ANNUAL FINANCIAL STABILITY REPORT

National Bank of Serbia

2019

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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-2019.

The *Financial Stability Report* was adopted by the National Bank of Serbia's Executive Board in its meeting of 11 June 2020. 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

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
NPL – non-performing loan
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.

Key risks	Mitigating measures
External risks:	
– heightened uncertainties as to the intensity and duration of the COVID-19 pandemic, and health, social and economic consequences in the short and medium run; – disruption of supply chains, global economic downturn and rising unemployment in euro area countries and our other important trade partners; – tightened conditions in international financial and commodity markets and capital outflows from emerging economies; – slower recovery of international capital markets and aggravated financing conditions for businesses in an environment of banks' increased risk aversion; – rising indebtedness and risk premia of euro area countries; – heightened uncertainties in relation to global trade and geopolitical tensions; – dented solvency of parent banks and withdrawal of liquidity from markets where these banks operate; – frequency and sophistication of cyber attacks on information systems of financial institutions and financial services consumers given the increased need to use electronic means of communication.	– adoption of economic measures to support businesses and households in order to preserve jobs and wages amid the COVID-19 crisis; – continued cautious conduct of monetary and fiscal policies to maintain and preserve the achieved macroeconomic stability; – adoption of timely monetary policy measures to maintain favourable financing conditions for corporates and households and provide additional dinar and foreign exchange liquidity to banks; – appropriate conduct of macroprudential policy to preserve the attained level of stability and further bolster financial system resilience; – cooperation with international financial institutions and supervisors of parent banking groups; – further development of the capital market and new financial instruments; – preserving the domestic deposit base of banks and the full loan coverage by these deposits; – increasing the efficiency and safety of electronic services provided by financial institutions, and raising awareness about potential risks.
Internal risks:	
– potential deterioration of macroeconomic developments and the fiscal position due to the negative effects of the COVID-19 pandemic;	– adoption of the Programme of Economic Measures to Mitigate the Negative Effects of the COVID-19 Pandemic and Support the Serbian Economy and Citizens; – monetary policy measures such as the key policy rate cuts and the narrowing of the corridor of the main interest rates; – ensuring dinar and foreign exchange liquidity by organising additional dinar and foreign exchange swap auctions and repo securities purchase auctions; – adoption of decisions by the NBS introducing a moratorium on debt payments;

Key risks	Mitigating measures
Internal risks:	
– high euroisation of the domestic financial system;	– continued implementation of measures and activities envisaged by the new Strategy of Dinarisation of the Serbian Financial System; – implementation of microprudential, macroprudential and monetary policy regulations and measures aimed at encouraging dinar lending; – continued promotion of dinar savings and dinar financial instruments; – facilitating access to the government securities market for foreign investors, thus enhancing market efficiency;
– a potential build-up of new NPLs due to the negative economic effects of the pandemic;	– continued implementation of the NPL Resolution Programme for 2018–2020 and the Action Plan; – implementation of decisions and measures to ease the financial position of corporates and households in order to prevent the build-up of new NPLs and to support lending; – stepped-up monitoring of bank asset quality;
– increased procyclicality of the financial system amid heightened global uncertainties.	– adequate implementation of macroprudential instruments aimed at mitigating the cyclical dimension of systemic risk.

Contents

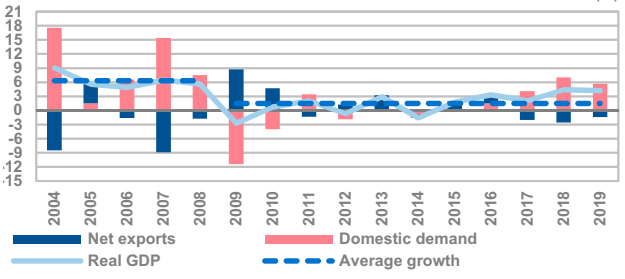
Overview

Global economic growth in 2019 was the slowest since the world economic crisis, due to dampened production and trade activities. The decelerated growth is attributable to geopolitical tensions and uncertainty in trade relations, notably between the USA and China. International financial and commodity markets were under the impact of protectionist measures and uncertainty in terms of trade policies of leading world economies. Monetary policy accommodation by leading central banks provided support to global growth. Due to the spread of the coronavirus pandemic, global growth for 2020 is forecast at -3.0%, while economic activity is expected to recover in 2021 and record a 5.8% growth rate.

The global economy decelerated further in 2019 – to 2.9%. The slowdown was registered in both advanced and emerging economies. As for the euro area, Serbia's key financial and trade partner, growth slowed down to 1.2% in 2019 (1.9% in 2018). Economic activity across Europe is expected to decelerate significantly in 2020 due to the global recession caused by the COVID-19 pandemic, and the euro area is likely to see a lower growth rate (-7.5%) than emerging and developing European countries (-5.2%). In 2019, the ECB trimmed its deposit facility rate, while the main refinancing rate (0.00%) and the marginal lending facility rate (0.25%) remained unchanged. In early October 2019, the ECB officially began publishing a new short-term interest rate (€STR), which is set to replace the EONIA rate by end-2021. Rising uncertainty over economic growth and low inflationary pressures drove the Fed to trim the target range for the federal funds rate three times in 2019 – for the first time since 2008.

Serbia's GDP grew 4.2% in 2019, led mainly by robust growth in fixed investments, notably in road and energy infrastructure, as well as investments in machines and equipment. For seven years straight, inflation is low and stable, and low inflationary pressures are anticipated in the coming period as well.

Real GDP growth – demand contributions



Sources: NBS and SORS.

GDP growth in 2019 measured 4.2% and is attributable to the strong growth in fixed investments (contribution 3.6 pp), notably in road and energy infrastructure, as well as investments in machines and equipment, which picked up rather briskly in the second part of the year. In y-o-y terms, household consumption rose 3.2%, with a 2.2 pp contribution to GDP. Strong economic growth, low and stable inflation, relative stability of the exchange rate and excellent fiscal policy results drove employment up and unemployment down to the lowest levels in 2019. For seven years straight, inflation is low and stable, measuring 1.9% y-o-y in December. Low inflationary pressures are anticipated in the coming period as well, as indicated by both short-term and medium-term inflation expectations, which continued to move within the NBS target tolerance band (3±1.5%). The NBS proceeded with cautious monetary policy pursuit in 2019. During the year, the NBS trimmed its key policy rate three times, in July, August and November, each time by 0.25 pp, to 2.25%.

The decreasing share of public and external debt in GDP, which was recorded in previous years, continued in 2019 as well. The share of the central government debt in GDP declined to 52.0%. Amid robust growth in economic activity, the share of external debt in GDP also fell and measured 61.9% of GDP. Fiscal deficit in 2019 equalled 0.2% of GDP.

The share of public debt in GDP has been on a downward path for three years, after its upward trend was reversed in 2016. The share of central government debt in GDP equalled 52.0% at end-2019, down by 1.7 pp from end-2018. In addition to the reduction of the share of public debt in GDP, its currency structure also improved significantly in 2019, as the share of debt in US dollars decreased by as much as 6.4 pp relative to 2018, and the share of dinar debt expanded by 1.7 pp. The significant contraction in the dollar portion of the debt is the result of the early buyback of a portion of costly dollar bonds, issued in 2011 and 2013. Though the share of public debt in foreign currency equalled 72.3% at end-2019, FX risk is lower owing to the increase in the dinar portion of the debt. External imbalance in Serbia has been reduced significantly in the past seven years owing to robust and diversified export growth. The current account deficit stood at 6.9% of GDP. For five years straight, the current account deficit was fully covered by FDIs. At end-2019, external debt came at EUR 28.4 bn or 61.9% of GDP, down by 0.3 pp from 2018. The fiscal deficit measured 0.2% of GDP in 2019. Solid results of overall economic policy during 2019 were also mirrored in the upgrade of Serbia's credit rating (Fitch and S&P) and its outlook (Moody's), as well as in the country risk premium on dollar debt declining to its lowest level on record.

Interest rates and the costs of borrowing on domestic market declined during 2019, owing to further monetary policy easing against the backdrop of low and stable inflation, positive fiscal developments and improved macroeconomic indicators. The fall of the risk premium on the dollar debt, measured by EMBI, to a new historical minimum in December 2019 and increase in credit rating by Fitch and Standard & Poor's resulted in stepped-up foreign investors' interest in purchasing long-term government securities.

In June 2019, the Public Debt Administration successfully issued the first euro-denominated government bond in the international capital market, in the total amount of EUR 1.0 bn, maturing in 2029, while in November it reopened the issue in the amount of EUR 550 mn. The funds thus obtained were used for the early buyback of a portion of the more costly dollar eurobonds issued in 2011 and 2013. In addition to regular two-week and three-month EUR/RSD swap auctions, in the first half of 2019 the NBS held additional two-week swap auctions, in order to ensure the continuation of the smooth functioning of the money market.

The level of NBS FX reserves guarantees adequate protection from risk not only in favourable conditions, which prevailed in 2019, but in conditions of extreme shocks and stress scenarios as well.

At end-December 2019, NBS FX reserves equalled EUR 13.4 bn in gross and EUR 11.4 bn in net terms, which is the highest level of FX reserves since 2000. In order to further solidify the stability of Serbia's financial system and ensure better diversification of FX reserves, during the year the NBS purchased gold in the international market for the first time. This way, the share of gold in the structure of reserves rose to nearly 10%. Different stress scenarios indicate that FX reserves at end-2019 are sufficiently high to protect the domestic financial system even in case of extreme shocks.

Domestic corporate lending, excluding the exchange rate effect, went up 9.5% in 2019. The absolute rise in receivables was recorded in almost all sectors. Observed by purpose, the biggest increase was recorded in investment loans. By maturity, longer-term receivables are dominant, accounting for 83.4%, which indicates a low risk of refinancing. The 7 pp rise in the share of longer-term receivables in 2019 was facilitated by stepped-up investment lending. During the year, corporates recorded a positive net financial result, slightly lower than in 2018. In terms of company size, the highest rate of return in 2019 was posted by medium-sized enterprises. The share of NPLs in total corporate loans contracted by 1.9 pp y-o-y, measuring 3.2% in December 2019. The NPL ratio fell in all sectors and is currently at historical lows.

During 2019, corporates continued to operate at a profit, thanks to the preservation of macroeconomic stability and the implemented structural reforms, with the presence of strong domestic demand and an encouraging business and investment environment. New loans to corporates triggered the growth in domestic and overall credit activity. Borrowing conditions at home were eased, resulting in a rise in corporate investment loans. The downward trend in the share of corporate NPLs in total gross loans continued in 2019 as well.

Positive tendencies in the household sector were recorded during the year, as indicated by rising employment, and unemployment declining to the lowest levels, further growth in savings, and higher average wage in all economic sectors. Dinar household savings posted extremely dynamic growth in 2019, measuring RSD 79.0 bn at the end of the year, up by RSD 18.54 bn from end-2018. In 2019, the volume of new household loans was 13.1% higher than in 2018 owing to favourable labour market developments and a decrease in interest rates, while total receivables from households rose 9.2% in nominal terms. Cash and housing loans were dominant. In the course of 2019, the maturity of cash loans decreased, confirming the efficiency of NBS measures, adopted at end-2018 to resolve the issue of unsecured non-purpose household lending at unreasonably long terms. The share of NPLs in total gross loans to households equalled 3.94% in December 2019, down by 0.5 pp from end-2018.

Favourable labour market trends, reflected as a decrease in unemployment to a single-digit level, and an increase in employment and wages, paved the way for stable growth in household consumption. With continued monetary policy easing, higher interbank competition and the historically low country risk premium on the dollar debt, the NBS facilitated a further reduction in household borrowing costs. During 2019, household lending continued up, with cash and housing loans as the dominant categories. Dinar savings rose significantly, which is indicative of citizens' rising confidence in saving in the domestic currency.

In 2019, demand for housing loans continued to rise, as indicated by the results of the bank lending survey. According to banks, the demand was driven by improvement in the overall economic situation, reflected in positive developments in the labour market, where an increase in wages and employment was recorded. According to SORS data for 2019, the number of issued construction permits for apartments went up by 27.9%, and their total square surface, according to issued permits, by 26.7%. At end-2019, the value of the price-to-income ratio equalled 7.5 years, and was below the multiple-year average (9.4) owing to positive labour market developments.

The results of the bank lending survey show that housing loan demand continued up in 2019. The value of apartment construction works in Serbia was 27.9% higher than in 2018, in constant prices, which indicates a rise in the supply of apartments.

The Serbian banking sector, making up more than 90% of financial system assets, remained stable in 2019, owing to adequate capitalisation, high liquidity and profitability. Improvements in the regulatory framework, carried out by the NBS, are conducive to the continued strengthening of financial system's resilience to potential shocks.

The share of NPLs in total gross loans decreased further in 2019 – to 4.1%, its lowest value since this indicator is monitored.

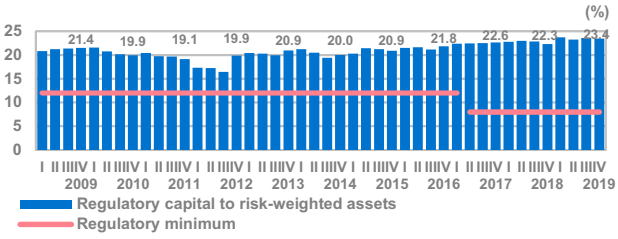
Domestic deposits were dominant among the sources of funding.

Capitalisation of the Serbian banking sector was among that highest in the region, with CAR equalling 23.4%. The average monthly liquidity ratio of the banking sector was 2.2, significantly higher than the prescribed minimum (1.0).

The banking sector posted a positive financial result in 2019: ROA equalled 1.8% and ROE 9.8%. At end-2019, the share of NPLs in total banking sector loans was 4.1%, the lowest since this indicator of the quality of banks' portfolios is monitored. At end-2019, the NPL share was 18.3 pp lower than in July 2015, i.e. the period before the adoption of the NPL Resolution Strategy. In addition to the implemented activities and measures for resolving NPLs, the fall in the NPL share in 2019 was additionally facilitated by dynamic growth in lending. During the year, lending by domestic banks increased by 9.8% due to factors on both the demand and supply side. The results of the bank lending survey suggest that conditions under which loans were approved to corporates and households were the most favourable for dinar loans, owing to lower price terms and eased collateral requirements.

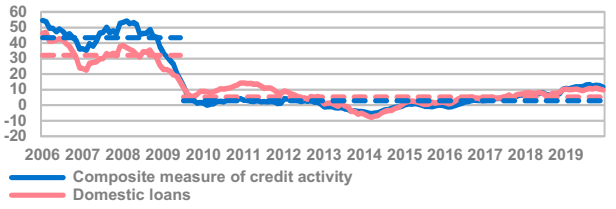
The strengthening of the domestic deposit base enables banks to decrease their dependence on other sources of funding, such as funding by their parent banks, and thereby reduce exposure to risks emanating from the international environment. Banks operating in Serbia rely predominantly on domestic, stable sources of funding, as indicated by the amount of deposits which was sufficient to cover the amount of loans in 2019. The currency structure of deposits improved further in 2019 due to the rise in the share of dinar deposits.

Banking sector capital adequacy
(%)



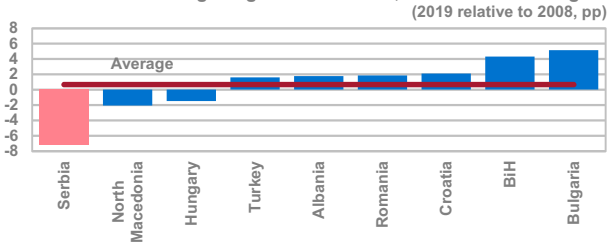
Source: NBS.

Credit activity*
(y-o-y growth rates, %)



* Excluding the exchange rate effect.
Source: NBS.

Change in gross NPL ratios, countries of the region
(2019 relative to 2008, pp)



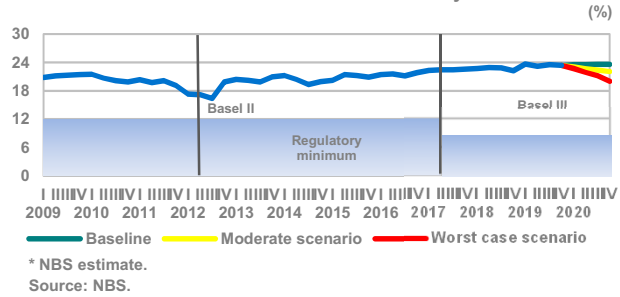
Sources: NBS and IMF - GFSR.

The results of macroprudential stress tests confirm that the Serbian banking sector would be adequately capitalised and highly liquid even in case of extreme shocks. The results of the banking sector's network modelling suggest a low and stable systemic risk component, i.e. significant resilience of the financial system in case of shocks.

The results of macroprudential stress tests confirm that the banking sector has the sufficient capacity to absorb the effects of risks it may be exposed to. The banking sector's CAR meets all of the prescribed capital adequacy regulatory minimums and all of the requirements for the coverage of capital buffers as well, even in case of the assumed worst-case scenario.

Also, liquidity stress tests, which are used to assess the liquidity risk in case of the loss of depositor confidence and/or unfavourable macroeconomic conditions, confirm that the liquidity ratio would remain above the regulatory minimum even under the extreme scenario, which implies a much bigger deposit withdrawal than the largest one ever recorded in the Serbian banking sector during the 2008 global financial crisis. The results of the banking sector's network modelling show that there are

CAR by stress scenario*
(%)



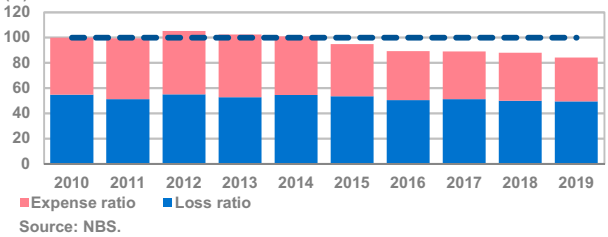
* NBS estimate.
Source: NBS.

no significant systemic risk components in the Serbian banking sector.

In 2019, the insurance sector recorded a positive net result after tax of RSD 11.6 bn. The positive trend was also recorded in the total premium, which equalled RSD 107.4 bn in 2019, up by around RSD 7.5 bn from 2018. The Serbian insurance sector is adequately capitalised given the risks it is exposed to, and is highly liquid, which is an important factor when assessing asset quality. The main capital adequacy ratio of 217.6% for non-life and 265.5% for life insurance is considerably above the prescribed minimums. Technical reserves of all (re)insurance undertakings at end-2019 amounted to RSD 202.5 bn, having risen 2.6% in nominal terms relative to end-2018.

The (re)insurance sector in Serbia recorded a rise in the total premium and yield in 2019 as well. Insurance undertakings posted balance sheet growth, maintaining almost the same share of this sector in the financial sector balance sheet as a year earlier. The regulatory framework, which governs the insurance activity in Serbia, created preconditions for further development of the insurance sector.

Combined ratio in insurance



Source: NBS.

At end-2019, the net assets of VPFs stood at RSD 45.2 bn, up by 12.6% from end-2018. Return on investment was the main factor of growth of VPF net assets in 2019, and measured nearly RSD 2.9 bn (41.8% higher than the year before). The annual return of FONDex, which is the weighted average return of all funds, equalled 7.1% in 2019, and was higher than in the previous year (5.5%).

In 2019, the net assets of VPFs in Serbia continued to grow, as did their return on investment. The total number of VPF users and regular contributors increased from the year before.

Balance sheet assets of financial lessors continued to grow. At end-2019, balance sheet assets stood at RSD 102.9 bn, up by 18.7% from end-2018. The share of NPLs in total loans dropped further, to 2.8% at end-2019. The pre-tax result of the financial leasing sector in 2019 equalled RSD 1.0 bn. The structure of lessees was still dominated by non-financial companies, with motor vehicles being the most often financed.

The financial leasing sector continued to post a positive result in 2019. The sector's balance sheet assets are still on the rise, and their quality also improved owing to a further decline in NPLs.

The NBS enables new manners of payment and the introduction of technological innovations in the payment services market, which is a result of several years of continuous activities aimed at creating appropriate regulatory and other preconditions to modernise and improve payment transactions in Serbia. At end-2019, a total of 13 payment institutions were licensed by the NBS to provide payment services. In addition to that, Western Union, MoneyGram, Ria Money Transfer and SmallWorld also operate in Serbia. These are four renowned global companies dealing in fast international money transfer, which perform these transactions via payment institutions and their representatives.

The NBS continuously improves the regulatory framework for payment services provision in order to achieve greater efficiency and transparency in delivering these services and ensuring better consumer information and protection. During 2019, the NBS adopted several decisions to regulate this area more closely, improve the regulatory framework and define the standards of stable and safe operations pertaining to payment services provision.

To further advance the dinarisation of the financial system, the NBS adopted new measures in order to create an environment conducive to more favourable dinar lending (without the contractual currency clause) to corporates, i.e. lending in dinars to microenterprises, SMEs, entrepreneurs and agricultural producers. The NBS's comprehensive approach resulted in improved

In 2019, the NBS adopted measures aimed at changing the currency composition of lending and encouraging dinar lending to corporates.

regulatory framework for risk management by banks, the aim of which is to boost the financial system's resilience to risks that might arise from the high share of FX-indexed and FX loans in banks' balance sheets.

In 2019, the NBS adopted the Law on the Conversion of Housing Loans Indexed to Swiss Francs.

This Law governs the rights and obligations of banks on the one hand, and on the other of financial services consumers – natural persons with whom the bank concluded a contract on a housing loan indexed to Swiss francs, in the procedure of the conversion of debt under this loan to euros. The adoption of this Law contributes to the mitigation of systemic FX risk, i.e. the reduction of the currency risk pertaining to the Swiss franc.

A comprehensive assessment of financial stability was performed based on the composite indicator of systemic stress and other financial soundness indicators.

The systemic stress indicator for 2019 touched its lowest level on record and revealed a period of exceptionally low risk, with a low and stable systemic component. Coupled with positive macroeconomic developments, the NBS's monetary, microprudential and macroprudential measures worked towards lowering the level of systemic risk and boosting the resilience and stability of Serbia's financial system.

I International and domestic environment

In 2019, the international environment was characterised by a further economic slowdown in both developed and emerging countries. At the end of the year, the risk premiums of CESEE countries were lower than at end-2018. At end-December 2019, Serbia's risk premium on dollar debt was 19 bp, and was the lowest in the region. For the major part of the year, y-o-y inflation was within the bounds of the target tolerance band (3%±1.5 pp). For quite some time, inflation expectations of the financial and corporate sectors have been anchored within the band. At end-2019, NBS gross and net FX reserves (EUR 13.4 bn and EUR 11.4 bn respectively) were at the highest level since 2000, when this manner of tracking data was introduced. Serbia is more resilient to potentially adverse impacts from the international environment, and boasts stable macroeconomic fundamentals and favourable prospects going forward. The results were confirmed by Serbia's increased credit rating in 2019 (Fitch and Standard & Poor's) and credit rating outlook (Moody's).

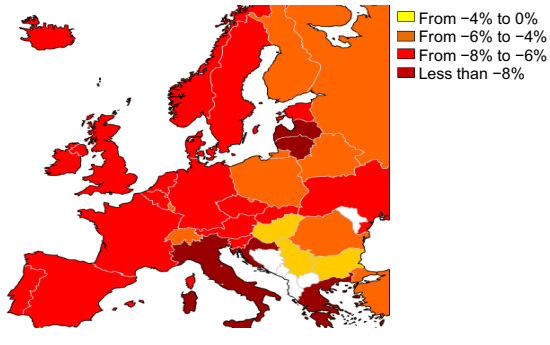
I.1 International environment risks

Due to dampened production and trade activities, global economic growth in 2019 was the slowest since the world economic crisis. The slowdown is also attributable to geopolitical tensions, uncertainty in trade relations, notably between the USA and China, and natural disasters. International financial and commodity markets were affected by protectionist measures and uncertainty in terms of trade policies of leading world economies. Against the backdrop of low inflationary pressures, support to global growth came from the accommodative monetary policies of leading central banks.

Global economy decelerated further in 2019 – to 2.9%. Growth slowed down both in developed (from 2.2% in 2018 to 1.7% in 2019) and emerging countries (from 4.5% in 2018 to 3.7% in 2019). With the spread of the coronavirus pandemic, the growth rate for 2020 is forecast at -3.0%, while 2021 is expected to see economic recovery and a 5.8% growth rate.[1]

Growth in the euro area, with which we maintain key financial and trade relations, slowed down in 2019 to 1.2%[2] (1.9% in 2018). According to the IMF,[3] the highest growth rates in the euro area in 2019 were recorded by Ireland (5.5%), Malta (4.4%), Estonia (4.3%), Lithuania (3.9%) and Cyprus (3.2%). Growth in the largest euro area economies decelerated relative to 2018; thus, Germany recorded a growth rate of 0.6%, France 1.3% and Italy 0.3%. As oil prices were on the decline for the major part of the year, economic growth of Russia and Belarus slackened to 1.3% and 1.2%, respectively.

Chart I.1.1 **GDP growth projections for 2020 − European countries***
(%)



* GDP growth projections have not been published for Albania, Bosnia and Herzegovina, Northern Macedonia and Moldova.
Source: IMF.

[1] IMF WEO, April 2020.

[2] According to the Eurostat estimate.

[3] IMF WEO, April 2020.

According to IMF data from April 2020, emerging and developing European countries[4] recorded higher growth in 2019 (2.1%) than euro area countries, with the highest growth rates recorded in Hungary (4.9%), Serbia (4.2%), and Poland and Romania (4.1% each). In the Balkan region,[5] besides Serbia, the highest GDP growth rates were recorded by Bulgaria (3.4%) and Croatia (2.9%).

Europe is likely to see a considerable economic downturn in 2020 due to the global recession caused by the COVID-19 pandemic, with the euro area anticipating a lower growth rate (-7.5%) than emerging and developing European countries (-5.2%) (Chart I.1.1).

According to the European Commission's May 2020 forecast, euro area economy is likely to undergo a 7.7% fall in 2020, followed by growth of 6.3% in 2021 (for the EU -7.4% in 2020 and 6.1% in 2021). The spread of the COVID-19 pandemic affected global demand, supply chains, industrial production, and capital flows. Given the gravity of this world crisis, the EU can be expected to record the deepest economic recession in its history. The pandemic-driven crisis is a symmetrical shock that affects all euro area members. Economic recovery of each country does not depend solely on the severity of the pandemic and how long the lockdown measures are in place, but also on each country's concrete economic exposure and the implemented policy measures. Due to the strong interdependence, incomplete recovery in one country would affect other countries, and also slow down overall economic growth.

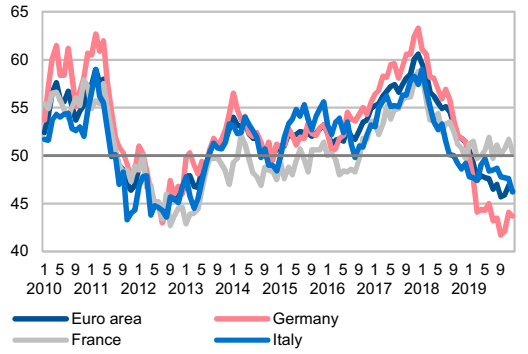
The monetary and fiscal policies' response to the crisis, both globally and in the EU, was swift and strong, implying unprecedented measures to prevent macroeconomic fall and alleviate the pressure on liquidity. As the coronavirus spread throughout the world, many governments were forced to resort to extreme precautionary public health measures to save lives and prevent health system overload. The crisis slashed the prices of oil and many other goods, thus triggering financial turbulence. This was particularly harmful for countries exporting these goods, as well as developing countries with a high share of dollar debt. These three shocks combined are expected to push global economy deep into recession in the first half of 2020. However, given the enormous efforts invested in the preservation of health care, and implementation of macroeconomic measures by most major economies exposed to the pandemic, it is assumed that the negative impact of the pandemic on economy can be contained – the economic fall may be sharp, but it will essentially be temporary.

After several months of negotiations, on 15 January 2020 the USA and China signed the Phase One trade deal. Still, uncertainty over the US trade policy remains high, posing an obstacle for a more substantial economic recovery. The transition period after Brexit will last until 31 December 2020, and in that time, EU directives and other acts will still be mostly applicable to the United Kingdom. Afterwards, there will be large uncertainty in terms of long-term relations, notably in trade.

During 2019, trade and geopolitical tensions were the key factors dictating global growth movements and prospects. Partial appeasement of trade disputes between the USA and China gave an incentive to global growth at end-2019, whereas geopolitical uncertainty in Latin America, the Middle East and Asia exerted a negative influence.

Positive labour market trends in the euro area continued into 2019 – unemployment rate declined to 7.3% in December 2019 (7.8% in December 2018), the same as in March 2008. At the EU level, unemployment at end-2019 was lower than in the euro area, equalling 6.1% in December (6.6% in December 2018). The lowest unemployment rate was recorded in the Czech Republic (1.9%), Poland (2.9%), and the Netherlands and Germany (3.2% each), and the highest in Greece (16.4%), Spain (13.7%) and Italy (9.6%).

Chart I.1.2 **Economic activity indicator* (manufacturing)**
(index points)



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

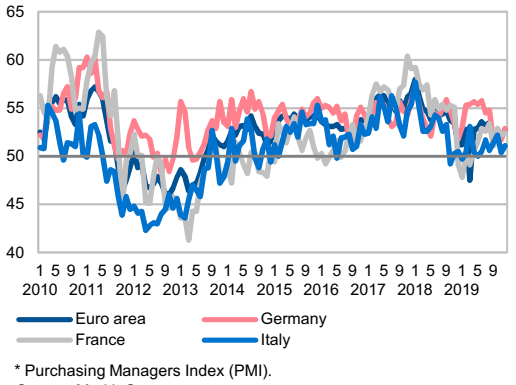
[4] Turkey, Poland, Romania, Hungary, Bulgaria, Serbia, Croatia, Albania, Bosnia and Herzegovina, North Macedonia and Montenegro.

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

In December 2019, PMI Manufacturing equalled 46.3 points,[6] lower than at end-2018 (51.4 points). The highest value of this indicator was recorded in France (50.4 points), and the lowest in Germany (43.7 points) (Chart I.1.2). PMI Services in the euro area equalled 52.8 points in December and was higher than at end-2018 (51.2 points). As shown in Chart I.1.3, the lowest PMI in the services sector at end-2019 was recorded in Italy (51.1 points), and the highest in Germany (52.9 points).

The primary commodity indices were lower at end-2019 than at end-2018. The Brent oil price rose during Q1 2019, ending the quarter at USD 67.5 per barrel. The oil price rise was affected by the downturn in production in Saudi Arabia and other OPEC members, as well as the contracted production in Venezuela and Iran due to US sanctions. After reaching USD 74 per barrel in May, its highest level since October 2018, the price of oil declined by 4.7% in Q2 amid rising tensions in international trade. The global oil price declined further at end-Q3 (USD 59.9 per barrel) due to the dollar's strengthening on other global currencies, but also dampened prospects of global growth and the record-high US output. During Q4, the price of oil increased again in response to geopolitical tensions in the Middle East, diminishing inventories in the USA and the announced cap on production by OPEC members and other oil exporters. In addition, the oil price hike was propped by optimism surrounding trade talks and the dollar's weakening in Q4. At the end of the year, the price of oil equalled USD 66.4 per barrel, up by 25% from end-2018.

Chart I.1.3 **Economic activity indicator* (services)**
(index points)



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

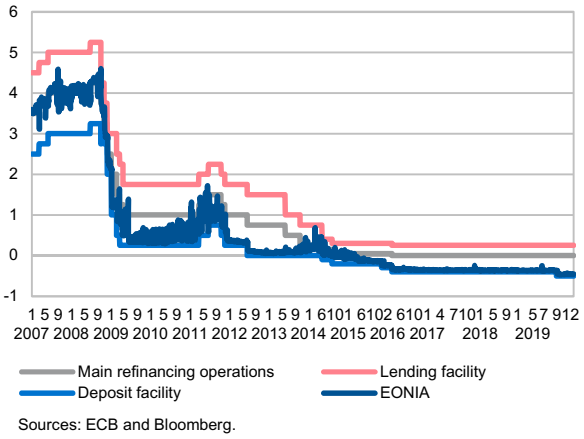
I.1.1 ECB and Fed's monetary policy and analysis of economic developments in 2019

In 2019, the ECB trimmed its deposit facility rate (from -0.40% to -0.50%), while keeping on hold its main refinancing operations rate (0.00%) and marginal lending facility rate (0.25%). In June, the ECB decided to launch its third series of targeted longer-term refinancing operations (TLTRO III) starting in September, and in its September meeting it made the decision to relaunch the net asset purchase programme at a monthly pace of EUR 20 bn, starting from November. After tightening its monetary policy during 2018, the Fed initially changed its communication in 2019 in terms of its future moves, only to narrow the federal funds target range in July – for the first time since 2008 – and then in two more instances, in September and October 2019.

In its September meeting, the ECB trimmed the deposit facility rate by 10 bp to -0.50%, while its main refinancing operations rate (0.00%) and marginal lending facility rate (0.25%) were kept on hold throughout the year. In June, the ECB decided to launch the third series of targeted longer-term refinancing operations (TLTRO III), with the initial two-year maturity of each operation and the initial rate for each operation 10 bp above the average rate applied to main refinancing operations over the life of the respective TLTRO (0.00% + 10 bp). Also, it said that the rates to be applied in TLTROs III can be lower for banks whose net lending exceeds their benchmark net lending, and can be as low as the level of the average interest rate on the deposit facility plus 10 bp. In the September meeting, the ECB changed the modalities of TLTROs III by extending the maturity of the operations to three years. Long-term lending to banks under TLTROs III will be approved at a rate bound to the main refinancing rate, or the deposit facility rate for banks which meet certain conditions. In its September meeting, the ECB also took the decision to relaunch the net asset purchase programme (APP) at a monthly pace of EUR 20 bn as of 1 November. The APP will run for as long as necessary, i.e. it will end shortly before the ECB starts raising its key interest rates. Reinvestments of the principal payments from maturing securities purchased under the APP will continue for an extended period of time past the date when the key ECB rates are raised. As

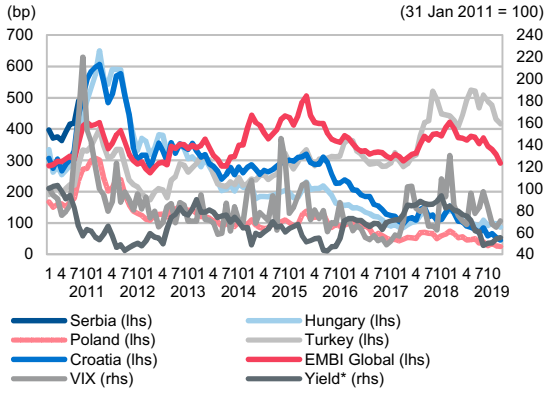
[6] A reading of 50 or higher indicates economic expansion, whereas a reading of below 50 indicates economic contraction.

Chart I.1.4 **ECB's interest rates and EONIA**
(%)



Sources: ECB and Bloomberg.

Chart I.1.5 **EMBI for Serbia and its regional peers, VIX and yields on US bonds**



* On derived ten-year US bonds.
Sources: J.P. Morgan and Bloomberg.

of 2 October, the ECB officially published a new short-term interest rate (€STR). The rate pertains to transactions from the previous day, and it was first set at -0.549%. In its December meeting, the ECB announced that its key rates will be the same or lower until the ECB's projections anticipate inflation of below, but close to 2.0%.

In 2019, economic growth in the euro area slowed down to 1.2% (1.9% in 2018), which is its lowest real growth rate since 2014 (1.4%). Monetary policy accommodation by leading central banks reflected on investors' increased readiness to invest in emerging countries and induced a fall in their risk premiums in 2019. Measured by EMBI on debt in US dollars, the risk premiums of CESEE countries were lower at end-2019 when compared to end-2018. Serbia's risk premium, measured by EMBI on its debt in US dollars, recorded a decline during 2019 and in December touched its lowest level (5 bp) since EMBI is monitored for Serbia. At end-December 2019, Serbia's risk premium on debt in US dollars equalled 19 bp and was the lowest in the region (Poland 27 bp, Croatia 42 bp, Hungary 81 bp, Romania 156 bp), significantly below EMBI Global (277 bp) (Chart I.1.5). Serbia's EMBI risk premium on euro debt equalled 109 bp at end-2019, and was lower than the EURO EMBIG Composite (138 bp).

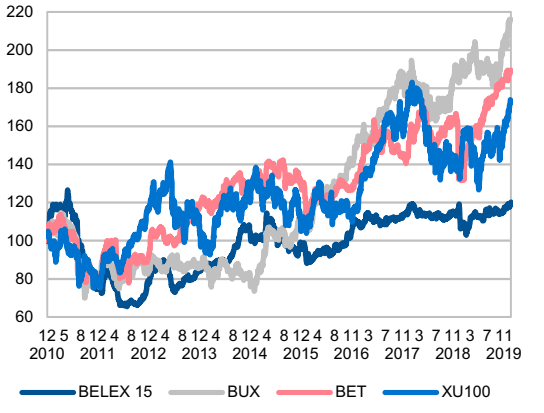
During 2019, y-o-y inflation in the euro area remained below the target value of below, but close to 2%, and measured 1.3% y-o-y at the end of the year (1.5% y-o-y at end-2018). The falling energy prices drove inflation down to 0.7% y-o-y in October, its lowest level in almost three years. Core inflation (excluding the prices of food, energy, alcohol and cigarettes) was relatively stable throughout the year and equalled 1.3% y-o-y in December 2019 (0.9% y-o-y in December 2018).

Increased volatility in the international financial market, measured by the implicit measure of financial market volatility (VIX),[7] ranged between 11.5 and 25.5% during 2019, which is lower than a year before. At end-2019, VIX measured around 14% (Chart I.1.5).

In the financial markets of countries in the region, the values of stock indices at end-2019 were higher relative to end-2018 (Chart I.1.6).

According to the IMF's April 2020 projections, euro area inflation should slow down further in 2020 (0.2% y-o-y),

Chart I.1.6 **Selected stock exchange indices**
(index points, 31 Dec. 2010 = 100)



Sources: Stock exchange websites.

[7] Chicago Board Options Exchange index (CBOE), based on the S&P 500 (SPX) index.

thus deviating even more from the inflation target, while slight growth is forecast for 2021 (1.0% y-o-y).

According to the January euro area bank lending survey for Q4 2019,[8] which covered the sample of 144 banks, credit standards remained mostly unchanged for corporate loans and for housing loans of the household sector. Net corporate loan demand contracted in Q4 2019 for the first time since Q4 2013, which is a reflection of economic slowdown, present since 2018. In contrast, there was an increase in housing and consumer loan demand. Corporate loan demand was still supported by low interest rates. Net housing loan demand remained propped by low interest rates and favourable outlook in the real estate market, with consumer confidence and debt refinancing yielding a greater contribution than in the prior period. The demand for consumer loans was driven by low interest rates, consumer confidence and the purchase of durable products.

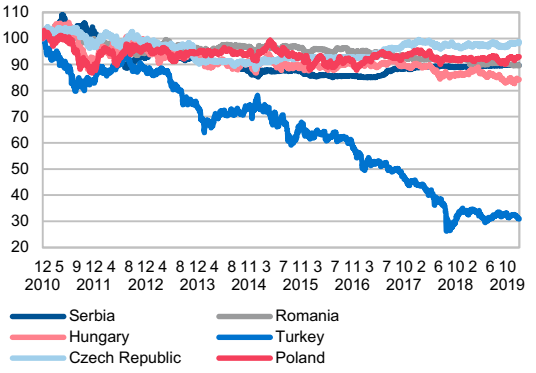
In 2019, of all inflation targeting CESEE countries, Hungary, Poland and Romania kept their policy rates unchanged (Hungary – 0.9%, Poland – 1.5% and Romania – 2.5%). In contrast, the Czech Republic raised its policy rate by 25 bp to 2.0% in May. During 2019, Turkey trimmed its policy rate four times (by 425 bp in July, 325 bp in September, 250 bp in October and 200 bp in December), ending the year at 12% (24% at end-2018). The reason for the considerable rate cuts is the slowdown in inflation, which equalled 11.8% y-o-y at end-2019 (20.3% y-o-y in December 2018), significantly above the inflation target of 5.0%±2 pp. The cycle of monetary policy easing in Serbia, which began in May 2013, continued in 2019 with three more rate cuts (July, August and November), each time by 0.25 pp, to 2.25% at the end of the year – its new lowest level in the inflation targeting regime.

During 2019, the dinar gained 0.5% against the euro in nominal terms. As for the region, currencies gaining on the euro were the Czech koruna (by 1.2%) and the Polish zloty (by 1.0%), while the Turkish lira, the Hungarian forint and the Romanian leu weakened (by 9.4%, 2.7% and 2.4%, respectively) (Chart I.1.7).

In Q1 2019, the euro weakened 1.7% against the dollar (at end-quarter, the EUR/USD rate was 1.12),[9] in response to relatively poorer prospects of euro area's economic growth and stepped-up investments in the dollar as a safe currency. In Q2, the euro gained on the dollar (by 1.1%)

Chart I.1.7 **Exchange rates of selected national currencies against the euro***

(daily data, 31 Dec. 2010 = 100)



* Growth indicates appreciation.
Sources: Central bank websites.

as the Fed hinted at monetary policy accommodation. In its July meeting, for the first time since 2008, the Fed narrowed its federal funds target range. At end-Q3, the dollar appreciated against the euro (by 3.7%), as the ECB announced the need for extended monetary policy expansion, with a slowdown in US and euro area economic activity, as well as improvement in the US inflation outlook. Observed at end-period, the euro gained 2.5% on the dollar in Q4 (EUR 1 = USD 1.12) as a consequence of alleviated trade tensions, progress regarding Brexit, and the published data stating that Germany avoided technical recession, as well as hints at a slowdown in the US production sector.

Rising uncertainty over economic growth and low inflationary pressures drove the Fed to trim its federal funds range three times in 2019 (July, September and October), each time by 0.25 pp, ending the year with the range of 1.5–1.75%. Besides cutting the federal funds rate in July, the Fed decided to conclude the balance sheet normalisation (reduction) in August, two months earlier than previously planned. In order to ease pressures in the money market and keep the federal funds rate within the target range, the Fed secured liquidity via repo operations in September, for the first time in ten years.

The US unemployment rate remained on a downward path in 2019, reaching its historic minimum of 3.5% in December (3.9% in December 2018). Relative to Q4 2018 (2.2% y-o-y), Q1 2019 saw a slowdown in inflation, which averaged 1.7% during the quarter. In February, inflation touched its lowest level in 2019 (1.5% y-o-y).

[8] https://www.ecb.europa.eu/stats/ecb_surveys/bank_lending_survey/pdf/ecb.blssurvey2019q4~34a62b4261.en.pdf

[9] The analysis relied on the official EUR/USD exchange rate, which the NBS uses in its exchange rate lists.

During Q2, the average rate edged up slightly to 1.8%, only to recede to 1.7% in Q3. Inflation in December measured 2.3% y-o-y, exceeding the rate from December 2018 (1.9% y-o-y).

In annualised terms, US GDP growth in 2019 (2.3%) slowed down from 2018 (2.9%), mostly in response to dampened export and fixed investment. According to the IMF's April 2020 forecast,[10] due to the spread of the coronavirus, a fall of 5.9% is projected for the economy in 2020, followed by 4.7% growth in 2021.

I.1.2 Lending in CESEE countries

During 2019, aggregate credit conditions in the CESEE region, on both the supply and demand side, maintained the positive trend from a year earlier. In the previous two years, the exposure trend oscillated, reflecting heightened global instability and uncertainty.

According to the CESEE Bank Lending Survey, published in June and November 2019 by the EIB, loan demand increased throughout the year, maintaining the trend from the past seven years. The Survey published in June 2019 noted a slight tightening of credit conditions on the supply side, while Survey results in November 2019 indicated a relaxation. Credit conditions were loosened in the SME segment, while the household sector saw a slight tightening. All domestic factors supported the supply-side relaxation of credit standards, with the exception of changes in local regulations. International factors no longer pose a constraint, nor are they the dominant factor of the relaxation of credit conditions. Supply-side credit conditions were loosened for short- and long-term loans, which were disbursed mainly in the domestic currency. Aggregate conditions on the supply side are expected to tighten gradually over the coming six months, i.e. in the first half of 2020.

All factors influencing loan demand during 2019 were positive contributors to lending activity. The bulk of corporate loan demand was driven by current asset loans, while a major contribution came from investment loan demand. This shows that favourable macroeconomic and financial environment is conducive to investment activity. Restructuring of corporations and their debt, as well as their mergers and acquisitions, did not lead to an increase in loan demand. Housing loans yielded a significant contribution to rising demand. Consumer confidence is still exerting a positive effect, though to a lesser degree than in previous surveys. Going forward, banks expect a continued increase in loan demand. Current assets, investment, consumer confidence and housing expenditures are expected to give a push to loan demand.

During 2019, banking groups in CESEE countries had easier access to short-term funding, whereby they gave a positive contribution to overall financing activity. Long-term funding was also simplified, thus continuing the positive trend presented in the EIB's survey published in June 2019. During the second half of 2019, banking groups in CESEE countries did not disclose a positive contribution to international and intragroup financing.

Given the high share of foreign-owned banks in the domestic market, developments in the euro area and lending trends exert a significant influence on the financing of subsidiary banks in Serbia. Developments in the home markets of banking groups present in Serbia are shown in Chart I.1.8.

In the second half of 2019, the aggregate share of NPLs in CESEE countries recorded an improvement in net balance terms. According to the results of the November 2019 survey, the share of companies anticipating a fall in NPLs is around 75%, while 11% anticipate an increase. Also, the November survey underlined an improvement in loan quality – a trend which is expected to continue in H1 2020.

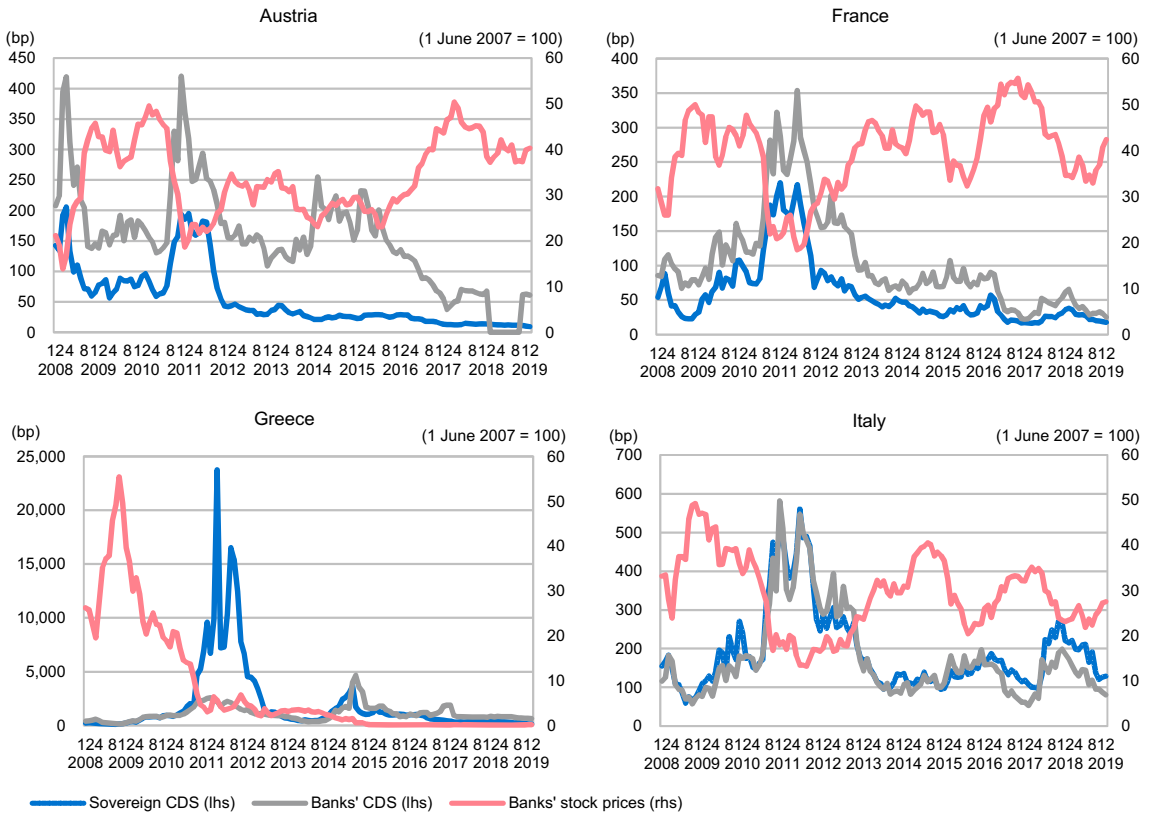
The November survey reported that around 10% of banking groups expect a decrease in group-level LtD (Loan-to-Deposit) ratios in the upcoming six months, i.e. in the first half of 2020, which is a slight improvement relative to the 2017–2018 average. At the same time, around 20% of banking groups expect an increase in LtD going forward. Banking groups reported a stable level of LtD, which is contrary to tendencies recorded in 2017–2018.

