

# ANNUAL FINANCIAL STABILITY REPORT



National Bank of Serbia

# 2017



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STABILITY REPORT

2017

**NATIONAL BANK OF SERBIA**

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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-2017.

The *Financial Stability Report* was adopted by the National Bank of Serbia's Executive Board in its meeting of 14 June 2018. 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

Diana Dragutinović, Vice Governor

Veselin Pješčić, Vice Governor

Željko Jović, 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

**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
<b>External risks:</b>	
<ul style="list-style-type: none"> <li>– deterioration of global macroeconomic developments and the impact on the increase in credit risk;</li> <li>– the diverging monetary policies of the Fed and the ECB and the impact on the change of capital flows towards emerging and developing markets which could result in market instability;</li> <li>– price volatility in the global financial and commodity markets;</li> <li>– formation of price bubbles due to inadequate risk assessment and its potential spillover to the domestic market;</li> <li>– untimely banks' adjustment to the frequent changes of regulatory standards (e.g. capital requirements) may adversely affect the operations of parent banks and consequently their subsidiaries in the domestic market;</li> <li>– reduced parent banks' liquidity at the EU level and possible liquidity withdrawal by parent banks;</li> <li>– slower than expected recovery of the euro area and Serbia's other important foreign trade partners;</li> <li>– increase in variable interest rates on loans indexed to foreign currency after a period of extremely low interest rates of leading central banks;</li> <li>– disruption of financial institutions' information systems security due to cyber risks.</li> </ul>	<ul style="list-style-type: none"> <li>– introduction of adequate macroprudential policy instruments aimed at the cyclical dimension of systemic risk;</li> <li>– consistent, countercyclical, flexible and prudent macroeconomic policy (monetary, fiscal and macroprudential), which will maintain external balance and increase the economy's resistance to the shocks from the international environment, preserve internal balance and long-term sustainable economic growth;</li> <li>– cooperation with bank groups and European and international financial institutions to provide as much of financial support as possible to the domestic banking sector; active participation in the international fora and working groups;</li> <li>– cooperation with home supervisors to timely assess the effects of the measures they intend to implement;</li> <li>– strengthening of the local investor base (e.g. pension funds, etc.);</li> <li>– development of new financial instruments to strengthen the domestic funding base;</li> <li>– interest rate risk simulation of annuity plans for new variable-rate loans, in order to alert clients to the interest rate risk;</li> <li>– continued implementation of the Strategy of Dinarisation of the Serbian Financial System and promotion of the use of the local currency;</li> <li>– increasing resilience of information systems to this type of risks.</li> </ul>
<b>Internal risks:</b>	
<ul style="list-style-type: none"> <li>– high degree of euroisation increases the exposure of the domestic financial system to international market developments;</li> </ul>	<ul style="list-style-type: none"> <li>– continued implementation of the Dinarisation Strategy by all relevant stakeholders: the NBS, Serbian Government, and banks, assisted by international financial institutions;</li> <li>– further application of micro and macro prudential regulatory measures aimed at limiting the risk of euroisation;</li> </ul>

Key risks	Mitigating measures
<b>Internal risks:</b>	
	<ul style="list-style-type: none"> <li>– further promotion of the dinar financial instruments</li> <li>– from dinar savings to securities in the local currency, such as the new savings bond of the Republic of Serbia intended for households;</li> </ul>
<ul style="list-style-type: none"> <li>– the share of NPLs in total loans, despite a significant decrease in the previous period, may affect banks’ risk aversion and consequently credit growth and profitability of the banking sector;</li> </ul>	<ul style="list-style-type: none"> <li>– continued implementation of the NPL Resolution Strategy; the NBS fully implemented all the activities envisaged by the Action Plan aimed at increasing banks’ capacity for resolving the issue of NPLs and carried out a number of other measures, too;</li> <li>– additional reduction of the NPL ratio owing to the implementation of the NBS Decision on the Accounting Write-Off of Bank Balance Sheet Assets, which stipulates the mandatory write-off for loans covered in full by the allowances for impairment;</li> <li>– full application of IFRS 9, implying a switch from the incurred loss concept to the expected loss concept;</li> </ul>
<ul style="list-style-type: none"> <li>– uneven recovery of credit activity;</li> </ul>	<ul style="list-style-type: none"> <li>– further NPL reduction and prevention of new NPLs in order to boost credit activity and lower banks’ risk aversion;</li> <li>– NBS measures conducive to banks’ credit potential growth, which encourages economic activity and decreases unemployment;</li> </ul>
<ul style="list-style-type: none"> <li>– inadequate valuation of mortgaged real estate exposes banks to risks in case of collateral activation;</li> </ul>	<ul style="list-style-type: none"> <li>– implementation of the new Law on Real Estate Valuers and national standards for real estate valuation by licensed valuers;</li> <li>– access of licensed valuers to the NBS database on the valuation of mortgaged real estate and loans secured by mortgage enables higher quality real estate valuation, contributing to the reduction of risk of new NPLs;</li> </ul>

Key risks	Mitigating measures
<b>Internal risks:</b>	
<ul style="list-style-type: none"> <li>– unfavourable maturity structure of domestic savings;</li> </ul>	<ul style="list-style-type: none"> <li>– educational activities and informing the public on the possibilities and lucrativeness of long-term savings;</li> <li>– development of long-term domestic financial products;</li> </ul>
<ul style="list-style-type: none"> <li>– increase of financial system procyclicality;</li> </ul>	<ul style="list-style-type: none"> <li>– calibration of the countercyclical buffer rate and introduction of other macroprudential instruments aimed at mitigating the cyclical dimension of systemic risk;</li> </ul>
<ul style="list-style-type: none"> <li>– new information and technological risks arising from innovation and digitalisation of financial services.</li> </ul>	<ul style="list-style-type: none"> <li>– boosting the information system resilience by introducing the latest safeguard measures and adopting appropriate procedures.</li> </ul>



# Contents

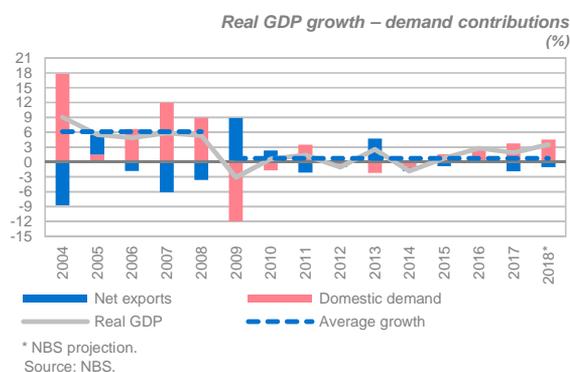
<b>Overview</b>	1
<b>I International and domestic environment</b>	9
I.1 International environment risks	9
I.2 Overview of domestic macroeconomic developments	15
I.3 Foreign exchange reserves as insurance against shocks	18
I.4 Fiscal policy, sustainability of public and external debt	21
I.5 Corporate sector	30
I.6 Household sector	34
<b>II Financial sector</b>	41
II.1 Banking sector	41
<i>Text box 1: Countercyclical capital buffer</i>	51
<i>Text box 2: Systemic risk buffer</i>	55
II.2 Macroprudential stress tests	58
<i>Text box 3: NPL determinants</i>	69
<i>Text box 4: Effect of macroprudential stress tests scenario assumptions on capital buffers</i>	71
II.3 Non-bank financial sector	72
<i>Text box 5: Development of FinTech and impact on financial stability</i>	82
<b>III Financial markets</b>	85
III.1 Money market	85
III.2 Bond and share market	88
III.3 Financial infrastructure	92
<i>Text box 6: National DinaCard system</i>	97
III.4 Real estate market	99
<b>IV Financial stability</b>	103
IV.1 Regulatory framework as support to financial stability	103
<i>Text box 7: Assessment of effects of activities envisaged by the NPL Resolution Strategy</i>	111
IV.2 Financial soundness indicators	113
List of charts, tables and diagrams	117



## Overview

*In 2017, the international environment was characterised by a global economic upturn in both advanced and emerging economies. Accelerated growth in the euro area positively affected the growth outlook of Central, Eastern and South-Eastern European countries, and drove their risk premiums down. On the other hand, risks in the international commodity and financial markets have persisted, primarily those associated with movements in global oil prices and the diverging monetary policies of the Fed and ECB. Nevertheless, thanks to improved macroeconomic fundamentals and a favourable outlook, confirmed by rating upgrades by all three rating agencies, Serbia is now more resilient to potentially adverse effects from the international environment than in the previous period.*

*In 2017, GDP grew by 1.9%, driven mainly by investment and private consumption. The period ahead is likely to see faster economic growth, around 3.5% in 2018 and 2019, while the growth structure will remain favourable. Throughout the year inflation was low and stable, moving within the target band.*



*After three years of successful fiscal consolidation, fiscal surplus was recorded in 2017 for the first time since 2005. It measured around 1.2% of GDP. Fiscal surplus resulted from the rise in tax revenues and reduced interest expenses due to monetary policy easing by the NBS, credit rating upgrades and the significant decline in the country risk premium. Strong fiscal adjustment, stable and low inflation, relatively stable exchange rate and GDP growth slashed the share of*

Acceleration of economic activity both at the global level and in the euro area, Serbia's biggest trade partner, positively reflected on Serbia's economic growth outlook. Euro area growth increased to 2.4% in 2017, the highest figure since 2007. A positive trend in the euro area labour market continued into 2017, the unemployment rate falling to 8.6% at year-end. In late 2017 the monetary policies of leading central banks, the ECB and the Fed, diverged even further. In 2017 the ECB continued its monetary policy accommodation, while reducing monthly asset purchases compared to 2016. On the other hand, the Fed tightened its monetary policy further, raising the federal funds rate three times during the year.

In 2017 GDP growth was driven by investment and private consumption. Household consumption gathered momentum owing to positive labour market trends, i.e. increase in employment and wages, and growth in household lending. The period ahead is likely to see faster economic growth, which will reach 3.5% in 2018 and stay at a similar level in 2019, while the growth structure will remain favourable. Low inflationary pressures continued in 2017, with low and stable inflation all year. Inflation moved within the new target tolerance band, falling from 4.0%±1.5 pp to 3.0%±1.5 pp as of the beginning of 2017. Throughout the year, medium-term inflation expectations of the financial and corporate sectors were anchored within the target band.

By end-2017, the Republic of Serbia successfully implemented the three-year fiscal consolidation programme in accordance with the stand-by arrangement with the IMF. Fiscal surplus was achieved for the first time since 2005, measuring 1.2% of GDP. The share of fiscal result in GDP expanded by as much as 2.4% of GDP relative to the previous year. Primary fiscal surplus, which does not take into account interest expenses resulting from past fiscal policies, was even more favourable – 3.9% of GDP. After the upward trend of the public debt to GDP ratio was reversed in 2016, the ratio was reduced by as much as 10.4 pp in 2017, which

*central government debt in GDP to just 61.5% at end-2017, down by as much as 10.4 pp compared to 2016. The share of external debt in GDP also fell significantly, to 69.9% of GDP, around 7 pp less than in 2016.*

*NBS foreign exchange reserves were sufficiently high to adequately safeguard the domestic system, not only in the environment that prevailed in 2017, but also in conditions of extreme individual shocks and stress scenarios.*

*Corporates operated at a profit in 2017. Almost all economic activities recorded a positive net financial result. In an environment where average costs of borrowing both in dinars and FX are declining further, total corporate loans (domestic and foreign), excluding the exchange rate effect, rose by 5.7% despite the significant clean-up of bank balance sheets. Exposure of the corporate sector to foreign exchange and interest rate risk, though still present, was lower than in the prior period. On the other hand, an adequate level of FX reserves provides sufficient protection from exposure to foreign exchange risk.*

resulted in central government debt of 61.5% of GDP at year-end. General government debt, which includes non-guaranteed debt of local government units and AP Vojvodina, stood at 62.4% of GDP. The maturity structure of public debt was favourable, as was the share of debt repaid at a fixed interest rate. The currency structure of public debt, though significantly better than in 2016, points to foreign exchange risk, since 77% of debt was FX-denominated. External imbalance was greatly reduced in the past five years. However, the share of the current account deficit in GDP rose from 3.1% in 2016 to 5.7% in 2017. The increase was only temporary, as it was caused by one-off factors. The current account deficit was fully covered by FDI, which was well-diversified and channelled mainly to export-oriented sectors. External debt was also reduced, to 69.9% of GDP at end-2017. The successful implementation of fiscal consolidation was confirmed by Serbia's credit rating upgrade and the decline in its risk premium to a historic low in 2017.

NBS FX reserves amounted to EUR 10.0 bn (gross) or EUR 8.3 bn (net) at end-December 2017. All reserve adequacy indicators, including the indicator that takes into account the specificities of Serbia (requiring the coverage of the sum total of short-term debt at remaining maturity, FDI-adjusted balance of payments deficit, 15% of FX deposits and 5% of dinar deposits), show that the level of FX reserves was adequate at end-2017. This was also confirmed by the results of stress tests. FX reserves provide the financial system with a high level of protection from extreme shocks and support macroeconomic stability.

Corporates operated at a profit in 2017, which may be attributed to the recovery of domestic and foreign demand, macroeconomic stability, fiscal consolidation and structural reforms. Not only were the operations profitable, but the financial position of corporates improved as well. In 2017, they achieved almost two and a half times higher positive net financial result than in 2016. Corporates' return on equity was 8.6%, having increased considerably from 4.4% in 2016. Almost all economic activities recorded a positive net financial result. Favourable macroeconomic developments in conditions of further reduction of average costs of borrowing both in dinars and foreign currency (owing to monetary policy easing by the NBS, low interest rates in the international money market and increased interbank competition) have supported the recovery of lending activity in the corporate sector. Domestic corporate loans, excluding the exchange rate effect, increased by 4.3% in 2017. Excluding the effect of the write-off and sale of NPLs, y-o-y growth in domestic corporate loans equalled

*Positive labour market developments are accompanied by the rise in domestic loans to households and growth in savings.*

*Households' exposure to risk remains on a downward trajectory. Interest rate risk, associated with the potential increase in leading central banks' reference rates, remains a source of risk to the household sector when borrowing at a variable interest rate in the medium run. Housing lending is still exposed to foreign exchange risk. On the other hand, an adequate level of FX reserves provides sufficient protection from exposure to foreign exchange risk.*

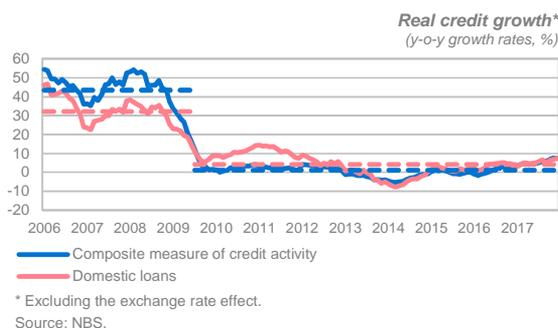
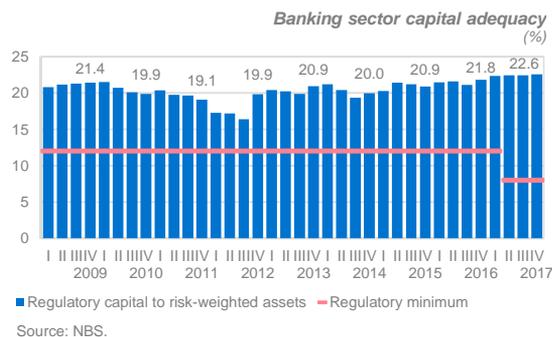
*The banking sector is well-capitalised, highly liquid and profitable, which, together with improved macroeconomic fundamentals, is conducive to a recovery in lending. The regulatory framework introducing Basel III standards has been in force since 30 June 2017. In addition to the capital adequacy ratio of regulatory (total) capital of the bank (8%), two new capital adequacy ratios were introduced – Common Equity Tier 1 capital ratio (4.5%) and Tier 1 capital ratio (6%).*

*Also, as part of Basel III standards, capital buffers were introduced as additional CET 1 capital that banks are obliged to maintain above the regulatory minimum so as to limit systemic risks in the financial system.*

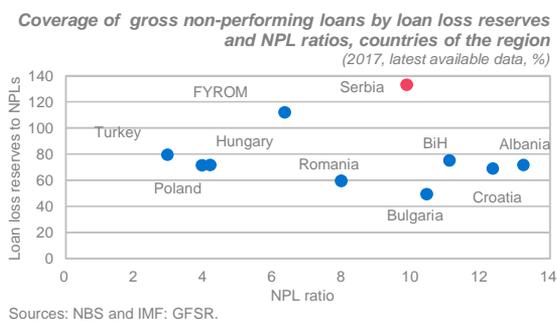
13.0% in December. Also, external debt of enterprises rose by 7.3% in real terms, which, together with the increase in domestic loans, led to a rise in total corporate loans by 5.7%. In an environment of anticipated economic growth, a further reduction of risk exposure may be expected. However, taking into account the share of FX debt and/or debt with a variable interest rate, exposure to foreign exchange and interest rate risk is still present.

In an environment marked by GDP recovery, low and stable inflation, relative stability of the exchange rate and strong fiscal consolidation, the labour market has seen positive trends – a decline in unemployment and increase in real wages. Favourable labour market developments in conditions of a further reduction of average costs of borrowing both in dinars and foreign currency (owing to monetary policy easing by the NBS, low interest rates in the international money market and increased interbank competition) have supported the recovery of lending activity in the household sector. The volume of new loans to households in 2017 was up by 21.7% from 2016. Cash loans were the dominant type, accounting for 58% of the amount of new loans. Housing loans made up a significant amount of new lending, their share in total new household loans increasing from 15.4% in 2016 to 18.4% in 2017. Around 71% of new household loans were in dinars. Relative to end-2016, the share of dinar receivables in total household receivables rose by 4.8 pp to 51.8%, exceeding the share of FX-indexed receivables. The growth in real wages and the decline in the unemployment rate contributed not only to an increase in household loans, but also to growth in household savings. FX savings of households reached EUR 9.4 bn, up by EUR 463.27 mn in real terms in 2017. Households' exposure to risk remains on a downward trajectory. On the other hand, interest rate risk remains a source of risk to the household sector when borrowing at a variable interest rate in the medium run.

Accounting for over 90% of financial sector assets, the banking sector of the Republic of Serbia remained adequately capitalised in 2017. The capital adequacy ratio stood at 22.6%, which is well above the domestic regulatory minimum of 8%, and it did not record significant changes in 2017. In terms of regional comparison, the capitalisation of Serbia's banking sector is still above average. Loans and receivables accounted for the bulk of banking sector assets, as Serbian banks' business models are still built around traditional loan and deposit transactions. The recovery of lending activity continued in 2017. Lending gained 7.3% y-o-y, excluding the exchange rate effect. The key factors underlying the growth in loan supply were continued monetary policy



*At end-2017, the share of NPLs in total loans of the Serbian banking sector came at 9.8%, which is the lowest level recorded since September 2008. The considerable decline resulted mainly from the measures implemented as part of the NPL Resolution Strategy, as well as from other regulatory measures of the NBS. The decrease in NPLs helped boost banks' profitability. The coverage of NPLs by loan loss provisions remained the highest in the region.*

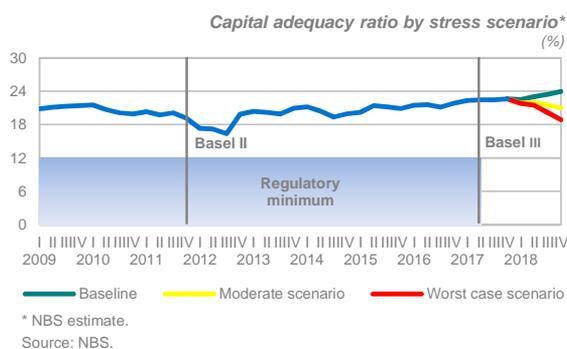


easing by the NBS in place since 2013, NPL resolution measures and activities undertaken by banks and encouraged by NBS regulatory activity and low interest rates in the international money market. On the other hand, the rise in loan demand was supported by economic growth and labour market recovery. The Serbian banking sector remained highly liquid. At end-2017, the average monthly liquidity ratio stood at 2.0, well above the regulatory minimum (1.0). Similarly, the average monthly narrow liquidity ratio of 1.7 was significantly above the regulatory minimum (0.7). The new liquidity coverage ratio introduced in accordance with Basel III regulatory standards also stood considerably above the regulatory minimum, at 239.5%. The Serbian banking sector recorded a positive financial result in 2017. Net profit before tax amounted to RSD 68.7 bn, up by RSD 47.4 bn compared to 2016. Net financial result improved as a result of the decline in net credit losses and one-off effects caused by the consolidation process in the banking sector in 2017. Return on assets of about 2.1% was around the regional average. At 10.6%, return on equity was below the region's average precisely because of the sizeable capital base.

At end-2017, the share of NPLs in total banking sector loans equalled 9.8%, which is the lowest value on record since September 2008, when this indicator was introduced as a requirement in regulatory reporting of the domestic banking sector. In a single year, the NPL ratio was reduced by 7.2 pp (primarily owing to a decrease in gross NPLs by 40.7% or RSD 140.8 bn). Lending growth also helped reduce the NPL ratio to an extent. Compared to the peak value from May 2015, the ratio plunged by as much as 13.3 pp. At end-2017 the share of NPLs in total loans to corporates and public enterprises stood at 10.4%, down by 6.8 pp compared to end-2016, while the share of NPLs in total gross loans to households fell by 4.1 pp to 5.9%. The extraordinary decline in the share of NPLs in total loans is attributable primarily to the regulatory activities of the NBS. Specifically, since August 2015, when the NPL Strategy was adopted, the NBS has not only fully implemented all activities from the Strategy's Action Plan, but it has also undertaken numerous additional measures not envisaged by the Action Plan. Among other things, by amending the Decision on Risk Management by Banks (RS Official Gazette, No 61/2016) in July 2016, the NBS expanded the scope of receivables due from legal persons that banks may assign to other legal persons. To encourage banks to resolve NPLs in their portfolios more efficiently, in August 2017 the NBS adopted the Decision on the Accounting Write-off of Bank Balance Sheet Assets (RS Official Gazette, No 77/2017), imposing a requirement that all receivables whose allowances for impairment equal 100% of their

*Domestic deposits are the main source of funding.*

*On the whole, the financial system is stable. Macroprudential stress tests indicate that the domestic banking sector, as a whole, would remain resilient even in the case of a strong increase in credit and liquidity risks over a one-year horizon. The network model shows that, given the current connections between banks, the risk of contagion is exceptionally low.*



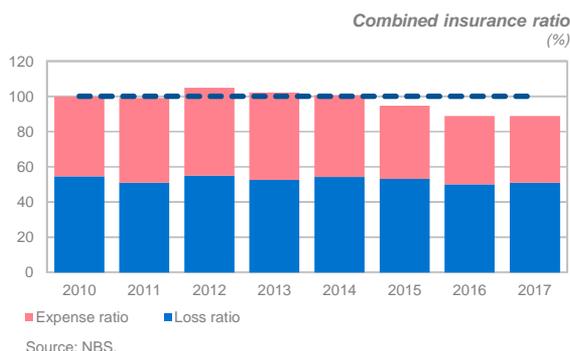
*The insurance sector was stable in 2017, with a high capital adequacy ratio and satisfactory profitability. In 2017 the NBS carried out the second stress test of the insurance sector in Serbia, whose results suggest that the insurance sector would remain stable and highly capitalised even in the event of extreme and highly unlikely shocks.*

gross book value be written off from the balance sheet. The start of application of this Decision made NPL write-offs the main factor in NPL reduction in 2017. During the year, a total of RSD 100.1 bn of gross NPLs was written off, considerably more than in previous years. Taking into account the amount of assigned/sold NPLs to persons outside the banking sector in the amount of RSD 24.5 bn, the total contribution of these channels to the NPL ratio in 2017 is estimated at -5.1 pp. The coverage of NPLs by loan loss provisions remained the highest in the region. The significant decline in NPLs at end-2017 helped improve the profitability of the banking sector relative to 2016.

Banks operating in the Republic of Serbia rely mostly on domestic, stable sources of funding. Same as before, in 2017 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 external sources of funding, e.g. on parent bank financing. This decreases banks' exposure to risks from the international environment. In particular, it decreases exposure to the risk of a sudden withdrawal of money by parent banks, which was one of the challenges faced by countries in the region during the crisis period.

Macroprudential solvency stress tests are used to assess the resilience of the banking sector to credit risk growth, assuming a notable deterioration of macroeconomic conditions. Not only does the capital adequacy ratio of the banking sector remain above the regulatory minimum, but all capital buffer requirements would be met even in the worst-case scenario. Macroprudential liquidity stress tests are used to measure the liquidity risk caused by the loss of depositors' confidence and/or unfavourable economic conditions. The liquidity ratio for the system as a whole would stay above the regulatory minimum even under the extreme scenario, which assumes a far greater deposit outflow than the largest one recorded in the domestic banking sector at the start of the financial crisis. Results of network modelling of links between individual banks show that the structure of interconnectedness is not a source of systemic risk.

Most key business indicators of the insurance sector improved, while total premium gained 4.4% in 2017 compared to 2016. The Serbian insurance sector is adequately capitalised, given the risks to which it is exposed. The ratio of the available to the required solvency margin is well above the prescribed minimum for both types of insurance. Technical provisions were fully covered both in predominantly non-life and life insurers. While profitability indicators of non-life insurers recorded an increase, those of life insurers were



*Net assets of voluntary pension funds continued up, driven more by the difference between net contributions and withdrawals than by return on investment. Both the total number of users and the number of active users increased relative to 2016.*

*Balance sheet assets of the financial leasing sector continued to rise and their quality improved owing to the further reduction in NPLs. Total capital also rose considerably, among other things, owing to the positive result of the entire sector.*

*The number of payment institutions operating in the Republic of Serbia rose further in 2017.*

*Monetary policy easing by the NBS directly contributed to the decrease in interest rates and costs of borrowing in dinars. The decline in the risk premium to its historic low and credit rating upgrades were accompanied by lower costs of borrowing in foreign currency. Relative stability of the dinar's exchange rate was preserved and inflation moved within the new target band throughout the year.*

somewhat lower than last year. The combined ratio remained almost the same as in 2016. The Serbian insurance sector is still less developed than in EU countries, which reveals potential for its further development.

Net assets of VPFs expanded by 10.3% relative to a year earlier. Annual FONDex return (4.7%) was sufficient to preserve the value of VPF assets relative to the inflation rate, but it was lower than last year's return due to high concentration of investment and low interest rates on government securities. On the other hand, the maximum management fee was reduced from 2% to 1.25% of the fund net asset value, which will contribute to further growth in the fund net asset value, and by extension, to the accumulated assets of members.

Growth in balance sheet assets of lessors continued – they were by around 13.7% higher than at end-2016. The share of past due receivables in total investment was further reduced compared to last year. In 2017, the financial leasing sector showed a positive result, albeit weaker than last year. Still, expenses and losses were lower as well. The structure of lessees was still predominantly composed of non-financial companies, while leasing was most frequently used to finance freight vehicles, minibuses and buses.

The aim of introducing payment institutions and electronic money institutions is to increase market competition, improve the quality and diversity of payment services and, consequently, reduce the prices users pay for those services. At end-2017, a total of 12 institutions held a licence to provide payment services, while one institution also had a licence to issue electronic money.

The NBS remained cautious in the conduct of monetary policy in 2017 due to uncertainties in the international financial and commodity markets. As a result of dampened inflationary pressures, the key policy rate was reduced by 0.25 pp on two occasions, to 3.5% – its lowest level in the inflation targeting regime. Monetary policy easing directly contributed to the decrease in interest rates and costs of borrowing in dinars. In 2017 inflation moved within the new band, standing at the 3.0% target in December, which confirms that the decision to lower the inflation target from 4%±1.5 pp to 3%±1.5 pp as of 2017 was correct. The dinar strengthened vis-à-vis the euro by 4.2% in 2017, primarily due to better export performance, high FDI inflows and greater interest of foreign investors in government securities. To prevent excessive volatility of the exchange rate, the NBS intervened by buying EUR 725 mn net, thereby providing an additional boost to the country's FX reserves.

*The market of government securities remained the most important segment of the financial market. The amount and costs of government borrowing declined owing to improved macroeconomic indicators. The average maturity of issued government securities was extended, and foreign investors were more interested in long-term investment. Liquidity of the secondary market of government securities increased.*

*Also, new financial instruments were introduced so as to further develop the market.*

*Accepting real estate as loan collateral is a widespread practice in the Serbian banking sector. Hence, changes in the market value of real estate affect the quality of banks' loan portfolios. Consequently, the inability to adequately determine the value of real estate is one of the potential risks to the financial system. For this reason, the Law on Real Estate Valuers was adopted in late December 2016. The Law came into effect in June 2017. In addition to the database on valuation of mortgaged real estate and loans secured by mortgage kept by the NBS, this Law is a solid foundation for further regulation of this field.*

*The adoption of decisions setting capital buffer rates introduced macroprudential capital buffers into the domestic regulatory framework, which are fully aligned with the Basel III standards.*

Improved macroeconomic indicators enabled the government to switch from short-term sources of funding to issuing medium- and long-term government bonds, with the aim of reducing the risks of financing. Owing to the strengthened fiscal position, borrowing in the primary market of dinar government securities was further reduced, with less frequent auctions offering a smaller amount of securities for sale at more favourable interest rates. After the successful performance of benchmark bond issues in 2016, the same strategy was applied in 2017. The introduction of benchmark bond issues positively impacted the volume and continuity of secondary trading and improved market efficiency in the sale of government bonds in the primary market. To further develop the market of government securities and ease the requirements for investment in government securities by adult natural persons, in late 2017, the Republic of Serbia issued a new financial instrument – savings bonds. Still, there is plenty of room for improvement of the regulated capital market, especially the corporate bond market.

Since early 2017, real estate prices have been showing signs of recovery. DOMex for Serbia gained 3.1% in 2017, driven by the prices in Belgrade, which rose by 4.6%, pointing to a recovery of the real estate market. The results of the lending survey confirmed that housing loan demand grew in 2017 and that banks expect this trend to continue in the period ahead. Apart from factors on the demand side, the number of real estate transactions increased also on the back of recovery in construction, i.e. a supply-side factor. At end-2017, the price-to-income ratio equalled 8.6 years, which, although below its multi-year average (9.6), still indicates that a household earning an average income cannot afford to buy an apartment. The Law on Real Estate Valuers came into effect in June 2017. Under this Law, the NBS adopted the new Decision on Contents, Deadlines and Method of Submission of Reports on Valuation of Mortgaged Real Estate and Loans Secured by Mortgage. In addition, in 2017 the Ministry of Finance adopted the Rulebook on National Standards, Code of Ethics and Rules of Professional Conduct of Licensed Valuers.

Among other things, the Basel III standards introduced new capital buffers, which are some of the most important macroprudential policy instruments. In accordance with the Strategy for Implementation of Basel III Standards in the Republic of Serbia, at its meeting held on 15 December 2016 the NBS Executive Board adopted a set of regulations, which came into effect on 30 June 2017. In June 2017, the NBS adopted decisions setting the countercyclical capital buffer, capital buffer for systemically important banks and systemic risk buffer. In

this way, capital buffers were fully implemented in the domestic regulatory framework, enhancing the quality of capital and improving the resilience of the domestic banking sector to systemic risks.

*In 2017 the NBS adopted a set of regulations enabling the application of the International Financial Reporting Standard 9 (IFRS 9).*

In 2017 the NBS adopted a set of regulations enabling the application of the International Financial Reporting Standard 9 (IFRS 9) as of 1 January 2018. This set of regulations includes the Decision on Forms and Content of Items in Financial Statement Forms to Be Completed by Banks, Decision Amending the Decision on the Chart of Accounts and Contents of Accounts in the Chart of Accounts for Banks, Decision on the Collection, Processing and Submission of Data on the Balance and Structure of Accounts in the Chart of Accounts, Decision Amending the Decision on Reporting Requirements for Banks and Decision Amending the Decision on the Classification of Bank Balance Sheet Assets and Off-balance Sheet Items. These regulations reflect the commitment of the NBS to encourage the appropriate application of IFRS 9 in the domestic banking sector, allow for greater transparency of financial statements of banks in terms of the method of measurement of balance sheet items, and strengthen the confidence in the financial position of banks.

*A comprehensive assessment of financial stability, based on the composite indicator of systemic stress and financial soundness indicators, shows that the financial system is stable and resilient.*

Systemic stress and financial soundness indicators for 2017 reveal a period of exceptionally low risk, with a low and stable systemic component. Low inflationary pressures and stable exchange rate, consistent implementation of fiscal consolidation measures and structural reforms, which allowed further monetary policy easing, and a stable banking system contributed positively to strengthening the resilience of the domestic financial system in 2017, and consequently, to the country's macroeconomic stability.

# I International and domestic environment

*In 2017, the international environment was characterised by a global economic upturn in both advanced and emerging economies. Accelerated growth in the euro area positively affected the growth outlook of Central, Eastern and South-Eastern European countries, pushing down their risk premiums. In late 2017 and early 2018, Serbia's risk premium touched its lowest level since EMBI is recorded for Serbia. In 2017 y-o-y inflation was low and stable, moving within the bounds of the new target which was lowered from 4.0%±1.5 pp to 3.0%±1.5 pp as of the beginning of 2017. For quite some time, financial and corporate sectors' inflation expectations have been anchored within the band. FX reserves, as a safety and stability buffer, remained high at the end of 2017. Thanks to improved macroeconomic fundamentals and a favourable outlook, Serbia is today more resilient to potentially adverse effects from the international environment, which is attested by the upgrade in the country's credit rating by all three rating agencies and the successful conclusion of the eighth, final review of Serbia's stand-by arrangement with the IMF.*

## I.1 International environment risks

*Acceleration of economic activity both at the global level and in the euro area, Serbia's biggest trade partner, positively reflected on Serbia's economic growth outlook. On the other hand, risks in the international commodity and financial markets have persisted, primarily those associated with movements in global oil prices and divergent monetary policies of the Fed and ECB. Nevertheless, owing to improved macroeconomic fundamentals and a favourable outlook, Serbia is now more resilient to potentially adverse effects from the international environment.*

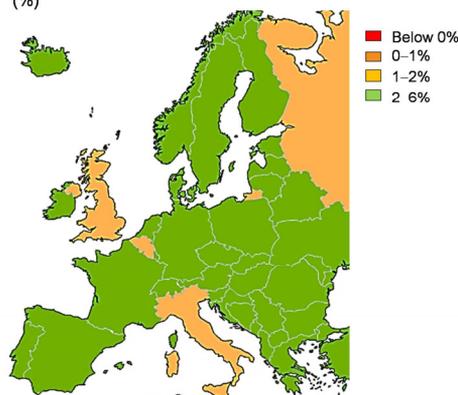
Global economic movements in 2017 indicated that a cyclical recovery of the global economy has continued. Global growth stepped up to 3.8% in 2017, and the acceleration was recorded both in advanced economies (from 1.7% in 2016 to 2.3% in 2017) and the emerging ones (from 4.4% in 2016 to 4.8% in 2017). The trend is expected to continue in the period ahead with the global growth pace speeding up to 3.9% in 2018 and 2019<sup>1</sup>.

The euro area, with which Serbia has the most important financial and trade links, saw its growth rate increase to 2.4% in 2017<sup>2</sup>, the highest figure since 2007. According to IMF data<sup>3</sup>, the strongest growth rates in the euro area in

2017 were posted by Ireland (7.8%), Malta (6.6%), Slovenia (5.0%) and Estonia (4.9%). Speaking of the largest euro area economies, compared to 2016 economic growth accelerated in Germany (2.5%), France (1.8%) and Italy (1.5%), while it slowed down in Spain (3.1%). After two consecutive years of a decline, Greece saw its economy grow by 1.4% in 2017.

The bounce-back of the oil price contributed to the recovery of economic activity in Russia (1.5%) and

Chart I.1.1 GDP growth projections for 2018 - European countries (%)



Source: IMF.

<sup>1</sup> IMF WEO, April 2018.

<sup>2</sup> According to Eurostat estimate.

<sup>3</sup> IMF WEO, April 2018.

Belarus (2.4%) after two years of negative economic growth rates.

European emerging and developing countries<sup>4</sup> posted a considerably higher growth rate (5.8%) than euro area countries. The highest growth was recorded in Turkey (7.0%) and Romania (7.0%). In the Balkan region<sup>5</sup>, growth was the strongest in Albania (3.9%) and Bulgaria (3.6%).

Economic recovery in Europe is expected to continue in 2018, with higher growth rates anticipated in emerging and developing countries (4.3%) than in the euro area (2.4%) (Chart I.1.1).

According to the European Commission's May 2018 forecast, after speeding up in 2017, euro area economic activity is expected to continue up in both 2018 and 2019, though at slightly more moderate rates of 2.3% and 2.0%, respectively. The expected growth is well dispersed across countries and industries and more sustainable. Over the forecast period, private consumption will continue up at a moderate, but sustainable pace. Speaking of investment, the positive trend from 2017 should extend into 2018, contributing to strong investment growth in the period ahead. All member states are expected to contribute to the expansion of investment. In addition, the recovery of external demand will boost exports in 2018 as well. Given the anticipated slowdown in global trade and the expected effects of the euro's appreciation, a positive contribution of exports will gradually decline starting from 2019.

