payments and International Clearing of FX Payments, which execute euro transfers among participants in the system each business day in accordance with the Operating Rules for the clearing of international payments (international clearing of foreign exchange payments)[197].

Based on the agreement on the clearing of international payments concluded in 2007[198] between the central banks of the Republics of Serbia, Montenegro and Bosnia and Herzegovina, participating banks from the three states can execute mutual obligations, mostly retail payments by their clients, by participating in multilateral clearing, in a much more efficient, faster and cheaper way.

System participants are twelve banks headquartered in the Republic of Serbia, the NBS, seven banks in Bosnia and Herzegovina, and as of December 2023, one bank in Montenegro.[199]

Direct payment operations between the Republic of Serbia and Montenegro were established on 11 December 2023, when Universal Capital Bank AD Podgorica joined the NBS's system of international clearing of foreign exchange payments. As the first bank participant from Montenegro, it will be able to offer its clients, as opposed to the often slow and expensive alternative ways, the execution of transactions in euros on the same day, at a considerably lower cost. The main advantage which the NBS's system offers to its participants is the execution during the same day of client (household and corporate) orders if sent by 2.00 p.m. at the fee of RSD 10 per transaction for banks in the Republic of Serbia. Also, participants are not charged any fee for money inflow through the system.

Banks participating in the NBS's system of international clearing from the territories of the Republic of Serbia, Bosnia and Herzegovina and Montenegro offer the service of execution of cross-border payment transactions both to natural and legal persons, fostering the economic and development potential among the Republic of Serbia, Bosnia and Herzegovina and Montenegro. This potential is evident from the significant volume of trade among the neighbouring countries.

Network of interbank transactions of the NBS RTGS payment system

The network indicators of the RTGS system are calculated to assess the connectedness of participants and create a basis for analysing the network's stability against potential shocks, and the effects of shock transmission in the network.

Network characteristics were analysed using daily data for January-December 2023, on the basis of reports on interbank transactions in the NBS RTGS payment system. During 252 business days, only MT202 and MT103[200] interbank messages were analysed and used for each business day to model separate networks. Table III.3.3 shows the results of the analysis and the values of indicators for the entire network.[201]

For 252 business days in 2023, for the observed sample of transactions (MT202 and MT103), the average daily turnover was RSD 105.1 bn. The average number of transactions per day was 22,049 and the average value per transaction was RSD 4.78 mn.

[195] Until end-September 2023, the deep link technology services were enabled by 13 banks.

[196] Until 19 October 2023, nine banks provided the Transfer service. The list of banks providing this service is available at: https://ips.nbs.rs/en/pregled-usluga

[197] https://nbs.rs/en/drugi-nivo-navigacije/propisi/propisi-ps/.

[198] https://www.cbcg.me/slike_i_fajlovi/fajlovi/fajlovi_brzi_linkovi/kliring/sporazum_kliring_cbcg-nbs.pdf.

[199] https://www.nbs.rs/export/sites/NBS_site/documents-eng/platni-sistem/banks_in_int_po.pdf.

[200] Under the SWIFT standard, MT202 messages are used for the transfer of funds between payment system participants, and MT103 messages for single transfer orders for the account of payment service users. In addition, MT102 messages – group orders for retail payments – are also executed in the NBS RTGS system.

[201] A detailed explanation of the indicators is available in the *Financial Stability Report – 2015*, Text box 4 – Network modelling.

Table III.3.3 **RTGS payment indicators (network-level)**

		Mean	Median	Maximum	Minimum	Standard deviation
Payments	Value (RSD mn)	105,059.07	101,116.84	133,120.77	84,249.80	17,267.72
	Number of transactions	22,049.40	21,940.33	26,635.10	18,519.55	1,837.22
	Average (RSD mn)	4.78	4.53	6.15	3.81	0.80
Network size	Nodes*	22	22	24	21	1.11
	Number of direct links	499.43	523.91	577.67	405.20	49.29
Distance measure	Average path length	1.24	1.24	1.25	1.24	0.01
Connectivity	Node degree	18.15	17.92	19.44	17.51	0.59
	Node out-degree	16.24	16.03	17.24	15.69	0.49
	Connectivity	73.65%	72.89%	76.75%	70.19%	2.11%
	Average clustering	87.39%	86.68%	90.67%	86.07%	1.56%
Others	Betweenness centrality	4.17%	4.17%	4.35%	4.00%	0.07%
	Dissimilarity index	0.39	0.30	0.69	0.28	0.14

* Calculations based on daily reports from the NBS RTGS system, for the period Jan-Dec 2023, interbank payments (MT202 and MT103). Payment value and number of transactions in all columns were calculated based on average values, analyzed on a monthly basis.

Source: NBS.

The size of a financial network is defined by the number of its participants. The year 2023 saw status changes, i.e. merger of two banks and changes in bank ownership, with AIK banka becoming the owner of Eurobank Direktna bank in November, so at end-2023 the number of banks participating in the NBS RTGS payment system decreased from 21 to 20[202] (and the number of bank accounts from 24 to 23 during the year and to 21 at year-end[203] due to the merger). The daily average of direct interbank links was around 499, meaning that a large number of banks executed interbank MT202 and MT103 transactions on a daily basis. The average daily connectivity ratio of 73.65% was relatively high, which means that the interdependence of financial institutions was also high, as indicated by the low average path length of 1.24,[204] i.e. the mean value of all shortest paths to any node.

Important parameters for analysing a network of this type are the mean value of the node degree and the value of the degree of the out node, which denotes the number of banks to which a specific bank makes payments. If a financial institution with a high value of this indicator faces operational risk, i.e. inability to make payments, there is a higher probability of contagion to related nodes, i.e. financial institutions expecting to receive payments. For the entire NBS RTGS network, the average daily degree out was 16.24, which is relatively high given the number of banks participating in the system.

The average clustering coefficient, as the "potential" for clustering, was also high, averaging 87.39%, which means that the neighbouring nodes were connected to a larger extent.

Banks with high betweenness centrality are important in the payment system as they participate significantly in shock transmission through the network. The betweenness centrality reflects the frequency with which an individual institution is on the shortest path between other nodes of the network. The average betweenness centrality of 4.17% is rather low.

The average mean of the dissimilarity index, which is used to compare the entire network from the perspective of all pairs of related nodes, equalled 0.39 for the RTGS network. This means that from the perspective of any two neighbouring nodes, the RTGS network behaved in a homogeneous way and that the network looks similar from the perspective of most nodes.

Network indicators used to describe the characteristics of the payment system network consider interbank connectedness, while the turnover value in the form of a

[202] RBA banka merged with Raiffeisen bank on 29 April 2023. After these status changes, 20 banks participated in the NBS RTGS system.

[203] Both AIK banka and Banka Poštanska štedionica operated via interim accounts as well, except that AIK banka's interim account was closed in February 2023.

[204] The average path length l_h for node h is the mean of all shortest paths to any node i, $l_h = \frac{1}{n}\sum_{h \neq i} d_{hi}$. At the network level, the average path length is defined as the ratio between the mean of average path lenghts for each node and the number of nodes, $l = \frac{1}{n-1}\sum_i l_i$.

weight branch factor is also considered for the assessment of importance of a financial institution in the payment system network.

The analysis shows that the RTGS network is highly connected, but that there are several financial institutions that are more interconnected, which represents the basis for further analysis of network indicators at the level of individual institutions.

Identifying important banks in the payment system

A safe and efficient financial infrastructure is a prerequisite for the stability of the financial market and the financial system. It is therefore crucial to identify which banks are important payment system participants, considering the impact of their potential inability to perform payment transactions on payment system stability.

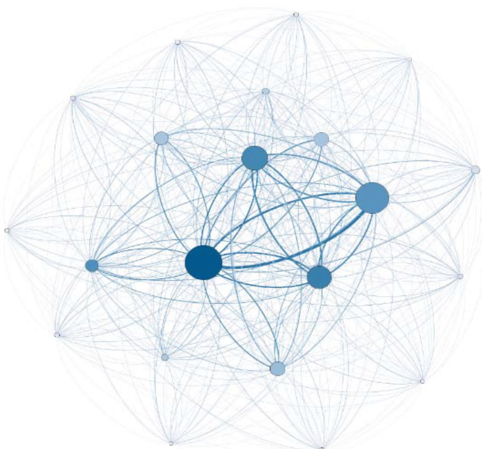
The European Securities and Markets Authority (ESMA),[205] central banks, the IMF,[206] as well as other organisations[207] have been increasingly including the stress testing of financial market infrastructure in their regular publications, considering the importance of smooth operation of financial infrastructure.

Being an integral part of financial infrastructure, the payment system offers the network, structural and time perspective for analysing interbank relations. Based on the analysis of network indicators of banks in view of the number and values of interbank transactions as well as their mutual transactions[208] carried out in the RTGS payment system during 2023, it is possible to identify groups of banks whose importance in the NBS RTGS can be determined based on their position in the network.

As shown in Chart III.3.1, a small number of important nodes can be identified in the network, i.e. a small number of important participants in this payment system, which can be determined according to centrality measures (degree of an individual node, betweenness centrality, closeness centrality and prestige[209]).

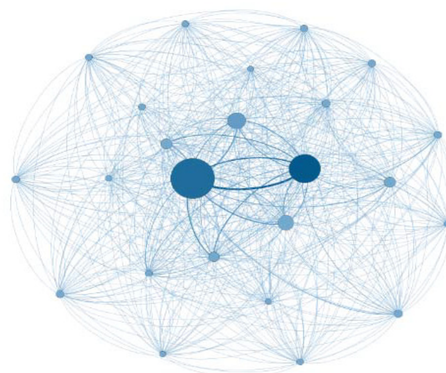
Network, structural and time dimension of interbank relations can be considered through the NBS IPS system[210] as well. Chart III.3.2 shows two prominent banks which account for around 50% of total value and number of payments made in the IPS, and which can be considered systemically important from the point of view of this system.

Chart III.3.1 **Bank interconnectedness in the NBS RTGS network**



* Interbank payments (MT202 and MT103) for the period Jan-Dec 2023.
** The size of the node is proportionate to the bank's share in total turnover, the line thickness is proportionate to the value of interbank payments, while the darker colour of the node indicates a larger number of executed orders.
Source: NBS.

Chart III.3.2 **Bank interconnectedness in the NBS IPS payment system**



* Interbank payments for the period Jan-Dec 2023.
** The size of the node is proportionate to the bank's share in total turnover, the line thickness is proportionate to the value of interbank payments, while the darker colour of the node indicates a larger number of executed orders.
Source: NBS.

[205] https://www.esma.europa.eu/press-news/esma-news/esma-updates-guidelines-stress-tests-money-market-funds.
[206] https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/01/31/Stress-Testing-at-the-IMF-48825.
[207] https://fna.fi/insights/modernising-and-stress-testing-payment-systems/.
[208] January–December 2023, interbank payments (MT202 and MT103).
[209] Prestige as the measure of centrality takes into account the characteristics of neighbouring nodes, i.e. a node is important if connected to other significant nodes.
[210] Information about the characteristics of the NBS IPS payment system can be found on the NBS website (https://nbs.rs/en/ciljevi-i-funkcije/platni-sistem/nbs-operator/ips-nbs) and NBS IPS website (https://ips.nbs.rs/).

The NBS IPS system functionality and the applied technical and technological solutions are in line with payment system trends. The system is based on the latest IT solutions and enables a very short processing time (in 2023 the transaction execution time averaged 1.1 seconds in the IPS) and a high degree of availability.

Given that the NBS has put in place the prerequisites for the banks to offer payment system services to households and corporates at the most favourable terms, including also the IPS system fee policy which is at the lowest possible level, it is reasonable to expect a further rise in the number of payments in this system in the future.

III.4 Real estate market

The NBS monitors and analyses the real estate market given that fluctuations in the real estate value affect the quality of bank credit portfolios, which can also significantly influence financial stability and the real economy. Uncertainty as to the overall economic situation and geopolitics in 2023 reflected on the slackened demand for real estate, and by extension, on the lower prices of real estate. The value of performed construction works increased, while the number of issued new construction permits declined.

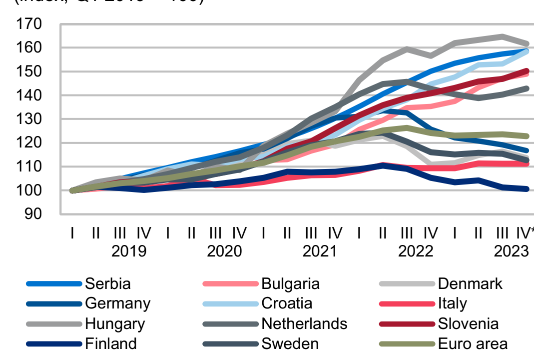
Global economic and geopolitical developments in the past year significantly influenced the real estate market. In the preceding years, especially in the post-pandemic period, the turnover in the real estate market and property prices went up in many countries. Following the rise in inflation, monetary policy tightening by central banks and heightened global uncertainty, 2023 saw a contraction in the demand for real estate. This led to a moderated growth in property prices, which in some countries even flatlined or fell. In Q4 2023, euro area real estate prices decreased by 1.1% y-o-y, while their EU counterparts edged up mildly by 0.2%. The sharpest y-o-y fall was recorded in Luxembourg (14.4%), Germany (7.1%) and Finland (4.4%), and the steepest rise in Bulgaria (10.1%) and Croatia (9.5%).

Unlike many European countries, Serbia saw a further rise in real estate prices in 2023, albeit at a slower pace.

While below the previous year's record, activity in the real estate market continued trending higher than in the pre-pandemic period.