The EIB's CESEE Bank Lending Survey revealed that overall exposure in the second half of 2019 was negative (it was quite balanced in H1 2019), i.e. the number of banks that reported deleveraging was much bigger than the number of banks whose exposure increased.

The deleveraging of foreign banks in the post-crisis CESEE region did not have major consequences on

[10] IMF WEO, April 2020.

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



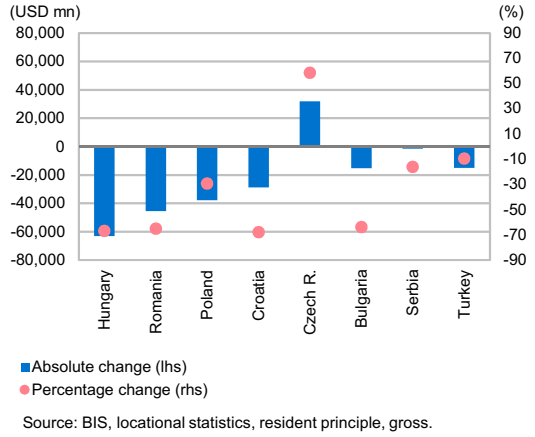
* Note: CDS spreads and stock prices are non-weighted average values for parent banks originating from each country. Monthly data represent daily data averages.

Sources: Bloomberg and Reuters.

Serbia's financial stability owing to a fortified domestic deposit base, which increased significantly in the post-crisis period, as well as to the NBS's well-calibrated and timely measures.

According to BIS data, in Q4 2019, relative to the beginning of the crisis (Q3 2008), euro area banks reduced their cross-border exposure to countries of the region, except to the Czech Republic. Percentage-wise, exposure was reduced the most for Croatia, Hungary and Romania, and the least for Turkey, Serbia and Poland (Chart I.1.9). Relative to end-2018, Q4 2019 saw lower cross-border exposure for Turkey, Bulgaria, Croatia and Romania, and an increase for Hungary, Serbia, the Czech Republic and Poland. Chapter II.1 offers a more detailed analysis of credit growth and an overview of the situation and developments in Serbia's banking sector.

Chart I.1.9 **Change of cross-border exposure to selected countries, Q3 2008 – Q4 2019**



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

Text box 1: Macroprudential policy in the aftermath of the financial crisis

The global financial crisis of 2007/2008 brought to light the need for improvement of the financial regulatory framework and identified weaknesses in the instruments used in addressing the systemic risk. It is a risk to the sound functioning of the financial system as a whole and not only individual financial institutions. The systemic risk is usually defined as a risk of disturbance in financial service provision caused by a problem in the financial system as a whole or in some of its components which may have serious negative consequences on the real sector. In order to preserve and strengthen financial system stability, new standards and instruments have been developed and implemented globally. It was the global financial crisis that called for adoption of new standards, the aim of which is to ensure that the financial system is liquid, resilient to shocks from the domestic and international environment and adequately supervised. In the *Declaration of the Summit on Financial Markets and the World Economy*[11] agreed in Washington on 15 November 2008, the G20 initiated "reforms that will strengthen financial markets and regulatory regimes so as to avoid future crises", while emphasizing the importance of macroprudential policy[12] in that regard. The macroprudential policy regulates objectives aimed at strengthening the financial system by limiting the systemic risk, and instruments – legally binding macroprudential policy measures aimed at implementing the policy objectives. It is important to emphasize that the ultimate goal of the macroprudential policy is to preserve the stability of the financial system as a whole, including bolstering the resilience of the system and reducing the level of systemic risk, thereby ensuring that the financial sector provides a sustainable support to economic growth (ESRB/2013/1[13]).

At the summit in Seoul in 2010, G20 leaders set as their priority the promotion of financial stability and work on macroprudential frameworks in cooperation with international institutions such as the International Monetary Fund (IMF), Bank for International Settlements (BIS) and Financial Stability Board (FSB). Consistent with this, macroprudential regulators identify financial system risks and vulnerabilities, aiming to contain their development and spreading. In case of materialisation of the systemic risk, financial products and services provision could be disrupted to an extent that significantly affects economic growth and development.

One of the responses to the weaknesses brought to light by the world financial crisis was the setting up of adequate regulatory bodies[14]. A body established at the EU level was the European Systemic Risk Board (ESRB), entrusted with the macroprudential supervision of the EU financial system and prevention and alleviation of the systemic risk. The ESRB therefore has a broad jurisdiction covering banks, the insurance sector, asset managers, shadow banks, financial markets infrastructure and other financial institutions and markets. Since its establishment in 2010, the ESRB has actively promoted macroprudential policy development. In 2013, the UK set up the Financial Policy Committee (FPC)[15], as a new institution tasked with improving financial stability in the wake of the financial crisis. The FPC identifies, supervises and takes measures to remove or reduce systemic risks with a view to safeguarding and strengthening the resilience of the UK's financial system. In the USA, based on the Dodd-Frank Act on the Financial System Reform and Consumer Protection Act, the Financial Stability Oversight Council (FSOC)[16] was established in 2010, with a view to ensuring a comprehensive oversight of the country's financial system. Chaired by the Secretary of the Treasury, the FSOC brings together the expertise of the federal financial regulators, independent insurance experts appointed by the President, and state regulators.

In order to ensure financial system resilience and mitigate the effects of the systemic risk, adequately defined macroprudential policy instruments must be put in place and timely implemented. After detecting the weaknesses in the

[11] *Declaration of the summit on financial markets and the world economy,* https://g20.org/en/g20/Documents/2008-Washington-Declaration%20of%20the%20Summit%20on%20Financial%20Markets%20and%20the%20World%20Economy.pdf.

[12] The concept "macroprudential" dates back to 1979 and a meeting of the Cooke Committee (the forerunner of the present Basel Committee on Banking Supervision). The term "macro" indicates the necessity to ensure the stability of the financial system as a whole, while the word "prudential" refers to clearly defined and applied regulations.

[13] European System of Financial Supervision. Recommendations European Systemic Risk Board, *Recommendation of the European Systemic Risk Board of 4 April 2013 on intermediate objectives and instruments of macro-prudential policy* (ESRB/2013/1), https://www.esrb.europa.eu/pub/pdf/recommendations/2013/ESRB_2013_1.en.pdf.

[14] For more information on the world financial crisis, see Text box 1 in the *Annual Financial Stability Report – 2018*.

[15] https://www.bankofengland.co.uk/about/people/financial-policy-committee.

[16] https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc

financial system, which manifested during the global financial crisis, as well as the weaknesses of Basel II standard, regulatory amendments began. Key amendments to Basel standards included the adoption of a set of documents in December 2010, bringing numerous novelties regarding the definition of the capital adequacy ratio (*Basel III: A global regulatory framework for more resilient banks and banking systems*[17]) and the liquidity ratio (*Basel III: International framework for liquidity risk measurement, standards and monitoring*[18]). In June 2011 the final revised document of the Basel III standard was published (*A global regulatory framework for more resilient banks and banking systems – revised version*[19]), and in January 2013 the full text of the revised document pertaining to liquidity ratios saw the light of day (*Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools*[20]). One of the innovations in Basel III implementation are capital buffers, or additional Common Equity Tier 1 capital that banks are obliged to maintain above the prescribed regulatory minimum. Capital buffers should limit systemic 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). In order to prevent the occurrence or widening of maturity mismatch between the sources of funding and investment of financial institutions, different liquidity indicators were introduced, such as the Liquidity coverage ratio (LCR), Net Stable Funding Ratio (NSFR) and Loan-to-Deposit ratio (LtD). All the above instruments are implemented in order to improve the resilience of the banking sector by raising the quality of capital, to better monitor and control banks' exposure to liquidity risk, strengthen market discipline and increase the transparency of banking operations.

According to the ECB[21], further progress in macroprudential policy implementation is based on three key areas, in order for the financial system to more efficiently counter the systemic risk. These three key areas are: (1) further development of macroprudential measures; (2) development of new instruments to be applied to risks outside the banking sector and (3) creating a clearer approach for the implementation of measures. Given that macroprudential policy is a relatively new policy that has emerged in the aftermath of the global financial crisis, it requires continuous regulatory work on improvement of existing and application of new instruments adjusted to the business cycle phases. In that regard, future efforts will be aimed at implementing the new Capital Requirements Directive – CRD V, which is covered in more detail in Text box 6, and the Capital Requirements Regulation – CRR II.

Given that in the post-crisis period greater emphasis is placed on financial system stability, the Republic of Serbia, like many other countries world-wide, timely took the necessary steps to set up a legal basis for the conduct of macroprudential policy. In the National Bank of Serbia, financial stability was officially mentioned for the first time in 2003 in 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), while amendments to the said Law from 2010 placed under the National Bank of Serbia's authority to contribute to maintaining and strengthening of the stability of the financial system of the Republic of Serbia and define and implement measures to that aim, without prejudice to its primary objective – achieving and maintaining price stability. The National Bank of Serbia's mandate to conduct macroprudential policy derives from Articles 3 and 4 of the same Law. Taking into account the fact that the macroprudential policy is constantly developing and that the legislator wished to allow flexibility to the National Bank of Serbia in application of the said instruments, the Law on the National Bank of Serbia does not define individual macroprudential instruments. However, in order to bring this area closer to the public, following the ESRB recommendation[22], in 2015 the National Bank of Serbia published a consultative document "Macroprudential Framework". The document specifies that the "macroprudential policy refers to activities and measures aimed at preventing, mitigating and eliminating systemic risks"[23] and defines ultimate, primary and intermediate macroprudential policy objectives.

With a view to limiting **systemic risks**, the National Bank of Serbia applied instruments of macroprudential nature even before 2010. At the start of credit expansion in 2004 the National Bank of Serbia introduced the debt-to-income ratio

[17] https://www.bis.org/publ/bcbs189_dec2010.pdf
[18] https://www.bis.org/publ/bcbs188.pdf
[19] https://www.bis.org/publ/bcbs189.pdf
[20] https://www.bis.org/publ/bcbs238.pdf
[21] https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp190926~9c2034d370.en.html
[22] https://www.esrb.europa.eu/pub/pdf/recommendations/2013/ESRB_2013_1.en.pdf
[23] https://nbs.rs/export/sites/NBS_site/documents-eng/finansijska-stabilnost/macroprudential_framework_201503.pdf

(DTI), mandatory loan down payment, prohibition on dividend payment, capital distribution and bonus payout if the bank is undercapitalised, as well as the limitation on dinar loans approved to households relative to core capital. In 2007 and 2008 the repayment term for cash loans was limited (to 24 months), a prohibition was introduced on dividend and bonus payout subject to allocation of required reserve for estimated losses and additional capital requirement in case of growth in balance sheet assets of over 15% per year, and the ratio of household loans to core capital was further tightened. All these measures were introduced with a view to limiting excessive borrowing, primarily in the household sector and to contain excessive risk-taking by banks during the upturn in the financial cycle.

Different instruments were used to contain the **foreign exchange risk**. Reserve requirement ratios were used for the first time with the macroprudential purpose in 2005. The National Bank of Serbia introduced differentiation depending on whether the ratio is calculated on the dinar or FX base, and then abolished remuneration on the FX reserve requirement and introduced limitation on the net open FX position. These instruments aimed to reduce the share of FX and FX-indexed receivables and to encourage lending in the domestic currency.

The Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, Nos 34/2011 and 114/2017) legislated the first official macroprudential instruments in Serbia. The objective of this Decision was to reduce risks in the financial system stemming from the high share of loans approved in foreign currency or in dinars with the FX clause, and to further encourage household borrowing in dinars. In order to achieve these objectives, the Decision defined the Loan-to-Value limit and prohibited FX-indexed lending to natural persons, save for EUR-indexed loans with a mandatory down payment or deposit of 30% which are not housing or credit card loans, while all dinar loans were exempted from this obligation.

The selection of macroprudential instruments depends on their efficiency in achieving the desired objectives. Both the number and coverage of applied instruments has significantly increased. Such result is owed primarily to the adoption of regulations introducing Basel III standards in the domestic legal framework. One of the most important novelties brought by Basel III standards are capital buffers, which were introduced in the domestic legal framework as of 30 June 2017. The following capital buffers are applied in the Republic of Serbia[24]: 1) capital conservation buffer, 2) countercyclical capital buffer, 3) capital buffer for systemically important banks, and 4) systemic risk buffer.

Table O.1.1 gives a chronological overview of introduction of these macroprudential instruments.

Table O.1.1 **Chronological overview of measures used with the macroprudential purpose**

Time Period	Measure
2004–2012	DTI (debt-to-income) ratio limit
2004–	Down payment requirement for FX loans
2005–	Differentiated reserve requirement and remuneration rates
2006–	Limit on net open foreign currency position relative to capital
2006–2009	Limit on lending to households relative to capital
2007–2009	Cash loan repayment period
2007–2010	Countercyclical reserves
2007–2011	Ban on dividend and bonus payments if the reserve for estimated losses is not allocated
2011–	LTV (loan-to-value) ratio limit
2011–	Ban on approval of FX-indexed loans to households, except euro-indexed
2017–	Capital conservation buffer
2017–	Countercyclical capital buffer
2017–	Capital buffer for systemically important banks
2017–	Systemic risk buffer
2019–	Exceeding the 60% DTI ratio obliges the bank to reduce its capital
2019–	Concentration risk indicators for long-term cash and consumer loans
2019–	Regulations to bolster dinar lending to corporates

[24] The *Annual Financial Stability Report – 2017* provides more information on the countercyclical capital buffer (Text box 1) and systemic risk buffer (Text box 2).

Macroprudential measures currently applied in Serbia are aligned with EU regulations and the best international practice and the National Bank of Serbia will continue to pursue an efficient macroprudential policy in order to safeguard and further strengthen the achieved financial stability of the Republic of Serbia.

I.2 Overview of domestic macroeconomic developments

In 2019, GDP growth amounted to 4.2%, significantly exceeding expectations. Despite the higher than expected rise in domestic demand and positive labour market trends, inflation remained low and stable. It measured 1.9% y-o-y in December and was almost at the same level as projected by the NBS a year ago, which contributes to stronger confidence in NBS measures and well-anchored inflation expectations.

Annual GDP growth amounted to 4.2%, driven by the robust rise in fixed investments (3.6 pp contribution) – primarily in transport and energy infrastructure, as well as investments in machinery and equipment, whose dynamics significantly accelerated in the second half of the year. It was owing to this that economic growth exceeded the previous projections. Household consumption went up by 3.2% y-o-y, adding 2.2 pp to GDP growth, as a result of positive labour market trends, reduced unemployment and rising wage bill. Larger investments contributed not only to GDP growth, but also to its favourable outlook owing to the increased production potential of our economy. Furthermore, investment structure improved. Namely, investments were channelled predominantly to tradable sectors, which resulted in continued robust growth in the export of goods and services.

Owing to successfully implemented fiscal consolidation, initiated structural reforms and improved investment climate, in prior years Serbia created the basis for economic growth acceleration in the medium run.

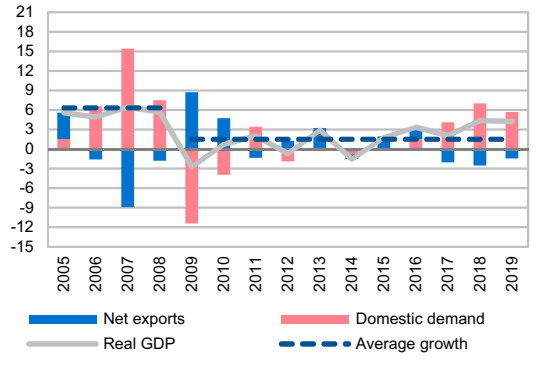
However, following the latest events in the domestic and international environment and the effect of the necessary health measures on the economy, Serbia's economic growth projection for 2020 was revised downwards, from 4% to -1.5%, with a rebound to around 6% in 2021.

Inflation stayed low and stable for the seventh year in a row. According to the Statistical Office's estimate, it measured 1.9% y-o-y in December. Inflationary pressures are expected to remain subdued in the coming period as well. Low inflationary pressures are also indicated by short-term inflation expectations which kept moving within the NBS target tolerance band (3±1.5%). Core inflation remained low and stable, measuring 1.1% y-o-y in December, which is close to its annual average, while medium-term inflation expectations of the financial and corporate sectors were anchored within the target tolerance band throughout the year.

Under the central May 2020 projection, y-o-y inflation will return within the bounds of the target tolerance band around mid-year (Chart I.2.4). In the short run, the wearing off of the base effect for vegetable prices will contribute to such inflation movements. Thereafter, we expect inflation to move around the lower bound of the target tolerance band until year end, in the conditions of low import prices, particularly lower oil prices, and subdued aggregate demand. As the economy strengthens and demand recovers, y-o-y inflation is expected to gradually approach the target midpoint (3%) in 2021, staying however below it until the end of the projection horizon.

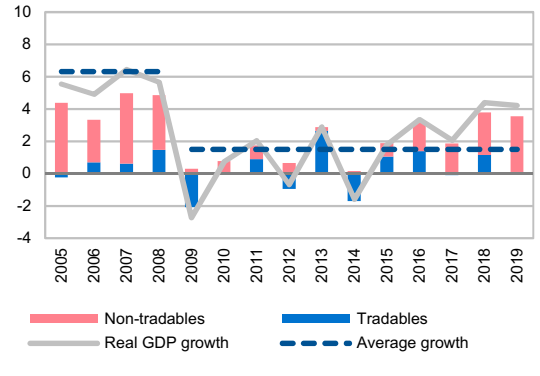
Positive movements were also recorded in the labour market, with the average employment rate measuring 49.0% for 2019 and the unemployment rate 10.4%. Strong economic growth, low and stable inflation,

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.

relative stability of the exchange rate and exceptional fiscal policy results led to the rise in employment and a decline in unemployment to its lowest level. The average net wage in 2019 went up by 10.6% in nominal terms, primarily as a result of rising wages in the private sector.

The NBS proceeded with cautious monetary policy in 2019, trimming its key policy rate three times, by 0.25 pp each – in July, August and November, to 2.25%. Continued monetary policy easing was driven by the expected movement in inflation and other macroeconomic indicators from the domestic and international environment.

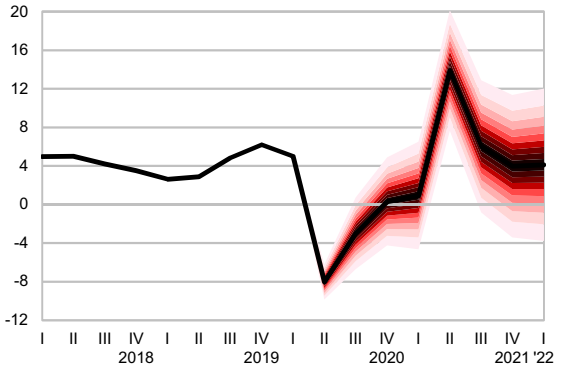
In March 2020, responding to the anticipated economic slowdown caused by the coronavirus pandemic, the NBS lowered the key policy rate by 0.50 pp, to 1.75%, and narrowed the interest rate corridor, from ±1.25 pp to ±1 pp. In order to additionally mitigate the negative impact of the coronavirus on the economy and ensure that inflation stays within the target tolerance band in the medium run, the NBS eased its monetary policy further in April 2020 by cutting the key policy rate additionally, to 1.5%. Such a decision was also motivated by the indicators from the international environment, which showed that the negative effects of the pandemic on global economic growth were stronger than previously expected.

As for the FX market movements, in 2019 the dinar gained 0.5% against the euro and lost 1.5% against the dollar (at period end) due to the simultaneous strengthening of the dollar vs. the euro. Appreciation pressures in the FX market, which characterised most of the year, resulted primarily from the narrowing in internal and external imbalances, which also helped boost the confidence of foreign investors concerning long-term investment in Serbia and contributed to the decline in the risk premium.

Measured by EMBI on the dollar debt, Serbia's risk premium averaged 87 bp in 2019, down by 36 bp from 2018. The risk premium continued on a downward path in 2019, touching 5 bp in December, which is its lowest value since EMBI is monitored for Serbia. At year end it reached 19 bp, down by as much as 140 bp from end-2018, and was among the lowest in the region. Owing to the June issue of euro-denominated eurobonds in the international financial market (re-opened in November 2019), as of July we also have data about EMBI on Serbian euro debt. At end-2019 EMBI risk premium on euro debt for Serbia amounted to 109 bp and was below EURO EMBI Global Composite (138 bp).

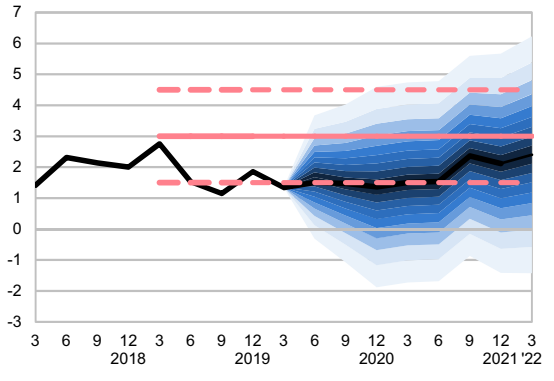
In September 2019, Fitch increased Serbia's long-term foreign and local-currency issuer default ratings from BB to BB+. In March 2020, Serbia's credit rating was kept unchanged, which is another confirmation of our medium-term economic outlook, despite the crisis caused by the coronavirus pandemic. Fitch emphasised that the maintained rating and outlook are a result of Serbia's greater resilience to the crisis caused by the pandemic, owing to increased NBS FX reserves, low foreign debt, preserved fiscal discipline and solid public finance. In December 2019, Standard & Poor's increased their long-term sovereign credit rating for Serbia from BB to BB+, with a positive outlook, so that Serbia is now a step away from investment grade. In May 2020, Standard & Poor's, similarly as Fitch, kept Serbia's ratings unchanged despite the negative effects of the global pandemic. In September 2019, Moody's Investors

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



* May 2020.
Source: NBS.

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



* May 2020.
Source: NBS.

Service affirmed Serbia's rating at Ba3, with a positive outlook. According to rating agencies, the credit rating upgrade in 2019 reflects the preserved price stability, strong fiscal discipline, continuous strengthening of the banking sector and improvement of the business environment.

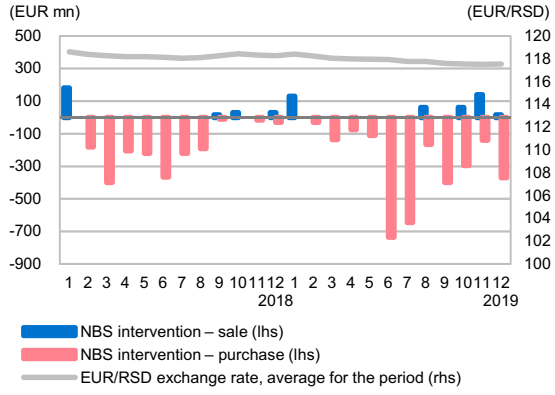
In 2019, the NBS was a net buyer of EUR 2,695.0 mn in the IFEM (in total, it bought EUR 3,100.0 mn and sold EUR 405.0 mn), which additionally boosted the country's FX reserves (Chart I.2.5). The NBS intervened in the IFEM to ease excessive short-term volatility of the exchange rate, without any intention to influence its level or trend.

Due to the possible impact of changes in the dinar exchange rate on the balance of payments, on the one hand, and on inflation, dinar equivalent of foreign currency public and private debt and NPLs, on the other hand, the NBS strives to maintain relative stability of the RSD/EUR exchange rate, and thus diminish the exchange rate effect on overall financial stability. A timely response of the central bank in such conditions also entails maintaining FX reserves at an adequate level, which is something the NBS has done successfully, with gross FX reserves standing at EUR 13.4 bn at end-2019 (up by EUR 2.1 bn from December 2018). This level of FX reserves covered 174% of money supply (M1) or six months' worth of the country's import of goods and services (twice the level prescribed by the standard on the adequate level of coverage of the import of goods and services by FX reserves). At year end, gross FX reserves have been the highest since 2000 when we started monitoring this indicator.

Key macroeconomic indicators of vulnerability[25] of the financial system of the Republic of Serbia in 2019 suggest lower vulnerability compared to 2018. Lower vulnerability and strengthened resilience of the financial system are indicated by the additional decrease in the share of central government public debt in GDP (by 1.7 pp, to 52% of GDP), as well as by the reduced currency risk.

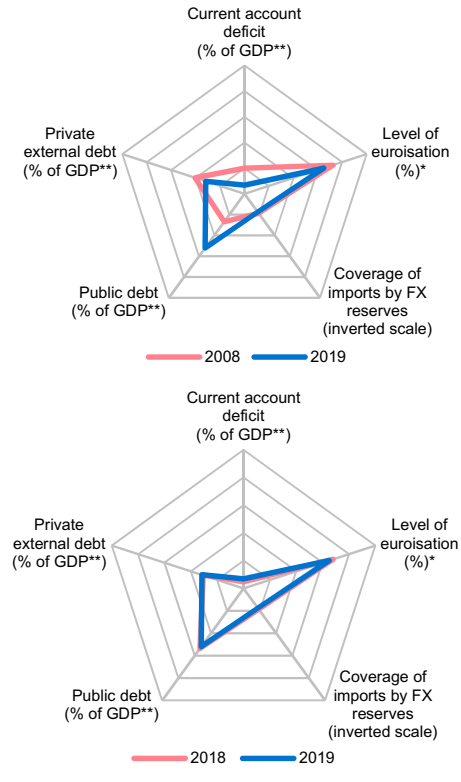
The degree of euroisation, measured by the share of FX and FX-indexed deposits in total corporate and

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 deposit in total deposit of households and corporates.

** GDP is compliant with ESA 2010 methodology.

Source: NBS.

[25] The key financial system vulnerability indicators for the Republic of Serbia are shown in Chart I.2.6. The Chart shows changes in the current account deficit, private external debt, public debt, euroisation level and adequacy of FX reserves – as the inverse value of the number of months of the gross FX reserves/imports coverage. Any increase in the indicator's distance from the centre of the Chart signals elevated risk and a threat to stability. The further away from the centre an indicator is, the greater the vulnerability of the economy.

household deposits, dropped from 67.8% at end-2018 to 64.9% at end-2019.

On the other hand, the share of private external debt in GDP increased (from 30.9% to 31.7%), while the share of total external debt in GDP decreased (from 62.2% to 61.9%). The share of the current account deficit in GDP amounted to 6.9% which is an increase from 2018, caused by the rising import of equipment for investment cycle needs, 100% taxes on products and services delivered to Kosovo and Metohija, quotas for steel exports to the EU, and increasing profit of non-residents in Serbia, which led to higher dividend payments.

To preserve liquidity and cushion the drop in employment, the Serbian Government adopted the *Economic Measures Programme to Mitigate the Negative Effects of the COVID-19 Pandemic*. According to the Ministry of Finance, this programme worth RSD 608.3 bn will result in this year's general government fiscal deficit of 7% of GDP, while the public debt should not exceed 60%. Our estimate is that the said one-off deficit and public debt increase this year will not jeopardise the country's solvency or pose a risk to public finance sustainability, especially having in mind the expected resumption of the downward path of the public debt share in GDP next year.

I.3 Foreign exchange reserves as insurance against shocks

At end-2019, NBS FX reserves equalled EUR 13.4 bn in gross or EUR 11.4 bn in net terms,[26] these being their highest end-year levels since 2000, when records began. In order to further strengthen the stability of the Serbian financial system and better diversify FX reserves, the NBS bought gold in the international market for the first time in October 2019. Different stress scenarios show that at end-2019 FX reserves were high enough to safeguard the domestic system even in case of extreme shocks.

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, which in times of crises should serve to finance balance of payments imbalances, settle the state's liabilities towards foreign creditors, and preserve the stability of the financial sector.

Table I.3.1 **The levels of FX reserves adequacy, end-2019**

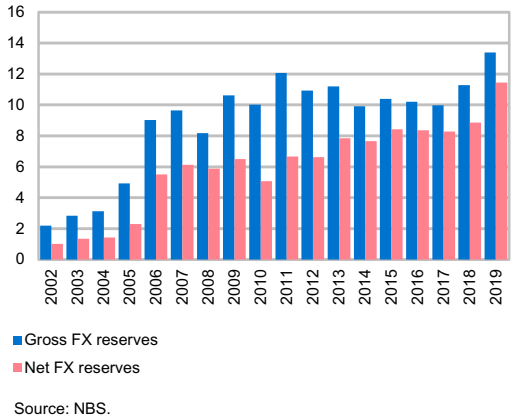
Indicators of adequacy	Adequate level (EUR bn)
Three months of imports coverage	7.0
Short-term external debt at remaining maturity	5.1
20% money supply M3 coverage	4.8
"Right measure for Serbia"	7.1
FX reserves	
Gross	13.4
Net	11.4

Source: NBS.

In order to further strengthen the stability of Serbia's financial system and resilience of FX reserves, and ensure their even better diversification, the NBS bought gold in the international market for the first time in October 2019, increasing the share of gold in Serbia's FX reserves. At end-2019, gold made up 10% of total gross FX reserves.

The adequacy of the level of FX reserves is assessed by various analyses and indicators, from the aspect of

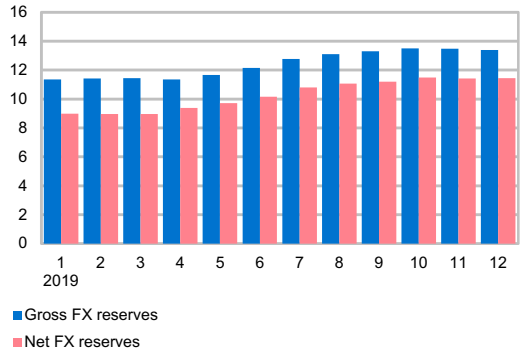
Chart I.3.1 **National Bank of Serbia FX reserves**
(EUR bn)



Source: NBS.

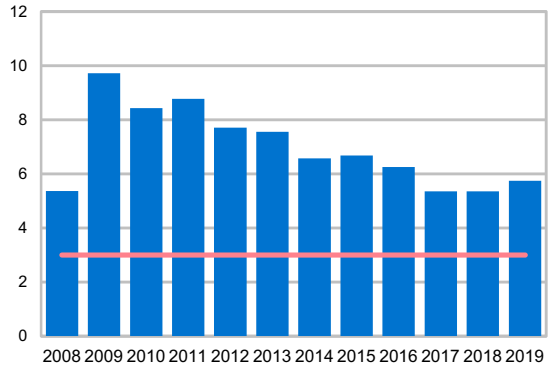
[26] Net reserves are FX reserves less banks' FX balances on account of reserve and other requirements.

Chart I.3.2 **National Bank of Serbia FX reserves in 2019**
(EUR bn)



Source: NBS.

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



Source: NBS.

materialisation of an individual risk or a mix of several risks. The most common risks, based on which relevant indicators are constructed are: hindered financing of the imports of goods and services and of external debt maturing within a year in conditions of reduced capital inflows from abroad due to the limited access to international capital markets, as well as sudden deposit withdrawals.

Traditional FX reserve adequacy indicators analyse the degree of protection against individual risks. The indicator of FX reserves import coverage shows the link between FX reserves and the size and openness of the economy. The level of FX reserves is considered adequate if it covers three months' worth of the imports of goods and services.

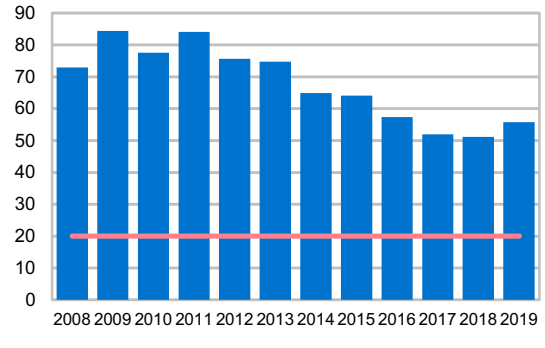
In addition to the indicator of FX reserves import coverage, protection against individual risks is also measured by an indicator known as the Greenspan–Guidotti rule,[27] which shows the capacity of a country to service its external debt in the course of one year. The adequate level is achieved when 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 shows the connection between FX reserves and monetary aggregates. The optimal level is achieved if FX reserves cover at least 20% of broad money (M3).

At end-2019, Serbia's FX reserves were at an adequate level guaranteeing protection from individual risks, providing for 5.7 months' coverage of the imports of goods and services, 260.1% coverage of external debt at remaining maturity, and 55.7% 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 that takes into account the specificities of the Serbian economy.[28] It implies the coverage of the sum total of short-term debt at remaining maturity, current account deficit adjusted for net FDI, 15% of FX and FX-indexed deposits and 5% of dinar deposits of corporates and households.

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

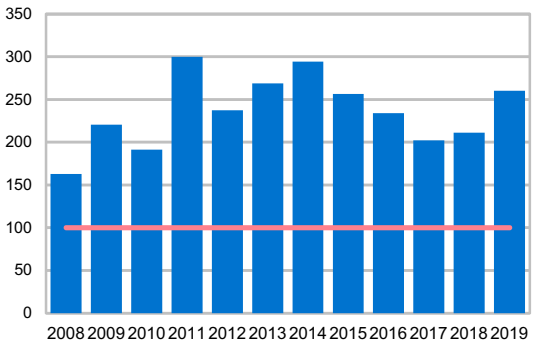


Source: NBS.

[27] Guidotti, Pablo, Sturzenegger, Federico and Augustin Villar (2004), *On the Consequences of Sudden Stops*, Economia Vol. 4, No. 2, p. 171–203.

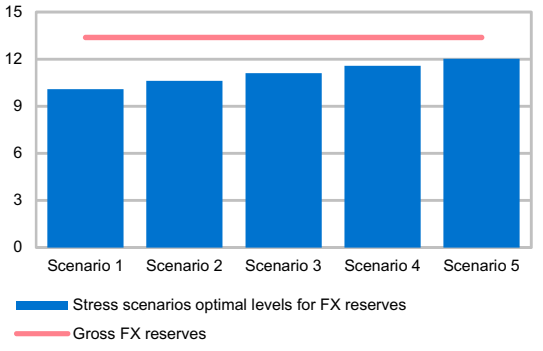
[28] For more details on this indicator, see the *Annual Financial Stability Report – 2011*.

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



Source: NBS.

Chart I.3.7 **Optimal levels of FX reserves under stress scenarios, December 2019**
(EUR bn)



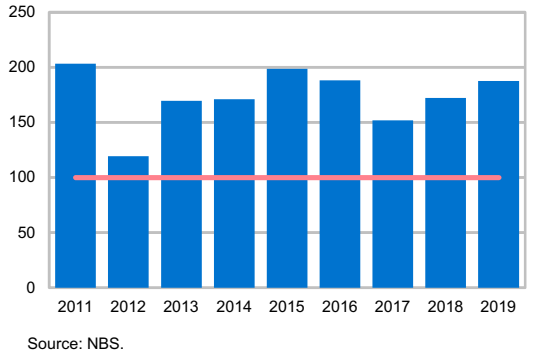
Source: NBS.

At end-2019, "the right measure for Serbia" indicator stood at a significantly higher level than the optimal 100% (187.7%). The indicator improved in comparison to the previous year (172.3%), mainly due to the increase in FX reserves and higher FDI inflows relative to the current account deficit.

The Jeanne–Ranciere[29] model 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 in capital flows, economic policy makers are risk averse and make decisions on the optimal level of FX reserves. In the event of a sudden stop in capital flows, resulting in the impossibility to roll over external debt, it is assumed that a higher level of FX reserves mitigates the fall in output and ensures smooth consumption. In this model, the optimal level of reserves is determined by the size and likelihood of a sudden stop in capital inflows, a potential loss in production and consumption, the opportunity cost of holding reserves, and a degree of risk aversion.

Table I.3.2 shows stress scenarios for FX reserves, according to the Jeanne Ranciere model, where the fifth scenario is extreme, i.e. least likely to occur. The dynamics between the factors on which the adequate

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



Source: NBS.

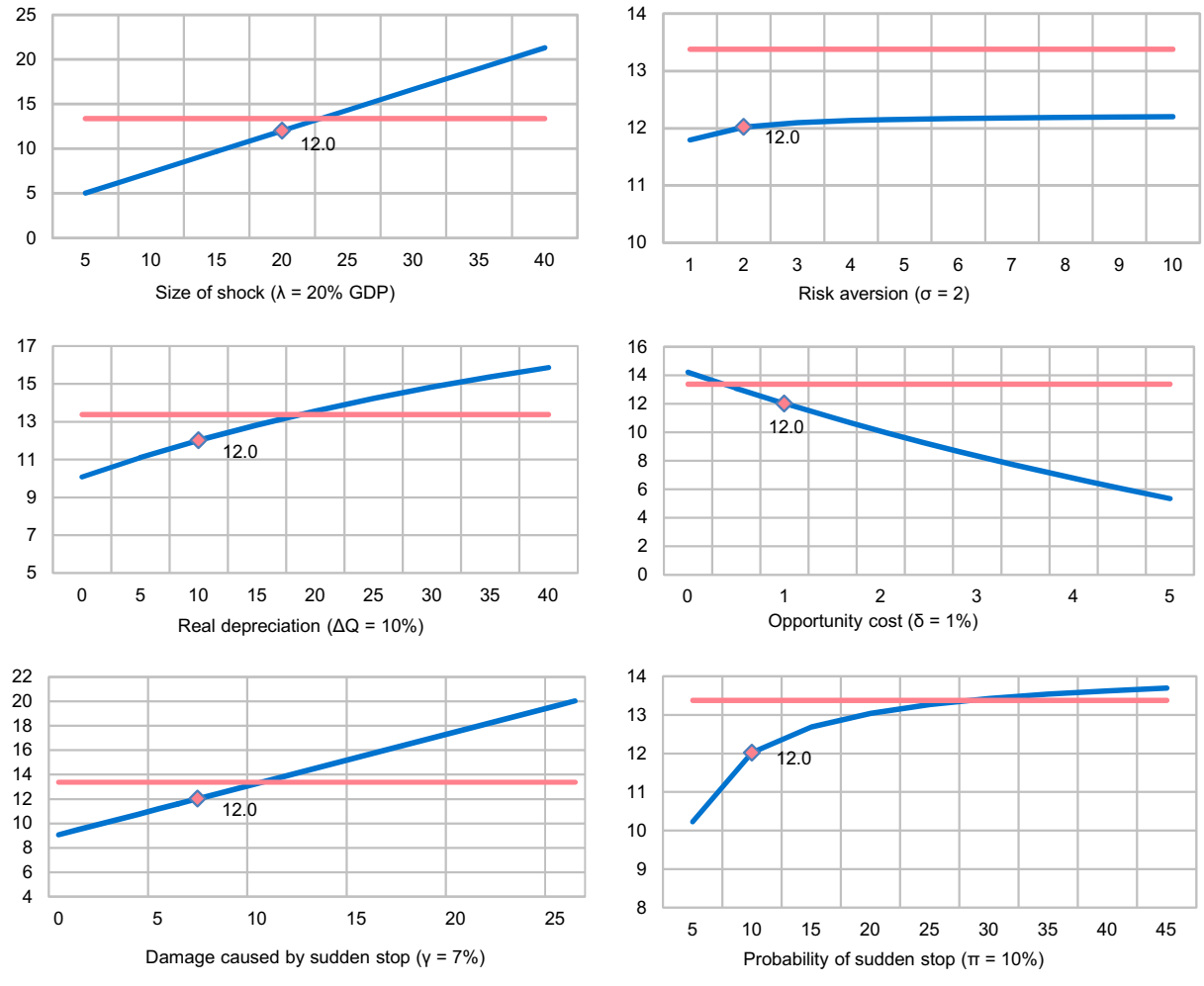
Table I.3.2 **Stress scenarios for FX reserves**

Symbol	Parameter	Scenario				
		1	2	3	4	5
γ	Damage caused by sudden stop	7%	7%	7%	7%	7%
r	Yield on reserves	0%	0%	0%	-0.5%	-1.0%
g	Average GDP growth	-1.5%	-2.0%	-2.5%	-3.0%	-3.5%
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)	10.1	10.6	11.1	11.6	12.0
Gross NBS FX reserves (2019, EUR bn)				13.4		

Source: NBS.

[29] 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*.

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



Source: NBS.

level of FX reserves depends is also taken into consideration when assessing the adequacy of FX reserves.

At end-2019, FX reserves adequacy was confirmed by all relevant indicators, as well as the five stress scenarios of the used adequacy model. Chart I.3.8 shows the optimal level of FX reserves in the event the fifth (most extreme) scenario materialises.

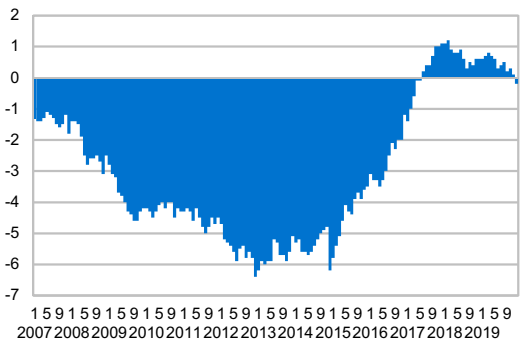
I.4 Fiscal policy, public and external debt

The decline in the share of public and external debt in GDP, recorded in the prior years, continued in 2019 as well. The share of central government debt in GDP fell from 53.7% (end-2018) to 52.0% of GDP (end-2019). General government debt (including non-guaranteed debt of local governments and AP Vojvodina) contracted from 54.4% of GDP (end-2018) to 52.9% of GDP. Due to a powerful upswing in economic activity, the share of external debt in GDP also shrank to 61.9% of GDP (62.2% in late 2018). The fiscal deficit amounted to 0.2% of GDP in 2019.

I.4.1 Fiscal policy

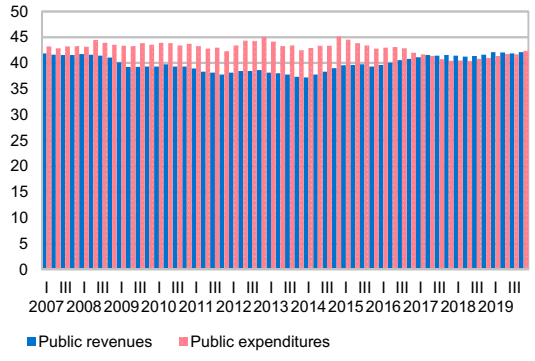
In July 2018, the IMF Executive Board approved a new programme to the Republic of Serbia – Policy Coordination Instrument, as an advisory tool that does not envisage disbursement of funds. The arrangement was approved for a period of 30 months. Serbia's progress in

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.

the implementation of the agreed economic agenda is monitored through five semi-annual reviews. The first review was successfully completed in December 2018, and the second and the third – during 2019. The IMF assessed that Serbia has continued with successful implementation of the defined economic agenda, with sound domestic growth factors, low inflation, sound financial system, implementation of structural reforms and a further slide in the share of public debt in GDP.

By contrast to the two prior years when fiscal surplus was recorded, a fiscal deficit of RSD 11.1 bn or 0.2% of GDP was recorded at end-2019 (fiscal surplus of RSD 32.2 bn or 0.6% of GDP was recorded at end-2018) (Chart I.4.1). In terms of government levels, the largest contribution to the general government deficit came from the deficit in the Republic of Serbia's budget (RSD 12.8 bn).

In 2019, the primary fiscal result[30] was positive at RSD 97.8 bn, or 1.8% of GDP (2.8% of GDP in 2018). As interest expenses reflect the fiscal policy and deficit from the past period, the primary fiscal result shows whether the achieved fiscal revenue suffices to cover fiscal expenditure other than the cost of public debt servicing. The primary fiscal result is an indicator of the efficiency of the current fiscal policy and the impact of that policy on public debt.

In 2019, a fiscal deficit was recorded amid an increase in both fiscal revenue and fiscal expenditure relative to a year earlier. Total general government expenditure in 2019 was RSD 216.6 bn higher than in 2018. Current expenditures gained RSD 154.5 bn from a year earlier, mostly on account of higher expenditures for employees (RSD 47.5 bn) and social assistance and transfers (almost RSD 37 bn). Total general government public revenue in 2019 outperformed by RSD 173.3 bn the revenue recorded a year earlier, of which as much as RSD 171.4 bn resulted from a rise in tax revenue. More favourable labour market trends led to a rise in contributions and income tax which, coupled with improved VAT collection, rising profit tax due to increased profitability of companies and the contraction of grey economy in the production and trade of excise products (petroleum products and tobacco), gave a key contribution to growth in tax revenue.

Capital investment also increased relative to 2018 (by close to RSD 67 bn). The end-2019 share of capital expenditure in total general government expenditure (11.6%) and in GDP (4.9%) was higher than in 2018. Given the significance of infrastructural improvement for economic growth sustainable in the long run and the planned infrastructural investments, the rise in capital expenditure will continue to represent a fiscal policy priority going forward as well.

Subsidy expenditures in 2019 gained RSD 11.5 bn, and their share in GDP remained unchanged from 2018 (2.2%). Agriculture and infrastructure construction received the largest share of subsidies.

A responsible fiscal policy and favourable macroeconomic environment enabled moderate fiscal policy easing, increase in capital investment and the removal of austerity measures in case of wages and

[30] Primary fiscal result is the fiscal result adjusted for the effects of paid and charged interest.

pensions. Due to the spread of the coronavirus, in April 2020 the Ministry of Finance adopted a *Programme of Economic Measures to Mitigate the Negative Effects of the COVID-19 Pandemic and Support the Serbian Economy*, in order to preserve employment and help economic entities facing difficulties in operation during the state of emergency which lasted from 15 March until 6 May 2020.

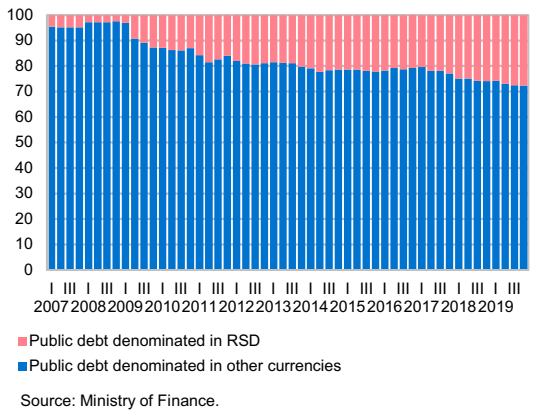
I.4.2 Public debt

Following a reversal of the upward trend in 2016, the share of public debt in GDP has been on a downward path for the past three years. The end-2019 share of central government debt in GDP was 52.0%, down by 1.7 pp from end-2018 (Chart I.4.3). The share of general government debt, including non-guaranteed debt of local governments and AP Vojvodina, was 52.9% of GDP in the same period, down by 1.5 pp from a year earlier. The accelerated downward trajectory of the share of public debt in GDP was due to continued fiscal consolidation and the recorded primary surplus.

In absolute amounts, end-2019 central government debt was EUR 23.9 bn (EUR 23.0 bn at end-2018), while general government debt was EUR 24.4 bn (EUR 23.3 bn at end-2018).

Not only did the share of public debt in GDP decrease, but its currency composition also improved significantly in 2019, as the share of US dollar-denominated debt shrank by as much as 6.4 pp from a year earlier, while the share of dinar-denominated public debt gained 1.7 pp. The significant drop in US-dollar denominated debt resulted from early repayment of a part of costly dollar bonds issued in 2011 and 2013. The exchange rate risk is still present, though, since as much as 72.3% of Serbia's end-2019 public debt was in a foreign currency (Charts I.4.4 and I.4.5). Also, the public debt is exposed to the risk of EUR/USD volatility, stemming from developments in the international environment.