Risks to the economic growth of the euro area are skewed to the downside and mainly concern uncertainties regarding the outcome of Brexit negotiations, geopolitical tensions and potential re-orientation toward protectionist policies.

In the medium run, the continuation of GDP growth in the euro area is likely to be upheld by further growth in domestic demand, supported by the continued labour market recovery, low interest rates and higher profitability of companies, as well as by rising external demand on account of the anticipated acceleration of global growth.

A positive trend in the euro area labour market continued into 2017. The unemployment rate touched 8.6% in December, its lowest level since January 2009. All euro area countries saw labour market improvement. At end-2017, the unemployment rate at EU level (7.3% in December) was lower than that in the euro area. The lowest unemployment rates were recorded in the Czech Republic (2.4%), Germany (3.5%) and Malta (3.8%), and the highest in Greece (20.8%) and Spain (16.5%).

Favourable movements in the euro area in 2017 are suggested also by the PMI Manufacturing, which rose compared to end-2016, to 60.6 in December 2017<sup>6</sup>. The highest value of this indicator was recorded in Germany in December (63.3 points). PMI Services in the euro area also recorded growth in 2017, reaching 56.6 points at year-end. As shown in Charts I.1.2 and I.1.3, country-

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

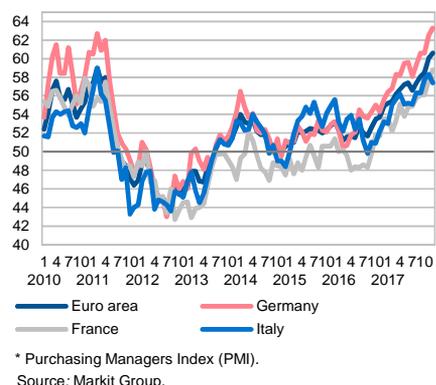
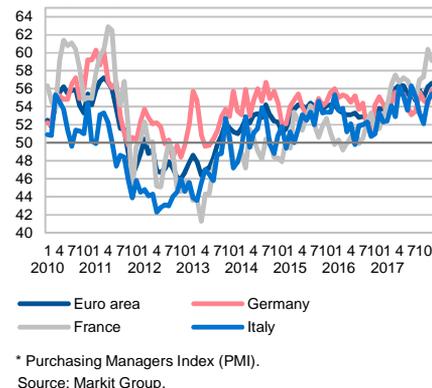


Chart I.1.3 Economic activity indicator\* (services) (index points)



<sup>4</sup> Turkey, Poland, Romania, Hungary, Bulgaria, Serbia, Croatia, Albania, Bosnia and Herzegovina, Macedonia and Montenegro.

<sup>5</sup> Albania, Bosnia and Herzegovina, Bulgaria, Greece, Macedonia, Republic of Serbia, Croatia and Montenegro.

<sup>6</sup> A reading of 50 or higher indicates economic expansion, whereas a reading of below 50 indicates economic contraction.

wise, the lowest PMIs in manufacturing and services at end-2017 were recorded in Italy (57.4 and 55.4, respectively), while the highest average PMIs at end-2017 were posted by Germany, in manufacturing (63.3), and by France, in services (59.1).

The primary commodity market recorded divergent movements in 2017 – prices of primary agricultural commodities were on a decline throughout the year, while prices of metals, minerals and energy were on the upward path. After a temporary fall of the Brent oil price to under USD 50 per barrel toward the end of H1 2017, the second half of the year saw oil prices go up. The growth was mainly driven by the agreement reached by OPEC members and ten other oil producers, including Russia, about the extension of the production cap deal until end-2018, as well as by the geopolitical tensions in the Middle East. Although the deal allows for an earlier termination, the oil price went up as it was anticipated that the producers' agreement would affect global oil market saturation.

### I.1.1 ECB and Fed monetary policy in 2017

*In 2017 the ECB continued its monetary policy easing, while reducing monthly asset purchases compared to 2016. On the other hand, the Fed tightened its monetary policy further, raising the federal funds rate three times during the year.*

The ECB kept its key interest rates unchanged in 2017. The interest rate on the main refinancing operations was maintained at 0% during the whole year, while the rates on the deposit facilities and the rate on the marginal lending facility remained at -0.40% and 0.25%, respectively. ECB's monetary policy accommodation in this period was reflected in continued implementation of non-standard monetary policy measures, but the pace of accommodation on those grounds was milder than in the year before. Namely, by March 2017 the ECB conducted its asset purchase programme, with monthly purchases of EUR 80 bn, while from April until end-2017 monthly purchases were reduced to EUR 60 bn. At the October meeting, the ECB announced a further reduction in the monthly pace of asset purchases to EUR 30 bn starting from January 2018 until September 2018, or beyond if necessary, i.e. until inflation is brought to the level consistent with the ECB's target.

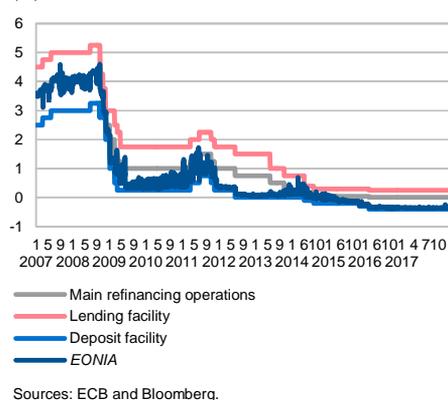
Implementation of the ECB's non-standard monetary policy measures since 2015 supported euro area economic growth which in 2017 reached its post-crisis peak (2.4%). Thanks to the faster growth pace of the euro area, growth outlook of Central, Eastern and South-Eastern European countries also improved, pushing their risk premiums to record lows. Thus, at end-2017 Serbia's risk premium dropped below 100 bp for the first time since EMBI is monitored for Serbia (Chart I.1.5).

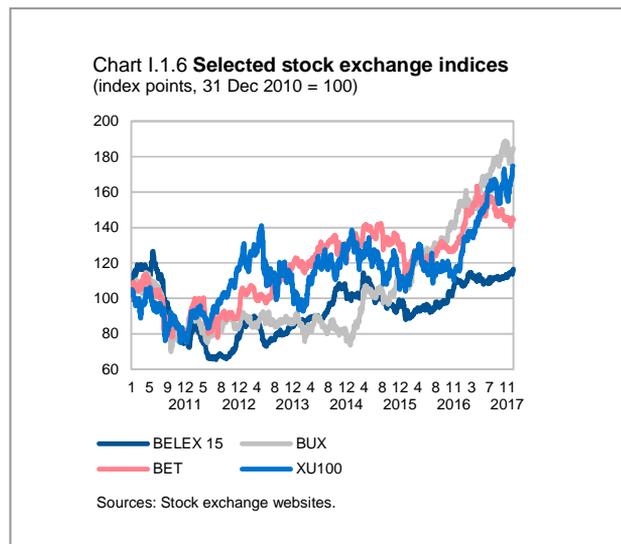
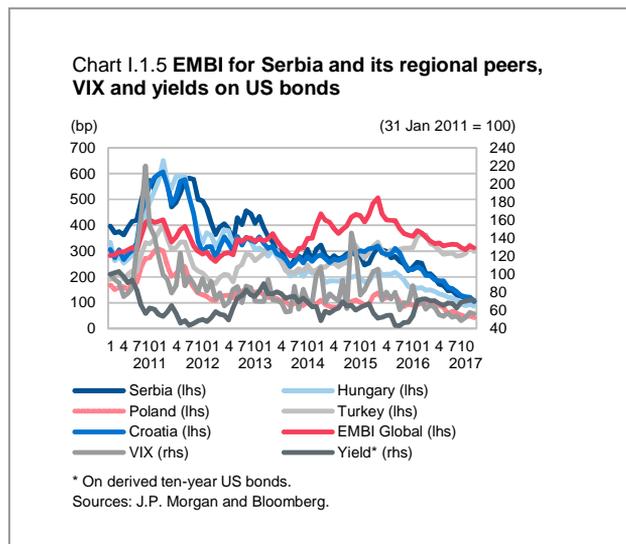
On the other hand, despite accommodative monetary policy measures and relatively strong economic growth, almost whole year round y-o-y inflation moved "below, but close to, 2%". Namely, the y-o-y inflation rate in the euro area in early 2017 moved around the target (1.8% in January, 2.0% in February and 1.9% in April), and turned downward thereafter, falling to 1.4% at year-end. Core inflation (excluding the prices of food, energy, alcohol and cigarettes) was relatively stable throughout the year and measured 0.9% y-o-y in December.

According to the IMF's April 2018 projections, euro area inflation in 2018 should remain close to its 2017 level, while its moving closer to the target of "inflation rates below, but close to, 2%" is expected only in the medium term (2023).

According to the January euro area bank lending survey for Q4 2017, which covered the sample of 143 banks, lending rose on the back of increased demand for all types of loans and easing of housing credit standards. Corporate credit standards were loosened in H1 2017, and stabilised

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





in H2. Speaking of the household segment, housing credit standards were eased in 2017, while credit standards for consumer and other loans were relaxed in Q3 2017 and then remained unchanged in Q4 2017.

In 2017, the majority of Central, Eastern and South-Eastern European countries running inflation targeting regimes kept their key policy rates unchanged (Hungary – 0.9%, Poland – 1.5%, Romania – 1.75%, Turkey – 8.0%). On the other hand, the Czech Republic, which kept its key policy rate at 0.05% for almost five years, raised it two times in 2017 (in August and November), to 0.5% at year-end. Contrary to these countries, Serbia kept its accommodative monetary policy stance in 2017, lowering the key policy rate in two rounds (in September and October), by 0.25 pp each, so that it measured 3.5% at year-end.

In addition to the Serbian dinar, which appreciated by 4.2%, other regional peers under similar exchange rate regimes which gained ground against the euro in 2017 were: the Polish zloty (6.1%), Czech koruna (5.8%) and Hungarian forint (0.3%). Conversely, the Turkish lira lost 18.8%, and the Romanian lei 2.5% (Chart I.1.7).

In Q4 2017, the divergence of monetary policies of the leading central banks, the ECB and the Fed, increased further. Namely, at the October meeting the ECB decided to extend its quantitative easing programme by nine months, until September 2018, allowing for a possibility of asset purchases even beyond that, depending on economic growth and inflation movements, while

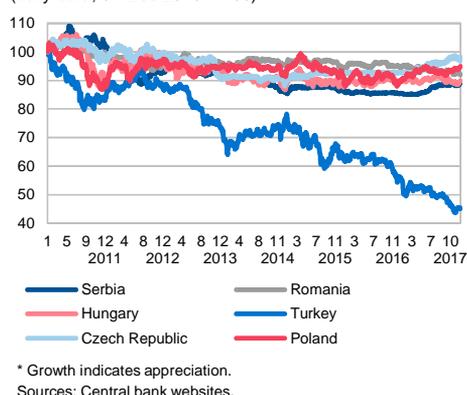
underlining its expectation for interest rates to remain low for an extended period of time. On the other hand, the Fed continued with monetary policy normalisation, with three interest rate hikes in 2017 and a decision on the beginning of its balance sheet normalisation in October.

Euro area growth was faster than anticipated and, together with a relatively stable growth outlook in the USA, it helped the euro outstrip the dollar in 2017, after the EU currency lingered at low levels for three years. However, the dollar strengthened temporarily towards the end of the year, on the back of optimism surrounding the upcoming tax legislation reform in the US, improved economic growth outlook and the announced continuation of a gradual removal of monetary policy stimuli through rate hikes and downsizing of Fed's balance sheet.

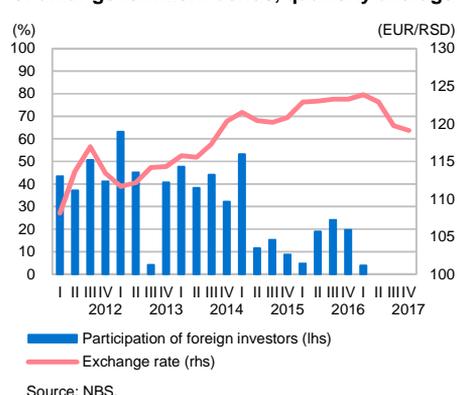
Speaking of US monetary policy, in 2017 the federal funds target range was increased three times, by 0.25 pp each (in March, June and December), reaching 1.25–1.5% at year-end. The Federal Open Market Committee (FOMC) decisions in 2017 were mainly guided by the actual and anticipated favourable movements in the labour market, as well as the expectations regarding the economic activity and inflation.

Also, in accordance with earlier announcements, as of October 2017 the Fed has been unwinding its balance sheet, which had increased from USD 800 bn to USD 4.5 tn during the global economic crisis. It is certain that even after the scheduled unwinding, the Fed's balance sheet will be considerably higher than before the crisis.

**Chart I.1.7 Exchange rates of selected national currencies against the euro\***  
(daily data, 31 Dec 2010 = 100)



**Chart I.1.8 Exchange rate movements and participation of foreign investors in auctions of dinar government bonds, quarterly average**



According to the plan, the monthly reduction of reinvestment will be increased by USD 10 bn after each quarter until a monthly pace of USD 50 bn is reached around end-2018 (60% of this amount will be Treasury securities and 40% mortgage-backed securities). From then on, the Fed will apply a monthly reduction of USD 50 bn for as long as it deems necessary.

The unemployment rate continued down, coming at 4.1% in October 2017, where it stayed until the end of the year (compared to 4.7% at end-2016). In 2017, US inflation recorded considerably higher growth rates than in the year before. It peaked at 2.7% in February, the highest figure recorded since 2012. It stabilised late in the year, measuring 2.1% in December.

At the annual level, US GDP growth in 2017 (2.3%) speeded up compared to 2016 (1.5%), mainly on the back of the recovery in private consumption, investment and faster exports growth. According to IMF's April 2018 forecast, growth outlook for 2018 and 2019 is even more favourable (2.9% and 2.7%, respectively).

Optimism over global growth acceleration contributed to an unusually low volatility of financial markets. S&P 500 VIX<sup>7</sup>, a measure of implicit volatility of financial markets, fell to below 10% in mid-September and remained hovering around that level until end-2017 and in early 2018 (Chart I.1.5). Financial markets of countries in the region also saw a marked recovery, as indicated by stock exchange indices which at end-2017 posted a y-o-y increase (Chart I.1.6).

## I.1.2 Lending in CESEE countries

*In 2017, aggregate credit demand conditions in the CESEE region continued a positive trend from a year earlier, while supply conditions saw a relaxation in the second part of the year. The risk of deleveraging of banks vis-à-vis CESEE countries decreased compared to 2015 and 2016.*

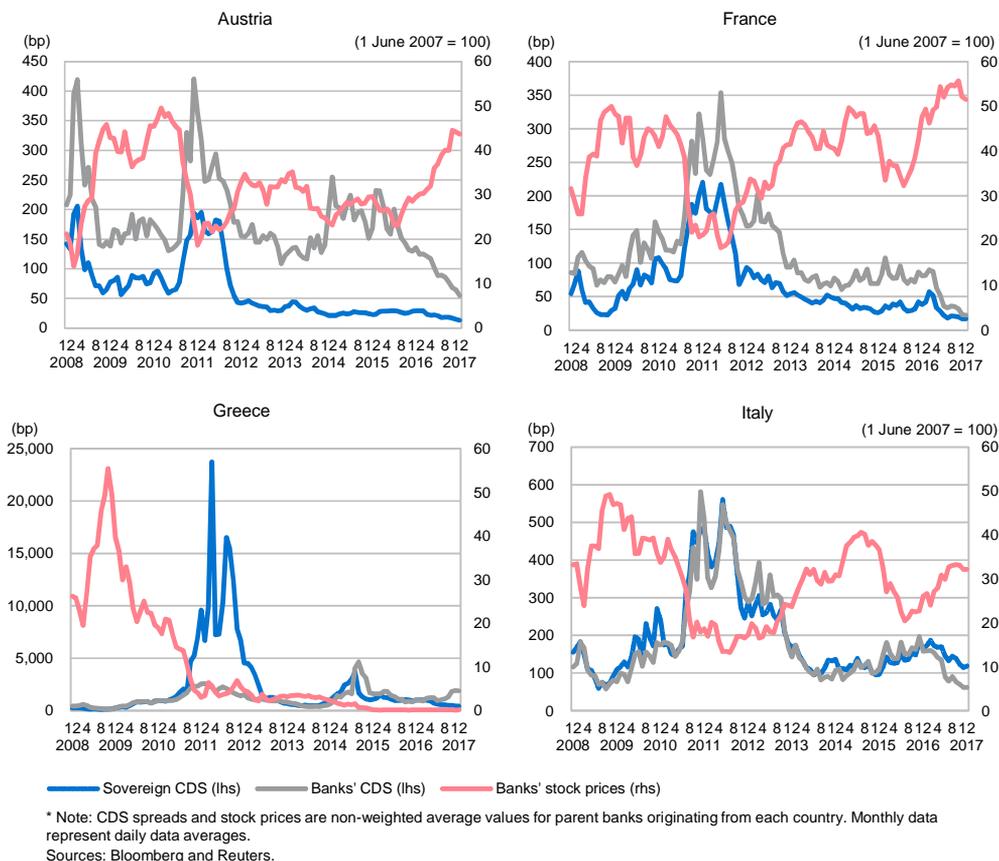
According to the CESEE Bank Lending Survey published in June and November 2017 by the European Investment Bank, loan demand continued to increase throughout 2017, i.e. remained on the rise for nine consecutive half-year periods. During 2017, all factors influencing demand were positive contributors to growth. The major part of loan demand was driven by investment loan demand, while debt restructuring loans gave a negligible contribution.

On the other hand, relaxation of loan supply conditions began in the second part of the year. However, demand-supply gap still persists, which may lead to higher quality of new loans compared to loans from previous credit cycles.

Conditions of loans supply to small and medium-sized enterprises were improved in 2017. The household sector saw a worsening in consumer credit supply conditions in H1 and improvement in H2 2017, while tightening of credit standards on mortgages, in place since 2016, continued in 2017 as well. Changes in local regulation in some countries were recognised as the greatest obstacle to loan supply growth in 2017. NPLs contracted across the

<sup>7</sup> Chicago Board Options Exchange index (CBOE), based on the S&P 500 (SPX) index.

Chart I.1.9 Developments in the home markets of banking groups present in Serbia\*



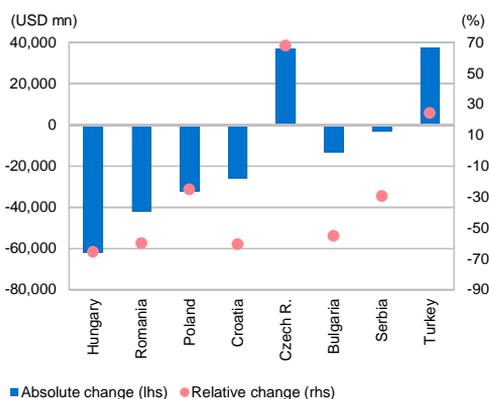
region, though they still remained relatively high, enough to exert a negative effect on supply conditions.

During 2017, CESEE countries had easier access to banking group finance mostly owing to facilitated access to domestic sources of funding, notably household and corporate deposits. Financing by international financial institutions also contributed to easier access to banking group finance. As subsidiaries of European banking groups account for 77% of the domestic market, developments in the euro area and credit activity have a significant impact on the financing of bank subsidiaries in Serbia. Chart I.1.9 shows developments in the home markets of banking groups present in Serbia.

According to the EIB’s CESEE Bank Lending Survey from November 2017, in the second half of the year the risk of financial deleveraging in the banking sectors of CESEE countries was lower than in 2015 and 2016. In H2 2017, little less than 20% of banking groups reported that they expected a decrease in group-level LTD (loan-to-deposit) ratios in the period ahead.

As regards the risk of financial deleveraging in the Serbian banking sector, it should be noted that deleveraging of foreign banks, though recorded in the CESEE region in the post-crisis period, did not have

Chart I.1.10 Change of cross-border exposure to selected countries, Q3 2008 – Q4 2017



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

significant negative effects on the financial stability of Serbia, owing to a strong domestic deposit base which rose in the post-crisis period, on the one hand, and well-calibrated measures of the NBS, on the other.

According to the BIS data, in Q4 2017 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 and Turkey. In terms of percentage change, exposure was reduced the most for Hungary and Croatia and the least for Poland and Serbia (Chart I.1.10). Compared to end-2016, Q4 2017 saw higher cross-border exposure to all countries in the region, except Croatia. Chapter II.1 offers a more detailed analysis of credit growth and an overview of the situation and developments in the banking sector.

## I.2 Overview of domestic macroeconomic developments

*In 2017, GDP grew at 1.9%, driven mainly by investment and private consumption. The period ahead is likely to see faster growth in economic activity, i.e. around 3.5% in 2018 and 2019, and the growth structure will remain favourable. Low inflationary pressures continued in 2017, and throughout the year inflation was low and stable, moving within the target band.*

According to SORS data, annual GDP growth in 2017 measured 1.9% and was driven mainly by investment and private consumption. The fastest growing component within investment was private investment (8.7%), which

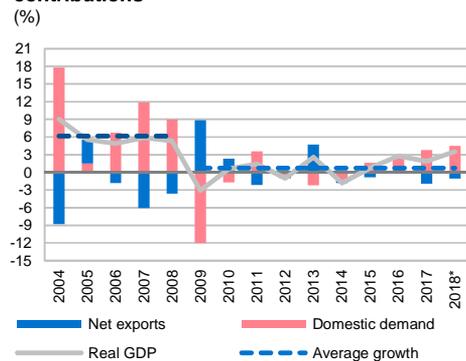
added 1.4 pp to GDP growth. Another significant contributor, for the second year in a row, was total consumption, especially household consumption. Household consumption gathered momentum owing to positive labour market trends, i.e. increase in employment and wages, as well as in credit activity, primarily cash lending. Household consumption is expected to continue up in 2018, contributing to acceleration of Serbia's economic growth.

In the aftermath of the 2008 crisis, the composition of GDP growth changed, as the trend of unbalanced and unsustainable growth shifted towards slower but more sustainable growth led by net exports and investment. On the production side, tradeable sectors increased their contribution in the post-crisis period owing, among other things, to the growing investment that was channelled to these sectors (Charts I.2.1 and I.2.2).

Owing to stronger domestic macroeconomic fundamentals, implementation of structural reforms and improvement of the investment climate, in prior years Serbia created the basis for growth acceleration in the medium run. We therefore expect that, after a temporary slowdown in 2017 due to supply-side shocks, GDP will speed up to around 3.5% in 2018 and maintain a similar pace in 2019 (Chart I.2.3).

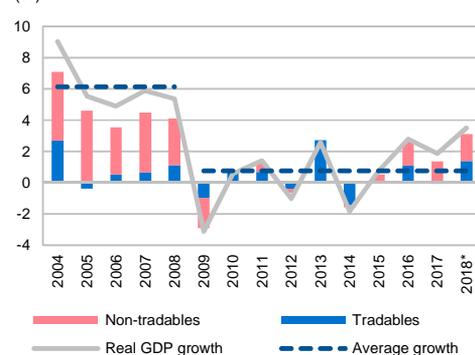
Owing to well-calibrated monetary policy measures and full coordination with fiscal policy, in 2017 inflation moved within the target band ( $3\pm 1.5\%$ ) and stood at the 3.0% target in December, which is also the average for the year. Inflationary pressures remained low, as suggested also by low and stable core inflation, which

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

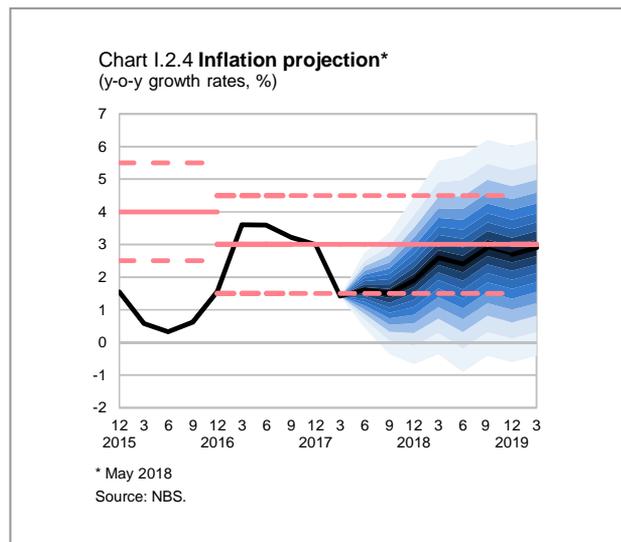
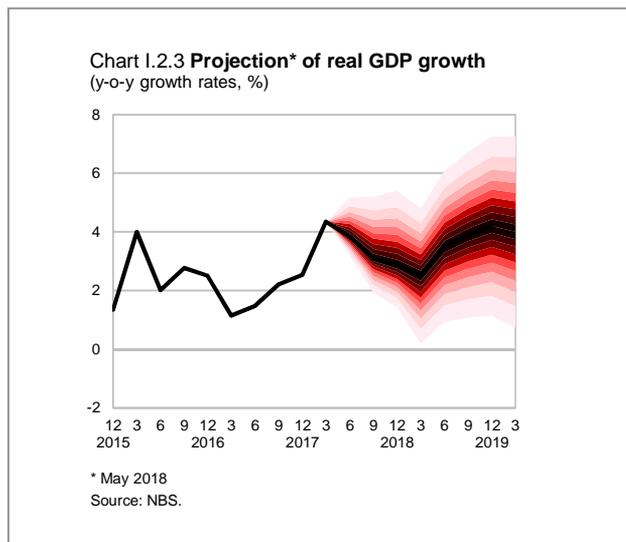


\* NBS projection, May 2018.  
Source: NBS.

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



\* NBS projection, May 2018.  
Source: NBS.



measured 1.3% y-o-y in December, its lowest level since the consumer price index has been used as a measure of inflation. Throughout the year, medium-term inflation expectations of the financial and corporate sectors were anchored within the target band.

Under the May 2018 central projection, y-o-y inflation will continue to move within the target tolerance band of  $3.0 \pm 1.5\%$  until the end of the projection horizon (next two years) (Chart I.2.4). Within the one-year projection horizon, i.e. in 2018, inflation will move around the lower bound of the target band. In H2 2019 it will gradually approach the target midpoint of 3% and continue to steadily move around that value until the end of the projection horizon. The key underlying factors to such inflation path are the low base in some products, the waning of effects of past dinar appreciation and growth of aggregate demand.

Positive movements were recorded also in the labour market, with the employment rate reaching 46.3% and the unemployment rate measuring 14.7% at end-2017 and expectations of a further fall in unemployment in 2018.

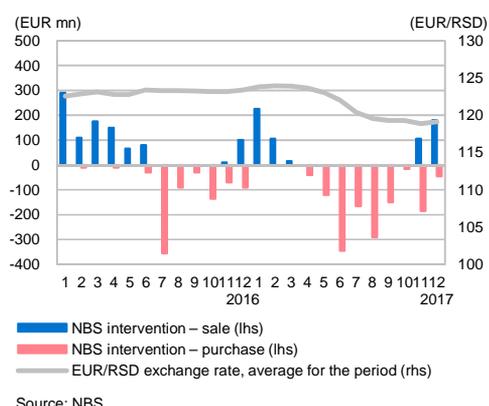
Monetary policy easing continued in 2017, but at a moderate pace. In 2017, the NBS trimmed its key policy rate twice, by 0.25 pp each – in September and October, to 3.5%. Further monetary policy easing was motivated by the expected inflation movements, primarily the weakening of inflationary pressures on account of both domestic and external factors and the fact that actual fiscal movements turned out much more favourable than expected, which reduced government borrowing needs.

Monetary policy easing continued into 2018, with March and April key policy rate cuts of 0.25 pp in each round (a total of 0.50 pp). Apart from that, the NBS narrowed the interest rate corridor in April, from  $\pm 1.5$  pp to  $\pm 1.25$  pp relative to the key policy rate. Key policy rate cuts reflected on a further decline in interest rates in the interbank money market and on the prices of dinar government securities. At the same time, uncertainties in the international commodity and financial markets, primarily in respect to the movements in the global prices of oil and divergence of ECB's and Fed's monetary policies, mandated caution in monetary policy relaxation in the observed period.

As for the FX market movements, in 2017 the dinar gained 4.2% against the euro and 18.2% against the dollar, due to the simultaneous strengthening of the euro vs. the dollar. Appreciation pressures in the FX market, which characterised most of the year, primarily resulted from the narrowing in macroeconomic imbalances and more favourable macroeconomic prospects for the coming period, which also helped boost the confidence of foreign investors concerning long-term investment in Serbia and contributed to the decline in the risk premium and the improvement in the country's credit rating by all three credit rating agencies.

Serbia's risk premium, measured by EMBI, declined throughout 2017, falling to around 100 bp at year-end, which is a decrease of 147 bp from end-2016. The decline in Serbia's risk premium was predominantly caused by the preservation of macroeconomic stability and strengthening of macroeconomic fundamentals, as well as by more favourable growth outlook for the

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

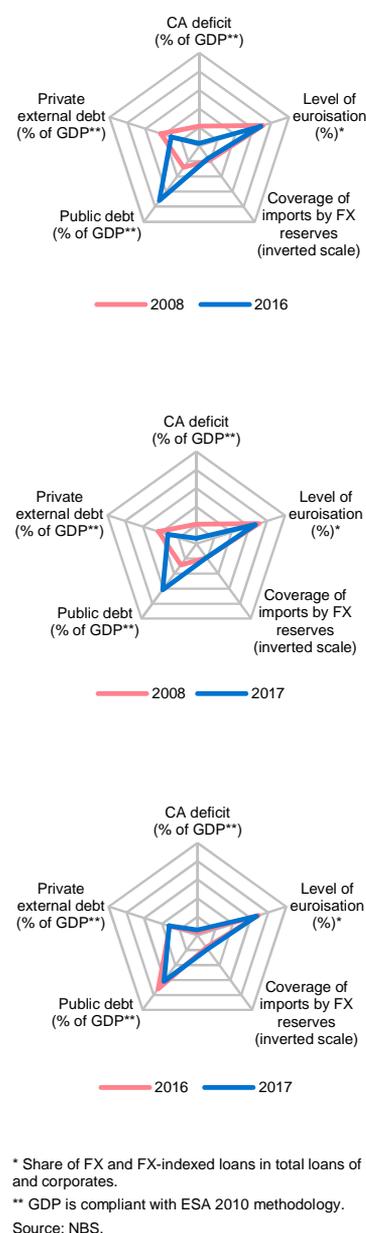


coming period. Another factor underlying the fall in the risk premium was the acceleration of euro area growth, which is expected to spill over to countries of Central, Eastern and South-Eastern Europe, owing to strong trade links. Serbia's risk premium remained on a downward path in 2018, recording in January its lowest value since EMBI is monitored for Serbia (85 bp).

In 2017, all three rating agencies upgraded Serbia's credit rating. In March, Moody's upgraded the Republic of Serbia long-term foreign and local currency issuer default ratings from B1 to Ba3, and revised outlook to stable. In December, S&P and Fitch raised Serbia's rating from BB- to BB, with the stable outlook. Credit rating upgrade was motivated by a significant improvement in fiscal results, stable and favourable growth outlook and narrowing of external imbalances. Further contributing factors were the maintenance of price stability and favourable movements in the banking sector.

In 2017, the NBS was a net buyer of EUR 725.0 mn in the interbank FX market (in total, it bought EUR 1.355 mn and sold EUR 630 mn), thereby additionally boosting 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, maintain price and financial stability and an adequate level of FX reserves, without intending to influence the exchange rate movements. In the conditions of still high financial euroisation specific to Serbia's economy, excessive exchange rate volatility could affect not only the rate of inflation, but also the balance sheets of the real and

Chart I.2.6 Key macroeconomic risks



public sectors because of a currency mismatch of their assets and liabilities. In that sense, stronger depreciation of the dinar may act as a catalyst of deterioration in banks' loan portfolios and in the overall financial stability. The NBS therefore strives to maintain relative stability of the RSD/EUR exchange rate.

It is essential that the toolkit and measures of monetary and macroprudential policy be well-calibrated as depreciation has a diverging effect on the balance of payments on the one hand, and inflation, dinar equivalent value of foreign currency public and private debt and NPLs on the other. A timely response of the central bank in such conditions also entails maintaining FX reserves at an adequate level, which the NBS has fulfilled, with gross FX reserves standing at EUR 10.0 bn at end-2017.

Key macroeconomic indicators of vulnerability<sup>8</sup> of the financial system of the Republic of Serbia in 2017 suggest much lower vulnerability compared to the pre-crisis year 2008, based on: a significant reduction in the current account deficit, lower share of private external debt in GDP and a decrease in lending euroisation<sup>9</sup>. An increase of the public debt to GDP ratio worked in the opposite direction.

Based on the visual overview of all dimensions of vulnerability, it can be seen that in 2017 vulnerability decreased the most owing to a considerable decrease of a public debt share in GDP. Namely, the growing trend of the share of public debt in GDP that began in 2009 shifted in 2016 as a consequence of vigorous fiscal adjustment. The declining trend of the public debt to GDP ratio accelerated in 2017, when this ratio dropped by an additional 10.5 pp. In addition, compared to the year before, the degree of lending euroisation edged down by an additional 1.8 pp. Temporary deterioration in the current account deficit, a higher share of private external debt in GDP and lower coverage of imports by FX reserves worked in the opposite direction. However, though FX reserves edged down somewhat, they remained adequate for safeguarding financial stability.

In the coming period, the current account deficit is expected to return to 4–5%, which will further reduce financial system vulnerability. Also, according to the Fiscal Strategy for 2018–2020 and the eighth review of the arrangement with the IMF, the general government deficit is forecast at 0.5% of GDP in the medium run. The projected level of deficit will contribute to a further reduction of the public debt to GDP ratio and decrease of financial vulnerability on those grounds.

### I.3 Foreign exchange reserves as insurance against shocks

*At end-December 2017, NBS foreign exchange reserves equalled EUR 10.0 bn or EUR 8.3 bn in net terms,<sup>10</sup> which is an adequate level to ensure financial stability. Various stress scenarios show that foreign exchange reserves are high enough to safeguard the domestic system in the event of extreme shocks.*

As an institution mandated to safeguard the stability of the financial system, the NBS is responsible for managing and maintaining an adequate level of FX reserves, which serve as an assurance that the Republic of Serbia can meet its balance of payments financing needs and settle its liabilities towards foreign creditors. Also, FX reserves are used to preserve the stability of the exchange rate, provide protection from adverse effects of international financial crises and maintain the stability of the banking sector.

The adequacy of FX reserves is assessed by various indicators, primarily from the aspect of 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 imports of goods and services and external debt of one-year maturity in conditions of reduced capital inflows from abroad due to limited access to international capital markets, and sudden withdrawal of deposits.

Table I.3.1 Levels of FX reserves adequacy, end-2017

Indicators of adequacy	Adequate level (EUR bn)
Three months of imports coverage	5.6
Short-term external debt at remaining maturity	4.3
20% money supply M3 coverage	3.8
"Right measure for Serbia"	5.9
<b>FX reserves</b>	
Gross	10.0
Net	8.3

Source: NBS.

<sup>8</sup> 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.

<sup>9</sup> Measured as a share of FX and FX-indexed loans in total loans granted to the corporate and household sectors.

<sup>10</sup> Net reserves are FX reserves less banks' FX balances on account of required reserves and other requirements.

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

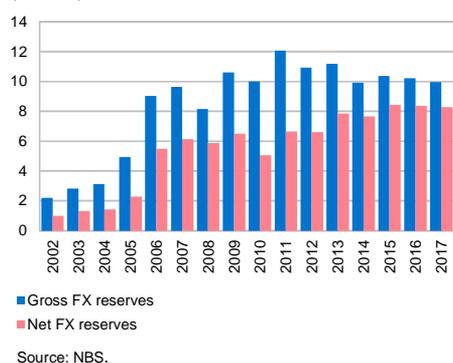
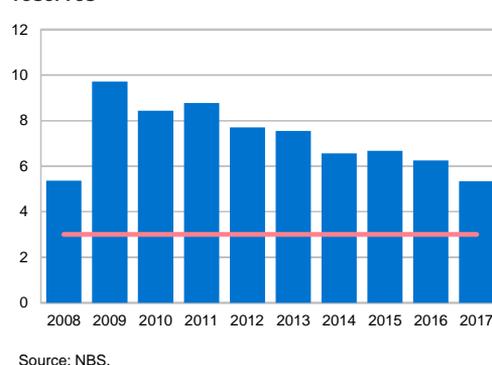


Chart I.3.3 Months of imports covered by gross FX reserves



Traditional FX reserve adequacy indicators analyse the degree of protection against individual risks. The indicator of coverage of imports of goods and services by FX reserves 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 imports of goods and services.

In addition to the indicator of coverage of imports of goods and services by FX reserves, protection against individual risks is also measured by an indicator better known as the Guidotti rule,<sup>11</sup> 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. FX reserves are considered optimal if they cover at least 20% of broad money (M3). At end-2017, Serbia's FX reserves were adequate for the protection against individual risks: they provided coverage of 5.3 months of imports of goods and services, the coverage of short-term external debt at remaining maturity equalled 234.1%, while the coverage of broad money (M3) stood at 51.9%.