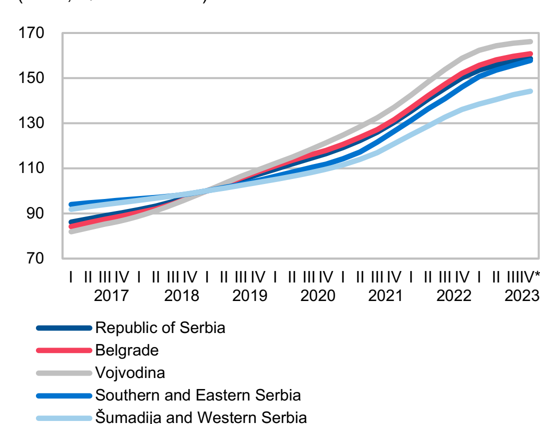
According to the Republic Geodetic Authority, the average price of flats in old buildings for the territory of the Republic of Serbia in 2023 equalled EUR 1,468 per square metre, and in new buildings – EUR 1,697 per square metre, up by 11% and 1%, respectively from 2022.[211]

Chart III.4.1 **International comparison – Housing Price Index**
(index, Q1 2019 = 100)



* Preliminary data.
Sources: Republic Geodetic Authority, Eurostat and BIS.

Chart III.4.2 **Apartment Price Index**
(index, Q1 2019 = 100)



* Preliminary data.
Sources: Republic Geodetic Authority.

[211] https://www.rgz.gov.rs/content/docs/000/000/006/%D0%93%D0%9E%D0%94%D0%98%D0%A8%D0%8A%D0%98_%D0%98%D0%97%D0%92%D0%95%D0%A8%D0%A2%D0%90%D0%88-%D0%97%D0%90_%D0%9C%D0%95%D0%94%D0%98%D0%88%D0%95_2023.pdf.

Since November 2022, the Republic Geodetic Authority has been publishing the Apartment Price Index. This Index was developed in line with international methodological guidelines, based on the model for mass valuation of apartments which in addition to the prices quoted in sale contracts takes into account different qualitative characteristics of real estate from relevant sources.[212] This Index points to a continuous upward trend of the prices of flats during the observed period. The Apartment Price Index for the Republic of Serbia[213] measured 158.66[214] in Q4 2023, up by 5.75% from Q4 2022. By region, Q4 2023 saw the steepest rise in the prices of flats in Southern and Eastern Serbia regions (8.16% y-o-y) and Šumadija and Western Serbia (5.95% y-o-y).

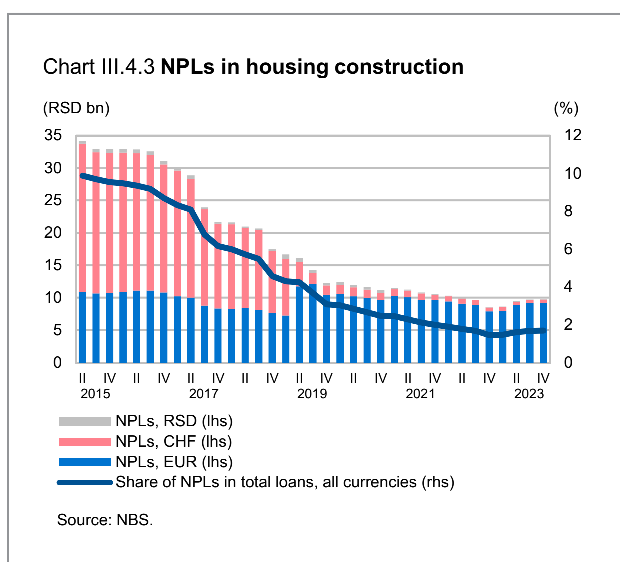
Based on the data of the Republic Geodetic Authority, in 2023, 121,627 purchase and sale transactions were made in this market, down by 13% from 2022. Total volume of assets in the real estate market measured EUR 6.5 bn, down by 13% from 2022, when record high turnover was recorded. The bulk of the turnover related to flats (52.8%), the value of these transactions amounting to EUR 3.4 bn, down by 17% from 2022. The largest share (61%) in the total turnover related to flats was recorded in Belgrade. Compared to the previous period, the use of loans for financing the real estate purchase declined. Only 7% of all real estate in Serbia was purchased through a loan (11% in 2022). Loans were mostly used for the purchase of flats – 17% of all traded flats in 2023 (26% in 2022).

The turnover of real estate transactions was affected by both demand and supply side factors. The results of the Bank Lending Survey[215] show that the situation in the real estate market (due to the rise in real estate prices, as well as factors from the labour market), along with elevated interest rates, led to a contraction in household demand for housing loans in 2023. On the supply side, credit standards for household loans were tightened during most of 2023, mainly on account of higher costs of funding and uncertainty as to the overall economic trends, which reflected on banks' risk aversion. For most of the year, the conditions for approving housing loans were tightened too, except in the case of interest margins, which declined in Q4 as a result of the NBS's decision to temporarily cap interest rates on housing loans.[216]

According to the SORS,[217] in 2023, the total value of executed construction works in constant prices in the territory of the Republic of Serbia increased by 11.2% relative to 2022, and the value of works performed on buildings decreased by 2.4%. Compared to 2022, the total number of issued new construction permits fell by 7.6%. The number of issued building permits declined by 7.2% and for other construction by 8.4%. For the first time in nine years, the number of issued permits for the construction of new apartment buildings edged down mildly (0.2%).

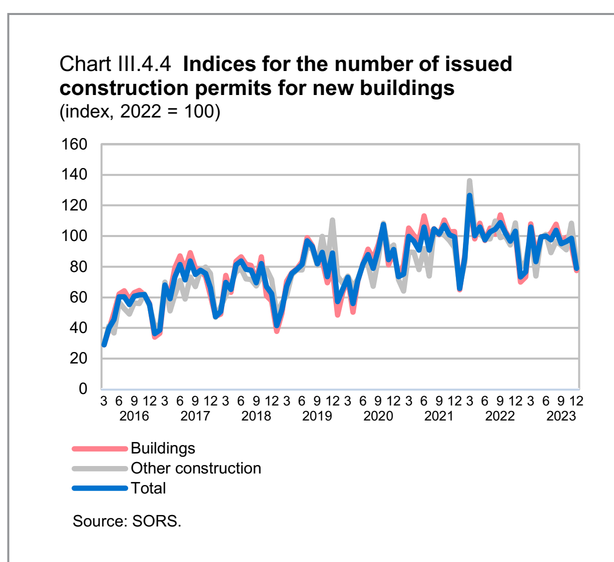
The share of NPLs in total loans of the construction sector dropped by 1.0 pp from 2022 and measured 2.2% in 2023.

Chart III.4.3 **NPLs in housing construction**



Source: NBS.

Chart III.4.4 **Indices for the number of issued construction permits for new buildings**
(index, 2022 = 100)



Source: SORS.

[212] For more information see: https://www.rgz.gov.rs/rga-apartment-price-index and Annual Financial Stability Report – 2022, Text box 5: Real estate valuations in 2022.

[213] https://www.rgz.gov.rs/content/docs/000/000/006/RGZ%20-%20Izvestaj%20indeksi%20cena%20T4%202023Final.pdf.

[214] The reference period is Q1 2019, when the Index value was 100.

[216] https://www.nbs.rs/en/drugi-nivo-navigacije/publikacije-i-istrazivanja/anketa-kreditna-aktivnost/index.html.

[216] Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans (RS Official Gazette, No 78/2023).

[217] https://publikacije.stat.gov.rs/G2023/PdfE/G20238001.pdf .

At end-2023, the share of NPLs in total housing construction loans came at 1.7%, slightly more (by 0.2 pp) from end-2022.

Real estate is widely used as loan collateral in the Serbian banking sector. For this reason, an adequate valuation of real estate is particularly important, as banks are directly exposed to the risk of price fluctuations in the real estate market. The Law on Real Estate Valuers[218] was adopted in 2016, establishing the regulatory framework which improved legal security and enabled adequate valuation of real estate. This Law introduced licensed valuers as natural persons trained in real estate valuation with a relevant licence for the job. Further, in 2023, the Book of National Standards, Code of Ethics, and Rules of Professional Conduct for Licensed Valuers[219] was adopted, which improved standardised real estate valuation, enabling adequate assessment of credit risk for receivables secured by a mortgage. The List of Licensed Valuers[220] on the Ministry of Finance website cites 271 licensed valuers.[221]

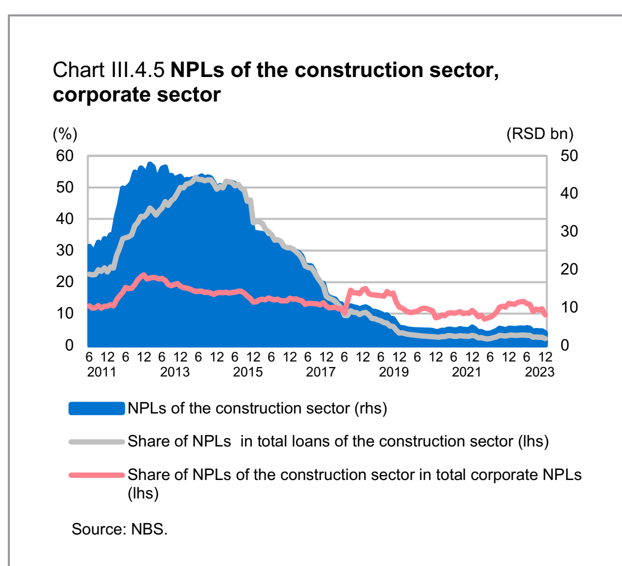
To provide conditions for higher quality real estate valuation, which diminishes the risk of new NPLs and contributes to the development of the market of mortgage NPLs, since 2015 the NBS has kept the database of valuations of mortgaged real estate and mortgage loans. This database is continuously updated to enable comprehensive collection, storage and distribution of data from the mortgaged real estate market and access to data by the NBS, banks and licensed valuers.

Amid the coronavirus pandemic, in June 2020 the NBS amended the Decision on Measures for Safeguarding and Strengthening Stability of the Financial System to facilitate access to housing loans for citizens and to support the construction industry as one of the main drivers of the economy.[222] The up-to-then 80% limit on LtV (except 90% if the loan is approved as a measure of government support to certain groups of natural persons) was permanently eased to 90% if the loan is approved to first-time home buyers.

The LtV[223] ratio, as the ratio of the value of housing loans for which flats were mortgaged and the estimated value of those flats, recorded a y-o-y fall in 2023 (58.9% in Q4 2023 vs. 61.3% in Q4 2022).[224] The average LtV is considerably below the prescribed level of 80%.

Based on the Decision on Temporary Measures for Banks to Facilitate Access to Financing for Natural Persons,[225] which was adopted in August 2020, banks were allowed to approve housing loans in the event that the building is not completely or largely finished. Housing loans under preferential treatment were granted for the purchase of fully built flats, but also for the purchase of residential buildings under construction regardless of the degree of completion. The condition is that the building is project-

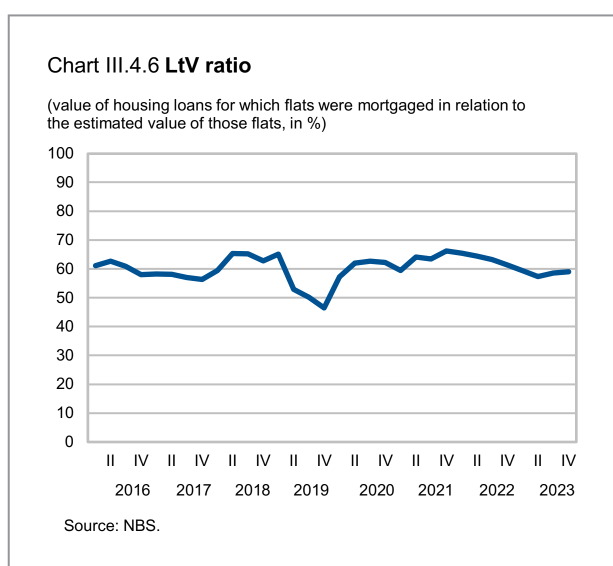
Chart III.4.5 **NPLs of the construction sector, corporate sector**



Source: NBS.

Chart III.4.6 **LtV ratio**

(value of housing loans for which flats were mortgaged in relation to the estimated value of those flats, in %)



Source: NBS.

[218] RS Official Gazette, Nos 108/2016 and 113/2017 – other law.
[219] RS Official Gazette, No 37/2023.
[220] https://mfin.gov.rs/usluge/imenici.
[221] The number of licensed valuers as at 14 May 2024.
[222] RS Official Gazette, Nos 34/2011, 114/2017 and 84/2020.
[223] Loan-to-value – LtV is the ratio of mortgage loan and real estate value used for securing the loan.
[224] Source: the NBS real estate database about the estimated values of real estate mortgaged and loans secured with a mortgage.
[225] RS Official Gazette, Nos 108/2020, 119/2021, 137/2022 and 110/2023.
[226] RS Official Gazette, No 78/2023.

financed by a bank, or that the Building Directorate of Serbia is the holder of the construction permit or that the loan is a measure of government support to certain groups of natural persons. This also applies to residential buildings under construction which are at least 60% completed if they are project-financed by another bank or a project of a legal entity's investor. Also, to facilitate the repayment of housing loans for citizens, banks were enabled to offer facilities to debtors by extending payment terms for housing loans by five years at the longest. The decision was implemented to mitigate the negative effects of the multidimensional crisis and to facilitate further access to housing loans for citizens and support the construction industry.