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



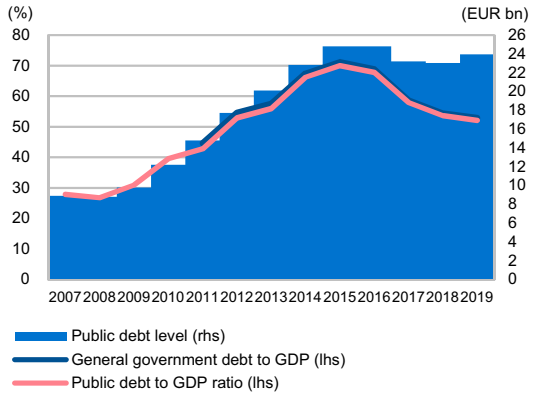
Source: Ministry of Finance.

The share of debt repaid at a fixed rate was 84.0% at end-2019 (Chart I.4.6), suggesting a relatively low interest rate risk.

Public debt maturity composition was also favourable as in 2019 the government primarily borrowed by using long-term instruments.

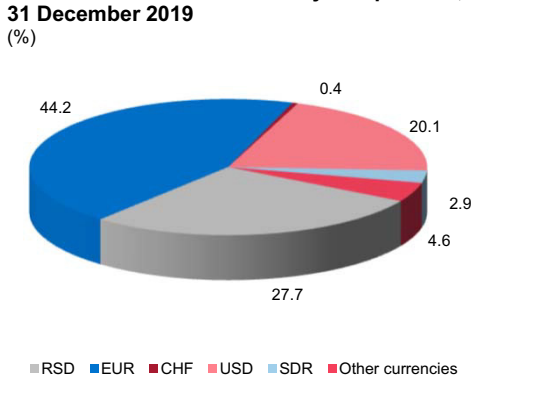
In 2019, the government for a large part also borrowed by selling securities in the domestic market. The share of government securities in total central government public debt was 52% (Chart I.4.7). During the year, interest rates on government borrowing in both dinars and euros continued to decline, primarily owing to low country risk

Chart I.4.3 **Public debt dynamics**



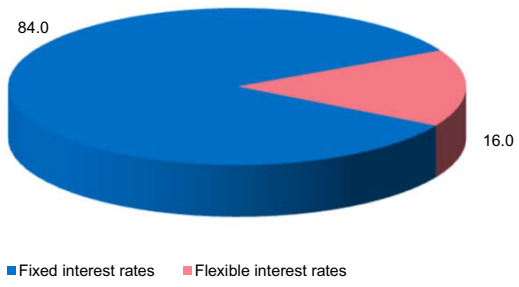
Source: Ministry of Finance.

Chart I.4.5 **Public debt currency composition, 31 December 2019**



Source: Ministry of Finance.

Chart I.4.6 **Public debt interest rate composition, 31 December 2019**
(%)



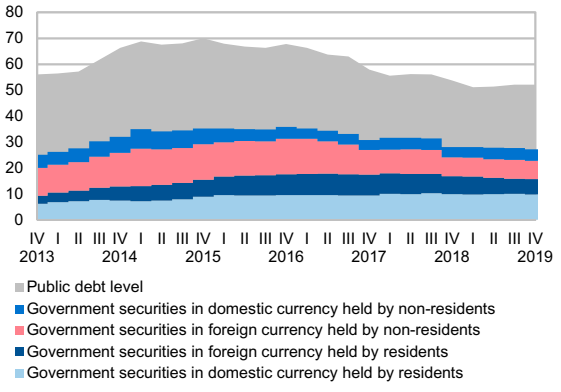
Source: Ministry of Finance.

premium, low and stable inflation, continued monetary policy easing by the NBS and increased interest of non-residents in dinar securities with the longest maturities. Lower borrowing needs played a significant role in cutting down the costs of government borrowing. In 2019, the Public Debt Administration of the Ministry of Finance organised six early buyback auctions of a part of three-year and seven-year dinar securities. In five auctions it effected early buyback of a part of three-year dinar government securities in the total nominal amount of RSD 30.1 bn (coupon rate of 4.50%, maturity date 5 April 2020), while in one auction it effected early buyback of a part of seven-year government dinar securities in the nominal amount of RSD 5.0 bn (coupon rate of 10.00%, maturity date 5 February 2022).

The role of foreign investors in the government securities market is very important. At end-2019, they accounted for 42% of the portfolio of securities issued in the domestic and international market (40% at end-2018). During 2019, the non-resident share in dinar government securities stood at 31.2%, up by 1.9 pp from the year before (Chart I.4.8). The increased share of foreign investors is largely a result of improved macroeconomic fundamentals and preserved macroeconomic stability. The non-resident share in FX securities gained 3.3 pp during 2019 to 54.3% (Chart I.4.9). This was mostly a result of the issuance of the first euro-denominated eurobond in the international market. In June 2019, Serbia successfully issued its first euro-denominated government bond in the international capital market in the total amount of EUR 1.0 bn, which matures in 2029 (coupon rate of 1.50% and yield of 1.619%), while November saw a reopening of this issue worth EUR 550 mn (coupon rate of 1.50% and yield of 1.25%). The proceeds from these issues were used for early repayment of a part of costly dollar bonds issued in 2011 and 2013.

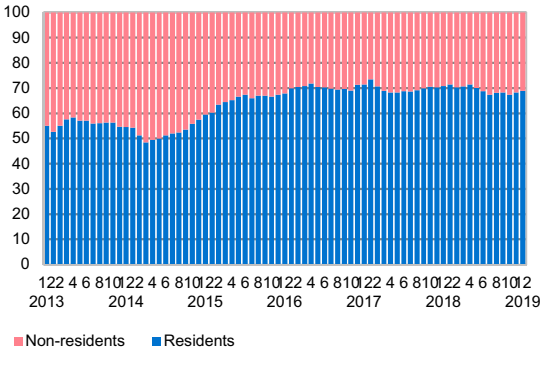
In September 2019, Moody's changed the outlook on Serbia's credit rating from "stable" to "positive", affirming its credit rating at Ba3, while Fitch raised Serbia's credit rating from BB to BB+. S&P also raised Serbia's credit rating from BB to BB+ in December, noting a positive outlook for its further increases. In this way, the Republic of Serbia, by preserving its stability and transforming its economy, for the first time found itself a step away from investment grade (by Fitch and S&P), characteristic of economies offering a high security of investment. An improved position of the country in the international financial market, followed by declining interest rates and enhanced investor confidence, will provide cheaper sources of financing and enable reinvestment of a part of public debt at more favourable interest rates, further improving the country's fiscal position. Despite the crisis induced by the coronavirus pandemic, in March 2020 Fitch affirmed Serbia's rating at

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



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

Chart I.4.8 **Ownership structure of government securities denominated in dinars**
(%)



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

BB+ with stable outlook. The same decision was taken in May 2020 by S&P.

I.4.3 Macroprudential policy and sovereign risk

In the aftermath of the global financial crisis, the share of government securities in the balance sheets of financial institutions increased significantly, largely on account of relevant regulations. In accordance with these regulations, banks' local currency sovereign exposures are considered risk-free investment, while foreign currency sovereign exposures are assigned an appropriate (low) risk weight. At the same time, government securities of EU member states are fully exempted from the limit on maximum exposure to a single person or a group of related persons. Finally, they are considered highly liquid assets.

As of 30 June 2017, bank operations in Serbia have been governed by domestic regulations that are largely aligned with the legal regulations on EU banking operations and which introduced Basel III standards into the domestic regulatory framework. Banks' exposures to the Republic of Serbia, regardless of the currency, are considered risk-free. Also, government securities are exempted from the limit on maximum exposure to a single person or a group of related persons and are treated as highly liquid assets.

The share of receivables from the government in the Serbian banking sector assets reached 15.8% at end-December 2019, which is lower than the respective share in 2018 (16.2%) (Chart I.4.10). In addition, domestic banks have been the most important investors in government securities.

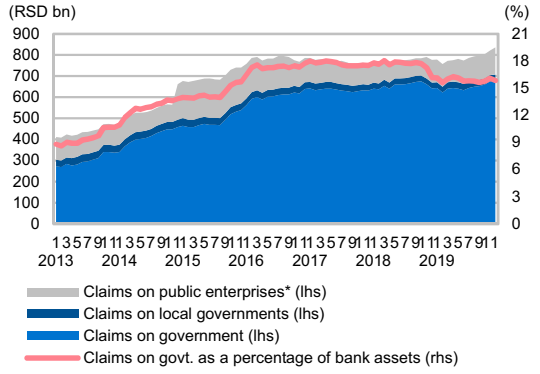
The role of prudential policy is, among other things, to carefully assess the exposure of financial institutions and systems to the sovereign risk, while responsible fiscal policy is key to mitigating or eliminating that risk.

Potential future amendments to EU regulations include different changes (Capital Requirements Directive V – CRD V, and Capital Requirements Regulation – CRR II) with a large impact on banks' business strategy, which is why they should be implemented gradually and over a longer period.

I.4.4. External debt

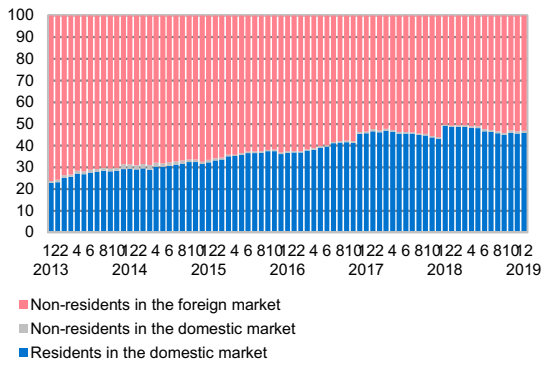
Serbia's external imbalances have been greatly moderated in the past seven years thanks to robust and broad-based growth in exports. The current account deficit was EUR 3.2 bn at end-2019, or 6.9% of GDP, up by EUR 1.1 bn from 2018. The key reasons for the widening of the current account deficit in 2019 were vibrant growth in equipment imports to accommodate investment needs,

Chart I.4.10 **Bank claims on government, local governments and public enterprises**



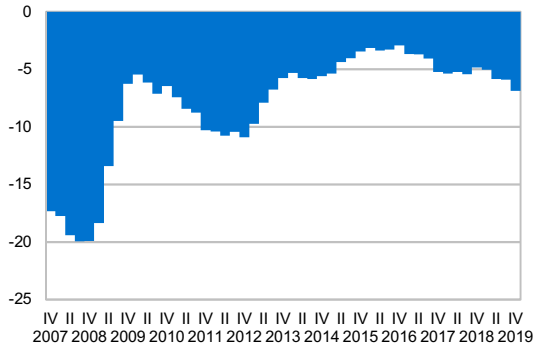
* As of end-2014, the criterion of ownership, control and management is used to determine whether an enterprise is a public enterprise or not.
Source: NBS.

Chart I.4.9 **Ownership structure of government securities denominated in foreign currency**
(%)



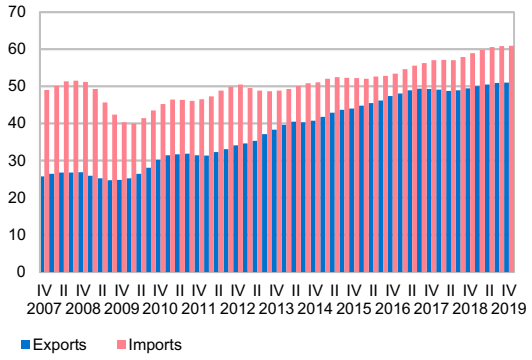
Source: NBS, based on data of the Ministry of Finance.

Chart I.4.11 **Current account***
(% of GDP)



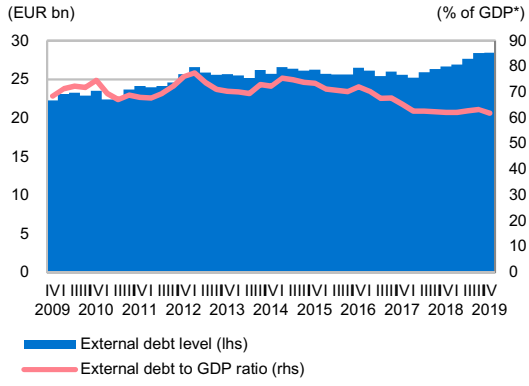
* Moving sums for the last four quarters.
Source: NBS.

Chart I.4.12 **Exports and imports***
(% of GDP)



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

Chart I.4.14 **External debt dynamics**



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

introduction of a 100% tax on the delivery of goods and services to Kosovo and Metohija, EU steel import quotas, higher non-resident profit in Serbia and the consequent rise in dividend payments (Chart I.4.11).

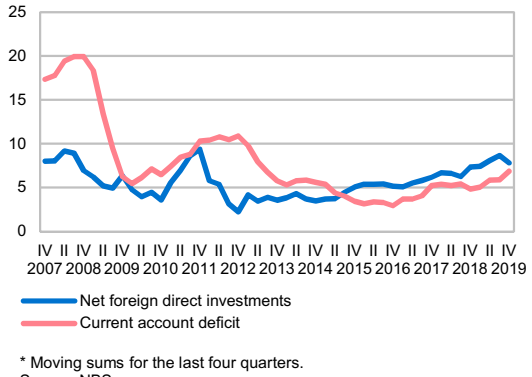
Activation of past investments, despite the slowdown in external demand, helped to maintain the high rate of growth of goods and services exports in 2019, which was even higher than in the year before (10.5% vs. 9.6% in 2018). Investments also largely impacted on the dynamics and structure of goods and services imports which rose in 2019 by 10.7% (13% in 2018), driven by greater corporate needs for intermediate goods and equipment and, to a lesser extent, also by growth in consumer demand (Chart I.4.12).

For the fifth year in a row, the current account deficit is fully covered by FDI (113.4% coverage at end-2019) (Chart I.4.13).

The achieved macroeconomic stabilisation and improvement of the business environment spurred further FDI growth in 2019. Net FDI inflow in 2019 was EUR 3.6 bn (the highest on record), up by 13.5% from 2018. In 2019 FDI stayed highly diversified by project and geography, and most of it was channelled to manufacturing (26%), transport (25%), and construction and real estate (18%). In 2019, Serbia topped the Greenfield FDI Performance Index, published by Financial Times, which measures the inflow of greenfield investments relative to the size of the economy. With an index of 11.92, Serbia attracted almost 12 times the value of greenfield FDI that could be expected from an economy of its size.

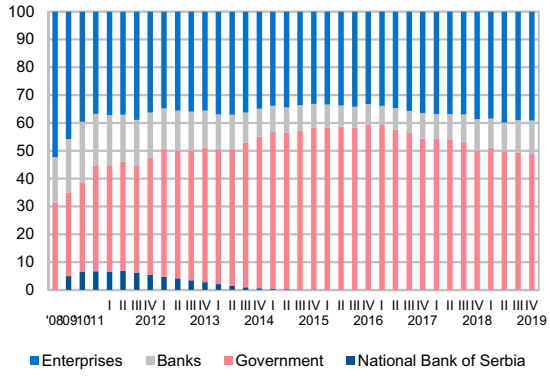
Structural reforms created a stimulating business environment. Together with favourable terms of trade, notably the effects of a lower global oil price, a higher real drop in imports than exports will result in a

Chart I.4.13 **Current account deficit financing via FDIs***
(% of GDP)



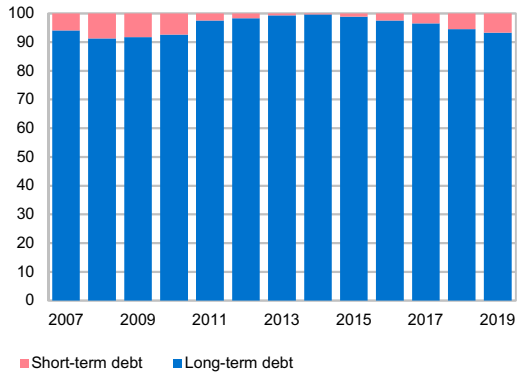
* Moving sums for the last four quarters.
Source: NBS.

Chart I.4.15 **External debt by borrower**
(%)



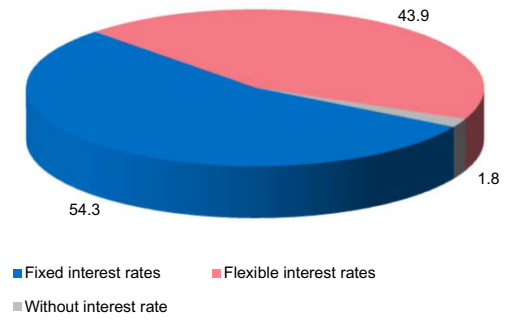
Source: NBS.

Chart I.4.16 **External debt by original maturity**
(%)



Source: NBS.

Chart I.4.18 **External debt interest rate composition, 31 December 2019**
(%)



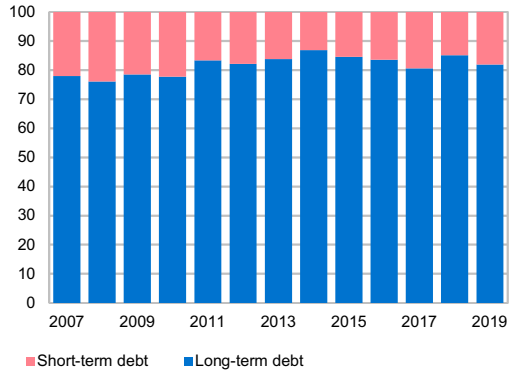
Source: NBS.

contraction of the current account deficit share in GDP to around 5% in 2020. The current account deficit will continue to be fully covered by net FDI inflow, which we assume will come at around EUR 2.3 bn in 2020. In the medium run, we can expect relatively stable movement in the share of the current account deficit in GDP, as investment-led growth in imports will be offset by higher export supply.

At end-2019 external debt was EUR 28.4 bn or 61.9% of GDP. Relative to end-2018, total external debt gained around EUR 1.8 bn, while its share of GDP, due to substantial economic growth, contracted by 0.3 pp (Chart I.4.14).

The rise in external debt in 2019 is a result of private sector borrowing, whose debt gained EUR 968.1 mn at end-2019, followed by the public sector (debt increase of EUR 440.4 mn) and banks (debt increase of EUR 347.2 mn) (Chart 1.4.15). The restructuring and/or privatisation of large public and socially-owned enterprises might fuel FDI and exports, which will additionally reduce the balance of payments imbalance and the need for new borrowing.

Chart I.4.17 **External debt by remaining maturity**
(%)



Source: NBS.

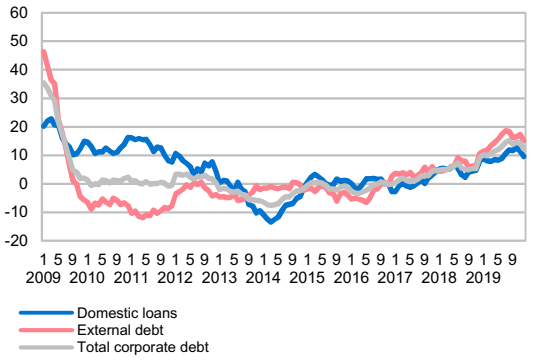
The risk of external debt refinancing is relatively low given the favourable maturity structure of external debt. At end-2019 the share of external debt at original and remaining maturity over one year was high, standing at 93.2% (Chart I.4.16) and 81.9% (Chart I.4.17), respectively.

The share of external debt repaid at a fixed rate was relatively favourable at 54.3% (Chart I.4.18). This share was 3.5 pp higher than in 2018. The effective interest rate was relatively low and stable over an extended period, primarily due to the significant share of loans of international financial institutions in total external debt. The share of external debt paid at a variable rate (43.9%) is mainly concentrated in the banking sector (79.9%) which, by contrast to earlier years, is not a source of risk in the conditions of change in the interest rates of leading central banks.

I.5 Corporate sector

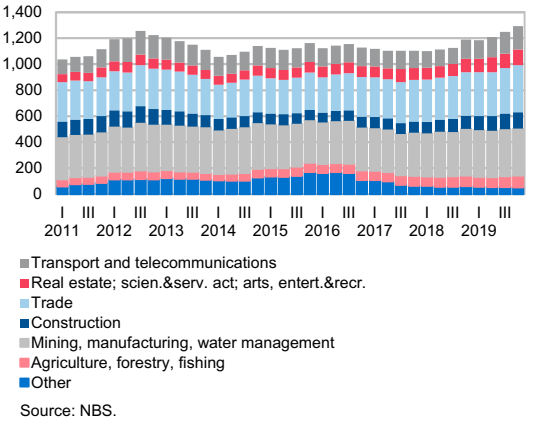
Economic entities continued to operate at a profit in 2019, owing to the preserved macroeconomic stability and the implemented structural reforms coupled with strong domestic demand and stimulating business and investment environment. New corporate loans boosted domestic and overall lending activity. The easing of

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



* Excluding the exchange rate effect.
Source: NBS.

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



Source: NBS.

borrowing conditions in the domestic market led to a rise in corporate investment loans, which indicates a favourable lending structure from the aspect of support to sustainable economic growth. The share of corporate NPLs in total loans was additionally lowered.

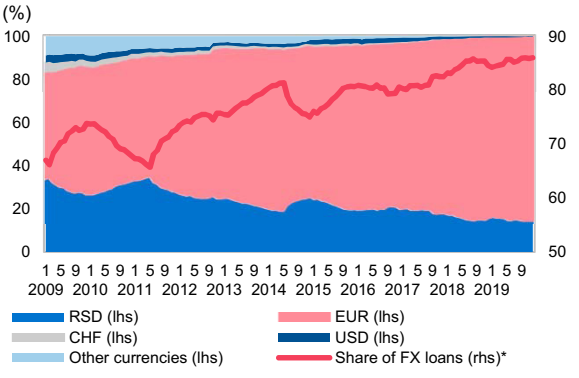
Domestic corporate loans[31] (excluding the exchange rate effect) rose by 9.5% in 2019.[32] During the year banks wrote off RSD 15.9 bn and sold to non-bank entities RSD 6.9 bn worth of NPLs in the corporate sector. Excluding the effect of NPL write-off and sale, y-o-y growth in corporate lending measured 9.7% in December.[33] The effect of write-off and sale on y-o-y lending growth is small as their amount is lower than in the previous years. This is a result of a record low level of NPLs.[34] The highest absolute rise in receivables was recorded in the transport and telecommunications sector. A rise was also recorded in other sectors: (a) trade, (b) construction, (c) real estate, scientific and service activities, arts, entertainment and recreation. In terms of purpose, investment loans posted the highest increase – as much as RSD 112.9 bn in nominal terms.

External corporate debt reached EUR 11.1 bn, at end-2019, up by 9.5% from 2018. This rise, along with the increase in domestic corporate loans, resulted in the growth of total corporate debt compared to the year before. Excluding the exchange rate effect, y-o-y growth in total corporate loans (including external debt adjusted for inter-company loans), measured 12.1% at end-2019.

The share of dinar corporate loans (14.0%) recorded in December 2019 was lower by 1.4 pp than at end-2018. The structure of FX receivables changed slightly compared to 2018. The share of euro receivables went up by 1.8 pp, while the share of receivables in dollars and Swiss francs fell by 0.3 pp and 0.1 pp, respectively. To reduce the corporates' exposure to the exchange rate risk, there is an option to use hedging instruments.

In terms of maturity, long-term receivables were dominant at end-2019, with a share of 83.4%, which suggests a low refinancing risk. This share increased by 7 pp from 2018 on account of investment loans.

Chart I.5.3 **Currency structure of domestic corporate loans**
(%)



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

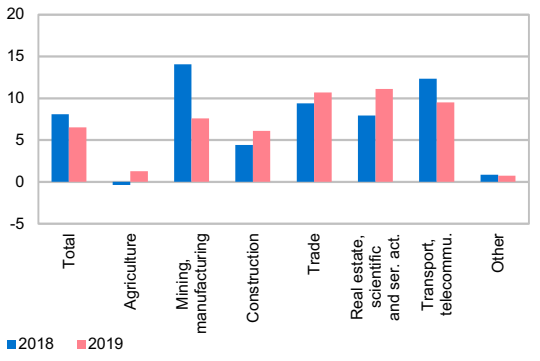
[31] The corporate sector includes public enterprises, companies and the non-financial sector in bankruptcy.

[32] Calculated at the dinar exchange rate against the euro, Swiss franc and US dollar as at 30 September 2014 (the so-called programme exchange rate used for monitoring the performance under the latest arrangement with the IMF), taking into account the currency structure of loan receivables.

[33] Excluding the NPL write-off and sale effect since the beginning of 2016. Ending with December 2019, banks wrote off RSD 151.5 bn and sold RSD 93.6 bn worth of NPLs.

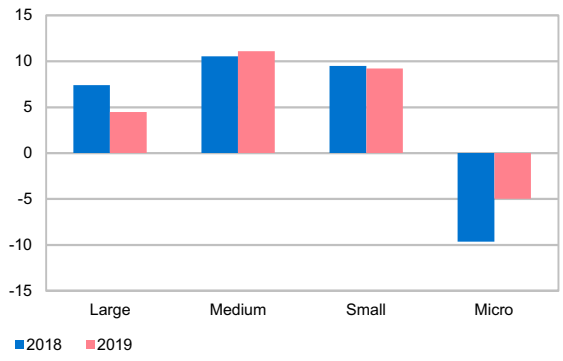
[34] In 2016 banks wrote off and sold to non-bank entities NPLs worth RSD 70.6 bn, in 2017 – RSD 95.6 bn, in 2018 – RSD 56.1 bn, and in 2019 only RSD 22.9 bn.

Chart I.5.4 **Corporates' return on equity (post-tax) by selected sectors**
(%)



Source: Business Registers Agency.

Chart I.5.5 **Corporates' return on equity (post-tax) by size**
(%)



Source: Business Registers Agency.

In 2019, corporates again recorded a positive net financial result,[35] though slightly lower than in 2018 (RSD 387 bn vs. RSD 447 bn). Corporates' return on equity[36] was 6.5% in 2019 (8.1% in 2018) (Chart I.5.4). The sector of real estate, scientific and service activities saw the highest profitability in 2019, with ROE at 11.1%, followed by trade (10.7%). Less profitability than in the year before was recorded by mining, manufacturing and water management (7.6% in 2019 vs. 14.0 in 2018), as well as transport and telecommunications (9.5% in 2019 vs. 12.3% in 2018). After a negative rate of return in 2018 (-0.4%), in 2019 agriculture posted a return of 1.2%. In terms of enterprise size, large, medium-sized and small enterprises continued to operate at a profit in 2019 (Chart I.5.5). The profitability of micro enterprises stayed in the negative zone (-5.0%) in 2019 (-9.7% in 2018), while the profitability of large enterprises declined (4.5% in 2019 vs. 7.4% in 2018). Medium-sized enterprises recorded the highest return on equity – 11.1%.

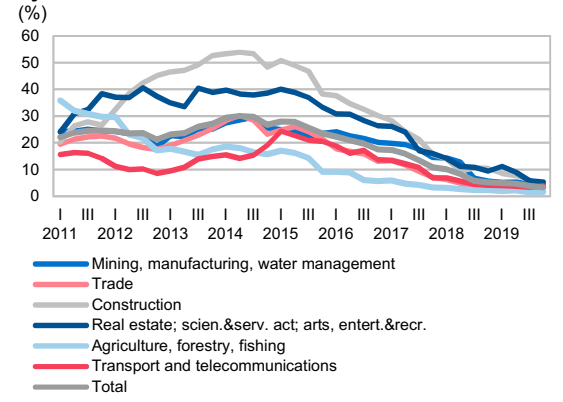
The NPL share in total loans to corporates (public non-financial sector and companies) fell by 1.9 pp y-o-y, to 3.2% in December 2019. The NPL share in total loans to companies went down by 1.9 pp, to 3.3% at end-December. The NPL share in total loans to public enterprises also decreased – by 1.9 pp, to 1.6%. The NPL ratio declined in all sectors and is currently at historical lows.

Since August 2015, when the NPL Resolution Strategy was adopted, the largest drop in the corporate NPL ratio (Chart I.5.6) was recorded in the following sectors: (a) construction (44.0 pp), (b) real estate, scientific and service activities, arts, entertainment and recreation (32.0 pp) and (c) trade (22.7 pp), of which in 2019 alone this reduction equalled 6.6 pp, 4.0 pp and 1.1 pp, respectively.

In terms of the currency structure, the y-o-y reduction in the NPL ratio was higher for FX than for dinar loans (2.0 pp vs. 1.2 pp).

The decline in the NPL ratio in 2019 reflects primarily the write-off and sale of NPLs, as well as economic and lending growth and the NBS's regulatory activities envisaged by the NPL Resolution Strategy and the

Chart I.5.6 **NPL share in total loans of corporates, by sector**
(%)

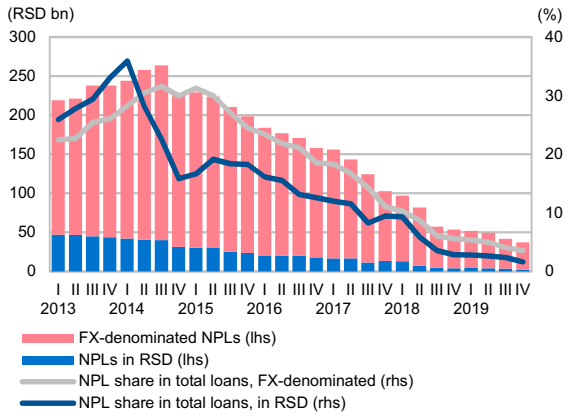


Source: NBS.

[35] According to the Business Registers Agency and Classification of Activities, with the exception of the following sectors: financial and insurance activities, public administration and defence, compulsory social security and activities of extraterritorial organisations and bodies.

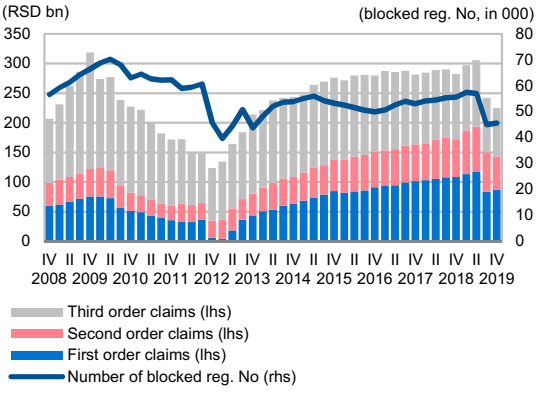
[36] The amount of capital decreased by the amount of loss above capital was used for the calculation of the rate of return on equity.

Chart I.5.7 **Corporate NPLs by currency**



Source: NBS.

Chart I.5.9 **Movement of claims through enforced collection by priorities**

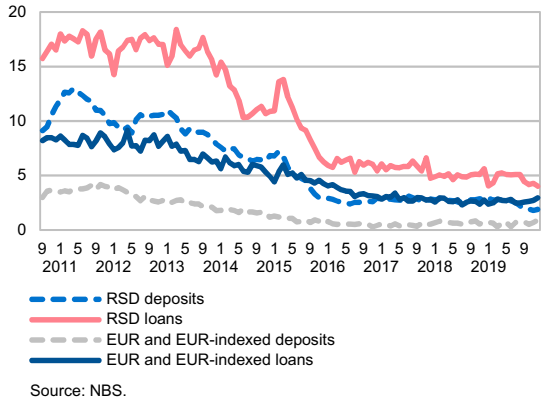


Source: NBS.

Decision on the Accounting Write-off of Bank Balance Sheet Assets.

The Decision stipulates an obligation for banks to carry out the accounting write-off of an NPL if allowances for impairment equal 100% of its gross book value. In addition to the successful implementation of the Strategy, the NPL Resolution Programme for the period 2018–2020 was adopted, with a view to ensuring sustainability of the results achieved. The objective of this Programme is to remove obstacles to timely NPL resolution and to establish a system that will prevent the accumulation of NPLs and negative effects on lending without jeopardizing potential economic growth.

Chart I.5.8 **Interest rates on corporate loans and deposits – new business**
(weighted average, annual, %)



Source: NBS.

In 2019 the costs of corporate sector borrowing went down in the segment of dinar loans, while going slightly up in the segment of FX loans because of somewhat higher interest rates in December. The weighted average rate on new dinar loans stood at 4.01% at end-2019, down by 1.61 pp y-o-y, while that on new euro loans increased from 2.75% in December 2018 to 2.95% in December 2019.

At end-2019, there were 45,603 corporates with blocked accounts, down by 18.1% from 2018, primarily due to compulsory liquidation in line with the Law on Companies. The amount by which the accounts were blocked came at RSD 224.6 bn in 2019, down by 20.53% from 2018.

In 2019, the NBS Enforced Collection received from commercial courts 496 decisions to open and 357 decisions to close bankruptcy proceedings (up by 31 and 14 from 2018, respectively). It also received 31 decisions to suspend bankruptcy proceedings (seven in 2018), 51 decisions to suspend bankruptcy proceedings due to the sale of the bankruptcy debtor (37 in 2018), 79 decisions to initiate preliminary bankruptcy proceedings with security measures (95 in 2018), and 34 decisions to adopt pre-pack reorganisation plans (30 in 2018).

In 2019, several laws were adopted with a view to bolstering investment, employment, and overall economic activity.

To stimulate corporate lending in dinars, the NBS Executive Board adopted the Decision Amending the Decision on Capital Adequacy of Banks and the Decision Amending the Decision on Risk Management by Banks (RS Official Gazette, No 88/2019). These Decisions set new rules for banks with a view to changing the currency structure of loans i.e. increasing the share of dinar loans in total approved loans and creating an environment conducive to more favourable financing conditions for corporates. Accordingly, the potential risks for stability of the financial system are diminished. These risks may stem from a considerable share of FX-indexed and FX loans in banks' balance sheets. The Decision Amending the Decision on Capital Adequacy of Banks also creates an incentive for banks in the form of more favourable regulatory treatment for entirely dinar lending and for other dinar lending to micro, small and medium-sized enterprises, entrepreneurs, and farmers. This will enable banks to allocate less capital for covering risk on account of dinar receivables than on account of non-dinar and FX-indexed loans to these debtor groups.

The Law Amending the Law on Registration Procedure in the Business Registers Agency (RS Official Gazette, No 31/19) was adopted. This law was passed for the purposes of harmonisation with other laws governing registration, records and disclosure of data from registers and records maintained by the Business Registers Agency – the Law on Companies, the Law on General Administrative Procedure and laws governing electronic documents and electronic signature. The intention was also to fill in the regulatory gaps identified in practice.

To enable more efficient liquidity planning and management for companies and public enterprises, the Law Amending the Law on Deadlines for Settlement of Financial Liabilities in Commercial Transactions (RS Official Gazette, No 91/19) was adopted. This Law also governs the registration and delivery of electronic invoices and other electronic payment requests in the system of electronic invoices, as well as the registration of those invoices and other electronic payment requests in the central registry of invoices issued by creditors in commercial transactions between the public sector and companies or between public sector entities where public sector entities are the debtors.

The Law Amending the Law on Companies (RS Official Gazette, No 91/19) was also adopted with a view to introducing a model for rewarding employees, management and third parties (investors, consultants and others) in limited liability companies. The amendments introduce a new financial instrument – the right to acquire a share (the right of a consenting owner to acquire a share on a certain date at a certain price) and a new legal institute – a reserved own share (a share which the company acquires from its shareholder without compensation). Further, the percentage of own shares which a joint-stock company may distribute to its employees and management board members was increased from 3% to 5%.

The Law Amending the Law on Corporate Profit Tax (RS Official Gazette, No 86/19) brought some novelties, too. First and foremost, the expenses established in a bank's income statement on account of debt reduction borne by the bank in the amount established in line with the law governing the conversion of Swiss franc-indexed housing loans shall be charged to the bank's expenses. The right to and method of using tax credit in relation to the conversion was also regulated. Two types of tax incentives were envisaged: incentive for investments in start-ups and incentive for investments in fixed assets and new employment.

The Law Amending the Law on Value Added Tax (RS Official Gazette, No 72/2019) was adopted to harmonise with EU regulations. The amendments were aimed at overcoming the problems encountered in practice. In this regard, a value voucher was defined as an instrument which must be accepted as a compensation or a part thereof for the delivered goods or rendered services. Other important changes related to the provisions on tax debtor and tax proxy, place and time of trade in goods and services and the origin of tax duty, tax exemption and preliminary tax.

I.6 Household sector

Favourable trends in the labour market, reflected in unemployment falling to a single-digit level, increased employment and higher wages, led to stable growth in household consumption. Continued monetary policy easing by the NBS, along with increased interbank competition and the historically low country risk premium, were conducive to a further fall in the cost of household borrowing. Dinar savings rose significantly, reflecting a further rise in households' confidence in the local currency. To prevent new NPLs in the banking sector and pre-empt possible consequences for the financial stability and households, and thereby bolster financial stability, in late 2018 the NBS adopted a set of by-laws in response to unsecured non-purpose lending to households at unreasonably long maturities, which led to a shortening of maturities of these loans.

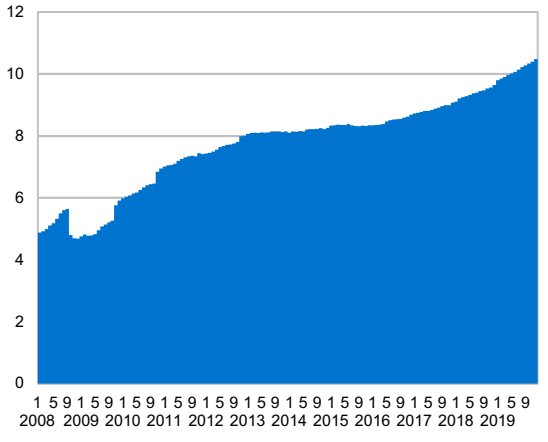
The household sector saw positive trends in 2019: employment increased and unemployment decreased to record lows, savings rose further, as did average wages in all economic activities. According to the Labour Force Survey, the unemployment rate continued to decline in 2019 to 9.7% at the end of the year, 3.2 pp down from end-2018. The average monthly net wage in 2019 in the Republic of Serbia equalled RSD 54,919, up by 10.6% in nominal and 8.5% in real terms compared to 2018.[37] The average pension equalled RSD 26,343, which is a nominal increase of 4.1% from the previous year.[38] The results of the Household Budget Survey show that personal consumption of Serbian households in 2019 amounted to RSD 67,099, up by 4.1% in nominal terms compared to 2018. The structure of consumption remained unchanged, hence the majority of expenses were related to food and non-alcoholic beverages (34.2%) and dwelling, water, electricity, gas and other fuels supply (16.7%). Total savings continued up, strengthening the deposit base of the banking sector as the main source of lending activity. Resident FX savings reached EUR 10.5 bn, having increased by EUR 825.6 mn in 2019 (Chart I.6.1).

The Law on the Settlement of the Public Debt of the Republic of Serbia Arising from Unpaid Foreign Exchange Savings of Citizens Deposited with Banks Having Their Head Office in the Territory of the Republic of Serbia and Their Branches in the Territories of Former SFRY Republics entered into force on 30 December 2016 (RS Official Gazette, Nos 108/16, 113/17, 52/19). The obligations to persons that are eligible under this Law to receive the payment are executed in eight equal semi-annual instalments, starting from 28 February 2020 and ending with 31 August 2023.[39] In 2019, the government paid out EUR 7.27 mn to cover public debt obligations in respect of frozen FX savings bonds.[40] Since the start of redemption of these bonds in 2002 until end-2019, a total of EUR 3,653.07 mn was paid out.

In 2019, the maturity structure of FX savings changed in favour of long-term savings, whose share in total FX savings came at 21.3% (Chart I.6.2).

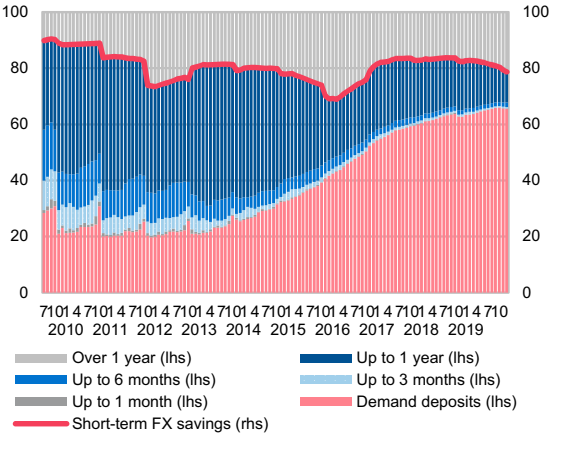
Promoting savings in the local currency and emphasizing their higher profitability is a part of the NBS's strategy of dinarisation of the financial system. This bolsters financial stability given that a higher degree of dinarisation of the financial system ensures greater resilience to the risk of exchange rate volatility and impacts from the international environment. Dinar household savings displayed a highly dynamic growth trend during 2019 and equalled RSD 79.0 bn at year-end, up by RSD 18.54 bn relative to end-2018. When observed over a longer time span, dinar savings have been on a

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



Source: NBS.

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



Source: NBS.

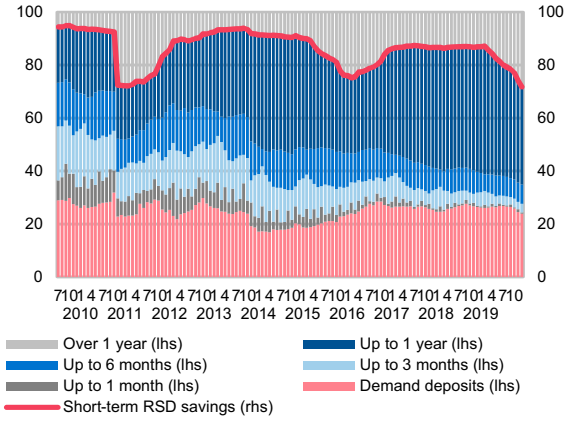
[37] Source: SORS.

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

[39] To regulate public debt in respect of unpaid citizens' FX savings, zero-coupon amortisation bonds worth EUR 96 mn were issued on 26 February 2020 which mature in eight instalments, every six months, starting from 28 February 2020, in the amounts of EUR 12 mn.

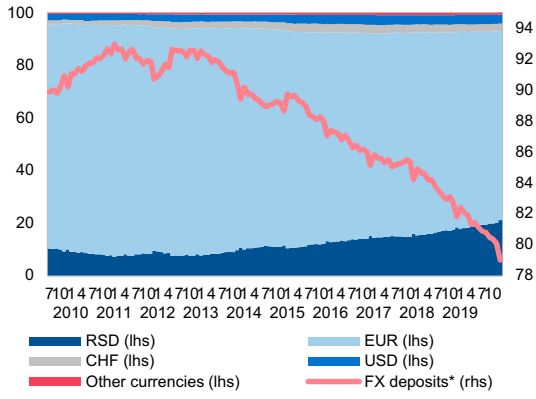
[40] Bonds of the Federal Republic of Yugoslavia (FRY) and the Republic of Serbia issued in order to settle the FRY's public debt in respect of FX household savings and contracts on FX household deposits termed with Dafiment banka a.d. Beograd, undergoing liquidation, and FX household balances deposited with Banka privatne privrede Crne Gore d.d. Podgorica.

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



Source: NBS.

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



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

Source: NBS.

constant rise, which signals that citizens' confidence in the domestic currency is continuously increasing.

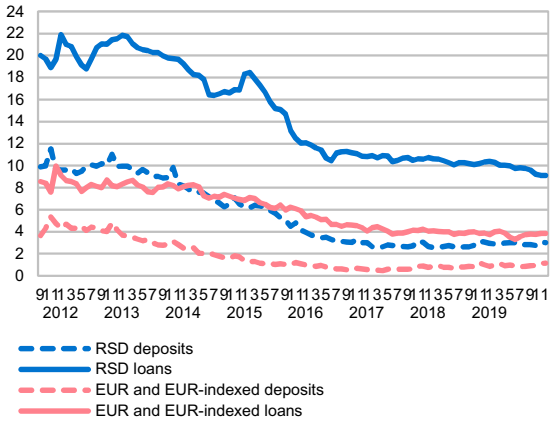
The analysis of profitability of savings[41] shows that in the past seven years dinar savings were more profitable than euro savings, both in the short and in the long run. The analysis indicates that this is the result of low and stable inflation, relative stability of the EUR/RSD exchange rate, higher interest rates on dinar compared to euro savings, and a more favourable tax treatment of savings in the domestic currency – interest on dinar savings is not subject to tax, while interest on FX savings is taxed at a rate of 15%.

Chart I.6.3 shows that the maturity structure of dinar savings changed in 2019; hence, the end-2019 share of long-term in total dinar savings was 28.3%.

At 79%, the share of FX deposits in total household deposits was 2.8 pp lower at end-2019 than at end-2018, which is positive from the aspect of financial stability. Though euro deposits still account for the bulk of deposits (72%), their share is 2.4 pp lower than last year. At end-2019, the share of US dollar and Swiss franc deposits was low at 3.4% and 2.9%, respectively (Chart I.6.4).

Monetary policy easing and the resulting fall in dinar interest rates, low interest rates in the international money market and higher interbank competition contributed to a further decline in household borrowing costs in 2019. The costs of dinar borrowing of the household sector declined by 1.23 pp to 9.11% at end-2019. In the same period,

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



Source: NBS.

interest rates on new euro and euro-indexed loans dipped by 0.03 pp to 3.84%. Interest rates on dinar savings lost 0.1 pp, equalling 3.0% at end-2019.

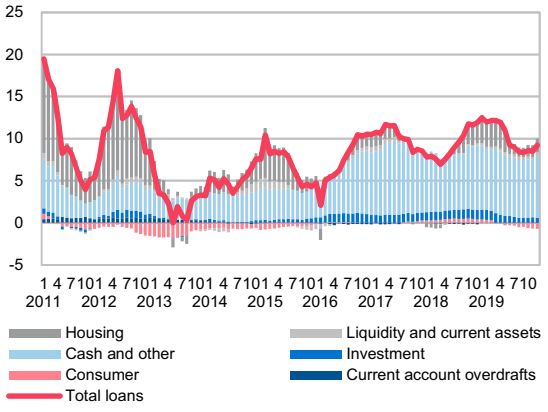
At 1.13%, interest rates on euro household deposits were slightly higher than last year, though still close to the lowest level recorded since the current interest rate statistics was introduced (Chart I.6.5).

Total receivables[42] from the household sector at end-2019 rose 9.2% in nominal terms relative to a year earlier (Chart I.6.6). Broken down by purpose, the highest contribution

[41] https://stari.nbs.rs/internet/english/90/analize/Analysis_dinar_and_FX_savings_2020_01.pdf .

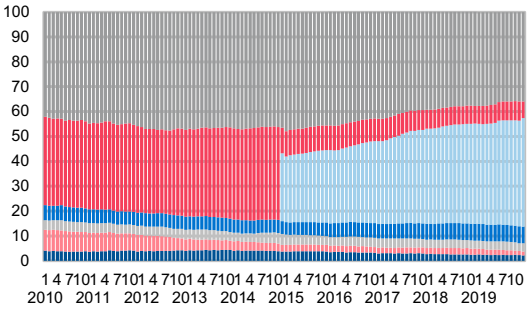
[42] Receivables include loans, interest on securities, fees and other receivables. The household sector includes households, private households with employed persons, registered agricultural producers and entrepreneurs.

Chart I.6.6 **Contributions to growth of bank claims on households by purpose**
(y-o-y growth rates, pp)



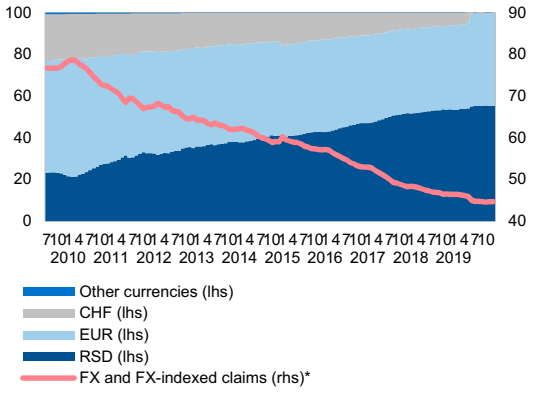
Source: NBS.