Chart I.3.2 National Bank of Serbia FX reserves in 2017 (EUR bn)

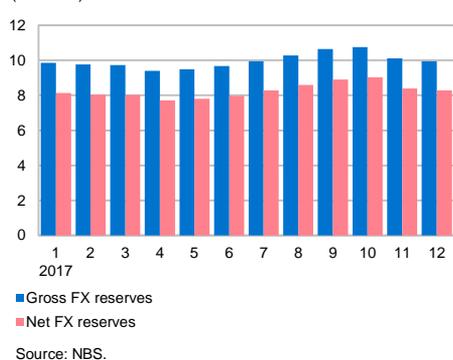
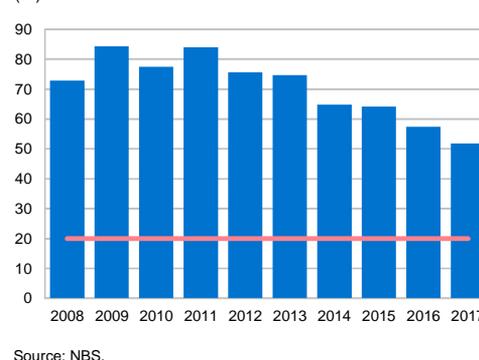
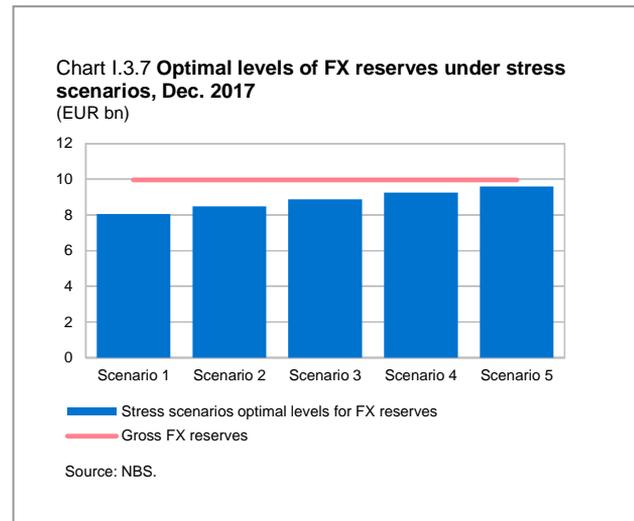
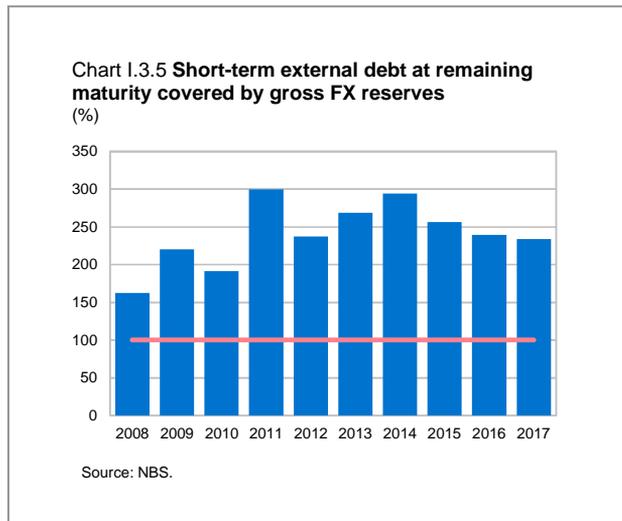


Chart I.3.4 Money supply M3 covered by gross FX reserves (%)



<sup>11</sup> Guidotti, Pablo, Sturzenegger, Federico and Augustin Villar (2004), On the Consequences of Sudden Stops, *Economia* Vol. 4, No. 2, pages 171–203.



To make the best possible assessment of the adequacy of FX reserves, we developed “the right measure for Serbia” indicator, which takes into account the specificities of the Serbian economy.<sup>12</sup> This indicator implies the coverage of the sum total of short-term debt at remaining maturity, the deficit of the balance of payments adjusted for FDI, 15% of FX and FX-indexed deposits and 5% of dinar deposits.

At end-2017, “the right measure for Serbia” indicator stood at a significantly higher level than the optimal 100% (167.9%), though it was lower than last year (191.6%) due to faster growth in imports than exports of goods. On the other hand, FDI growth was a positive factor.

The Jeanne–Ranciere model<sup>13</sup> determines the optimal share of FX reserves in GDP ( $\rho$ ), depending on the size of the shock ( $\lambda$ ), probability of a sudden stop ( $\pi$ ), damage caused by the sudden stop of capital flows ( $\gamma$ ), real depreciation ( $\Delta Q$ ), risk aversion ( $\sigma$ ), return on reserves ( $r$ ), opportunity cost of holding reserves ( $\delta$ ) and real GDP growth ( $g$ ).

Table I.3.2 shows stress scenarios for FX reserves according to the Jeanne–Ranciere model, where the fifth scenario is the most extreme, i.e. least likely to occur given the current economic developments. The dynamics between the factors on which the adequate level of FX reserves actually depends is also taken into consideration when assessing the adequacy of FX reserves.

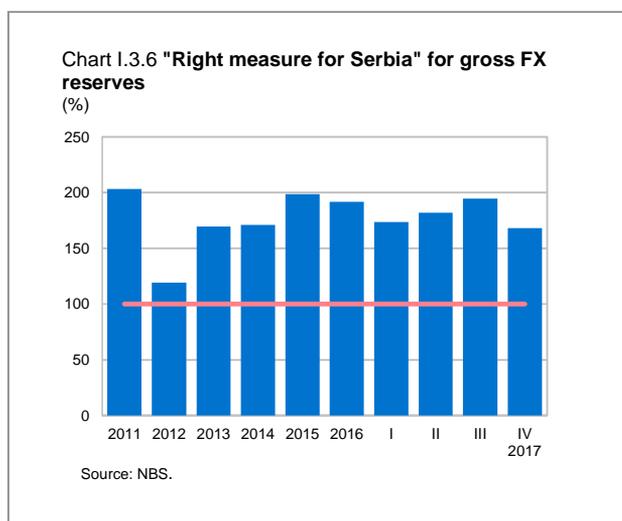


Table I.3.2 Stress scenarios for FX reserves

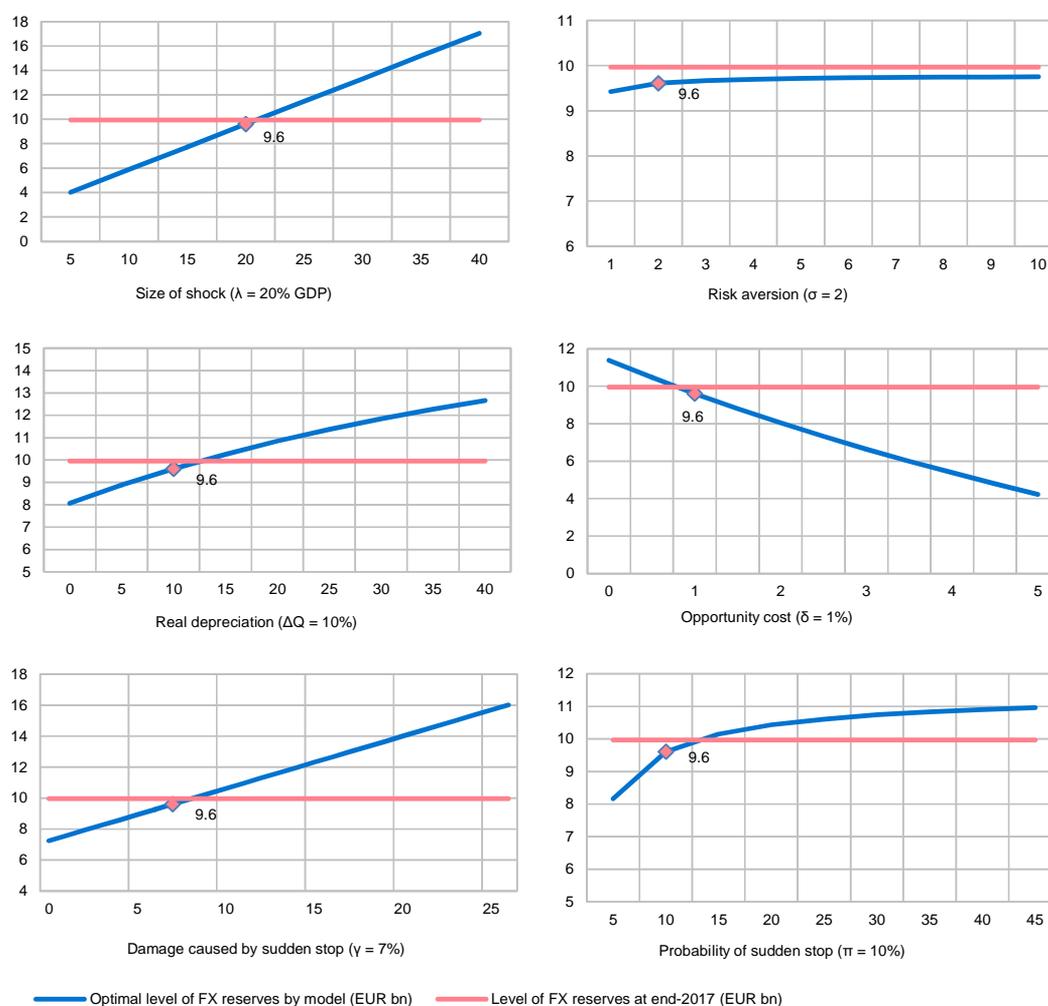
Symbol	Parameter	Scenario				
		1	2	3	4	5
$\gamma$	Damage caused by sudden stop	7%	7%	7%	7%	7%
$r$	Yield on reserves	0%	0%	0%	-0.5%	-1%
$g$	Average GDP growth	3.5%	2.625%	1.75%	0.875%	0%
$\sigma$	Risk aversion	2	2	2	2	2
$\delta$	Opportunity cost	1%	1%	1%	1%	1%
$\pi$	Probability of sudden stop	10%	10%	10%	10%	10%
$\lambda$	Size of shock (% of GDP)	20%	20%	20%	20%	20%
$\Delta Q$	Real depreciation	0%	2.5%	5%	7.5%	10%
	Optimal level of reserves (EUR bn)	8.1	8.5	8.9	9.3	9.6
Gross NBS FX reserves (2017, EUR bn)		10.0				

Source: NBS.

<sup>12</sup> For more details on this indicator, see the 2011 Annual Financial Stability Report.

<sup>13</sup> 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 2011 Annual Financial Stability Report.

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



Source: NBS.

At end-2017, FX reserve adequacy was confirmed by all FX reserve adequacy indicators and all 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, sustainability of public and external debt

After three years of fiscal consolidation, the long-standing trend of fiscal deficit in Serbia was finished. The year 2017 saw a positive fiscal result of around 1.2% of GDP. As fiscal deficit measured around 1.3% of GDP in 2016, fiscal adjustment of around 2.4% of GDP was recorded over a span of just one year. Fiscal surplus was recorded owing to the rise in tax revenues, as a result of

improved tax collection and cyclical economic recovery, and to reduced dinar and foreign currency interest expenses. Dinar-denominated interest expenses dropped on the back of NBS monetary policy easing, while FX-denominated interest expenses fell thanks to the decline in the risk premium, which constitutes an international confirmation of the quality of macroeconomic policy. Strong fiscal adjustment, stable and low inflation, stable exchange rate and achieved GDP growth drove down the share of central government debt in GDP from 71.9% (at end-2016) to 61.5% of GDP. General government debt (including non-government guaranteed debt of local government units and AP Vojvodina) fell from 73.0% of GDP (at end-2016) to 62.4% of GDP. The share of external debt in GDP also contracted significantly, to around 70% of GDP (from 77% at end-2016).

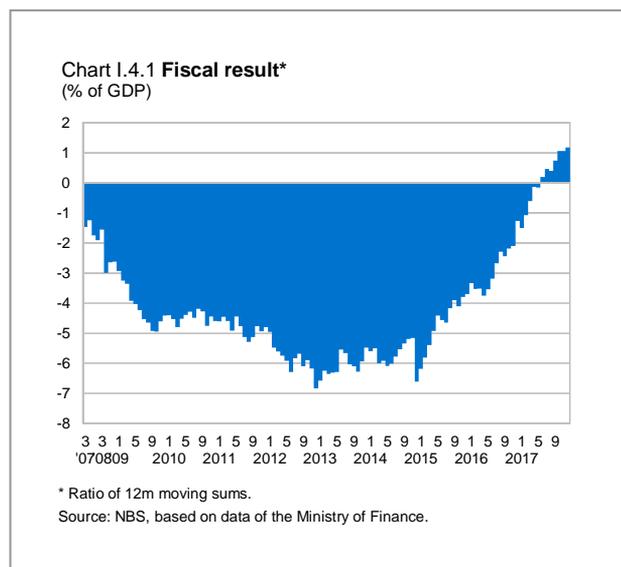
### I.4.1 Fiscal policy

The Republic of Serbia successfully implemented the three-year fiscal consolidation programme in accordance with the stand-by arrangement with the IMF signed in early 2015. Significant results were achieved. The initial objective – structural fiscal adjustment of 4% of GDP – was accomplished in the second year of the arrangement already, and the year 2017 saw additional fiscal adjustment of around 2.4% of GDP. Success in implementing fiscal consolidation measures was affirmed by all three international rating agencies. The upgrade of Serbia's credit rating, decline in its risk premium to a historic low, and considerable reduction in the costs of government borrowing further improved the country's fiscal position.

Fiscal trends were considerably more favourable than expected in 2017. Fiscal surplus was achieved for the first time since 2005, measuring RSD 52.3 bn or 1.2% of GDP. Fiscal result exceeded the 2016 result (RSD 54.0 bn deficit) by as much as RSD 106.3 bn. Relative to the previous year, the share of fiscal result in GDP rose by as much as 2.4% of GDP (Chart I.4.1). By level of government, the biggest contributor to general government surplus came from the surplus in the RS budget (RSD 33.9 bn).

In 2017, primary fiscal result<sup>14</sup> was even more favourable, equalling RSD 173.5 bn or 3.9% of GDP (1.8% of GDP in 2016). Given that interest expenses reflect the fiscal policy and deficit from the past period, the primary fiscal result shows whether the achieved fiscal revenue is enough to cover fiscal expenditure not arising from costs of public debt servicing. Primary fiscal result is an indicator of the efficiency of the current fiscal policy and its impact on public debt. Accordingly, primary and total surplus may be expected to drive down public debt in the future as well.

The achieved fiscal surplus resulted mainly from the significant rise in fiscal revenue. Total general government revenue surpassed the previous year's revenue by RSD 130.8 bn. Tax revenue exceeded last year's figures by as much as RSD 132.1 bn (real growth by 5.2%), with growth in all tax revenue categories. Highest growth was posted by corporate income tax (due



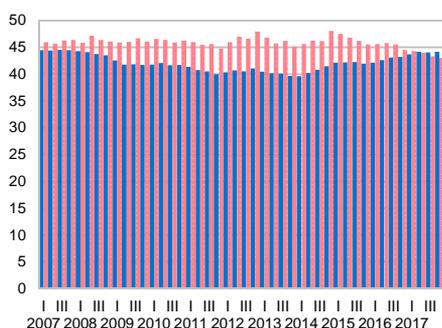
to the considerably improved profitability of corporates), social insurance contributions (on account of labour market recovery), and value added tax (primarily thanks to higher values of imports). Improved tax collection and suppression of the grey economy also significantly aided tax revenues. On the other hand, non-tax revenue fell relative to 2016.

A contribution to positive fiscal result also came from falling interest expenses against the background of lower debt, the government's reduced need to borrow and the lower cost of borrowing, owing to monetary policy easing by the NBS and a falling country risk premium. Interest expenses lost RSD 10.4 bn (decline by 10.6% in real terms), coming at RSD 121.2 bn in 2017. Still, their share in total general government expenditure remained relatively high, at 6.3% in 2017. The reduction of interest expenses is extremely important, for this item of government expenditure dampened or neutralised the effects of implemented fiscal consolidation measures in the previous period. Maintaining the current fiscal policy stance will further reduce the share of interest expenses going forward.

General government expenditure went up by around RSD 24.4 bn in 2017, though its share in GDP went down from 2016. In real terms, only the costs for the purchase of goods and services rose, while other fiscal expenditure categories fell.

<sup>14</sup> Primary fiscal result is fiscal result adjusted for the impact of paid and charged interest.

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

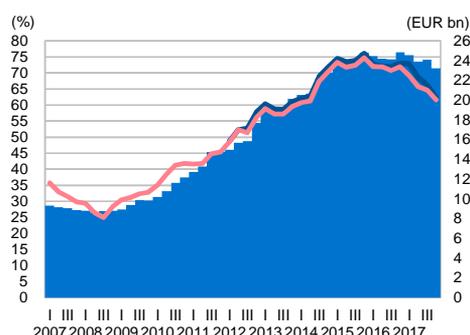


■ Public revenues ■ Public expenditures

\* Ratio of 4Q moving sums.

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

Chart I.4.3 Public debt dynamics



■ Public debt level (rhs)  
■ General government debt to GDP (lhs)  
■ Public debt to GDP ratio (lhs)

Source: Ministry of Finance.

The share of capital expenditure in total general government expenditure (7.0%) and GDP (3.0%) is low, not only accounting for the state of infrastructure in Serbia, but also the average share of capital expenditure in GDP in Central and Eastern European countries. In 2017 relatively low capital expenditure lost additional RSD 5.5 bn or 6.7% in real terms. Given the importance of infrastructure improvements for long-term sustainable economic growth, and planned infrastructure investment, capital expenditure is expected to rise in the period ahead.

Subsidy expenditures were at a similar level as last year in nominal terms, while in real terms they lost 2.3%. The majority of subsidies went to agriculture, railways, private investment and public utility companies.

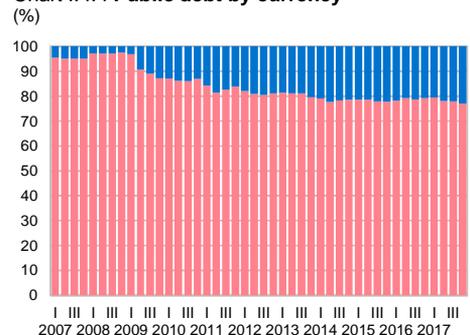
In the coming period, fiscal policy will prioritise initiatives with the potential to support growth without jeopardising the stability of public finance, which includes a rise in capital investment, pension and wage increase in step with productivity growth, reduction in tax burden on wages, and finalisation of rightsizing and restructuring of public and former socially-owned enterprises.

## I.4.2 Public debt

The primary objective of fiscal consolidation – to stop the rise in the share of public debt in GDP and gradually reduce it – was achieved in the second year of the stand-by arrangement with the IMF already. After the upward trend of the public debt to GDP ratio was reversed in 2016, the ratio was significantly reduced in 2017. Central government debt arrived at 61.5% of GDP at end-2017,

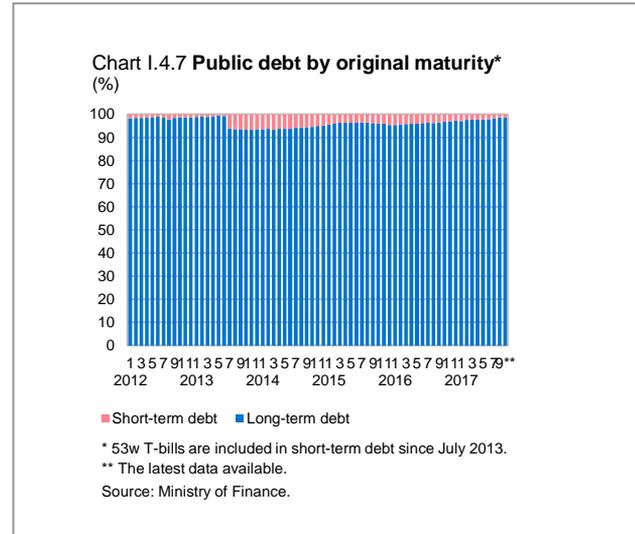
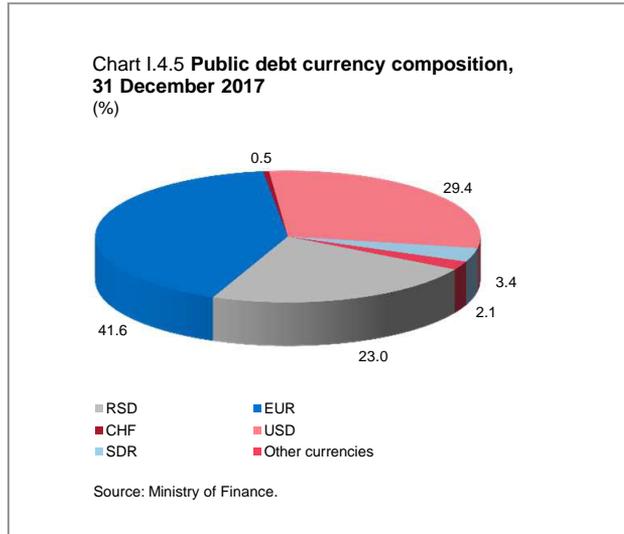
down by 10.4% of GDP compared to 2016 (Chart I.4.3). General government debt, which includes non-guaranteed debt of local government units and AP Vojvodina, stood at 62.4% of GDP in the same period, down by 10.6% of GDP compared to 2016. Owing to strong fiscal consolidation and the achieved total and primary surplus, the amount of public debt went down in 2017 for the first time after 2008. Central government debt equalled EUR 23.2 bn at end-2017 (EUR 24.8 bn at end-2016), and general government debt – EUR 23.5 bn (EUR 25.2 bn at end-2016). The achieved surplus was among the most significant factors driving down public debt. However, the reduction also greatly benefited from favourable FX market developments, mainly the weakening of the US dollar against the euro. Besides these factors, the

Chart I.4.4 Public debt by currency



■ Public debt denominated in RSD  
■ Public debt denominated in other currencies

Source: Ministry of Finance.



downward trajectory of the public debt to GDP ratio accelerated owing to economic growth in 2017.

The currency structure of public debt points to foreign exchange risk, with as much as 77% of Serbia’s public debt being FX-denominated (Charts I.4.4 and I.4.5). Besides the high share of public debt in euros (41.6% at end-2017), an additional risk is the relatively high share of public debt in US dollars (29.4% at end-2017). Thus, in addition to the risk of changes of the dinar relative to the euro (which the NBS may influence), there is also the risk of changes of the euro relative to the dollar, which arises from international developments and is outside the influence of the NBS. Still, the currency structure of public debt improved considerably in 2017, with the share of the US dollar in public debt losing as much as 4.5 pp relative to 2016, while the dinar’s share in public debt gained 2.1 pp.

The share of debt repaid at a fixed rate was 79.9% at end-2017 (Chart I.4.6), which suggests relatively low interest rate risk.

The public debt maturity structure was also favourable. The share of debt at initial maturity over one year was around 99% (Chart I.4.7), and the share of debt at remaining maturity over one year – around 87% (Chart I.4.8).

In 2017, the government continued to borrow largely by selling securities in the domestic market. The share of government securities in total central government public debt was around 53% (Chart I.4.9). The interest rates at which the government borrowed, both in dinars and euros, dropped further. Government borrowing costs declined mainly on account of the reduced need to borrow, which is why not all offered rates were accepted

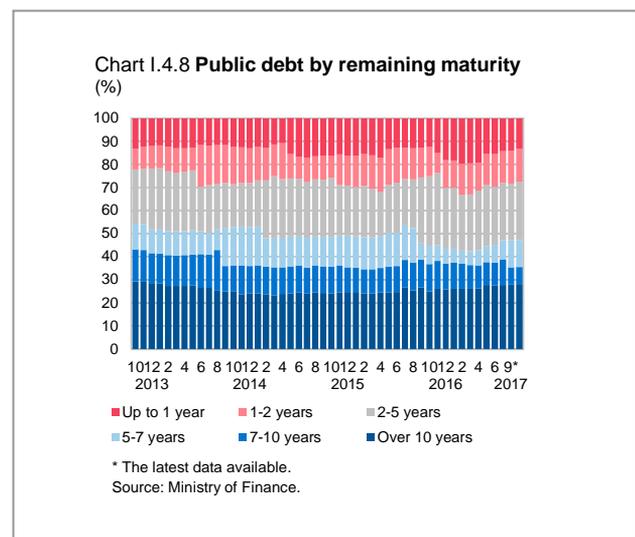
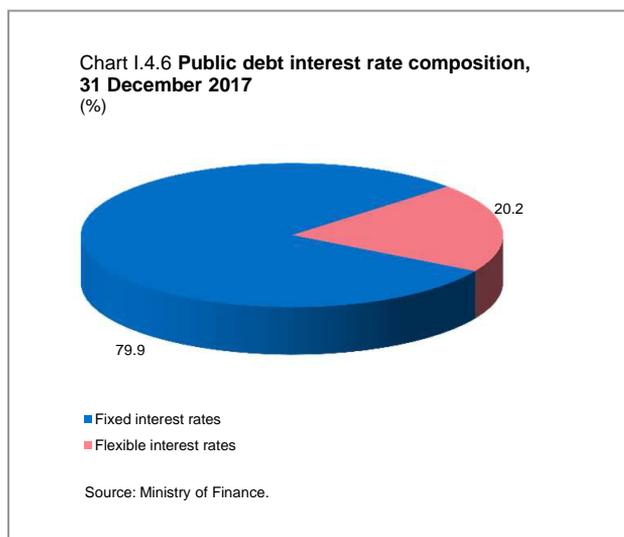


Chart I.4.9 Public debt in government securities (% of GDP)

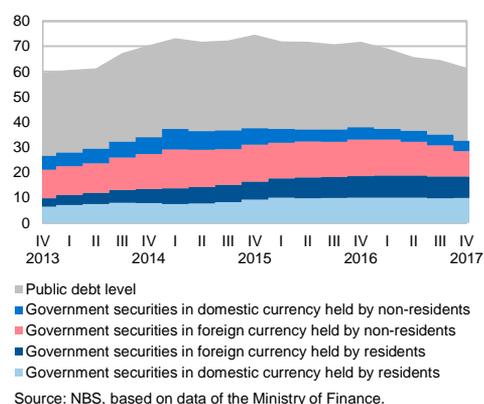
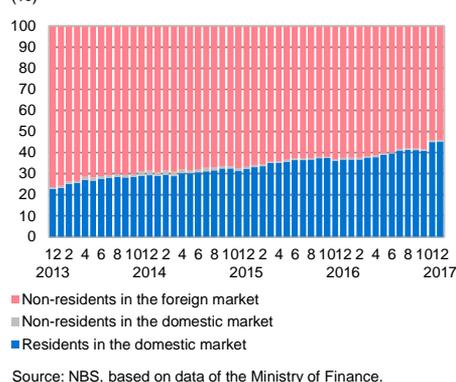


Chart I.4.11 Ownership structure of government securities denominated in foreign currency (%)



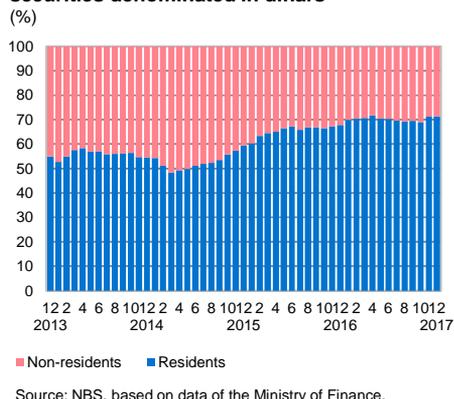
at primary auctions of government securities, but only those that were considered sufficiently low.

Foreign investors play a very important role in the government securities market. At end-2017, they accounted for 43% of the portfolio of securities issued in the domestic and international market (around 51% at end-2016). However, a high foreign investor share in the portfolio of government securities, notably in the domestic currency, may be the source of uncertainty due to the changing sentiment of foreign investors, as their interest often depends on developments in international markets, which are beyond the influence of the issuing country. Further development of domestic institutional investors and the dinar capital market is necessary to reduce public debt sensitivity to foreign investor sentiment. In 2017, the non-resident share in dinar government securities fell by 3.6 pp relative to end-2016,

standing at 28.6% (Chart I.4.10). Foreign investor participation was lower largely owing to the continued normalisation of the Fed's monetary policy, which contributed to foreign investors' waning interest in government securities of developing economies, Serbia included. Also, the non-resident share in securities in foreign currency dropped by 8.6 pp to 54.7% in 2017 (Chart I.4.11), mostly on account of the payment of due eurobonds issued in the international market in 2012. On the other hand, uncertainty was reduced due to stronger macroeconomic fundamentals, achieved macroeconomic stability and improved global growth outlook, raising foreign investor sentiment with regard to Serbia.

The government's access to the international capital market led to the widening of the investor base. However, in addition to access, the cost of borrowing was also important, largely depending on sovereign credit risk insurance premium, which takes into account the credit risk assessment by rating agencies. The success in implementing fiscal consolidation measures was affirmed by all international rating agencies with which Serbia cooperates. Moody's was the first agency to upgrade Serbia's credit rating in March 2017 – from B1 to Ba3, with stable outlook. Standard & Poor's and Fitch followed suit in December 2017, raising their ratings from BB– to BB, also with stable outlook. Serbia's credit rating was upgraded mainly as a result of successful fiscal consolidation and structural reforms, improved macroeconomic performance, and the successful implementation of the IMF stand-by arrangement. These credit rating upgrades further lowered government borrowing costs. The country's improved position in the international financial market will, together with the interest rate decreases and stronger investor confidence,

Chart I.4.10 Ownership structure of government securities denominated in dinars (%)

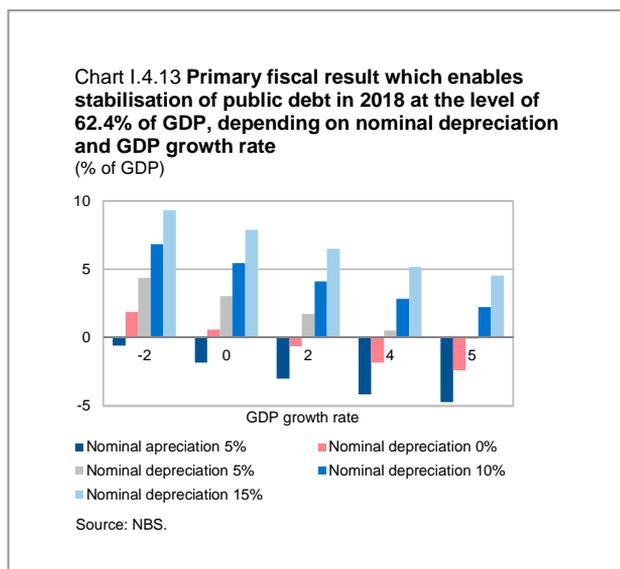


ensure cheaper sources of funding and enable public debt reinvestment at more favourable rates, further improving the country’s fiscal position.

### 1.4.3 Public debt sustainability

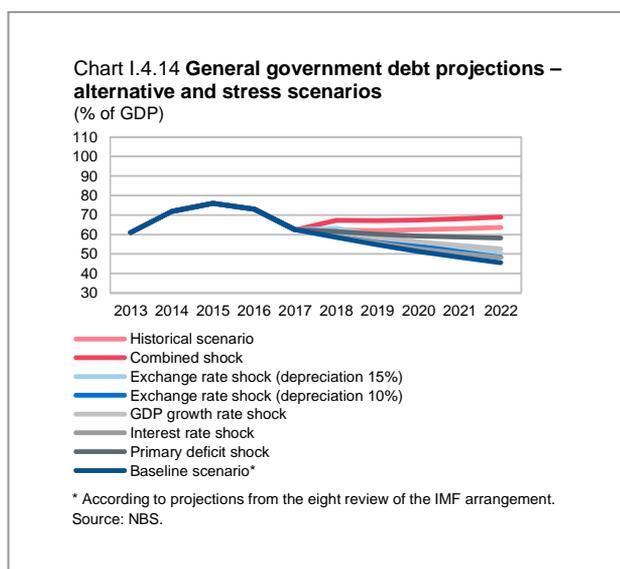
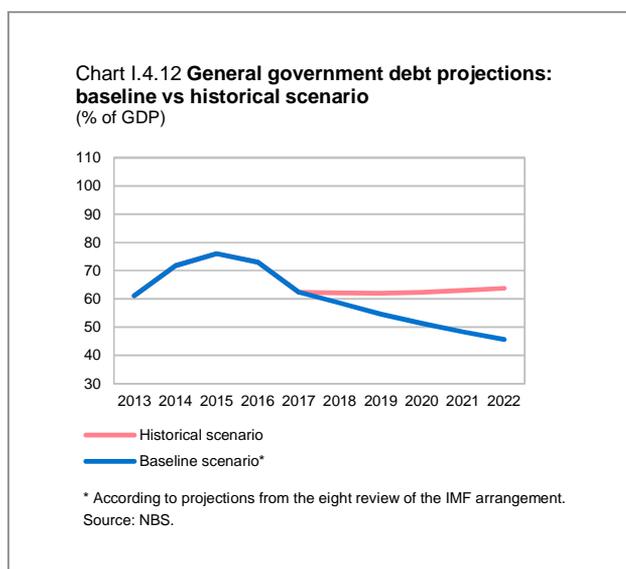
The share of general government debt in GDP will continue down assuming the achievement of the baseline scenario, which is aligned with projections from the report on the successful conclusion of the eighth review of the stand-by arrangement with the IMF.<sup>15</sup> The baseline scenario implies: a) real economic growth of 3.5–4.0% y-o-y; b) inflation rate of 3% y-o-y; c) structural primary fiscal surplus between 1.9% and 2.1% of GDP; d) government borrowing costs at the rate between 4.0% and 4.7%. With the achievement of the baseline scenario, general government debt could drop further, by around 17% of GDP over a five-year horizon (Chart I.4.12).

However, as some fiscal risks could jeopardise the achievement of the baseline scenario, the impact of the materialisation of these risks on the level and dynamics of debt must be included in the sustainability analysis. The unfavourable debt currency structure indicates that the strengthening of the euro or dollar could pose a fiscal risk. Though the dinar’s strengthening, mainly against the US dollar (but also against the euro), greatly reduced the share of public debt in GDP in 2017 (by around 5 pp), exchange rate losses with respect to depreciation since 2008 drove up the share of the debt by around 14% of GDP. An additional fiscal risk could arise from weak economic growth, particularly combined with



depreciation. The materialisation of the scenario of weak economic growth and depreciation would result either in less favourable debt dynamics or greater necessary fiscal adjustment for the purpose of debt stabilisation. The simulations in Chart I.4.13 show that the primary fiscal deficit can stabilise public debt in the conditions of appreciation or stable exchange rate, independent from economic growth, while a primary surplus is required for the stabilisation of public debt in the conditions of depreciation, even in cases of vibrant economic growth.

Macrofiscal stress tests (Chart I.4.14) show that public debt can be managed in the conditions of individual shocks such as: (a) primary fiscal deficit of 1% of GDP



<sup>15</sup> <http://www.imf.org/en/publications/cr/issues/2017/12/21/republic-of-serbia-eighth-review-under-the-stand-by-arrangement-press-release-staff-report-45506>.

in 2018, followed by fiscal policy that generates a primary fiscal deficit of 0.5% of GDP; (b) rise in the effective nominal interest rate by 1 pp in 2018 compared to that in 2017, followed by a rise of 0.25 pp per year; (c) GDP drop of 1% in 2018 and later growth at 50% lower intensity compared to growth from the baseline scenario; (d) depreciation of 10%; (e) depreciation of 15%. If one of the above shocks materialised, public debt would fall by between 4% and 14% of GDP in a five-year period. However, if several robust fiscal risks materialised at the same time (e.g. return to the primary fiscal deficit, depreciation of 10% and a 1% drop in economic activity), public debt would continue to rise.

#### I.4.4 Macroprudential policy and sovereign risk

Following the global financial crisis, the share of government securities in balance sheets of financial institutions increased significantly, largely on account of relevant EU regulations (Basel II, Basel III and the Capital Requirements Directive). In accordance with these regulations, banks' local currency sovereign exposures are considered risk-free investments, 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 of maximum exposure to a single person or a group of related persons. Finally, they are considered highly liquid assets.

The domestic regulatory framework is largely aligned with regulations on bank operations in the EU. As of 30 June

2017, bank operations in Serbia are governed by domestic regulations in line with Basel III standards. Banks' exposures to the Republic of Serbia, regardless of the currency, are still considered risk-free. Also, government securities are exempted from the limit of 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 banking sector assets stood at 17.5% at end-December 2017, somewhat lower than last year (Chart I.4.15). In addition, domestic banks are the most important investors in government securities.