In September 2023, the NBS adopted the Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans,[226] whereby it temporarily capped interest rates on housing loans with a view to preserving the living standard of citizens amid rising interest rates. Thanks to this temporary set of measures, a cap was placed on the nominal interest rate for first-time beneficiaries of variable rate mortgage housing loan worth no more than EUR 200,000 for a 15-month period, starting from the October 2023 annuity. The Decision defined that for housing loans approved concluding with 30 July 2022, the interest rate may not exceed 4.08%, while for housing loans approved from 31 July 2022 to the effective date of the Decision, borrowers will pay reduced loan annuity with the interest as specified in the initial repayment plan. Banks do not have the right to claim from the borrowers any difference in interest arising from the application of the Decision. During the application of this Decision, i.e. until 31 December 2024, interest rates on new housing loans are also capped – in case of variable rate housing loans, the fixed part of a nominal interest rate (bank margin) may not exceed 1.1%, and in case of fixed rate housing loans, nominal interest rate is limited to 5.03%. In addition to these measures, all house loan beneficiaries are allowed to make an early loan repayment without paying the early repayment fee.

Text box 5: Residential real estate valuation in 2023

Global economic and geopolitical developments in 2023 affected real estate markets across the world, including Serbia. The past years, especially post-pandemic, saw a rise in real estate market turnover and real estate prices, but elevated inflation, the tightening of monetary policies by central banks and heightened global uncertainties put a strain on real estate demand, which led to a moderated growth and, in some countries, even stagnation or fall in real estate prices.

Data of the Republic Geodetic Authority[227] and from the database on valuation of mortgaged real estate (hereinafter: real estate database) suggest an increase in Serbian real estate prices in 2023 relative to 2022, though at lower growth rates than in previous years. On the other hand, according to the Republic Geodetic Authority, after four consecutive years of growth, the overall turnover in the Serbian real estate market contracted by 13% compared to the record year 2022.

Since the start of bank reporting (October 2015) until late 2023, data on 211,411 real estate properties with the appraised value of RSD 7,530.0 bn were entered in the database. Most of these data concern residential real estate (75.4% of the total). In terms of the appraised real estate value, commercial real estate serving as mortgage was dominant (81.7% of the total appraised value of all types of real estate entered in the database).

Table O.5.1 **Appraised values of residential real estate in 2023**

	Average appraised value per m² in 2023 (EUR)*	Average appraised value per m² in 2022 (EUR)	Change compared to the previous year (%)	Minimum appraised value per m² in 2023 (EUR)	Maximum appraised value per m² in 2023 (EUR)	Number of appraised pieces of real estate in 2023
Republic of Serbia	**1,453**	**1,292**	**12.5**	**83**	**6,014**	**5,656**
Belgrade region	**2,196**	**1,905**	**15.3**	**162**	**6,014**	**2,524**
Belgrade – Stari grad	3,423	2,805	22.0	2,176	6,014	105
Belgrade – Savski venac	3,157	2,445	29.1	1,280	5,302	81
Belgrade – Vračar	3,109	2,556	21.6	1,751	4,825	121
Belgrade – Novi Beograd	2,559	2,245	14.0	1,271	4,425	475
Belgrade – Voždovac	2,252	1,872	20.3	853	3,631	309
Belgrade – Zemun	2,130	1,789	19.1	749	3,750	243
Belgrade – Zvezdara	2,102	1,952	7.7	800	3,571	361
Belgrade – Palilula	1,975	1,657	19.2	523	3,781	261
Belgrade – Čukarica	1,908	1,653	15.4	449	3,448	199
Belgrade – Rakovica	1,693	1,406	20.4	725	2,961	157
Belgrade – Surčin	1,169	1,102	6.0	202	2,074	37
Belgrade – Mladenovac	1,020	802	27.2	738	1,449	37
Belgrade – Grocka	1,013	952	6.4	404	1,782	41
Belgrade – Obrenovac	875	767	14.1	295	1,743	46
Belgrade – Lazarevac	666	667	0.0	162	1,234	35
Belgrade – Barajevo	663	461	43.6	369	1,014	12
Belgrade – Sopot	590	926	-36.3	258	953	4
Vojvodina	**1,007**	**914**	**10.2**	**141**	**3,825**	**1,701**
Novi Sad	1,777	1,551	14.5	159	3,825	627
Other municipalities of the region	694	589	17.7	141	2,372	1,074
Southern and Eastern Serbia	**943**	**800**	**17.9**	**148**	**2,029**	**556**
Niš	1,272	1,108	14.8	310	2,029	260
Other municipalities of the region	706	599	17.8	148	1,886	296
Šumadija and Western Serbia	**892**	**790**	**12.9**	**83**	**2,430**	**875**
Kragujevac	967	895	8.0	281	1,944	155
Other municipalities of the region	876	766	14.4	83	2,430	720

* Preliminary estimate, during 2024 banks are expected to continue to submit appraisals from 2023.
** Data are based on first valuations of flats and houses in the housing loan approval procedure.
Source: NBS.

[227] https://www.rgz.gov.rs/content/docs/000/000/006/Извештај%20о%20стању%20на%20тржишту%20непокретности%20у%202023.%20години.pdf.

In accordance with data on the first valuation of residential real estate[228] serving as mortgage for housing loans entered in the database, in 2023 the average appraised value per square metre for the Republic of Serbia equalled EUR 1,453.

Table O.5.1 shows the average appraised value of residential real estate per square metre, and the maximum and minimum appraised value per square metre in the territory of the Republic of Serbia, by statistical region, town and municipality in the Belgrade region in 2023.

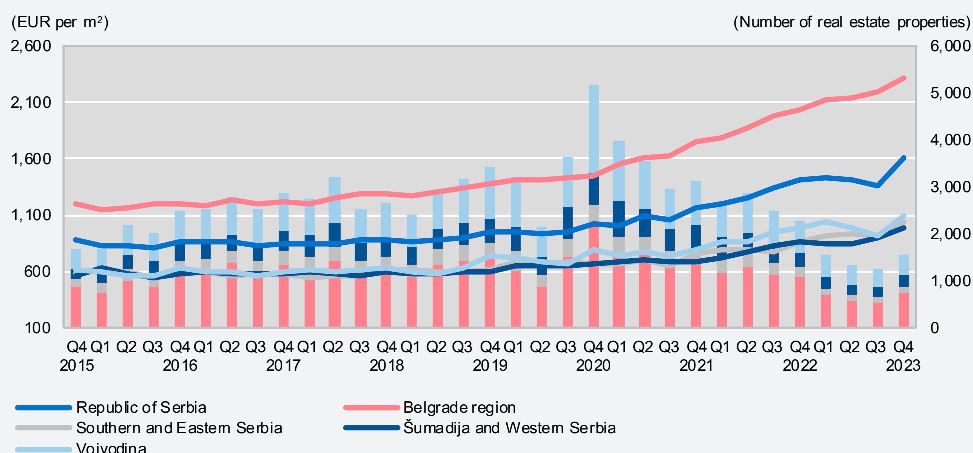
There is a significant dispersion of residential real estate values across regions in the Republic of Serbia. The average appraised value per square metre in the Belgrade region of EUR 2,196 is double the average appraised value per square metre in other regions (Vojvodina – EUR 1,007, Southern and Eastern Serbia – EUR 943 and Šumadija and Western Serbia – EUR 892). As the largest number of appraised residential real estate are for the Belgrade region, it can be concluded that the average appraised value per square metre of residential real estate in the Republic of Serbia is largely determined by the movement in residential real estate valuations in the Belgrade region.

In the Belgrade region, there is a dispersion of the average appraised value per square metre of a residential real estate by municipality – relatively lower average valuations were made for suburban municipalities and municipalities in the periphery of the city. On the other hand, the average appraised value per square metre of residential real estate in Belgrade downtown was above EUR 3,000 (Stari grad – EUR 3,423, Savski venac– EUR 3,157 and Vračar – EUR 3,109). Such dispersion of average appraised values per square metre of residential real estate is not present only in the Belgrade region, but can be seen in other regional centres as well – in Novi Sad compared to other municipalities in Vojvodina (Novi Sad – EUR 1,777, other municipalities of the region – EUR 694), the region of Southern and Eastern Serbia (Niš – EUR 1,272, other municipalities of the region – EUR 706) and the region of Šumadija and Western Serbia (Kragujevac – EUR 967, other municipalities of the region – EUR 876).

The maximum individual residential real estate valuation per square metre in 2023 was registered in Stari grad municipality, and the lowest in the region of Šumadija and Western Serbia.

Relative to the year before, the average appraised value per square metre of residential real estate increased in 2023 by 12.5% in the Republic of Serbia, 17.9% in the region of Southern and Eastern Serbia, 15.3% in the Belgrade region, 12.9% in Šumadija and Western Serbia and 10.2% in Vojvodina. In 2023, a total of 5,656 valuations were recorded in Serbia, down by 4,665 compared to 2022. The lower number of valuations reflects a declining trend of loan-financed

Chart O.5.1 **Appraised real estate values and number of residential properties per region**



* Data are based on first valuations of flats and houses in the housing loan approval procedure.
Source: NBS.

[228] In this Text box, residential real estate means flats and houses appraised for the purpose of collateralisation of housing loans.

residential real estate purchases, except that the number of valuations recorded in 2023 is expected to be complemented by new valuations, since valuation is prepared more than one month prior to mortgage entry, which is why the data on the valuation are submitted later to the NBS.

The average appraised values per square metre of residential real estate from October 2015 until end-2023 show a rising trend both in Serbia and in all regions (Chart O.5.1), except that in 2023 the growth of average appraised values stabilised compared to the two prior years.

Based on data from the real estate database, the average appraised value of a residential real estate per square metre can be determined not only by region and municipality but also by the year of construction, type of real estate (house/flat), flat structure etc (Table O.5.2).

The average appraised value per square metre of a newly constructed real estate in 2023 (constructed in 2021, 2022 or 2023) equalled around EUR 1,778 in the Republic of Serbia (EUR 2.350 in the Belgrade region) and was higher than the average appraised value of older real estate, which stood at EUR 1,366 (EUR 2,156 in the Belgrade region).

Furthermore, average appraised values per square metre of flats (EUR 1,826 in Serbia, EUR 2,287 in the Belgrade region) were significantly higher than those of houses (EUR 545 in Serbia, EUR 979 in the Belgrade region). This can be explained by the fact that the surface of houses is usually higher than the average surface of flats, which is why the average price per square metre of this type of real estate is significantly lower.

Table O.5.2 **Average appraised values of residential real estate in 2023 (year of construction, type, structure)**

	Average appraised value per m² (EUR)*	By year of construction		By type of real estate		By structure of flat				
		New construction	Old construction	Flat	House	0.5	1–1.5	2–2.5	3–3.5	4+
Republic of Serbia	**1,453**	**1,778**	**1,366**	**1,826**	**545**	**2,081**	**1,856**	**1,661**	**1,805**	**2,126**
Belgrade region	**2,196**	**2,350**	**2,156**	**2,287**	**979**	**2,551**	**2,218**	**2,148**	**2,248**	**2,578**
Belgrade – Stari grad	3,423	3,764	3,363	3,361	4,448	3,967	3,391	3,264	3,356	3,341
Belgrade – Savski venac	3,157	3,793	2,934	3,161	1,280	2,726	3,008	2,798	2,666	3,405
Belgrade – Vračar	3,109	3,322	3,072	3,109	-	3,034	3,039	3,013	3,078	3,215
Belgrade – Novi Beograd	2,559	2,905	2,524	2,559	-	3,198	2,753	2,524	2,459	2,623
Belgrade – Voždovac	2,252	2,613	2,101	2,255	2,181	2,480	2,383	2,243	2,215	2,171
Belgrade – Zemun	2,130	2,349	2,048	2,172	976	2,457	2,273	2,033	2,255	2,182
Belgrade – Zvezdara	2,102	2,184	2,074	2,135	1,246	2,287	2,119	2,130	2,057	2,273
Belgrade – Palilula	1,975	1,987	1,970	1,975	2,031	2,181	1,839	1,836	1,954	2,583
Belgrade – Čukarica	1,908	2,091	1,886	2,003	901	2,447	2,027	2,028	1,966	1,953
Belgrade – Rakovica	1,693	1,904	1,675	1,719	1,272	1,893	1,767	1,808	1,669	1,504
Belgrade – Surčin	1,169	1,490	798	1,567	617	1,768	1,535	1,582	-	-
Belgrade – Mladenovac	1,020	1,162	893	1,020	-	-	993	1,073	945	1,111
Belgrade – Grocka	1,013	1,316	836	1,165	743	1,782	1,401	1,274	1,041	765
Belgrade – Obrenovac	875	1,093	823	1,268	497	-	1,314	1,307	1,255	1,075
Belgrade – Lazarevac	666	1,108	635	950	385	1,083	952	1,036	886	779
Belgrade – Barajevo	663	890	596	840	617	-	-	867	819	-
Belgrade – Sopot	590	-	590	258	735	-	-	-	-	258
Vojvodina	**1,007**	**1,482**	**871**	**1,520**	**515**	**1,956**	**1,705**	**1,402**	**1,460**	**1,612**
Novi Sad	1,777	1,815	1,756	1,954	939	2,337	2,077	1,958	1,835	1,906
Other municipalities of the region	694	1,205	588	1,107	468	1,254	1,161	1,066	1,131	1,124
Southern and Eastern Serbia	**943**	**1,281**	**857**	**1,140**	**440**	**1,357**	**1,211**	**1,154**	**1,132**	**971**
Niš	1,272	1,505	1,194	1,396	568	1,432	1,429	1,426	1,361	1,293
Other municipalities of the region	706	1,036	640	889	403	1,172	982	877	924	705
Sumadija and Western Serbia	**892**	**1,343**	**778**	**1,124**	**481**	**1,378**	**1,342**	**1,053**	**1,059**	**966**
Kragujevac	967	1,511	831	1,200	505	1,344	1,375	1,095	1,249	1,045
Other municipalities of the region	876	1,307	766	1,106	476	1,384	1,335	1,044	1,017	941

* Preliminary estimate, during 2024 banks are expected to continue to submit appraisals from 2023.