Chart I.6.7 **Structure of bank claims on 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 claims on households**
(%)



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

to nominal growth in household receivables came from the rise in cash loans (7.5 pp). Housing and investment loans also contributed to growth (1.6 pp[43] and 0.6 pp, respectively), as did liquidity loans, though to a smaller extent (0.3 pp). Excluding the exchange rate effect,[44] total household loans increased by 10.0% from 2018.

The volume of new household loans in 2019 was 13.1% higher in 2019 than in 2018, as a result of favourable trends in the labour market and the fall in interest rates. Cash loans were approved the most, making up 55.6% of total new loans in 2019. Also, a significant amount of new loans referred to housing loans, which accounted for 23.2% of new housing loans in 2019. At end-2019, there was a total of 133,844 housing loans worth RSD 399.3 bn, accounting for 36.0% of all receivables. The share of cash loans gained 3.4 pp during 2019, reaching 43.7% at end-2019 (Chart I.6.7).

The maturity of cash loans shortened during 2019 – the share of loans maturing in over eight years contracted from over 30% in early 2019 to 19.6% in December, which confirms the effectiveness of the NBS's measures directed at the approval of unsecured non-purpose household loans at unreasonably long maturities.[45]

Around 67% of new household loans were dinar loans, much as a result of NBS regulations[46] which favour borrowing in dinars. Considering the prevalence of dinar loans to households, the increase in the share of banks' dinar receivables in total receivables due from households continued into 2019. Relative to end-2018, the share of dinar receivables in total household

[43] The contribution of housing loans would have been higher had there been no write-off of 38% at the time of conversion of housing loan obligations from Swiss francs into euros (under the Law on the Conversion of Housing Loans Indexed in Swiss Francs – RS Official Gazette, No 31/2019).

[44] Calculated at the dinar exchange rate against the euro, Swiss franc and US dollar as at 30 September 2014 (the so-called programme exchange rate used for monitoring the performance under the latest arrangement with the IMF), taking into account the currency structure of loan receivables.

[45] To encourage sustainable household lending practices, the NBS Executive Board adopted the following decisions published in the RS Official Gazette, No 103/18 of 26 December 2018: Decision on Managing Concentration Risk Arising from Bank Exposure to Specific Products, Decision on Amendments and Supplements to the Decision on Capital Adequacy of Banks, and the Decision on Amendments and Supplements to the Decision on the Classification of Bank Balance Sheet Assets and Off-balance Sheet Items.

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

receivables rose by 1.8 pp to 55.3%, which is a record high so far (Chart I.6.8).

The rise in dinar loans can to the largest extent be attributed to the increase in cash household loans, since they are almost fully approved in dinars. The share of banks' dinar household receivables in 2019 (55.3%) was higher than the share of FX-indexed receivables (44.7%), where euro receivables were dominant (44.4%). At the same time, the share of receivables indexed to the Swiss franc dipped by 5.8 pp from end-2018 and came at 0.3%.

The efficient implementation of the NPL Resolution Strategy continued to yield positive results in 2019. Hence, the share of NPLs in total loans to households came at 3.94% in December 2019, down by 0.5 pp relative to end-2018. Compared to a year earlier, the share of housing NPLs contracted by 1.49 pp to 3.08% at end-2019.

With the entry into force of the Law on the Conversion of Housing Loans Indexed to Swiss Francs (RS Official Gazette, No 31/2019), the share of Swiss franc-indexed receivables shrank notably. The most important provision of this law envisages the write-off of 38% of receivables with loan conversion into euros, and a continuation of further repayment at a fixed interest rate which may not exceed 4% or a variable interest rate of 3.4% plus three-month or six-month EURIBOR.

The bulk of housing loans (74.88%) is insured with the National Mortgage Insurance Corporation. At end-2019, the number of insured loans was 100,220 (2,707 more than at end-2018). The initially insured amount is EUR 3.63 bn, of which EUR 2.40 bn is outstanding. At the end of 2019, the Corporation portfolio contained 946 past due loans worth EUR 37.75 mn. These loans were declared past due because of difficulties in repayment and until mortgaged property is sold, the Corporation is the one paying the annuities. Compared to 2018, the number of these loans decreased by 206 in 2019, while the amount of insured past due loans decreased by EUR 17.91 mn. Since the Corporation began to operate, 524 mortgages under insured housing loans were foreclosed. In 2019 alone, 112 mortgages were enforced, of which 48 under Swiss franc-indexed loans.[47] The share of insured housing loans declared due because of events of default, where the Corporation pays the annuities, was still significantly below the share of housing NPLs, which means that the risk of deterioration of the degree of collectability is relatively low.

The table below contains the main indicators for the household sector for the period 2010–2019.

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

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Bank claims on households										
RSD bn	571.2	601.7	652.7	673.7	724.6	759.1	838.6	904.2	1,017.3	1,111.3
EUR mn	5,414.4	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
Total deposits of households										
RSD bn	792.9	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
EUR mn	7,515.5	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
FX bank claims to total claims[1]	72.4	67.4	65.0	62.1	59.0	57.2	53.0	48.3	46.4	44.7
FX to total deposits[1]	92.4	90.7	92.1	89.4	88.7	87.1	85.1	84.2	81.8	79.0
FX deposits to FX bank claims[1]	177.2	191.2	214.7	223.3	233.4	233.9	241.0	246.2	241.3	248.1
LTV ratio[2]	65.4	65.6	65.7	65.9	65.8	68.5	70.2	70.2	71.0	71.9
Average loan per resident										
RSD thousand	76.3	81.0	88.2	91.4	100.4	105.9	118.0	128.4	145.3	158.8
EUR	722.8	773.9	775.7	797.3	830.3	870.4	955.4	1,083.6	1,229.4	1,350.8
Average loan amount										
RSD thousand	427.6	439.6	460.4	489.9	511.1	472.2	483.9	483.8	516.3	553.1
EUR	4,052.8	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
Average loan per user										
RSD thousand	509.0	530.9	570.1	612.0	644.7	614.6	634.7	646.9	701.7	747.9
EUR	4,824.9	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

[1] FX claims and deposits include FX-indexed claims and deposits.
[2] For housing loans insured with the National Mortgage Insurance Corporation.
Sources: SORS, ASB, National Mortgage Insurance Corporation and NBS.

[47] Data of the National Mortgage Insurance Corporation.

Text box 2: Impact of the pandemic on financial stability

Owing to the implemented regulatory reforms in the aftermath of the 2008 global financial crisis, the financial system is now much more resilient to potential shocks and risks. However, the crisis caused by the coronavirus poses a big challenge for the established frameworks. In order to preserve their health systems, governments of many countries adopted a number of emergency measures to restrict the movement of people, goods and services, thereby denting the economic activity in almost all countries that were hit by the pandemic. The crisis is of a comprehensive nature, given that all countries and all social strata are equally affected. The pandemic has had a multiple impact on the real sector, as the negative shocks are present on both the demand and supply side. Globally, we first saw the emergence of a supply-side shock, reflected in the disrupted value chains, which significantly impacted some sectors, such as transport, pharmaceutical industry and services. On the other hand, a shock on the demand side affected specific activities such as air transport and tourism. To prevent the deepening of the crisis and mitigate the recession, governments of almost all countries adopted sets of measures to support the economy, while at the same time preserving jobs and wages.

In an effort to minimise the adverse effects of the crisis, central banks around the world promptly reacted with conventional, as well as unconventional measures, to endorse credit and economic activity. Thus, in addition to trimming the federal funds rate, the Fed decided to implement the most comprehensive package of measures in its history, while the ECB, aiming to provide liquidity to the financial sector, increased the loan amounts that are placed at banks' disposal within the targeted longer-term refinancing operations (TLTRO III), and trimmed the rate on those operations.[48] Coordinated monetary and fiscal actions had a positive effect on market stabilisation. However, tightened financial conditions tested the resilience of financial institutions to a great extent. In addition, due to the lack of external funding, developing markets are faced with an increased level of debt restructuring because of the pressures exerted on borrowers perceived as insufficiently creditworthy.[49] Economic uncertainty and stricter financial conditions, accompanied by a plunge in oil prices amid the inability of large producers to reach an agreement on capping production, greatly contributed to the high level of stress in the financial system, which was last recorded during the global financial crisis.[50]

It is also important to underline implications for financial stability, due to the tightening of financial conditions in the international financial market and the subdued capital inflow to emerging countries amid heightened global uncertainty and rising risk aversion.[51] The fall in economic activity could push banks' credit activity down, leaving negative consequences on SMEs which are the drivers of economic growth, and which secured liquidity from bank loans. The fall in demand in conditions of decreased liquidity can cause difficulties in debt servicing and deteriorate banks' credit portfolios. In this stage, economic policy measures mainly pertain to providing liquidity to the affected economic sectors, adopting a moratorium on matured liabilities, and government guarantees on newly approved loans. On the other hand, banking systems will be temporarily faced with reduced liquidity and profitability, in an environment of already low interest rates. Still, it needs to be stressed that when the crisis struck, euro area banks had higher levels of capital, better liquidity and more stable funding structure than during the previous crisis a decade ago.[52] A relatively high level of banks' capital adequacy should ensure a good basis for absorbing losses in case banks' credit portfolios deteriorate because of the pandemic. Also, additional liquidity provided by central banks, coupled with an adequate level of reserve requirements, can be an additional source of banking sector liquidity. Moreover, the high level of FX reserves provides additional protection in case of sudden stops in capital inflows, which might be pronounced during the pandemic.

Thanks to the development of macroprudential policy, which emerged as a response to the global financial crisis in 2008, central banks have a number of tools to mitigate systemic risks to stability of the financial system. Some of the measures include the release of capital buffers in case of systemic threats to banks' capital positions. These measures enable the release of Common Equity Tier 1 capital for the absorption of losses and support to sustainable lending,

[48] *Inflation Report – May 2020.*
[49] *Global Financial Stability Report,* International Monetary Fund, April 2020.
[50] *Financial stability review, ECB,* May 2020.
[51] *COVID-19 pandemic: Financial stability implications and policy measures taken, Financial stability board, 15th* April 2020.
[52] *Financial stability review, ECB,* May 2020.

notably to the economy. Additional support to the preservation of financial stability can also be ensured via international currency swap lines, which could provide the shortfall liquidity in foreign currency, as was the case during the global financial crisis. If countries do not have sufficient levels of FX reserves to meet additional demand, markets could turn unstable. This is why central banks have established currency swap lines, as this enables them to swap their own national currency reserves for reserves of another central bank.

The experience from previous crises showed that pressure on banks' liquidity and financial stability can also manifest as stops in capital flows, either due to banks' inability to borrow additionally abroad, or due to increased outflow of capital from the country. As the banking sector is based on trust, the expectations channel also has an important influence on financial stability. An efficient response by the regulator and the government's explicit support to the financial system strengthen the confidence and have a pre-emptive effect on the preservation of stability of the entire financial system.

In an effort to mitigate the negative effects of the pandemic, many international financial organisations responded with support and aid packages to countries suffering the most. Thus, the World Bank Group announced that it provided aid to 100 developing countries, accounting for 70% of the global population.[53] The IMF warns that once the spread of the virus is contained, economic policies will have to focus on recovery and the healing of damages which the pandemic inflicted on the balance sheets of non-financial companies, financial institutions and governments.

Going forward, leading central banks are expected to take up the key role in preserving financial system stability and maintaining lending activity, in order to provide continued support to economic growth, while the fiscal policy will focus on the preservation of economic activity, given that large segments of the global economy were put on complete halt.

Monetary, fiscal and macroprudential policy all have a common goal – to mitigate the negative consequences of the pandemic, as well as to ensure stable and sustainable economic recovery. Continued international cooperation is needed to extend support to countries that were hit most severely, to restore confidence in markets, and contain risks to financial stability.

[53] https://www.imf.org/~/media/Files/Publications/covid19-special-notes/en-special-series-on-covid-19-greening-the-recovery.ashx

II Financial sector

Accounting for over 90% of financial sector assets, the banking sector of the Republic of Serbia remained stable in 2019 owing to adequate capitalisation, high liquidity and profitability. Domestic bank lending recorded a stable and sustainable growth of 9.8% y-o-y, boosted by both supply- and demand-side factors. As a result of the increased volume of lending activity and the systemic resolution of NPLs, at end-2019 the share of NPLs in total loans hit the lowest level on record. A decrease in NPLs helped improve banks' portfolio quality and profitability. In 2019, a positive net financial result was posted, with 1.8% ROA and 9.8% ROE.

II.1 Banking sector

II.1.1 Capital adequacy

In 2019, the Serbian banking sector was adequately capitalised, as confirmed by CARs, which moved considerably above the prescribed regulatory minimums throughout the year. At end-2019, CAR stood at 23.4%.

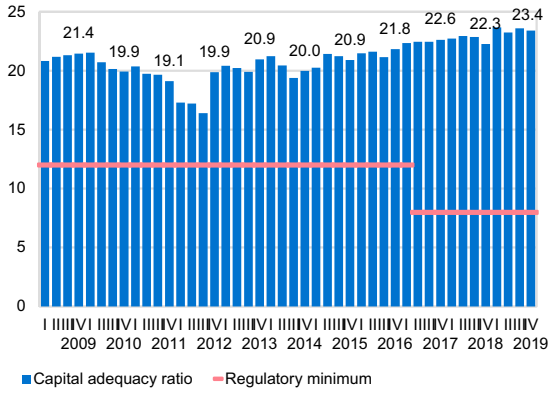
Year-end capitalisation of the Serbian banking sector was the highest in the region. Owing to a strong capital base, high levels of Common Equity Tier 1 (CET 1) capital adeqacy ratio (22.31%) and Tier 1 capital adequacy ratio (22.37%) were recorded.

At end-2019, CAR increased by 1.1 pp y-o-y. Banks' CET 1 rose by RSD 80.0 bn, to RSD 588.4 bn, mostly due to the release of required reserve. Regulatory capital rose by RSD 79.6 bn and amounted to RSD 616.7 bn at end-2019. In 2019, risk-weighted assets climbed by RSD 223.9 bn, to RSD 2,636.9 bn, largely on account of the rise in bank lending.

Based on the end-2019 reports, banks allocated RSD 142.6 bn worth of CET 1, or 5.4% of risk-weighted assets by means of the combined capital buffer[54].

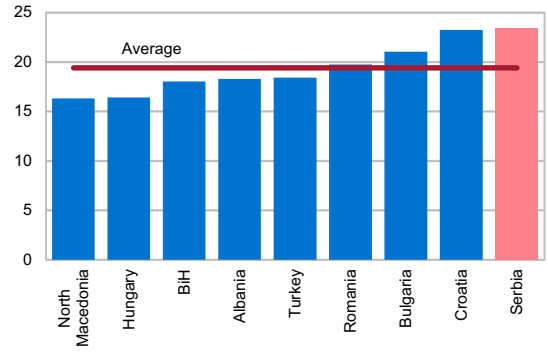
Maintenance of capital buffers above the prescribed regulatory minimums increases bank resilience to losses,

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



Source: NBS.

Chart II.1.2 **Regulatory capital to risk-weighted assets, countries of the region**
(2019, latest available data, %)



Sources: NBS and IMF: GFSR.

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

decreases excessive exposures and limits capital distribution in order to contain systemic risks in the financial system.

In view of the Serbian banks' traditional business model based on lending to corporates and households, in 2019 as well credit risk was the most dominant risk in the banking sector. Credit risk accounted for the largest share in risk-weighted assets (86.2%), while the shares of operational risk and market risks were smaller (12.5% and 1.2%, respectively).

II.1.2 Level, structure and quality of assets

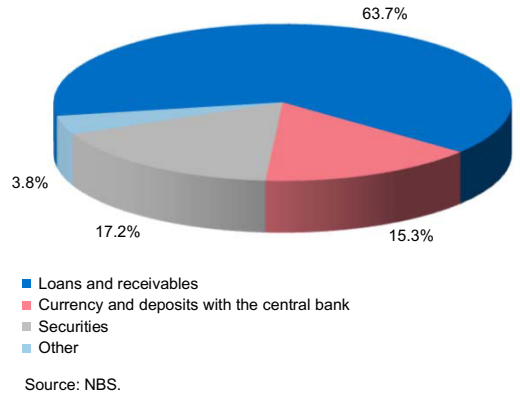
At end-2019, net assets of the banking sector amounted to RSD 4,084 bn, or over 75% of GDP. In terms of the ownership structure of the banking sector, the largest share was held by foreign-owned banks (76%), followed by state-owned banks (17%) and banks in domestic private ownership (7%).

Loans and receivables accounted for 63.7% of total net assets, reflecting the traditional bank business model oriented toward credit-deposit activities. The remainder related to cash and deposits with the central bank (15.3%) and securities (17.2%), primarily securities of the Republic of Serbia.

At end-2019, the credit portfolio was worth RSD 2,450 bn. The bulk of the portfolio related to corporate (49.1%) and household loans (43.7%). Total net corporate loans stood at RSD 1,204 bn, of which 88.2% was in foreign currency (87.8% in euros). Total net household loans were worth RSD 1,070 bn, of which RSD 466 bn (44%) related to cash loans and RSD 393 bn (37%) to housing loans. Household loans in foreign currency made up 45.3% of total household loans and were almost entirely euro-denominated (over 99%).

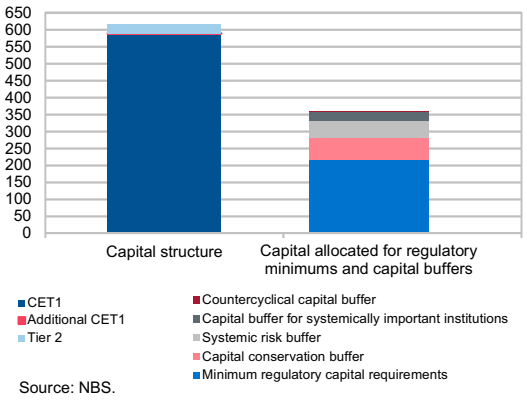
As loans account for a dominant share of total balance sheet assets of the domestic banking sector, the NPL ratio is an important indicator of asset quality. The systemic approach to resolving the NPL issue, in place since 2015 and continuously producing good results, was maintained in 2019. In order to prevent new NPLs, in December 2018, the Serbian Government adopted the *NPL Resolution Programme for the Period 2018-2020*. In addition to implemented activities envisaged by this programme, with additional measures implemented by the

Chart II.1.4 **Structure of assets of the Republic of Serbia's banking sector**



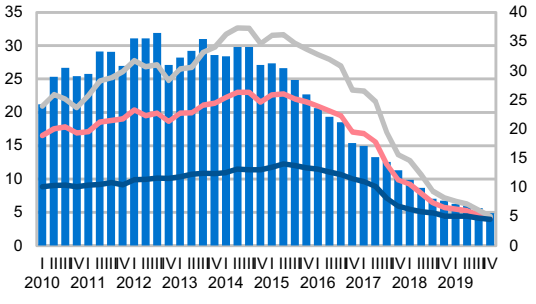
Source: NBS.

Chart II.1.3 **Structure of regulatory capital and capital buffers**
(2019 eop, RSD bn)



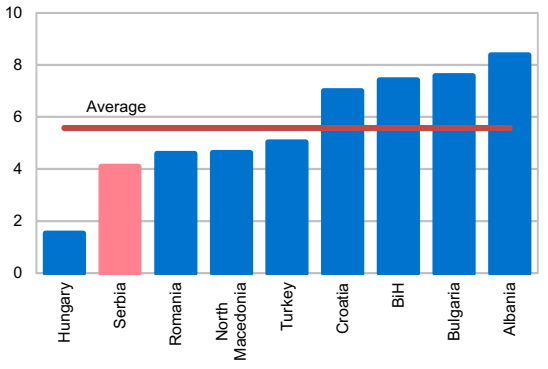
Source: NBS.

Chart II.1.5 **Non-performing loans**
(%)



Source: NBS.

Chart II.1.6 **NPL ratios, countries of the region**
(2019, latest available data, %)



Sources: NBS and IMF: GFSR.

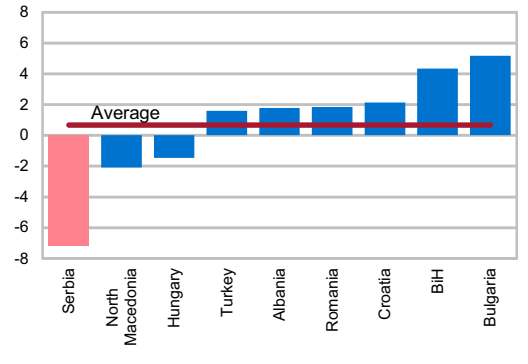
NBS, a further fall in the share of NPLs in total loans in 2019 was also aided by the rise in lending. At end-2019, the NPL ratio of the Serbian banking sector amounted to 4.1%, which is its lowest level since this indicator of the quality of banks' portfolio is monitored. The share of NPLs at end-2019 was reduced by 18.3 pp relative to July 2015, i.e. the period before the adoption of the NPL Resolution Strategy. In y-o-y terms, this indicator was reduced by 1.6 pp as total gross NPLs fell by 22.4% or RSD 29.2 bn and total gross loans went up by 8.2% or RSD 188.8 bn. In 2019, RSD 21.6 bn worth of gross NPLs was written off and RSD 7.3 bn assigned/sold.

The share of NPLs in total loans to corporates (public non-financial sector and companies) edged down by 1.9 pp y-o-y, to 3.2% in December 2019. In terms of different loan categories, the share of NPLs in total loans to companies declined by 1.9 pp y-o-y, to 3.3% y-o-y at end-2019. NPL ratio of the public non-financial sector also went down in y-o-y terms (by 1.9 pp, to 1.6%).

At end-2019, NPL share in total gross loans to households came at 3.9%, down by 0.5 pp relative to end-2018. In addition to the reduction in gross NPLs by RSD 1.3 bn, the y-o-y drop in the ratio was also largely aided by the increase in total gross loans to households by RSD 94.8 bn. The dominant contribution to the y-o-y decrease in household NPLs came from the reduction in Swiss franc-indexed housing loans by RSD 8.1 bn. This came mainly as a result of the implementation of the Law on Conversion of Housing Loans Indexed to Swiss Francs (RS Official Gazette, No 31/2019). NPLs in housing construction fell by RSD 5.2 bn y-o-y. The share of non-performing cash loans increased by 0.4 pp y-o-y, to 4.2%, though this was largely moderated by the lending growth in this segment.

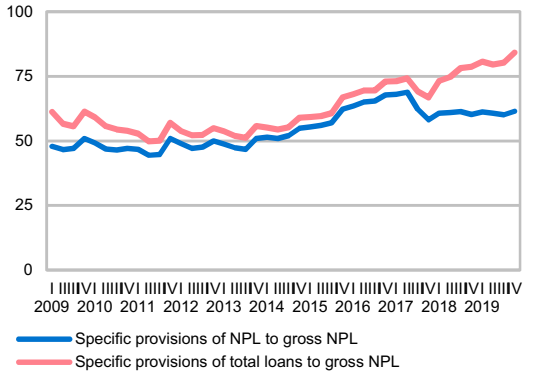
At end-2019, 61.5% of total gross NPLs was covered by allowances for impairment. A low level and satisfactory coverage of NPLs with allowances for impairment moderate the NPL channel as the possible source of instability in the financial system. This is also confirmed by the macroprudential solvency stress tests conducted by the NBS, which project changes in the trajectory of the NPL share over a one-year horizon in order to assess the resilience of the banking sector. The stress tests show that the banking sector would remain adequately capitalised even under the worst-case scenario[55].

Chart II.1.7 **Change in gross NPL ratios, countries of the region**
(2019 relative to 2008, pp)



Sources: NBS and IMF: GFSR.

Chart II.1.8 **Coverage of non-performing loans**
(%)



Source: NBS.

[55] For a more detailed account of macroprudential stress tests see Chapter II.2 Macroprudential stress tests

II.1.3 Lending activity

The year 2019 saw a further recovery in lending, owing to both supply- and demand-side factors. Loan supply increased amid continued monetary policy easing in place since 2013, NPL resolution measures and activities undertaken by banks as a result of the NBS's regulatory activity, and low interest rates in the international money market. Loan demand, on the other hand, rose on the back of favourable macroeconomic trends, especially those in the labour market.

Excluding the exchange rate effect[56], total domestic loans recorded a stable and sustainable y-o-y growth of 9.8% at end-2019. The stable rise in domestic bank lending was recorded in 2019 despite the relatively high base from the previous year. Lending expanded largely on account of a considerable rise in domestic loans to corporates which, excluding the exchange rate effect, rose by 9.5% y-o-y in December. The current investment cycle supported the growth in corporate loan demand, as indicated by the fact that lending expanded in 2019 almost entirely as a result of increased investment lending (25.6%, excluding the exchange rate effect). Domestic household loans (excluding the exchange rate effect) also rose, by 10% y-o-y. Cash loans accounted for around 80% of household loan growth in 2019. They were approved in dinars, which mitigated the exchange rate risk in this segment of lending.

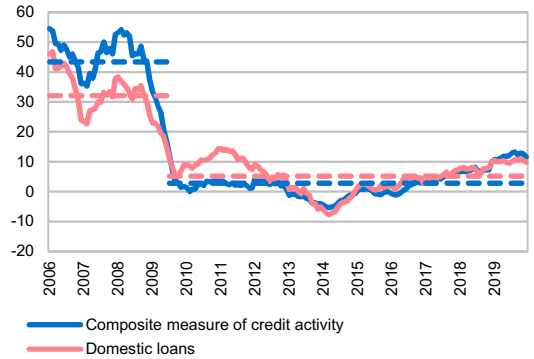
The results of the Bank Lending Survey indicate that corporate credit standards were eased in H2 2019, owing to pronounced competition in the banking sector and favourable macroeconomic environment. In case of dinar corporate loans, credit standard easing was driven by lower funding costs achieved amid monetary policy easing by the NBS. Credit standard easing was particularly pronounced in the SME segment.

After slightly tightening in Q1 2019, household credit standards were loosened in Q2 and Q3 owing to competition and lower costs of funding, while staying unchanged in Q4.

Corporate and household credit standards were most favourable for dinar loans, in terms of lower price conditions and less strict collateral requirements. In addition, corporate credit standards were more favourable in terms of extended maturity in the SME segment.

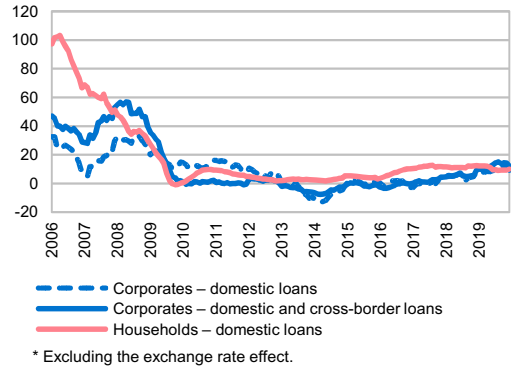
In 2019, both corporate and household demand for loans went up. The corporate loan demand growth was mainly driven by SMEs, particularly by their demand for capital investment loans and current asset loans, as well as by the need to finance acquisitions of other enterprises. Banks estimate that increased household demand for dinar cash loans and FX housing loans was underpinned by the rising employment and wages and favourable conditions in the real estate market.

Chart II.1.9 **Real credit growth***
(y-o-y growth rates, %)



* Excluding the exchange rate effect.
Source: NBS.

Chart II.1.10 **Real growth of loans to corporate and household sectors***
(y-o-y growth rates, %)



* Excluding the exchange rate effect.
Source: NBS.

[56] Calculated at the dinar exchange rate against the euro, Swiss franc and US dollar as at 30 September 2014 (the so-called programme exchange rate used for monitoring the performance under the arrangement with the IMF), taking into account the currency structure of loan receivables.

II.1.4 Profitability

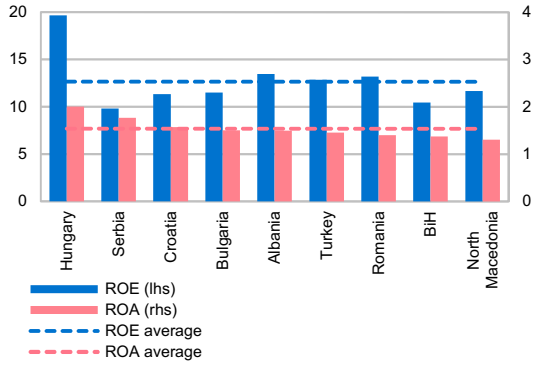
The Serbian banking sector posted a positive financial result in 2019. Banking sector profit at year-end resulted in 1.8% ROA and 9.8% ROE. ROA was above, while ROE was below the region's average, as a result of high capitalisation of the domestic banking sector.

In 2019, high profitability was recorded by domestic private banks, domestic state-owned banks and foreign banks from the EU, while foreign non-EU banks had somewhat lower profitability (Chart 2.1.13).

Net profit before tax amounted to RSD 67.68 bn in 2019, dropping by RSD 8.0 bn (or 10.6%) from 2018. Total profit of RSD 68.93 bn was made by 22 banks (98.7% of banking sector net assets), while four banks operated with losses of RSD 1.25 bn.

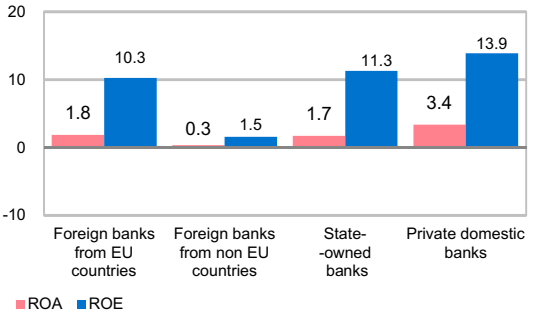
Owing to lending growth, and given the traditional business model of domestic banks oriented toward credit-deposit transactions, net interest income and net income from fees and commissions, as the main sources of bank profitability, provided a positive contribution to the y-o-y rise in net profit in 2019. Net interest income grew by RSD 1.8 bn and net income from fees and commissions by RSD 1.7 bn. Net credit losses dropped as a result of favourable macroeconomic developments, further reducing the burden on the banks' financial result. Working in the opposite direction were primarily net losses arising from the implementation of the Law on Conversion of Housing Loans Indexed to Swiss Francs (RS Official Gazette, No 31/19) and higher operating expenses.

Chart II.1.12 **ROE and ROA, countries of the region**
(2019, latest available data, %)



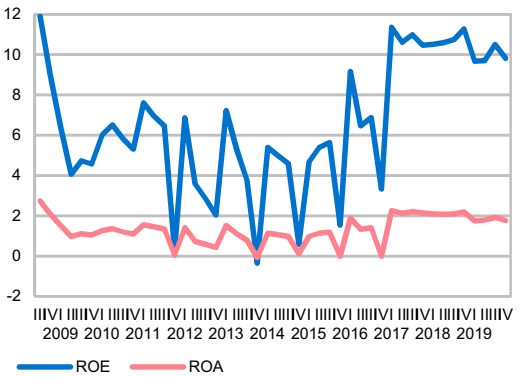
Sources: NBS and IMF: GFSR.

Chart II.1.13 **Profitability indicators, by majority shareholder's country of origin and ownership structure in 2019**
(%)



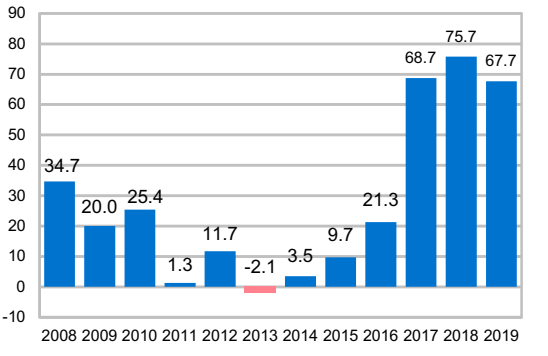
Source: NBS.

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



Source: NBS.

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



Source: NBS.

II.1.5 Liquidity

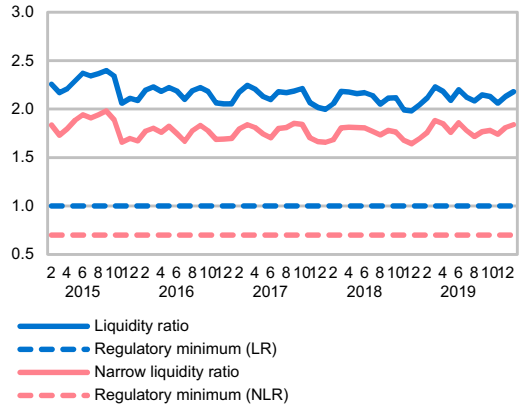
Liquidity of the Serbian banking sector remained very high in 2019, thus posing no threat to financial stability.

At end-2019, the average monthly liquidity ratio stood at 2.2, well above the regulatory minimum (1.0). The average monthly narrow liquidity ratio of 1.8 was also significantly above the regulatory minimum (0.7). At 199.3%, liquidity coverage ratio was also considerably above the limit set by the regulator (100%).

According to the results of stress tests, Serbia's banking sector would remain highly liquid even in case of extreme deposit withdrawal. A decline in the liquidity ratio observed in October each year is due to the maturing of deposits termed during the "Savings Week", the remaining maturity of which then drops to under a month. The effects of the "Savings Week" on the average monthly liquidity ratio are visible on Chart II.1.15, while Charts II.1.16 and II.1.17 show the distribution of liquidity ratio by banks.

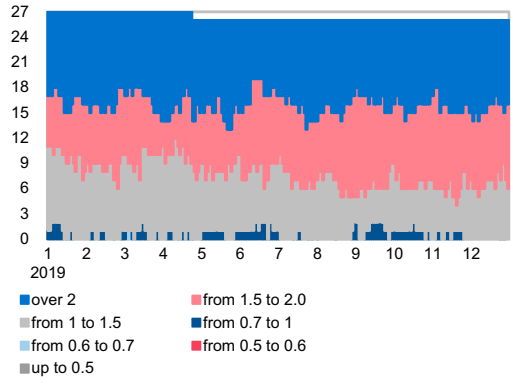
At end-2019, liquid assets covered 36.0% of total assets and 50.5% of short-term liabilities. The share of liquid assets in the narrow sense in total assets and the coverage of short-term liabilities was 25.7% and 36.1%, respectively. The fact that the Serbian banking sector

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



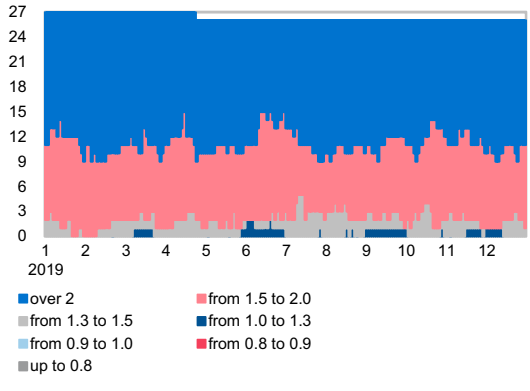
Source: NBS.

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



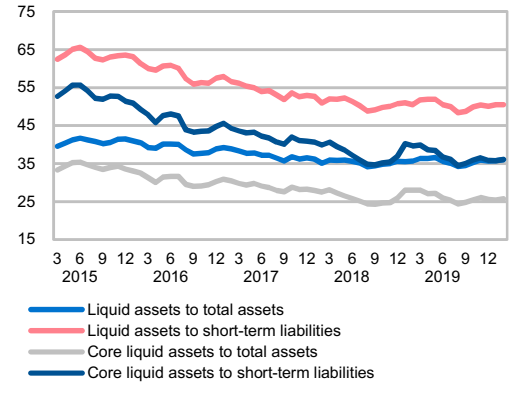
Source: NBS.

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



Source: NBS.

Chart II.1.18 **Liquid assets**
(%)



Source: NBS.

holds substantial provisions of liquid assets contributes to its stability, but may also decelerate lending activity. The high share of liquid assets carries low risk, but also lower returns.

II.1.6 Sources of funding

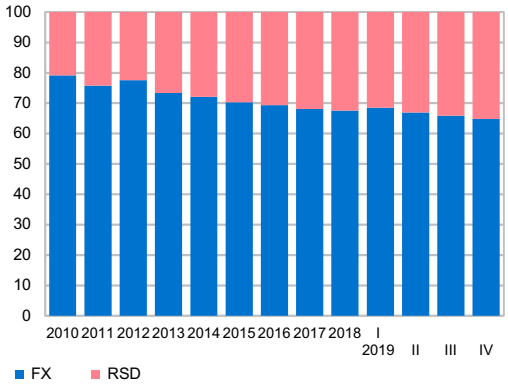
Banks operating in the Republic of Serbia rely mostly on domestic, stable sources of funding. In 2019, the amount of deposits was sufficient to cover the amount of loans. Strengthening of the domestic deposit base has helped banks reduce their reliance on other sources of funding, e.g. on parent bank financing. This diminishes banks' exposure to risks from the international environment, and in particular exposure to the risk of a sudden withdrawal of money by parent banks, which was one of the challenges faced by countries of the region in the crisis period.[57]

At end-2019, deposits accounted for 72.5% and capital for 17.3% of total banking sector liabilities. The share of FX-denominated deposits (mainly in euros) was brought down from 67.5% to 64.8%. In terms of maturity composition, short-term deposits made up the largest share (93.0%).

Chart II.1.19 **Movements of the loan-to-deposit ratio**

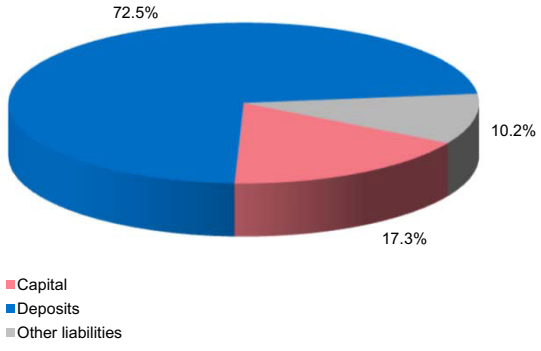
Source: NBS.

Chart II.1.21 **Currency structure of deposits**



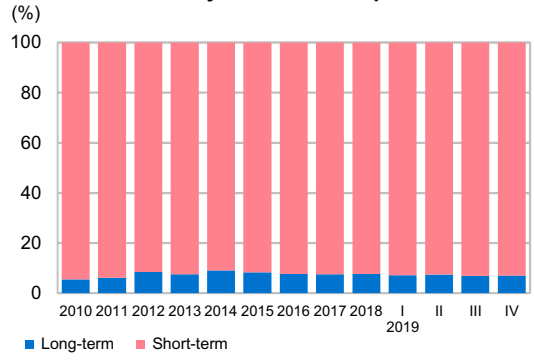
Source: NBS.

Chart II.1.20 **Sources of banking sector funding**



Source: NBS.

Chart II.1.22 **Maturity structure of deposits***



* 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.

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

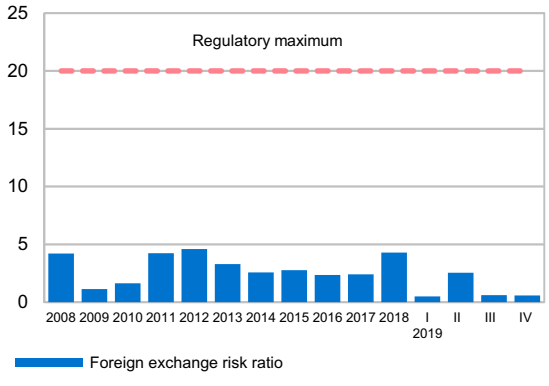
II.1.7 Sensitivity to market risks

Serbia's banking sector exposure to market risks is minimal.[58] In 2019 it referred to only 1.2% of total risk-weighted assets, less than the year before.

At end-2019, the FX risk indicator was 0.6%,[59] by 3.7 pp lower than a year earlier, well below the regulatory ceiling of 20.0%.

Bank assets and liabilities were matched in terms of currency structure. Mostly reliant on FX sources of funding, banks hedged against the FX risk by extending loans indexed to a foreign currency. Looking from that angle, banks' FX position was well-balanced and they were not directly exposed to the FX risk. However, they were exposed to this risk indirectly, as the approval of FX clause-indexed loans to clients with the 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.

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



Source: NBS.

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

Table II.1.1 **Serbia: Key Macroprudential Indicators**
(in % unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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
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
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
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
Large exposures to capital	-	-	-	110.1	104.5	90.4	130.5	115.7	86.0	69.3	77.4	66.5
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
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
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
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
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
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
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
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
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
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
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
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
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
Sectoral distribution of loans to total loans – 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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Source: National Bank of Serbia.

Table II.1.2 Serbia: **Financial sector structure**

	2010			2011			2012			2013			2014			2015			2016			2017			2018			2019		
		Assets			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	%	No.	RSD billion	%
Financial sector	84	2,759	100	87	2,868	100	85	3,108	100	80	3,081	100	76	3,226	100	77	3,329	100	76	3,556	100	73	3,714	100	72	4,180	100	70	4,532	100
(in % of GDP)		84.9%			79.4%			81.6%			74.8%			77.5%			77.2%			78.7%			78.1%			82.6%			83.8%	
Banking system	33	2,534	91.8	33	2,650	92.4	32	2,880	92.6	30	2,846	92.4	29	2,969	92.0	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
State-owned banks	8	454	16.4	8	472	16.5	8	522	16.8	6	534	17.3	6	571	17.7	6	550	16.5	6	561	15.8	6	544	14.6	5	660	15.8	4	686	15.1
Local private banks	4	217	7.9	4	213	7.4	3	194	6.3	3	196	6.4	2	187	5.8	1	179	5.4	2	195	5.5	2	236	6.4	2	266	6.4	3	305	6.7
Foreign-owned banks	21	1,863	67.5	21	1,965	68.5	21	2,163	69.6	21	2,117	68.7	21	2,211	68.5	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
Greek	4	427	15.5	4	393	13.7	4	426	13.7	4	409	13.3	4	418	13.0	4	395	11.9	4	403	11.3	2	210	5.6	1	169	4.1	1	177	3.9
Italian	2	526	19.1	2	591	20.6	2	657	21.1	2	679	22.0	2	738	22.9	2	796	23.9	2	884	24.8	2	928	25.0	2	1,008	24.1	2	1,094	24.1
French	3	202	7.3	3	263	9.2	3	287	9.2	3	299	9.7	3	304	9.4	3	316	9.5	3	327	9.2	2	375	10.1	2	415	9.9	1	119	2.6
Austrian	4	469	17.0	4	493	17.2	3	449	14.4	3	429	13.9	3	441	13.7	3	453	13.6	3	494	13.9	2	427	11.5	2	495	11.8	2	550	12.1
Hungarian	1	43	1.5	1	38	1.3	1	46	1.5	1	32	1.0	1	41	1.3	1	45	1.4	1	48	1.3	2	196	5.3	2	221	5.3	2	551	12.1
Other	7	196	7.1	7	187	6.5	8	299	9.6	8	270	8.7	8	270	8.4	10	314	9.4	9	330	9.3	11	455	12.3	11	538	12.9	11	602	13.3
Nonbank financial institutions	51	226	8.2	54	218	7.6	53	228	7.4	50	235	7.6	47	257	8.0	47	281	8.4	46	315	8.8	44	344	9.3	45	406	9.7	44	448	9.9
Insurance undertakings	26	117	4.2	28	126	4.4	28	140	4.5	28	148	4.8	25	168	5.2	24	192	5.8	23	216	6.1	21	233	6.3	21	279	6.7	20	300	6.6
Pension funds	26	117	4.2	28	126	4.4	28	140	4.5	28	148	4.8	25	168	5.2	24	192	5.8	23	216	6.1	21	233	6.3	21	279	6.7	20	300	6.6
Leasing companies	17	99	3.6	17	80	2.8	16	72	2.3	16	67	2.2	16	65	2.0	16	60	1.8	16	66	1.9	16	75	2.0	17	87	2.1	17	103	2.3

Source: National Bank of Serbia.

Text box 3: Characteristics of the credit cycle in Serbia and role of the countercyclical capital buffer

Most Central and East European countries saw an expansion in lending in 2003 through 2008, with credit growth rates higher than in the euro area.[60] After the world financial crisis in 2008, the trend of lending activity growth was discontinued, particularly in emerging economies, and followed by a period of adjustment of the financial market to new, post-crisis conditions. To support lending and economic growth, many central banks resorted to monetary accommodation which, in addition to low interest rate policies, also included unconventional monetary policy measures – quantitative easing.[61] Credit growth might very well mean financial deepening and better access to financial services, and therefore foster investment and GDP.[62] On the other hand, excessive credit growth can threaten financial system stability in several ways. Higher lending to the private sector boosts a rise in private consumption, which can potentially create excess aggregate demand relative to potential GDP and cause the economy to overheat, with negative consequences for inflation, current account deficit, interest rates and pressures on the exchange rate. At the same time, lenders can have over-optimistic expectations about borrowers' future ability to repay their debts and therefore, in the conditions of low money market interest rates, often lend to higher-risk borrowers during the upward phase of the credit cycle.[63]

Credit cycle estimation affords a better look into movements in supply and demand in the loan market and, by extension, their potential impact on the economic cycle. Unsustainable credit growth can lead to the build-up of systemic risks, which may materialize in the form of a banking crisis. As mitigating and containing systemic risks is the objective of macroprudential policy, notable efforts have been invested to design tools for analysing credit cycles.[64] These tools are used at the time of designing macroprudential policies and instruments aimed at mitigating systemic risks.

To estimate the credit cycle, a cycle definition was used based on identification of extrema with the help of algorithm (*Bry Boschan Quarterly*).[65,66] This definition is a simple but efficient procedure to identify the turning points of a cycle and is often used to analyse economic movements. This approach focuses on changes in levels of indicators, by contrast to approaches which consider deviations from the trend. An advantage of this approach is that the identified turning points, that is function extrema, are robust to the inclusion of newly available data. The approach identifies function maxima and minima in a given period, which are then compared. Consistent with the above literature, the parameters are defined so that the duration of the complete cycle is at least five quarters, and of each phase – at least two quarters. A credit cycle peak is the value of function f_t at time t if:

$[(f_t - f_{t-2})>0, (f_t - f_{t-1})> 0]$ and $[(f_{t+2}-f_t)<0, (f_{t+1}-f_t)<0]$.

A credit cycle trough is the value of function f_t at time t if:

$[(f_t - f_{t-2})<0, (f_t - f_{t-1})< 0]$ and $[(f_{t+2}-f_t)>0, (f_{t+1}-f_t)>0]$.

The peak and the trough are the turning points of the trend which represent the transition from one to another cycle phase. The period from peak to trough is the downturn phase, and the period from trough to peak – the upturn phase of the cycle. Duration for downturns is defined as the number of quarters between peak and the next trough. Duration for upturns is the number of quarters it takes to reach the next peak after the trough. If we define a binary variable S_t

[60] Geršl, Adam, Jašová, Martina, *Measures to tame credit growth: are they effective?, IES Working Paper 28/2012.* Charles University.

[61] Quantitative easing represents a set of unconventional monetary policy tools based on asset purchases by central banks to support economic activity and reach target inflation.

[62] Fenoglu, Salih, *Credit cycles and macroprudential policy framework in emerging countries, BIS Papers No 86.*

[63] Seidler, Gersl, *Excessive credit growth and countercyclical capital buffers in Basel III: an empirical evidence from Central and East European countries, 2012, ActA všfs, 2/2012, vol. 6.*

[64] Alessi, Lucia, Detken, Carsten, *Identifying Excessive Credit Growth And Leverage, ECB Working Paper 1723*, August 2014.

[65] Harding, Don, Pagan Adrian, *Dissecting the Cycle, Melbourne Institute Working Paper No. 13/99*, May 1999.

[66] Claessens, Kose and Terrones, *Financial Cycles: What? How? When?, IMF WP/11/76*, April 2011.

which equals 1 if cycle is in upturn phase at time t and equals 0 if it is in downturn phase, the average duration of the upward phase is calculated as follows:

$$D = \frac{\sum_{t=1}^{T} S_t}{\sum_{t=1}^{T-1}(1-S_{t+1})S_t}.$$

The duration (D) of the downturn phase is calculated in the same way, with binary variable S^t equalling 1 if cycle is in downturn phase at time t.