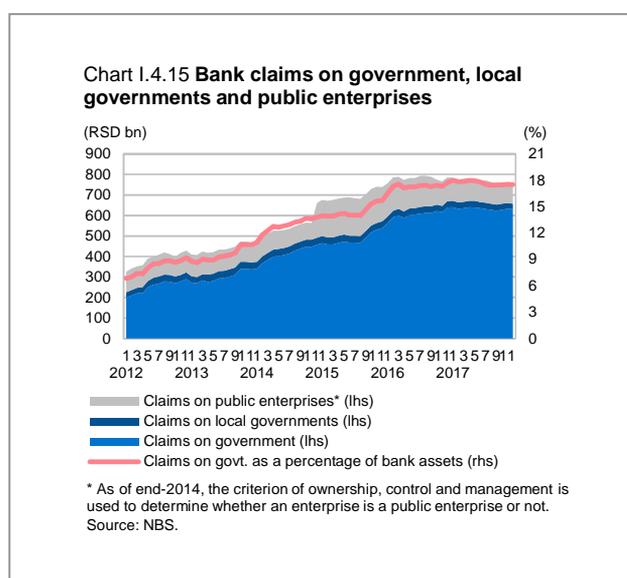
The role of prudential policy is, among other things, to carefully assess the exposure of financial institutions and systems to sovereign risk, while responsible fiscal policy is crucial for mitigating or eliminating sovereign risk.

Potential future changes to regulations at the EU level, which could help mitigate the exposure of financial institutions to sovereign risk, include the tightening of regulatory capital requirements for sovereign exposure, elimination of the government's exemption from the regulatory rule of maximum exposure, tightening of bank reporting requirements regarding sovereign risk exposure, stricter treatment of central government debt in regulation of liquidity risk, etc.<sup>16</sup> Still, these changes would have a great impact on the banks' business strategy and should be implemented incrementally over a longer period.

#### I.4.5 External debt

The external imbalance of Serbia was significantly reduced in the past five years owing to strong and diversified export growth. The share of the current account deficit in GDP rose in 2017. However, this can be attributed to temporary factors: supply-side shocks of the energy and agriculture sectors, and higher imports of capital goods and intermediate goods for the purposes of the investment cycle. The current account deficit stood at EUR 2.1 bn or 5.7% of GDP at end-2017, up by 2.6 pp compared to 2016 (Chart I.4.16).

The increase in the current account deficit was recorded against the background of the considerable rise in both exports and imports (Chart I.4.17). In 2017, exports and imports of goods and services rose by 11.2% and 14.1% y-o-y respectively. Such growth in imports resulted mainly from higher imports of capital goods and intermediate goods (for the purposes of expanding



<sup>16</sup> In accordance with the ESRB report on the regulatory treatment of sovereign exposures, March 2015.



Chart I.4.20 External debt by borrower (%)

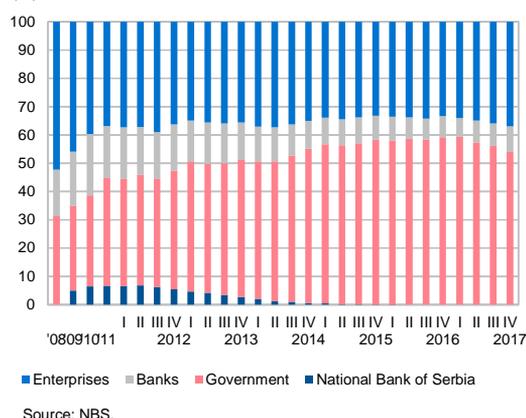


Chart I.4.22 External debt by remaining maturity (%)

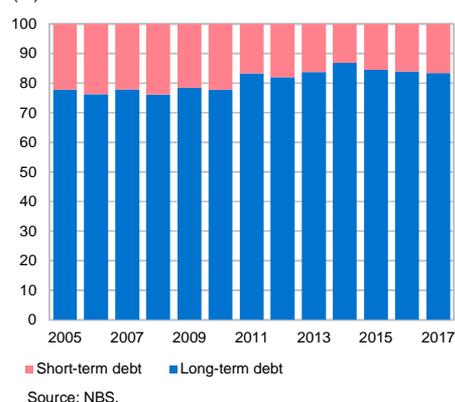


Chart I.4.21 External debt by original maturity (%)

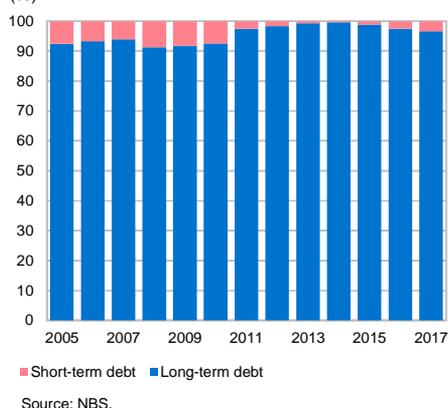
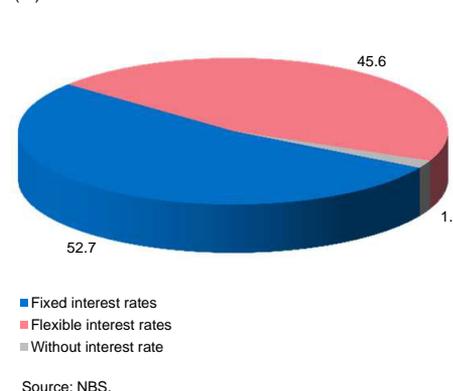


Chart I.4.23 External debt interest rate composition, 31 December 2017 (%)



restructuring and/or privatisation of large public and socially-owned enterprises will fuel FDI and exports, which will additionally reduce balance of payments imbalances and the need for new borrowing.

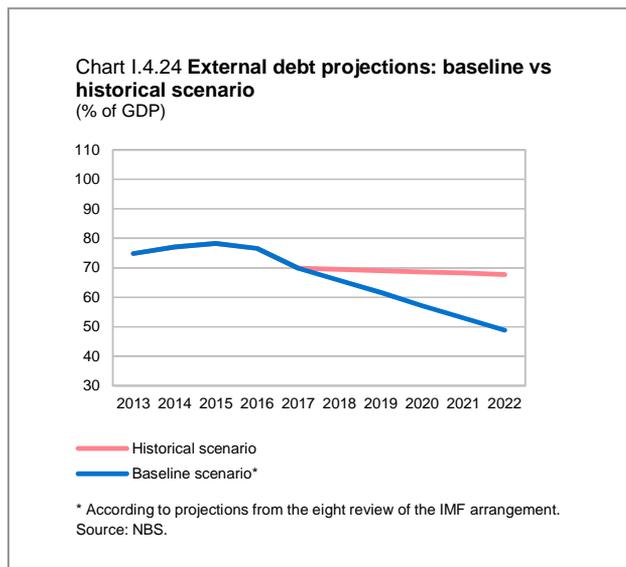
The risk of external debt refinancing is relatively low given the favourable maturity structure of external debt. The share of external debt at original and remaining maturity over one year was high, standing at 96.5% (Chart I.4.21) and 83.5% (Chart I.4.22) at end-2017 respectively.

The share of external debt repaid at a fixed rate was relatively favourable at around 53% (Chart I.4.23). This share was slightly reduced compared to 2016, mainly owing to the repayment of public sector debt, which is mostly paid at a fixed rate. 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 was largely concentrated in the private sector and measured around 46%, which may be a source of risk, given the normalisation of the Fed's monetary policy and a potential increase in the ECB's interest rates.

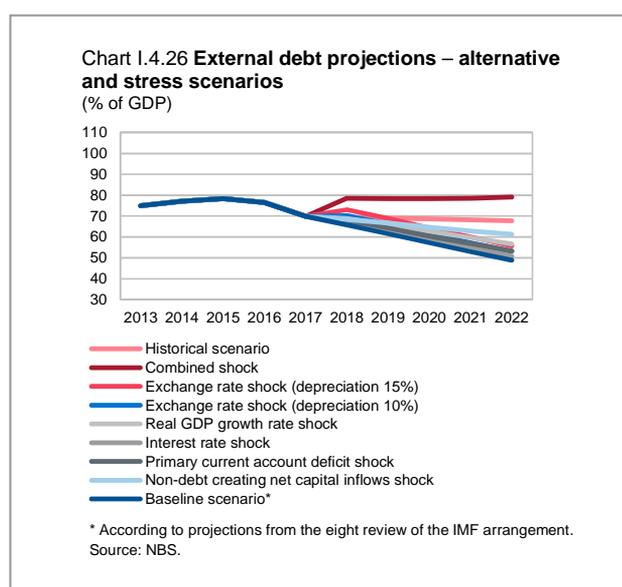
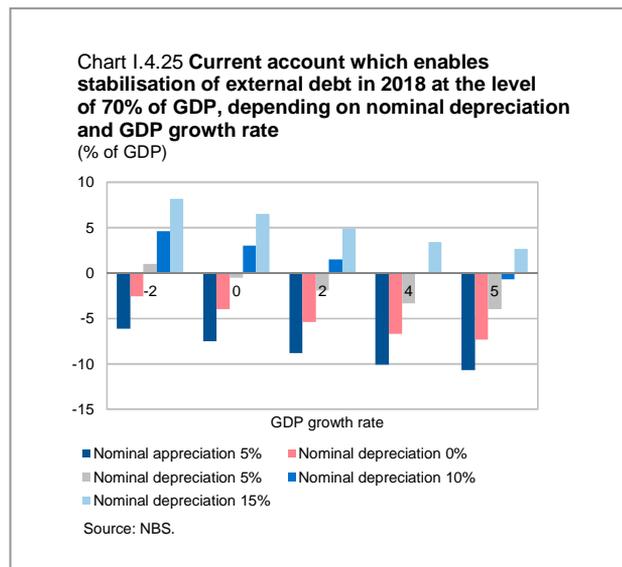
#### I.4.6 External debt sustainability

With the materialisation of the baseline scenario of macroeconomic developments, consistent with projections from the report on the successful completion of the eighth review of the stand-by arrangement with the IMF, the share of external debt in GDP could fall by as



much as 21 pp in the following five-year period (Chart I.4.24). However, some balance of payments risks may jeopardise the materialisation of the baseline scenario. As in the case of public debt, the materialisation of the scenario of weak economic growth and depreciation would bring about either less favourable debt dynamics or a stronger balance of payments adjustment needed for debt stabilisation. The simulations in Chart I.4.25 show that in conditions of a stable exchange rate, even the current account deficit higher than the target (4% of GDP) can lead to stabilisation of external debt regardless of economic growth. In conditions of depreciation of over 10%, external debt stabilisation would require robust economic growth or a considerable balance of payments adjustment.

According to the results of macro balance of payment stress tests (Chart I.4.26), external debt can be managed in conditions of individual shocks such as: (a) unplanned rise in the primary current account deficit (current account deficit minus external debt interest expenses) to 4% of GDP in 2018, and the return to the primary deficit of around 2% of GDP; (b) 1 pp rise in the effective nominal rate in 2018 compared to 2017, and the annual rise of 0.25 pp thereafter; (c) real 1% drop in GDP in 2018, with later 50% lower intensity of growth compared to that from the baseline scenario; (d) depreciation of 10%; (e) depreciation of 15%; (f) reduction of net FDI to mere 2.5% of GDP. Even if these shocks materialised, external debt could fall by 9–19% of GDP in the next five years, depending on the scenario. If several strong balance of payments risks materialised (an increase in the primary current account deficit, decline in FDI,



depreciation of 10% and a 1% drop in economic activity, followed by weak growth), the share of external debt in GDP would increase compared to 2017.

## I.5 Corporate sector

*Corporates operated at a profit in 2017, which is attributable to the recovery of domestic and foreign demand, macroeconomic stability, fiscal consolidation and structural reforms. New corporate loans not only neutralised the impact of the receivables write-off and sale on the level of loans, but also encouraged growth in domestic and total lending activity, despite significant cleansing of bank balance sheets. The NPL share in total*

Chart I.5.1 Real lending growth of corporate sector (y-o-y rates, %)

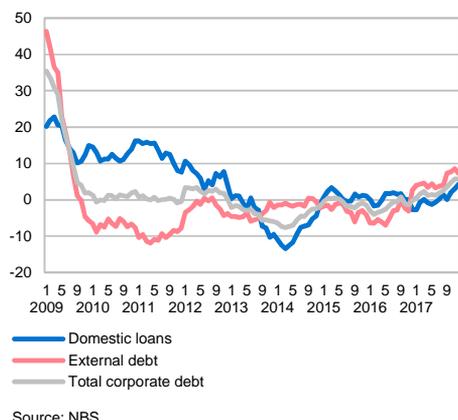
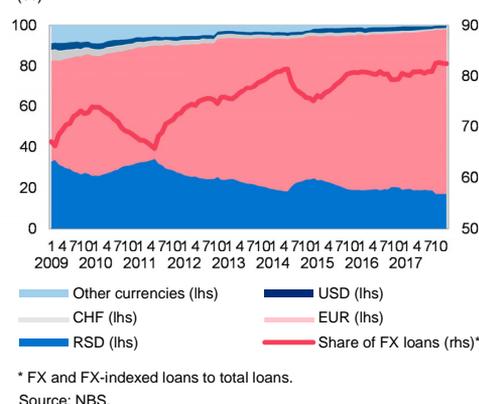


Chart I.5.3 Currency structure of domestic corporate loans (%)



loans declined significantly, notably as a result of NBS regulatory activities. A reduction in the average costs of borrowing both in dinars and foreign currency continued, which may change if leading central banks tighten their monetary policies. Furthermore, the exposure to the FX risk remains high. NBS regulatory activity, aimed at strengthening macroeconomic and financial stability, is also supported by the Government's legislative activity to enhance the environment conducive to investment, employment and overall economic growth.

Excluding the exchange rate effect<sup>17</sup>, domestic corporate loans<sup>18</sup> went up by 4.3% in 2017. In the course of the

year, banks wrote off corporate NPLs worth RSD 72.8 bn and sold RSD 22.7 bn to non-banking sector entities. Excluding the NPL write-off and sale effect, in December y-o-y growth in domestic corporate loans equalled 13.0%. A rise in corporate lending amid the cleansing of bank balance sheets from NPLs, which reduces the stock of loans, confirms that domestic lending activity is recovering at an accelerated pace. The highest absolute rise in receivables was observed in the trade sector. The following sectors also recorded growth: (a) real estate, scientific and catering activities, arts, entertainment and recreation, (b) construction, (c) mining, manufacturing and water management, and (d)

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

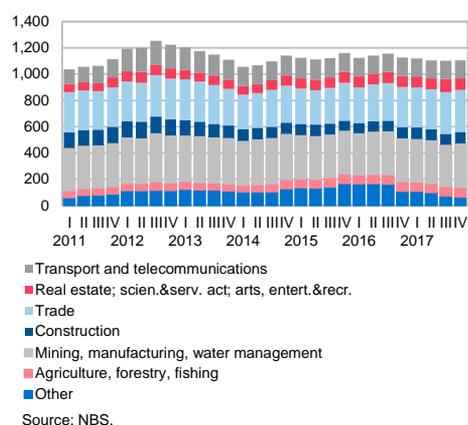
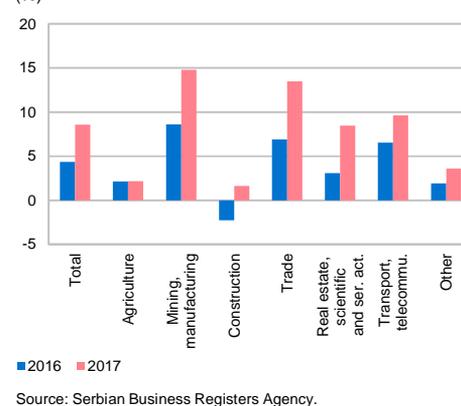
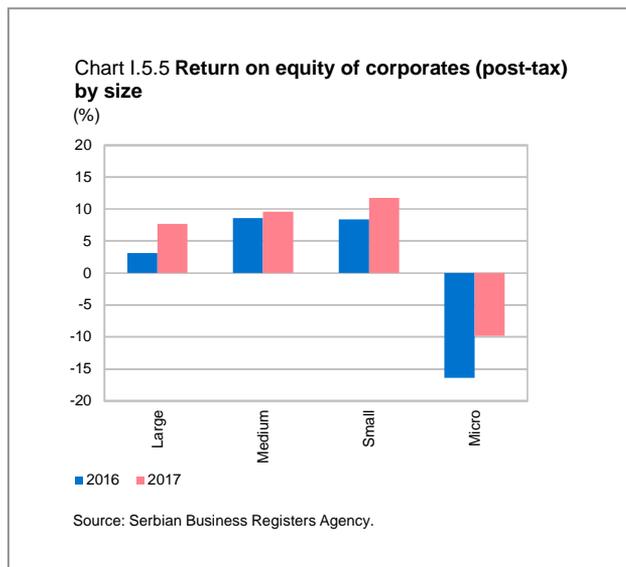


Chart I.5.4 Corporates return on equity (post-tax) by selected sectors (%)



<sup>17</sup> 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 the purpose of monitoring the implementation of the last IMF arrangement), according to the currency composition of loan receivables.

<sup>18</sup> The corporate sector includes companies, public enterprises and a part of the other clients sector relating to legal persons and clients engaged in social activities not financed from the budget, and other legal persons – non-financial sector in bankruptcy.

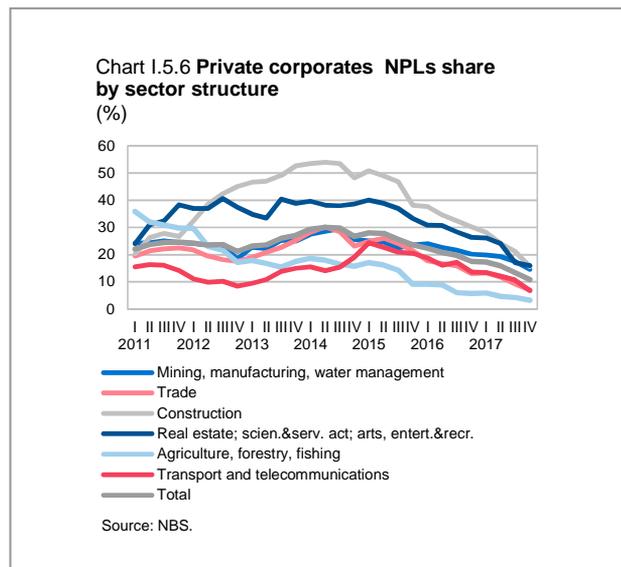


agriculture, forestry and fishing. By purpose, the largest amount of new loans was approved for liquidity and current assets financing purposes.

External debt of enterprises also increased in 2017 – it reached EUR 8,640.7 mn, up by 7.3% (EUR 587.9 mn) from 2016. An increase in corporate external debt, along with rising domestic corporate loans – despite the cleansing of balance sheets – resulted in a rise in total corporate debt by 5.7% at end-2017, excluding the exchange rate effect.

In December 2017, the share of dinar corporate loans stood at 17.5%, down by 1.9 pp from end-2016. In September alone, dinar receivables in respect of write-offs fell by 1.6 pp.<sup>19</sup> The structure of FX receivables changed negligibly compared to 2016. The share of euro receivables went up by 3.6 pp, while the share of receivables in US dollars, Swiss francs and other currencies declined by 0.9 pp, 0.4 pp and 0.4 pp, respectively. Given the high share of FX debt in total corporate debt, the corporate sector exposure to the exchange rate risk remains high.

In terms of maturity, long-term receivables were dominant at 74.9%, which is indicative of a low risk of refinancing. They increased mildly (by 0.2 pp) compared to 2016.



In 2017, corporates<sup>20</sup> recorded almost two and a half times higher positive net financial result than in 2016 (RSD 437,180 mn vs. RSD 187.383 mn). ROE<sup>21</sup> of the corporate sector<sup>22</sup> equalled 8.6% in 2017 (4.4% in 2016) (Chart I.5.4). ROE increased in all sectors. The highest profitability in 2017 was recorded in mining, manufacturing and water management, with ROE equalling 14.8%. Unlike 2016, the construction sector recorded a positive ROE in 2017. In terms of the enterprise size, large, medium-sized and small enterprises continued to operate at a profit in 2017 (Chart I.5.5), while the profitability of microenterprises remained in the negative zone, but with significant improvements compared to 2016 (-9.8% in 2017 compared to -16.4% in 2016). In 2017, the highest ROE was observed for small enterprises (11.8%).

The NPL share in total loans to public enterprises and companies fell by 6.8 pp y-o-y to 10.4% in December 2017. Similarly, the NPL share in total loans to companies declined by 6.8 pp to 10.8% at end-December. A steep decline in the NPL share in total loans (by 8.1 pp) and a lower level of NPLs (6.1%) was observed among public enterprises. The NPL share declined in all activities and is currently at historical lows.

Since August 2015, when the NPL Resolution Strategy was adopted, the largest decline in the NPL share in total loans to companies was recorded in the following

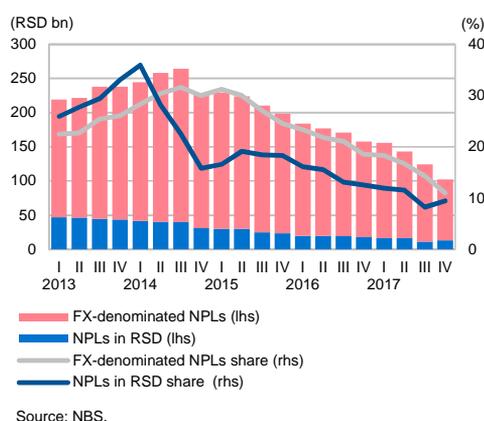
<sup>19</sup> On 30 September 2017, the Decision on the Accounting Write-Off of Bank Balance Sheet Assets (RS Official Gazette, No 77/2017) began to apply, with banks obliged to write off all loans whose 100% of gross book value is covered by allowances for impairment.

<sup>20</sup> According to data of the Business Registers Agency.

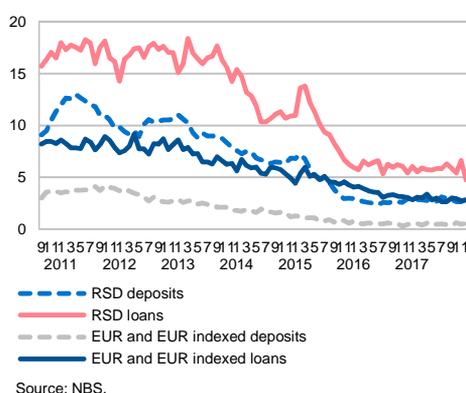
<sup>21</sup> In calculating ROE, the amount of capital minus the amount of losses above the level of capital was used.

<sup>22</sup> According to the 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.

**Chart I.5.7 Private corporates NPLs by currency structure**



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



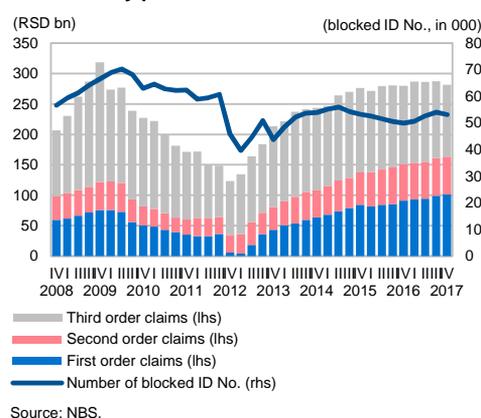
sectors: (a) construction, (b) real estate, scientific and catering activities, arts, entertainment and recreation, and (c) trade – in the amount of 32.2 pp, 21.4 pp and 17.5 pp, respectively, of which in 2017 alone the NPLs of these sectors fell by 14.6 pp, 10.4 pp and 6.1 pp, respectively.

In terms of the currency structure, the reduction in the NPL share in total loans was larger for FX loans (by 7.5 pp) than for dinar loans (by 3.1 pp).

The decline in the NPL share in total loans in 2017 reflects the NBS regulatory activities envisaged not only by the NPL Resolution Strategy<sup>23</sup>, but, above all, the Decision on the Accounting Write-off of Bank Balance Sheet Assets. The Decision stipulates the banks' obligation to carry out the accounting write-off of an NPL if allowances for impairment equal 100% of its gross book value. Under this Decision only, RSD 33.2 bn worth of loans was written off, which, along with the transfer of NPLs to other legal persons worth RSD 10.4 bn, testifies to the extent in which existing NPLs were reduced.

The costs of corporate sector borrowing continued down in 2017. At the year-end, the weighted average rate on new dinar loans stood at 4.75%, down by 0.67 pp y-o-y. The reduction was achieved primarily owing to monetary policy easing through the key policy rate cuts cycle, which began in May 2013. Weighted average rates on new euro loans also declined, from 3.06% to 2.81%,

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



largely due to the falling country risk premium on account of improved macroeconomic characteristics of the country and lower interest rates in the euro area money market. The fall in interest rates both on dinar and euro-indexed loans was also prompted by strong interbank competition in the credit market. However, the corporate sector remains exposed to the interest risk in the event of interest rate changes.

Despite the considerable lowering in NPLs, at end-2017, the accounts of around 53,000 corporates were blocked,

<sup>23</sup> For more details about the effects of measures adopted as part of the Strategy, see Text box 7.

up by 6.2% relative to 2016. The prevailing problems with illiquidity and reduced solvency of the corporate sector are reflected in the continued rise in the amounts of blocked accounts, equalling RSD 281.5 bn in 2017, up by 0.57% from 2016.

In 2017, the NBS Enforced Collection received 404 decisions to initiate bankruptcy proceedings against debtors from commercial courts (down by 33 from 2016), and 266 decisions to close bankruptcy proceedings (down by five from 2016). It also received 18 decisions to suspend bankruptcy proceedings (16 in 2016), 44 decisions to suspend bankruptcy proceedings due to the sale of the bankruptcy debtor (43 in 2016), 156 decisions to initiate preliminary bankruptcy proceedings with security measures (238 in 2016), and 33 decisions to adopt prepack reorganisation plans (55 in 2016).

In 2017, several laws were adopted to enhance the environment conducive to investment, employment and overall economic growth.

One of the important laws adopted in 2017 is the Law Amending the Law on Corporate Profit Tax (RS Official Gazette, No 113/2017). Its main aim is to recognise expenditures in respect of the write-off of an individual receivable on account of loans approved to natural and legal persons, which should encourage and enable the simplification of the write-off of NPLs to natural and legal persons. The Law also specifies the types of services based on which a non-resident legal person makes profit subject to the withholding tax, eliminates difficulties in the application of provisions in terms of recognising some types of expenditures in the payer's tax balance, prescribes simpler conditions for the submission of documents on transfer prices in the event of a taxpayer's transaction with a related person, with subject to the transaction being assets based on which the taxpayer must determine capital gain.

The Law Amending the Law on Terms for Settlement of Monetary Obligations in Commercial Transactions (RS Official Gazette, No 113/2017) was also adopted, with the aim to ensure greater financial discipline and transparency, and more successful planning and management of liquid assets both in the corporate and public sectors.

The adopted Law Amending the Law on Bankruptcy (RS Official Gazette, No 113/2017) prescribes shorter terms for action of bankruptcy administrators and bankruptcy

judges, and improves the status of secured creditors. This Law is expected to simplify bankruptcy procedures and further upgrade the profession and the Bankruptcy Supervision Agency.

The aim of the Law Amending the Law on Labour (RS Official Gazette, No 113/2017) is to curb the grey economy, eliminate unfair competition and improve the overall business climate. The novelties introduced by the Law include: a changed deadline for registration for mandatory social insurance; obligation for the employer to keep daily records on employees' overtime work; a changed manner of serving notice before firing an employee; possibility for the competent minister to authorise another person to be in charge of deciding on the complaint against a decision of the labour inspector; stricter sanctions for denying the entitlement to a severance pay; obligation for the labour inspector to launch misdemeanour proceedings, provided the prescribed conditions have been met, while at the same time not being able to warn the employer of a misdemeanour in advance.

This set of adopted laws, together with NBS regulatory measures aimed at strengthening macroeconomic and financial stability, helps improve the environment conducive to investment, employment and overall economic growth. The results achieved have also been confirmed in the international context, through the upgrade of the country's credit rating and progress in the World Bank Doing Business List.

## I.6 Household sector

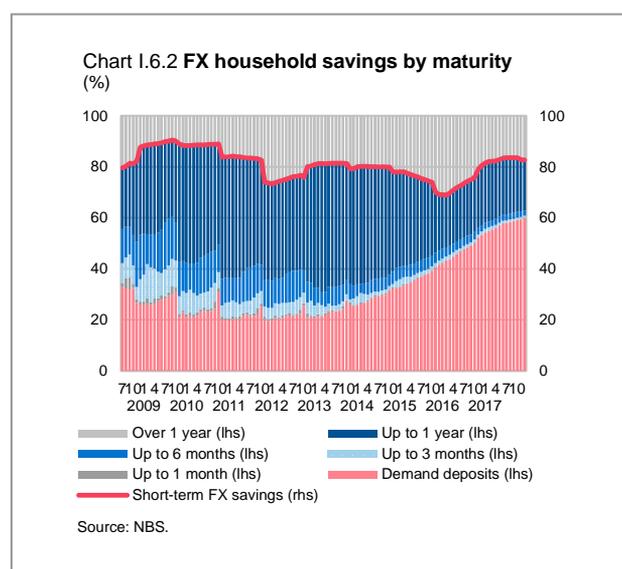
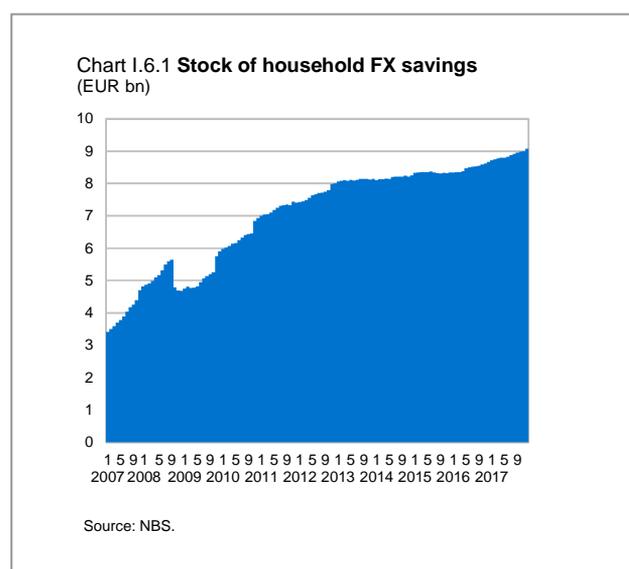
*NBS's monetary policy easing, low interest rates in the international money market and increased competition among banks contributed to a fall in the cost of household borrowing. Lower cost of borrowing, against the background of favourable macroeconomic trends, especially in the labour market, contributed to further growth in household lending, primarily in dinars. On the other hand, interest rate risk associated with the potential increase in reference interest rates of leading central banks remains a source of risk to the household sector in the medium term. Household savings also stayed on the upward path. A decline in the share of NPLs in total household loans resulted primarily from NBS's regulatory activities and, to a somewhat lesser extent, from lending growth.*

In an environment of GDP recovery, low and stable inflation, relative stability of the exchange rate and strong fiscal consolidation, the household sector has seen positive trends: a decline in the unemployment rate, real wage growth, savings rising more than consumption and greater ability to service credit liabilities. According to the Labour Force Survey, the unemployment rate dropped down further in 2017, to 13.5%, or 1.8 pp lower than in the year before. The average monthly net wage in 2017 in the Republic of Serbia equalled RSD 47,888, rising by 3.9% in nominal, or 0.7% in real terms, compared to a year earlier<sup>24</sup>. The pension averaged RSD 23,913, which is an increase of 1.8% in nominal terms but a 1.2% decrease in real terms compared to 2016.<sup>25</sup> Pensions grew slower than wages since there was no increase in the so-called high pensions in 2017. On the other hand, the findings of the Household Budget Survey show that personal consumption of Serbian households in 2017 came at RSD 62,275, i.e. it was higher by 2.6% in nominal terms and lower by 0.4% in real terms compared to the year before. The structure of consumption remained unchanged, so the majority of expenses related to food and non-alcoholic beverages (34.5%) and dwelling, water, electricity, gas and other fuels supply (17.1%). As household income grew faster than expenses, total household savings continued up, strengthening the deposit base of the banking sector. In 2017, FX savings amounted to EUR 9.4 bn, gaining EUR 385.9 mn in nominal terms. Its real growth was higher – EUR 463.27 mn, and the EUR 77.4 mn difference can be

attributed to the weakening of other currencies against the euro in 2017 (Chart I.6.1).

In the course of 2017, the government paid out a total of EUR 23.2 mn to cover public debt obligations in respect of frozen FX savings bonds<sup>26</sup>. Since the start of the redemption of these bonds in 2002 until end-2017, a total of EUR 3,634.33 mn was paid out. 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. The obligation of the Republic of Serbia in respect of unpaid FX savings under this Law equals up to EUR 310 mn and will constitute the public debt of the Republic of Serbia on the day of the issuance of bonds for the settlement of these obligations. Obligations to persons that pursuant to this Law are eligible to receive the payment will be executed in ten equal semi-annual instalments, starting from 31 August 2019 and ending with 29 February 2024.

In addition, in December 2017 a new financial instrument in which citizens can invest appeared in the domestic market – savings bonds. This is a new type of government security that is more accessible to citizens. Taking into account that their tax treatment is more favourable than that of FX savings (they are exempted from tax on interest income), these securities are an attractive investment

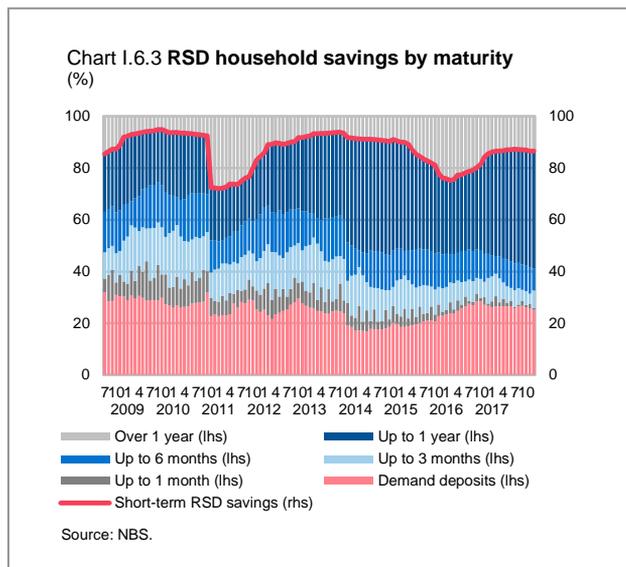


<sup>24</sup> Source: SORS.

<sup>25</sup> Source: Pension and Disability Insurance Fund of the Republic of Serbia.

<sup>26</sup> FRY and RS bonds, issued to regulate public debt of the Federal Republic of Yugoslavia, in respect of household FX savings and contracts on household FX

deposits termed with Dafiment bank ad Beograd undergoing liquidation, and FX household balances deposited with Banka privatne privrede Montenegro DD Podgorica.

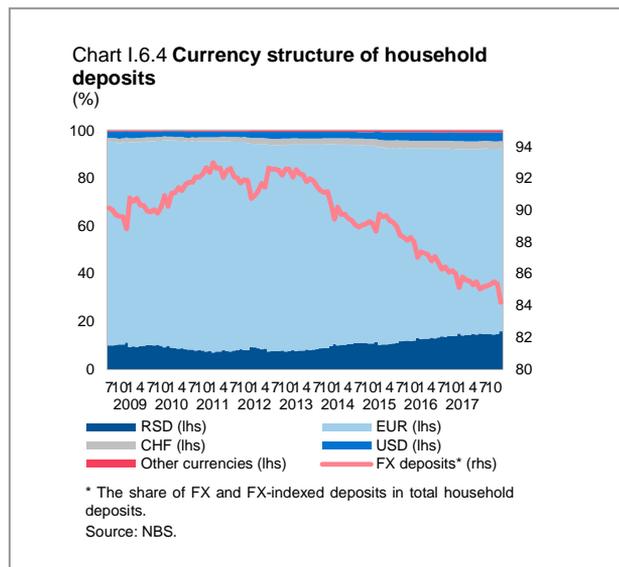


option for households. So far, there have been eight issues of these bonds, in dinars and euros, with two, three, five and ten-year maturity, in total amount of RSD 195.7 mn and EUR 17.5 mn.

In 2017, the maturity structure of FX savings changed as the share of long-term savings in total FX savings contracted to 17.27% (down by 2.29 pp from December 2016) (Chart I.6.2).

Promoting savings in the local currency and emphasising their higher profitability is a part of the NBS 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 lesser exposure to impacts from the international environment. Although households dinar savings were on mild decline in one part of the year, in late 2017 they turned upward again, reaching RSD 49.49 bn, close to the level from the end of the previous year<sup>27</sup>. Despite the mild oscillations in 2017, when observed over a longer time span, dinar savings evidently increased, with strengthening of citizens' confidence in saving in the domestic currency. This came as a result of low and stable inflation, a relatively stable RSD/EUR exchange rate, as well as higher interest rates and more favourable tax policy on dinar vs. FX savings.<sup>28</sup>

However, Chart I.6.3 shows a slightly less favourable maturity structure of dinar savings in 2017, as the share of



long-term in total dinar savings mildly decreased, from 14.4% at end-2016 to 13.3% at end-2017.