** Data are based on first valuations of flats and houses in the housing loan approval procedure.

Source: NBS.

In terms of flat structure, the highest average appraised value per square metre in Serbia and in the Belgrade region was recorded for flats with four and more rooms (EUR 2,126 and EUR 2,578, respectively) and for studio flats (EUR 2,081 and EUR 2,551, respectively).

In 2023, the majority of flats – collaterals under housing loans were in buildings with five, four and three floors (937, 864 and 680), accounting for 51.3% of the total number of valued flats (4,836) and indicating also that three-, four-, and five-floor buildings make up the bulk of the building stock in Serbia. Also, the majority of these flats are on the last (1,147) and penultimate floor (936), making up 43.1% of the total number of valued flats. As for building floors, the majority of valuations were made for flats on the first (935), second (858) and third floor (744), which together account for 52.5% of total valuations (Table O.5.3).

Table O.5.3 **Number of flat valuations in 2023 by flat floor and number of floors in the building**

(Building floor) / (Flat floor)	ground floor building	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	24	26	28	31	33	Total valuations by flat floor
Lower ground floor			1	3	1	1		1																					7
Ground floor	28	50	119	137	120	88	35	21	14	6	4	3	3	5	2	1			2			1							639
Upper ground floor									1				1								1								3
1		77	155	159	165	151	78	47	23	33	11	6	7	5	4	4		2		3	4					1			935
2			162	176	161	160	55	52	40	16	12	6	7	3		1	4	1		1		1							858
3				205	179	163	64	38	34	21	7	12	6	6	1	1		1	1		3		1			1			744
4					238	181	48	51	30	16	6	11	6	8	1					1									597
5						193	74	46	31	20	9	8	7	5	6		1	1			2								403
6							79	49	30	21	16	9	2	2	5	3	1	2	3		2		1						225
7								55	29	13	4	9	4	3	1	3	1	1		1		1	2	1					128
8									36	17	10	8	5	5	3	1		1	1		3								90
9										25	10	12	2	3	3	2	1	2				1							61
10											17	2	7	4	2	1	1				1	1							36
11												12	2	9	2	4		1			1								31
12													2	2	2	5		2		1									14
13														6		2	2	1	1	1	3					1			17
14															7	5	4		2	1		1					1		21
15																	4	1	1		1		1						8
16																					1	1	3						5
17																		1		2						1			4
18																					1								1
19																				2		1							3
20																					2								2
23																								1	1				2
24																											1		1
28																												1	1
Total valuations by number of building floors	28	127	437	680	864	937	433	360	268	188	106	98	61	66	39	33	19	17	11	13	25	8	8	2	1	4	2	1	4,836

Data are based on first flat valuations in the housing loan approval procedure.
Source: NBS.

In terms of the number of rooms, the majority of valuations in 2023 were of two-room flats (1,027 – average flat size 52.7 m^2), two-and-a-half room (788 – average flat size 61.3 m^2) and three-room (710 – average flat size 70.7 m^2), these three categories representing 52.2% of all flat valuations. The average flat size for all valuations is around 59.3 m^2, while the median stands at 56.0 m^2, suggesting there is a larger number of smaller-size flat mortgages.

The data from the real estate database are relevant as they help to determine the relationship between the disbursed loan and the value of mortgaged real estate, which is very important for monitoring the adequacy of collateral and enables timely decision-making on appropriate application of macroprudential tools to contain the risks stemming from the real estate market for banks. This confirms the justifiability and usefulness of the complementary analysis of the mentioned data for monitoring trends in the real estate market and assessment of risks that banks assume under mortgage loans.

IV Financial stability

IV.1 Regulatory framework as support to financial stability

IV.1.1 Macroprudential policy

The global financial crisis of 2007/2008 prompted accelerated development of a new area of public policy – macroprudential policy, aimed at limiting systemic risks to which the financial system as a whole is exposed. Developing this policy's measures and instruments helped the global financial system and financial systems of individual countries be more resilient to potential future crises. Capital and liquidity requirements envisaged by the Basel III[229] regulatory standard enhanced the resilience of the financial system in terms of solvency and liquidity. The implementation of macroprudential policy measures in the past period also helped mitigate the risks caused by the multidimensional global crisis which is in its fourth year. It first began with the coronavirus pandemic and then continued on as geopolitical tensions and conflicts intensified, causing disruptions in supply chains, driving inflation up and slowing economic growth. Still, it was thanks to the implementation of measures discussed below that the financial sector was better prepared to respond to the challenges triggered by these crises than in 2007/2008, before that crisis broke out.

Pursuant to Article 14, paragraph 1, item 11 of the Law on the National Bank of Serbia (RS Official Gazette, Nos 72/2003, 55/2004, 85/2005, 44/2010, 76/2012, 106/2012, 14/2015, 40/2015 – CC Decision and 44/2018), the legal mandate of the NBS is to determine and implement, within its scope of competence, activities and measures aimed at preserving and strengthening financial system stability. This legal mandate enables the NBS to take measures to achieve one of its main objectives – maintaining and strengthening the stability of the financial system (Article 3, paragraph 2 of the Law on the National Bank of Serbia). To define the elements of macroprudential policy in more detail, in 2015 the NBS published the Macroprudential Framework[230] – a consultative document which sets out detailed macroprudential policy objectives, instruments and the decision-making process. After the Macroprudential Framework was published, the NBS adopted regulations[231] transposing into the domestic regulatory system the regulatory standard Basel III, which was one of the most important regulatory responses to the global financial crisis of 2007/2008. These regulations were adopted in December 2016 and implemented as of 30 June 2017. An integral part of this regulatory package is the Decision on Capital Adequacy of Banks (RS Official Gazette, Nos 103/2016, 103/2018, 88/2019, 67/2020, 98/2020, 137/2020, 59/2021, 67/2022, 137/2022, 48/2023 and 110/2023). Among other things, this Decision

[229] For more details on this indicator, see the *Annual Financial Stability Report – 2011*, p. 75–77 (https://www.nbs.rs/export/sites/NBS_site/documents-eng/publikacije/fs/fsr_2011.pdf).

[230] https://www.nbs.rs/export/sites/NBS_site/documents-eng/finansijska-stabilnost/macroprudential_framework_201503.pdf.

[231] This regulatory package includes NBS decisions published in the RS Official Gazette, No 103/16 of 22 December 2016, namely: the Decision on Capital Adequacy of Banks, Decision on Disclosure of Data and Information by Banks, Decision on Reporting on Capital Adequacy of Banks, Decision Amending the Decision on Reporting Requirements for Banks, Decision on Liquidity Risk Management by Banks and the Decision Amending the Decision on Risk Management by Banks. These decisions transpose into domestic legislation the requirements prescribed by the EU relevant regulation or directive (Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (CRR), Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (CRD IV)).

regulates capital buffers, which represent additional CET 1 capital that banks are required to maintain above the regulatory minimum in order to contain systemic risks in the financial system. Capital buffers can be used to limit risks in the financial system, which can be cyclical (capital conservation buffer and countercyclical capital buffer) or structural (systemic risk buffer and capital buffer for a systemically important bank) (Table IV.1.1). Capital buffers are among the most important capital-based macroprudential instruments. The Decision on Liquidity Risk Management by Banks (RS Official Gazette, No 103/2016) introduced the liquidity coverage ratio. Compliance with this requirement enables banks to sustain a presumed liquidity shock over a 30-day period.

Table IV.1.1 **Capital buffers in Serbia**

Capital conservation buffer

Pursuant to the Decision on Capital Adequacy of Banks (RS Official Gazette, Nos 103/2016, 103/2018, 88/2019, 67/2020, 98/2020, 37/2020, 59/2021, 67/2022, 137/2022, 48/2023 and 110/2023), the capital conservation buffer is set at 2.5% of risk-weighted assets.

Countercyclical capital buffer

Pursuant to the Decision on the Countercyclical Buffer Rate for the Republic of Serbia (RS Official Gazette, No 58/2017), the CCyB rate is set at 0%.

In 2023, the CCyB rate was reviewed at a quarterly level and was kept at 0% given that, according to data for end-December 2023, the reference guide for the CCyB rate is 0%; the credit-to-GDP ratio is 87.0%; and the deviation of credit-to-GDP ratio from its long-term trend is -0.2 pp.

By keeping the CCyB rate at 0%, the NBS supports lending activity in conditions of tightened global financing conditions.

Capital buffer for systemically important banks

The Decision on Establishing a List of Systemically Important Banks in the Republic of Serbia and Capital Buffer Rates for Those Banks of 15 June 2023 establishes systemically important banks and the capital buffer rates that those banks are obligated to maintain as of 30 June 2023.

Bank	Rate
BANCA INTESA AD BEOGRAD	2%
OTP BANKA SRBIJA AD NOVI SAD	2%
RAIFFEISEN BANKA AD BEOGRAD	2%
UNICREDIT BANK SRBIJA AD BEOGRAD	2%
NLB KOMERCIJALNA BANKA AD BEOGRAD	1%
BANKA POŠTANSKA ŠTEDIONICA AD BEOGRAD	1%
AGROINDUSTRIJSKO KOMERCIJALNA BANKA AIK BANKA AD	1%
ERSTE BANK AD NOVI SAD	1%
EUROBANK DIREKTNA AD BEOGRAD	1%

Systemic risk buffer

Pursuant to the Decision on the Rate and Manner of Maintaining the Systemic Risk Buffer (RS Official Gazette, Nos 58/2017 and 3/2018), all banks whose share of foreign currency and foreign currency-indexed placements approved to corporates and households in the Republic in Serbia exceeds 10% of the total placements of that bank approved to corporates and households in the Republic of Serbia must maintain the systemic risk buffer at the level of 3% of total foreign currency and foreign currency-indexed placements of a bank approved to corporates and households in the Republic of Serbia.

The systemic risk buffer was introduced to limit the risk of euroisation, one of the key structural non-cyclical systemic risks to the stability of the financial system of the Republic of Serbia. The obligation of maintaining the systemic risk buffer rate is reviewed at least once every two years.

The importance of adequate liquidity risk management in preventing a financial crisis was thus recognised. To mitigate risks of the occurrence or excessive maturity mismatch between the funding sources and placements of banks in Serbia and to encourage the reliance on longer-term sources of financing, in November 2023 the NBS adopted a new Decision on Liquidity Risk Management by Banks (RS Official Gazette, No 100/2023), which, among other, introduced the net stable funding ratio. This ratio is a macroprudential instrument that requires the coverage of required stable funding by available stable funding (in the period of one year during which the financial system faces conditions of stress). Also, the rules for calculating the existing liquidity indicator were amended. This Decision will be enforced as of 30 June 2024.

The harmonisation of Serbia's supervisory and regulatory requirements with European requirements based on Basel III was also confirmed by the Commission Implementing Decision (EU) 2019/2166 on the harmonisation of regulatory and supervisory frameworks in late 2019. This Decision included Serbia in the list of countries whose supervisory and regulatory requirements for banks are considered equivalent for the purposes of the treatment of exposures in accordance with the Capital Requirements Regulation, No 575/2013, which introduced Basel III standards in the EU. Based on a comprehensive analysis, it was assessed that the framework for bank operation created by the NBS was established in a manner which ensures the stability and integrity of the financial system, adequate protection of depositors and other financial services consumers, independence and effectiveness of bank supervision, and effective application of relevant international standards. The new Decision (EU) 2021/1753 of 24 October 2021 once again confirmed the previously established equivalence.

By introducing Basel III capital buffers and liquidity requirements into banking legislation, systemic risks have been recognised as a special type of risks, calling for special, tailored measures. Macroprudential policy aims to contain these risks, while taking into account its interaction with microprudential and monetary[232] policies. The coronavirus pandemic crisis, the energy crisis, the extended conflict in Ukraine and the new conflict in the Middle East, coupled with elevated inflation and decelerating economic growth, which have played out in the last four years, have only emphasized further the need for coordination of all public policies.

[232] For more information about the interaction of financial stability and monetary policy, see Text box 1: Role of financial stability in the ECB's new monetary policy strategy, *Annual Financial Stability Report – 2021*, p. 15–17.

IV.1.2 Regulatory measures to contain systemic risks

In addition to analysing and assessing systemic risks in the financial system, each year the *Annual Financial Stability Report* lists the measures that can be undertaken to contain systemic risks.

Non-performing loans

A high level of NPLs can pose both a systemic risk to the financial system from the macroprudential aspect and a risk for individual institutions (microprudential aspect). A rising share of NPLs in total loans is a typical manifestation of a financial crisis and does not reflect on the financial system alone, but also on the real economy, as it may negatively affect lending activity, thereby slowing or deferring economic growth. A high NPL ratio may also deepen the severity and extend the duration of a financial crisis. Namely, financial resources are in that case tied down until an NPL is liquidated, which may prolong economic stagnation.

Due to a rise in NPLs in the aftermath of the global financial crisis, there was a need to adopt an NPL Resolution Strategy (hereinafter Strategy)[233] and the action plans of the Serbian Government and the NBS, which produced outstanding results in containing this systemic risk and bringing down the level of NPLs. As a result of a strong regulatory framework for banks and the adopted macroprudential policy measures, coupled with monetary policy measures, the share of NPLs in total loans measured 3.2% in December 2023, still hovering close to the lowest level on record. This is 19 pp lower than in August 2015 when the Strategy was adopted and 0.2 pp higher than at end-2022, demonstrating that the tightening of financial conditions did not have major adverse effects on the quality of banks' assets. Keeping the NPL share close to their historical minimum even amid a crisis environment and rising interest rates, confirms that the measures taken by the NBS and the Government were well-timed, preventing major negative consequences for the economy and households and, by extension, for the financial sector. Since the domestic banking system is adequately capitalised and highly liquid, and allowances for impairment account for as much as 60.5% of gross NPLs (December 2023), the direct negative effect of NPLs on lending activity is considerably limited, so we are primarily talking about an indirect effect. This effect may play out through the banks' risk aversion, present even in the most advanced markets. Risk aversion manifests itself in the tightening of credit standards and lending conditions, such as limitation of the loan amount and maturity, and stricter collateral requirements. Banks' risk aversion was particularly heightened during the crisis caused by the coronavirus, which is why Serbia, just like many other countries, undertook as the guarantor to settle bank receivables under corporate loans approved to finance liquidity and working capital in order to mitigate the economic and financial fallout from the Covid-19 pandemic, in line with the established guarantee schemes.[234]

Following the Strategy from 2015, in December 2018, the Government adopted the NPL Resolution Programme for the Period 2018–2020[235] (hereinafter: Programme) and the Action Plan for its implementation. The objective of this Programme and the implementing Action Plan was to remove, in cooperation with the NBS, the identified obstacles which prevent timely NPL resolution, as well as to pre-empt the accumulation of NPLs and negative effects on lending and, by extension, on potential economic growth.