The amplitude of the *i-th* downturn phase measures the absolute change in level from a peak (f^i_{max}) to the next trough (f^i_{min}), while the amplitude of the *i-th* upturn phase measures the change from a trough (f^i_{min}) to the level in the next peak (f^i_{max}). The amplitudes of the *i-th* downturn (A^i_s) and upturn (A^i_u) phases are calculated as:

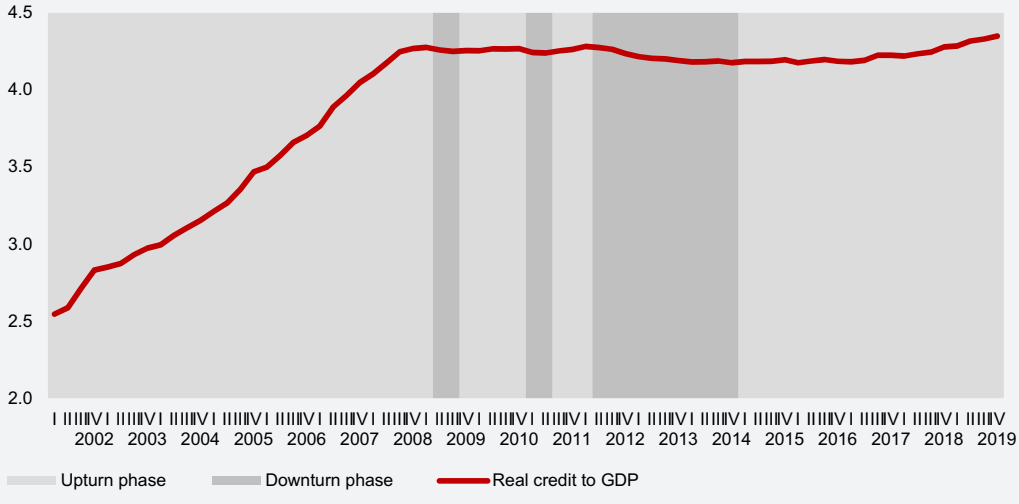
$$A^i_s = f^i_{min} - f^i_{max}\,;\; A^i_u = f^i_{max} - f^i_{min}$$

The ratio of total nominal credit to nominal GDP[67] is proposed for estimating the credit cycle. Given high euroization of the domestic financial system and the impact of exchange rate changes on nominal credit amounts, amounts used in estimating the credit cycle in the Republic of Serbia were adjusted for exchange rate changes and inflation. In addition, a data series logarithm was used in order for changes in the logarithmed data series to approximate the percentage change.

Credit cycle characteristics – ratio of credit to GDP

Credit cycle estimation based on the ratio of credit to real GDP (Chart O.3.1) identifies three cycles in the period from Q1 2002 through Q4 2019. The initial credit cycle upturn refers to the period of lending expansion after foreign-owned banks entered the Serbian banking market. The analysis of duration and amplitude confirms that credit cycle downturns in the Republic of Serbia are shorter on average than upturns, which indicates that it takes more time for lending activity to recover than to contract. The average upturn duration of 14 quarters is longer than the average downturn duration of five quarters. Similar results were obtained on the sample of OECD countries, where average upward duration was eight quarters and average downturn duration also around five quarters.[68] The average amplitude of the downturn phase is -0.05, while the upturn phase is more intensive with the average amplitude of 0.49. The difference

Chart O.3.1 **Credit cycle estimation – real credit* to GDP**
(%, log series)



* Real credit data are adjusted for constant RSD exchange rate against EUR, USD and CHF, and for domestic CPI.
Source: NBS.

[67] Mendoza, Terrones, *An Anatomy Of Credit Booms: Evidence From Macro Aggregates And Micro Data, NBER Working Paper No. 14049,* May 2008.
[68] Claessens, Kose and Terrones, *Financial Cycles: What? How? When?, April 2011, IMF WP/11/76.*

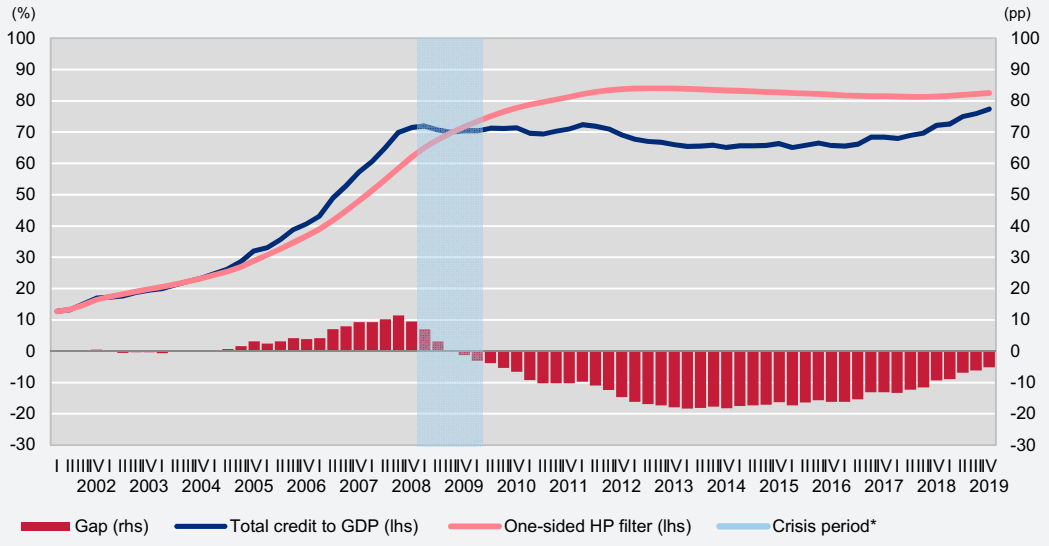
in amplitude levels during credit cycle upturn and downturn mostly occurred during lending expansion between 2002 and 2008. According to the above analysis, the credit cycle is now in the upturn phase which began in Q2 2015 and was preceded by an 11-quarter long downturn phase which lasted from Q3 2012 through Q1 2015.

Approach to credit cycle analysis for the purpose of calibrating the countercyclical capital buffer

Credit cycle estimation provides information on the phase in which lending activity is and can be used as an additional indicator when taking decisions on the level of the CCyB rate. The countercyclical capital buffer is an instrument of macroprudential policy, with the CCyB rate introduced in credit cycle upturns and relaxed in credit cycle downturns in order for this instrument to have a countercyclical effect, that is in order to moderate the cyclical component of the credit cycle. The calculation of the countercyclical capital buffer is in the majority of cases based on deviations of the ratio of credit to GDP from its long-term trend. To determine the CCyB rate in Serbia, we use the deviation of the ratio of real credit to real GDP from its long-term trend estimated by the HP filter.[69] After a period of expansion which lasted from 2000 until the outbreak of the world financial crisis in late 2008, a period of lending activity stagnation ensued. From mid-2009, a negative gap was estimated, i.e. lending activity moved below its long-term trend since mid-2009. Since early 2015, there was a noticeable recovery in lending activity, which led to a gradual closing of the negative gap, though it remains in the negative zone and equalled -5.1 pp at end-2019. The deviation gap of real credit to GDP shrank by 13.1 pp at end-2019 relative to end-2014. Given the negative gap, the CCyB rate for Serbia is 0%.

If we consider the above described approaches to estimating the credit cycle, we can conclude that credit cycle upturn

Chart O.3.2 **Total credit to GDP and estimated long-term trend**



* Identified by SSI.
Source: NBS.

lasted until end-2008, after which shorter downturns and upturns can be identified, depending on the indicators and approaches used. The end-2019 credit cycle phase is estimated to be an upturn, which has lasted since 2015. However, excessive credit growth is not detected in this period, as lending activity is still below its long-term trend. The decision on the CCyB rate level can also be taken based on additional indicators such as credit growth rates and exchange rate-adjusted credit indicators, as well as based on other macroeconomic, banking sector, real estate market indicators, etc. For this reason, the analysis of a complementary indicator based on the estimate of turning points, durations and amplitudes of the credit cycle, in addition to the standardised cycle estimate based on trend deviations, is an important addition in the calibration of the countercyclical capital buffer.

[69] For details on the CCyB rate, see the NBS internet presentation, section: Financial Stability, Capital Buffers, and *Annual Financial Stability Report – 2017*.

II.2 Macroprudential stress tests

The results of macroprudential stress tests confirm that the banking sector would remain adequately capitalised and highly liquid even in case of extreme shocks. The sector has sufficient capacity to absorb the consequences of risks it might be exposed to. Also, the structure of interbank exposure indicates a low and stable component of systemic risk, i.e. the system's high resilience in case of individual shocks.

The NBS conducts quarterly macroprudential stress tests[70] in order to assess the vulnerability and resilience of the financial system as a whole, as well as to assess the impact of the macroeconomic environment on individual financial institutions and banking groups. Also, in order to assess Serbia's banking sector systemic risk, based on network modelling, the dynamics of banks' mutual relations is taken into account and potential ways of risk transmission between financial institutions.

Basel III[71] standards and NBS regulations require that banks use stress tests to assess their capital adequacy. Stress tests are based on plausible but highly unlikely assumptions, or events that may produce negative effects on the entire financial system. Therefore, poor stress test results do not necessarily mean that a sector, an individual bank or a group of banks are faced with higher risks, but rather indicate the capacity of banks to keep their operations unhindered in case such events materialise.

Macroprudential stress tests conducted by the NBS enable the following:

– 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 assumed loss of depositors' confidence and unfavourable macroeconomic conditions;

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

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

This *Report* sets out *three parts* of the analysis of the impact of the assumed economic turbulences on banking sector stability. *The first* part involves credit risk assessment in relation to predefined scenarios based on macroeconomic projections. *The second* involves the assessment of whether the banking sector is able to ensure smooth operation in case of a significant deposit withdrawal and banks' need for additional liquidity. *The third* part involves the assessment of the banking sector systemic risk – 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,[72] with the potential to impact the monthly movement of NPLs, three showed reliable predictive power: (1) the nominal exchange rate, (2) seasonally-adjusted real net wages 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 the specifications of the model, a change in the exchange rate would have the greatest

Table II.2.1 **Elasticity coefficients of NPLs and contributions of independent variables from Q4 2018 to Q4 2019**

(%)

	Elasticity coefficients	Contributions of independent variables (pp)
Nominal exchange rate	0.57	-0.07
Seasonally-adjusted real net wages	-0.20	-0.25
Key policy rate	0.17	0.00

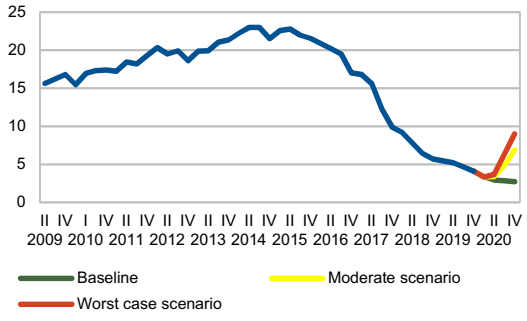
Source: NBS.

[70] *Guidelines on stress testing and supervisory stress testing, EBA/CP/2015/28.*

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

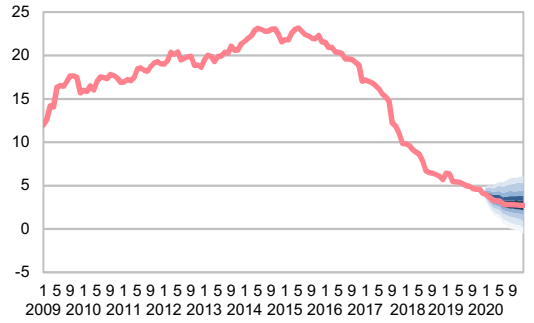
[72] A detailed explanation of the applied econometric model is available in the *Annual Financial Stability Report – 2017*, Text box 3.

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.

Table II.2.2 **Overview of scenarios**

	Baseline	Moderate	Worst case
Y-o-y growth in NPL ratio (pp)	-1.36	2.80	4.92
Y-o-y depreciation of RSD against EUR (%)	0.87	16.50	34.03
Y-o-y change in key policy rate (pp)	/	9.00	17.00
Y-o-y growth in real net wages (%)	4.06	-9.78	-17.09

Source: NBS.

impact on a change in gross NPLs (0.57 elasticity coefficient), followed by a change in seasonally-adjusted real net wages (-0.20) and changes in the key policy rate (0.17).

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 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.

Chart II.2.1 shows the projected change in the share of NPLs in total loans for the three assumed scenarios: -1.36 pp, 2.80 pp and 4.92 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.

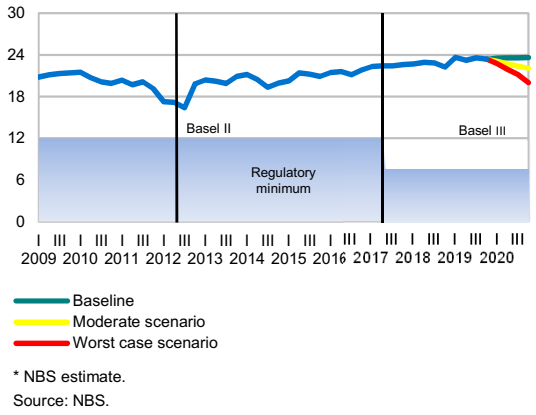
Assessment of the resilience of the banking sector and individual banks assuming a profit buffer

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 is considered to be resilient.

The CAR level is directly affected by the changes in risk-weighted assets, as well as by the changes in capital position 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. When conducting macroprudential stress tests, depending on the movements of macroeconomic variables, the financial result before tax is projected. When projecting profit, the write-off of investments is also taken into consideration on the assumption of deterioration in asset quality.

The impact of the exchange rate on change in 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 the banking sector profit which serves as a

Chart II.2.3 **CAR by stress scenario***



* NBS estimate.
Source: NBS.

buffer against losses, and it also affects the level of capital allocated for the coverage of capital buffers.

According to the Decision on Capital Adequacy of Banks, banks are required, at all times, to maintain their CAR at levels not below:

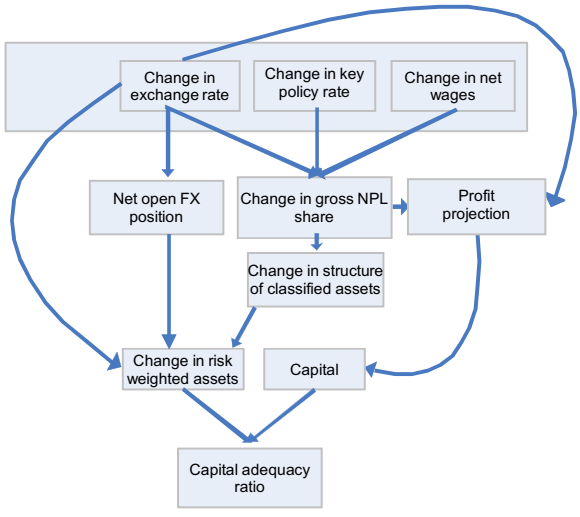
– 4.5% for Common Equity Tier 1 capital ratio,

– 6% for Tier 1 capital ratio,

– 8% for capital ratio.

In addition to the prescribed capital adequacy ratios, banks are obligated to maintain their capital buffers, in the form of Common Equity Tier 1 capital, above the regulatory minimum. The goal of the introduction of capital buffers is to mitigate the cyclical dimension of systemic risk (countercyclical capital buffer and capital conservation buffer) and the structural dimension (systemic risk buffer and capital buffer for systemically important banks).

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



The following capital buffers are used:

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

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

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

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

On 31 December 2019, Common Equity Tier 1 capital ratio and regulatory capital adequacy ratio for the Serbian banking sector measured 22.31% and 23.39% respectively.

Under the baseline scenario, Common Equity Tier 1 capital ratio would be 22.56%, and regulatory capital adequacy ratio 23.63%.

Under the moderate scenario, these ratios would measure 21.07% and 22.08% respectively.

Under the worst-case scenario, implying an exceptionally strong albeit a highly improbable shock, Common Equity Tier 1 capital ratio would be 19.09%, and regulatory capital adequacy ratio 20.02%.

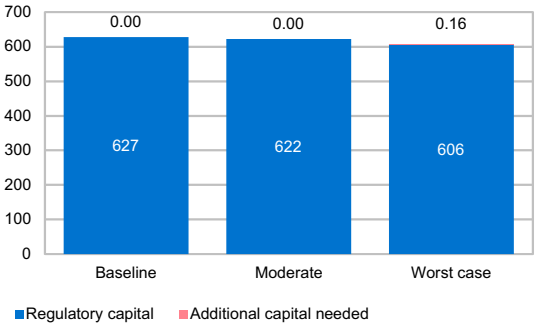
Needs for recapitalisation and/or reduction in risk-weighted assets

Based on data as at 31 December 2019, there is no need for the recapitalisation of banks in order to meet the requirements for Common Equity Tier 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. Also, all banks had sufficient Common Equity Tier 1 capital for the coverage of all prescribed capital buffers.

Assuming a profit buffer,[73] Chart II.2.4 shows the movement in the level of regulatory capital by scenario,

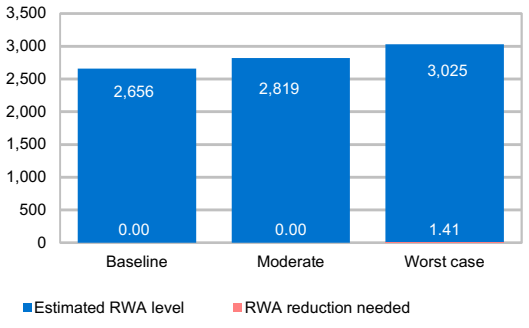
[73] Depending, inter alia, on macroeconomic variables, a projection is made of the pre-tax financial result, or of the profit buffer, as the first line of defence from assumed losses. In case of an insufficient amount of the profit buffer, the losses would reflect negatively on the bank's capital.

Chart II.2.4 **Capital levels by scenario with projected profit buffer***
(RSD bn)



* NBS estimate.
Source: NBS.

Chart II.2.5 **Risk-weighted assets by scenario with projected profit buffer***
(RSD bn)



* NBS estimate.
Source: NBS.

while Chart II.2.5 shows the movement in the value of risk-weighted assets by scenario.

Under the assumptions of the **baseline** and **moderate scenarios**, all banks meet the requirements for the above regulatory minimums and the combined capital buffer. Under the assumptions of the **worst-case scenario**, one bank would need additional capital in the amount of around RSD 0.16 bn, or 0.03% of the regulatory capital at the banking sector level. An alternative to capital increase would be a RSD 1.41 bn decrease in risk-weighted assets, which accounts for 0.05% of the banking sector's risk-weighted assets.[74]

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, plus the established capital buffers being met.

In conditions of a significant deterioration in the macroeconomic environment which would drive the share of gross NPLs in total loans by 8.90 pp, the banking sector's regulatory capital adequacy ratio could drop from the initial 23.39% to 14.30% over a one-year span. With such CAR, all banks have sufficient capital for the coverage of regulatory minimums of Common Equity Tier 1, Tier 1 and regulatory capital, as well as for the coverage of all capital buffers. However, it should be noted that the probability of such increase in the share of NPLs in total loans, which would bring the CAR down to the threshold, is extremely low, i.e. the calculated probability that such event would materialise is near zero.

Determining leverage ratio values by scenario

According to the Decision on Reporting Requirements for Banks, banks are required to compile and submit to the NBS reports about the ratio of their Tier 1 capital and total exposure amount – the leverage ratio.[75] The introduction of the leverage ratio has two aims: to limit the amount of borrowed capital which banks may use and to ensure complementary measures for capital assessment regardless of the estimated risk. The recommendation of Basel III standards is to keep the leverage ratio at the minimum of 3%.

The leverage ratio for the Serbian banking sector at end-2019 equalled 13.55%. Under the baseline scenario, the leverage ratio would remain the same, while under the moderate and worst-case scenario, this ratio at the banking sector level could amount to 12.34% and 10.96% respectively.

Liquidity stress tests

The liquidity risk in Serbia's banking sector is far less pronounced than the credit risk. However, the sudden withdrawal of deposits, which took place at end-2008 as a result of a temporary loss of confidence in European

[74] Banks which fail to meet the combined capital buffer requirement are subject to restrictions in profit distribution and are obligated 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 and 67/2020.

[75] RS Official Gazette, Nos 125/2014, 4/2015, 111/2015, 61/2016, 69/2016 and 103/2016, 101/2017, 46/2018, 8/2019 and 27/2020.

parents of banks operating in Serbia, indicates the importance of monitoring this risk.[76]

Liquidity stress testing aims to determine whether the banking sector could continue to operate smoothly 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, contraction in market liquidity, lower value of assets, etc., which would further impair the bank's liquidity position.

Liquidity ratio assessment

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

– Déjà vu scenario, envisaging a deposit withdrawal worth RSD 313 bn (11% of total deposits) and the same structure of deposit withdrawal 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 the lack of support from parent banks due to the international banking crisis, whereby the total deposit withdrawal would increase to RSD 434 bn (15% of total deposits);

– Worst-case scenario, envisaging a shock two times stronger than that from October 2008, i.e. a deposit withdrawal of RSD 616 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.

In the scenarios described above, the banking sector liquidity ratio would range from 2.17 – its actual level on 31 December 2019 – to 1.29 in the worst-case scenario (Chart II.2.6).

According to the initial data and the déjà vu scenario, the liquidity ratios of all banks are above the regulatory minimum (1).

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)	313	434	616
Share in total deposits (%)	11%	15%	21%

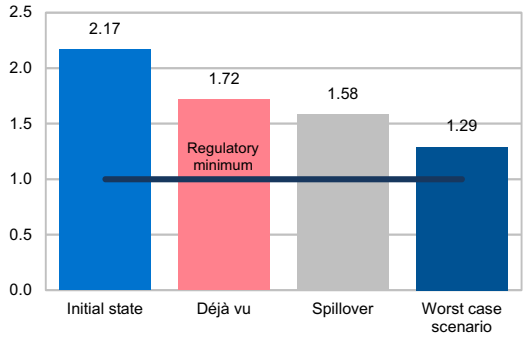
Source: NBS.

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

	Déjà vu
Withdrawal of demand deposits	69%
Withdrawal of time deposits	31%
Structure of total demand deposit withdrawal	
Banks	0%
Other depositors	76%
Household savings	24%

Source: NBS.

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



* NBS estimate.
Source: NBS.

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

In the risk spillover scenario, the liquidity ratio would fall below the regulatory minimum for banks holding 5.7% of total banking sector balance sheet assets, while in the worst-case scenario, implying a severe shock, banks accounting for 30.1% of total banking sector balance sheet assets would fall below the threshold. The largest number of banks would stay in the safe zone, with liquidity ratios above 1.0.

The Decision on Liquidity Risk Management, in force as of 30 June 2017, introduced a new liquidity ratio – Liquidity Coverage Ratio. This ratio was introduced in order to ensure a bank's resilience to liquidity shocks over a 30-day span.[77] According to bank reports as at 31 December 2019, all banks reported liquidity coverage ratio, aggregately by all currencies, above the regulatory minimum, while at the banking sector level this ratio stood at 1.99.

Liquidity needs

Based on report data as at 31 December 2019, as well as according to the déjà vu scenario, there is no need for additional first-order liquidity.

Under the risk spillover scenario, first-order liquidity needs would equal around RSD 2.1 bn or 0.2% of the initial first-order liquidity, whereas in the worst-case scenario, first-order liquidity needs would be RSD 31.2 bn or 2.4% of the initial first-order liquidity.

In case the assumed scenarios materialise, the NBS can react by providing additional liquidity or by exercising its function of the lender of last resort.[78]

Deposit withdrawal values that bring the liquidity ratio to threshold

The present analysis of liquidity risk aims to determine the values of deposit withdrawals from the banking sector and individual banks that would lower the liquidity ratio from the reported 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 obtained for the déjà vu scenario (Table II.2.4).

The liquidity ratio would fall to 1.5 in case of a withdrawal of around RSD 482.1 bn or 16.3% of total deposits (of which around RSD 332.1 bn demand and around RSD 150.0 bn time deposits). In case of a withdrawal of RSD 933.7 bn or 31.7% of total deposits (of which RSD 643.2 bn demand and RSD 290.5 bn time deposits), the system as a whole would stay at the liquidity threshold, with a liquidity ratio of 1.0.

Banking sector survival period in case of sudden deposit withdrawal

The shock observation period 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 evaluation is made of the bank's ability to cover liquidity outflows with the reduced possibility of obtaining any new liquid funds and changing the business model. The second stage is a longer period, marked by weaker but more persistent shocks, lasting for over a month.

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.

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.

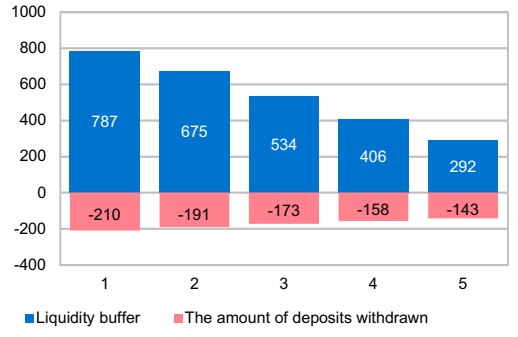
Charts II.2.7 and II.2.8 show available liquid assets and the amount of deposits withdrawn in the first five days (the amount of liquid assets remaining after liquidity needs are satisfied) for both scenarios. Charts II.2.9 and II.2.10 give the deposit structure by day.

According to the results of liquidity stress tests as at 31 December 2019, the entire banking sector can withstand

[77] In order to assess a bank's resilience over a longer term (one year), the introduction of the Net Stable Funding Ratio (NSFR) has been envisaged.

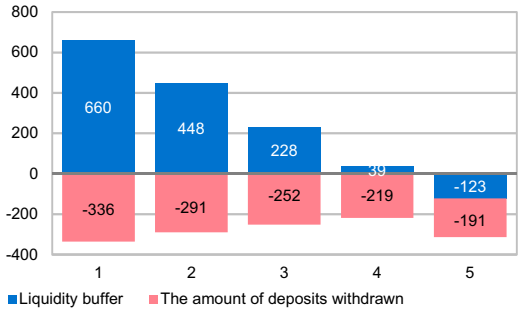
[78] The lender of last resort function is a standard function of central banks and is commonly defined as the readiness of the central bank to extend loans to banks that cannot access more favourable sources of liquidity available in the market, all with a view to protecting depositors and/or preventing a systemic crisis in the financial system.

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



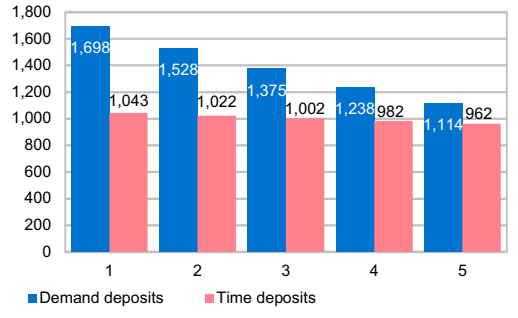
* NBS estimate.
Source: NBS.

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



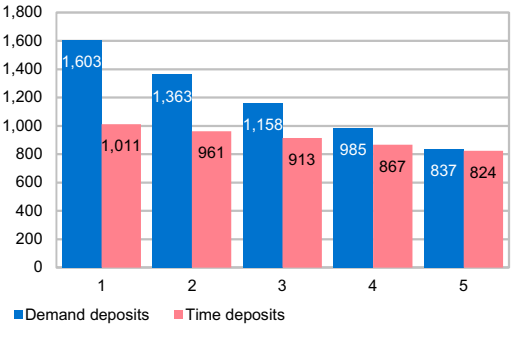
* NBS estimate.
Source: NBS.

Chart II.2.9 **Structure of demand and time deposits – daily for moderate scenario***
(RSD bn)



* NBS estimate.
Source: NBS.

Chart II.2.10 **Structure of demand and time deposits – daily for worst case scenario***
(RSD bn)



* NBS estimate.
Source: NBS.

nine business days[79] in conditions of daily deposit withdrawal in the moderate scenario, or five business days in the worst-case scenario.

Simulations of liquidity shock

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

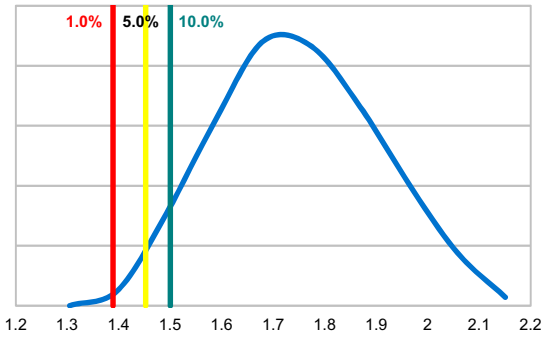
The liquidity ratios were obtained based on tens of thousands of different scenarios, which imply the sampling of assumptions of deposit withdrawal by sector, from zero to the worst-case scenario value (Table II.2.4). Since only assumption values with a negative effect are observed, the tentative values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

These simulations produced the 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 1.50, while for confidence intervals of 5% and 1%, it equals 1.45 and 1.39, respectively.

[79] 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.2.11 **Confidence intervals for banking sector liquidity ratio***



* NBS estimate.
Source: NBS.

In other words, the liquidity ratio with a 90% certainty in various combinations of deposit withdrawal assumptions will not fall below 1.50. Moreover, there is a certainty of 99% that the ratio will not fall below 1.39.

Network modelling in the assessment of banking sector systemic risk

The 2008 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 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.

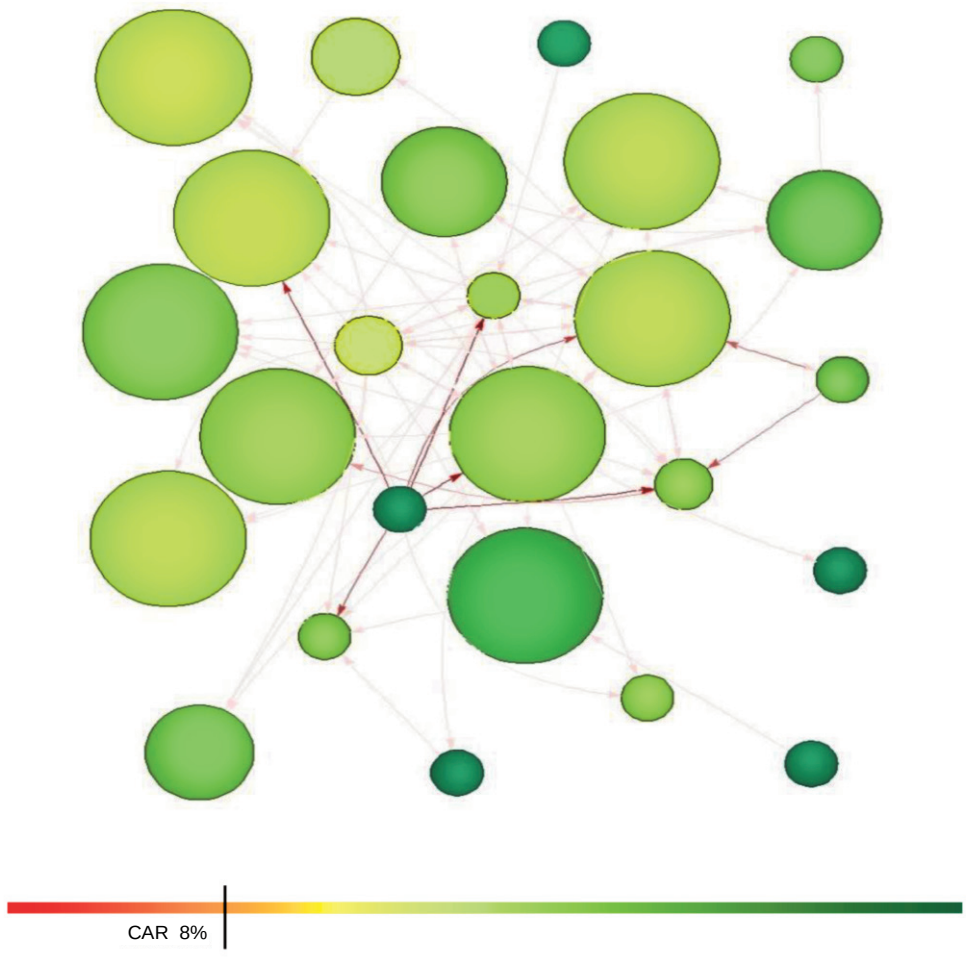
The network structure describes the domestic banking sector in the context of mutual on- and off-balance sheet exposure of banks. The edge weight from bank i to bank j represents the potential increase in allowances for loan impairment relative to the regulatory capital of bank i, in case of insolvency of bank j. The network of Serbia's banking sector, in accordance with the given definition, is presented in Chart II.2.12. 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 the maximum observed CAR of 36%. Values above 36% are considered exceptionally high and are therefore not taken into account when forming the scale of CAR.

Global efficiency indicates the banking sector's network capacity in terms of shock transmission and equals 0.20. 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 0.20 does not indicate a high network potential in shock transmission.

The impact of the network structure on shock transmission is simulated as follows: assuming the insolvency of a pre-determined bank, for each bank in the system the expected increase in allowances for loan impairment was calculated. An increase in allowances for the impairment results in lower risk-weighted assets and capital, including CAR, 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 to be 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.2.12 **Banking network of the Republic of Serbia**

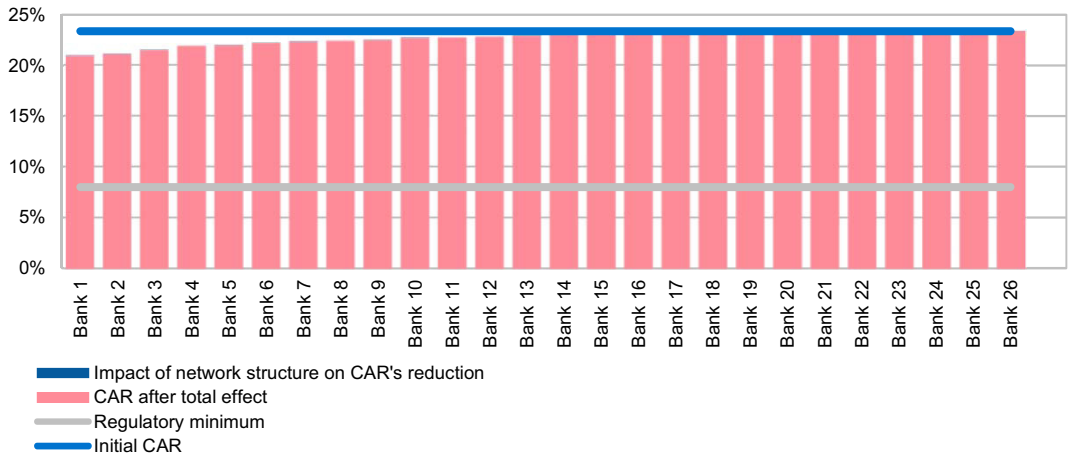


Source: NBS.

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 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.

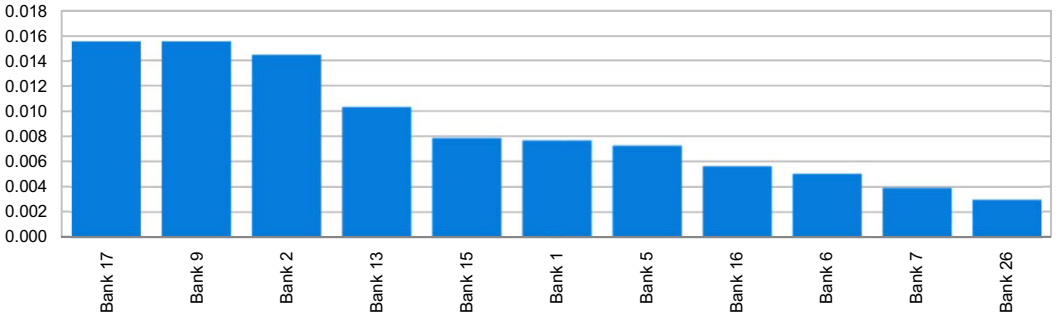
Chart II.2.13 **Banking sector CAR after the insolvency of an individual bank**



Source: NBS.

Chart II.2.14 **Impact of network structure on the CAR's reduction after the insolvency of an individual bank**

(pp)



Source: NBS.

Conclusion

The Serbian banking sector is still highly resilient to assumed scenarios, even in case of the most extreme shocks.

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. Under the assumed worst-case scenario, a certain number of banks could enter the zone of liquidity risk. However, in case the assumed scenarios materialise, the NBS has 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 the sources of funding and financial institutions' investment.

As the interconnectedness of financial institutions in the banking sector may lead to a contagion or shock transmission, 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.

Now that exceptional results have been achieved in the resolution of existing NPLs, the priority in the future period should be the prevention and curbing of new NPLs by strengthening the risk management function in banks in the face of a further improvement of macroeconomic stability. Also, in order to prevent new NPLs, at end-December 2018 a set of regulations was adopted in response to immoderate approval of non-purpose loans to households with unreasonably long maturities.

Owing to the NPL Resolution Strategy, adopted in August 2015, and the implementation of the resulting activities and regulatory measures of the NBS, at end-December 2019 the NPL ratio equalled 4.1%, which is more than 18 pp lower than in August 2015, when the Strategy was adopted. Currently, NPLs are at their lowest level since this indicator of the quality of banks' portfolios is monitored and, considering the level of coverage by allowances for impairment, they do not pose a threat to financial system stability.

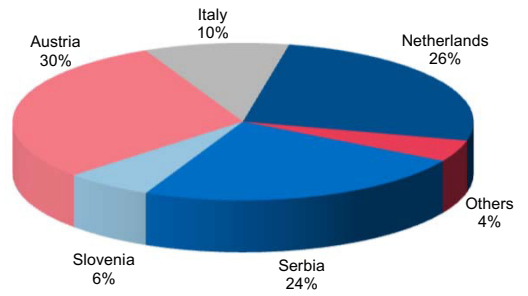
To resolve the remaining and curb new NPLs, as well as to preserve the achieved results, in December 2018 the Serbian Government adopted the NPL Resolution Programme for the period 2018–2020. In addition, the NBS will remain an active participant in the Working Group for the implementation of the NPL Resolution Strategy.

II.3 Non-bank financial sector

II.3.1 (Re)insurance undertakings

In 2019, the Serbian insurance sector remained adequately capitalised and profitable, posting growth in total premium and yield. (Re)insurance undertakings recorded an increase in their balance sheet total, and this sector's share in the balance sheet total of the financial sector remained almost the same as a year earlier. Non-life insurance maintained a dominant share in the total premium. The regulatory framework, which governs the insurance activity in Serbia, created preconditions for further development of Serbia's insurance sector and its approach to the level of development of the EU insurance sector.

Chart II.3.1 **Insurance undertakings* ownership structure, as at 31 December 2019**



* Does not include reinsurance undertakings.
Source: NBS.

At end-2019, the balance sheet of the insurance sector had a 6.6% share in the balance sheet total of the financial sector supervised by the NBS (banks, financial lessors, (re)insurance undertakings and VPFs[80]), similar to the previous year (6.7% in 2018). After the banking sector, insurance is the second most important sector in the Serbian financial system.

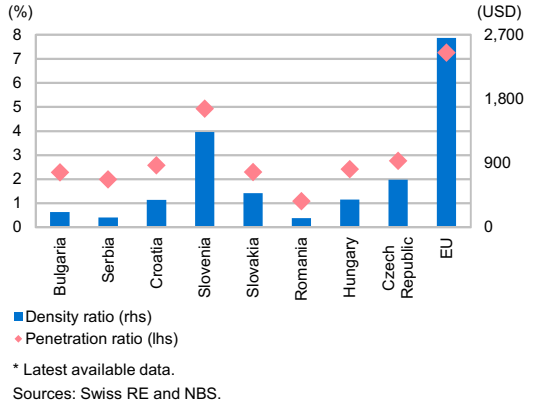
At end-2019, there were 16 insurance and four reinsurance undertakings operating in Serbia.[81] Among insurance undertakings, four were engaged in life insurance, six in non-life, and six provided both life and non-life insurance services. Of the total number of undertakings, 15 were in majority foreign ownership. Major foreign owners are from Austria (around 30%) and the Netherlands (around 26%). Insurance undertakings in majority domestic ownership account for around 24% of all insurance undertakings[82] (Chart II.3.1).

Apart from insurance undertakings, the sales network also included 17 banks, seven financial lessors, and one public postal operator, all of them with approval to carry out insurance agency activities, as well as 95 legal persons (undertakings for insurance brokerage and insurance agency activities), and 80 insurance agents (natural persons – entrepreneurs).[83]

Compared with both EU member states and the neighbouring countries, Serbia's insurance sector is still

[80] Except for payment institutions and electronic money institutions.
[81] https://www.nbs.rs/internet/english/60/60_1/index.html
[82] Excluding reinsurance undertakings.
[83] https://www.nbs.rs/internet/english/60/60_1/index.html

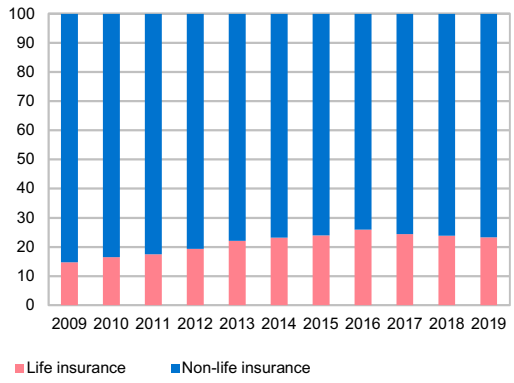
Chart II.3.2 **Insurance sector development indicators as at 31 December 2018***



* Latest available data.

Sources: Swiss RE and NBS.

Chart II.3.4 **Insurance premium structure**
(%)



Source: NBS.

underdeveloped, with potential for further growth. In 2018,[84] the penetration ratio (gross written premium as a percentage of GDP) at the EU level stood at 7.3%[85] according to data of the Swiss Re Institute, while the same ratio in Serbia measured 2.0%.[86] Also, Serbia's density ratio (the average premium per capita spent on insurance) of USD 138[87] was much lower than the EU's USD 2,655[88] in 2018[89] (Chart II.3.2).

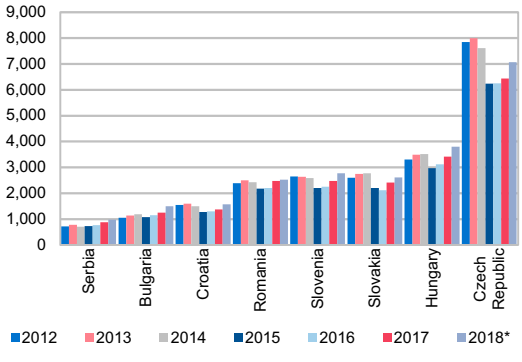
A positive trend was also recorded in the total premium, which reached RSD 107.4 bn in 2019, having risen by RSD 7.5 bn from 2018. However, Serbia still lags behind the neighbouring countries in terms of the absolute amount of the total premium (Chart II.3.3).

In response to the deceleration in the life insurance premium, which began in Q3 2017, the share of the life insurance premium in total premium decreased slightly, from 23.8% at end-2018 to 23.3% at end-2019 (Chart II.3.4).

Within the total premium, motor third party liability insurance was still dominant (32.9%), followed by life insurance (23.3%), property insurance (18.7%) and full-coverage motor vehicle insurance (9.6%) (Chart II.3.5).

The Serbian insurance sector is adequately capitalised, given the risks to which it is exposed. According to the Insurance Law, the available solvency margin (guarantee reserve) must be at the level of at least the required

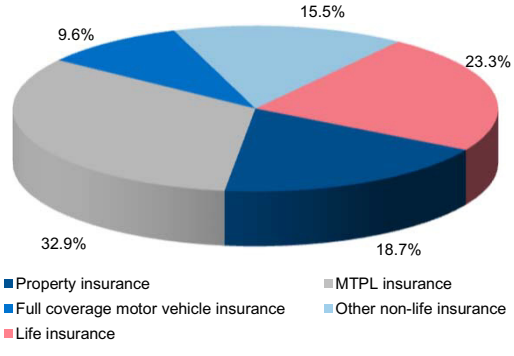
Chart II.3.3 **Total insurance premium**
(USD mn)



* Latest available data.

Sources: Swiss RE and NBS.

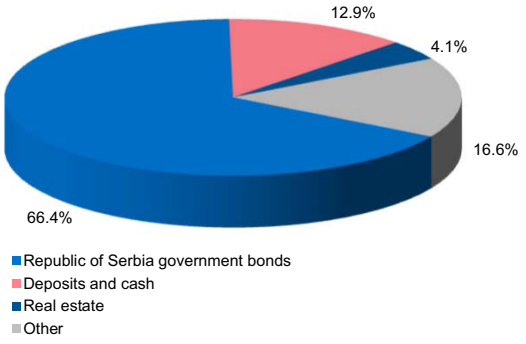
Chart II.3.5 **Total premium according to types of insurance as at 31 December 2019**



Source: NBS.

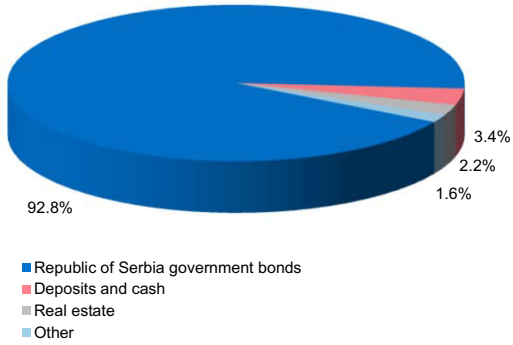
[84] Latest available data.
[85] Source: *Swiss Re Sigma 3/2019: World insurance: the great pivot east continues*.
[86] Source: NBS.
[87] Source: NBS.
[88] Source: *Swiss Re Sigma 3/2019: World insurance: the great pivot east continues*
[89] Latest available data.

Chart II.3.6 **Non-life insurance technical reserves coverage as at 31 December 2019**



Source: NBS.

Chart II.3.7 **Life insurance technical reserves coverage as at 31 December 2019**



Source: NBS.

solvency margin (core CAR). Given that in 2019 the core CAR was 217.6% for non-life and 265.5% for life insurance, it can be concluded that the capital adequacy of Serbian insurance undertakings is satisfactory.

The leverage ratio (capital to total assets ratio) reflects the level of exposure of insurance undertakings to risks typical for the insurance activity. At end-2019, this ratio rose slightly in undertakings engaged mainly in non-life insurance and measured 24.9% (22.9% in 2018), and in undertakings carrying out life insurance it equalled 23.6% (21.2% in 2018).

For an undertaking to be able to protect the interests of the insured and injured parties, i.e. to timely settle claims, it must create an adequate amount of technical provisions and invest them in such a way as to ensure liquidity, security and profitability of the undertaking, settlement of its future liabilities and dispersion of risks. Technical provisions must be invested into the prescribed assets. Otherwise, an undertaking runs the risk of having difficulties in the settlement of liabilities toward the insured. At end-2019, technical provisions of all (re)insurance undertakings stood at RSD 202.5 bn, up by 2.6% in nominal terms relative to end-2018 (RSD 197.3 bn). Mathematical reserves kept their dominant share in technical provisions, recording a growth rate of 7.5% at end-2019. Technical provisions continually post growth in both nominal and real terms.

As shown in Chart II.3.6, the bulk of technical provisions of non-life insurance was invested in government securities (66.2% at end-2019). Technical provisions of life insurance were also predominantly invested in government securities (92.8% at end-2019) (Chart II.3.7).

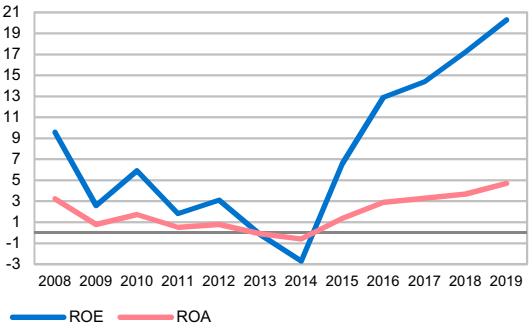
In assessing the quality of assets, particular attention is paid to the liquidity of insurance undertakings. Apart from liquid assets, insurance undertakings also invest in instruments of limited liquidity, such as intangible assets, real estate, non-tradable securities and receivables. Over the past years there has been a notable decline in the indicator of less tradable assets (share of less liquid assets in total assets). In undertakings mainly engaged in non-life insurance, this indicator equalled 16.7% at end-2019, a tad higher than in 2018 (16.3%). The indicator also increased in undertakings mainly engaged in life insurance – to 6.05% (3.8% at end-2018).