What is positive from the aspect of financial stability is that the share of FX deposits in total household deposits declined by 0.9 pp to 84.2% at end-2017. Although euro deposits (at 76.7%) continue to hold the dominant share in the structure of deposits, they dropped slightly from the year before (by 0.7 pp) and as the dollar and Swiss franc depreciated against the euro, the share of these currencies mildly decreased in the currency structure of FX deposits. At end-2017, the share of dollar and Swiss franc deposits was low, at 3.6% and 3%, respectively (Chart I.6.4).

Monetary policy easing that brought about a reduction in dinar interest rates, low rates in the international money market and higher interbank competition reduced the cost of borrowing. Interest rates on dinar and euro-indexed household loans decreased further in 2017. In 2017, the cost of dinar borrowing of the household sector declined by 0.26 pp to 10.58%. In the same period, interest rates on new euro and euro-indexed loans dropped by 0.15 pp to 4.21%. However, saving interest rates were not reduced. At end-2017, interest rates on dinar household deposits were at the same level as at end-2016. Interest rates on euro household deposits are slightly higher but still close to the lowest level recorded since the current interest rate statistics was introduced (Chart I.6.5).

These interest rate trends did not discourage household savings, but gave a boost to lending and reduced bank

<sup>27</sup> Since the beginning of 2018 dinar savings has recorded a rising trend, reaching close to RSD 51.5 bn at end-April.

<sup>28</sup> Interest income is subject to a 15% tax rate in case of FX savings and is tax-exempt for dinar savings.





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

	Q4 2010	Q4 2011	Q4 2012	Q4 2013	Q4 2014	Q4 2015	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017
<b>Bank claims on households</b>											
<i>RSD bn</i>	571.2	601.7	652.7	673.7	724.6	759.1	838.6	864.1	883.5	893.0	904.2
<i>EUR mn</i>	5,414.3	5,750.5	5,739.5	5,876.2	5,990.6	6,240.9	6,792.0	6,970.3	7,310.4	7,481.5	7,589.7
<b>Total deposits of households</b>											
<i>RSD bn</i>	792.9	855.2	988.7	1,044.6	1,125.9	1,165.5	1,258.0	1,270.8	1,255.1	1,253.2	1,275.9
<i>EUR mn</i>	7,515.5	8,172.7	8,694.2	9,111.6	9,308.6	9,582.9	10,188.8	10,251.3	10,385.5	10,498.9	10,769.6
FX bank claims to total claims <sup>1</sup>	72.4	67.4	65.0	62.1	59.0	57.2	53.0	52.2	50.6	49.2	48.3
FX to total deposits <sup>1</sup>	92.4	90.7	92.1	89.4	88.7	87.1	85.1	85.5	85.0	85.3	84.2
FX deposits to FX bank claims <sup>1</sup>	177.2	191.2	214.7	223.3	233.4	233.9	241.0	241.2	238.9	243.6	246.2
LTV ratio <sup>2</sup>	65.4	65.6	65.7	65.9	65.8	68.5	70.2	70.3	71.3	69.8	70.2
<b>Average loan per resident</b>											
<i>RSD thousand</i>	76.0	81.0	88.2	91.4	100.4	105.9	118.5	122.1	124.0	126.8	128.4
<i>EUR</i>	720.6	773.9	775.7	797.3	830.3	870.4	959.9	985.0	1,026.0	1,062.7	1,078.0
<b>Average loan amount</b>											
<i>RSD thousand</i>	427.6	439.6	460.4	489.9	511.1	472.2	488.7	470.4	465.8	463.6	486.7
<i>EUR</i>	4,052.8	4,201.4	4,049.0	4,273.1	4,225.3	3,882.5	3,957.6	3,794.6	3,854.3	3,883.5	4,085.1
<b>Average loan per user</b>											
<i>RSD thousand</i>	509.0	530.9	570.1	612.0	644.7	614.6	641.0	634.5	630.6	631.0	650.8
<i>EUR</i>	4,824.9	5,073.9	5,012.9	5,338.8	5,329.8	5,053.1	5,191.4	5,118.1	5,218.2	5,286.0	5,462.3

<sup>1</sup> FX claims and deposits include FX-indexed claims and deposits.

<sup>2</sup> For housing loans insured with the National Mortgage Insurance Corporation.

Sources: SORS, ASB, National Mortgage Insurance Corporation and NBS.



## II Financial sector

Accounting for over 90% of financial sector assets, the banking sector of the Republic of Serbia remained highly capitalised and liquid in 2017. Lending was on the rise, thanks to the recovery of loan demand, easing of credit standards and more favourable terms of offer. At end-2017, the share of NPLs in total loans of the Serbian banking sector stood at 9.8%, which is the lowest level recorded since September 2008. A significant fall in NPLs was recorded primarily owing to NBS regulatory activities, including those not envisaged by the NPL Resolution Strategy. A decrease in NPLs helped boost banks' profitability.

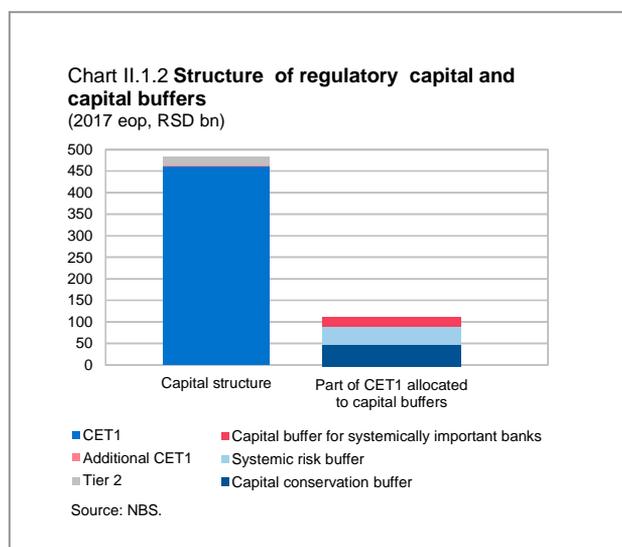
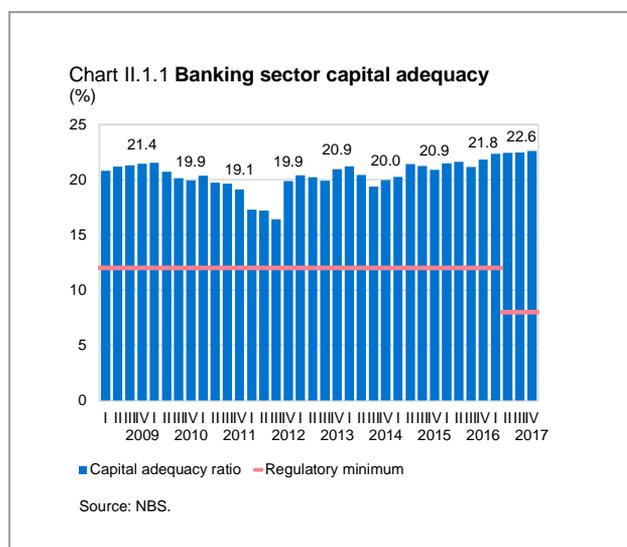
### II.1 Banking sector

#### II.1.1 Capital adequacy

The Serbian banking sector was adequately capitalised throughout the year. Measuring 22.6%, CAR did not record significant changes in 2017. The regulatory framework introducing Basel III standards has been in force since 30 June 2017. An integral part of this set of regulations is the Decision on Capital Adequacy of Banks, which, among other things, added two new indicators: the Common Equity Tier 1 capital ratio

(4.5%) and Tier 1 capital ratio (6%), in addition to the capital adequacy ratio of regulatory (total) capital of the bank (8%). Owing to the strong capital base and good quality of regulatory capital, the banking sector Tier 1 capital ratio measured 21.6%, and Common Equity Tier 1 capital ratio – 21.5%, which is considerably above the prescribed regulatory minimums.

In addition, the Decision regulates capital buffers. They represent additional CET 1 capital that banks are obligated to maintain above the regulatory minimum so as to limit systemic risks in the financial system. The



combined capital buffer<sup>36</sup> consists of capital conservation buffer, countercyclical buffer, capital buffer for global systemically important banks, capital buffer for systemically important banks and systemic risk buffer. At end-2017, banks allocated RSD 115.1 bn of CET 1 capital or 5.4% of risk-weighted assets to maintain capital buffers.

In 2017, regulatory capital rose by RSD 73.8 bn, to RSD 484.4 bn at year-end. The key contribution to regulatory capital came from reduced regulatory loan loss provisions as a deduction from capital, owing to regulatory treatment and incentives to banks to resolve NPLs. Risk-weighted assets rose compared to end-2016 (by RSD 262.2 bn to RSD 2,142.7 bn) due to a rise in lending and increased capital requirements for operational risk and freed-up portion of required reserve. As regulatory capital increased more than risk-weighted assets, capital adequacy edged up by 0.8 pp in 2017.

In terms of regional comparison, the capitalisation of Serbia's banking sector is still above the average for countries of Central and Eastern Europe.

Given the traditional business models of Serbian banks, oriented to corporate and household lending, the most prevalent risk in the Serbian banking sector in 2017 was credit risk. Hence, 84% of capital requirements at end-2017 were credit risk-related, 15% were operational risk-related, while the smallest share of 1% were market risk-related.

## II.1.2 Level, structure and quality of assets

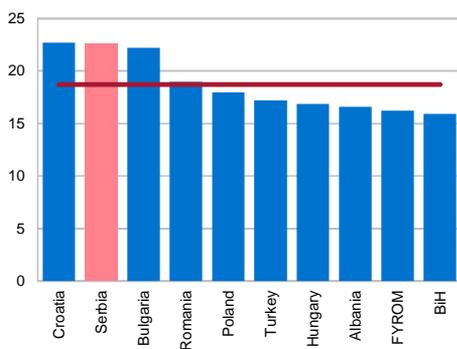
At end-2017, net assets of the Serbian banking sector amounted to RSD 3,369 bn, or around 75% of GDP. In terms of the ownership structure of the banking sector net assets, the largest share was held by foreign-owned banks (77%), followed by state-owned banks (16%) and domestically-owned banks (7%).

Loans and receivables accounted for 62.4% of total net assets, reflecting bank business models oriented toward traditional credit-deposit activities. The remainder of net assets was mostly made up of cash and balances with the central bank (14.1%) and financial assets (19.4%), primarily RS government securities, evidencing banks' propensity toward safer investment.

At end-2017, the credit portfolio was worth RSD 1,973 bn. The bulk of the portfolio related to corporate loans (around 49%) and household loans (around 44%). Total net corporate loans stood at RSD 970 bn, of which 85% was in a foreign currency and 84% in euros. Total net household loans were worth RSD 864 bn, of which RSD 345 bn (40%) related to housing loans. The share of household loans in foreign currency stood at around 49% and of euro loans at around 41%.

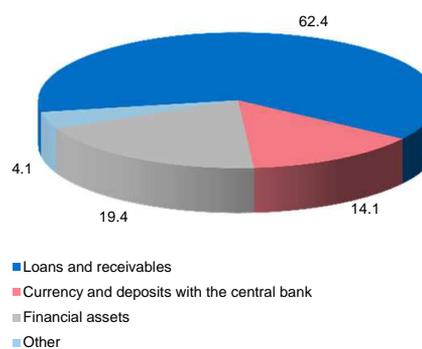
As loans account for a dominant share of total balance sheet assets of the domestic banking sector, the share of NPLs in total loans is an indispensable measure of asset quality. At end-2017, the share of NPLs in total banking sector loans equalled 9.8%, which is the lowest recorded

Chart II.1.3 Regulatory capital to risk-weighted assets, countries of the region (2017, latest available data, %)



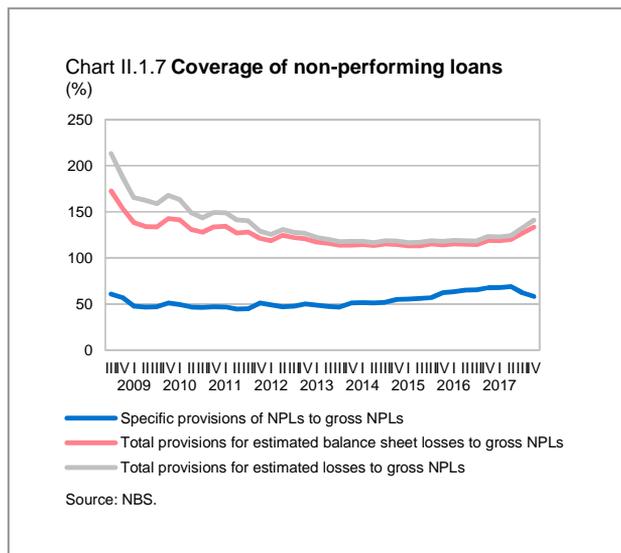
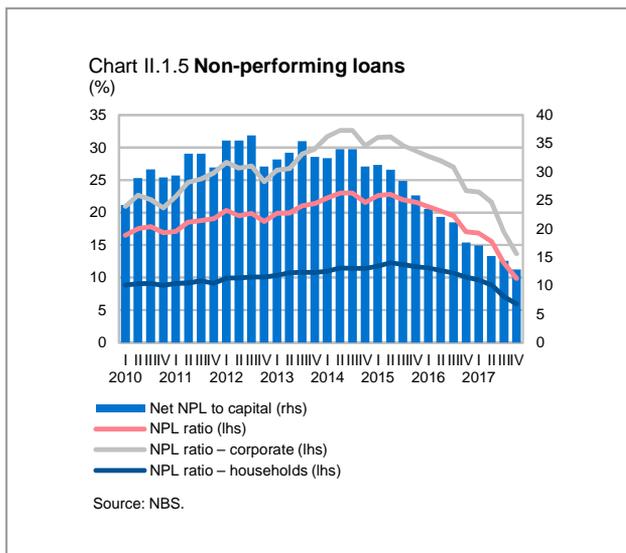
Sources: NBS and IMF.

Chart II.1.4 Structure of assets of the Republic of Serbia's banking sector (%)



Source: NBS.

<sup>36</sup> For a more detailed account of capital buffers, see Text box 1: Countercyclical capital buffer, and Text box 2: Systemic risk buffer.



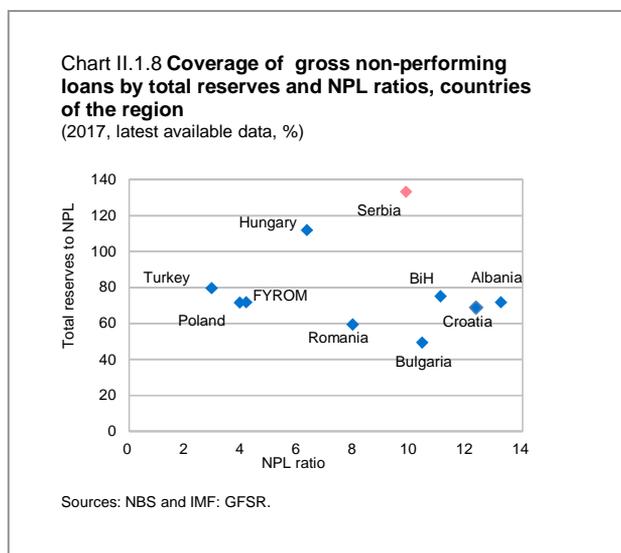
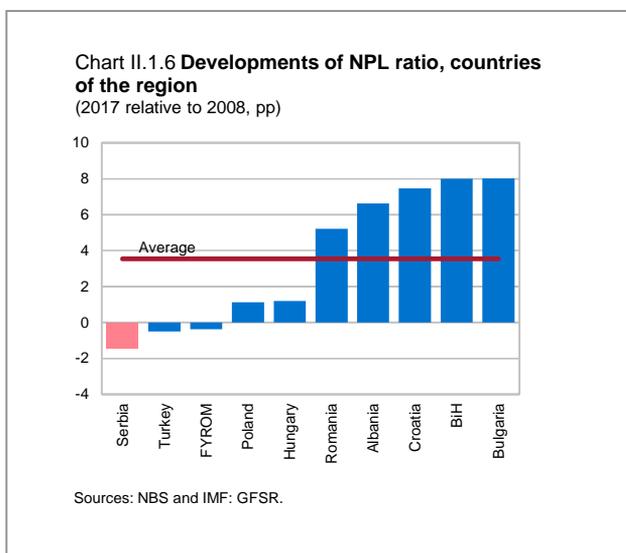
value since September 2008, when this indicator was introduced as a requirement in regulatory reporting of the domestic banking sector. In one year only, the NPL ratio was reduced by 7.2 pp (primarily owing to a decrease in gross NPLs by 40.7%, or RSD 140.8 bn). Compared to the peak value from May 2015, the ratio plunged by as much as 13.3 pp.

The NPL ratio is higher in the corporate than in the household sector. The share of NPLs in total loans to public enterprises and companies edged down by 6.8 pp y-o-y, to 10.4% in December 2017. Similarly, the share of NPLs in total loans to companies declined by 6.8 pp, to 10.8% at end-December. A more sizeable reduction of the

NPL share in total loans (by 8.1 pp) and a decrease in the NPL stock (6.1%) was also recorded in public enterprises.

At end-2017, the NPL share in total gross loans of the household sector came at 5.9%, down by 4.1 pp relative to end-2016. The recorded y-o-y fall resulted mainly from the reduction of gross NPLs of the banking sector by RSD 30.7.bn (in housing construction, cash and consumer loans), as well as the increase in total gross loans by RSD 64.3 bn, predominantly cash loans.

A significant fall was recorded primarily owing to NBS regulatory activities. Namely, since August 2015, when the NPL Strategy was adopted, the NBS not only fully



implemented all activities from the Strategy's Action Plan, but undertook numerous additional measures not envisaged by the Plan. Among other, by amendments to the Decision on Risk Management by Banks (RS Official Gazette, No 61/2016) from July 2016, the NBS expanded the scope of receivables due from legal persons which banks may assign to other legal persons.

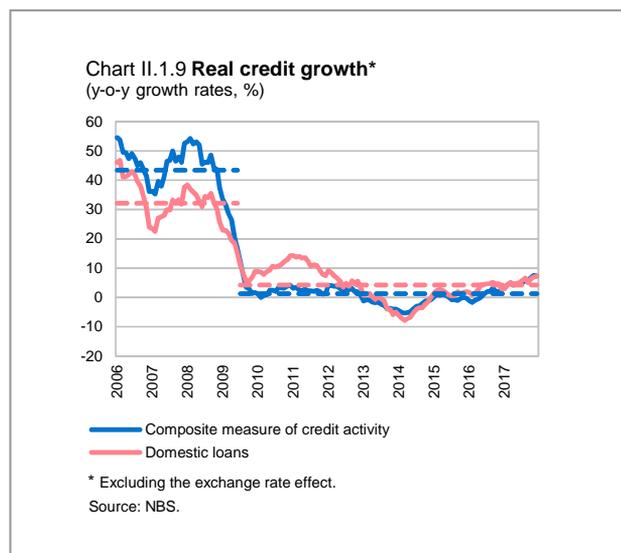
In order to encourage banks to more efficiently address NPLs in their portfolios, in August 2017 the NBS adopted the Decision on the Accounting Write-off of Bank Balance Sheet Assets (RS Official Gazette, No 77/2017), imposing a requirement that all receivables whose allowances for impairment equal 100% of their gross book value be written off from the balance sheet. The start of application of this Decision gave an impetus to the NPL reduction in 2017 through major write-offs. During the year, RSD 100.1 bn in gross NPLs was written off, considerably more than in previous years. Direct collection accounted for a RSD 69.4 bn decrease in NPLs and assignment/sale for RSD 24.5 bn.

In order to protect the interests of depositors and other creditors and to preserve financial stability, apart from the IFRS provisions the NBS also requires the so-called regulatory or loan loss provisions. At end-2017, 133.2% of total gross NPLs were covered by balance sheet loan loss provisions, by 14.3 pp more than in the year before. A traditionally high coverage of NPLs by loan loss provisions, which is the highest in the region, significantly reduced the impact of the NPL channel as a potential cause of financial system instability. This is also confirmed by the macroprudential solvency stress tests conducted by the NBS. The banking sector would remain adequately capitalised even under the worst-case scenario<sup>37</sup>.

### II.1.3 Lending activity

The year 2017 saw a recovery in lending, thanks both to supply and demand side factors. Factors underlying the growth in loan supply were the continuation of NBS's monetary policy easing in place since 2013, NPL resolution measures and activities undertaken by banks and encouraged by NBS's regulatory activity and low interest rates in the international money market. On the other hand, loan demand rose on the back of improved macroeconomic characteristics of the economy, especially labour market trends.

<sup>37</sup> For a more detailed account of macroprudential stress tests see Chapter II.2. Macroprudential stress tests.



Lending gained 7.3% y-o-y, excluding the exchange rate effect.

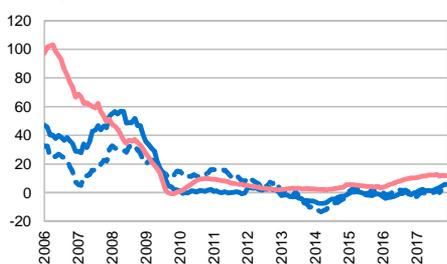
Domestic corporate loans (excluding the exchange rate effect) rose by 4.3% in 2017. Lending expanded amid write-offs and assignment and sale of receivables to non-banking sector entities, encouraged by regulatory measures. Excluding the effect of write-off and sale, domestic corporate loans increased at a rate of 13.0%. On the other hand, during 2017 corporates borrowed abroad as well, so their external debt edged up compared to a year earlier, by 7.3%.

Domestic household loans also went up, recording a y-o-y growth rate of 11.6%. Cash loans, mainly approved in dinars, made up around 58% of new household loans. This increased the degree of dinarisation of the Serbian financial system. Excluding the effects of loan decrease due to write-off and sale, household loans grew at a rate of 14.7%.

The results of the Bank Lending Survey indicate that corporate credit standards eased in 2017 (except in Q1), both due to pronounced competition in the banking sector and greater risk appetite. Credit standard easing was mainly concentrated in the segment of small- and medium-sized enterprises, while standards applied to large companies and farmers remained unchanged.

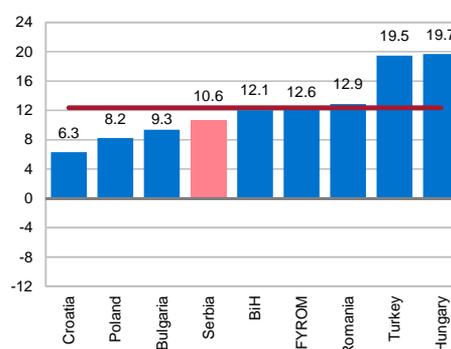
Also, owing to competition and lower costs of funding in 2017, household credit standards were also loosened.

**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.

**Chart II.1.12 Return on equity, countries of the region**  
(2017, latest available data, %)



Sources: NBS and IMF: GFSR.

Corporate and household credit standards were more favourable both in terms of lower interest margins and extended maturity and less strict collateral requirements.

Loan demand expanded both in the corporate and household segment. Corporate loan demand was driven by capital investment and current assets financing and by restructuring of existing debt. Household demand rose on the back of new dinar consumer loans, as well as the refinancing of existing debt and real estate purchases.

### II.1.4 Profitability

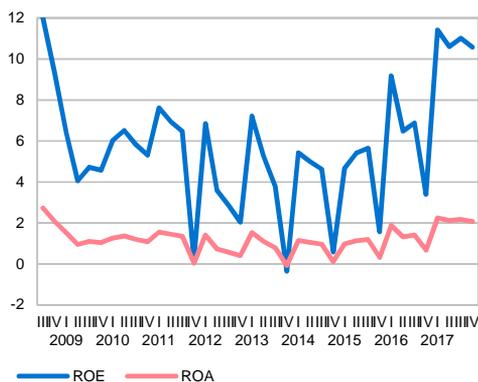
The Serbian banking sector posted a positive financial result, better than in 2016. Return on assets of 2.1% was around the regional average. Return on equity, at 10.6%,

was below the region’s average, this being due to the sizeable capital base. The structure of profit, arising from net interest, fees and commissions, indicates that the business model of domestic banks is oriented to traditional banking.

The least profitable were foreign-owned banks whose parents are non-EU based. Private domestically-owned banks, state-owned banks and banks in foreign ownership of EU-based parents were on average profitable.

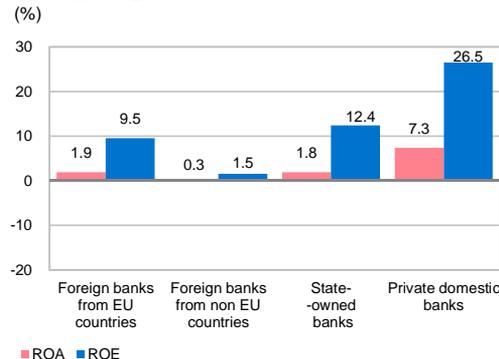
Net profit before tax amounted to RSD 68.7 bn in 2017, rising by RSD 47.4 bn from 2016 as a result of the decline in net credit losses and one-off effects caused by the consolidation process in the banking sector. Twenty-two banks, accounting for 93.2% of net banking sector assets, posted a positive result totalling RSD 73.9 bn. Seven

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



Source: NBS.

**Chart II.1.13 Profitability indicators, by majority shareholder's country of origin and ownership structure in 2017**  
(%)



Source: NBS.

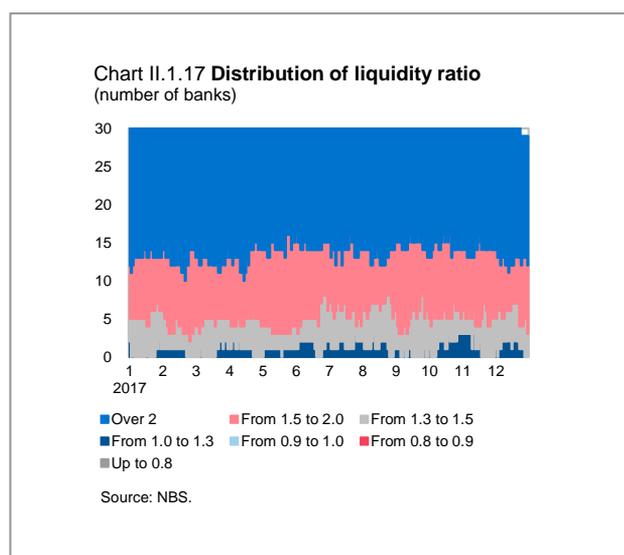
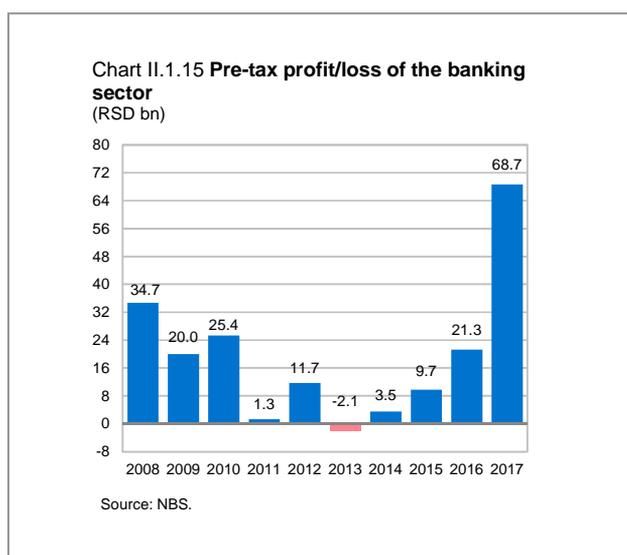
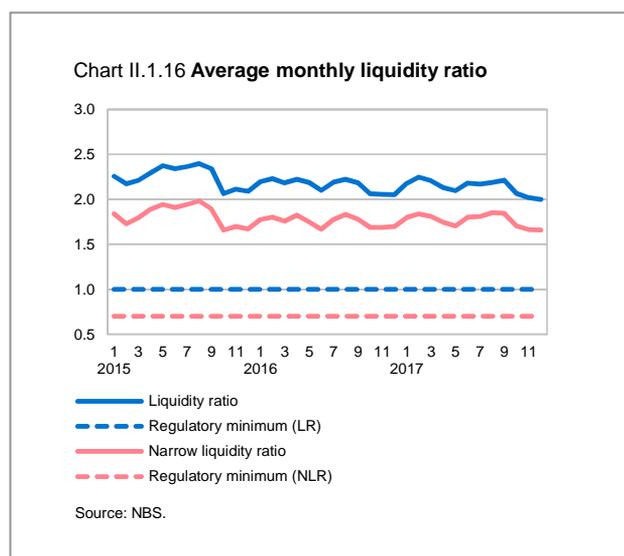
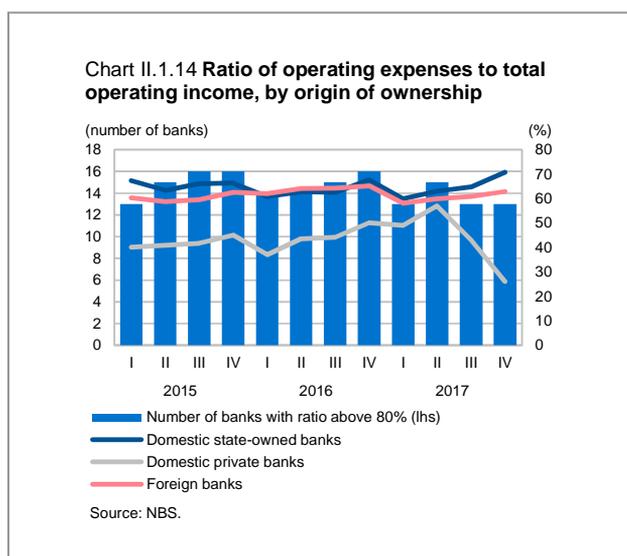
banks, holding 6.8% of the sector’s net assets recorded a negative financial result of RSD 5.2 bn.

A significantly improved net financial result was primarily due to reduced net credit losses (RSD 33.2 bn), as a result of a positive difference between lower net expenses on account of indirect write-offs of balance sheet items (RSD 35.3 bn) and somewhat higher expenses on account of direct write-off of non-collectible receivables (RSD 2.1 bn). At RSD 14.3 bn, other operating income considerably contributed to the net financial result. The greatest share of the growth came as a consequence of bank takeovers in 2017 (RSD 12.5 bn). The biggest negative contributor was the fall in net interest income (RSD 2.9 bn), while other categories in the income statement had a lesser impact on the change in the final result. Lower net interest income came as a consequence of a continued decline in average interest rates.

### II.1.5 Liquidity

In 2017, liquidity of the Serbian banking sector remained very high, thus posing no threat to financial stability. This was largely supported by the start of application of the Decision on Liquidity Risk Management (RS Official Gazette, No 103/2016), which, among other, introduced a new indicator – liquidity coverage ratio, in accordance with Basel III regulatory standards. This Decision sets out detailed conditions and manner of managing the liquidity risk by banks, the manner of calculating the liquidity ratios, as well as the limits pertaining to banks’ exposure to the liquidity risk, with a view to ensuring bank resilience to potential liquidity shocks.

At end-2017, the average monthly liquidity ratio stood at 2.0, well above the regulatory minimum (1.0). The



average monthly narrow liquidity ratio of 1.7 was also significantly above the regulatory minimum (0.7).

At 239.5%, the liquidity coverage ratio was high above the limit set by the regulator.

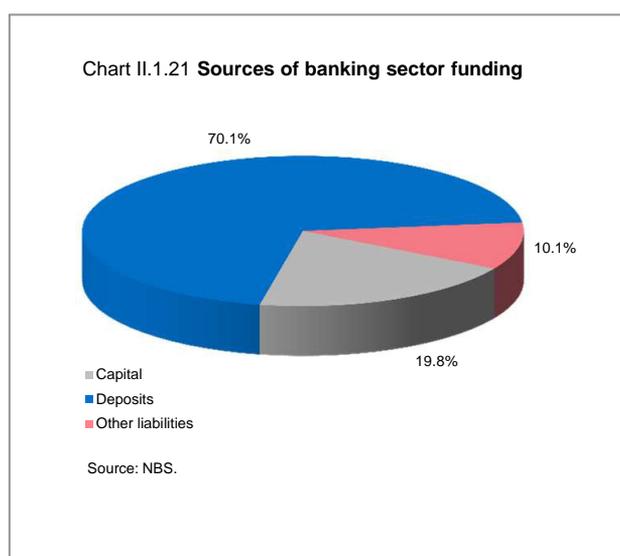
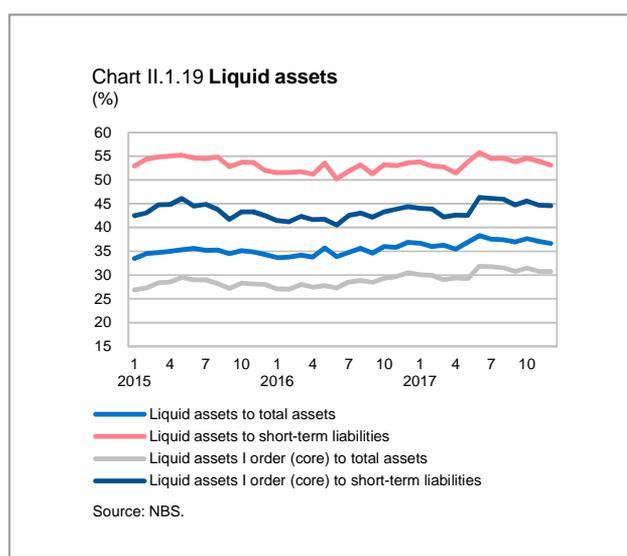
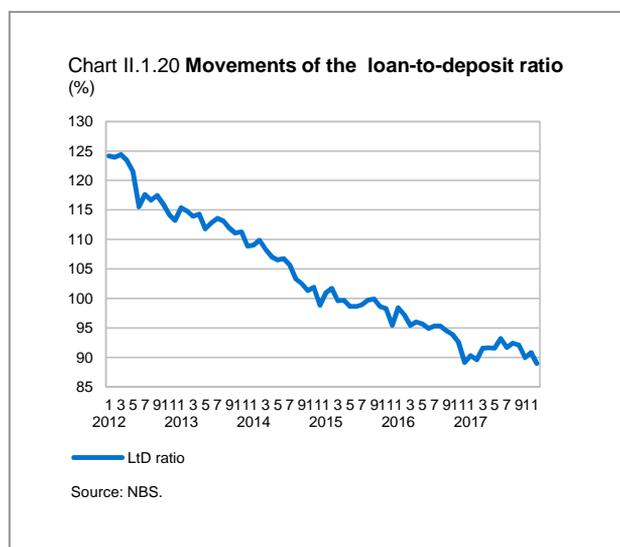
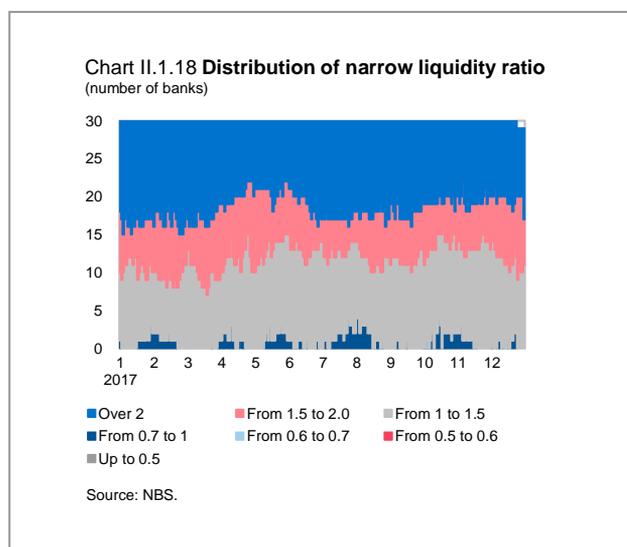
According to the results of stress tests, Serbia's banking sector would remain highly liquid even in the conditions of extreme deposit withdrawal. A decline in the liquidity ratio, observed in October each year, is due to the maturing of deposits termed during the "Savings Week", the remaining maturity of which then drops to under a month. The effects of the "Savings Week" on the average monthly liquidity ratio are clearly visible on Chart II.1.16, while Charts II.1.17 and II.1.18 show the distribution of the liquidity ratio by banks.

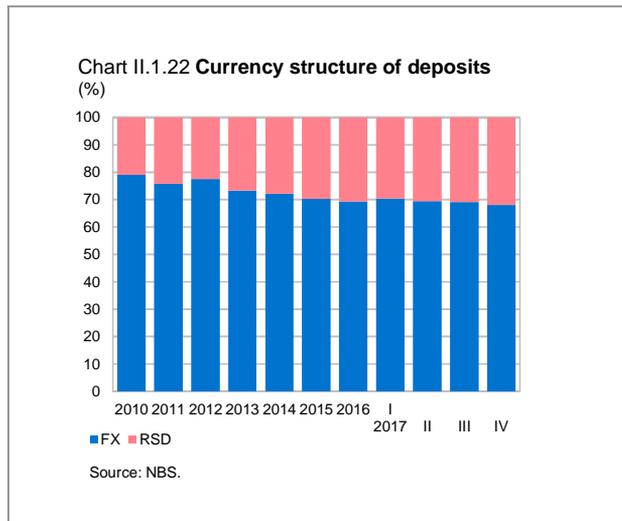
At end-2017, liquid assets covered 36.7% of total assets and 53.1% of short-term liabilities. The share of first-

degree liquid assets in total assets and the coverage of short-term liabilities was 30.8% and 44.6%, respectively. The fact that the Serbian banking sector holds substantial provisions of liquid assets contributes to its stability, but may also pose constraints to lending activity. The high share of liquid assets carries low risks but also lower returns on assets.