Presented below are recommendations whose implementation could additionally help in maintaining the low level of NPLs.

Drafting plans by banks to reduce and/or maintain a low share of NPLs. The Decision Amending the Decision on Risk Management by Banks[236] from 2016 improved the process of managing bad assets in banks. The process was further improved by drafting specific plans to reduce the share of NPLs. Below are some of the elements to be included in these plans:
– a quantifiable target share of NPLs in total loans of a given bank;
– the expected timeframe for the achievement of the targeted share of NPLs, which may be defined in stages;
– method of decreasing the NPL share (sale, write-off, restructuring or enforced collection of receivables);
– sources of financing the implementation of the plan: recapitalisation by shareholders, or in case of a foreign

[233] RS Official Gazette, No 72/2015.
[234] See: Law on Establishing a Guarantee Scheme as a Measure of Support to the Economy for Mitigating the Effects of the COVID-19 Pandemic Caused by the SARS-CoV-2 Virus (RS Official Gazette, Nos 153/2020 and 40/2021).
[235] http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/drugiakt/2018/105/1/reg/.
[236] RS Official Gazette, Nos 45/2011, 94/2011, 119/2012, 123/2012, 23/2013 – other decision, 43/2013, 92/2013, 33/2015, 61/2015, 61/2016, 103/2016, 119/2017, 76/2018, 57/2019, 88/2019, 27/2020, 67/2020 – other decision 89/2022 and 77/2023.

bank's subsidiary, by the parent bank; debt or capital financing by IFIs; sale of NPLs to private asset management companies, etc.

Promoting a framework for consensual financial restructuring. Consensual financial restructuring is a redefining of the debtor-creditor relationship between a company and/or entrepreneur in financial distress, as a debtor, and its creditors. The Law on Consensual Financial Restructuring (RS Official Gazette, No 89/2015) was adopted in 2015 in order to improve the procedure of consensual financial restructuring of companies. The Law created preconditions for speeding up and simplifying the current procedure, and entrepreneurs were allowed to apply for the procedure.

However, in addition to regulatory improvements, active efforts need to be made to educate corporates and other stakeholders about consensual financial restructuring and to promote the procedure itself, including education about the possibility to resolve disputable relations through mediation. This is particularly significant in the current polycrisis environment, when it is important to make sure all possibilities are utilised so that economic entities facing financial difficulties due to the crisis should continue operating. The NBS has always taken an active part in various initiatives aimed at promoting and developing the consensual financial restructuring procedure.

Cross-border deleveraging of banks

Foreign-owned banks account for the bulk of the Serbian banking sector (76.9% at end-December 2023). Most of those banks are members of cross-border banking groups and prior to the global financial crisis of 2007/2008 they were mainly financed by borrowing from their parent banks. When the crisis broke out and parent banks became financially strained, the majority of emerging markets were exposed to deleveraging. In order to avoid a situation where deleveraging would cause financial instability in host countries of international banking groups' subsidiaries, the year 2009 saw the launching of the so-called Vienna Initiative 1.0 aimed at maintaining the agreed level of exposure of banking groups from Western European countries toward countries of Central, Eastern and Southeastern Europe. However, as the crisis went on, Vienna Initiative 2.0 was launched in 2012 in order to coordinate the process of deleveraging of foreign banking groups. It became evident that the domestic financial system could not rely on external sources of funding only and that domestic sources needed to be strengthened as well. At end-2008, when the global financial crisis broke out, cross-border liabilities of the banking sector accounted for 18.2% of total liabilities, while in December 2023 they fell to 11.0%. This decrease was offset by the rise in the local deposit base. The loan-to-deposit ratio declined from 1.14 at end-2008 to 0.83 at end-2023. A loan-to-deposit ratio below 1 means that banks largely rely on domestic, stable sources of funding, such as deposits, and points to a greater resilience of the banking system, which allows it to preserve its lending activity in crisis conditions regardless of trends in foreign markets. This also limits the effect of cross-border risk spillover, which is particularly pronounced during crises. Owing to preserved macroeconomic and financial stability, and timely and comprehensive measures supporting corporate and household sectors, the spillover of the negative effects of all crises from the international environment onto the domestic banking sector was prevented. However, cross-border exposure of the domestic banking sector should continue to be monitored.

Strengthening the domestic dinar sources of funding. Reliance on domestic, primarily dinar sources of funding, limits the exposure to external risks, particularly in the conditions of global crises. Also, stable domestic sources of funding enable an adequate risk diversification. As our financial system is bank-centric, efforts should be made to develop alternative, long-term sources of funding. An example of these sources in the domestic market are VPFs, whose potential in Serbia is insufficiently used.

Degree of dinarisation

A euroised financial system is exposed to the FX risk which may materialise in case of a sudden drop in the value of the domestic currency relative to major world currencies. Such a scenario would lead to a major increase in foreign currency liabilities, expressed in the local currency, and considering that most borrowers receive their income in the local currency, their debt would suddenly go up. In this way, the FX risk can give rise to problems with borrowers' solvency and liquidity. Also, in a highly euroised economy, changes in the key policy rate cannot fully influence the cost of servicing foreign currency-denominated debt, which diminishes the efficiency of monetary policy and limits the central bank's capacity to control this systemic risk.

To increase the degree of dinarisation of the domestic financial system, the Government and the NBS signed the Memorandum on the Strategy of Dinarisation of the

Serbian Financial System in 2012. Given that macroeconomic stability was ensured and financial stability strengthened in the period after the conclusion of the Memorandum in 2012, it was agreed that preconditions were in place for upgrading the Strategy. To this end, in December 2018 the Government and the NBS signed a new Memorandum on the Strategy of Dinarisation[237] which took stock of past measures and activities and, in view of those results, defined additional measures and activities that would boost dinarisation further and mitigate the FX risk in the system. The Strategy of Dinarisation rests on three key pillars:

– the first pillar includes monetary and fiscal policy measures aimed at preserving macroeconomic stability and ensuring conditions for sustainable economic growth;

– the second pillar includes activities aimed at further developing the market of dinar securities and introducing new dinar products into the domestic financial market;

– the third pillar includes activities aimed at the development of FX risk hedging instruments.

The degree of dinarisation of the domestic financial system, measured by the share of dinar receivables in total receivables from corporates and households, amounted to 34.5% in late 2023, down by 0.6 pp from end-2022 (35.1%). Measured by the share of dinar deposits in total corporate and household deposits, it equalled 44.4%, up by 4.3 pp from end-2022 (40.1%). The country's gross FX reserves reached a record high level in late December 2023 (EUR 24.9 bn). The coverage of goods and services imports by FX reserves was 6.7 months, which is more than double the adequacy standard. Other indicators of FX reserve adequacy were also higher than the standard level, thus diminishing the risk of euroisation and strengthening our country's resilience to external shocks.

As part of its Strategy of Dinarisation of the Serbian Financial System, in cooperation with the Government, the NBS promotes domestic currency savings, emphasizing their importance and greater profitability compared to FX savings. Greater profitability of dinar savings was supported by a longer period of macroeconomic and financial stability, relatively higher interest rates on dinar than on euro savings, a more favourable tax treatment of domestic currency savings, as well as timely monetary, prudential and fiscal measures taken to alleviate the effects of the polycrisis. Throughout the year dinar savings continued up, reaching a new record level of RSD 136.5 bn at end-2023 – as much as eight times higher than 11 years ago, which confirms that depositors' confidence in the local currency and financial system stability has been preserved.

The NBS is continuously taking various monetary, microprudential and macroprudential policy measures to advance dinarisation. In terms of macroprudential measures, already in 2011 the NBS adopted the Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, No 34/2011). This Decision prescribes measures for mitigating risks in the financial system arising from the high share of FX or dinar FX-indexed loans. The Decision defines the following three measures:

– it introduced the 80% LtV (loan-to-value) limit for FX or FX-indexed housing loans. The Decision Amending the Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, No 114/2017) from December 2017 relaxed the LtV limit to 90% exceptionally if a loan is approved as a government-support measure for some groups of natural persons. Also, the Decision Amending the Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, No 84/2020) from June 2020 relaxed this limit in a way which allows banks to approve a mortgage-backed housing loan to natural persons if the loan amount does not exceed 90% of the value of such real estate and the loan is approved to a first-time home buyer;

– banks are allowed to approve FX-indexed loans to natural persons, only if the currency of indexation is the euro;

– mandatory downpayment or deposit of 30% has been introduced for FX-indexed or FX loans to natural persons, but this requirement does not apply to housing loans or credit cards.

To further support financial system dinarisation, at its meeting of 12 December 2019, the NBS Executive Board adopted new measures for banks in order to change the currency structure of corporate lending to ensure a higher share of dinar loans in total loans approved in the Republic of Serbia. These measures aim to create an environment conducive to more favourable financing of the corporate sector, particularly of SMEs – in dinars. The measures are defined in the decisions published in the RS Official Gazette, No 88/2019 of 13 December 2019, namely:

1. Decision Amending the Decision on Capital Adequacy of Banks, and

[237] https://nbs.rs/export/sites/NBS_site/documents-eng/publikacije/dinarizacija/Memorandum_Dinarisation_Strategy_2018.pdf.

2. Decision Amending the Decision on Risk Management by Banks.

The Decision Amending the Decision on Capital Adequacy of Banks aims to encourage banks to lend in dinars (without an FX-clause) and approve all other loans to micro enterprises and SMEs, entrepreneurs and farmers in dinars. Unlike the previous solution, which treated all bank loans to these entities in the same way, regardless of the currency, this measure provides for a more favourable regulatory treatment of all dinar loans, i.e. banks allocate less capital to cover risks in respect of dinar loans than in respect of FX and FX-indexed loans to these categories of borrowers. These incentives represent an additional measure to ensure better lending terms to this important part of the corporate sector which drives the economic growth of each country.

An additional novelty introduced by this Decision aims to encourage dinar lending by introducing measures to discourage the approval of new non-purpose and non-investment FX-indexed and FX loans to companies, entrepreneurs and farmers. Namely, the maximum percentages of these loans have been introduced, and if a bank exceeds these maximum levels, it will be subject to capital reduction. Apart from gradualness, this measure is also characterised by the absence of any form of lending prohibition, given that there are no obstacles for a bank to approve a non-purpose or a non-investment loan with the agreed currency clause or a loan in foreign currency to any client, provided that it maintains an appropriate level of capital after that, i.e.[238] it has sufficient own funds to meet all regulatory requirements. To unlock further operational capacities of banks and create more room to provide liquidity to the real sector – all of this against the backdrop of a global multidimensional crisis – the NBS postponed the application of this measure several times, though it entered into force on 1 July 2023, however, the obligation to reduce capital in case of overstepping the share percentage will be enforced on 1 January 2025.

The NBS's comprehensive approach to limiting FX-indexed and FX lending has also resulted in an improved regulatory framework for risk management by banks in this segment of operation. The Decision Amending the Decision on Risk Management by Banks defines risk management requirements for banks concerning FX-indexed and FX loans. This has helped improve the regulatory framework in order to strengthen financial system resilience to the risks which may arise from a high share of FX-indexed and FX loans in bank balance sheets.

The high level of banking sector euroisation has been recognised as a systemic risk, since it increases the sensitivity of borrowers with a debt-income-currency mismatch to exchange rate changes, exposes the banking sector to credit-FX risk and hampers the efficient implementation of monetary policy. Therefore, the NBS applies the systemic risk buffer as an additional macroprudential policy measure. This instrument aims to strengthen banking sector resilience to potential shocks associated with this systemic risk and to help reduce the euroisation of the domestic financial system. It was introduced by the Decision on the Rate and Manner of Maintaining the Systemic Risk Buffer (RS Official Gazette, Nos 58/2017 and 3/2018). All the banks with headquarters in Serbia and with the degree of euroisation above 10% are required to maintain the systemic risk buffer at 3% of their FX and FX-indexed loans to corporates and households in Serbia.[239]

Considering the introduction of different insured amounts and insurance premiums for FX and dinar deposits. The Law on Deposit Insurance (RS Official Gazette, Nos 14/2015, 51/2017 and 73/2019) envisages the same insured amounts for both FX and dinar deposits. As the requests for insurance-based deposit payments are often filed during a systemic crisis when the domestic currency can depreciate considerably, depositors with FX deposits are in a more favourable position than depositors with local currency deposits. Moreover, when it comes to determining the deposit insurance premium, the Law does not stipulate higher premiums for FX deposits, even though they entail a higher risk for the insurer. Namely, FX deposits entail a higher risk of the occurrence of the insured event than dinar ones, as there is no FX risk involved in the investment of dinar funds.