The insurance sector ended 2019 with a positive net result after tax[90] amounting to RSD 11.6 bn. Profitability indicators of undertakings mainly engaged in non-life insurance rose in 2019 relative to the year before. Return on equity was 20.3% (17.2% in 2018), and return on assets 4.7% (3.7% in 2018), as shown in Chart II.3.8. Undertakings engaged mainly in life insurance saw a decrease in the above profitability indicators in 2019. Their return on equity was 7.3% (9.3% in 2018), and return on assets 1.6% (1.8% in 2018), as presented in Chart II.3.9.

The profitability of insurance undertakings is also indicated by the combined ratio, as the sum of self-retained[91] incurred losses and expenses divided by the

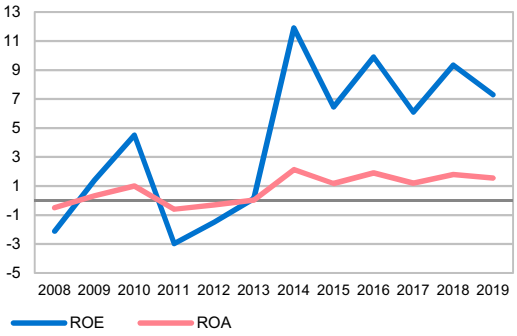
[90] Includes only tax expenses which (re)insurance undertakings disclosed by the time data were submitted to the NBS.
[91] Self-retention is the portion of contractual risks that the insurance undertaking always carries under its own cover and that it can cover from its own funds.

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



Source: NBS.

Chart II.3.9 **Profitability ratios of life insurance undertakings**
(%)

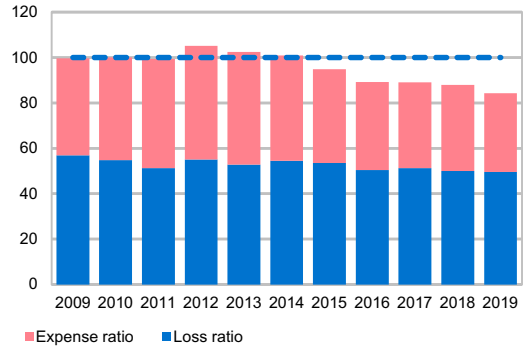


Source: NBS.

premium earned. 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 taking into account the potential investment income from the financial and real estate markets, which makes it vulnerable to additional market risks. In undertakings predominantly engaged in non-life insurance, the combined ratio dropped from 87.9% at end-2018 to 84.2% at end-2019 (Chart II.3.10). A decline in the combined ratio resulted from the somewhat faster growth of premium earned compared to the growth of incurred losses and insurance administration expenses.

The expense ratio (ratio of insurance administration expenses to premium earned) declined from 37.99% at end-2018 to 34.78% at end-2019, which suggests improved efficiency of the insurance administration process. 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. A high value of this ratio can suggest that an undertaking is unable to meet claim liabilities. This value decreased slightly in 2019, from 49.89% at end-2018 to 49.46%.

Chart II.3.10 **Combined insurance ratio**
(%)



Source: NBS.

In 2019, the NBS adopted the Decision Amending the Decision on Reporting by Insurance/Reinsurance Undertakings (RS Official Gazette, No 88/2019). This Decision supplemented the prescribed obligation of (re)insurance undertakings and defined more closely the manner of submitting statistical data listed in forms Overview of large non-life insurance claims – ST-5 and Overview of large non-life reinsurance claims – ST-5R. The continued regulatory changes in Serbia's insurance sector created preconditions for the sector's further development modelled after that of the EU's insurance industry. The current insurance regulatory framework in Serbia contains some provisions of Solvency II pertaining to Pillar II qualitative requirements (governance system including three key functions: risk management, internal control, internal audit and actuarial function, as well as its own risk and solvency assessment – ORSA, risk-based supervision, fit & proper requirements when licensing supervised entities, etc.). In the period ahead, we expect significant changes in the insurance regulatory framework due to the alignment with the Insurance Distribution Directive, as well as the implementation of Solvency II. The completion of stage one of strategic activities on

implementing Solvency II (compliance analysis), further implementation of ongoing activities (stage two – impact assessment), and the shift to the harmonisation of the regulatory framework (stage three) prior to Serbia's EU accession will ensure a higher level of stability of the insurance sector and protection of insurance services consumers.

II.3.2 Voluntary pension funds

Net VPF assets in Serbia continued to rise in 2019, as well as return on investment, which amounted to around RSD 2.9 bn, up by 41.8% relative to the year before. Total contributions to VPFs amounted to RSD 3.9 bn in 2019, recording a significant rise since 2015.

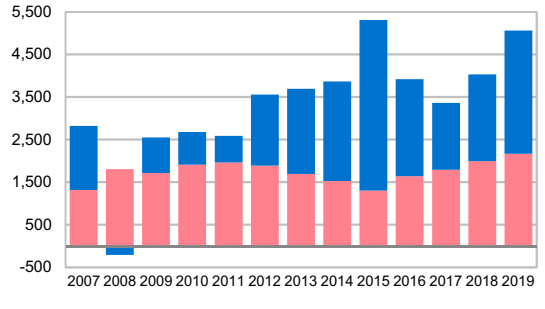
VPFs are collective investment institutions that collect pension contributions and invest them into various types of assets in order to generate private pensions, i.e. they enable long-term saving for old age. They are based on the defined contribution principle, where future benefits are not defined 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.[92]

The number of management companies and VPFs did not change in 2019 – 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 are kept in accounts with a single custody bank.

From the start of operation of VPFs in Serbia (2006), their total net assets have been constantly increasing. At end-2019, they equalled RSD 45.2 bn, rising by 12.6% from a year earlier. Changes in the value of net 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 2019. Net VPF assets went up by RSD 5.1 bn in the course of the year. Return on investment amounted to almost RSD 2.9 bn and was significantly higher than the year before (41.8%). Given the composition of VPF investment, the return is influenced by: the change in the yield curve on government debt instruments,[93] change in the prices of shares, level of the NBS key policy rate and banks' interest rates, and changes of the dinar exchange rate against the euro and the dollar.

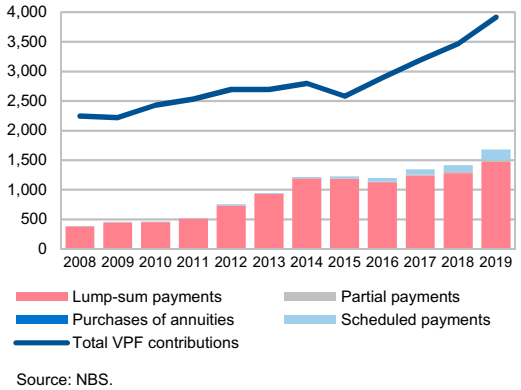
Total contributions in 2019 amounted to RSD 3.9 bn (RSD 3.5 bn in 2018), and total withdrawals to RSD 1.7 bn (RSD 1.4 bn in 2018) (Chart II.3.12). The structure of withdrawals was unfavourable, i.e. not in line with the objective of saving in VPFs which assumes the use of accumulated assets over a longer period. Though lower by 3.1 pp than in the previous year, more than 87% of withdrawals in 2019 were lump sum withdrawals, which

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



Source: NBS.

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



Source: NBS.

[92] 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.

[93] 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.

are usually made as soon as the member reaches the age limit for the withdrawal of accumulated funds. On the other hand, the next period is likely to see an increase in scheduled and other types of withdrawals with the lengthening of the accumulation periods and an increase in the accumulated sums.

The total number of VPF users went up by 9,292 from the previous year, and stood at 201,587 at end-2019. These users concluded a total of 275,833 membership contracts. During the same period, the number of active users (users that regularly pay VPF contributions) increased, but their share in the total number of users in the accumulation stage stayed relatively low, at 34.4% in December 2019 (33.4% in December 2018). The average age of VPF users in Serbia is around 47 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 28%. The share of VPF users in the total number of employees is 9.4%, which indicates that this sector is still underdeveloped, but that there is potential for future development of this segment of the financial market.

At end-2019 most assets of VPFs were again invested in government bonds of the Republic of Serbia (78.2%), as can be seen in Chart II.3.13. Though they took a conservative approach to investment, VPFs achieved high yields. One should bear in mind that the high concentration of investment makes VPFs sensitive to market risks, primarily to interest rate risk and reinvestment risk, given that the current low interest rate environment negatively impacts the future yields of VPFs. It is therefore necessary to further develop the domestic capital market, as well as new long-term financial instruments, which will enable more diverse investment and thereby mitigate the above risk.

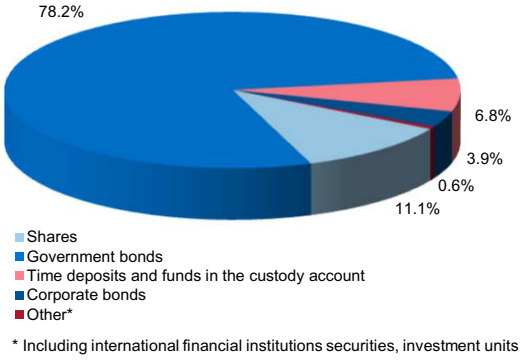
The portion of shares in total VPF assets increased negligibly (from 8.4% in 2018 to 11.1% in 2019). Term deposits with banks and balances held in custody accounts made up 6.8% of total assets at the end of the year. The funds were also invested in corporate bonds (3.3%), investment funds (0.5%) and other receivables (0.1%).

At end-2019, 12.7% of total VPF assets were in euros (EUR 5.8 bn) and 87.3% in dinars (RSD 39.6 bn).

At end-2019, FONDex[94] reached the value of 3,064.86 points (Chart II.3.14), which is 201.94 points higher than a year earlier. Annual FONDex return, which represents the weighted average return of all funds, equalled 7.1% in 2019. The recorded return was sufficient for preserving the value of VPF assets relative to the y-o-y inflation rate. It was somewhat higher than last year (5.5%), but lower than FONDex return since the start of VPF operations (8.9% at end-2019).

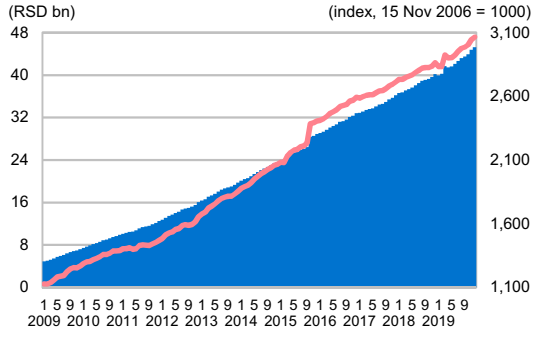
Fees charged by management companies include contribution fees and management fees. Though the contribution fee is front loaded, it is not the greatest cost for the members. The management fee is calculated daily and it made up 88% of total collected fees in 2019. Such

Chart II.3.13 **Structure of VPF assets as at 31 December 2019**



* Including international financial institutions securities, investment units of open-end investment funds and other receivables.
Source: NBS.

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



Source: NBS.

[94] FONDex reflects movements in investment units of all VPFs in the market. The initial FONDex value of 1,000 points was recorded on 15 November 2006 when the first VPF began to operate.

structure of fees resulted from the increase in the net fund asset value and an increasingly higher base with respect to which the management fee is collected.

The Law on Voluntary Pension Funds and Pension Schemes (RS Official Gazette, Nos 85/2005 and 31/2011) governs the organisation, management, establishment, activity and operation of VPF management companies. It also regulates the tasks and duties of custody banks, the competence of the NBS in the supervision of VPF management companies and other matters relevant for the operation of VPFs.

The payment of VPF contributions increased over the last couple of years reflecting positive macroeconomic performance of the Serbian economy, as well as a better living standard. Though the Law allows for individual contributions, 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. Investment tax incentives have also exerted a positive impact on the VPF sector. In 2019 payments made by employers in the amount of up to RSD 5,872[95] were exempt from the personal income tax and contributions for mandatory social insurance, as well as payments in the same amount made by the employer through wage garnishment.

The NBS published the "Guide to Your First Private Pension"[96] where one can get all the relevant information on VPF operation. Namely, the Guide presents how VPFs work, as well as the benefits from membership. It answers the questions that are relevant for each potential VPF user, such as what VPFs are, how their work is regulated, who can be a fund member, who can pay contributions, what an investment unit is, what fees are paid by users, how the assets are invested and how the accumulated funds can be disposed of. The Guide also explains how to protect the rights of VPF members.

II.3.3 Financial leasing

In 2019 the financial leasing sector continued to record positive results. The sector's balance sheet assets increased further and improved in quality, owing to the 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 for an agreed period of time, with all the risks and benefits of ownership.

At end-2019, there were 17 lessors in the Serbian financial leasing sector, four of which undergoing voluntary liquidation.

Financial lessors were mostly owned by banks, members of banking groups or other financial institutions (as many as 13 lessors). Seven lessors were in 100% or majority ownership of foreign legal entities, while ten lessors were in majority ownership of domestic entities (of which eight were owned by domestic banks with foreign capital).

The employment in the sector edged down relative to the year before (from 360 to 349 employees).

Lessors' balance sheet assets continued growing. At end-2019, they stood at RSD 102.9 bn, up by 18.7% relative to end-2018 (RSD 86.7 bn).

The share of non-performing receivables in total investment was further reduced. At end-2019, gross receivables past due (RSD 2.7 bn) made up 2.8% of gross financial leasing receivables (3.7% at end-2018). The share of net carrying value of these receivables in total net receivables declined negligibly, from 0.7% (end-2018) to 0.65% (end-2019). Receivables past due more than 90 days made up the largest share of total receivables past due. At end-2019, these receivables amounted to RSD 2 bn. Their share in total gross receivables from financial leasing accounted for 2.0% (2.8% at end-2018). The net carrying value of receivables past due more than 90 days made up 0.1% of the total net portfolio.

Total lessors' capital at end-2019 equalled RSD 9.4 bn, down by 2.4% from the end of last year.

At RSD 1 bn in 2019, the pre-tax result of the financial leasing sector was lower than the result achieved last year (RSD 1.6 bn). Net profit came at RSD 805 mn, with most lessors posting a positive net result (12 lessors). Total revenue and profit in 2019 equalled RSD 4.1 bn, decreasing by 14.5% from the year before, and total expenses and losses – RSD 3 bn, down by 2.5% relative to 2018.

[95] Under the Government decree, this amount is adjusted for previous-year inflation once a year.

[93] https://www.nbs.rs/internet/latinica/63/prospekti/100_prva_privatna_penzija_brosura.pdf.

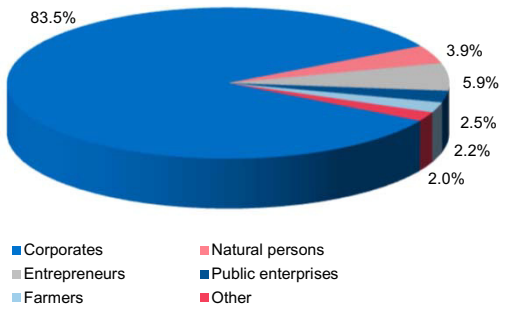
At end-Q4 2019, ROA and ROE were lower than at end-2018. ROA decreased from 2.05% to 1.15%, while ROE recorded a significant fall, from 17.53% at end-2018 to 11.27% at end-2019.

Structure of lessees

The structure of lessees stayed largely unchanged. Like in the previous years, the most important lessees were companies outside the financial sector, with an 83.5% share in total investment, slightly less than in 2018 (85.0%).

As can be seen in Chart II.3.15, entrepreneurs accounted for 5.9% of total investment (5.3% in 2018), public enterprises for 2.5% (2.8% in 2018), natural persons 3.9% (3.9% in 2018) and farmers 2.2% (2.3% in 2018).

Chart II.3.15 **Investment structure by lessee as at 31 December 2019**



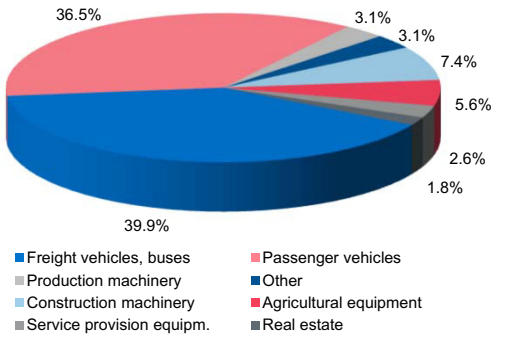
Source: NBS.

Structure of investment by lease asset

As Chart II.3.16 indicates, the financing of freight vehicles, minibuses and buses, which has the largest share in the structure of investment by lease asset, declined slightly in 2019 (from 41.2% at end-2018 to 39.9% at end-2019). The financing of passenger vehicles went up (from 35.1% in 2018 to 36.5% in 2019), while the share of financing of agricultural machinery and equipment edged down (from 5.9% to 5.6%).

Though still underdeveloped, the financial leasing sector experienced positive trends, which drove the share of its balance sheet assets in the country's financial system slightly up (from 2.1% at end-2018 to 2.3% at end-2019). However, this share remained relatively low, which means that potential risks in financial leasing operations could not have a significant effect on the stability of the financial system at large.

Chart II.3.16 **Investment structure by lease asset as at 31 December 2019**



Source: NBS.

II.3.4 Payment institutions and electronic money institutions

The NBS is continuously improving the regulatory framework for the provision of payment services in order to achieve greater efficiency and transparency and to ensure more information and enhanced protection of payment service users. Payment institutions operate in the Republic of Serbia since October 2015, i.e. since the start of application of the Law on Payment Services. During 2019, the NBS adopted several decisions which regulate this area in more detail, supplement the provisions of the regulatory framework and set standards for safe and sound business operations in the provision of payment services.

Based on the Law on Payment Services, applied since the beginning of October 2015, special institutions registered to provide payment services and issue electronic money

operate in Serbia – payment institutions and electronic money institutions. Payment institutions may only be companies, in accordance with the law governing companies, headquartered in the Republic of Serbia and licensed by the NBS to provide payment services. 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. At end-2019, there were thirteen payment institutions[97] licensed by the NBS to provide payment services. Of these, 11 payment institutions also provided payment services through a network of their agents. Four leading international companies for fast money transfer carry out transactions via payment institutions and their agents. Along with Western Union – already present in Serbia, MoneyGram, Ria Money Transfer and SmallWorld also started to operate in the domestic financial market, via the newly established payment institutions.

An electronic money institution may only be a company headquartered in Serbia, in accordance with the law governing companies. It is authorised to issue electronic money subject to the NBS's licensing. The first licence to issue electronic money was granted in 2016, and the second one in 2019.[98] Since this licence allows an institution to provide payment services as well, one of these e-money institutions also transfers funds in domestic payment transactions (payments between residents in Serbia) through a network of its agents. Unlike the domestic licensed e-money institutions, the services of e-money institutions from third countries, which operate in accordance with the Law on Foreign Exchange Operations and whose names are published by the NBS on its website[99] (e.g. Paypal, Skrill, Payoneer, Paysafe Financial Services Limited, Google Payment Corp. and Payeer Ltd.) may only be used in foreign payment transactions (for payments and collections with respect to electronic purchase and sale of goods and services).

In addition to licensing, the NBS also supervises all payment service providers and e-money issuers in the part of their operations that relates to the provision of payment services and/or electronic money issuance.

In June 2018, the Law Amending the Law on Payment Services[100] came into force (RS Official Gazette, No 44/2018) and it has been implemented as of March 2019. This Law introduced numerous novelties in the provision of payment services, primarily concerning greater transparency of fees charged by payment service providers for services linked to a payment account, and enhanced the protection of payment service users. It envisages a simple procedure for payment account switching in such a manner that the willing user only needs to contact a new payment service provider and give him the authorisation for payment account switching. The new provider is then obligated to exchange all the necessary information with the previous payment service provider, within the legally prescribed deadlines, in order to enable the user to use the new payment account and the services linked to that account. Also, for the first time our legislation regulates and guarantees the right to a payment account with basic features to natural persons – consumers who have legal residence in our country. With this account, the payment service user – consumer may use the services that enable cash payment to and from payment accounts and services of the transfer of funds to and from payment account by direct debiting, using payment cards (including online payments) and credit transfers, including standing orders (on appropriate devices, at bank counters and using the internet). In accordance with these amendments and supplements, in December 2018 and in 2019, a set of secondary legislation was adopted, which specifies and regulates in more detail the application of this law.

In March 2019, the NBS amended the Decision on Implementation of Provisions of the Law on Payment Services Relating to Issuing of Licenses and Approvals of the National Bank of Serbia[101] (RS Official Gazette, Nos 55/2015, 82/2015, 29/2018 and 15/2019) which came into force on 15 March 2019. This Decision sets forth the obligations of a payment institution, and/or persons with a qualifying holding in connection with acquiring a qualifying holding in a payment institution. In addition, this Decision sets forth the obligations of persons who intend to acquire a qualifying holding in a payment institution and further regulates the conduct of the NBS in giving the opinion on whether the said persons meet the

[97] https://www.nbs.rs/internet/english/58/registar_pi.html
[98] https://www.nbs.rs/internet/english/58/registar_pien.html
[99] https://www.nbs.rs/internet/latinica/58/lista_ien_trece_drzave.pdf
[100] https://www.nbs.rs/internet/english/20/laws/law_payment_services.pdf
[101] https://www.nbs.rs/internet/english/20/piien/dozvole_i_saglasnosti_PIIEN_e.pdf

eligibility requirements to ensure safe and sound management of the payment institution.

In March 2019, the NBS amended the Decision on the Contents of Registers of Payment Institutions and Electronic Money Institutions, as well as on Detailed Conditions and Manner of Maintaining these Registers[102] (RS Official Gazette, No 15/2019). This Decision supplements certain provisions regarding the contents of registers of payment institutions and electronic money institutions.

In August 2019, the NBS adopted the Decision on the Standards of Safe and Sound Business Practices in Providing Payment Services through an Agent[103] (RS Official Gazette, No 57/2019). This Decision lays down the standards of safe and sound business practices of payment institutions, e-money institutions and the public postal operator (i.e. supervised entities) in the part of their operations relating to the provision of payment services through an agent. In accordance with this Decision, in case of providing payment services through an agent, the supervised entity shall make sure that its internal controls system enables in particular continuous monitoring of the risks to which it is or may be exposed in connection with the agent's operation. The supervised entity shall make sure that its internal control system enables legality, safety and soundness of agent's business activities relating to the provision of payment services, including compliance of those activities with the regulations governing payment services provision and internal acts of the supervised entity. Also, the supervised entity shall assess the internal controls system so as to ensure effective and efficient management of the risks connected with the agent's operation, as well as adequate, reliable and efficient supervision of the agent's business activities. This Decision also regulates in more detail the duties of the supervised entity, the procedure and conditions under which it can authorise a particular person to provide one or more payment services in the capacity of its agent in the Republic of Serbia.

In September 2019, the NBS amended the Decision on Governance and Internal Controls Systems of Payment and Electronic Money Institutions and on Safeguarding Funds of Payment Service Users and Electronic Money Holders[104] (RS Official Gazette Nos, 55/2015 and 65/2019). This Decision sets out detailed terms and conditions for the establishment, maintenance and upgrading of the governance and internal controls systems in payment and e-money institutions, specifies liquid and low-risk types of assets in which payment and electronic money institutions may invest funds, and the terms and conditions of investment into these types of assets by payment and e-money institutions with a view to safeguarding the funds of payment service users and e-money holders. Also, this Decision regulates the manner in which payment and e-money institutions perform activities outsourced by banks, as well as reporting on these activities.

In order to give users in single place an overview of the fees charged by different providers for specific services linked to a payment account, the NBS publishes on its website comparable data on fees, by payment account (package), for services from the list of representative services and the service of cash payment to other person's payment account.[105] By enhancing transparency and comparability of the fees charged by payment service providers for services linked to a payment account, the NBS enabled the users to get better information on the level of fees charged for the aforementioned services. At the same time, this contributes to stronger competition among payment service providers in terms of their price policy, i.e. they are expected to offer competitive, reduced prices in the market so as to attract new and keep current clients.

Given that the NBS has a significant role in the AML/CTF system, it is important to point out that in assessing the applications on the basis of which it grants licences for the provision of payment services and e-money issuance, it especially considers these applications in terms of the prevention of money laundering and terrorism financing. 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. 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.

[102] https://www.nbs.rs/internet/english/20/piien/registri_PIIEN_e.pdf
[103] https://www.nbs.rs/internet/english/20/piien/standardi__zastupnici_PPU_e.pdf
[104] https://www.nbs.rs/internet/english/20/piien/sistem_upravljanja_i_unutrasnjih_kontrola_PIIEN_e.pdf
[105] https://www.nbs.rs/internet/cirilica/35/nppu_pregled.html

New methods of payment and technological innovations in the payment services market are the result of the NBS's continuous efforts over a number of years aimed at creating appropriate regulatory and other preconditions for modernising and improving payment operations in Serbia. The NBS provides further stimulus to the development of cashless operations and electronic business in Serbia not only by developing a modern Law on Payment Services and adopting a full set of secondary legislation, but also by regulating multilateral interchange fees and other rules in payment card operations, by setting up state-of-the-art payment infrastructure and promoting continuous education of citizens and corporates.

III Financial markets

Owing to further monetary policy easing in an environment of low and stable inflation, positive fiscal movements and improved macroeconomic indicators, interest rates and costs of borrowing in the domestic market declined during 2019. The fall in the country risk premium on the dollar debt, measured by EMBI, to the new historical low in December 2019 and the credit rating upgrade by Fitch and Standard & Poor's went hand in hand with the rising interest of foreign investors in Serbian long-term government securities. In June, the Public Debt Administration successfully issued the first government euro-denominated bond in the international capital market, in the total amount of EUR 1.0 bn, which matures in 2029, while in November it reopened this issue in the amount of EUR 550 mn. The funds obtained through these issues were used for the early repayment of a portion of more costly dollar eurobonds issued in 2011 and 2013. During 2019, the Ministry of Finance's Public Debt Administration organised six early buyback auctions of a part of three-year and seven-year government dinar securities.

III.1 Money market

Trade tensions gradually waned during 2019, but even so, they still caused a good deal of uncertainty in the international financial and commodity markets. Geopolitical tensions were another source of uncertainty. Yet, owing to optimistic developments regarding the US-China trade talks, tensions abated around the end of the year. Monetary policies of leading central banks supported the global economy, which posted lower growth rates in 2019 than a year earlier. Increased accommodation of leading central banks' monetary policies had a positive impact on conditions in the international financial market and capital flows towards emerging countries, including Serbia.

Instead of continuing with normalisation, leading central banks made a turn in their monetary policies: the ECB began to increase its level of expansiveness, while the Fed embarked on a cycle of monetary policy easing. In September, the ECB trimmed its deposit facility rate from -0.40% to -0.50%, while its main refinancing operations rate (0.00%) and marginal lending facility rate (0.25%) remained unchanged. In June, the ECB decided to launch the third long-term refinancing programme, and in early November it also initiated the net asset purchases programme of EUR 20 bn a month. In addition, in early October, it officially began publishing the new euro short-term rate (€STR), which is set to replace the EONIA[106] rate by end-2021. The rate was at first set at -0.549%. The euro short-term rate reflects the costs which banks in the euro area have when borrowing euros without collateral at the overnight market. During the transition period, it should be ensured that all financial agreements and products based on EONIA are now based on the €STR rate.

Against the backdrop of increased uncertainty regarding economic growth and low inflationary pressures, the Fed trimmed its federal funds target range three times in 2019 (July, September and October), each time by 0.25 pp, ending the year with the target range of 1.5–1.75%. This was the first rate cut since the year 2008. In addition to the July rate cut, the Fed decided to discontinue the balance sheet normalisation (reduction) in August. To ease pressures in the money market and keep the rate within the target range, the Fed injected liquidity through

[106] EONIA will continue until end-2021, and is determined as a fixed spread of 8.5 bp over the €STR.

overnight repo operations in September, for the first time in ten years.

In Serbia, owing to timely monetary policy easing in conditions of achieved macroeconomic stability and the country's improved development outlook, as well as positive fiscal movements, the Serbian economy gained strength and became more resilient to shocks emanating from the international environment. Domestic factors continued to contribute to low and stable inflation, though conditions in the international environment still mandated caution in the monetary policy pursuit.

Throughout the whole of 2019, the relative stability of the dinar against the euro was maintained. With the exception of moderate depreciation pressures in January and at the end of the year, chiefly due to the seasonal hike in FX demand of energy importers, as well as at end-August, amid heightened uncertainty in the international environment and seasonally-common dampened activity in the domestic FX market, developments in the FX market are characterised by appreciation pressures. Pressures towards strengthening the domestic currency are a continuation of structural appreciation pressures, present for the past three years as a result of Serbia's improved macroeconomic performance and favourable prospects for future growth and development. Appreciation pressures resulted from increased FX supply stemming from the net FDI inflow, rising export, and increase in banks' net indexed assets, net foreign cash purchases and net extensions of banks' FX position on account of payment card usage. In 2019, the dinar gained 0.5% against the euro in nominal terms, thus continuing its trend of relatively stable movements, as in the past several years. The NBS continued to implement the managed float exchange rate regime, with the possibility of intervening in the FX market to ease excessive short-term oscillations of the EUR/RSD rate, as well as to maintain price and financial system stability, and the adequate level of FX reserves. In the interbank FX market, the NBS net purchased EUR 2,695 mn (in total, it purchased EUR 3,100 mn and sold EUR 405 mn), thereby additionally boosting the country's FX reserves, which equalled EUR 13.4 bn gross at end-2019. FX reserves were at their historic maximum on record. Relative to end-December 2018, gross FX reserves increased by EUR 2.1 bn, thanks to the NBS's activities in the domestic FX market. In this period, the dinar weakened 1.5% against the US dollar as the dollar gained on the euro during much of the year.

Strong fiscal adjustment over the previous years helped reduce the government's borrowing needs, and owing to the budget surplus recorded for the major part of 2019, it was possible to hold six early buyback auctions of dinar government securities. Monetary policy easing contributed to the decrease in interest rates and the costs of dinar borrowing. In June, Serbia was removed from the so-called grey list of the Financial Action Task Force (FATF) owing to the significant progress it made in terms of eliminating deficiencies in the combat against money laundering and terrorism financing.

In the second half of December 2019, Serbia's risk premium on the dollar debt, measured by EMBI, dropped to 5 bp, its new historic low. At end-2019, country risk premium measured 19 bp and was among the lowest in the region. In September 2019, Moody's improved Serbia's credit rating outlook from "stable" to "positive", and confirmed Serbia's credit rating at Ba3, while Fitch increased Serbia's credit rating from BB to BB+. In December, Standard & Poor's also raised Serbia's credit rating from BB to BB+, maintaining a positive outlook. Thus, having preserved stability and transforming its economy, for the first time in history the Republic of Serbia came merely a notch away from investment grade, which is typical for economies with a high level of investment safety. Such developments contributed to the lower costs of borrowing in foreign currency. As leading central banks eased their monetary policies, foreign investors continued to purchase long-term government securities. In addition, Serbia remained a favourable investment destination thanks to its achieved and preserved macroeconomic stability.

In 2019, the key policy rate was trimmed on three occasions, in July, August and November, each time by 0.25 pp, to 2.25% – at the time, its lowest level in the inflation targeting regime. Decisions about monetary policy accommodation were primarily influenced by the weakening of inflationary pressures, which provided an impetus to lending activity and economic growth. Expansive monetary policies by leading central banks (ECB and Fed) created room for further monetary policy accommodation. On the other hand, the international financial and commodity markets were under a significant impact of uncertain trade policies of leading world economies and of global slowdown, which mandated caution in the pursuit of monetary policy throughout the year.

Inflation remained low and stable in 2019, and for the major part of the year it moved within the bounds of the target tolerance band (3%±1.5 pp). In Q1 2019, it came close to the midpoint, largely due to the low base effect from the same period in 2018. Later in the year, the inflation rate declined, and in October it reached its lowest level in 2019 (1.0% y-o-y), as a consequence of the fall in the prices of fruit and vegetables, and petroleum products. In December 2019, inflation measured 1.9% y-o-y, and was close to the lower bound of the target tolerance band.

In 2019, the NBS continued to implement reverse repo transactions (repo sale of securities with one-week maturity) as its main open market operation, in order to absorb excess liquidity of the banking sector.

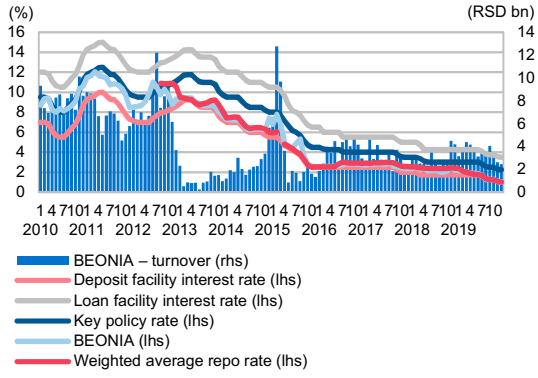
The average rate at one-week repo auctions[107] of the NBS followed the reduction in the key policy rate, and during 2019 it ranged between 1.01% and 2.38%. At the last repo auction in 2019, the repo rate was 1.02% (2.39% at the last auction in 2018). Compared to end- 2018, at end-2019 banks increased their holdings of NBS repo securities (from RSD 16.5 bn to RSD 70.0 bn). At the end of the year, dinar allocations of required reserves went up, as did banks' overnight deposits with the NBS (Chart III.1.1).

Turnover in the interbank overnight money market in 2019 increased relative to 2018 (from RSD 34.7 bn to RSD 41.7 bn) (Chart III.1.2). The average daily turnover in 2019 equalled RSD 3.5 bn, which is higher than the average daily turnover in 2018 (RSD 2.9 bn).

Key policy rate cuts transferred onto interest rates in the interbank money market as well. Throughout the year, BEONIA[108] oscillated around the average repo rate. The average BEONIA rate in December 2019 measured 1.0% (2.2% in December 2018). Average BELIBOR rates in December 2019 ranged from 1.1% for the shortest to 1.8% for the longest maturity, which is lower than in December 2018, when they ranged between 2.4% and 3.2% (Chart III.1.3).

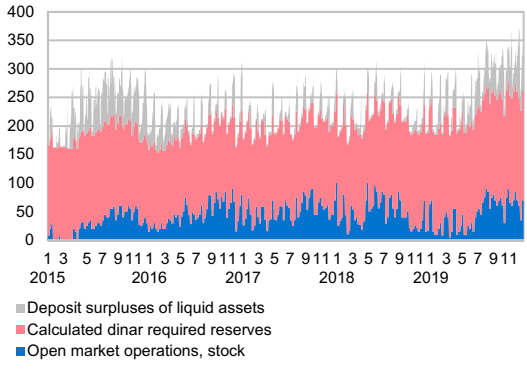
To encourage the development of the interbank swap market and enable more efficient liquidity management by banks, the NBS organises regular two-week and three-

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



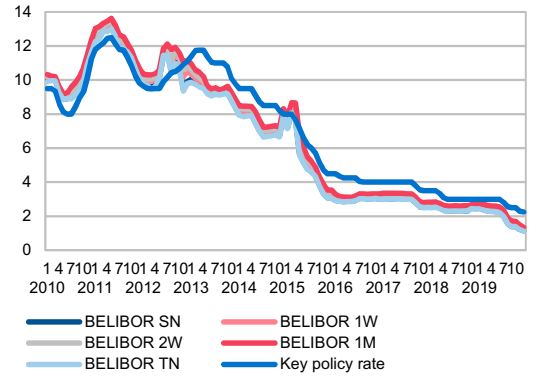
Source: NBS.

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



Source: NBS.

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

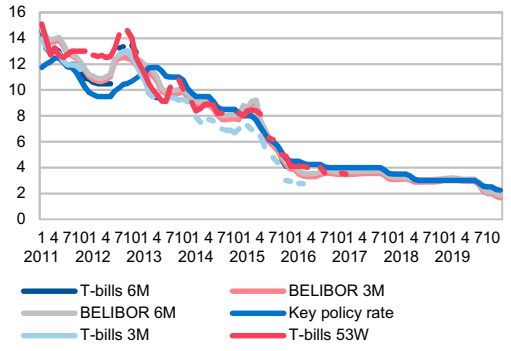


Source: NBS.

[107] The rate achieved at repo auctions weighted by the amount of securities sold.

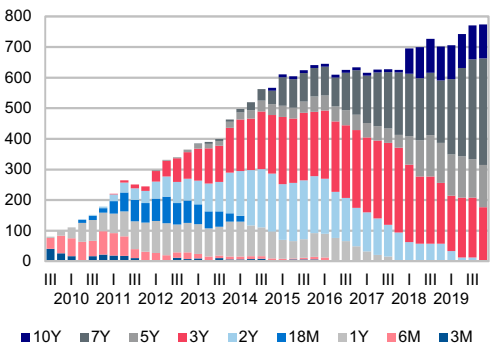
[108] The weighted average overnight rate in the interbank money market in the Republic of Serbia.

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



Sources: Ministry of Finance and NBS.

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



Source: Ministry of Finance.

month FX swap purchase/sale auctions. In 2019, the NBS swap bought and sold EUR 513.5 mn each, which is more than in 2018 (EUR 324.0 mn each). The volume of interbank swap auctions equalled EUR 147.3 mn in 2019, considerably higher than in 2018 (EUR 20 mn).

In addition to regular two-week and three-month EUR/RSD swap auctions, in the first half of 2019 the NBS also organised additional two-week swap auctions. In an environment of a temporary reduction in excess dinar liquidity in the banking sector, and in order to ensure the continued smooth functioning of the money market, the NBS held seven additional two-week swap auctions to purchase FX, i.e. ensure the necessary dinar liquidity to banks. By way of these swaps, banks were provided with dinar liquidity for two weeks, totalling RSD 67.0 bn, in exchange for EUR 567 mn.

Owing to good economic performance, and with a view to reducing the refinancing risk, the government was oriented towards the issuance of financial instruments of longer maturities. Therefore, no T-bills were issued in 2019, either in dinars or in euros.

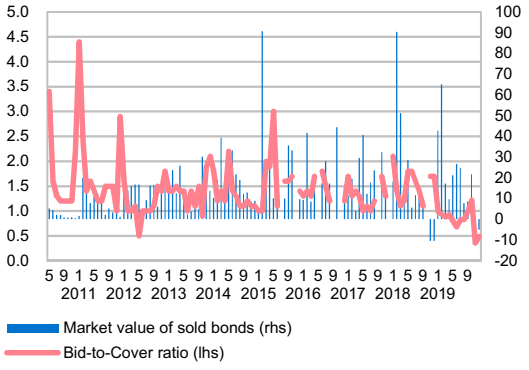
III.2 Bond and share market

The government bond market is one of the most important segments of the domestic financial market. The primary sale of these securities in the domestic market is organised by the Ministry of Finance – Public Debt Administration, by the auction method at a single interest rate. Considerable progress has been made in the previous period in terms of increasing the average maturity of government dinar securities and the reduction of financing costs on account of this type of borrowing. With a view to further development of the capital market, the Law Amending the Law on Public Debt was adopted in December 2019, enabling the clearing and netting of government securities through international clearing institutions. Then, in February 2020, the Law on the Capital Market was amended in order to align the provisions of this Law with those of the Law on Public Debt.

Through the sale of dinar bonds, the government borrows in the domestic market under relatively favourable terms, thus reducing exposure to currency risk and contributing to further dinarisation of the financial system. Owing to improved fiscal position, borrowing in the primary market of dinar government securities contracted additionally, with less frequent auctions and favourable interest rates. The bulk of government bonds issued were dinar bonds of longer maturities. During 2019, the Ministry of Finance's Public Debt Administration organised six early buyback auctions of a part of three-year and seven-year government dinar securities. In five auctions, the early buyback of a part of three-year government dinar securities totalled RSD 30.1 bn in nominal terms (coupon rate of 4.50%, maturing on 5 April 2020), while in one auction, the early buyback of a part of seven-year government dinar securities amounted to RSD 5.0 bn in nominal terms (coupon rate of 10.00%, maturing on 5 February 2022).

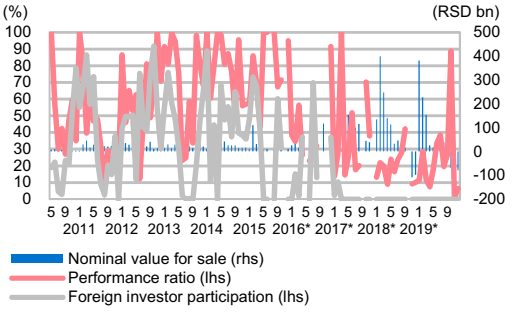
The stock of sold dinar government bonds with the maturity of over one year amounted to RSD 774.0 bn at end-2019, or 10.4% more than at end-2018 (Chart III.2.1). As for the structure of dinar government bonds, at end-2019, the dominant maturity category were seven-

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



Source: Ministry of Finance.

Chart III.2.3 **Performance ratio and foreign investor participation 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.

year bonds (45.0%), which is significantly more than in 2018, when their share was 29.0%, while the share of three-year government bonds contracted from 28.3% to 22.8%.

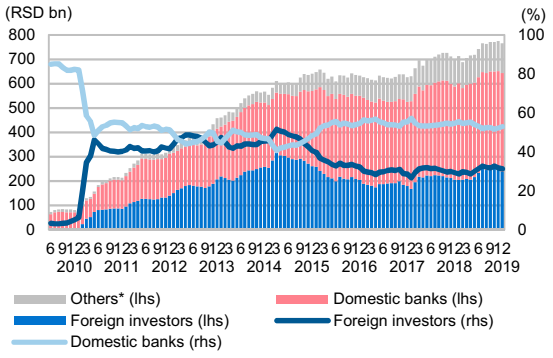
After the successful performance of benchmark bond issues since 2016, the same strategy was applied in 2019. When issuing benchmark bonds, the planned sales volume is only a part of the total issue, so that the issue of those bonds can be reopened multiple times throughout the year. These issues boost the volume of secondary trading. Also, the issuance of these bonds is one of the requirements for the inclusion of government securities in the Local Currency Government Bond Emerging Market Index. At end-January 2020, J.P. Morgan made an official announcement that it placed Serbia on Index Watch Positive for potential inclusion in its GBI-EM index, and the decision on this will most likely be made in Q2 2020. This is yet another confirmation of the excellent results achieved in terms of developing the Serbian economy and ensuring continued development of its financial market.

In 2019, the government auctioned three-year, five-year and seven-year dinar bonds. Improved macroeconomic indicators and continuation of successful fiscal adjustment reduced the government borrowing needs, enabling it to accept only offers with sufficiently low interest rates. The bid-to-cover ratio at primary auctions of dinar government bonds was relatively favourable. It reached the highest value (1.2) in October, and the lowest (0.4) in November 2019 (Chart III.2.2). Also, the performance at primary auctions of dinar government bonds was extremely favourable relative to the planned trading volumes. In some auctions, the high demand resulted in the sale of a greater volume of securities than originally planned, at favourable interest rates. Coupon rates and rates accepted at primary auctions of government bonds were reduced further during the year.

Coupon rates on dinar government bonds fell from 10.00% in 2015 to 4.50% in 2019 for seven-year bonds, and from 8.00% in 2015 to 4.00% in 2019 for five-year bonds. The coupon rate at primary auctions of three-year government bonds declined from 4.50% to 3.75%. Seven-year government bonds recorded a much sharper fall in the effective rate (2.31 pp), given that the last auction of bonds with this maturity was held in 2017. The five-year bonds recorded a sharp fall in the effective rate (by 1.49 pp). Coupon rates on euro-denominated government bonds also dropped, and at the last auction in 2019 three-year bonds were issued at a coupon rate of 1.25% (the same as at the last auction in 2018), and five-year bonds at the coupon rate of 1.75% (the same as at the last auction in 2018). In 2019, the government issued 15-year euro-denominated bonds at the coupon rate of 3.50% (at the previous auction in 2017, the coupon rate was 3.75%). The fall in coupon rates was accompanied by a decline in effective interest rates at primary auctions of these bonds. Rates on ten-year euro-denominated government bonds declined the most (by 161 bp to 1.89%). Interest rates on three-year and 15-year bonds declined during 2019 by 60 bp each (at the last auction of three-year euro-denominated government bonds in 2019 the effective rate of 0.60% was achieved, and at the last auction of 15-year bonds, the effective rate was 3.60%).

In 2019, foreign investor participation in the dinar government bond portfolio increased from 29.2% in December 2018 to 31.2% in December 2019. As shown

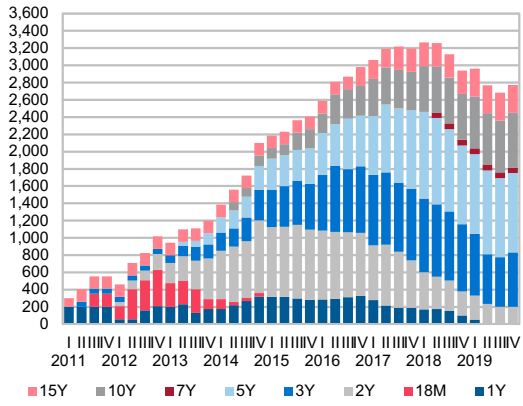
Chart III.2.4 **Structure of the portfolio of dinar government bonds**



* Custody banks, insurance undertakings, pension funds, natural persons and other legal entities.

Source: Central Securities Depository and Clearing House.

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



Source: Ministry of Finance.

in Chart III.2.4, as of end-2015 government bonds are predominantly owned by domestic banks. Their share in the portfolio of dinar securities[109] declined by around 1.7 pp in 2019 relative to December 2018, and equalled 52.9% in December 2019. Other domestic investors (insurance undertakings, pension and investment funds) still account for much lower holdings of dinar government bonds, though there has been a gradual rise in their participation in recent years.

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 June 2019, Serbia successfully issued the first euro-denominated bond in the international capital market, in the total amount of EUR 1.0 bn, which matures in 2029 and is listed in the London Stock Exchange. The eurobond was issued at the coupon rate of 1.5% and the yield of 1.619%, and the demand reached a record EUR 6.4 bn. The funds earned through this new issue were used for the early buyback of a portion of the more costly dollar eurobonds previously issued in the international financial market in the total amount of USD 1.1 bn, namely the eurobond maturing in 2020 (issued in 2011 at the coupon rate of 7.25%), in the amount of USD 400 mn, and the eurobond maturing in 2021 (issued in 2013 at the coupon rate of 4.875%), in the amount of USD 700 mn. This is the first issue of eurobonds in the international market since 2013. In November, the Public Debt Administration reopened the issue of the ten-year eurobond denominated in euros, in the amount of EUR 550 mn, at the interest rate of 1.25% (coupon rate of 1.50%), which is even lower than when it was issued in June. The funds obtained through this issue were used solely for the early buyback of a portion of dollar bonds issued in 2013 at the coupon rate of 4.875%.

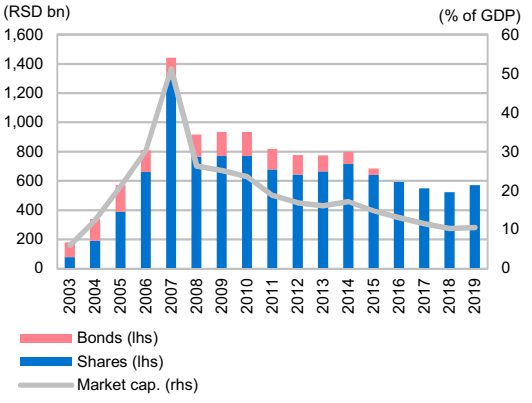
The volume of the euro-denominated government bond issue[110] (EUR 1.9 bn) in the domestic market in 2019 was higher than in 2018 (EUR 0.7 bn). Though the auctions of these bonds were characterised by high demand, as well as relatively high realisation, the stock of euro-denominated bonds with the maturity of more than one year was EUR 70.6 mn lower in 2019 than in 2018, and equalled EUR 2.8 bn in December 2019 (Chart III.2.5). The biggest share in the total portfolio of euro-denominated government bonds was that of five-year (33.2%), three-year (22.9%) and ten-year bonds (22.8%, up by 4.7 pp from end-2018).