## II.1.6 Sources of funding

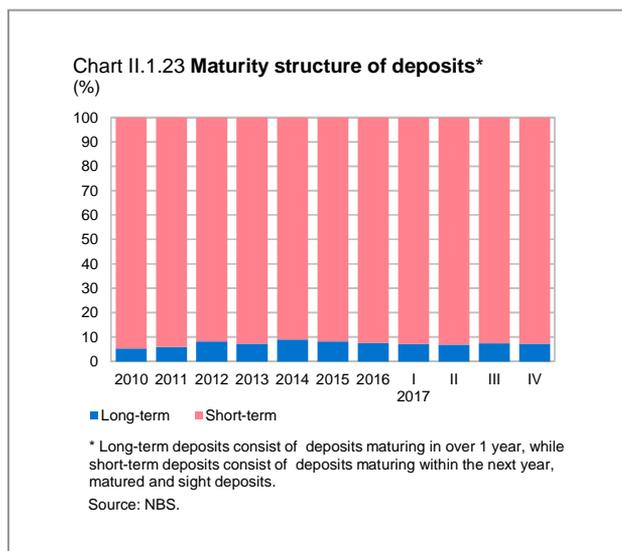
Banks operating in the Republic of Serbia rely mostly on domestic, stable sources of funding. Same as before, in 2017 the amount of deposits was sufficient to cover the amount of loans. Strengthening of the domestic deposit base helps banks reduce their reliance on other sources of funding, e.g. on parent bank financing. This decreases banks' exposure to risks from the international environment. In particular, it decreases exposure to the





risk of sudden withdrawal of money by parent banks, which was one of the challenges faced by countries of the region in the crisis period.<sup>38</sup>

In the total banking sector liabilities, deposits accounted for 70.1%, and capital for 19.8%. The share of FX deposits (which are mainly in euros) dropped by 1.3 pp from end-2016, i.e. from 69.3% to 68.0%. Looking from a different angle, the share of dinar



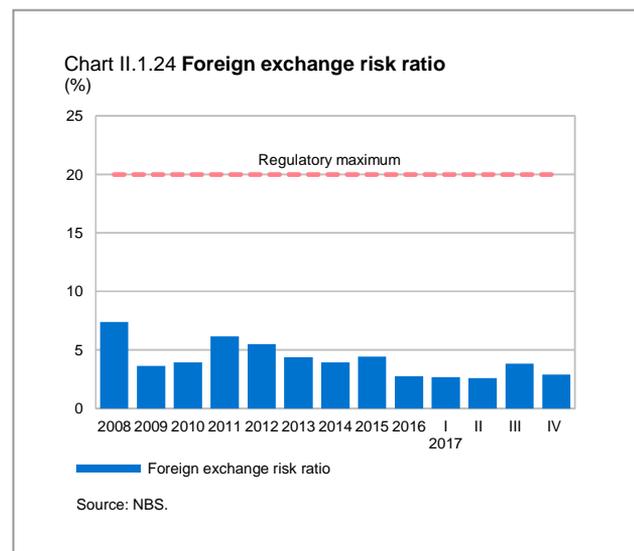
deposits increased by the same amount. In terms of maturity composition, short-term deposits made up the largest share (92.3%).

## II.1.7 Sensitivity to market risks

Serbia's banking sector exposure to market risks was minimal.<sup>39</sup> It referred to only 1% of total risk-weighted assets.

The FX risk indicator was 2.9% at end-2017, which is well below the regulatory maximum 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 currency mismatch may generate FX-induced credit risk. In view of the banks' portfolio structure, the risk of negative effects on banks' financial result and capital due to the direct impact of interest rate and exchange rate changes is minimal.



<sup>38</sup> For a more detailed account on deleveraging by parent banks see the Annual Financial Stability Report for 2012, I.1. International environment.

<sup>39</sup> Market risks include price risk, foreign exchange risk and commodity risk.

**Table II.1.1 Republic of Serbia banking sector indicators**  
(in % unless otherwise indicated)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Capital adequacy</b>										
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
Tier I capital to risk-weighted assets <sup>1)</sup>	17.9	16.5	15.9	18.1	19.0	19.3	17.6	18.8	20.0	21.6
Balance sheet capital to balance sheet assets	23.6	20.7	19.7	20.2	20.5	20.9	20.7	20.3	19.5	19.8
<b>Asset composition and quality</b>										
Agriculture loans to total loans	3.3	3.1	3.0	2.8	3.0	2.7	3.5	3.7	3.6	3.5
Industry loans to total loans	18.4	17.9	19.3	17.2	17.9	18.4	19.2	18.4	16.5	16.2
Trade loans to total loans	16.9	17.3	16.6	14.7	15.0	13.5	13.9	13.9	14.3	14.6
Construction loans to total loans	5.8	5.3	6.9	6.2	5.8	4.6	4.2	3.8	4.1	4.0
Other loans to corporates to total loans	8.1	9.8	9.7	10.9	12.8	11.4	11.5	11.1	10.6	10.3
Loans to natural persons to total loans	36.3	32.9	34.1	32.4	33.6	35.4	38.2	39.1	41.4	42.8
Of which: Mortgage loans to total loans	13.9	13.8	15.4	15.0	16.1	16.8	18.0	18.1	17.9	17.0
Loans to other economic sectors to total loans	11.3	13.8	10.5	15.7	12.0	14.0	9.6	10.0	9.6	8.6
Gross NPLs to total gross loans	11.3	15.7	16.9	19.0	18.6	21.4	21.5	21.6	17.0	9.8
Net NPLs to total net loans	5.3	8.5	9.8	10.5	10.4	11.9	11.1	9.5	6.3	4.4
Allowances for impairment of total loans to total gross NPLs	8.3	9.6	9.1	10.9	10.2	11.9	12.7	14.4	12.4	6.6
Allowances for impairment of total loans to gross NPLs	73.2	61.4	53.9	57.0	54.9	55.8	59.0	66.8	72.9	66.8
Allowances for impairment of NPLs to gross NPLs	56.9	50.9	47.2	51.0	50.0	50.9	54.9	62.3	67.8	58.1
Regulatory provisions to gross NPLs	153.6	142.5	133.6	121.4	120.7	113.8	114.5	114.2	118.9	133.2
Large exposures to regulatory capital	-	-	-	110.1	104.5	90.4	130.5	115.7	86.0	69.3
<b>Profitability</b>										
ROA	2.1	1.0	1.1	0.1	0.4	-0.1	0.1	0.3	0.7	2.1
ROE	9.3	4.6	5.4	0.2	2.1	-0.4	0.6	1.6	3.4	10.6
Net interest margin to average balance sheet assets	5.7	5.1	4.6	4.6	4.3	4.2	4.3	4.3	3.9	3.7
Net interest margin to gross operating income	64.2	67.0	68.3	72.0	69.2	72.6	71.4	70.7	70.4	63.7
Operating expenses to gross operating income	59.0	62.6	63.5	61.8	66.1	65.3	64.5	62.2	64.8	59.9
Operating expenses to average balance sheet assets	-5.2	4.8	4.3	3.9	4.1	3.8	3.9	3.8	3.6	3.4
Personnel expenses to operating expenses	41.2	41.9	41.1	41.9	38.3	39.4	36.7	36.7	37.7	37.4
<b>Liquidity</b>										
Liquid assets to total balance sheet assets	43.3	41.5	35.1	37.8	34.5	38.5	35.6	34.3	36.9	36.7
Liquid assets to short-term liabilities	68.6	63.6	56.4	62.8	57.5	62.2	56.3	52.0	53.7	53.1
Liquid assets (core) to total balance sheet assets	31.1	28.7	23.8	27.5	26.8	29.0	27.5	28.1	30.5	30.8
Liquid assets (core) to short-term liabilities	49.3	43.9	38.1	45.6	44.8	46.9	43.4	42.5	44.4	44.6
FX-denominated and FX-indexed loans to total gross loans	68.8	70.2	71.0	69.0	73.1	70.9	70.0	71.9	69.3	67.5
FX-denominated and FX-indexed deposits to total deposits	71.8	75.4	79.1	75.7	77.6	73.3	72.1	70.2	69.3	68.0
Loans to non-financial sector to deposits of non-financial sector	125.3	124.8	125.9	127.0	119.9	113.8	102.7	99.0	92.0	93.2
Loans to non-financial and non-public sector to deposits of non-financial and non-public sector	127.1	125.3	122.8	124.1	117.8	112.5	102.4	100.0	93.3	94.8
FX denominated and FX-indexed loans to FX denominated and FX-indexed deposits	109.8	99.8	99.1	109.7	106.7	105.3	95.9	97.6	89.1	88.2
Deposits to total balance sheet assets	57.7	60.2	59.4	57.9	59.0	60.7	63.7	65.9	69.5	70.1
FX denominated and FX-indexed liabilities to total liabilities	74.3	77.8	81.8	79.0	80.1	76.7	74.5	72.4	70.7	69.4
<b>Sensitivity to market risk</b>										
Net open FX position (overall) to regulatory capital	7.4	3.6	3.9	6.2	5.5	4.4	3.9	4.4	2.7	2.9
Off-balance sheet items to total balance sheet assets	121.4	106.7	97.7	111.0	103.5	111.0	207.1	234.1	219.6	209.4
Classified off-balance sheet items to total classified balance sheet assets	56.2	43.3	33.9	32.0	26.1	28.8	27.6	30.6	32.4	36.4

<sup>1)</sup> Ending with Q3 2011, adjusted Tier 1 capital is shown (Tier 1 capital minus shortfall reserves).

Source: NBS.

Table II.1.2 Serbia: Financial sector structure

	2010			2011			2012			2013			2014			2015			2016			2017		
	No	Assets		No	Assets		No	Assets		No	Assets		No	Assets		No	Assets		No	Assets		No	Assets	
		RSD bn	%		RSD bn	%		RSD bn	%		RSD bn	%		RSD bn	%		RSD bn	%		RSD bn	%		RSD bn	%
Financial sector (% of GDP)	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
		90.0%		84.2%		86.7%		79.5%		82.6%		82.3%		83.4%		83.2%								
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
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
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
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
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
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
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
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
Other	8	238	8.6	8	225	7.8	9	345	11.1	9	301	9.8	9	310	9.6	11	359	10.8	10	378	10.6	13	651	17.5
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
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
Pension funds	8	10	0.4	9	12	0.4	9	16	0.5	6	20	0.6	6	24	0.7	7	29	0.9	7	33	0.9	7	36	1.0
Leasing providers	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

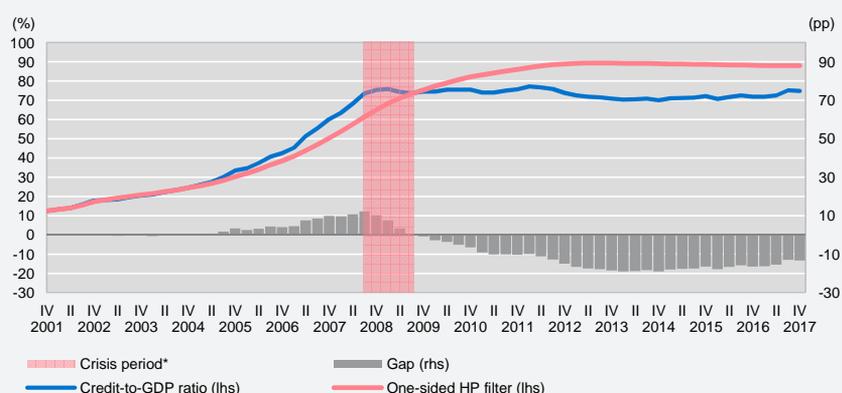
Source: NBS.

### Text box 1: Countercyclical capital buffer

The countercyclical capital buffer (CCyB) is a macroprudential instrument. It is an additional buffer of CET 1 capital above the regulatory minimum maintained by banks so as to prevent and mitigate long-term, cyclical systemic risks. The CCyB was prescribed by the Basel III regulatory standard and the EU introduced it through the Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV Directive). It was implemented in the domestic regulatory framework by the Decision on Capital Adequacy of Banks (RS Official Gazette, No 103/2016). The CCyB is introduced during periods of excessive credit growth, creating an additional capital buffer, which can be released in the case of systemic risk materialisation to facilitate sustainable lending. The CCyB was introduced in the Republic of Serbia on 30 June 2017 and has been in effect since.

The NBS establishes the CCyB rate for the Republic of Serbia quarterly, taking into account the value of the buffer guide, the current guidance and recommendations of the European Systemic Risk Board, and other variables considered relevant for the monitoring of the cyclical dimension of the systemic risk. Under Section 436, paragraphs 2 and 3 of the Decision on Capital Adequacy of Banks, the calculation of the buffer guide, as a reference to guide the exercise of judgment in setting the required CCyB rate, is based on the deviation of the ratio of credit to GDP from its long-term trend. CCyB rate setting for the Republic of Serbia is harmonised with the recommendation of the European Systemic Risk Board for CCyB rate setting (ESRB/2014/1).

Chart O.1.1 Credit-to-GDP ratio and its long run trend



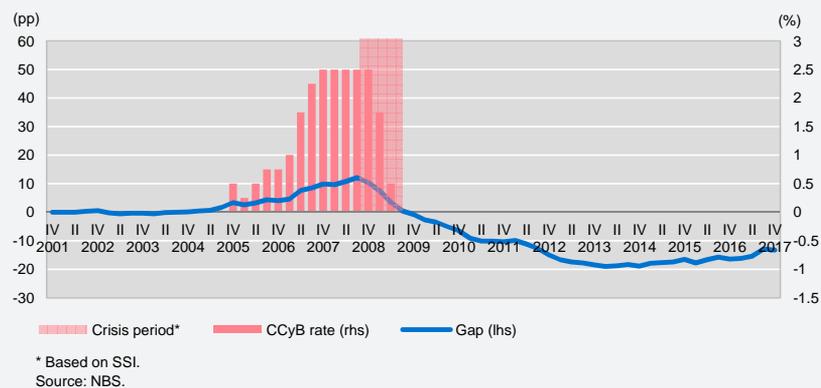
In line with the above recommendations, credit growth is deemed excessive if the total credit-to-GDP ratio has been higher, for a prolonged period, by at least 2 pp than its long-term trend, and the credit growth rate is not conducive to economic growth. For purpose of CCyB rate setting, the NBS particularly analyses, in addition to the above buffer guide, the estimate of credit gap for corporate and household sectors, trends and determinants of the total credit activity and the credit activity of the corporate and household sectors, as well as relevant additional optional indicators of the time dimension of risk.

Chart O.1.1 shows the ratio of credit activity of the non-government sector to GDP, the long-term trend and the estimated deviation of the credit-to-GDP ratio from its long-term trend. After the period of credit expansion (from 2000 until 2008), at the end of 2009 deviation of the credit-to-GDP ratio entered a zone of negative values where it still stands.

In Q4 2005, the value of estimated total credit-to-GDP gap was at the level above 2.0 pp for the first time (Chart O.1.2), indicating that the CCyB rate would turn positive in that period, while it would reach the maximum value of 2.5% in Q4 2007. Credit-to-GDP gap was at the level above 2 pp until Q2 2009 to fall below the threshold in Q3 2009, as a consequence of the constrained credit activity due to the economic crisis, indicating the CCyB release starting from Q3 2009.

In y-o-y terms, since mid-2015 credit activity has recorded positive real growth rates. However, as this growth occurred in the conditions of real GDP growth, the credit-to-GDP ratio in the above period was on a mildly upward path. According to December 2017 data, the total credit-to-GDP ratio stood at 74.9%, and its estimated deviation was at -13.3 pp. Estimated deviation and dynamics of credit-to-GDP ratio indicate that the ratio is below its long-term trend and that it is entering a recovery stage, i.e. that the financial cycle is at the stage when the introduction of the CCyB rate above 0% could be a limiting factor for credit activity. Also, the estimated deviation of credit-to-GDP is below the 2 pp threshold, indicating that the buffer guide for CCyB rate setting equals 0%.

Chart O.1.2 Credit-to-GDP gap and CCyB rate



The decrease in the negative gap in the past year was due to the growth of real total domestic loans, which stood at 6.61% y-o-y in December 2017 (after excluding the effects of exchange rate and consumer price changes), despite a considerable amount of the write-off of receivables in accordance with the NPL Resolution Strategy implementation. In the overall credit growth, the contribution of total lending to households stood at 4.2 pp, while the contribution of lending to corporates has been positive since August 2017 and it stood at 2.4 pp in December.

Since the credit growth recorded in the latest period was somewhat faster for the household sector than for the corporate sector, additional benchmarks were estimated: credit-to-GDP gap for loans to households and credit-to-GDP gap for loans to corporates. Findings of the analysis suggest that there was no excessive credit growth in either of the two sectors (corporates and households), i.e. total individual levels of lending to both sectors are still below their long-term-trend. However, one should bear in mind that credit growth was getting closer to its long-term trend faster in the household sector (estimated negative gap at end-2017 of -1.1 pp) than in the corporate sector (estimated negative gap at end-2017 of -11.9 pp) on account of somewhat more pronounced growth of credits to households.

Additional optional indicators were also taken into account when setting the CCyB rate for the Republic of Serbia, in addition to the credit-to-GDP deviation from its long-term trend, in accordance with the recommendations of the European Systemic Risk Board and Section 436, paragraph 4 of the Decision on Capital Adequacy of Banks. The optional indicators used reflect the features of the national financial system, such as indicators of the real estate market, external imbalances and developments in the banking sector.

## Real estate market

The indicators of the Serbian real estate market are not suggestive of risk build-up, but of the recovery of this segment of the financial market.

The average property price, measured by DOMex for Serbia, was higher by 3.0% y-o-y at end-Q4 2017 on account of increasing demand for housing loans in the environment of the falling trend of interest rates, improved macroeconomic fundamentals, rising private sector employment and wages.

The recovery of the construction sector is indicated by the number of issued construction permits, which rose by around 19.3% at end-2017 relative to the same period the year before.

At the same time, the average LTV ratio of new housing loans is still considerably below the regulatory maximum of 80% and in Q4 2017 it stood at 70.2%.

### Indicators of external imbalances

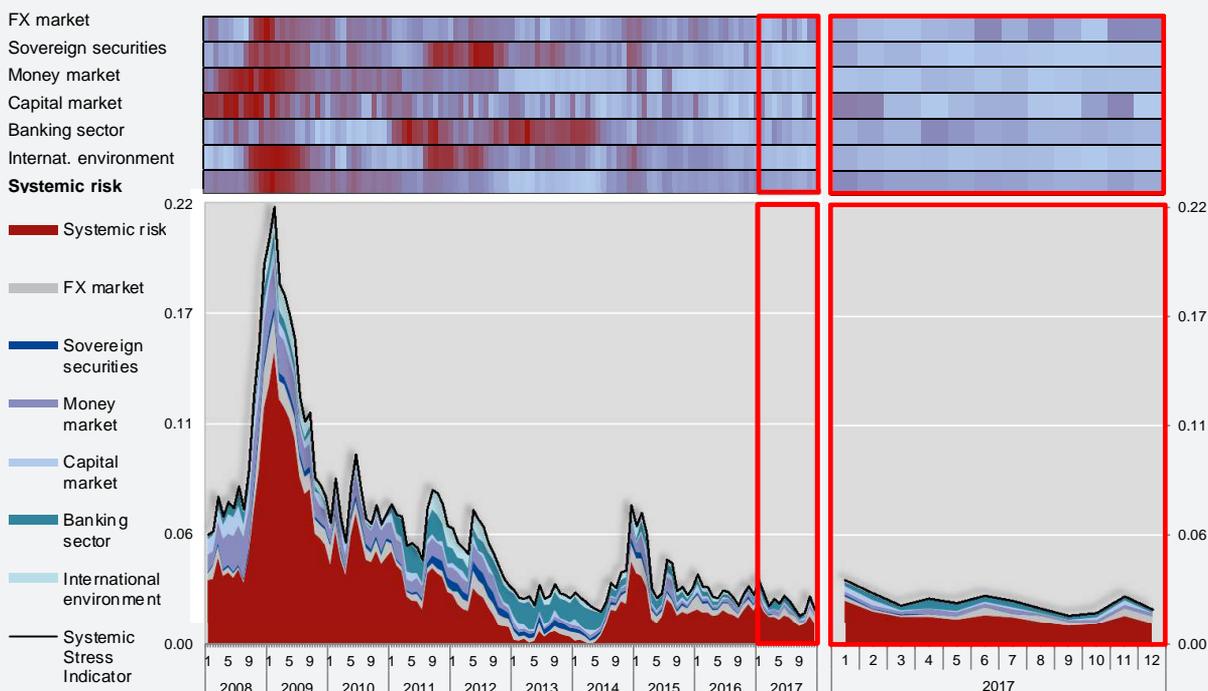
Improved domestic macroeconomic conditions reduce the sensitivity to external risks.

The current account deficit in 2017 amounted to EUR 2.1 bn and was entirely covered by the net inflow of foreign direct investment. The net inflow of foreign direct investment in 2017 amounted to EUR 2.4 bn, that is, 6.6% of GDP and was largely oriented towards tradable sectors. This inflow will spur a further rise in exports and narrowing of the share of the current account deficit in GDP in 2018.

### Main indicators of the banking sector

The conclusion that can be drawn from the indicators used for monitoring the developments in the banking sector is that the banking sector is adequately capitalised, indicating the existence of an appropriate capital base in case of risk materialisation. Also, the falling trend of the NPL level, and the absence of concentration of certain types of assets in the banking sector and a satisfactory degree of competition confirm the stability of the banking sector. At end-2017 the NPL ratio stood at 9.8%, down by 12.4 pp relative to August 2015, when the NPL Resolution Strategy was adopted, touching its lowest in the past almost nine years. This is a result of the Strategy implementation and the conducted activities, and particularly of enhanced regulations governing the assignment of receivables to non-banking sector entities, as well as the Decision on the Accounting Write-off of Bank Balance Sheet Assets.

Chart O.1.3 Systemic Stress Indicator dynamics and contribution of the most important risk factors to the Systemic Stress Indicator



Source: NBS.

Identification of the right moment for decreasing the CCyB rate is emphasised as a special challenge in the application of the CCyB as a macroprudential policy instrument for mitigating and preventing excessive credit growth. In order to facilitate sustainable lending to the economy in the periods of economic downturns and increase the banking system resilience, it is necessary to release bank credit potential by lowering the CCyB rate in the downswings of the financial cycle. The methodology for identifying the above downswings of the financial cycle was developed and served as the basis for constructing the Composite Indicator of Systemic Stress (CISS) used by the European Systemic Risk Board and the ECB for the analysis of risk build-up in different segments of the financial system and for judging the level of overall system stress (Chart O.1.3). The analysis of CISS developments in the period December 2016 – December 2017 indicates a pronounced low risk period with favourable developments in all segments of the Serbian financial system. The only exception was a slightly increased stress level noticed during the year, largely the consequence of volatile movements in the foreign exchange and capital markets<sup>40</sup>. It can be concluded that low inflationary pressures, consistent implementation of fiscal consolidation measures and structural reforms, greater propensity of investors to invest in Serbia, reflected in the capital inflow, monetary policy easing, with a stable banking system, have a positive contribution to strengthening the resilience of the domestic financial system, and hence to the macroeconomic stability of the country. This was also confirmed by the IMF on the occasion of their last review of the stand-by arrangement.

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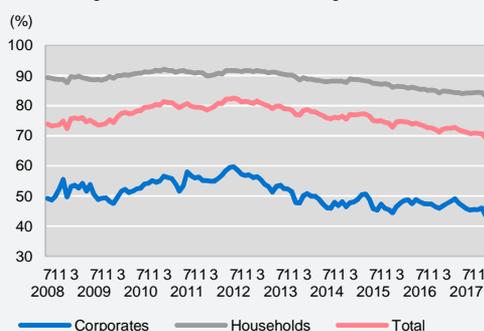
<sup>40</sup> See Section IV Financial Stability.

## Text box 2: Systemic risk buffer

Being a macroprudential instrument, systemic risk buffer (SRB) is an additional CET1 capital maintained by a bank in order to prevent and mitigate long-term non-cyclical systemic risks. The buffer is not prescribed by the Basel III regulatory framework – instead, it was introduced at the EU level through Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV), while the NBS Decision on Capital Adequacy of Banks (RS Official Gazette, No 103/2016) enabled its transposition into the domestic regulatory framework. SRB is applied in Serbia as of 30 June 2017. Its rate and manner of application are determined by the Decision on the Rate and Manner of Maintaining the Systemic Risk Buffer (RS Official Gazette, Nos 58/2017 and 3/2018). In accordance with this Decision, SRB was introduced with the aim to limit the systemic risk of euroisation. In this way, all banks whose share of FX and FX-indexed corporate and household lending in total lending to corporates and households in Serbia exceeds 10% must maintain additional CET1 capital at 3% of total FX and FX-indexed lending to corporates and households in Serbia on an individual, consolidated or sub-consolidated basis.

**Chart O.2.1 Share of FX and FX-indexed deposits in total corporate and household deposits**

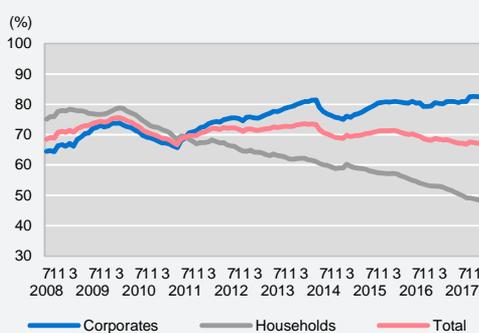
outstanding amounts and current exchange rates



Source: NBS.

**Chart O.2.2 Share of FX and FX-indexed lending in total corporate and household lending**

outstanding amounts and current exchange rates



Source: NBS.

Euroisation is the key structural systemic risk to the stability of Serbia's banking sector, which features a high degree of euroisation of both deposits (69.2% in December 2017 – Chart O.2.1) and lending (67.0% in December 2017 – Chart O.2.2). Almost all banks face a high degree of euroisation. According to December 2017 data, in almost a half of Serbian banks the euroisation of lending exceeded 70%, while as many as 24 banks, with a 95.0% share in total banking sector assets, recorded euroisation over 40%, which is considered, according to comparative research, a very high degree of euroisation.<sup>41</sup>

In addition, the comparison of the degree of euroisation of lending with the y-o-y rate of credit growth (which may be used to approximate the financial cycle) leads to the conclusion that the euroisation risk is a long-term structural systemic risk, unrelated to the financial cycle. Despite a significant decline in the credit growth rate in response to the global financial crisis, the degree of lending euroisation has remained relatively unchanged and at a high level (Chart O.2.3).

A high degree of euroisation at the banking sector level increases the vulnerability of currency mismatched debtors to exchange rate volatility and exposes the banking sector to the credit-FX risk. The FX risk may be transferred to loan beneficiaries who earn mainly in dinars. This may result in loan repayment difficulties and thus increase the level of

<sup>41</sup> According to the ECB (Windischbauer U, *Strengthening the role of local currencies in EU candidate and potential candidate countries*: <http://www.ecb.europa.eu/pub/pdf/scpops/ecbop170.en.pdf?8ca594f1a1391f72a33d05aca6a0405c>) and BIS (Alvarez-Plata P. and García-Herrero A, *To dollarize or de-dollarize: Consequences for Monetary Policy*: <http://www.bis.org/repofficepubl/arpresearch200709.1.pdf>), countries with the degree of euroisation above 40% are considered highly euroised.

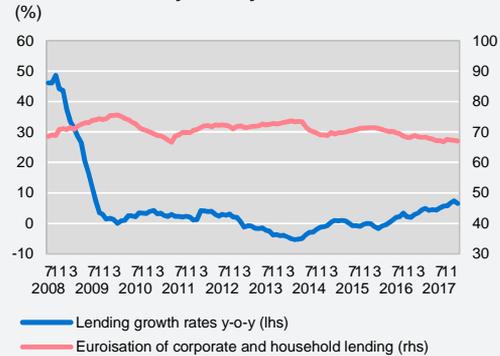
NPLs. Moreover, a high degree of euroisation aggravates efficient implementation of monetary policy as it represents one of the main limitations to using the exchange rate as an export incentive and to resorting to the lender of last resort function of the central bank. Bearing in mind these negative effects of euroisation, the NBS applies SRB in order to strengthen banking sector resilience to potential shocks related to this systemic risk.

The main specificity of SRB application in Serbia concerns the base for capital requirement calculation. While in the majority of other countries SRB is applied to total risk-weighted assets of a bank, the base for calculating capital requirements in Serbia is FX and FX-indexed lending<sup>42</sup> to domestic corporates and households. With such application of SRB, banks are directly encouraged to reduce their degree of euroisation because, if they lower the amount of euroised lending, their capital requirements will be reduced as well. The European Systemic Risk Board recognised advantages of such SRB application and recommended it to the European Commission<sup>43</sup>, stating that if the rate is directly applied to exposures that are a source of systemic risk, as is the case in Serbia, this directly influences the limitation of such systemic risk. On the other hand, by applying the rate to total risk-weighted assets, i.e. without targeting concrete exposures, there is a lesser impact on systemic risk limitation.

Given the manifestation of the risk of euroisation as a systemic risk, the rate of 3% was set. Although regulations do not prescribe a limitation for a maximum SRB rate, the NBS believes the rate should not exceed 3% given the current phase of the financial cycle and the need not to adversely affect banks' credit potential. Given that euroisation is the key structural systemic risk, to be tackled at the level of the entire banking sector and not at the level of individual banks, a single rate was defined, applied to all banks with the degree of euroisation above 10%. An additional advantage of such approach is reflected in easier communication with banks and the public. However, although all banks are required to maintain the same rate, capital requirements of individual banks differ depending on their degree of euroisation. If capital requirements for the SRB are expressed as a percentage of total risk-weighted assets of a bank, we may observe an increase in such capital requirements depending on the rise in the degree of euroisation (Chart O.2.4). After SRB was introduced in June 2017, total capital requirements for structural systemic risk at the level of the Serbian banking sector equalled around RSD 40 bn, or around 2.06% of total risk-weighted assets. However, capital requirements of individual banks increased depending on their exposure to the risk of euroisation, with SRB of the majority of banks (as many as 18) making up from 1.5% to 2.5% of their risk-weighted assets.

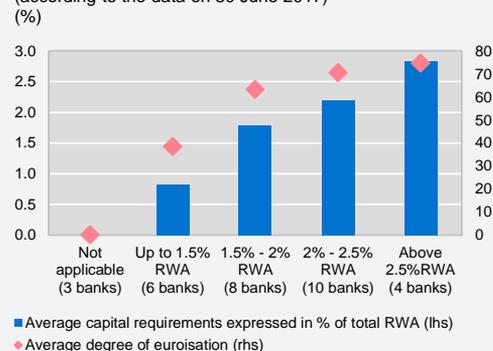
In Serbia, SRB is applied cumulatively with capital buffer for systemically important banks.<sup>44</sup> One of the reasons for this application is that these capital buffers target different risks (SRB targets the risk of euroisation as the key structural systemic risk in Serbia, while capital buffer for systemically important banks targets the risks arising from the systemic importance of individual banks). In accordance with CRD IV, cumulative

Chart O.2.3 Noncyclicality of euroisation



Source: NBS.

Chart O.2.4 Correlation between capital requirements and level of euroisation (according to the data on 30 June 2017)



Source: NBS.

<sup>42</sup> In addition to loans, lending includes deposits, securities, company shares, interest, fee and commission receivables and other lending. For the needs of determining SRB, they are expressed at the gross principle.

<sup>43</sup> Final report on the use of structural macroprudential instruments in the EU: [http://www.esrb.europa.eu/pub/pdf/reports/esrb.report180227\\_finalreportmacroprudentialinstruments.en.pdf](http://www.esrb.europa.eu/pub/pdf/reports/esrb.report180227_finalreportmacroprudentialinstruments.en.pdf) and Opinion to the European Commission on structural macroprudential buffers: [http://www.esrb.europa.eu/pub/pdf/other/esrb.opinion180227\\_macroprudentialinstruments.en.pdf](http://www.esrb.europa.eu/pub/pdf/other/esrb.opinion180227_macroprudentialinstruments.en.pdf).

application of these capital buffers relates to the case when SRB is applied to domestic exposures, but not to exposures outside the state setting SRB. Still, these provisions of CRD IV may be changed in the future as the European Systemic Risk Board – in order to eliminate one of the main drawbacks/limitations of application of capital buffers in the EU – proposed the possibility that SRB and capital buffer for systemically important banks be always applied cumulatively because they target different risks, regardless of the geographic coverage of exposure.

Given that SRB is applied in Serbia as of mid-2017, it is early to speak about the effects of its introduction. Still, it is evident that since June (when the obligation to maintain this capital buffer was introduced) until December 2017, the degree of euroisation declined by 0.2 pp, while banks' total capital requirements for SRB expressed relative to total risk-weighted assets were reduced from 2.06% to 1.88% in the same period. It is reasonable to expect that this macroprudential instrument, together with other instruments and measures taken to limit the systemic risk of euroisation, will result in greater use of the dinar. This will bolster financial system stability, diminish the exchange rate risk in the most vulnerable corporate and household sectors, and further enhance monetary policy efficiency.

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<sup>44</sup> SRB is applied cumulatively with capital buffer for systemically important banks not only in Serbia, but also in Bulgaria, Hungary, Slovakia, Estonia and Poland.

## II.2 Macroprudential stress tests

*The NBS's quarterly macroprudential stress tests based on data reported by banks indicate that the domestic banking sector, as a whole, would remain resilient even in the case of a strong increase in credit and liquidity risks over a one-year horizon. Also, the results of stress tests indicate that there is no significant component of systemic risk based on interbank exposures.*

The NBS conducts macroprudential stress tests in order to assess the resilience of individual banks<sup>45</sup>, groups of banks and the entire banking sector, to potential risks and shocks. Macroprudential stress tests are conducted on a quarterly basis and are continuously improved. Basel III standards<sup>46</sup> and NBS regulations<sup>47</sup> require that banks also use stress tests to assess their capital adequacy. This further attests to the significance of stress tests as a tool for detecting problems that may occur as a result of a bank's behaviour model.

Stress tests are based on plausible but highly improbable assumptions and/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 experiencing difficulties. To avoid misinterpretation, results for individual banks are usually not published.

Currently, macroprudential stress tests conducted by the NBS enable:

- measurement of banking sector resilience to an increase in credit risk caused by adverse macroeconomic developments;
- measurement of the liquidity risk caused by the 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 non-financial sector systemic risk and systemic importance of groups of connected enterprises.

This report sets out *three parts* of the analysis of impact of assumed economic turbulences on banking sector

**Table II.2.1 Elasticity coefficients of NPLs and contributions of independent variables from Q4 2016 to Q4 2017**

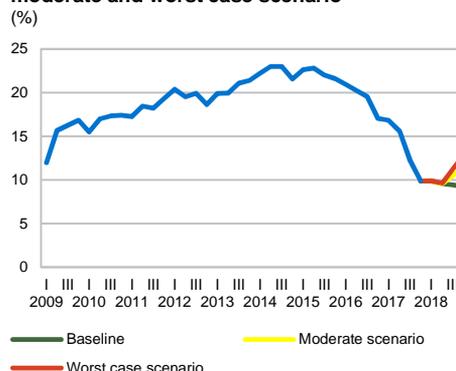
	Elasticity coefficients	Contributions of independent variables (pp)
Nominal exchange rate	0.46	-0.09
Seasonally-adjusted real net wages	-0.19	-0.07
Key policy rate	0.15	-0.16

Source: NBS.

stability. The first part involves credit risk assessment in relation to predefined macroeconomic scenarios. *The second* involves the assessment of whether, in case of significant deposit withdrawals, the banking sector has sufficient liquidity to ensure its smooth operation. *The third part* involves assessment of 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. assessment of how resilient the entire system is to potential shocks.

Of the large set of variables eligible for econometric analysis, with the potential to impact 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

**Chart II.2.1 The share of gross NPLs in baseline, moderate and worst case scenario\***



\* NBS estimate.  
Source: NBS.

<sup>45</sup> Stress tests for end-2017 did not include Bank of China, because the majority of data on its operation are not yet available, and Jugobanka Jugbanka, given that at the meeting of 2 April 2018 the NBS Executive Board revoked its license.

<sup>46</sup> Guidelines on stress testing and supervisory stress testing, EBA/CP/2015/28.

<sup>47</sup> The regulatory framework of Basel III standards came into force on 30 June 2017.

Table II.2.2 Overview of scenarios

	Baseline	Moderate	Worst case
Y-o-y growth in NPL ratio (pp)	-0.65	1.59	2.96
Y-o-y depreciation of RSD against EUR (%)	1.73	19.01	34.01
Y-o-y change in key policy rate (pp)	-0.50	11.00	21.25
Y-o-y growth in real net wages (%)	6.41	3.36	1.70

Source: NBS.