In October 2019, the Law Amending the Law on Deposit Insurance (RS Official Gazette, No 73/2019) was adopted, introducing the possibility to calculate the insurance premium on the basis of the level of risk in the operations of each individual bank. Despite this improvement, however, the Law does not explicitly prescribe the obligation to determine a higher premium for FX deposits. Going forward, it would therefore be

[238] The Decision Amending the Decision on Capital Adequacy of Banks (RS Official Gazette, No 67/2020), the Decision Amending the Decision on Capital Adequacy of Banks (RS Official Gazette, No 137/2020), the Decision on Capital Adequacy of Banks (RS Official Gazette, No 59/2021) and the Decision Amending the Decision on Capital Adequacy of Banks (RS Official Gazette, No 67/2022).

[239] https://www.nbs.rs/export/sites/NBS_site/documents-eng/propisi/propisi-fs/systemic_risk_buffer.pdf.

desirable to differentiate between the premiums and sums of insured deposits, depending on the deposit currency, and thus support the process of deposit dinarisation.

Regulatory measures to facilitate debt repayment and access to financing

As other countries, Serbia has faced the consequences of stepped-up geopolitical tensions, languid global growth, elevated inflationary pressures and numerous uncertainties in the period behind us. Even so, the impact it has sustained is weaker than in most European countries owing to the preserved macroeconomic and financial stability, vigorous economic growth in the past period, structure of the economy and the created fiscal room, as well as the timely and comprehensive package of measures of assistance to businesses and households. In coordination with the Serbian Government, the NBS responded in a timely fashion, facilitating the operation of businesses amid disrupted global supply chains and thus alleviating the spillover effect of rising global primary commodity prices on the domestic market.

In June 2022, the NBS adopted the Decision on Temporary Measure Regarding the Calculation of Bank Capital[240] which enabled banks to mitigate the negative effects of changes in securities prices on capital, triggered by disruptions in the international financial market. The temporary measure pertains to debt securities issued by the Republic of Serbia, autonomous province or local government unit, and measured at fair value through other comprehensive income in accordance with the IFRS 9. Pursuant to this Decision, a bank may exclude from the calculation of CET 1 capital 70% of net unrealised gains/losses based on valuation of debt instruments. Amid exacerbated global uncertainty, the validity of the measure was extended until 31 December 2024, envisaging that the percentage of net unrealised losses which can be excluded from the calculation of CET 1 is first reduced to 50% by June 2024, and then to 25% by end-2024.

To ensure lasting protection of citizens' standard in terms of payment services needed for everyday life, in August 2022 the NBS adopted the Decision on the Payment Account with Basic Features.[241] The maximum amount of the monthly fee for the payment account with basic features is set at RSD 150, and the guaranteed services are defined. The Decision also regulates consumers' rights to the payment account with basic features and the types of services covered.

In August 2022 the NBS adopted the Decision Amending the Decision on Risk Management by Banks[242] laying down banks' obligation to regulate, by means of its relevant internal acts, the process of adoption and/or amendments to its acts governing the fees it charges for the provision of payment services. A bank must notify the NBS of the tariff change by no later than 45 days before the planned adoption of the change. The NBS will thus be timely informed about the planned changes to banks' tariffs, which will allow it to timely identify whether banks' operations are appropriate and take relevant measures, if needed.

Against the backdrop of elevated interest rates, amendments to the Decision on Capital Adequacy by Banks from December 2022 allowed banks to restructure their receivables from natural persons under consumer, cash or other non-purpose loans, without affecting their capital. This regulatory solution allowed financially distressed debtors to submit an elaborated application asking for an extension of their payment term by up to three years relative to the applicable regulatory solution. In this case, the payment term could be extended by up to nine years for cash and consumer loans, and up to 11 years for motor vehicle purchase loans. It must be noted that this procedure does not result in an augmentation of the remainder of the debt, and that rescheduling within the meaning of this Decision may be done only once.

Temporary measures aimed at supporting households and corporates

Considering the strategic importance of agricultural production for households and corporates, in October 2022 the NBS adopted measures[244] allowing debtors of banks and financial lessors to reschedule their existing liabilities, meaning that borrowers could opt for a postponement in the settlement of their liabilities on account of the principal for six to 12 months, depending on their choice of the grace period within the rescheduling. In this case, the repayment period of the loan/lease agreement is extended so that the amount of the annuity (periodic obligation to be paid upon the expiry of the grace period) determined when

[240] RS Official Gazette, Nos 72/2022, 124/2022 and 110/2023.
[241] RS Official Gazette, No 89/2022.
[242] RS Official Gazette, No 89/2022.
[243] RS Official Gazette, No 137/2022.

[244] Decision on Temporary Measures for Banks Aimed at Adequate Management of Credit Risk in Agricultural Loans Portfolio in Conditions of Aggravated Agricultural Production (RS Official Gazette, Nos 111/2022 and 5/2023) and Decision on Temporary Measures for Lessors Aimed at Adequate Management of Credit Risk in the Portfolio of Leases of Agricultural Machinery and Equipment in Conditions of Aggravated Agricultural Production (RS Official Gazette, No 111/2022).

the rescheduling was approved is not higher than the same amount before the rescheduling, while during the grace period debtors only pay the contracted interest rate. Amid dampened demand and unfavourable fruit price movements in the international market, in January 2023 bank debtors engaged in the purchase and cold storage of fruit were also enabled to reschedule their obligations.[245]

To facilitate access to financing and support the construction industry, throughout 2023 the Decision on Temporary Measures for Banks to Facilitate Access to Financing for Natural Persons was implemented.[246] Pursuant to the Decision, until end-2023 banks were able to use a portion of allocated capital buffers (capital conservation buffer and systemic risk buffer) to facilitate access to financing for natural persons. Until 2023, banks were also able to offer facilities to borrowers by extending the repayment term for housing loans by a maximum of five years. In the current environment of rising EURIBOR, this reduced the pressure on the beneficiaries of variable-rate housing loans and prevented a build-up of non-performing housing loans. Apart from the option of extending the deadline for the repayment of housing loans, the temporary measures enabled easier access to housing loans (a lower minimum degree of construction of a facility for the purchase financed by a housing loan is required) and facilitated the procedures for citizens' access to short-term dinar loans of up to RSD 90,000. The amendments to the Decision[247] from December 2023 allowed banks to approve consumer loans of up to RSD 90,000 with a maximum two-year repayment term by end-2024 to natural persons without having to transfer their wage/pension to the bank granting the loan.

To preserve citizens' living standard in an environment of rising interest rates, in September 2023 the NBS adopted the Decision on Temporary Measures for Banks Relating to Natural Persons' Housing Loans[248] enabling a temporary cap on housing loan interest rates. The temporary measure limited the nominal interest rate for first-time beneficiaries of variable rate mortgage housing loans worth no more than EUR 200,000 in the next 15 months, starting from the October 2023 annuity. The Decision defined that for housing loans approved concluding with 30 July 2022, the interest rate may not exceed 4.08%. For housing loans approved from 31 July 2022 to the effective date of the Decision, borrowers will pay a reduced loan annuity with the interest specified in the initial repayment plan. Banks do not have the right to claim from the borrowers any difference in interest arising from the application of the Decision. During the application of this Decision, i.e. until 31 December 2024, interest rates on new housing loans are also capped – in case of variable rate housing loans, the fixed part of a nominal interest rate (bank margin) may not exceed 1.1%, and in case of fixed rate housing loans, the nominal interest rate is limited to 5.03%. In addition to these measures, all housing loan beneficiaries are allowed to make an early loan repayment without the obligation to pay the early repayment fee, regardless of whether it is a fixed or variable rate loan.

In the past year too, all decisions and measures adopted by the NBS were timely. In conditions of exacerbated geopolitical tensions, elevated inflation, high borrowing costs and global slowdown, these measures helped preserve and strengthen financial system stability, thereby facilitating loan repayment and access to sources of funding for households and corporates.

IV.2 Financial soundness indicators

To assess the stability of the financial system in Serbia, we used several methodological approaches which enable a comparison of financial stability indicators in the regional context and an overview of their dynamics during the observed period.

The comparison of financial system stability in the international context relies on selected financial soundness indicators. The stability network (Chart IV.2.1) shows five representative indicators for Serbia and the region at the end of 2008 and 2023: a) regulatory capital adequacy, b) Tier 1 capital relative to balance sheet assets, c) NPL ratio, d) return on assets, and e) return on equity.

Financial soundness indicators show that the capitalisation of the Serbian banking sector is slightly above the regional average in terms of the regulatory capital adequacy ratio, but also in terms of the Tier 1 capital to balance sheet assets ratio. The share of NPLs in total loans is broadly the same as in the region, which testifies that the quality of assets in Serbia and the region has been preserved even during the multidimensional crisis we have faced in the past four years. At end-2023, the share of NPLs in total loans continued to move close to its all-time low and below its pre-pandemic level. Profitability of the banking sector in Serbia and the region increased in 2023, reflecting monetary policy tightening by leading central banks and the NBS in the past year. In 2023, the banking

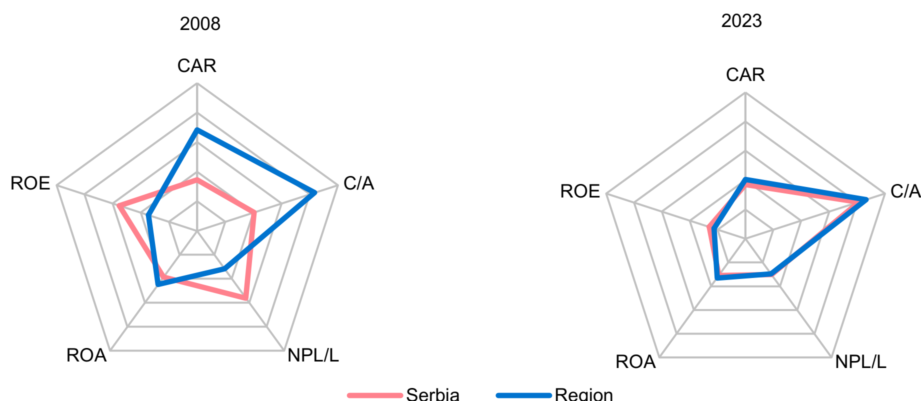
[245] The Decision Amending the Decision on Temporary Measures for Banks Aimed at Adequate Management of Credit Risk in Agricultural Loans Portfolio (RS Official Gazette, No 5/2023).

[246] RS Official Gazette, Nos 108/2020, 119/2021, 137/2022 and 110/2023.

[247] RS Official Gazette, No 110/2023.

[248] RS Official Gazette, No 78/2023.

Chart IV.2.1 **Financial soundness of the Serbian banking sector compared to regional average**



Notes:

* The Chart shows standardised values of the most common financial soundness indicators: CAR – Capital Adequacy Ratio (regulatory capital to risk-weighted assets); C/A – Tier 1 Capital to Assets; NPL/L – gross NPLs to total gross loans; ROA – Return on Assets; ROE – Return on Equity.

** Greater distance from the network centre indicates greater risk.

*** The region refers to CEE countries: Bosnia and Herzegovina, Bulgaria, Romania, Hungary, North Macedonia, Poland, Turkey and Croatia. Region FSIs are non-weighted averages of the individual countries' FSIs.

Sources: NBS and IMF.

sector in Serbia posted positive results. ROA was slightly above the region's average, while ROE, as in the previous year, remained below the regional average due to higher capitalisation of the banking sector in Serbia.[249] The banking sector can be assessed as stable owing to adequate asset quality, high capitalisation and profitability.

In addition to the above indicators, financial soundness is also measured by the Financial Stress Index (FSIX). FSIX is a composite index,[250] introduced to identify episodes of heightened financial stress, their culmination and duration, which is why it covers the relevant indicators of the Serbian financial market and economic activity trends. Positive values of the indicator suggest an above-average financial stress level, while negative values point to a below-average stress level.

FSIX recorded below-average values in 2023 as well. The analysis of individual components indicates that the values of all components were lower at end-2023 than at end-2022. Such low FSIX level mostly reflects the decrease in risk premium on dollar debt and the relatively low stock exchange volatility as measured by the BELEX 15 index.

The common lender channel indicator is applied to measure the risk of financial crisis contagion across countries reliant on the same source of funding. This channel of risk contagion is particularly pronounced in small and open economies, i.e. in financial sectors dominated by foreign banks or their subsidiaries. The indicator's value depends on the exposure of the lender's country to the private and public sectors of the borrower's country and the share of debt to the common lender in total indebtedness of the financial sector of the borrower's country. The obtained indicator[251] is proportionate to the probability of financial crisis contagion from one country of the region to Serbia, or probability of the crisis spilling over from Serbia to other countries in the region.

The analysis is based on consolidated BIS reports on cross-border exposures of global banking groups. These reports cover a large number of banks and countries and are therefore highly suitable for comparative analyses of cross-border exposures. We used the latest available data on the exposures of banking sectors from eleven countries to Serbia and other CESEE countries.

The results of the analysis are shown in the network in Chart IV.2.3, which indicates that in the event of a financial shock in any of the countries in the region, the greatest impact on Serbia, through the common lender channel, would be exerted by Croatia, Hungary and

[249] For more information on the characteristics and trends in the Serbian banking sector, see Chapter II.1 Banking sector.

[250] For more information on indicator methodology, see the *Annual Financial Stability Report – 2012*.

[251] For more information on indicator methodology, see the *Annual Financial Stability Report – 2013*.