Trading volume in the secondary market of dinar government securities in 2019 was higher than in 2018 (RSD 377.6 bn) and equalled RSD 431.2 bn. Secondary trading in euro-denominated securities amounted to EUR 672.2 mn (EUR 813.8 mn in 2018). The strategy of issuing benchmark bonds had a positive impact on trading volumes in the secondary market. As of November 2015, long-term government bonds were included to the BSE prime listing, and total trading in these bonds (both dinar- and euro-denominated) in the BSE in 2019 came at RSD 51.2 bn. The introduction of government bonds to regular trading in the BSE

[109] Including government bonds and 53-week T-bills.

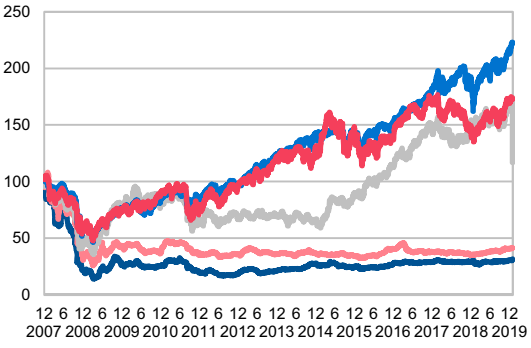
[110] Government securities maturing in one, two, three, five, seven and ten years.

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



Sources: Belgrade Stock Exchange and NBS.

Chart III.2.7 **Stock market indices**
(index, 15 Nov 2007 = 100)



Source: Bloomberg.

facilitated the access of individual investors to these instruments. The development of secondary trading in government bonds in the regulated market also contributes to greater transparency and liquidity of the secondary market of government bonds, and enables a more efficient valuation of these securities.

The introduction of benchmark bond issues had a positive impact on the volume and continuity of secondary trading, as well as on improved market efficiency in the sale of government bonds in the primary market. Further development of the market of government securities can be expected as a result of the use of financial derivatives and introduction of the function of primary dealers that should contribute to the improvement of the primary and secondary markets of government securities.[111] The Law Amending the Law on Public Debt,[112] adopted in December 2019, provided the possibility that one foreign legal entity or several foreign legal entities, dealing in clearing and netting, may be engaged in some operations with government securities, in accordance with the law governing the capital market. This Law was adopted in order to make dinar-denominated securities more available to foreign investors, as well as with the aim of coming closer to EU standards, reducing financing costs, and ensuring better diversification of investors in domestic securities. Amendments to the Law on the Capital Market[113] aligned the provisions of that Law with the provisions of the Law on Public Debt.

The BSE market capitalisation at end-2019 reached RSD 569.6 bn (around 10% of GDP) (Chart III.2.6). Market capitalisation increased mostly in the MTP[114] segment (by RSD 23.3 bn) and the open market segment (by RSD 19.4 bn), while market capitalisation of the prime listing was RSD 15.8 bn lower than a year earlier.

During the year, indices oscillated in both directions. At end-December 2019, BELEX15 (the index of the most liquid shares) measured 801.7, up by 5.3% from end-2018 (761.7). In the same period, BELEXline index increased by 8.6% to 1,726.8. During the year, both indices reached their yearly peaks at end-December.

Indices in regional stock exchanges displayed diverging movements in 2019 (Chart III.2.7).

Total shares turnover on the BSE in 2019 amounted to RSD 40.7 bn, up by RSD 32.9 bn from 2018. The largest share turnover was recorded by shares traded in the BSE Standard Listing (RSD 32.1 bn).

One of the indicators of market liquidity is the monthly share turnover ratio.[115] The low average value of this ratio, which in December 2019 measured only 0.05%, suggests low BSE liquidity (Chart III.2.8). In November, the ratio climbed significantly (5.16%) on account of increased volume of trading in Komercijalna Banka shares. The value of the ratio in December 2019 was considerably below its December 2018 value (0.22%),

[111] The function of primary dealers was introduced in the domestic regulatory framework in early December 2018 with the Law on Amendments to the Public Debt Law, RS Official Gazette, No 95/2018.

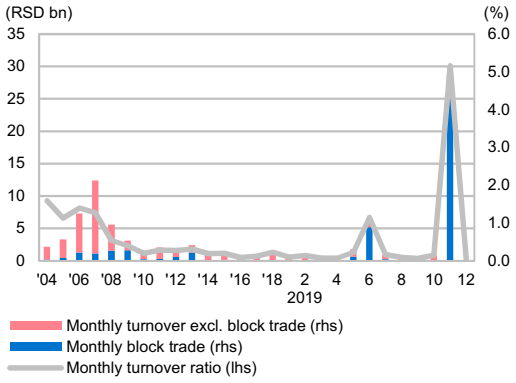
[112] RS Official Gazette, No 91/2019.

[113] RS Official Gazette, No 9/2020.

[114] MTP – multilateral trading platform.

[115] It is calculated as the ratio between the total monthly shares turnover and the average stock market capitalisation 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.

though it remained lower than pre-crisis, when it stood at 1.3% in 2007. However, stock market liquidity is even more unfavourable taking into account that the ratio of the monthly turnover of shares also includes block trading in total turnover. Yet, as a one-off purchase of shares, block trading is only registered on the BSE, and does not reflect its actual liquidity.

The declining trend in the number of transactions in the BSE continued. At 31,115 in 2019, it was significantly lower than in 2018 (60,744), suggesting that there is still a lot of room for the capital market to develop.

Foreign investor participation in the total turnover in the BSE in 2019 was 43.1%, increasing by 4.5 pp from 2018. Foreign investors were more active on the sale (80.7%) than on the purchase side (5.6%).

Bonds issued by the EBRD in the domestic market in December 2016, which matured in December 2019, were also admitted to the BSE prime listing. In February 2019, Erste Bank released the second issue of long-term dinar bonds. Starting from March 2019, these Erste Bank bonds were included in the BSE Standard Listing, and during 2019 there was no trading in these bonds.

In March 2019, effective as of the beginning of April, the BSE changed the method for trading shares quoted in the MTP Belex segment, which is not a regulated market and where securities from the privatisation process are mostly traded in. With a view to activating the MTP Belex market segment, stimulating trading activity, increasing volumes and improving price efficiency, the BSE decided to change the trading method for all securities included in the MTP Belex. The migration of more than 500 individual instruments quoted in this segment to the continued trading method is expected to significantly improve the mechanism for the formation of a fair market price, as well as reduce price oscillations.

The corporate bond market is still underdeveloped. As corporate bonds are an alternative way of financing enterprises, which can be cheaper than borrowing from banks, the development of this segment is very important for domestic enterprises. Still, the development of this market requires activities that will contribute to the higher supply of these instruments (e.g. lower costs of admission to the regulated market), but also further development of domestic institutional investors (insurance undertakings, pension and investment funds) interested in corporate bonds.

In order to further improve the regulated capital market, domestic companies should be encouraged to finance their growth by raising capital through initial public offerings of shares. In addition, increasing the number of issuers whose shares are actively traded would further contribute to the development of the BSE, and to a greater presence of institutional investors interested in those instruments. The Ministry of Finance set up a working group for capital market development which includes all relevant institutions in Serbia, and in February 2020 it announced that it will draft a strategy of the capital market for the purpose of this market's further development, with the support of international institutions. The development of new financial instruments can contribute to the further development of the domestic financial market. Also, to increase investment of domestic natural persons, additional efforts are needed to educate citizens and continue developing financial inclusion. The improvement of current regulations and their alignment with the movements of the capital market at the EU level can also have positive effects on the further development of the domestic financial market.

III.3 Financial infrastructure

Payment systems are the main component of financial system infrastructure. As a result, their stable and reliable operation is a key precondition for proper functioning of the financial and economic system at large.

One of the main functions of a central bank is to ensure the functioning of efficient and secure payments, as the key pillar of financial and economic infrastructure of a country. As the operator and regulator of payment systems, as well as a catalyst of their development, the

NBS regulates and upgrades the payment systems, thereby promoting their stability, safety and efficiency.

Efficient and reliable functioning of payment systems is of particular importance for the NBS as the central bank also because of its other key functions, notably maintaining confidence in the national currency and ensuring financial stability.

The following payment systems make up the infrastructure of Serbia's payment transactions:
– NBS RTGS system,
– NBS IPS system,
– NBS clearing system,
– international and interbank clearing of foreign exchange payments,
– DinaCard clearing system,
– ASB cheque clearing, and
– ASB direct debit clearing.

The NBS is the operator of five payment systems:
– NBS RTGS system,
– NBS IPS system,
– NBS clearing system,
– international and interbank clearing of foreign exchange payments, and
– DinaCard clearing system.

Based on the provisions of the Law on Payment Services governing the finality of settlements in important payment systems, and regulations adopted under that Law, the NBS RTGS and clearing systems are identified as important payment systems.

The NBS Real Time Gross Settlement System (RTGS) is a payment system for the transfer of dinar funds between its participants in real time and at gross principle, and it represents an efficient channel for the implementation of monetary policy measures.

The participants of the system are the NBS, banks with their head office in the Republic of Serbia holding an operating licence issued by the NBS under the Law on Banks, ministry in charge of finance – Treasury Administration, Central Securities Depository and Clearing House, as the operator of the financial instruments settlement system, and ASB, as the operator of the direct debit clearing system and the cheque clearing system.

The settlement of mutual transactions of participants in the NBS RTGS payment system takes place in real time and at gross principle. As it is effected in central bank money, participants are not exposed to credit and liquidity risks arising from the settlement agent.

On the other hand, the NBS enables each clearing payment system participant to set debit caps.

For participants in the RTGS and clearing payment systems, the NBS is a settlement agent, maintaining participants'settlement accounts. Central banks have the lowest credit risk and are a source of liquidity regarding the currency of settlement. Though with regard to funds used for settlement participants are not exposed to credit and liquidity risks, similarly as in all RTGS systems, in order to ensure smooth performance of transactions, participants must have sufficient funds in their accounts and should therefore adequately manage their liquidity. In line therewith, NBS RTGS system participants are also able to manage their liquidity risk, as the system enables them to view all their transactions, account balances and changes in the sequence of execution of payment orders depending on priority.

Relying on its instruments, the NBS also enables banks to use intra-day interest-free loans. These are collateralised lending facilities granted at a bank's request. The collateral for this type of loans, as well as for all monetary operations, are dinar securities of the NBS, the Republic of Serbia and international financial institutions with the highest credit rating. The possibility for banks to obtain additional liquidity in this way is of vital importance for smooth operation of payment systems.

One of the indicators of the importance of the RTGS system for the national economy is the value of payment transactions executed in this system over a certain period. In 2019, as much as 99.35% of the value of payment transactions in Serbia's financial infrastructure was executed in this system.

RTGS turnover in 2019 was RSD 67,401.8 bn and a total of 185.98 mn payments were made. The highest monthly turnover was recorded in December (RSD 7,976.40 bn).

One of the indicators of the importance of this type of systems for the national economy is the value of payments executed (total value of turnover) relative to GDP. In 2019, RTGS turnover was almost twelve and a half (12.46) 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. It is therefore important to note that the availability of these two systems throughout 2019 (252 business days in total) was 100%.

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

	Average for period 2010–2018	2019
NBS RTGS		
Value, RSD bn	45,268.46	67,401.77
Number of payments, mn	142.06	185.98

Source: NBS.

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

	2019
NBS IPS	
Value, RSD bn	90.70
Number of payments, mn	6.96

Source: NBS.

In response to rising demand by payment service consumers for simple and fast payments at any time and any place, the NBS set up the NBS IPS system, as state-of-the-art infrastructure for payment service providers and their consumers, allowing them to make individual instant credit transfers (instant payments) of up to RSD 300,000, in a 24/7/365 regime, almost instantaneously, within close to one second on average.

Direct participants in the NBS IPS system are banks with their head office in the Republic of Serbia, NBS, ministry in charge of finance of the Republic of Serbia – Treasury Administration, i.e. those participants who, in line with operating rules of the NBS RTGS system, may have accounts in this system.

Other payment service providers, if they provide payment services including credit transfers, may be indirect participants in two ways – as persons directly connected to the NBS IPS system, submitting and/or receiving transfer orders in the NBS IPS system directly and/or persons with indirect access, in which case they are not directly connected to this system, but payments on their behalf are executed in the system by direct participants.

The NBS IPS turnover in 2019 was RSD 90.7 bn, with a total of 6.96 mn payments made. The highest monthly turnover was in December (RSD 13.9 bn).

As the payment system affects the speed of economic flows, costs and liquidity of participants, as well as representing a channel for the transmission of monetary policy measures, while its inadequate functioning can undermine public confidence in the financial system at large, it is clear that the NBS needs to ensure its reliable and efficient functioning and the development of a modern and inclusive retail payments market in Serbia, supported by a secure and efficient payments infrastructure.

Network of interbank transactions of the NBS RTGS payment system

Network indicators of the RTGS system are calculated to assess the connectedness of participants and create the basis for analysing the network's stability to potential shocks, and the effects of shock transmission in the network.

Network characteristics were analysed using daily data for January–December 2019, on the basis of reports on interbank transactions in the NBS RTGS payment system. During 252 business days, only MT202 and MT103 interbank messages were analysed[116] 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.[117]

During 252 business days in 2019, for the observed sample of transactions (MT202 and MT103), the average daily turnover was RSD 71.5 bn. The average number of transactions per day was 14,989 and the average value per transaction was RSD 4.77 mn.

The size of a financial network is defined by the number of its participants. The NBS RTGS payment system numbered 27 banks as active participants until March 2019, when OTP bank merged with Vojvođanska banka a.d. Novi Sad and the two banks began to operate as a single bank named Vojvođanska banka a.d. Novi Sad from 26 April 2019. The daily average of direct interbank links was around 554, meaning that a large number of banks executed interbank MT202 and MT103 transactions on a daily basis. The average daily connectivity ratio of 69.1% was relatively high, which means that the interdependence

[116] 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.

[117] A detailed explanation of the indicators is available in the *Financial Stability Report – 2015*, Text box 4 *Network modelling*.

of financial institutions was also high, as indicated by the low average path length of 1.22,[118] i.e. the mean value of the 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 out of the 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 17.97, which is relatively high given the total number of banks participating in the system.

The average clustering coefficient, as the "potential" for clustering, was also high, averaging 89.19%, which means that the nodes' neighbours were connected to a larger extent.

The betweenness centrality reflects the frequency with which an individual institution is on the shortest path between other nodes of the network. Banks with high betweenness centrality are important in the payment system as they participate significantly in the transmission of shocks through the network.

The average betweenness centrality of 3.67% is rather low. However, following an analysis among banks, it can be ascertained that there were several nodes with high values of betweenness centrality and a large number of nodes with low values.

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 0.50 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 take into account interbank connectedness, while the turnover value in the form of a weight branch factor is also considered for the assessment of importance of a financial institution in the payment system network.

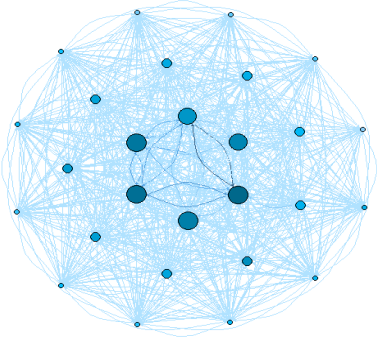
The analysis shows that the RTGS network was highly connected, but that there were several financial institutions that were more interconnected, which represents the basis for further analysis of network indicators at the level of individual institutions.

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 as a whole. 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.

Network modelling of payment systems and the identification of systemically important participants provide a suitable basis for conducting payment system stress testing. The ECB,[119] central banks, as well as the IMF[120] have been increasingly including the stress testing of financial market infrastructure in their regular publications, taking into account the importance of smooth operation of financial infrastructure.

Chart III.3.1 **Bank interconnectedness in the NBS RTGS network**



* Interbank payments (MT202 and MT103) for the period Jan-Dec 2019.
** 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.

[118] 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, i.e. $l = \frac{1}{n-1}\sum_i l_i$.

[119] ECB, *Stress-Testing of liquidity risk in TARGET2* (February 2017).

[120] *Macrofinancial Stress Testing – Principles and Practices,* IMF (2012).

Table III.3.3 **RTGS payment indicators (network-level)**

		Mean	Median	Maximum	Minimum	Standard deviation
Payments	Value (RSD mn)	71,513.28	71,024.05	84,266.84	57,731.01	7,127.69
	Number of transactions	14,988.79	14,999.40	16,788.90	13,405.55	1,076.81
	Average (RSD mn)	4.77	4.89	5.13	4.20	0.30
Network size	Nodes*	26.25	26.00	27.00	26.00	0.43
	Number of direct links	553.81	560.70	577.67	525.27	18.44
Distance measure	Average path length	1.22	1.22	1.24	1.21	0.01
Connectivity	Node degree	19.97	19.90	20.93	19.09	0.56
	Node out-degree	17.97	17.95	18.78	17.16	0.55
	Connectivity	69.13%	69.05%	72.24%	66.02%	2.10%
	Average clustering	89.19%	89.69%	90.82%	86.59%	1.36%
Others	Betweenness centrality	3.67%	3.70%	3.85%	3.45%	0.15%
	Dissimilarity index	0.50	0.42	0.91	0.32	0.19

* Calculations based on daily reports from the NBS RTGS system, for the period Jan-Dec 2019, interbank payments (MT202 and MT103). Vojvođanska banka a.d. Novi Sad merged to OTP bank and since 26 April 2019 they have been operating as one bank under the name Vojvođanska banka a.d. Novi Sad.

Source: NBS.

As an integral part of infrastructure, the payment system offers the network, structural and time perspective for the analysis of interbank relations. Based on the analysis of network indicators of banks in view of the number and values of interbank transactions and their mutual transactions[121] carried out in the NBS RTGS payment system during 2019, 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 smaller number of important nodes can be identified in the network, i.e. a smaller 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).

Given that an efficient financial market infrastructure influences the speed of economic flows, costs and the liquidity of participants, and that it represents a monetary policy transmission channel, it is clear that central banks are particularly interested in ensuring its reliable and efficient functioning.

[121] January–December 2019, interbank payments (MT202 and MT103).

Text box 4: Development of instant payments in the Republic of Serbia as impetus to cashless payments

The digitalisation present in all spheres of social life, together with widespread application of smartphones and the new possibilities they offer, gave rise to fresh expectations and demands of end users.

With the launch of a new payment system in October 2018[122] – the NBS IPS instant payments system enabling households and corporates in the domestic market to make payments via their payment service providers 24/7/365, the Republic of Serbia took over as a leader among regional peers, on a par with countries applying state-of-the-art solutions in the area of payment systems. Moreover, recognising the significance of instant payments, the NBS set up its instant payments system in only a year and a half, a month before the ECB set up the Pan-European system. The average time of transaction execution in the NBS IPS system is one second[123] (0.99 seconds in December 2019).[124] In view of the advantages the payment system offers to all entities in our market, it is important to note the following data. In January 2020, the number of payments hit a record high since the inception of the system – 1,536,783 payments,[125] while the latest data show that a total of 112,797 payments were made in the IPS NBS system on 21 April 2020, which is the record daily number of transactions since its launch.

As an infrastructure, the NBS IPS payment system enables the development of other services as well. In order to encourage greater use of digital technologies for making everyday payments, over the past year the NBS directed its efforts at developing instant payments at POS, as a key service for the acceptance of the new payment instrument. By creating an adequate regulatory framework and enacting a set of standards in cooperation with market participants, the NBS enabled users to pay for goods and services by showing and/or scanning the IPS QR code of the NBS, via an upgraded mobile banking application for instant payments at POS. Compared to other countries, a distinctive feature of payment execution in the Serbian market is that the NBS has enabled commercial banks to develop the new payment instrument by updating existing mobile banking applications, allowing consumers to use new functionalities in a familiar environment and simply and quickly initiate instant payments at POS.

The IPS QR code is a two-dimensional barcode based on the ISO 18004 standard, with elements defined by the decision of the National Bank of Serbia on general rules for executing instant credit transfers in the Republic of Serbia. When defining the IPS QR code, all standards were observed for safe and secure use via different applications intended for instant payments at POS.

For the purpose of developing solutions for instant payments at POS, the NBS also formed a specialised testing laboratory (NBS IPS TestLab), the main purpose of which is to provide adequate conditions for participants to test solutions and in which the NBS monitors the entire process of transaction execution, which is important for safe and efficient use of a payment instrument at POS.

In order to facilitate payment service consumers' acceptance of the new payment instrument, two methods of instant payments at POS were developed: "IPS show" (a method where the payer generates the IPS QR code in his/her mobile banking application and shows the code to the merchant who scans the code, after which payment is initiated) and "IPS scan" (a method where the merchant generates the IPS QR code and shows it to the payer, and the payer scans the code via his/her mobile banking application and initiates payment). In this way, both merchants and buyers can initiate the instant payment transaction at POS in a fast and simple manner, and the cost of making a cashless transaction is much lower for merchants compared to the cost of accepting payment cards. In addition, money is available to merchants directly after the transaction, which is not the case with card payments, and they can immediately make other payments

[122] A detailed explanation is available in the *Annual Financial Stability Report – 2018*, Text box 4 *New payment system in the Republic of Serbia – Instant Payments Serbia*.

[123] https://www.nbs.rs/internet/english/scripts/showContent.html?id=14851&konverzija=no.

[124] https://www.nbs.rs/internet/english/35/statistika/ips/ips_12_19.pdf.

[125] https://www.nbs.rs/internet/english/15/mediji/vesti/20200214.html.

if necessary. Instant payments at merchant POS were introduced in February 2020, and were gradually phased in by banks given the great complexity of implementation. The official web page of the NBS also contains a detailed instruction on how to make payments using the IPS QR code by choosing one of the two options.[126]

The prescribed specification of the IPS QR code also enables payment recipients to generate this code and print it out on bills – invoices, so payers can, via their mobile banking application, scan this code and pay monthly obligations for, e.g. utilities, electricity etc. without having to copy data. As the use of the IPS QR code on printed bills (invoices) greatly simplifies the execution of payments and reduces the possibility of error, payment recipients issuing a large number of bills, such as public utility companies, government and local government bodies, etc. have recognised the importance of using this code on printed bills (invoices). As a result, IPS QR codes are already printed on bills issued by many public enterprises, and numerous companies are expected to enable this service going forward.

The NBS has greatly upgraded the payment market not only through applying state-of-the art technical and technological solutions enabling almost instantaneous transfer of money from the payer's to the payee's account, but also by making a major contribution to lower costs of making payments and by adapting to the needs of households and corporates. By introducing a new payment instrument, the NBS wishes to encourage payment service users to make more intensive use of electronic services in managing personal finances and lend further support to the process of digitalisation in the Republic of Serbia.

The activities taken by the NBS through instant payments in our market have also had a positive effect on reducing the amount of currency in circulation, a practice adopted by advanced economies worldwide.[127] Aside from the risk of being stolen, the use of cash also entails expensive procedures of storing, transport, warehousing etc.; hence, corporates and households are encouraged to use cashless forms of payment. It is precisely the payments initiated by using the IPS QR code that have the potential to increase the share of cashless payments, and respond to expectations of payment service consumers regarding simpler and faster payments at any place, any time, and at a lower cost.

[126] https://www.nbs.rs/internet/cirilica/35/QR_kod.html.
[127] Interview of NBS Vice-Governor Dragana Stanić, January 2020.

III.4 Real estate market

Accepting real estate as loan collateral is a widespread practice in the Serbian banking sector. Since fluctuations in real estate values significantly impact the quality of banks' credit portfolios, the NBS monitors and analyses movements in the Serbian real estate market with a view to preserving stability of the financial system. Based on Statistical Office data for 2019, the number of issued construction permits for apartments went up by 27.9% and the total square surface, according to the issued permits, by 26.7%. In addition, the sharp reduction in NPLs continued, which, coupled with lending growth, pushed the NPL ratio in the construction sector down by around 6.6 pp in y-o-y terms.

Since the beginning of 2016, the value of real estate financed by loans insured with the National Mortgage Insurance Corporation, measured by DOMex, has indicated the recovery of the real estate market. In Q4 2019, DOMex for Serbia decreased by 7.1% in y-o-y terms. At end-2019, the average LTV ratio for initially insured loans measured 67.2%, considerably below the prescribed level of 80%.

According to data of the National Mortgage Insurance Corporation, the average value of insured real estate in Serbia in Q4 2019 stood at EUR 846.3 per square meter. Real estates were the most expensive in the Belgrade region, averaging EUR 1,191.1 in Q4. These prices are the average prices of real estate financed by the loans insured with the Corporation and do not reflect the prices of the rest of the real estate market, i.e. of real estate financed from other sources.

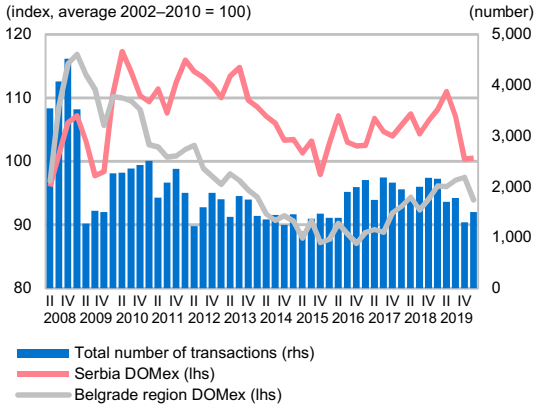
In 2019, 6,266 apartment purchases were financed by insured loans, down by 22.5% compared to 2018, and almost three times fewer than in 2008 (15,650) which saw the highest real estate turnover since DOMex monitoring began.[128] Of the total number of apartments financed by insured loans, somewhat less than half (2,539 apartments, or 40.5%) were in the Belgrade region.

The number of real estate transactions was under the impact of both demand and supply factors.

The results of the bank lending survey[129] show that in 2019 housing loan demand continued to grow. Banks estimate that the demand was boosted by an improvement in the overall economic situation reflected in favourable trends in the labour market, i.e. wage and employment growth. On the supply side, increased interbank competition, stable macroeconomic indicators and greater risk propensity resulted in the relaxation of standards for the approval of housing loans.

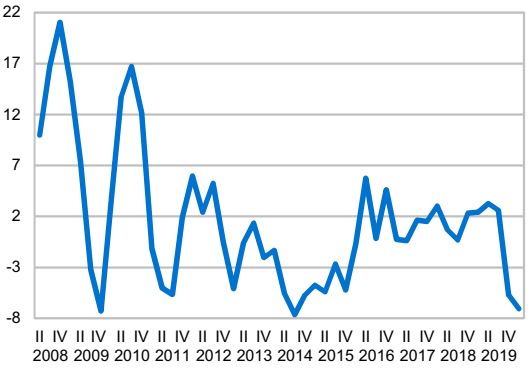
Following contraction caused by the economic crisis, the construction industry, as a supply-side factor, has experienced continuous recovery since 2015, which picked up considerably in 2019. According to the data of the Serbian Statistical Office for 2019, the value of the

Chart III.4.1 **Real estate index DOMex and total number of transactions**



Source: National Mortgage Insurance Corporation.

Chart III.4.2 **Real estate prices**
(y-o-y growth rates)
(%)

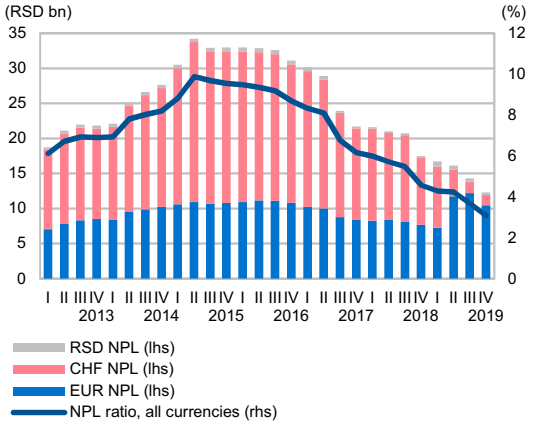


Source: National Mortgage Insurance Corporation.

[128] These data do not suggest that the number of real estate transactions went down, but only that banks reduced the number of loans insured with the Corporation.

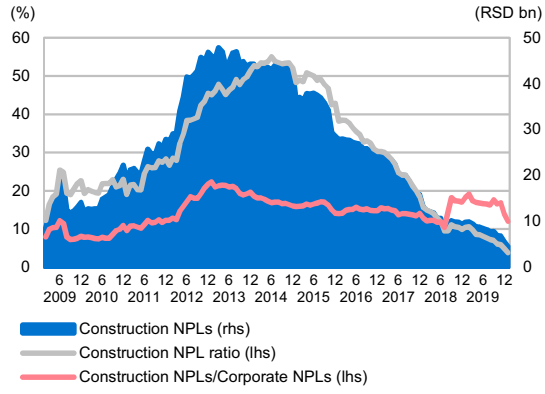
[129] thttps://www.nbs.rs/internet/english/90/anketa_kab

Chart III.4.3 **Housing NPLs**



Source: NBS.

Chart III.4.4 **NPLs of the construction sector within corporate sector NPLs**



Source: NBS.

construction works performed in Serbia, in constant prices, rose by 35% relative to 2018, and the value of works performed on buildings by 26.8%. The total number of issued permits also increased by 12.1%, as did the number of issued building permits (12.5%) and the number of issued permits for other constructions (10.9%). Compared to 2018, the number of issued construction permits for apartments went up by 27.9% and the total square surface, according to the issued permits, by 26.7%.

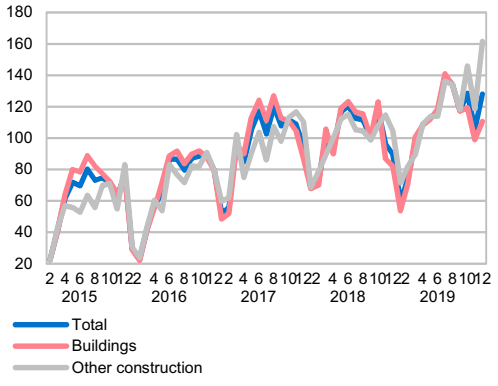
One of the indicators of a significant expansion of the construction industry in 2019 is lending growth in this area (higher value and number of loans), as well as formal employment growth, which reached its peak since 2012. In addition, the sharp reduction in NPLs continued, which, coupled with lending growth, pushed the NPL ratio in the construction sector down by 6.6 pp, to 3.8% in December 2019.

The year 2019 saw a fall in the number of insured mortgage loans in default for which the National Mortgage Insurance Corporation pays the maturing annuities to banks until the mortgaged property is sold (number of insured loans in default). Liabilities arising from housing loans are regularly settled and the rate of defaults on insured loans and the appertaining risk are relatively low. However, should there be an increase in defaults, a larger number of real estate properties offered in the market could trigger an excessive decline in real estate prices below their long-term equilibrium value.

The availability of an average housing unit to an average household in Serbia is measured by the price-to-income ratio, calculated as the ratio of the price of an average 60 m2 apartment to the disposable income (in dinars) of an average household in Serbia. The price-to-income ratio shows the average number of years required for a household to buy an apartment if all its disposable income is spent on this purchase alone. At end-2019, the price-to-income ratio equalled 7.5 years, which, though below its multi-year average (9.4), still indicates that a household earning an average income cannot afford to buy an apartment in Serbia. The fall in the value of this indicator (from 8.5 at end-2018 to 7.5 at end-2019) reflected the growth in the average net wage, especially in the private sector and a further decrease in the unemployment rate in Serbia. The price-to-income ratio has exhibited a downward trend since 2012, with slight volatility, which is a positive signal in terms of its future profile.

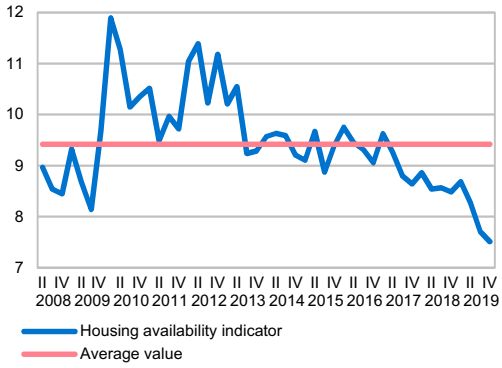
Accepting real estate as loan collateral is a widespread practice in the Serbian banking sector. An adequate real estate valuation is particularly important because banks are directly exposed to the risk of price fluctuations in the real estate market. In fact, poorly collateralised loans were one of the underlying causes of financial crises, which undermined confidence in financial institutions. Professional real estate valuation in Serbia has been continuously regulated in the past period, based on the application of international standards. The Law on Real Estate Valuers adopted in 2016 laid down a regulatory framework which improved legal security and enabled adequate real estate valuation. According to the information available on the website of the Ministry of Finance, the total number of registered licensed real estate valuers at end-2019 was 195. In 2017 the Ministry of Finance adopted the Rulebook on National Standards, Code of Ethics and Code of Conduct for Licensed Valuers and in 2019 the Rulebook on Professional Training for Licensed Valuers and the Rulebook on Continuous Professional Development of Licensed

Chart III.4.5 **Indices of the number of issued new construction building permits**
(index, 2018 = 100)



Source: SORS.

Chart III.4.6 **Housing availability indicator (price-to-income)**
(years)



Sources: NBS, based on data from SORS and the National Mortgage Insurance Corporation.

Valuers. These bylaws improved the provisions of the Law on Real Estate Valuers relating to the training programme and the annual programme of continuous professional development.

At end-2015, the NBS established a database on valuation of mortgaged real estate and loans secured by mortgage in order to create conditions for adequate real estate valuation and more precise perception of credit risk, which is important from the aspect of preserving and strengthening the stability of the Serbian financial system. This database facilitates doing business for all business agents which are directly or indirectly connected to the tasks of real estate valuation, and especially for licensed valuers who are, apart from banks, also allowed to access the database subject to the fulfilment of prescribed conditions. Access to this database enables quality real estate valuation, which mitigates the risk of new NPLs and contributes to the development of the market of mortgage-secured NPLs.

Text box 5: Residential real estate valuation

Developments in the real estate market significantly affect macroeconomic trends, financial stability and real economy, given that the real estate market is a notable segment of the real economy, while residential real estate makes up an important part of household assets and housing loans frequently account for a sizeable portion of credit institutions' balance sheets. Unsustainable developments in the real estate market may have serious repercussions for financial stability, as confirmed by the fact that one of the causes of the global economic crisis in 2007–2008 and the undermined trust in financial institutions were actually inadequately secured mortgage loans. Real estate markets are prone to cyclical movements and excessive risk-taking in the financial cycle upturn may seriously affect financial stability. For this reason, adequate real estate valuation is an extremely important element in monitoring credit risk in the banking sector, because by accepting real estate as loan collateral, banks are directly exposed to real estate price risk. Aware of the importance of proper valuation, in January 2014, the NBS launched the project of creating a database on valuations of mortgaged real estate (real estate database). In the period thereafter the NBS developed the real estate database and allowed access to the prescribed data to banks and certified valuers.

Since the beginning of bank reporting (November 2015) until end-2019, data on 111,282 properties of total estimated value of RSD 3,557,124 bn were entered into the database. The bulk of these data concern residential property[130] (72.8% of the total number), while according to the appraised value, commercial properties hold the dominant share in collateral (83% of total appraised value of all properties entered in the database).

Based on the first data fed into the database – valuations of residential real estates used as a collateral for housing loans, the average appraised value per square meter in the Republic of Serbia in 2019 was EUR 891.

Table 1 shows the average appraised value per square metre and the maximum and minimum appraised value per square metre in the Republic of Serbia, by statistical region, in selected cities and the municipalities of the Belgrade region, for valuations carried out in 2019.

Significant value dispersion may be observed across the regions. Namely, at EUR 1,316, the average appraised real estate value in the Belgrade region is at least twice higher than in other regions (Vojvodina – EUR 614, Southern and Eastern Serbia – EUR 600 and Šumadija and Western Serbia – EUR 581). Given that the largest number of valuations pertain to the Belgrade region, it can be concluded that the average real estate value per square metre in Serbia is largely determined by price movements in the Belgrade region. The average appraised real estate value per square metre is also heterogeneous across the Belgrade region, with suburban and outskirt municipalities recording relatively low average values (the lowest in Barajevo – EUR 358), and central municipalities – above EUR 1,900 (Savski venac – EUR 2,121, Stari grad – EUR 2,005 and Vračar – EUR 1,959). Such dispersion of average appraised values is not found only in the Belgrade region. Almost identical situation was recorded in the regional centre of Novi Sad relative to other municipalities in Vojvodina (Novi Sad – EUR 1,030, other municipalities in the region EUR 412), while in the remaining two regions the disparity between the regional centre and other municipalities is less pronounced (Niš – EUR 763, other municipalities in the region – EUR 497; Kragujevac – EUR 687, other municipalities in the region – EUR 563). The maximum individual value of an appraised real estate per square metre was recorded in Savski venac municipality and the lowest in the region of Vojvodina.

Relative to the year before, in 2019 the appraised real estate values per square metre increased 3.2% in the Republic of Serbia, 5% in the Belgrade region, 5.2% in the region of Southern and Eastern Serbia and 0.2% in the region of Šumadija and Western Serbia, while declining 0.2% in Vojvodina.

Looking at housing loans secured by mortgage over the last four years, by quarter, and the first valuations for those loans, a seasonal variation in the number of valuations is observed, with Q2 and Q4 recording a higher number of valuations than Q3 and Q1. A discrepancy is detected in Q4 2019 due to the fact that a real estate valuation is prepared

[130] In this text box, residential real estate means apartments and houses appraised for the purpose of collateralization of mortgage loans.

Table O.5.1 **Appraised real estate values in 2019**

	Average appraised value per m^2 in 2019 (EUR)*	Average appraised value per m^2 in 2018 (EUR)	Change relative to the previous year (%)	Minimum appraised value per m^2 in 2019 (EUR)	Maximum appraised value per m^2 in 2019 (EUR)	Number of appraised real estates in 2019
Republic of Serbia	**891**	**863**	**3.2**	**42**	**11,475**	**10,454**
Belgrade region	**1,316**	**1,254**	**5.0**	**178**	**11,475**	**4,837**
Belgrade – Savski venac	2,121	1,901	11.6	416	11,475	127
Belgrade – Stari grad	2,005	1,907	5.1	248	3,596	174
Belgrade – Vračar	1,959	1,807	8.4	954	3,115	217
Belgrade – Novi Beograd	1,498	1,377	8.8	426	3,114	835
Belgrade – Voždovac	1,345	1,276	5.3	375	2,544	569
Belgrade – Zemun	1,318	1,146	15.0	361	3,934	437
Belgrade – Zvezdara	1,289	1,244	3.6	349	3,303	1,023
Belgrade – Palilula	1,162	1,090	6.6	411	2,848	426
Belgrade – Čukarica	1,141	1,129	1.1	206	2,597	383
Belgrade – Rakovica	977	962	1.6	360	1,702	280
Belgrade – Surčin	835	750	11.3	416	1,156	43
Belgrade – Obrenovac	626	646	-3.1	182	1,000	70
Belgrade – Lazarevac	619	613	1.0	240	2,224	63
Belgrade – Grocka	614	575	6.8	217	1,194	90
Belgrade – Mladenovac	546	531	2.8	191	855	61
Belgrade – Sopot	388	393	-1.2	256	631	10
Belgrade – Barajevo	358	315	13.8	178	1,112	29
Vojvodina	**614**	**615**	**-0.2**	**42**	**2,451**	**2,988**
Novi Sad	1,030	976	5.6	133	2,451	1,223
Other municipalities of the region	412	405	1.7	42	1,391	1,765
Southern and Eastern Serbia	**600**	**570**	**5.2**	**105**	**2,094**	**1,020**
Niš	763	722	5.7	200	1,250	436
Other municipalities of the region	497	479	3.8	105	2,094	584
Sumadija and Western Serbia	**581**	**580**	**0.2**	**82**	**3,348**	**1,609**
Kragujevac	687	753	-8.7	230	1,197	262
Other municipalities of the region	563	553	2.0	82	3,348	1,347

* Preliminary valuation, with banks expected to continue submitting the 2019 valuations during Q2 2020.

** Data based on the first valuations of apartments and houses in the process of housing loan approval.

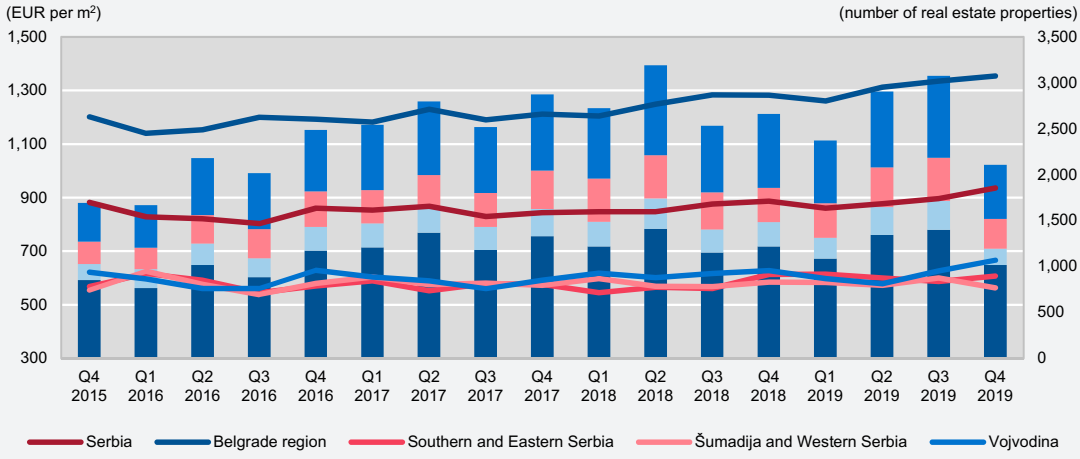
Source: NBS.

minimum one month before the mortgage entry (and hence, before the bank's obligation to submit the valuation data to the NBS). Accordingly, it is expected that the number of valuations in Q4 2019 will add up in 2020. Also, the overview of changes in real estate valuations shows that a mild price rise is evident since Q3 2017.

Data from the real estate database enable determination of the average appraised value not only by region and municipality, but also based on the year of construction, type of real estate (house/apartment), apartment structure etc. The results are shown in Table O.5.2.

The average appraised value of newly constructed real estate (built in 2017, 2018 or 2019) is around EUR 1,211 in the Republic of Serbia (EUR 1,410 in the Belgrade region) and is much higher than the average appraised value of older real estate – around EUR 822 (EUR 1,288 in the Belgrade region). Looking at apartments only, apart from the mild annual growth, in the last four years (2016–2019) the average appraised value per square metre of apartments in Serbia increased by 12.5% (new construction – 14.7%, old construction – 12.1%) Apartment values in the Belgrade region increased by 13.3% (new construction – 11.2%, old construction – 14.2%), in Vojvodina by 13.8% (new construction – 12.9%, old construction – 14.1%), in the region of Southern and Eastern Serbia by 4.2% (new construction – 13.8%, old construction – 5.9%) and in the region of Šumadija and Western Serbia by 6.9% (new construction – 18.6%, old construction – 5.3%). Lower growth in the appraised value of newly constructed apartments compared to old construction in the Belgrade region and Vojvodina (which record stronger construction activity than other regions) is due to the fact that in the past period new apartments reached much higher appraised value per square metre than old apartments, so in 2019 the appraised value of this real estate category increased less, because its absolute value was already high.

Chart O.5.1 **Appraised real estate values and number of properties per region**



* Data based on the first real estate valuations in the process of housing loan approval.

Source: NBS.

It can also be observed that average appraised values per square metre of apartments (EUR 1,097 in Serbia and EUR 1,365 in the Belgrade region) are much higher than average appraised values of houses (EUR 355 in Serbia and EUR 692 in the Belgrade region). This can be explained by the fact that the house surface area is generally larger than the average apartment surface area, due to which the average price per square metre of these real estates is considerably lower.

In terms of apartment structure, the highest average appraised value per square metre is recorded for apartments with four and more rooms (EUR 1,250 in Serbia and EUR 1,565 in the Belgrade region) and studios (EUR 1,295 in Serbia and EUR 1,487 in the Belgrade region). The appraised real estate value declines with the increase in the number of rooms, up to two-room apartments which have the lowest average appraised value (EUR 1,014 in Serbia and EUR 1,292 in the Belgrade region), while with the further increase in the number of rooms the appraised value goes up again. In terms of changes in the average appraised value by apartment structure in the last four years (2016–2019), Serbia-wide, the highest increase was recorded for studios (23%), one-room and one-and-a-half-room apartments (15.9%), followed by four-room and four-and-a-half-room apartments (15.5%), two-room and two-and-a-half-room apartments (11.9%), three-room and three-and-a-half room apartments (9.6%), and the smallest in five-room and larger apartments (6.7%). Compared to the whole of Serbia, the Belgrade region also recorded the highest value increase for studios (23.3%), but with the different descending order, with four-room and four-and-a-half room apartments coming next (16%), followed by two-room and two-and-a-half-room apartments (13.6%), one-room and one-and-a-half room apartments (13.3%), three-room and three-and-a-half room apartments (12.7%), while five-room and larger apartments recorded the smallest increase in value (3.6%).

Given the importance of systemic monitoring of developments in the real estate market, both from the standpoint of a thorough analysis of macroeconomic conditions efficient and timely introduction of macroprudential measures to prevent and mitigate systemic risks potentially generated by movements in the real estate market and posing threat to financial stability, the real estate database is constantly improved in order to enable comprehensive collection, storage and classification of data on the market of mortgaged real estates, for the needs of the NBS and market participants alike.

Table O.5.2 **Average appraised real estate values in 2019 (year of construction, type, structure)**

	Average appraised value per m^2 (EUR)*	Year of construction		Type of real estate		Apartment structure				
		New buildings	Old buildings	Apartment	House	0,5	1–1,5	2–2,5	3–3,5	4+
Republic of Serbia	**891**	**1,211**	**822**	**1,097**	**355**	**1,295**	**1,144**	**1,014**	**1,071**	**1,250**
Belgrade region	**1,316**	**1,410**	**1,288**	**1,365**	**692**	**1,487**	**1,301**	**1,292**	**1,351**	**1,565**
Belgrade – Savski venac	2,121	2,845	1,952	1,939	6,621	2,003	1,676	1,661	1,807	2,200
Belgrade – Stari grad	2,005	1,832	2,014	2,024	248	2,414	1,902	1,943	1,972	2,145
Belgrade – Vračar	1,959	2,209	1,899	1,959	0	1,937	1,918	1,885	1,836	2,095
Belgrade – Novi Beograd	1,498	1,321	1,510	1,502	595	1,782	1,533	1,505	1,463	1,535
Belgrade – Voždovac	1,345	1,596	1,260	1,365	833	1,570	1,336	1,346	1,341	1,442
Belgrade – Zemun	1,318	1,576	1,219	1,313	1,422	1,143	1,336	1,277	1,362	1,329
Belgrade – Zvezdara	1,289	1,308	1,265	1,296	991	1,305	1,288	1,262	1,297	1,443
Belgrade – Palilula	1,162	1,266	1,142	1,175	953	1,283	1,147	1,101	1,198	1,368
Belgrade – Čukarica	1,141	1,311	1,114	1,194	570	1,349	1,217	1,137	1,157	1,333
Belgrade – Rakovica	977	1,058	968	993	800	1,099	1,062	1,013	968	910
Belgrade – Surčin	835	968	599	971	511	960	1,007	982	867	0
Belgrade – Obrenovac	626	862	605	763	422	914	828	762	731	708
Belgrade – Lazarevac	619	833	596	726	405	777	723	684	780	624
Belgrade – Grocka	614	925	425	844	347	909	900	872	802	620
Belgrade – Mladenovac	546	718	504	609	343	0	608	629	575	635
Belgrade – Sopot	388	0	388	603	356	0	0	0	603	0
Belgrade – Barajevo	358	401	357	459	335	0	616	0	397	370
Vojvodina	**614**	**1,022**	**538**	**900**	**307**	**1,169**	**1,056**	**840**	**869**	**930**
Novi Sad	1,030	1,181	970	1,133	455	1,348	1,244	1,131	1,080	1,097
Other municipalities of the region	412	785	374	633	290	778	712	621	645	566
Southern and Eastern Serbia	**600**	**878**	**564**	**694**	**313**	**837**	**758**	**704**	**688**	**580**
Niš	763	960	731	807	439	902	848	807	785	803
Other municipalities of the region	497	804	463	600	284	779	695	613	601	432
Šumadija and Western Serbia	**581**	**962**	**529**	**729**	**340**	**941**	**908**	**688**	**669**	**643**
Kragujevac	687	962	636	785	397	879	848	761	774	690
Other municipalities of the region	563	962	512	718	334	972	924	673	650	636

* Preliminary valuation, with banks expected to continue submitting the 2019 valuations during Q2 2020.