NPLs are presented in Table II.2.1. More detailed information on the econometric model used can be found in Text box 3. As indicated in the Table, a 1% depreciation of the dinar against the euro causes a 0.46% rise in the gross NPL ratio. A 1% increase in the key policy rate works in the same direction, but with a milder impact on the NPL rise of 0.15%. Conversely, a 1% increase in s-a real net wages results in a 0.19% decline in the gross NPL ratio.

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 net real 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 scenarios: -0.65 pp, 1.59 pp and 2.96 pp, respectively. When the stress tests were carried out on the said scenarios, the projected change in the NPL ratio was adjusted in accordance with allowances for impairment for 2017. This more or less neutralised the effect of the netting of new and collected or assigned NPLs on the level of NPLs.

The projected movement with confidence intervals of 95% for the baseline scenario (the most probable scenario) is presented in Chart II.2.2.

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

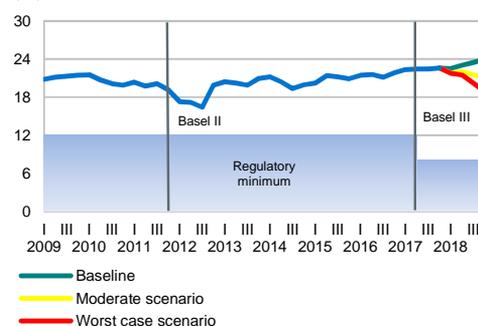
For the purposes of this analysis, banking sector resilience is defined as a change in the capital adequacy ratio (CAR) at assumed changes in variables which directly and indirectly impact the CAR level. If the CAR remains above the regulatory minimum over the entire projection period, the banking sector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

The CAR level is directly affected by changes in risk-weighted assets, the amount of required reserve for

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

\* NBS estimate.  
Source: NBS.

Chart II.2.3 Expected capital adequacy ratio by stress scenario\* (%)

\* NBS estimate.  
Source: NBS.

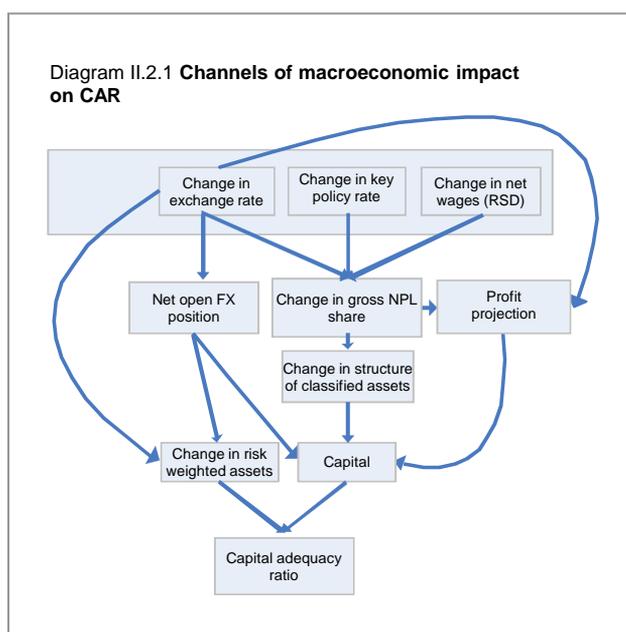
estimated losses on balance sheet assets and off-balance sheet items by which regulatory capital is reduced, as well as by changes in capital position. However, there are also significant indirect effects, the most important being those of the exchange rate and profit buffer, amendments to regulations, etc.

The impact of the exchange rate on NPL growth and thereby on a rise in loan loss provisions 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 buffer against losses.

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

- 4.5% for Common Equity Tier 1 capital ratio,
- 6% for Tier 1 capital ratio,
- 8% for total capital ratio.

Capital buffers are macroprudential instruments which contribute to safeguarding and strengthening of financial system stability, as they bolster resilience of the banking sector, limit excessive or underestimated exposures, raise the quality of banks' capital and restrict its distribution. Capital buffers are additional Common Equity Tier 1 capital that banks are obliged to maintain



above the prescribed regulatory minimum. Capital buffers are introduced in order to mitigate the cyclical dimension of systemic risk (countercyclical capital buffer and capital conservation buffer) and structural dimension (systemic risk buffer and capital buffer for systemically important banks).

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 the Republic of Serbia), and
- Capital buffer for a systemically important bank (1% or 2% of risk-weighted assets).

On 31 December 2017, the Common Equity Tier 1 capital ratio and the regulatory capital adequacy ratio for the Serbian banking sector measured 21.54% and 22.61%, respectively.

Under the baseline scenario, the Common Equity Tier 1 capital ratio would be 22.89%, and the regulatory capital adequacy ratio 23.94%.

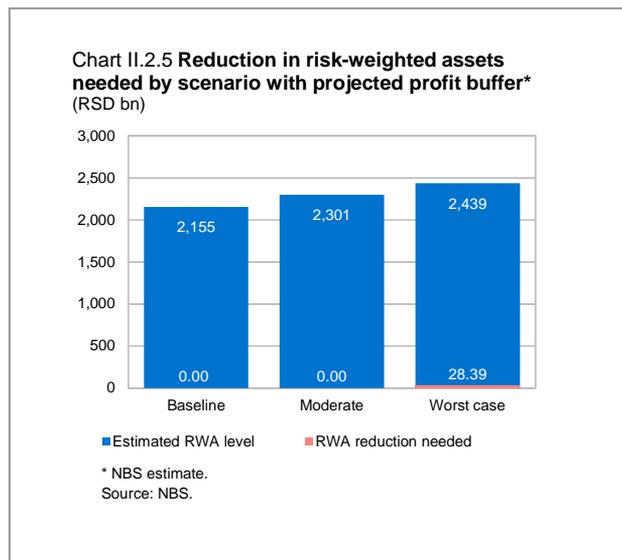
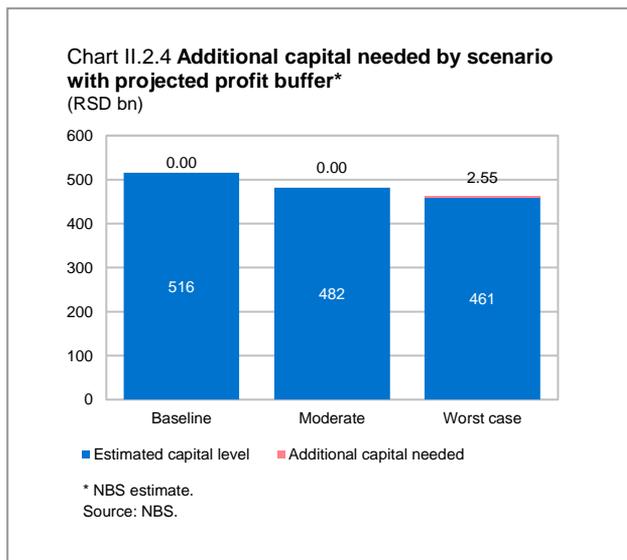
Under the moderate scenario, these ratios measure 19.98% and 20.97%, respectively.

Under the worst-case scenario, implying an exceptionally strong albeit highly improbable shock, the Common Equity Tier 1 capital ratio is 17.95%, and the regulatory capital adequacy ratio 18.88%.

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

Based on data as at 31 December 2017, there is no need for recapitalisation of banks in order to meet the requirements for the 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 coverage of all prescribed capital buffers.

Chart II.2.4 shows the necessary recapitalisation of the banking sector, assuming a profit buffer, in all three scenarios. Alternatively, the necessary reduction in risk-



weighted assets in all three scenarios is shown in Chart II.2.5.

Under the assumptions of the **baseline and moderate scenarios**, all banks meet the requirements for the above regulatory minimums and the combined capital buffer<sup>48</sup>.

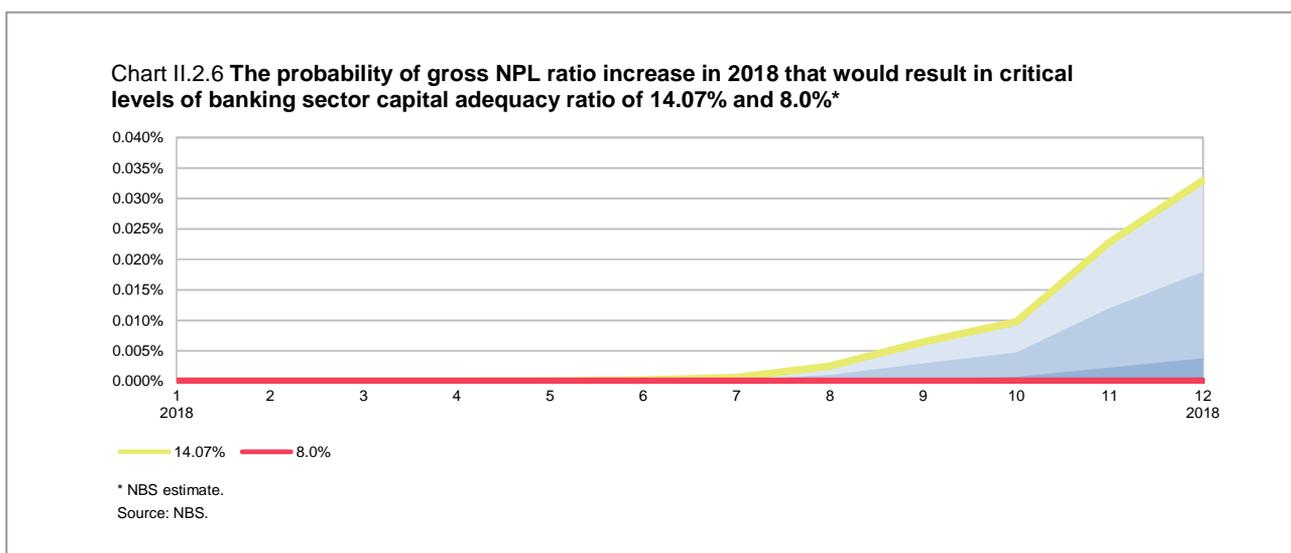
Under the **worst-case scenario**, the banks' Common Equity Tier 1 capital shortfall in meeting the combined capital buffer is around RSD 2.6 bn or 0.6% of total estimated Common Equity Tier 1 capital. Alternatively, the necessary reduction in risk-weighted assets equals around RSD 28 bn or 1.2% of total estimated risk-

weighted assets of the banking sector, under the worst-case scenario assumptions.

### NPLs that bring the CAR to critical levels

The final stage of solvency stress tests aims to determine the share of NPLs in total loans that would bring the regulatory capital down to critical levels.

The results show that even under the extreme scenario, which assumes a far worse deterioration in macroeconomic conditions than the one experienced in the first and second wave of the latest financial crisis, the



<sup>48</sup> Banks which fail to meet the combined capital buffer requirement are subject to restrictions in profit allocation and are obliged to submit to the NBS a capital conservation plan in accordance with the Decision on Capital Adequacy of Banks, RS Official Gazette, No 103/2016.

banking sector maintains the regulatory capital adequacy ratio of 14.07%. It meets the regulatory minimums for the Common Equity Tier 1 capital ratio, Tier 1 capital ratio and regulatory capital ratio and at the same time, all capital buffer requirements.

Probabilities of the increase in the gross NPL ratio in the period from Q4 2017 to Q4 2018 (Chart II.2.6) were calculated based on the above critical NPL levels that would bring the CAR to 14.07% and 8%, and the confidence interval of the projection of the gross NPL ratio. It can be seen that the probability of the CAR falling to critical levels, i.e. of falling below the 14.07% threshold in December 2018 is around 0.04%, while the probability of it falling to 8% is negligible.

It should be underlined that preventive recapitalisations would be necessary under the above assumptions for individual banks. Alternatively, banks could respond by improving the credit portfolio quality, which would lead to a decline in the NPL ratio and help maintain the CAR above the prescribed regulatory minimums.

### 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 Tier 1 capital and total exposure amount – the leverage ratio.<sup>49</sup> The introduction of the leverage ratio has two aims: to limit the amount of borrowed capital which banks may use and ensure a complementary measure for capital assessment regardless of the estimated risk.

The leverage ratio was introduced according to Basel III standards in order to prevent excessive indebtedness of banks and to comprehend the risk which may arise due to the application of internal models for calculation of risk exposure.

Setting up an objective measure which ensures sufficient capital and the capacity to absorb losses is essential for financial stability. In that context, as part of Basel III standards, the Basel Committee defined the leverage ratio as a complementary measure which strengthens capital requirements regardless of the estimated risk. This measure is easy to calculate and, owing to its

homogeneity, enables higher quality inter-bank comparison. The recommendation of Basel III standards is to keep the leverage ratio not below 3%.

The leverage ratio for the Serbian banking sector at end-2017 equalled 11.07%. Under the baseline scenario, the leverage ratio would measure 11.75%, while under the moderate and worst-case scenario, this ratio at the banking sector level could amount to 10.04% and 8.89%, respectively.

### Liquidity stress tests

Liquidity risk in Serbia's banking sector is far less pronounced than the credit risk. Yet, the sudden withdrawal of deposits, which took place from September 2008 to January 2009 as a result of a temporary loss of confidence in European parents of domestic banks, shows that this risk could materialise under certain circumstances.<sup>50</sup>

The results of liquidity stress testing aim to determine whether the banking sector could continue to operate smoothly in case of the same or stronger shock. In addition to deposit withdrawal, other factors can also depress liquidity on the liabilities side, including strained access to new sources of funding and inability to refinance debt. 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 liquidity structure.

### Liquidity ratio assessment

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

- Déjà vu scenario, envisaging deposit withdrawal worth RSD 249 bn (11% of total deposits) and the same structure of deposits withdrawn as recorded in the above period;
- Risk spillover scenario, implying the spillover of the euro area crisis to Serbia's financial sector; in addition to the deposit withdrawal from October 2008, this scenario envisages deleveraging, prompted by the euro area crisis, which increases deposit withdrawal to RSD 356 bn (15% of total deposits);

<sup>49</sup> RS Official Gazette, Nos 125/2014, 4/2015, 111/2015, 61/2016, 69/2016 and 103/2016.

<sup>50</sup> For a more detailed description of deposit withdrawal in late 2008, see the Annual Financial Stability Report for 2012.

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

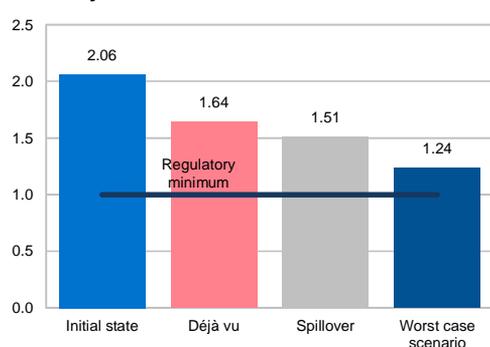
DEPOSIT WITHDRAWAL	Déjà vu 2008	Spillover	Worst case
Banks - demand	0%	60%	60%
Corporate - demand	10%	10%	20%
Households - demand	12%	20%	24%
Government - demand	23%	23%	35%
Other demand deposits	11%	15%	22%
Time deposits	11%	13%	20%
Marketability of 2nd class liquid assets	100%	100%	80%
Stocks and bonds listed on the stock exchange	100%	100%	40%
Total of deposits withdrawn (RSD bn)	249	356	498
Share in total deposits (%)	11%	15%	21%

Source: NBS.

– Worst-case scenario, envisaging a shock two times stronger than that from October 2008, i.e. deposit withdrawal of RSD 498 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 2.06 it actually measured

**Chart II.2.7 Expected liquidity ratio for the banking sector by stress scenario\***

on 31 December 2017 to 1.24 in the worst-case scenario (Chart II.2.7).

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

In the risk spillover scenario, the liquidity ratio would fall below the regulatory minimum for banks holding 6.2% of total banking sector balance sheet assets, while in the worst-case scenario, implying a severe shock, banks accounting for 34.3% of total assets would fall below the threshold. The largest number of banks would stay in the safe zone with liquidity ratios above one.

The Decision on Liquidity Risk Management, in force as of 30 June 2017, introduced a new liquidity ratio – the liquidity coverage ratio. This ratio was introduced in order to ensure bank's resilience to liquidity shocks over a 30-day span<sup>51</sup>. According to bank reports as at 31 December 2017, all banks reported the liquidity coverage ratio, aggregately by all currencies, above the regulatory minimum, while at the banking sector level this ratio stood at 2.40.

## Liquidity needs

Based on report data as at 31 December 2017, 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 3.5 bn or 0.3% of the initial first-order liquidity.

In the worst-case scenario, first-order liquidity needs would be RSD 37.3 bn or 3.6% of the initial first-order liquidity.

In case the assumed scenarios materialise, the NBS can react by extending liquidity loans, i.e. by exercising its lender of last resort function.<sup>52</sup>

## Deposit withdrawal values that bring the liquidity ratio to critical levels

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

<sup>51</sup> In order to assess bank resilience over a longer term (one year), introduction of the Net Stable Funding Ratio (NSFR) is planned.

<sup>52</sup> 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.

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

	Déjà vu
Withdrawal of demand deposits	68%
Withdrawal of time deposits	32%
Structure of total demand deposit withdrawal	
Banks	0%
Other depositors	72%
Household savings	28%

Source: NBS.

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 withdrawal of around RSD 340 bn or 14.4% of total deposits (of which RSD 238 bn demand and around RSD 102 bn time deposits). In case of withdrawal of RSD 663 bn or 28.1% of total deposits (of which RSD 450 bn demand and RSD 213 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

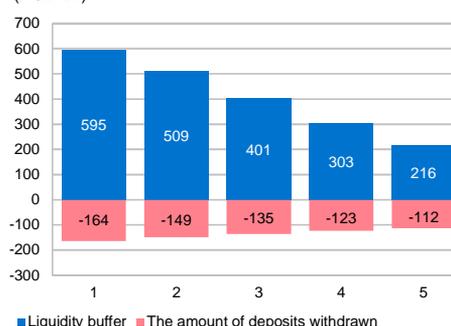
The shock observation period is defined as the survival period. It consists of two stages. The first is a short period of high-intensity stress, lasting for several days. During that time evaluation is made of the bank's ability to cover liquidity outflows with the reduced possibility of obtaining any new liquid funds and changing the

**Table II.2.5 Assumed daily deposit withdrawal rate by sector**

WITHDRAWAL OF DEPOSITS	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.

**Chart II.2.8 Liquidity buffer – daily for moderate scenario\***  
(RSD bn)



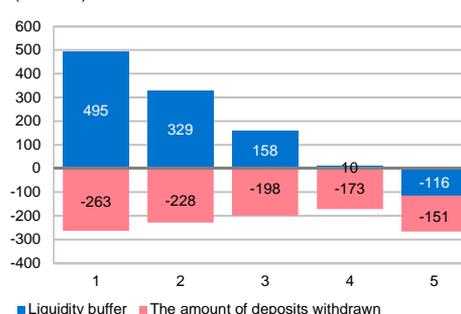
\* NBS estimate.  
Source: NBS.

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 short and strong liquidity shock. The main withdrawal assumptions for the moderate and worst-case scenarios are presented in Table II.2.5.

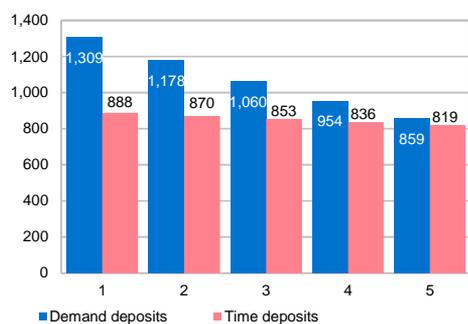
Charts II.2.8 and II.2.9 show available liquid assets and the amount of deposits withdrawn in the first five days (the amount of liquid assets remaining after liquidity needs are satisfied) for both scenarios. Charts II.2.10 and II.2.11 give the deposit structure by day.

**Chart II.2.9 Liquidity buffer – daily for worst case scenario\***  
(RSD bn)



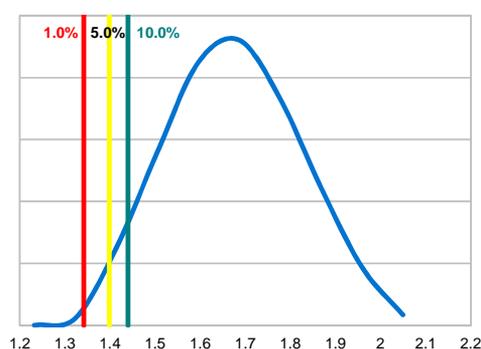
\* NBS estimate.  
Source: NBS.

Chart II.2.10 The structure of demand and time deposits – daily for moderate scenario\* (RSD bn)



\* NBS estimate.  
Source: NBS.

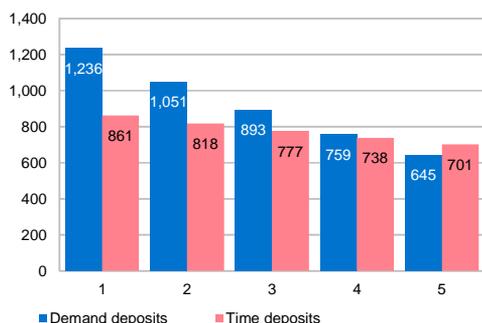
Chart II.2.12 Confidence intervals for banking sector liquidity ratio\*



\* NBS estimate.  
Source: NBS.

According to the results of liquidity stress tests as at 31 December 2017, the entire banking sector can withstand nine business days<sup>53</sup> in conditions of daily deposit withdrawal in the moderate scenario, or five business days in the worst-case scenario.

Chart II.2.11 The structure of demand and time deposits – daily for worst case scenario\* (RSD bn)



\* NBS estimate.  
Source: NBS.

The liquidity ratios were obtained based on tens of thousands of different scenarios, which imply sampling of assumptions of deposit withdrawal by sector, from zero to the worst-case scenario value (described in Table II.2.4).

These simulations produced the distribution of liquidity ratios of the banking sector at various combinations of assumptions (Chart II.2.12).

With the given confidence interval of 10%, the liquidity ratio equals 1.44, while for confidence intervals of 5% and 1%, it equals 1.40 and 1.34, respectively.

In other words, the liquidity ratio with a 90% certainty in various combinations of deposit withdrawal assumptions will not fall below 1.44. Moreover, it is 99% certain that the ratio will not fall below 1.34.

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.

## 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.

## Network modelling in the assessment of banking sector systemic risk

The latest global financial crisis has clearly shown that systemically important financial institutions, if insolvent, can jeopardise the financial system and real economic activity. Their size and interconnectedness, both mutual

<sup>53</sup> 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 operation.

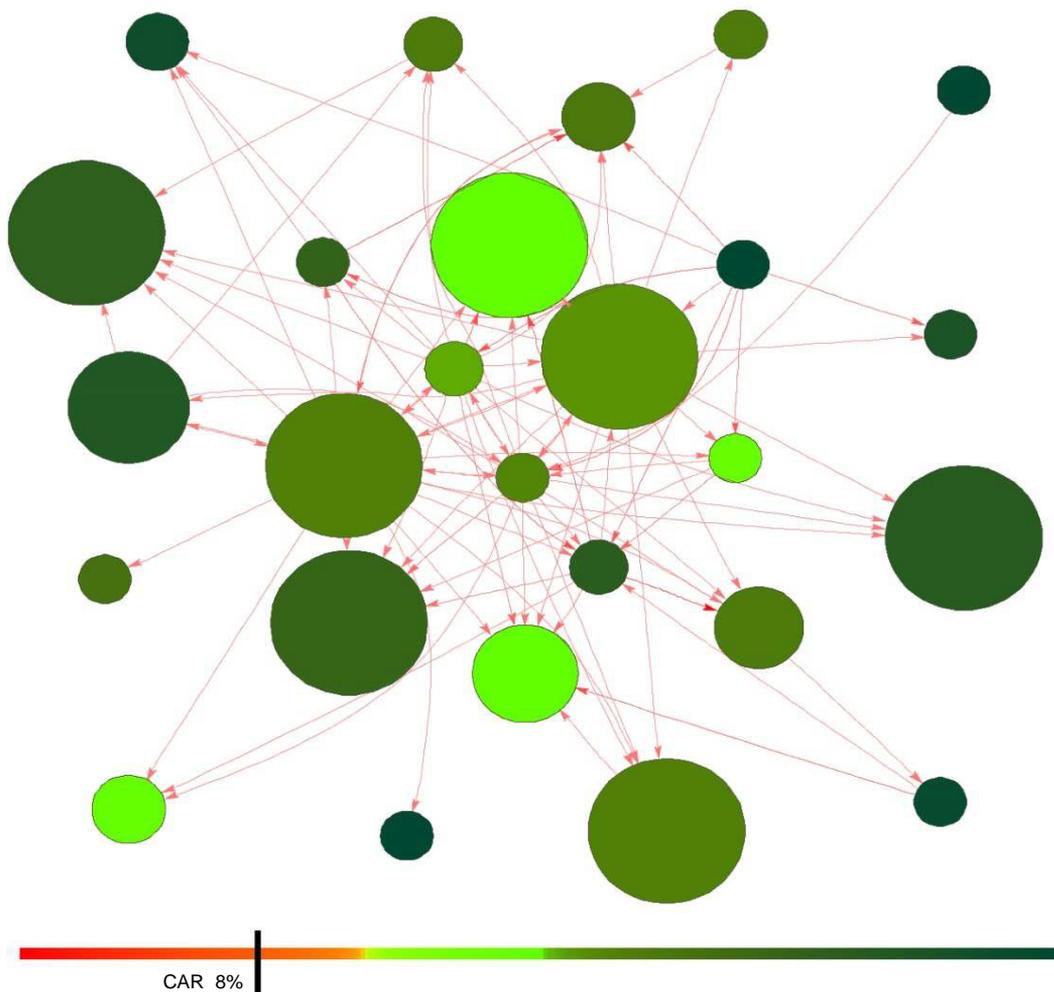
and with other elements in the system, can be conducive to transmission and spreading of the shock through the system. Therefore, the financial system cannot be observed only as a sum of individual institutions; rather, information on interinstitutional dependencies must be included as well.

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 required reserve 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.2.13. 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 required reserve 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.

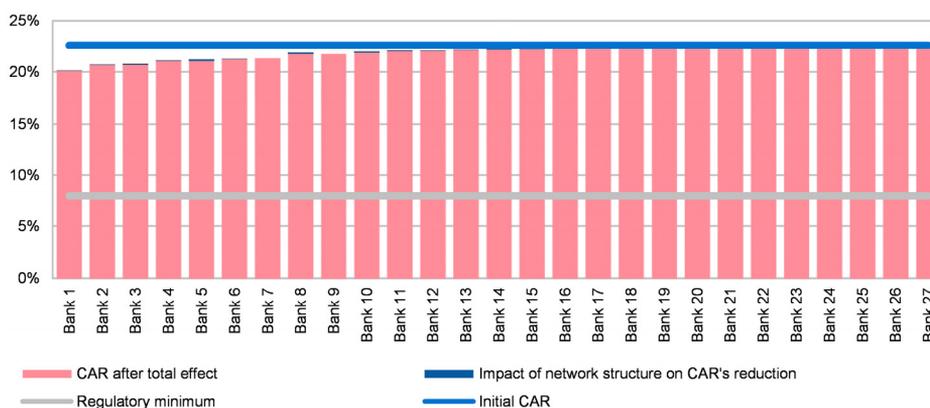
Global efficiency indicates the banking sector's network capacity in terms of shock transmission and equals 0.24.

Chart II.2.13 Banking network of the Republic of Serbia



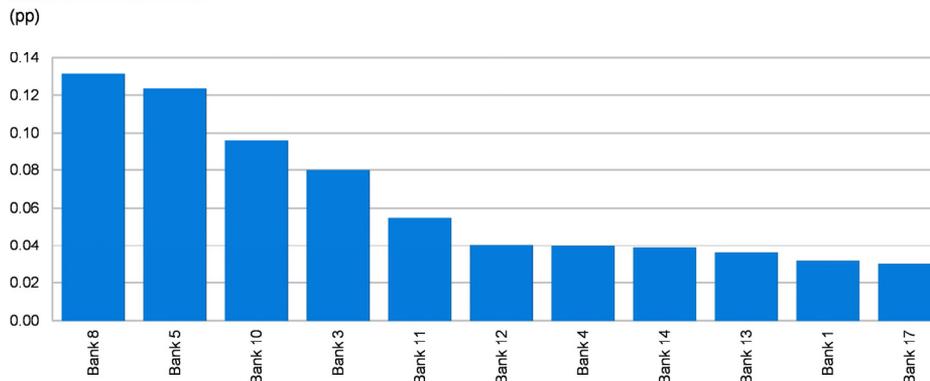
Source: NBS.

Chart II.2.14 Banking sector CAR after the insolvency of an individual bank



Source: NBS.

Chart II.2.15 Impact of network structure on the drop in banking sector's CAR after the insolvency of an individual bank (pp)



Source: NBS.

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 0.24 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 required reserve for estimated losses was calculated. An increase in reserve for estimated losses 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 defaults were obtained for each bank (which did not become undercapitalised up to that point). Based on this, the expected increase in reserves for estimated losses and a new reduction in risk-weighted

assets, capital and the CAR was calculated again. A shock is considered neutralised when further iterations register no change in regulatory capital and risk-weighted assets of any of the banks. Assuming the insolvency of an individual bank and the transmission of a particular shock through the system, as was explained, the effect on each individual bank, and therefore on the system, originates from two different sources. One relates to the initial iteration following the insolvency of a pre-determined bank – to its elimination from the system and the immediate impact on banks exposed to it. The other relates to shock transmission in the following iterations, i.e. the domino effect, which measures the impact of the structure of the banking sector network on the transmission of insolvency through the system.

Chart II.2.14 shows the banking sector's CAR immediately after assumed insolvency of each individual

bank in the sector and the total effect of the existence of the network structure. Chart II.2.15 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.2.14 and II.2.15 indicate that, in case of insolvency of any bank, the banking sector's CAR would definitely stay in the safe zone, i.e. above the regulatory minimum. Also, the impact of the network structure on shock transmission is relatively weak, which is conducive to the maintenance of financial stability.

## Conclusion

Serbia's banking sector, as a whole, remains resilient even in the worst-case scenario, with CAR above the regulatory minimum.

Observed on a bank-by-bank basis, assuming the most unfavourable scenario, by end-2018 few banks which hold a small market share in total balance sheet assets of the banking sector could face a Common Equity Tier 1 shortfall in meeting the combined capital buffer.

After the achievement of significant results in resolution of existing NPLs, in the future period the priority should be placed on prevention and curbing of new NPLs, especially by strengthening the risk management function in banks and by further improvement of the macroeconomic environment. Currently, NPLs are at their pre-crisis level. They are fully covered by IFRS and regulatory provisions, thus not posing a threat to financial stability, but actually working to encourage credit growth.

The conducted stress tests indicate that even if macroeconomic conditions considerably deteriorated, the rise in NPLs would not jeopardise the stability of the banking system as a whole.

After the adoption of the NPL Resolution Strategy of the Government of Serbia and the National Bank of Serbia in August 2015 the NBS Executive Board passed the Decision on Adoption of the NBS Action Plan for Implementation of the NPL Resolution Strategy. Key

activities in the Action Plan relate to improvements in the field of bank supervision and application of the International Accounting Standards in banks, disclosure of data by banks, identifying and removing obstacles to NPL market development and support to sound valuation of mortgaged real estate. The NBS fully implemented all activities envisaged in its Action Plan already in 2016, namely activities related to strengthening banks' NPL resolution capacities, by improving forbearance practices and accounting practices, raising banks' transparency with regard to asset quality, improving collateral management in banks, and the system of regulatory reporting about the NPL structure.

As a result of the NPL Resolution Strategy and the implementation of the activities from the NBS Action Plan, and particularly from the Decision on the Accounting Write-Off of Bank Balance Sheet Assets, effective as of end-September 2017<sup>54</sup>, in December 2017 the NPL ratio equalled 9.8%, which is a 12.4 pp drop from August 2015, when the Strategy was adopted, and the lowest level of NPLs recorded in almost nine years.

The banking sector would stay highly liquid even in conditions of the largest assumed deposit outflow. Under the assumed worst-case scenario, few banks could enter the zone of liquidity risk. In case the assumed scenarios materialise and the need for additional liquidity arises, the NBS has in store instruments for maintaining an adequate level of bank liquidity, such as liquidity loans or the lender of last resort function. 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 will at the same time function as both microprudential and macroprudential instruments used to prevent the occurrence or increase in maturity mismatch between 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 ensuing systemic risk. The results of the network modelling indicate that there is no significant systemic risk component in the Serbian banking sector.

<sup>54</sup> RS Official Gazette, No 77/2017.

### Text box 3: NPL determinants

As empirical research and other analytical studies have shown, NPL movements in a country are predominantly determined by macroeconomic conditions. Hence, within the framework of macroprudential stress tests of the NBS, changes in NPLs are linked to the impact of macroeconomic factors. In order to empirically verify the impact of these factors on the share of NPLs, we assessed the regression model of the monthly growth rate of the share of non-performing loans in total loans, based on the reports of commercial banks. Of the large number of variables that could affect NPL movements (LU), three were shown to have reliable predictive strength: the exchange rate (LE), key policy rate (LR) and seasonally-adjusted real net wages in dinars (LWRS), according to the NBS and SORS.

All variables were log transformed, and then subjected to a stationary test. The augmented Dickey-Fuller test of the unit root (with corresponding corrections on account of structural breaks) indicates that each variable has precisely one unit root, which limits its use in the classical econometric model without prior reduction to stationary transformations – first differences, which represent monthly growth rates of the variables.

Estimates of model parameters for the January 2012 – December 2017 period, obtained on the basis of first differences of logarithmic series values (monthly growth rates of variables), are given in Table O.3.1.

The estimated model shows that the key policy rate is the variable that influences NPLs with the longest time lag (seven months), while the lag of the other two variables – the exchange rate and net wages – equals six and four months, respectively. Compared to other variables, the exchange rate has a higher impact on monthly NPL movements. Thus, a one-percent depreciation of the dinar against the euro causes a 0.46% rise in NPLs. On the other hand, a one-percent monthly increase in s-a net wages leads to a monthly fall in NPLs by 0.19%, while a one-percent monthly increase in the key policy rate results in a rise in NPLs by 0.15%. In addition to the mentioned variables, the model also contains one seasonal variable for March (VS3) and three impulse dummy variables for December 2016, September 2017 and December 2017. Individual estimates of model parameters are interpreted under the assumption of constancy (unchanged level) of other model variables. Chart O.3.1 indicates the high level of correlation between the dependent variable and the variable estimated according to the model. Econometric tests confirm the absence of autocorrelation and the fulfilment of the assumption of normality of distribution of the error term (Table O.3.1).

In addition to the parameter stability analysis, the valuation of the model prediction strength should be done by a comparative analysis of the actual and predicted values. Chart O.3.1 presents the actual movements of NPLs and movements predicted based on the model that was used in designing macroprudential stress tests for Q4 2017.

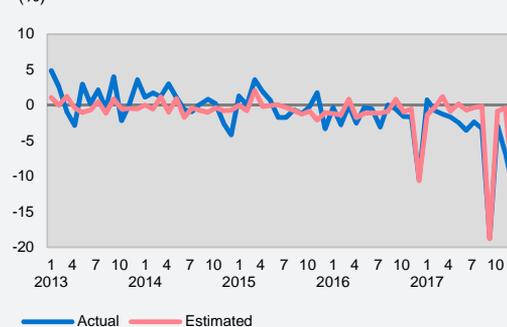
Table O.3.1 Coefficient estimates\* (%)

Dependent variable	DLU	
Independent variables	Coefficient estimates	P-value
Constant	-0.0041	0.1974
DLE(-6)	0.4610	0.0550
DLWRS(-4)	-0.1852	0.0908
DLR(-7)	0.1522	0.0604
V1 (Dec 2016)	-0.1034	0.0000
V2 (Sep 2017)	-0.1826	0.0000
V2 (Dec 2017)	-0.1072	0.0000
VS3	0.0209	0.0322
Econometric tests		
R-squared		0.6639
Prob (F-statistic)		0.0000
Prob (BLJQ(1) statistic)		0.1340
Prob (BLJQ(2) statistic)		0.1240
Prob (JB statistic)		0.2135

\* NBS estimate.

Source: NBS.

Chart O.3.1 Actual and estimated movement in monthly growth rate of the share of total gross NPLs\* (%)



\* NBS estimate.

Source: NBS.

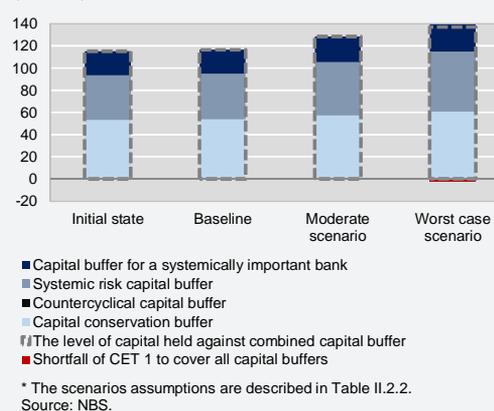
At end-2017, the share of NPLs in total loans fell by 7.2 pp to 9.8% relative to December 2016. The NBS conducted all activities envisaged by the NBS Action Plan for Implementation of the NPL Resolution Strategy, whereby it created conditions to resolve this issue more efficiently and ensure that the stability of the banking and financial system as a whole is preserved and strengthened. The implementation of the Strategy created more favourable conditions for the write-off and assignment of NPLs to non-banking sector entities. In 2017 alone, a total of RSD 124.7 bn of NPLs were written off and assigned to non-banking sector entities, and the contribution of these NPLs to the NPL ratio in 2017 is estimated at -5.1 pp.