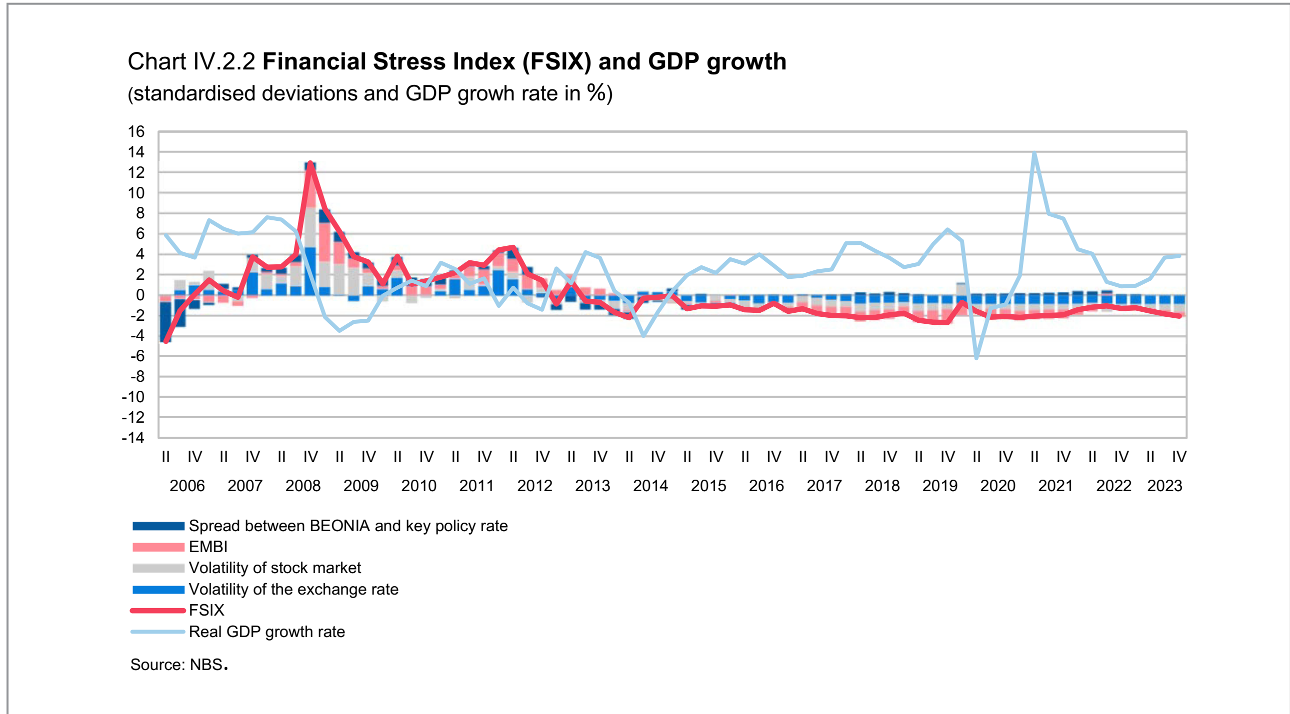


Chart IV.2.2 **Financial Stress Index (FSIX) and GDP growth**
(standardised deviations and GDP growth rate in %)

Source: NBS.

Romania, while Serbia would exert the greatest impact on North Macedonia, Croatia and Albania.

To capture potential risks to financial stability arising from the banking system, the banking sector stability index was created.[252] It is calculated based on indicators of solvency, asset quality, profitability, liquidity and currency matching of banking sector assets and liabilities.

The banking sector stability index rose relative to the previous year and measured 0.64 at end-2023, indicating a high level of stability of the Serbian banking sector.[253] In terms of individual components, it was the higher profitability and solvency, as well as the preserved asset quality owing to the low share of NPLs in total loans, that contributed the most to banking sector stability in 2023. Positive contributions in 2023 also came from liquidity

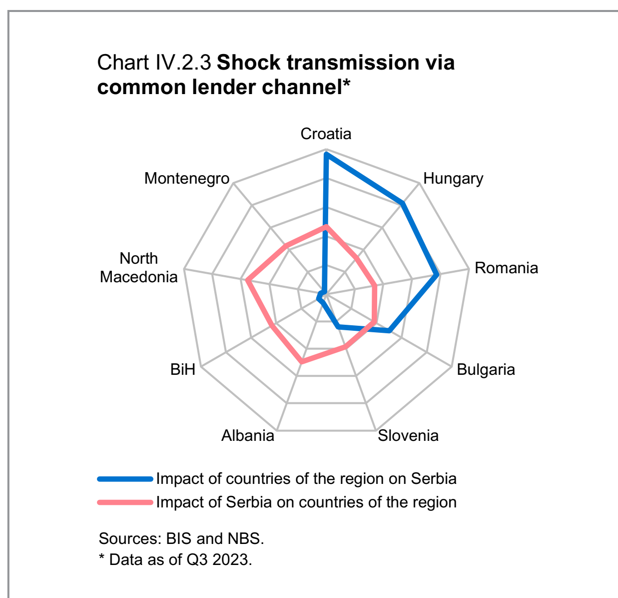


Chart IV.2.3 **Shock transmission via common lender channel***

Sources: BIS and NBS.
* Data as of Q3 2023.

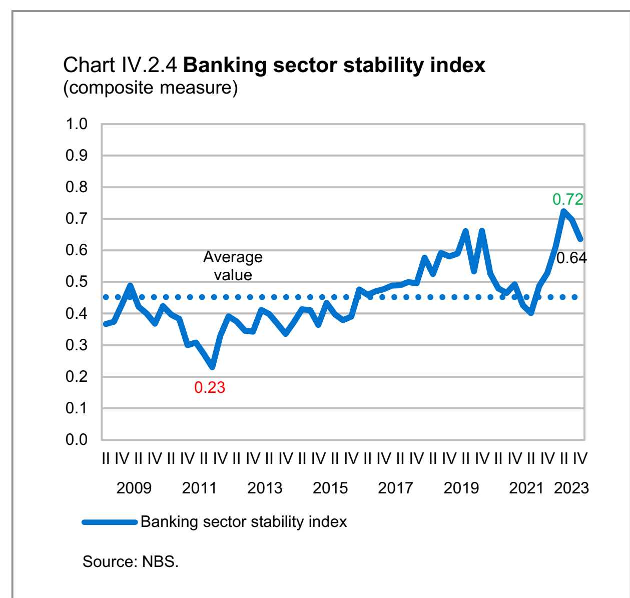


Chart IV.2.4 **Banking sector stability index**
(composite measure)

Source: NBS.

[252] For more information on indicator methodology, see the *Annual Financial Stability Report – 2014*.

[253] The values above 0.5 indicate higher stability level, while those below 0.5 indicate lower banking sector stability level.

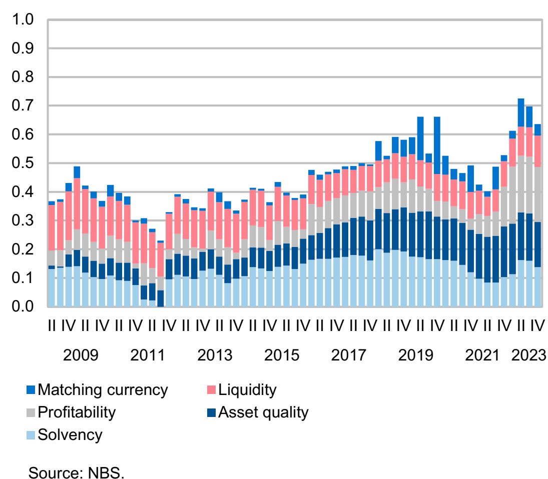


Chart IV.2.5 **Aggregate elements of banking sector stability index**

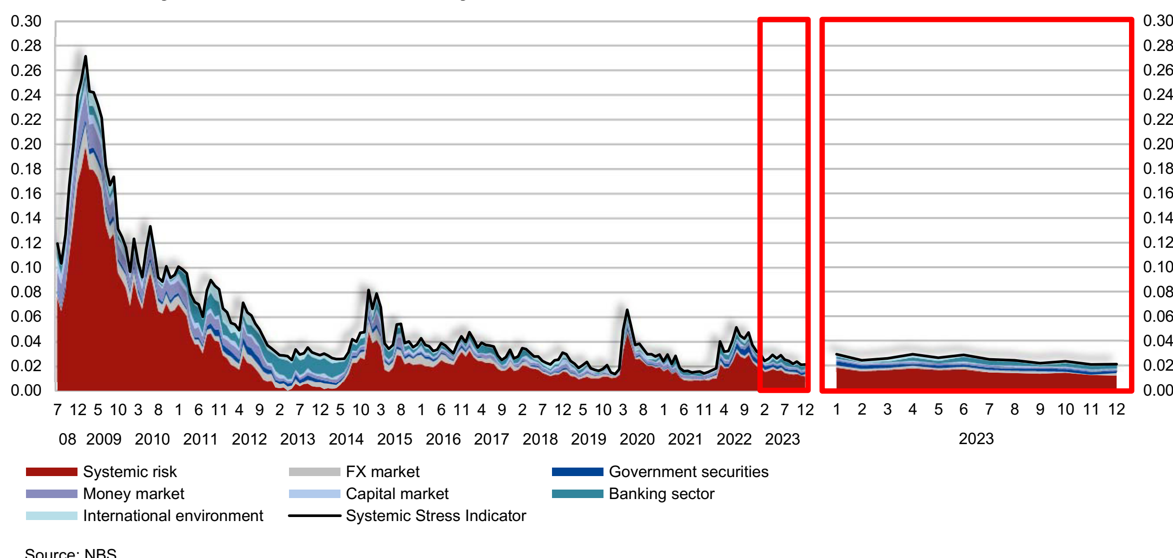
Source: NBS.

given the high value of banking sector liquid assets and from currency matching of banking sector assets and liabilities.

To identify crisis periods and assess the level of systemic stress in the Serbian financial system, a methodology was developed in order to construct a composite indicator of systemic stress.[254] This indicator is based on the methodologies developed by the European Systemic Risk Board and the ECB to analyse the risks in various segments of the financial system and to assess the level of overall systemic stress. The systemic stress indicator covers 25 indicators which reflect the magnitude of financial stress in six major segments of the Serbian financial system: the FX market, government securities market, money market, capital market, banking sector and the international environment.

The systemic stress indicator suggests that 2023 was a period of low risk, with a low and stable systemic component. It was on a downward path as indicated by the average value for 2023 which was lower than the average for 2022. Last year, this indicator touched its peak early in the period and then, since June 2023, recorded a slight decrease reflecting a decline in the systemic risk. The value of this indicator mainly depended on trends in the government securities market and in the banking sector. Overall, the systemic stress indicator was at a low level reflecting the resilience and preserved stability of the financial system at large, despite considerable global uncertainties.

Chart IV.2.6 **Systemic Stress Indicator dynamics**



Source: NBS.

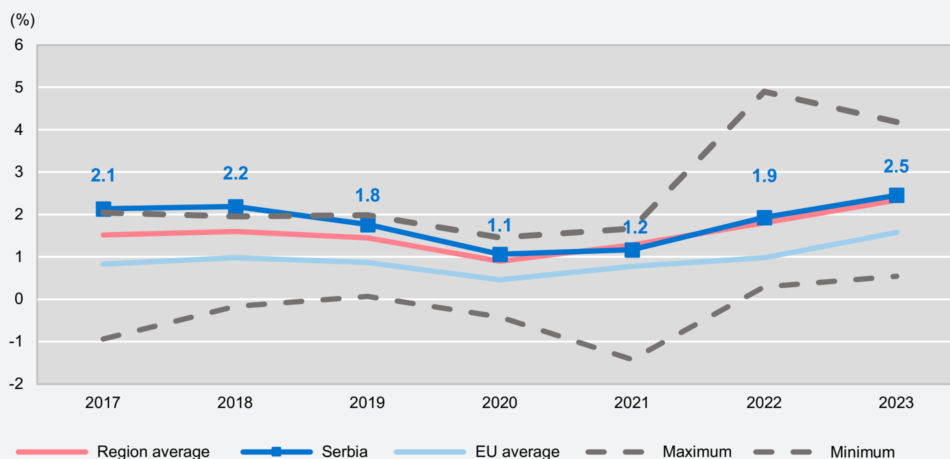
[254] Kovačević Darko (2021) "Assessment of the Republic of Serbia's Systemic Risk and the Likelihood of a Systemic Crisis", *Working Papers Bulletin*, p. 73–119. National Bank of Serbia.

Text box 6: Banking sector profitability of the Republic of Serbia, countries in the region and the EU

The year 2023 saw positive trends in the profitability of European banks amid a global rise in interest rates. High profitability was driven by the effect of interest rate hikes, but also by the preserved bank asset quality in the post-pandemic period and the lower impact of inflation on operating costs. To reduce high inflation, in the past two years, leading central banks raised their policy rates to levels unprecedented since the global financial crisis in 2007/2008. The increase in central banks' interest rates reflected on the higher lending and, to a lesser extent, deposit rates of banks. High liquidity in the banking market in most European countries created a situation where banks were in no need of additional sources of funding and were hence not forced to significantly raise the interest rates on deposits to attract new funds. This trend pushed interest margins up, increasing the financial sector's principal income, i.e. net interest income. In countries where loans with variable interest rates are dominant, the rise in interest rates enabled banks to generate higher income not only on account of new loans, but also outstanding ones.

From 2017 to 2020, Serbian banks' ROA moved above the average of the EU and countries of the region,[255] which recorded a somewhat lower average value of this indicator in the period observed. In 2021, ROA moved around the average of the region and above the average of EU countries, while in the last two years it trended slightly above the region's average. Throughout the entire period observed, ROA for the Republic of Serbia and the region exhibited greater volatility than for the EU (Chart O.6.1).