** Data based on the first valuations of apartments and houses in the process of housing loan approval.

Source: NBS.

IV Financial stability

IV.1 Regulatory framework as support to financial stability

IV.1.1 Macroprudential policy

The global financial crisis of 2007–2008 showed the damage that financial instability can cause to the financial system, public finance and the real economy. This experience showed that it was necessary to develop an entirely new area of public policy – macroprudential policy, which aims to limit risks that the entire financial system is exposed to (the so-called systemic risks) in order to preserve financial stability. The timely development (theoretical and practical) of measures of macroprudential policy and its main postulates after the crisis helped the global financial system and financial systems of individual countries to face the following crises better prepared. New capital and liquidity requirements envisaged by the regulatory standard Basel III[131] make the financial system more resilient to the consequences of the crisis both in terms of liquidity and solvency. If one of the objectives of the development of macroprudential policy was to contain the build-up of risks in the financial system, the relevant measures (notably those targeting the structural or horizontal dimension of systemic risk) also contain the build-up of risks caused by the latest pandemic crisis, which has hit most severely the non-financial sector, but will also affect, to a greater or lesser extent, the financial sector. On the other hand, due to the application of measures aimed at preventing the build-up of risks, which will be discussed hereinafter, the financial system is now, *mutatis mutandis*, better prepared to face this impact, i.e. it should much more easily absorb those risks than it was the case in 2007–2008, before the outbreak of the global financial crisis.

Under 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 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 emphasize the main elements of macroprudential policy and given that the mandate is prescribed in general terms, in 2015 the NBS published the Macroprudential Framework[132], which sets out detailed objectives, instruments and the decision-making process of macroprudential policy.

After the publication of the Macroprudential Framework, the NBS adopted regulations 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 their application began in June 2017.[133] An integral part of

[131] For more information about Basel III, see the *Annual Financial Stability Report – 2011*, p. 75-77 (https://www.nbs.rs/internet/english/90/90_2/fsr_2011.pdf).

[132] https://www.nbs.rs/internet/english/18/macroprudential_framework_201503.pdf.

[133] 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 Decision Amending the Decision on Risk Management

this regulatory package is the Decision on Capital Adequacy of Banks (RS Official Gazette, Nos 103/2016, 103/2018 and 88/2019). This Decision 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. Also, the Decision on Liquidity Risk Management by Banks (RS Official Gazette, No 103/2016) introduced a new liquidity requirement – the liquidity coverage ratio. Liquidity as a systemic risk has its both cyclical and structural dimension, which is why the above liquidity requirement contains both components.[134]

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 of 16 December 2019 amending Implementing Decision 2014/908/EU as regards the inclusion of Serbia and South Korea in the lists of third countries and territories whose supervisory and regulatory requirements are considered equivalent for the purposes of the treatment of exposures in accordance with Regulation (EU) No 575/2013 of the European Parliament and of the Council, 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 the manner which ensures the stability and integrity of the financial system, efficient and adequate protection of depositors and other financial services consumers, independence and effectiveness of bank supervision, and effective application of relevant international standards.

As the main feature of the cyclical dimension of systemic risk is its dependence on the inherent cyclicity of the financial system (endogenous feature), it is possible to conclude that the crisis triggered by the COVID-19 pandemic was not caused by the nature of the financial cycle, but by an external event (exogenous factor). Therefore, its influence on financial system stability can be viewed primarily through the structural dimension of systemic risk. The structural dimension of systemic risk strengthens risks in the system through the network of direct links of financial institutions (through debtor-creditor relations) and indirect links (through the same or similar exposures). To contain structural systemic risks, the NBS introduced the capital buffer for systemically important banks and the systemic risk buffer. In this situation, the liquidity coverage ratio also contains structural risks. This means that in the case of risk spill-over, primarily from the real sector to the financial system, the introduced instruments will mitigate risks. The capital conservation buffer has the same effect.

By the introduction of capital buffers and liquidity requirements of Basel III into banking legislation, systemic risks are recognised as a special type of risks, thus calling for special, tailored measures. This recognition lies at the core of macroprudential policy which, in order to be efficient, must be clearly defined as a separate policy, while taking into account interaction with other policies in its implementation, such as microprudential, monetary and fiscal policies, financial consumer protection policy, competition protection policy etc. The sudden crisis triggered by the COVID-19 pandemic emphasized even more the need for coordination of these public policies.

Given the need to preserve the achieved degree of financial system stability and to further strengthen it against the background of potential risks caused by the COVID-19 pandemic, the NBS adopted the decisions published in the RS Official Gazette, No 33/2020 of 17 March 2020, prescribing the moratorium on the repayment of debtors' obligations:

1. Decision on Temporary Measures to Preserve Financial System Stability and

2. Decision on Temporary Measures for Lessors with the Aim of Preserving Financial System Stability.

The moratorium was prescribed for all debtors who wish to apply it (natural persons, farmers, entrepreneurs and companies) and means a suspension in the repayment of obligations in respect of a loan or lease which cannot be shorter than 90 days, i.e. the duration of the state of emergency introduced due to the COVID-19 pandemic.

[133] by Banks. These decisions transpose into the domestic legislation requirements prescribed by the relevant regulation and/or directive of the EU: 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 (CRDIV)).

[134] For more information see: *ECB Task Force on Systemic Liquidity (2018) Occasional Paper Series – Systemic liquidity concept, measurement and macroprudential instruments*.

During the moratorium, neither a bank nor a leasing provider may calculate the default interest on past due outstanding receivables or initiate enforced collection or initiate other legal actions to collect receivables from clients. In addition, a bank or leasing provider cannot claim the compensation of any costs related to the application of the adopted regulations.

These measures were defined with due care, taking into account potential difficulties that citizens and businesses can face in repaying their obligations, and the need to overcome the negative effects on citizens and businesses in conditions of the state of emergency introduced due to the COVID-19 pandemic.

IV.1.2 Regulatory measures to contain systemic risks

In addition to the analysis and assessment of systemic risks in the financial system, the *Annual Financial Stability Report* each year lists measures that can be undertaken to contain systemic risks. These measures are shown aggregately in Table IV.1.1 and elaborated in detail in the text that follows, by area in which systemic risks need to be contained.

Table IV.1.1 **Recommendations**

Year	Brief description
2013/2014	*Draft plans to reduce the share of NPLs*
2013/2015/2016	*Promote the framework for consensual financial restructuring*
2013	*Strengthen domestic dinar sources of funding*
2013	*Determine different insured sums and insurance premiums for FX and dinar deposits*

Source: NBS.

Non-performing loans

The rising share of NPLs in total loans is one of the typical manifestations of a financial crisis. A high level of NPLs is not only a problem of the financial system alone, but of the economy as a whole, since they negatively affect credit activity, which may slow down or postpone economic growth. A high share of NPLs may also deepen the severity and duration of a financial crisis by tying down financial resources (until the NPL is liquidated), which impedes the efficiency of resource allocation and may prolong economic stagnation that goes hand in hand with the financial crisis.[135] If economic entities are unable to perform their regular activity, the ultimate consequence is their insolvency, which is among banks reflected as a higher rate of NPLs in total loans.

At end-December 2019, the NPL share was 4.1%, which is the lowest level on record – down by over 18 pp from 2015, when the NPL Resolution Strategy was adopted (hereinafter: the Strategy),[136] i.e. when the reduction process began, or down by 1.6 pp from end-2018. A significant reduction in the NPL level is a result of the successful implementation of the Strategy and action plans of the Serbian Government and the NBS, adopted to implement the Strategy. Since the domestic banking system is adequately capitalised and highly liquid, and allowances for impairment account for as much as 61.5% of gross NPLs (December 2019), the direct negative effect of NPLs on credit activity is currently considerably limited, so we can primarily talk about the indirect effect. This effect may materialise through banks' risk aversion, which exists even in the most developed markets. Risk aversion is manifested as the tightening of credit standards, such as limitation of loan amount and maturity, and also stricter collateral requirements. Risk aversion is particularly emphasized during the crisis, which is why the Republic of Serbia, just like many other countries, took the obligation, as the guarantor, to settle bank receivables under approved loans to mitigate negative economic and financial consequences of the COVID-19 pandemic and to create preconditions to ensure smooth continuation of lending activity.[137]

Implementation of measures laid out in the Strategy yielded excellent results in terms of reducing the level of NPLs. The Strategy measures were elaborated in two action plans – one prepared by the Government and the other by the NBS. The action plans set out a broad range of activities that the relevant authorities needed to carry out to accomplish the objectives of the Strategy.

Given that the Strategy implementation was a three-year continuous process which ended in 2018, it was necessary to prevent the emergence of new NPLs and enable the

[135] David Woo (2000), *Two Approaches to Resolving Nonperforming Assets During Financial Crises,* p. 3.

[136] RS Official Gazette, No 72/2015.

[137] See: Decree on Determining the Guarantee Scheme as a Measure to Support the Economy to Mitigate the Consequences of COVID-19 Pandemic Caused by SARS-CoV-2 Virus (RS Official Gazette, No 57/2020).

sustainability of the achieved results. With this in mind, in December 2018 the Serbian Government adopted the NPL Resolution Programme for the Period 2018–2020[138] (hereinafter: the Programme), and the Action Plan for its implementation. The objective of this Programme and the implementing Action Plan is to remove the identified obstacles in the system which prevent timely NPL resolution and to establish a system that will prevent the accumulation of NPLs and negative effects on lending and, by extension, on potential economic growth. In order to achieve that objective, several key areas were identified in which (1) regulatory framework, (2) capacity building and/or (3) enforcement of regulations need to be improved, namely:

– resolution of NPLs of state-owned financial creditors,

– improvement of the bankruptcy framework and

– activities aimed at prevention of new NPLs.

Programme implementation is envisaged as a two-year continuous process led by the inter-institutional working group. It was also agreed that the group would maintain close cooperation and exchange information with the NBS and that NBS representatives would participate in the working group.

Presented below are recommendations whose implementation could additionally help in decreasing the share of NPLs.

2013/2014 Banks to draft plans to reduce the share of NPLs. Amendments to the Decision on Risk Management by Banks (RS Official Gazette, No 61/2016) improved the process of managing bad assets in banks. The process can be further improved by preparing specific plans to reduce the share of NPLs. Below are some elements those plans may contain:

– 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;

– methods of decreasing the NPL share (sale, write-off, forbearance or enforced collection of receivables);

– sources for financing implementation of the plan: recapitalisation by shareholders, or in case of a foreign bank's subsidiary, by the parent bank; debt or capital financing by IFIs; sale of NPLs to private asset management companies, etc.

2013/2015/2016 Promote the framework for consensual financial restructuring of companies. In order to improve the procedure of consensual financial restructuring of companies, the Law on Consensual Financial Restructuring was adopted in 2015 (RS Official Gazette, No 89/2015). The Law created the preconditions for speeding up and simplifying the current procedure and entrepreneurs were allowed to apply for the procedure.

However, apart from regulatory improvements, efforts need to be invested in promotion of the procedure and education of entrepreneurs and other stakeholders. This is particularly important in light of the crisis triggered by the COVID-19 pandemic, as in such conditions all possibilities should be used to ensure continued operation of economic entities which face financial difficulties due to the crisis. 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

Around three quarters of the Serbian banking sector assets are held by foreign-owned banks. Most of those banks are members of cross-border banking groups and prior to the global financial crisis of 2007–2008 they were financed mainly by borrowing from their parent banks. When the crisis broke out, the majority of emerging markets were exposed to deleveraging by financially strained parent banks. In order to avoid financial instability caused by deleveraging in host countries of international banking groups' subsidiaries, the year 2009 saw the launching of the Vienna Initiative 1.0. The initiative was aimed at maintaining the agreed level of exposure of banking groups from Western European countries toward CESEE countries. However, as the crisis went on, it became clear that maintaining exposure in the long run was not the right solution, which led to the Vienna Initiative 2.0 of 2012, the goal of which was no longer to maintain exposure, but to coordinate the deleveraging of foreign banking groups. It became obvious by then 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, i.e. with the outbreak of the global financial crisis, cross-border liabilities of the banking sector accounted for 19.7% of total sector's liabilities, while in

[138] https://www.mfin.gov.rs/UserFiles/File/strategija%20krediti/NPL%20Resolution%20Program%20for%20the%20Period%202018-2020_Action%20Plan.pdf.

December 2019 they dropped to 13.3%. A relative decrease in cross-border liabilities was compensated for by the rise in the deposit base. The loan-to-deposit ratio dropped from 1.14 at end-2008 to 0.85 at end-2019. Maintaining this ratio at the level below 1 indicates that banks largely rely on domestic, stable sources of funding, such as deposits, also suggesting that the banking system is more resilient to crises, regardless of trends in foreign markets, and that it is able to preserve lending activity through domestic sources of funding. This also limits the effect of cross-border risk spill-over, which is particularly pronounced during crises. As risk aversion and global uncertainty increased, in the crisis caused by the COVID-19 pandemic, the conditions in the global financial market were tightened and capital from emerging economies was flowing out[139]. Serbia faced the new crisis with much stronger macroeconomic fundamentals. However, in the period ahead, cross-border borrowing should be further monitored in order to assess whether it would go down in the pandemic-induced crisis, as was the general trend after the global financial crisis of 2007–2008.

2013 Strengthening domestic dinar sources of funding. Reliance on domestic, primarily dinar sources of funding, limits the exposure to external risks, particularly in conditions of global crises. Also, stable domestic sources of funding enable adequate risk diversification. It is well known that without credit growth there can be no economic growth either. Given that our financial system is bank-centric, the development of alternative, long-term sources of funding seems reasonable. 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 FX risk which may materialise in case of a sudden drop in the value of domestic currency relative to major world currencies. Such a scenario would lead to a major increase in FX 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 system-wide solvency and liquidity problems both in the corporate and household sectors. Also, in a highly euroised economy, changes in the key policy rate cannot significantly 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 level of dinarisation of the domestic financial system, the Government of the Republic of Serbia and the NBS signed the Memorandum on the Strategy of Dinarisation of the Serbian Financial System in 2012. Bearing in mind that in the period after the conclusion of the Memorandum in 2012, macroeconomic stability was ensured and financial stability strengthened, the Serbian Government and the NBS agreed that preconditions were put in place for updating the Strategy. Having that goal in mind and aware of the gradual and long-term nature of the dinarisation process, in December 2018 the Government and the NBS signed a new Memorandum on the Strategy of Dinarisation.[140] The new Memorandum on the Strategy of Dinarisation takes stock of the past measures and activities and, starting from them, defines additional measures and activities that would boost dinarisation further and mitigate the FX risk in the system. The Strategy of Dinarisation rests on three interconnected 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 development of the market of dinar securities and introducing new dinar products into the domestic financial market.

– The third pillar includes activities aimed at development of FX risk hedging instruments.

At end-2019, the degree of dinarisation of the domestic financial system, measured by the share of dinar in total loans approved to corporates and households, amounted to 33.1%, almost the same as at end-2018 (33.0%), and measured by the share of dinar in total corporate and household deposits – to 35.1%, which is an increase of 2.9 pp relative to end-2018.

The NBS took various monetary, microprudential and macroprudential policy measures in order to strengthen the dinarisation process. In terms of macroprudential measures, in 2011 the NBS adopted the Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, Nos 34/2011 and 114/2017). This Decision prescribes measures for

[139] For instance, according to IMF data, the withdrawal of non-resident portfolio investment from emerging economies in Q1 2020 (from 21 January 2020) reached USD 100 bn (see: *IMF (2020) Global Financial Stability Report*, April 2020).

[140] https://www.nbs.rs/internet/english/30/Memorandum_Dinarisation_Strategy_2018.pdf

mitigating risks in the financial system arising from the high share of FX or FX-indexed loans. The Decision defines the following three measures:

– 80% LTV (loan-to-value) limit for FX or FX-indexed housing loans;

– banks are allowed to approve FX-indexed loans to natural persons, provided that the currency of indexation is the euro;

– banks are allowed to approve FX or FX-indexed loans to natural persons subject to a downpayment or placement of deposit of no less than 30% of the loan amount, provided that such liability does not relate to a credit card.

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 relaxes the LTV limit to 90% in case the loan is approved as a government-support measure for certain groups of natural persons. Systemic risk buffer was also introduced to curb the systemic euroisation risk. All banks headquartered in Serbia whose euroisation exceeds 10% are obliged to maintain systemic risk buffer at the rate of 3% of FX and FX-indexed loans to corporates and households in Serbia.

To further support financial system dinarisation, at its meeting of 12 December 2019, the NBS Executive Board adopted new measures for banks, aimed at changing the currency structure of lending to the corporate sector, in order to ensure a higher share of dinar loans in total loans approved in the Republic of Serbia. Measures aim at creating an environment which encourages more favourable financing of the corporate sector, particularly SMEs – in dinars. These measures are defined in the decisions published in the RS Official Gazette, No 88/2019 of 13 December 2019:

1. Decision Amending the Decision on Capital Adequacy of Banks and

2. Decision Amending the Decision of 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) to micro enterprises and SMEs, entrepreneurs and farmers. Unlike the previous solution, which treated in the same way all bank loans to these entities regardless of the currency, by applying this measure, all dinar loans are subject to a more favourable regulatory treatment, i.e. banks will spend less to cover risks in respect of dinar loans compared to FX and FX-indexed loans to these categories of debtors. These incentives represent an additional measure to ensure more favourable conditions for lending to this most advanced part of the corporate sector which drives the economic growth of each country.

The Decision also aims to encourage dinar lending, by introducing measures to discourage the approval of new, non-purpose, non-investment, FX-indexed and FX loans to economic entities, entrepreneurs and farmers. The maximum percentages of the share of these loans were introduced, the exceeding of which would be the basis for a corresponding reduction in bank capital. In addition to the gradual approach, this measure features the absence of any form of the prohibition of lending, as there are no impediments for a bank to approve a non-purpose and non-investment loan to any client, if thereafter the relevant level of capital is maintained, i.e. if at any moment there are sufficient own funds to meet all regulatory requirements.

Also, the comprehensive approach of the NBS to FX-indexed and FX lending resulted in the improvement of the regulatory bank risk management framework in this segment of operation. The Decision Amending the Decision on Risk Management by Banks defines the requirements for banks in respect of risk management concerning FX-indexed and FX loans. This has helped improve the regulatory framework, with the aim of strengthening the resilience of the financial system to risks which may arise from the high share of FX-indexed and FX loans in bank balance sheets.

In 2019, the Law on the Conversion of Housing Loans Indexed to Swiss Francs (RS Official Gazette, No 31/2019) was adopted and came into effect on 7 May 2019. The Law regulates the rights and obligations of a bank, on the one hand, and a financial services consumer – natural person, with whom the bank concluded a contract on a housing loan indexed to Swiss francs, on the other hand, in the procedure of the conversion of debt in respect of this loan into a loan in euros. This Law reduces the systemic FX risk, i.e. reduces the currency risk relating to the Swiss franc.

To further improve FX risk management by banks, the NBS carried out a survey on bank exposures to debtors not hedged against FX risk. The aim of the survey was to see how banks assessed FX hedging, what the percentage of unhedged debtors is, and what approach banks exercise towards them. The survey can be useful in determining regulatory solutions in 2020.

Along with these activities, we also issue the following recommendation:

2013 Consider introducing different insured amounts and insurance premiums for foreign currency and dinar deposits. The Law on Deposit Insurance (RS Official Gazette, Nos 14/2015, 51/2017 and 73/2019) envisages the same insured amount for both FX and dinar deposits. Since requests for the payment of deposits based on insurance 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 deposits in the local currency. Also, in determining the deposit insurance premium, the Law does not stipulate a higher premium for FX deposits, even though they entail a higher risk for the insurer. Namely, in case of FX deposits there is a higher risk of the occurrence of the insured event than with dinar deposits, due to the absence of FX risk in investment of dinar funds.

In October 2019, the Law Amending the Law on Deposit Insurance was adopted (RS Official Gazette, No 73/2019). The novelty introduced in the calculation of insurance premium concerns the possibility of calculating the insurance premium also based on the level of risk in the operation of each individual bank, in accordance with the premium calculation methodology adopted by the Managing Board of the Deposit Insurance Agency, with the prior consent of the NBS. However, despite this improvement, the Law does not explicitly prescribe the obligation to determine a higher premium for FX deposits. It would therefore be desirable to separate premiums and sums of insurance deposits in future, in line with the deposit currency, and thus support the process of the dinarisation of deposits.

Text box 6: Improving the regulatory framework – Capital Requirements Directive V

The outbreak of the global financial crisis in 2007 brought to the surface the weaknesses of financial systems, as well as the shortcomings of the generally accepted standards and regulations. The aim of all measures and amendments to current banking regulations that have been adopted since then was the achievement of full normative alignment at the international level and the elimination of the identified shortcomings of previous regulatory standards. During 2009, it became evident that financial supervision and regulations need to be reformed. The first steps were made in July that year, through amendments to Basel II[141] regulatory standards. Beside achieving maximum alignment of regulatory requirements, the European Commission also set in motion the process to consider the possibility of changing liquidity standards, the definition of capital, indicators of exposure relative to capital – leverage, counterparty risk, and countercyclical measures – all in line with amendments to Basel II regulatory standards. To implement these reforms, in July 2011 the European Commission published a proposal of the Capital Requirements Regulation (CRR)[142] and Capital Requirements Directive IV (CRD IV). The initial plan was to adopt these regulations in 2012 and apply them as of January 2013, however, the process to adopt Capital Requirements Directive IV 2013/36/EU[143] and the Capital Requirements Directive (EU) 575/2013[144] was not completed until June 2013, and they entered into force in July 2013, applicable from January 2014 and fully applicable from January 2019. Thus, an important step was made towards setting up a single regulatory framework – the Single Rulebook, to achieve maximum alignment of regulations at the European level, at the same time limiting the chances of individual member states departing from what is envisaged in the new legal framework. The implementation of the single regulatory framework is based on the following three pillars: the Single Supervisory Mechanism (SSM), the Single Resolution Mechanism (SRM), and the European Deposit Insurance Scheme (EDIS). What lies at the core of the three pillars are the single regulatory rules, and the EBA plays an important role in the creation of new and interpretation of current regulations.

In November 2016, the European Commission presented a comprehensive reform package known as the EU Banking Package or the Risk Reduction Measures Package. The proposed new regulations package, which pertains to banking operations, was adopted by the EU Council and the European Parliament in May 2019. The package contains measures which aim to increase the resilience of EU institutions, and boost financial stability and banks' ability to approve loans supporting the real economy, as well as measures aimed at capital market liquidity, in order to enable the creation of a single capital market at the EU level.

With the adoption of the Capital Requirements Directive V 2019/878/EU (CRD V)[145] and the Capital Requirements Regulation II 2019/876/EU (CRR II),[146] which are the backbone of the first pillar of the Single Rulebook, and the adoption of the entire EU Banking Package, the regulatory basis of the Single Supervisory Mechanism has been improved. Also, by amending the Banking Recovery and Resolution Directive II (BRRD II)[147] and the Single Resolution Mechanism Regulation II (SRMR II),[148] i.e. by adopting these amendments, the Single Resolution Mechanism is also improved (the second pillar of the Single Rulebook).

CRD V carried out a revision of CRD IV. Amendments relative to CRD IV pertain to the revision of the list of entities exempt from implementation, inclusion of financial holding companies and mixed financial holding companies in the implementation, the remuneration policy, supervisory measures and authorisations, measures to preserve capital and capital buffers, and other macroprudential instruments. This directive specifies that by 28 December 2020, member states

[141] A package of documents was adopted – Enhancements to the Basel II framework, Revisions to the Basel II market risk framework and Guidelines for computing capital for incremental risk in the trading book. These changes to Basel II standards primarily pertain to market risks and securitisation, and are called Basel 2.5 Standards. See more on Basel 2.5 in Text box 1.

[142] Unlike EU Directives, EU Regulations are not transposed into national regulations (laws), but are directly implemented (by being translated into a member state's language) in national legislatures

[143] hhttps://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:176:0338:0436:EN:PDF

[144] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013R0575

[145] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0878&from=EN

[146] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0876&from=EN

[147] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.150.01.0296.01.ENG

[148] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.150.01.0226.01.ENG

are obligated to adopt and publish measures aligning their national banking regulations with CRD V, with the exception of provisions on determining individual MREL[149] for global systemically important financial institutions (G-SIIs), for which implementation has been postponed until 1 January 2024.

The aim of CRD V is to enhance the provisions of CRD IV which turned out to be insufficiently clear, and therefore subject to different interpretations, as well as the provisions which turned out to impose too much burden on some institutions. Also, the new directive implemented the necessary adjustments of CRD IV after adoption, i.e. amendments of other relevant EU legal acts, in order to achieve consistency and comparability among national jurisdictions. The EU Banking Package includes international standards, notably Basel standards and standards of the Financial Stability Board. However, it does not include Basel III standards fully, that is, parts of it adopted in 2017 relating to regulations on credit and operating risks, while leverage requirements are included in the package.

Measures aiming to increase the resilience of EU institutions and strengthen financial stability are elements that complement the regulatory framework established by the Basel Committee on Banking Supervision and the Financial Stability Board. They imply capital requirements introduced for the purpose of risk hedging, especially in areas of market and counterparty credit risk.[150] With regard to these measures, there is a need to revise the methodology based on which the risks banks are exposed to will be assessed more appropriately.

By way of these measures, Pillar II framework has been revised. More specifically, requirements for Pillar II add-ons have been clarified, as well as the difference between the mandatory Pillar II capital requirements and the supervisory Pillar II additional capital expectations, better known as Pillar II Guidance. Competent supervisory authorities are given room for manoeuvre when implementing Pillar II requirements. Pillar II add-ons are strictly limited to the microprudential perspective, thus delineating them from macroprudential instruments which focus on systemic risks.

Changes in macroprudential instruments primarily pertain to improved flexibility and the scope of their application. Regulators have been given greater flexibility in applying the systemic risk buffer and the capital buffer for other systemically important institutions, with an additional clarification of the possible scope of application of the systemic risk buffer. Also, the responsibility of the regulator in terms of systemic risks associated with exposures secured by mortgaged real estate has been defined in more detail, administrative burden associated with activation and reciprocity of macroprudential instruments has been lessened, the leverage ratio for global systemically important financial institutions (G-SIIs) has been introduced, as well as the option to view the progress in the realisation of the Banking Union through the calculation of the score indicating the systemic importance of global systemically important institutions (G-SII score).[151]

The Capital Requirements Regulation 2019/876/EU carried out the revision of the Capital Requirements Regulation (EU) 575/2013. The changes pertain to the leverage ratio, net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, large exposures, and exposures to joint investments. The changes also imply reporting and disclosure requirements.

Basel III standards introduced the leverage ratio which is not based on the asset risk level, and which limits banks' excessive exposure, thereby providing additional protection from risks which may arise from the application of banks' internal models for calculating risk exposure. The leverage ratio requirement was set at 3% of Tier 1 capital, and is in line with the internationally-agreed level.[152] This requirement complements the current capital requirements which are calculated relative to total risk exposure, as it stipulates maintaining a certain level of Tier 1 capital relative to the bank's total exposure, regardless of the asset risk level.

[149] Minimum Requirement for own funds and Eligible Liabilities.

[150] Basel II standards only dealt with the counterparty default risk and allocations for default risk capital requirement, but not with the risk of deterioration in counterparty's creditworthiness, which was a much bigger source of loss during the financial crisis.

[151] https://ec.europa.eu/commission/presscorner/detail/en/MEMO_19_2129

[152] https://ec.europa.eu/commission/presscorner/detail/en/MEMO_19_2129

Another element of these measures is the macroprudential restriction of the maturity structure of funding – the net stable funding ratio (NSFR). The NSFR is a regulatory requirement for the coverage of the estimated required amount of long-term sources of funding by the available amount of stable long-term funding. This restriction should encourage banks to rely on more stable, long-term sources of funding. However, as it is prescribed that the estimated amount of long-term funding needs to be determined, which is not easy to do in operational terms, some room has been left for discretion when introducing this instrument at the national level. As the NSFR aims at long-term sources of funding, it is used as a compatible complement to the macroprudential additional liquidity requirement – the liquidity coverage ratio (LCR), a requirement which mandates the coverage of short-term sources of funding maturing within 30 days by a temporary liquidity buffer over the microprudential requirement.[153]

As for the other group of measures included in the EU Banking Package, i.e. measures for the improvement of banks' ability to approve loans supporting economic growth, their aim is to boost banks' ability of and capacity for lending to SMEs and financing infrastructure projects. Therefore, some of the capital and administrative requirements have been simplified. In order to ensure equal business conditions across the EU market, the new regulations revised the earlier list of exceptions from CRD IV and CRR. In some member states, these exceptions pertained to public development banks and credit unions, which are now subject to the provisions of the new banking package. In parallel, provisions have been implemented to prevent changes to the list of exceptions via national laws or acts delegated by the European Commission.

In addition to the current global systemically important financial institutions, CRD V introduces a new category of the systemically important institutions – a top-tier bank, whose assets are in excess of EUR 100 bn. Authorities in charge of bank resolution will have a broader mandate towards this category, and will be allowed to require that losses and the recapitalisation amount be covered from the regulatory capital and subordinated liabilities.

The latest in a series of measures in the prescribed package are the ones that are supposed to facilitate the role of banks in making the capital markets as liquid as possible in order to ultimately create a single capital market. The adoption of the proposed package of measures helped avoid disproportionate capital requirements and reduce the costs of issuing certain financial instruments (covered bonds, high-quality securitisation instruments, government debt instruments, and other risk-hedge derivatives).

As the establishment and implementation of the Single Rulebook is not a one-step process, but rather a continuous one, the new banking package is an important milestone towards complementing the European regulatory framework which aims to limit the risk level and strengthen stability and resilience of the financial system.

[153] https://www.nbs.rs/internet/english/18/macroprudential_framework_201503.pdf

IV.2 Financial soundness indicators

Several methodological approaches have been used to assess the stability of the financial system in Serbia in the international and historical context.

The comparison of stability of the financial systems 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 end-2008 and 2019: a) capital adequacy, b) balance sheet capital relative to balance sheet assets, c) NPL ratio, d) return on assets, and e) return on equity.

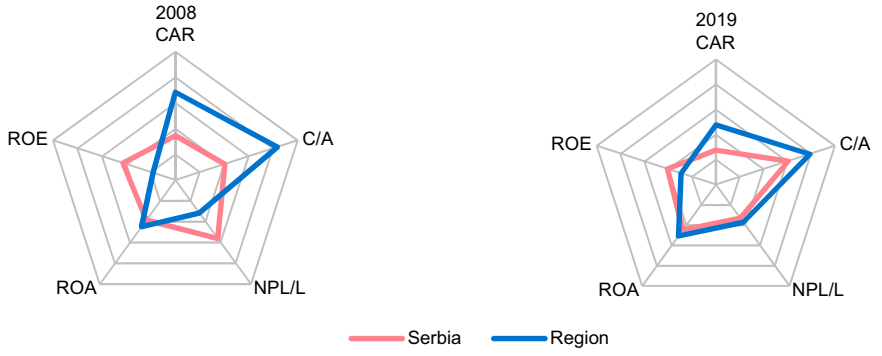
A major element of stability of the domestic non-banking system is the high capitalisation of the banking sector, reflected through capital adequacy ratio, but through the balance sheet capital to balance sheet assets ratio, which are higher than the average for the region. The share of NPLs in total loans is lower than the regional average, owing to the significant reduction in NPLs in the last couple of years. In 2019, the share of NPLs in total loans declined by 1.6 pp to 4.1% at year-end, which is its historical low.[154] Profitability of the banking sector has been on the rise in the past couple of years – ROA was above the region's average, while ROE remained below the regional average due to the strong capital base of the Serbian banking sector.[155]

In addition to the above indicators, the Financial Stress Index (FSIX) is used to measure financial soundness. FSIX is a composite index[156], introduced to identify episodes of high financial stress, their culmination and duration, which is why it covers the financial sector variables relevant for real economic activity. Positive values of the indicator suggest an above-average financial stress level, while negative values point to a below-average level.

Low levels of financial stress recorded over the past several years continued into 2019. The analysis of some components indicates that the low level of financial stress is mainly a reflection of relatively low volatility of the exchange rate and low level of the Emerging Markets Bond Index (EMBI) for Serbia.

To capture potential risks to financial stability arising from the banking system, the banking sector stability index was created.[157] It is calculated based on indicators of solvency, credit risk, liquidity risk, profitability and exchange rate risk.

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 lidicators: CAR – Capital Adequacy Ratio (regulatory capital to risk-weighted assets); C/A – 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, Hungary, North Macedonia, Poland, Romania, Turkey and Croatia. Region FSIs are non-weighted averages of the individual countries' FSIs.

Sources: NBS and IMF – GFSR.

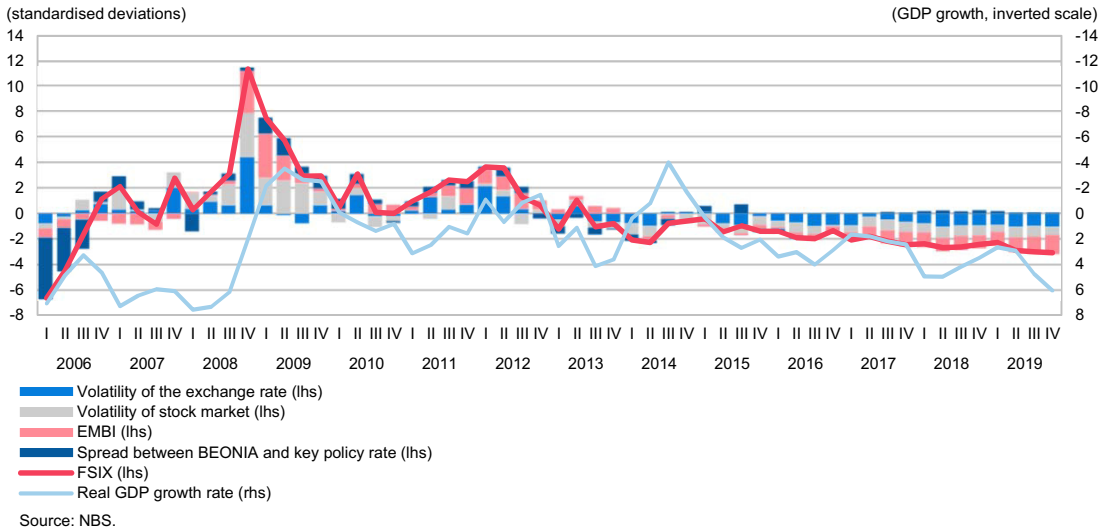
[154] NPL indicator has been monitored since Q3 2008, when it was introduced as an integral part of the regulatory reporting requirements for banks.

[155] For more information on the characteristics and trends in the Serbian banking sector, see Chapter II.1 Banking sector.

[156] For more information on indicator methodology, see the *Annual Financial Stability Report – 2012.*

[157] For more information on indicator methodology, see the *Annual Financial Stability Report – 2014.*

Chart IV.2.2 **Financial Stress Index (FSIX) and GDP growth**

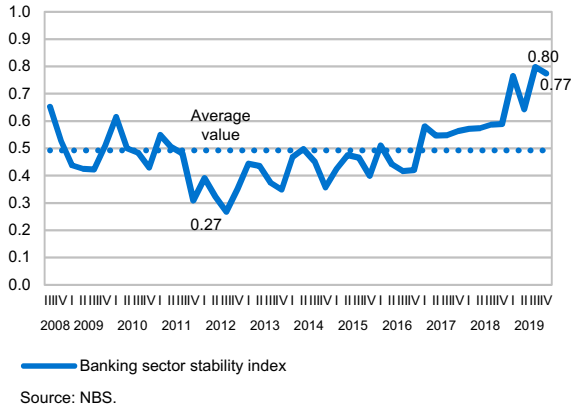


Source: NBS.

At end-2019 the banking system stability index measured 0.77, which is an improvement relative to the end of the previous year.[158] In terms of individual components, it was the high capital adequacy, a significantly lower level of NPLs and high profitability that contributed the most to the high level of stability of the banking sector in 2019. The growth in this indicator in 2019 can be mainly attributed to the exchange rate risk indicator, which reflects the banking sector's asset-liability currency mismatch, and which declined from the previous year, to 0.6%.

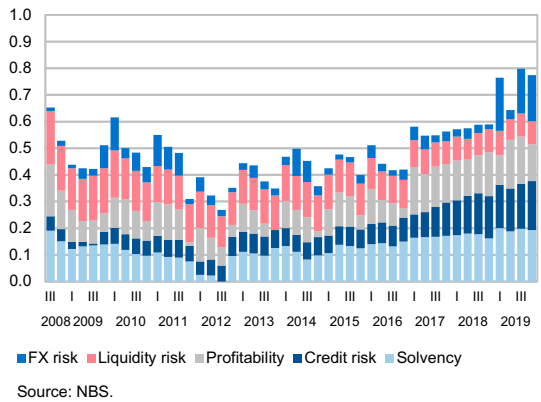
To identify crisis periods and assess the level of systemic stress in the Serbian financial system, a methodology was developed in order to construct a composite indicator of systemic stress. This indicator is based on indicators used by the European Systemic Risk Board and the ECB to analyse the build-up of risk in various segments of the financial system and to assess the level of overall systemic stress. The indicator of systemic stress covers 25 indicators which show the magnitude of financial stress in six major segments of the Serbian financial system: the FX market, government securities

Chart IV.2.3 **Banking sector stability index**
(composite measure)



Source: NBS.

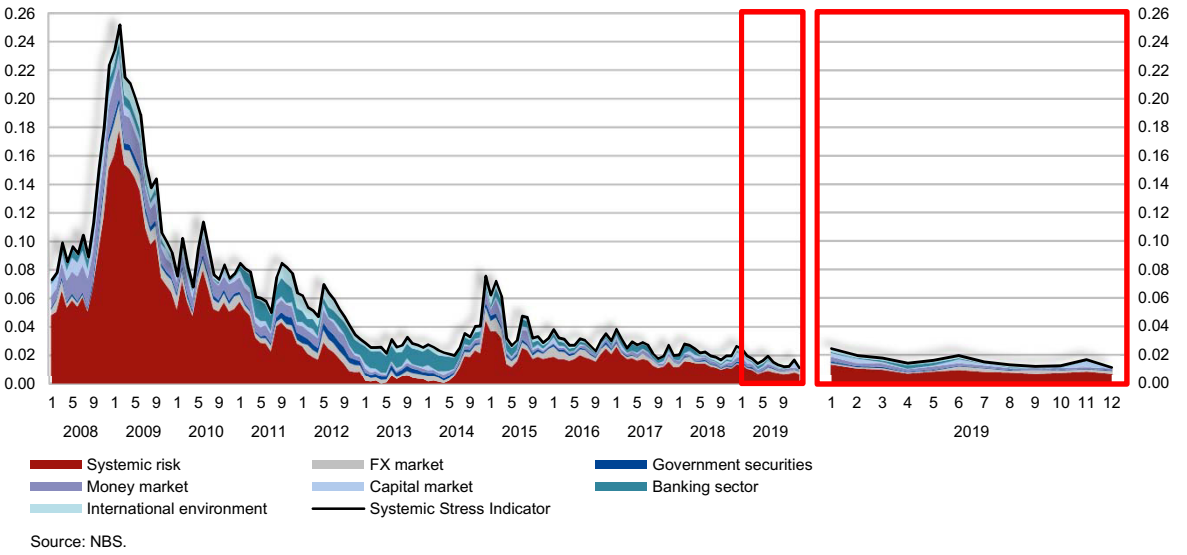
Chart IV.2.4 **Aggregate elements of banking sector stability index**



Source: NBS.

[158] Values above 0.5 indicate higher banking sector stability levels, whereas values below 0.5 indicate lower stability levels.

Chart IV.2.5 **Systemic Stress Indicator dynamics**



Source: NBS.

market, money market, capital market, banking sector and the international environment.

The analysis of the systemic stress indicator in 2019 suggests favourable movements in all segments of the financial system. In 2019, this indicator reached its historical low, pointing to a period of low risk, with a low and stable systemic risk component. Monetary and financial stability, coupled with positive fiscal trends, contributed to the maintenance and strengthening of the resilience of the domestic financial system and overall macroeconomic stability of the country.

Text box 7: Importance of foreign banks in provision of credit to emerging market borrowers – example of Serbia

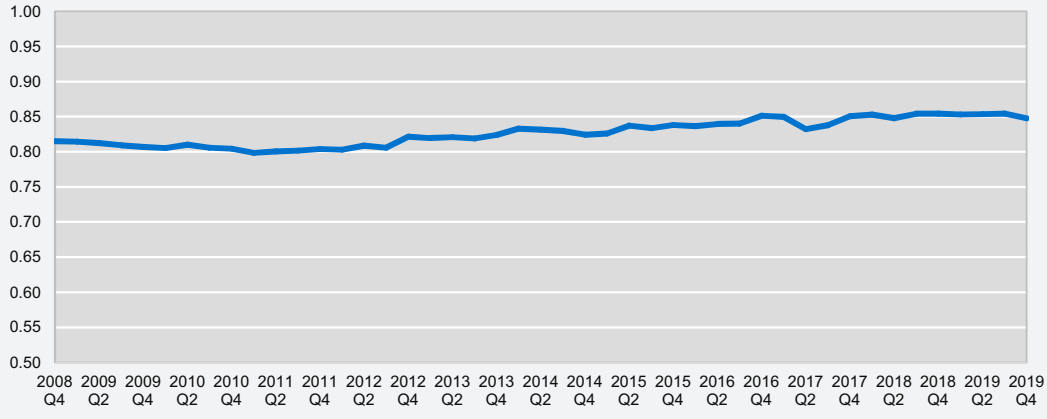
The presence of large international banking groups in emerging markets encourages credit growth and, by extension, supports economic growth. It also deepens the channel through which risks from the international environment are transmitted due to greater global connectedness of countries. Foreign-owned banks operating in European emerging markets relied heavily on cross-border credit, which was under a significant impact of the 2007–2008 global financial crisis.[159] The aftermath of the crisis saw lesser reliance on foreign bank credit in favour of credit provided from domestic sources.[160]

A high share of foreign banks in the provision of credit to emerging economies has twofold implications. On the one hand, research has shown that the presence of foreign banks helps reduce the cost of credit by enhancing banking sector competition and efficiency. On the other hand, higher supply of foreign bank credit, particularly direct cross-border credit, can contribute to excessive credit growth and cause a sudden downturn in credit activity during and after the crisis in emerging markets.[161] To quantify the measure of foreign bank reliance, the foreign bank participation rate[162] is used, as the ratio of foreign bank credit to the non-bank sector to total credit to that sector. Foreign banks include banks headquartered abroad and banks operating in the Serbian banking sector which are in majority foreign ownership. The rate (FBP) is calculated as follows:

$$\mathrm{FBP} = \frac{\mathrm{DC_{FB}} + \mathrm{CBC}}{\mathrm{DC} + \mathrm{CBC}}$$

The numerator includes direct cross-border credit (CBC)[163] and credit approved by local foreign-owned banks (DCFB), and the denominator includes total credit to the non-bank sector in Serbia (the sum of total domestic credit (DC) and direct cross-border credit (CBC)).

Chart O.7.1 **Foreign bank participation rate**



Sources: BIS and NBS.

[159] Chen, Guodong, *Wu, Yi, Bank Ownership and Credit Growth in Emerging Markets During and After the 2008 – 09 Financial Crisis – A Cross-Regional Comparison, IMF WP/14/171,* September 2014.

[160] Hardy, Brian, *Emerging markets' reliance on foreign bank credit, BIS Quarterly Review,* March 2019.

[161] Ehlers, McGuire, *Foreign banks and credit conditions in EMEs, BIS Papers No 91,* March 2017.

[162] Ehlers, McGuire, *Foreign banks and credit conditions in EMEs, BIS Papers No 91,* March 2017.

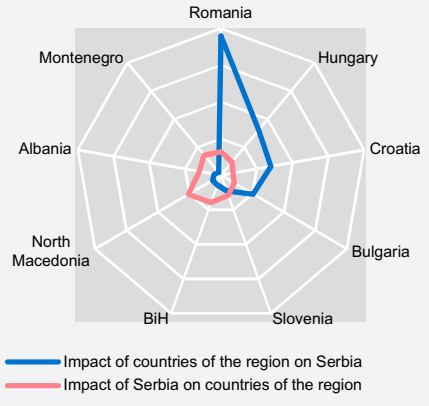
[163] Data on cross-border credit rely on BIS locational statistics and include only the sample of banks reporting in a given period.

Given the high share of foreign banks in Serbia (76%), the foreign bank participation rate was relatively high, i.e. it increased somewhat, from 0.82% at end-Q4 2008 to 0.85% at end-2019. In terms of the elements of the used indicator, in the period observed, growth in foreign bank credit was faster than in total credit, which is why the rate went up slightly. On the other hand, cross-border credit declined in the same period, but growth in domestic credit of local, foreign-owned banks compensated for the decline. The increase in the indicator suggests that after the global financial crisis, Serbia was an attractive destination for credit of international banking groups. The high share of foreign banks, primarily from the EU, reflected on the high risk of deleveraging after the crisis. However, foreign banks adjusted their business models, mainly by raising the share of domestic in total funding sources. Owing to the strengthened deposit base of the Serbian banking sector, foreign banks were able to reduce their financial dependence on parent banks and thus diminish the spread of risk from the international environment. The fall in the loan-to-deposit ratio from 1.14 at end-2008 to 0.85 at end-2019 suggests that deposits rose faster than credit. Since late 2014, domestic deposits have been fully covering the approved loans, which indicates a diminished need for additional sources of funding. The sources of funding of bank credit activity, including of foreign-owned banks, rely primarily on the domestic deposit base. The consulted literature suggests that credit of foreign-owned local banks is a feature of stability, particularly in case of domestic sources of funding.[164]

Foreign creditors are largely present in other countries of the region as well. In case a financial crisis erupts in one country, investors from advanced economies can reduce exposure not only to the country hit by the crisis, but also to its regional peers. Though there is no significant direct link between the country affected by the crisis and other countries of the region, due to the common lender channel, there is a risk of withdrawal of funds from the entire region. In case of a large exposure of the financial sector of the country that is the common lender towards the market hit by crisis, parent banks can react by withdrawing investment or reducing credit exposure to other countries in the region, due to the higher risk perception of the entire region or the need for additional funding sources in the country directly hit by the crisis. To gauge the contagion effect in countries exposed to the same funding sources, the indicator of the impact of the financial crisis through the common lender channel is used, as the indirect measure of financial system integration. The value of the indicator depends on the exposure of the lender's country to the private and public sector of the debtor's country and the share of debt to the common lender relative to the debt of the financial sector of the debtor's country. The indicator is proportional to the probability of financial crisis transmission from a country of the region to Serbia and vice versa.[165]

Chart O.7.2 relies on data from consolidated BIS reports on cross-border exposures of banking groups from eleven countries to Serbia and other countries of Central and Southeast Europe. Based on the results obtained, in the event of a potential financial shock in a country of the region, the strongest impact on Serbia, through the common lender channel, would come from Romania, Hungary and Croatia, while Serbia could most strongly impact North Macedonia, Bosnia and Herzegovina and Montenegro. As the exposure of regional peers to foreign banking groups remains high, risks are transmitted through indirect channels. In case of Serbia, this has been largely diminished as foreign banks in Serbia tap mainly domestic, stable sources of funding.

Chart O.7.2 **Shock transmission via common lender channel**



Sources: BIS and NBS.

[164] Ehlers, *McGuire, Foreign banks and credit conditions in EME, BIS Papers No 91,* March 2017.

[165] For more information about the methodology measuring the impact of the financial crisis through the common lender channel see the *Annual Financial Stability Report – 2013*.

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