Chart O.6.1 **Return on assets**



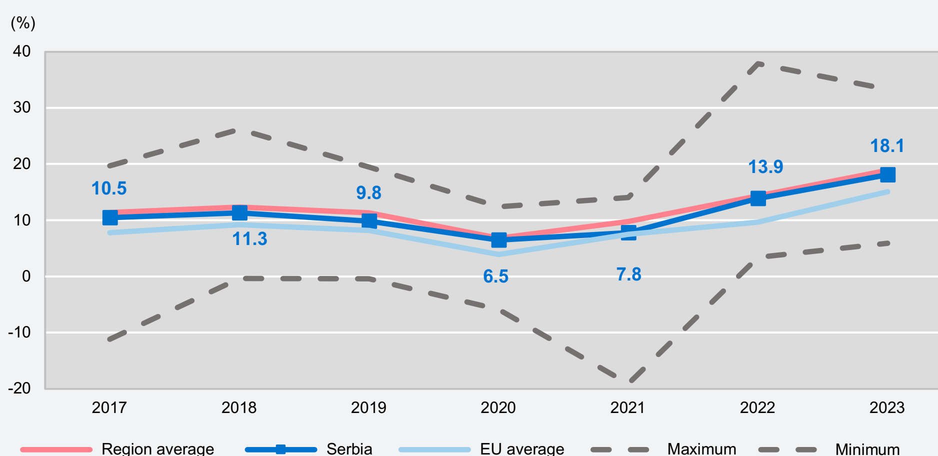
Sources: IMF and NBS.

As for ROE, it moved below the regional average driven by the higher capitalisation of the domestic banking sector relative to the region, and above that of EU countries throughout the period observed (Chart O.6.2).

The Serbian banking sector operated at profit in the last ten years. A positive result was recorded even during the coronavirus pandemic, in 2020, when ROA and ROE declined. Profitability resumed growth as early as in 2021. Profitability indicators confirmed the success of operations in 2023 as well, with the high values recorded in the Republic of Serbia, the region and the EU. ROA and ROE increased more in countries of the region than in Serbia, while, on the other hand, Serbia's interest margin to gross income was somewhat higher than that of the region at end-2023 (Chart O.6.3).

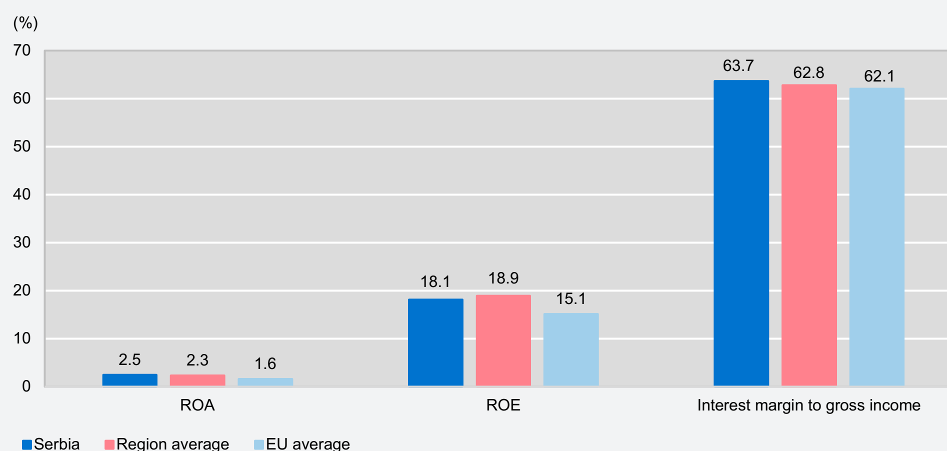
[255] Countries of the region are: Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, North Macedonia, Poland, Romania and Turkey.

Chart O.6.2 **Return on equity**



Sources: IMF and NBS.

Chart O.6.3 **Profitability indicators of the Republic of Serbia, EU and region for 2023***



* Latest available data.
Sources: IMF and NBS.

In an environment of elevated inflation and costs of living, as well as a slowdown in economic growth, a rather high profitability has encouraged the regulatory authorities in some countries to increase capital requirements so as to make banks keep a portion of their profits. The tightening of capital requirements was facilitated by the higher bank profitability and adequate capital buffers.[256]

As the global inflation is falling, it can be expected that leading central banks will ease their monetary policies, which could possibly result in a drop in bank profitability in the period to come compared to the high profitability recorded in 2023. Banking sector profitability could also be influenced by the loan supply and demand factors amid an interest rate decline. On the other hand, the currently high levels of profitability enable banks to build additional buffers, which is particularly important in terms of bank stability as this strengthens banking sector resilience amid heightened global uncertainty and sluggish growth and facilitates sustainable lending to the private sector.

[256] Macroprudential policy issues, *Financial Stability Review*, ECB, November 2023.

List of charts, tables and diagrams

Charts

I.1.1 GDP growth projections for 2024 – European countries 9
I.1.2 Activity indicator (manufacturing) 10
I.1.3 Activity indicator (services) 11
I.1.4 ECB's interest rates and EONIA/€STR 12
I.1.5 Exchange rates of selected national currencies against the euro 13
I.1.6 EMBI for Serbia and its regional peers, VIX and yields on US bonds 13
I.1.7 Selected stock exchange indices 14
I.1.8 Developments in the home markets of selected banking groups present in Serbia 15
I.1.9 Change of cross-border exposure to selected countries, Q3 2008 – Q4 2023 15
I.2.1 Real GDP growth – demand contributions 16
I.2.2 Real GDP growth – supply contributions 16
I.2.3 Projection of real GDP growth 17
I.2.4 Inflation projection 17
I.2.5 Exchange rate movements and NBS interventions in the IFEM 18
I.2.6 Key macroeconomic risks 18
I.3.1 National Bank of Serbia FX reserves 19
I.3.2 National Bank of Serbia FX reserves in 2023 19
I.3.3 Months of imports covered by gross FX reserves 20
I.3.4 Money supply M3 covered by gross FX reserves 20
I.3.5 Short-term external debt at remaining maturity covered by gross FX reserves 21
I.3.6 “Right measure for Serbia” for gross FX reserves 21
I.3.7 Optimal levels of FX reserves under stress scenarios, December 2023 21
I.3.8 Sensitivity analysis of FX reserves adequacy model parameters, based on the fifth stress scenario 22
I.4.1 Fiscal result 23
I.4.2 Public revenues and expenditures 23
I.4.3 Public debt dynamics 25
I.4.4 Public debt by currency 25
I.4.5 Public debt currency composition, 31 December 2023 25
I.4.6 Public debt interest rate composition, 31 December 2023 26
I.4.7 Public debt in government securities 26
I.4.8 Current account 27
I.4.9 Exports and imports 27
I.4.10 Current account deficit financing via FDIs 27
I.4.11 External debt dynamics 27
I.4.12 External debt by borrower 28
I.4.13 External debt by original maturity 28
I.4.14 External debt by remaining maturity 28
I.4.15 External debt interest rate composition, 31 December 2023 28
I.5.1 Corporate credit activity 29
I.5.2 Bank claims on corporates, by sector 29
I.5.3 Currency structure of domestic bank claims on corporates 30
I.5.4 NPL share in total loans of corporates, by sector 30
I.5.5 Corporate NPLs by currency 31
I.5.6 Interest rates on corporate loans and deposits – new business 31
I.5.7 Movement of claims through enforced collection by priority 31
I.6.1 FX household savings 38
I.6.2 FX household savings by maturity 38
I.6.3 RSD household savings by maturity 39
I.6.4 Currency structure of household deposits 39
I.6.5 Interest rates on RSD, EUR and EUR-indexed household loans and deposits – new business 39

I.6.6 Contributions to growth in bank receivables from households by purpose 39
I.6.7 Structure of bank receivables from households by purpose 40
I.6.8 Currency structure of bank receivables from households 40

II.1.1 Banking sector capital adequacy 43
II.1.2 Regulatory capital to risk-weighted assets, countries of the region 43
II.1.3 Structure of regulatory capital and capital buffers 44
II.1.4 Structure of assets of the Republic of Serbia's banking sector as at 31 December 2023 44
II.1.5 Non-performing loans 45
II.1.6 NPL ratios, countries of the region 45
II.1.7 Change in the NPL ratio, countries of the region 46
II.1.8 Coverage of non-performing loans 46
II.1.9 Lending trend 47
II.1.10 Corporate and household lending 47
II.1.11 Profitability indicators 48
II.1.12 ROE and ROA, countries of the region 48
II.1.13 Profitability indicators, by majority shareholder's country of origin and ownership structure in 2023 48
II.1.14 Pre-tax profit/loss of the banking sector 49
II.1.15 Average monthly liquidity ratio 49
II.1.16 Distribution of liquidity ratio 49
II.1.17 Distribution of narrow liquidity ratio 49
II.1.18 Liquid assets 50
II.1.19 Movements of the loan-to-deposit ratio 50
II.1.20 Sources of banking sector funding as at 31 December 2023 50
II.1.21 Currency structure of deposits 50
II.1.22 Maturity structure of deposits 51
II.1.23 Foreign exchange risk ratio 51
II.2.1 Share of gross NPLs in baseline, moderate and worst case scenario 57
II.2.2 Projection of the share of gross NPLs in total loans 57
II.2.3 CAR by stress scenario 58
II.2.4 Capital levels by scenario with projected profit buffer 59
II.2.5 Risk-weighted assets by scenario with projected profit buffer 59
II.2.6 Liquidity ratio for the banking sector by stress scenario 60
II.2.7 Liquidity buffer – daily for moderate scenario 61
II.2.8 Liquidity buffer – daily for worst case scenario 61
II.2.9 Structure of demand and time deposits – daily for moderate scenario 62
II.2.10 Structure of demand and time deposits – daily for worst case scenario 62
II.2.11 Confidence intervals for banking sector liquidity ratio 62
II.2.12 Banking network of the Republic of Serbia 63
II.2.13 Banking sector CAR after the insolvency of an individual bank 64
II.2.14 Impact of network structure on drop in banking sector's CAR after the insolvency of an individual bank 64
II.3.1 Insurance undertakings ownership structure as at 31 December 2023 71
II.3.2 Insurance sector development indicators as at 31 December 2022 71
II.3.3 Total insurance premium 72
II.3.4 Insurance premium structure 72
II.3.5 Total premium according to types of insurance as at 31 December 2023 72
II.3.6 Non-life insurance technical provisions coverage as at 31 December 2023 73
II.3.7 Life insurance technical provisions coverage as at 31 December 2023 73
II.3.8 Profitability ratios of non-life insurance undertakings 73
II.3.9 Profitability ratios of life insurance undertakings 74
II.3.10 Combined insurance ratio 74
II.3.11 Annual increase in net VPF assets and net contributions 75
II.3.12 Annual VPF contributions and withdrawals 75
II.3.13 Structure of VPF assets as at 31 December 2023 76
II.3.14 Total net VPF assets and FONDex 76
II.3.15 Investment structure by lessee as at 31 December 2023 78
II.3.16 Investment structure by lease asset as at 31 December 2023 78

III.1.1 Selected NBS monetary policy instruments 86
III.1.2 Key policy rate, BEONIA and interest rates on deposit and loan facilities 87
III.1.3 BELIBOR interest rates 87
III.1.4 Interest rates in the money market and auctions of dinar T-bills 87
III.2.1 Stock of dinar government securities 88
III.2.2 Market demand for dinar government bonds 88
III.2.3 Performance ratio in auctions of dinar government bonds 89
III.2.4 Structure of the portfolio of dinar government bonds 89
III.2.5 Stock of euro government bonds 89
III.2.6 Belgrade Stock Exchange market capitalisation 90
III.2.7 Stock market indices 90
III.2.8 Belgrade Stock Exchange share turnover 91
III.3.1 Bank interconnectedness in the NBS RTGS network 96
III.3.2 Bank interconnectedness in the NBS IPS payment system 96
III.4.1 International comparison – Housing Price Index 97
III.4.2 Apartment Price Index 97
III.4.3 NPLs in housing construction 98
III.4.4 Indices for the number of issued construction permits for new buildings 98
III.4.5 NPLs of the construction sector, corporate sector 99
III.4.6 LtV ratio 99

IV.2.1 Financial soundness of the Serbian banking sector compared to regional average 113
IV.2.2 Financial Stress Index (FSIX) and GDP growth 114
IV.2.3 Shock transmission via common lender channel 114
IV.2.4 Banking sector stability index 114
IV.2.5 Aggregate elements of banking sector stability index 115
IV.2.6 Systemic Stress Indicator dynamics 115

Tables

I.3.1 Indicators of FX reserves adequacy, end-2023 19
I.3.2 Stress-scenarios for FX reserves 21

I.6.1 Household sector performance indicators 42

II.1.1 Serbia: Financial sector structure 51
II.1.2 Serbia: Key macroprudential indicators 52
II.2.1 Elasticity coefficients of NPLs and contributions of independent variables from Q4 2022 to Q4 2023 56
II.2.2 Overview of scenarios 57
II.2.3 Assumptions of deposit withdrawals by sector 60
II.2.4 Derived structure for share of deposit withdrawals by depositor category in total deposits withdrawn 61
II.2.5 Assumed daily deposit withdrawal 61

III.3.1 Value and number of payments in the NBS RTGS system 93
III.3.2 Value and number of payments in the NBS IPS system 93
III.3.3 RTGS payment indicators (network-level) 95

IV.1.1 Capital buffers in Serbia 106

Diagrams

II.2.1 Channels of macroeconomic impact on CAR 58

Charts in text boxes

O.3.1 Reduced volume of production due to higher tax on CO_2 emission, by economic sector 68
O.3.2 Projected rise in expected losses of the banking sector assuming materialisation of transition climate risk, by economic sector 69
O.3.3 Changes in projected CARs assuming materialisation of transition climate risk 70

O.5.1 Appraised real estate values and number of residential properties per region 102

O.6.1 Return on assets 116
O.6.2 Return on equity 117
O.6.3 Profitability indicators of the Republic of Serbia, EU and region for 2023 117

Tables in text boxes

O.5.1 Appraised values of residential real estate in 2023 101
O.5.2 Average appraised values of residential real estate in 2023 (year of construction, type, structure) 103
O.5.3 Number of flat valuations in 2023 by flat floor and number of floors in the building 104

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