The estimated fall in the share of NPLs in total loans between December 2016 and December 2017 equalled 5.2 pp. In this period, all three macroeconomic variables had a negative contribution to movements in the NPL ratio (key policy rate -0.16 pp, exchange rate -0.09 pp, real wages -0.07 pp). However, the greatest contribution to the fall in NPLs in the said period came from the measures within the NPL Resolution Strategy. Namely, the write-off of bank balance sheet assets under the Decision on the Accounting Write-Off of Bank Balance Sheet Assets that came into effect in September 2017 (modelled by the introduction of a dummy variable) had a significant contribution on the fall in the NPL ratio of -3.04 pp, while increased write-off of receivables at the end of 2017 (modelled by the introduction of a dummy variable for December 2017) contributed to the fall in the NPL ratio by -1.43 pp.

#### Text box 4: Effect of macroprudential stress tests scenario assumptions on capital buffers

Macroprudential stress tests are carried out to assess banks' resilience to improbable but potential shocks. They are a set of tools and models used by the NBS to assess systemic risk. With regulatory amendments of 30 June 2017, Basel III standards were transposed to the domestic banking legal framework. In addition to harmonisation with relevant EU banking regulations, the new legislation was adopted in order to increase banking sector resilience by enhancing the quality of capital and introducing capital buffers, as well as to better monitor and control banks' exposure to liquidity risk, further strengthen market discipline and transparency of bank operations by publishing all relevant information about bank operations, and adjust the reporting system to new regulatory arrangements. The Decision on Capital Adequacy of Banks<sup>55</sup> introduces – in addition to the capital adequacy ratio with the regulatory minimum of 8% – two new regulatory ratios: the Common Equity Tier 1 capital ratio with the regulatory minimum of 4.5% and Tier 1 capital ratio which must be above 6%. An important novelty is the application of additional Common Equity Tier 1 capital buffers – capital conservation buffer (2.5% of risk-weighted assets), countercyclical capital buffer (0% of risk-weighted assets), capital buffer for systemically important banks (1–2% of risk-weighted assets for banks recognised as systemically important) and systemic risk buffer (3% of total FX placements). In addition to assessing the fulfilment of regulatory minimums in terms of the prescribed capital adequacy ratios, macroprudential solvency stress tests take into account potential needs for Common Equity Tier 1 capital for the purpose of maintaining capital buffers. The amount of Common Equity Tier 1 capital that banks should allocate to maintain capital buffers is conditioned by initial stress scenario assumptions given that capital buffers depend on the level of risk-weighted assets and the amount of FX placements. Chart O.4.1 shows the amount of required capital buffers according to scenario assumptions using December 2017 reporting data, and the shortfall of Common Equity Tier 1 capital for their coverage. Owing to high capitalisation, in case of the central projection and the moderate scenario, all banks would report a satisfactory level of Common Equity Tier 1 capital to cover all regulatory requirements and all capital buffers. It is only under highly conservative assumptions in the event of the worst-case scenario that the banking sector would report a shortfall of Common Equity Tier 1 capital to cover capital buffers, at a negligible level of RSD 2.55 bn, but even in such case all banks would post capital adequacy ratios above prescribed minimums.

Chart O.4.1 Capital buffers under different stress scenarios\* (RSD bn)



Capital buffers were analysed in the reverse stress test as well, which, based on the model used, assesses what NPL growth would lead to the threshold value of the capital adequacy ratio which enables the fulfilment of requirements for the coverage of all prescribed capital buffers at the banking sector level. The results show that even under the extreme scenario, which implies much greater deterioration in macroeconomic conditions than the deterioration in the first and second wave of the latest crisis, the banking sector would post a regulatory capital adequacy ratio of 14.07%. It would satisfy the regulatory minimums of Common Equity Tier 1, Tier 1 and regulatory capital adequacy ratios, while at the same time fulfilling all requirements for the coverage of capital buffers. On the other hand, the estimated probability of such outcome is very low – below 0.1% at the end of a one-year time horizon.

<sup>55</sup> The Decision is part of the NBS set of regulations published in the RS Official Gazette, No 103/16 of 22 December 2016.

## II.3 Non-bank financial sector

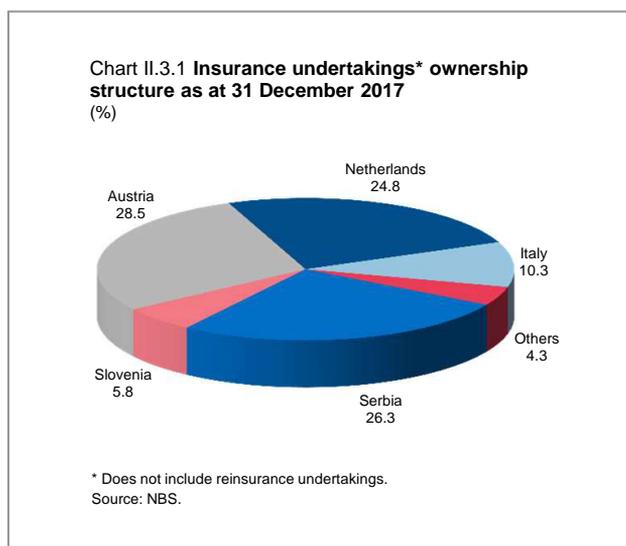
### II.3.1 Insurance undertakings

*The insurance sector was stable in 2017, boasting a high capital adequacy ratio and satisfactory profitability. In 2017 the NBS carried out the second stress test of the insurance sector in Serbia, whose results suggest that the insurance sector would remain stable and highly capitalised even in the event of extreme and highly unlikely shocks.*

The balance sheet of the insurance sector had a 6.3% share in the total balance sheet of the financial sector supervised by the NBS (banks, financial lessors, insurance undertakings and VPFs),<sup>56</sup> which is slightly more than last year (6.1%). The insurance sector is the second most important sector in the Serbian financial system.

At end-2017 the market consisted of 17 insurance undertakings and four reinsurance undertakings, two insurers fewer than the year before. Among insurance undertakings, four were engaged in life insurance, seven in non-life, and six provided both life and non-life insurance services.<sup>57</sup> Breakdown by ownership shows that 15 undertakings were in majority foreign ownership.

Undertakings in majority domestic ownership accounted for 26.3% of the total capital in the sector (Chart II.3.1).



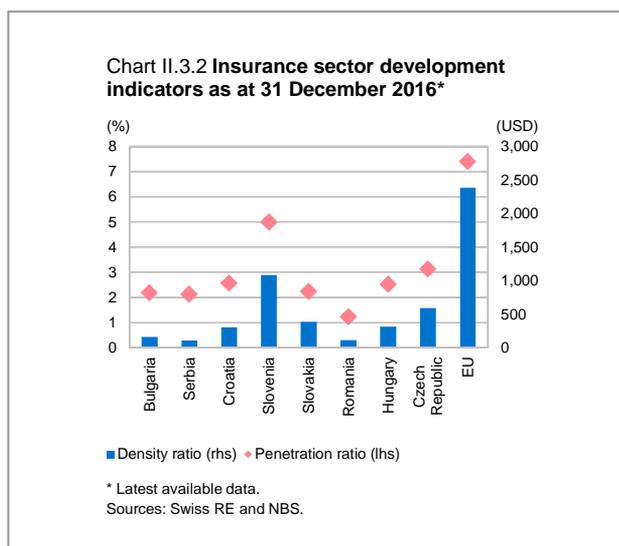
Major foreign owners come from Austria (28.5% of total capital) and the Netherlands (24.8% of total capital).

Apart from insurance undertakings, the sales network included 20 banks, seven financial lessors and one public postal operator, which are licensed for insurance agency activities, 88 legal persons (undertakings for insurance brokerage and insurance agency activities), and 90 insurance agents (natural persons – entrepreneurs).

Compared both with EU member states and neighbouring countries, Serbia's insurance sector is still underdeveloped, which leaves room for further growth. In 2016,<sup>58</sup> the penetration ratio (gross written premium as a percentage of GDP) at EU level stood at 7.4%,<sup>59</sup> while the same ratio in Serbia was several times lower, measuring 2.1%. Also, Serbia's density ratio (the average premium per capita spent on insurance) of USD 108 was much lower than the EU's USD 2,383<sup>60</sup> in 2016 (Chart II.3.2).<sup>61</sup>

A positive trend was recorded also in total premium, which reached RSD 93.1 bn in 2017, rising by around 4.4% relative to 2016. However, Serbia still lags behind the neighbouring countries in terms of the absolute amount of total premium (Chart II.3.3).

The continuous increase in the share of life insurance premium was reversed in 2017, falling from 25.9% at



<sup>56</sup> Except for payment institutions and electronic money institutions.

<sup>57</sup> The new Insurance Law from 2014 implements the provision from the EU law on separation of life and non-life insurance business, with a view to protecting the interests of policyholders and insurance beneficiaries. The exception was envisaged only for undertakings which at the effective date of the Law held a licence to carry out both types of insurance. Those undertakings must separate assets, liabilities and capital by the two groups of activities and manage them separately.

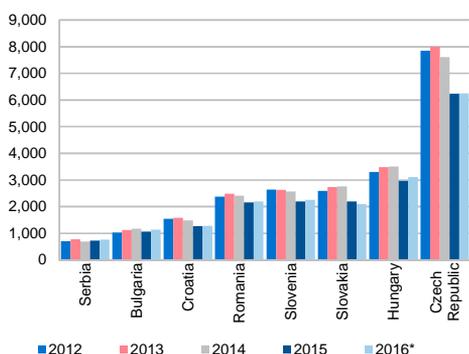
<sup>58</sup> Latest available data.

<sup>59</sup> Source: Swiss Re Sigma 3/2017: World insurance in 2016: the China growth engine steams ahead.

<sup>60</sup> Source: Swiss Re Sigma 3/2017: World insurance in 2016: the China growth engine steams ahead.

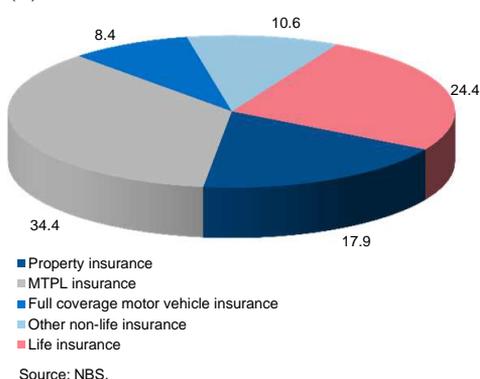
<sup>61</sup> Latest available data

**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 2017 (%)**



Source: NBS.

end-2016 to 24.4% at end-2017 due to the nominal decline in life insurance premium (Chart II.3.4).

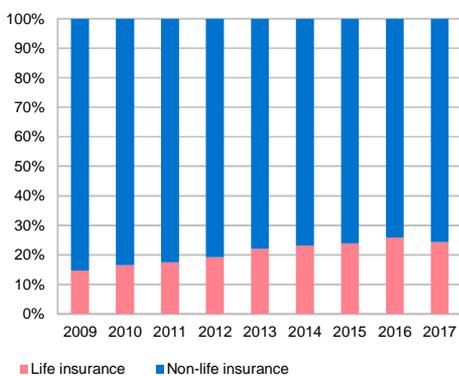
Within total premium, motor third party liability insurance was still dominant (34.4%), followed by life insurance (24.4%), property insurance (17.9%) and full coverage motor vehicle insurance (8.4%), as shown in Chart II.3.5.

The insurance sector in Serbia is adequately capitalised in view of the risks to which it is exposed. According to the 2014 Insurance Law, the available solvency margin

(guarantee reserve) must be at the level of at least the required solvency margin. Given that in 2017 core CAR was 208.4% for non-life and 241.5% for life insurance, it can be concluded that the capital adequacy of Serbian insurance undertakings is high.

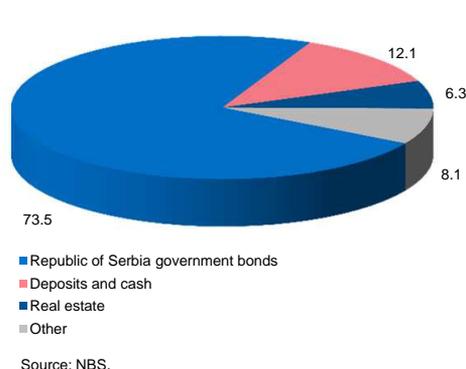
The leverage ratio (capital to asset ratio) reflects the level of exposure of insurance undertakings to risks typical for insurance activity. At end-2017 this ratio equalled 23.7% in undertakings mainly engaged in non-life insurance (23.8% in 2016), and 19.9% in undertakings carrying out life insurance (20.8% in 2016).

**Chart II.3.4 Insurance premium structure**



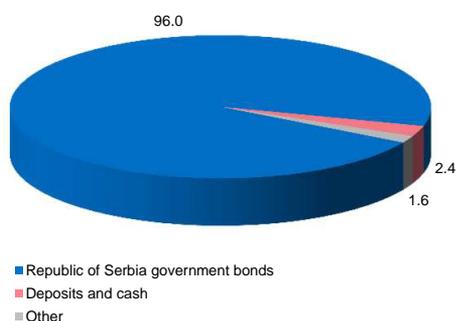
Source: NBS.

**Chart II.3.6 Non-life insurance technical reserves coverage as at 31 December 2017 (%)**



Source: NBS.

Chart II.3.7 Life insurance technical reserves coverage as at 31 December 2017 (%)



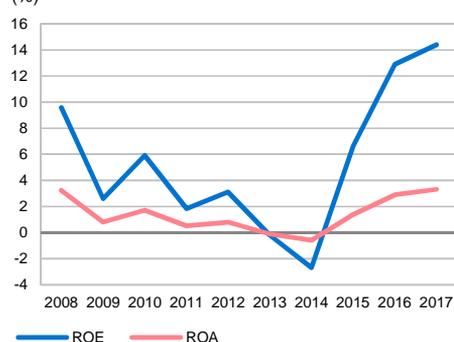
Source: NBS.

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-2017, technical provisions of all insurance undertakings stood at RSD 160.6 bn, rising by 8.2% in nominal terms relative to 2016. The full amount of technical provisions was invested into the prescribed assets both in life and non-life insurance. In terms of composition, technical provisions were predominantly made up of mathematical reserves, which gained 7.4% in 2017.

As Chart II.3.6 shows, the majority of technical provisions of non-life insurance was invested in government securities (73.5% at end-December 2017), followed by cash and deposits with banks (12.1% at end-December 2017). As indicated in Chart II.3.7, technical provisions of life insurance were also predominantly invested in government securities (96% at end-December 2017).

In assessing the quality of assets, particular attention is paid to liquidity of insurance undertakings. Apart from liquid assets, insurance undertakings invested 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 in

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

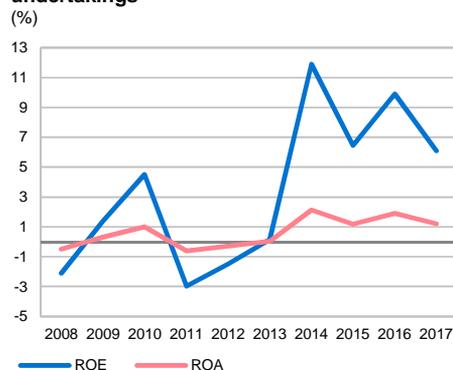


Source: NBS.

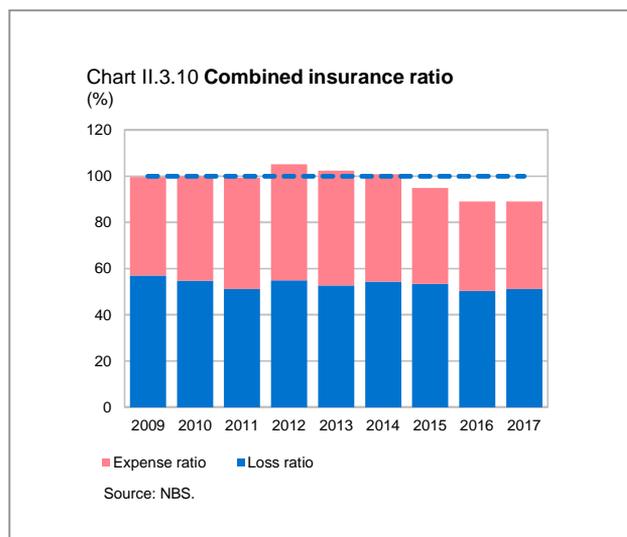
total assets). At end-2017, in undertakings mainly engaged in non-life insurance this indicator equalled 17.9% (18.7% at end-2016) and in undertakings mainly engaged in life insurance – 1.7% (2.3% at end-2016).

The insurance sector ended the year 2017 with a positive net result after tax amounting to RSD 6.4 bn. Profitability indicators of undertakings engaged mainly in non-life insurance rose in 2017 from the year before. Return on equity was 14.4% (12.9% in 2016) and return on assets – 3.3% (2.9% in 2016), as shown in Chart II.3.8. Undertakings engaged mainly in life insurance saw a reduction in the above profitability indicators in 2017. Their return on equity was 6.1% (9.9% in 2016) and return on assets 1.2% (1.9% in 2016), as can be seen in Chart II.3.9.

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



Source: NBS.



Profitability of insurance undertakings is indicated also by the combined ratio, as the sum of self-retained<sup>62</sup> incurred losses and expenses divided by the 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 premium by taking into account 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 remained almost unchanged at end-2017 – 88.9% (89.1% at end-2016) (Chart II.3.10).

The expense ratio (ratio of insurance administration costs to premium earned) dropped from 38.8% at end-2016 to 37.8% at end-2017, which points to improved efficiency of the insurance administration process. The loss ratio (the ratio of losses incurred in claims to premium earned) is the indicator of adequacy of price policy of insurance undertakings. It is a measure of an undertaking's ability to cover claims from the premium income. A low value of this ratio suggests that an undertaking charges higher premium than necessary, while a high value indicates that an undertaking is unable to meet claim liabilities. This ratio rose from 50.3% at end-2016 to 51.2% at end-2017. The ratio of investment return to premium earned of undertakings engaged predominantly in non-life insurance measured 3.3% in 2017 (3.8% in 2016).

The insurance sector was stable and solvent in 2017, particularly taking into account high capital adequacy and the level of formed technical provisions, and their full investment into the prescribed assets. The attained stability was strengthened by satisfactory profitability of insurance undertakings, which additionally contributes to maintaining these undertakings' capital adequacy.

In 2017 the NBS carried out the second stress test of the insurance sector in Serbia so as to continuously monitor the risk exposure of individual insurance/reinsurance undertakings. The stress test consisted of the following five unrelated extreme-case scenarios:

- “Less marketable investments” scenario – where loss is due to impaired value of real estate and write-off of premium receivables; this scenario would have the greatest impact on capital adequacy, primarily due to premium receivables write-off, but also because of the impaired value of real estate;
- “Retrocession” scenario – where loss is due to the retrocessionaire's default, which would not significantly affect the insurance sector;
- “Actuarial” scenario – where loss is due to increased mortality as a consequence of a pandemic and insufficient claims provisions, which would have a relatively moderate impact on capital adequacy;
- “Natural disaster – earthquake” scenario – where loss is due to catastrophic damage as a consequence of an earthquake, which would have a relatively moderate impact on capital adequacy;
- “Natural disaster – flood” scenario – where loss is due to catastrophic damage as a consequence of flood, which would have a relatively moderate impact on capital adequacy.

The results of the above stress test indicate that the insurance sector would remain stable and highly capitalised and that capital adequacy would not be threatened even in the event of extreme and unlikely shocks.

The Strategy for Implementation of Solvency II<sup>63</sup> in Serbia,<sup>64</sup> adopted by the NBS Executive Board on 7 July 2016, envisages phased implementation of Solvency II in the Serbian insurance sector. At its meeting on 14 March 2018, the Executive Board adopted amendments to the

<sup>62</sup> 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.

<sup>63</sup> Directive 2009/138/EC of the European Parliament and of the Council on taking-up and pursuit of the business of Insurance and Reinsurance.

<sup>64</sup> [http://www.nbs.rs/internet/english/60/60\\_5/implementation\\_of\\_solvency\\_ii.pdf](http://www.nbs.rs/internet/english/60/60_5/implementation_of_solvency_ii.pdf)

Strategy for Implementation of Solvency II in Serbia. In view of the importance and complexity of implementation of Solvency II, the Strategy will be regularly reviewed and amended on an as-needed basis, in accordance with new circumstances and challenges.

The Solvency II Directive repeals 14 directives commonly referred to as Solvency I and introduces the maximum harmonisation regime, ensuring greater convergence within the internal market of insurance services in the EU. Solvency II has been in effect since 1 January 2016.

Solvency II is based on three pillars:

- a) first pillar – quantitative requirements, which provide for harmonisation of standards for market-based valuation of assets and liabilities, establish two tiers of capital requirements – solvency capital requirement and minimum capital requirement, and introduce a prudent person principle for asset investment, given that capital requirements take into account market risks;
- b) second pillar – qualitative requirements, which include fit and proper criteria applicable to all persons who effectively run the undertaking or have other key functions in the undertaking, key functions, own risk and solvency assessment (ORSA) and the manner of conducting supervision;
- c) third pillar – transparency, which is ensured by supply of relevant information to the supervisor and by the mandated public disclosures.

The NBS completed ahead of schedule the first stage envisaged by the Strategy, during which it carried out:

- detailed analysis of compliance of regulations,
- analysis of potential exemption of small undertakings from the scope of the Solvency II Directive, and
- analysis of the capacity and readiness of undertakings to implement Solvency II.

The detailed analysis of compliance found that the highest degree of alignment was achieved within Pillar II qualitative requirements. Pillar I has not been implemented – alignment is needed with new quantitative requirements relating primarily to the calculation of technical provisions for solvency purposes and capital adequacy. It has been determined that alignment with Pillar III requirements will be more important in the implementation phase than during the harmonisation of legislation.

The analysis has also shown that all undertakings in Serbia would be covered by Solvency II requirements. According to available information, none of the existing undertakings would be included in the regime for small undertakings. The analysis of Pillar II implementation was conducted by determining the key functions and the quality of own risk and solvency assessment (ORSA). It has been concluded that there is an adequate degree of readiness and capacity to implement Solvency II in this segment. The analysis of overall readiness of undertakings to implement Solvency II established that the insurance sector in Serbia is focused on implementing Solvency II, that the management of undertakings is, as a rule, involved in its implementation, and that most undertakings believe Solvency II will positively impact their operations.

Serbia's insurance sector has so far significantly converged to that of the EU, which is particularly evident from the rules on the pursuit of insurance business, entry into the domestic market and operation of EU-based subsidiaries, transfer of specific knowledge from parent companies, development of new insurance products in Serbia, and improvement of protection of insurance beneficiaries.

The completion of the first phase of strategically defined activities in the implementation of the new methodological framework – analysis of compliance of regulations, and the consequent implementation of the following two phases – impact assessment<sup>65</sup> and harmonisation of the regulatory framework – will ensure full compliance of the insurance business in Serbia with EU rules, i.e. even greater stability of the insurance sector and protection of insurance beneficiaries by Serbia's accession to the EU at the latest.

### II.3.2 Voluntary pension funds

*Net assets of voluntary pension funds continued to grow. Relative to 2016, the total number of users and the number of active users both increased. FONDex return was higher than the inflation rate in 2017 as well.*

VPFs are collective investment institutions that collect pension contributions and invest them into various types of assets in order to generate return and reduce investment risk. These funds are based on the defined contribution principle, where future payouts are not defined in advance

<sup>65</sup> This phase began in Q2 2017 and, among other things, includes the implementation of the quantitative study of the impact of the new Solvency II requirements on capital adequacy and technical provisions of individual undertakings and the insurance sector as a whole. This phase is planned to wrap up by end-Q2 2021.

and depend on the amount of contributions paid, amount of fees, the return on invested VPF assets, and the period of accumulation of funds. VPFs are managed by management companies, which engage in setting up and management 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 a custody bank account.<sup>66</sup>

The number of management companies and VPFs did not change in 2017 – at the end of the year there were four management companies in Serbia in charge of managing assets of seven VPFs. The assets of all VPFs are kept in accounts with a single custody bank.

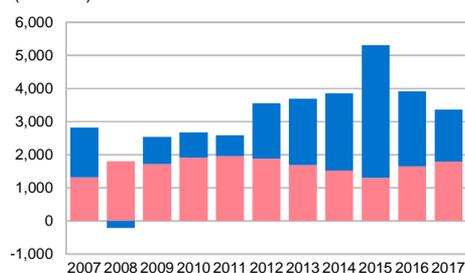
From the start of operation of VPFs in Serbia, their total net assets have constantly been increasing. At end-2017 they equalled RSD 36.2 bn, rising by around 10.3% from a year earlier. Changes in the value of net assets of funds depend on the amount of members' contributions, collected fees, withdrawals of accumulated funds and return on VPF investment (Chart II.3.11). Unlike the last four years, when net assets of VPFs mostly grew on account of return on investment, in 2017 the difference between net contributions<sup>67</sup> and withdrawals was the key factor of growth. In 2017 net assets went up by RSD 3.4 bn. Return on investment measured only RSD 1.6 bn. It was lower than in the previous period, due to relatively low interest rates on government bonds in which the funds invest. Also, as a result of a pronounced decline in

interest rates on newly issued government bonds, in recent years the value of bonds in which the funds had already invested rose. As the government's cost of borrowing was reduced to a lesser extent in 2017, there was no considerable rise in net assets on this account. Return on investment was lower also owing to the dinar's appreciation against the euro, which drove down the value of FX assets of VPFs.

Total contributions stood at RSD 3.2 bn (RSD 2.9 bn in 2016), and total withdrawals at RSD 1.3 bn (RSD 1.2 bn in 2016), as can be seen in Chart II.3.12. The structure of withdrawals is relatively unfavourable, as it is contrary to the aim of saving in VPFs, which is the use of accumulated funds over a longer span of time. Though the figure is slightly lower than last year, as much as 92% of withdrawals were lump sum withdrawals, which are usually made as soon as the member reaches the age limit for withdrawal of accumulated funds. However, as the fund accumulation period and funds in accounts increase, the share of programmed payouts and other manners of withdrawal may be expected to increase.

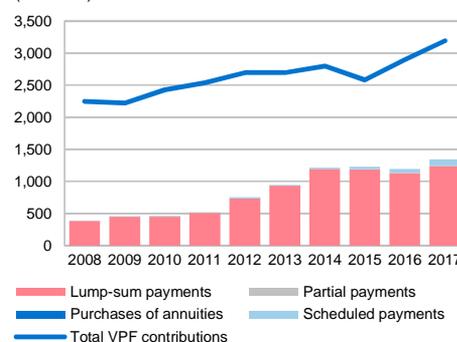
The total number of VPF users was higher than last year, equalling 185,445 at end-2017. These users concluded a total of 253,900 membership contracts. During the same period, the number of active users (users that regularly pay VPF contributions) also increased, albeit their share in the total number of users in the accumulation stage remained relatively low, at 33.6% in December 2017 (28.5% in December 2016). Almost a half of active

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.

<sup>66</sup> 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 law.

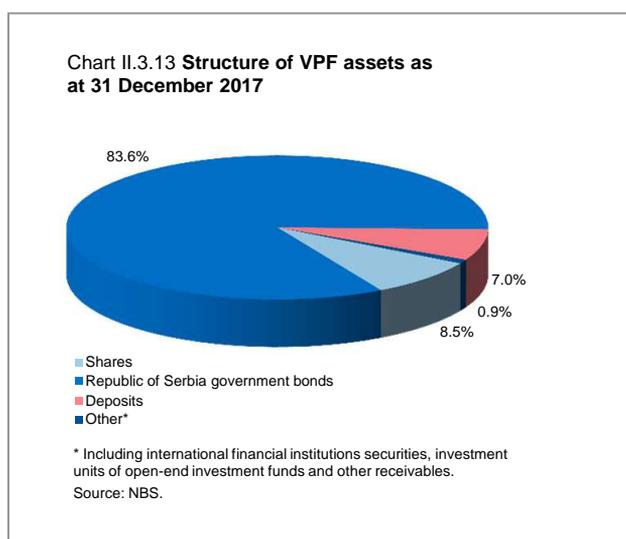
<sup>67</sup> Total contributions minus the contribution fee.

members became members through pension schemes. The average age of VPF users in Serbia was around 46 years. The share of VPF users in the total number of employees is 9.3%, which indicates that this sector is poorly developed, but has potential for future growth.

At end-2017 most assets of VPFs were again invested in government bonds of the Republic of Serbia (83.6%), as can be seen in Chart II.3.13. Even though such a conservative approach enabled VPFs to achieve considerably high yields in previous years, it should be noted that the high concentration of investment makes them sensitive to market risks, primarily interest rate risk and reinvestment risk, given that the current low interest rate environment negatively impacts future yields of VPFs. It is therefore necessary to further develop the domestic capital market, and to develop new long-term financial instruments, which will enable investment to be more diversified and thereby mitigate the above risk.

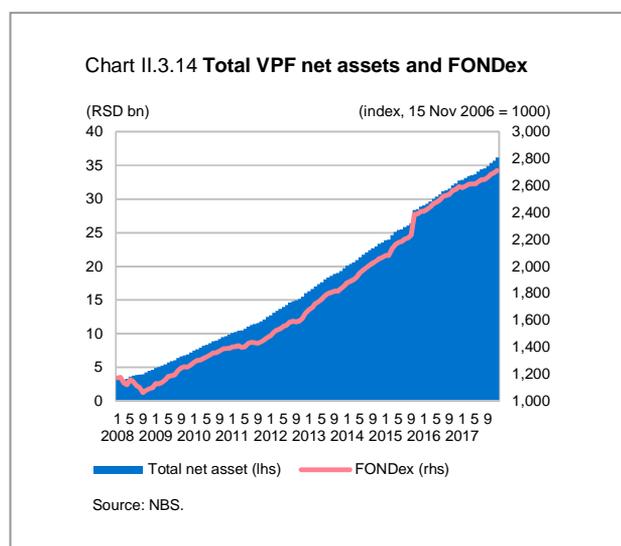
The portion of shares in total VPF assets increased further in 2017 (from 7.4% to 8.5%), while the share of VPFs in total BSE turnover came at 9.6%. Term deposits with banks and balances held in custody accounts made up 7.0% of total assets at year-end. The funds also invested in the bonds issued by the EBRD (0.3%) and investment units of open-end investment funds (0.3%). VPFs did not invest abroad in 2017 either.

At end-2017, around 13% of total VPF assets were in euros, 1% in US dollars, and 86% of assets (RSD 31.4 bn) were denominated in dinars.



At end-2017, FONDex<sup>68</sup> reached the value of 2,713.39 points (Chart II.3.14), which is 120.89 points higher than a year earlier. Annual FONDex return, which represents the weighted average return of all funds, equalled only 4.7% in 2017. Although the return was sufficient to preserve the value of VPF assets relative to the inflation rate (3.0%), it was significantly lower compared to last year's return (7.7%), and to the FONDex return since the beginning of operation (9.4% at end-2017).

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 made up 92% of total collected fees in 2017. Such structure of fees resulted from the increase in the fund net asset value and an increasingly higher base with respect to which the management fee is collected. In August 2017, the NBS adopted the Decision on the Share of Net Value of Assets of All Voluntary Pension Funds in the Estimated Value of Gross Domestic Product in the Republic of Serbia for 2016 (RS Official Gazette, No 77/2017), which established the cumulative amount of the net value of assets of all VPFs, based on annual financial statements of these funds for 2016, at 0.78% of GDP. Based on the above Decision, and given that it was envisaged<sup>69</sup> that the maximum management fee would be limited to 1.25% of the fund net asset value as of 1 January of the year following the year when it is established that the net assets of all VPFs have reached 0.75% of GDP, the maximum management fees were adjusted. In accordance



<sup>68</sup> 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.

<sup>69</sup> In accordance with Article 23, paragraph 2, item 2) of the Law on Voluntary Pension Funds and Pension Schemes (RS Official Gazette, Nos 85/2005 and 31/2011).

with the amended Decision on the Method of Calculation of Fees Charged by a Voluntary Pension Fund Management Company (RS Official Gazette, Nos 60/2011 and 77/2017), as of 1 January 2018 the management fee may not exceed 1.25% of the fund net asset value (previously 2%), while the contribution fee restriction (previously 3% of the contribution) was removed. The reduction of the management fee, which is the most significant part of fees charged by management companies, is expected to contribute to further growth in the fund net asset value, and by extension, the accumulated assets of members.

Amendments to the Decision on Intermediaries of Voluntary Pension Fund Management Companies and Issue of Licenses for the Performance of Activities of Providing Information on Voluntary Pension Funds (RS Official Gazette, Nos 60/2011, 92/2013 and 77/2017) adopted in August 2017 enabled insurance undertakings to be VPF management company intermediaries, besides banks. This amendment may help expand the sales network and support further development of the VPF market.

The Serbian VPF sector is still underdeveloped, with a relatively small number of VPF users and an unfavourable structure of withdrawal of accumulated funds. However, as economic activity picks up and the standard of living improves, we may expect contributions to VPFs to grow, and this sector to develop further. Investment tax incentives also positively affect the VPF sector. In 2017, employer contributions of up to RSD 5,589<sup>70</sup> were exempt from personal income tax and mandatory social insurance contributions, as were contributions in the same amount made by the employer through wage garnishment. Citizens should also be further educated about the benefits of this type of long-term saving, as this may contribute to the further development of VPFs in Serbia.

### II.3.3 Financial leasing

*In 2017, the financial leasing sector continued to show positive results. Balance sheet assets of this sector are still rising and their quality is improving owing to the further reduction in past due receivables. Total capital also rose considerably, among other things owing to the positive result of the entire sector.*

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 rewards of ownership.

At end-2017, as in the previous period, the Serbian financial leasing sector consisted of 16 lessors, two of which were undergoing voluntary liquidation proceedings.

Most financial lessors were owned by banks, members of banking groups or other financial institutions (as many as 14 lessors). Seven lessors were in full or majority ownership of foreign legal persons, while the other nine were in majority ownership of domestic persons, eight of which were owned by domestic banks with foreign capital.

Employment in the financial leasing sector declined further, from 384 persons in 2016 to 363 persons in 2017.

Balance sheet assets of lessors continued to grow. At end-2017, balance sheet assets measured RSD 75.3 bn, up by 13.7% from end-2016 (RSD 66.3 bn).

The share of past due receivables in total investment was further reduced. At end-2017, past due gross receivables (RSD 4.5 bn) made up 6.5% of gross financial leasing receivables (9.1% at end-2016). The share of net book value of these receivables in total net receivables also declined, from 1.7% (end-2016) to 1.2% (end-2017). The majority of total past due receivables related to receivables past due for more than 90 days. At end-2017, these receivables equalled RSD 3.7 bn. Their share in total gross financial leasing receivables measured 5.2% (7.2% at end-2016). The share of the net book value of receivables past due for more than 90 days in the total net portfolio stood at 0.2%.

The rise in lessors' capital resulted primarily from the positive result achieved, and from additional paid-in capital by the founders. At end-2017, the total capital of all lessors equalled RSD 9.3 bn, rising by 10.7% from a year earlier.

Pre-tax result (RSD 671.4 mn in 2017) was considerably lower than last year's result (RSD 1,294.9 mn). Net gain measured RSD 488.0 mn, with most lessors posting a positive net result (11 lessors). Total income and gains

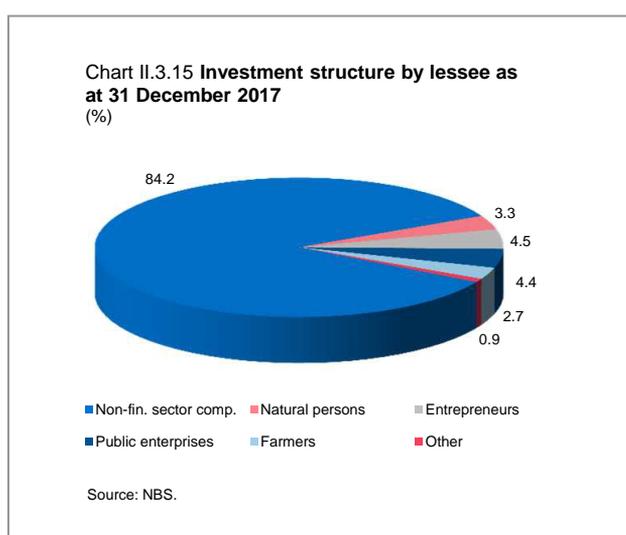
<sup>70</sup> The value is aligned with the consumer price index annually.

came at RSD 4.4 bn in 2017, down by 16.8% from last year, while total expenses and losses equalled RSD 3.7 bn, or 6.7% less than last year.

At end-Q4 2017, return on assets and return on equity was lower than at end-2016. Return on assets fell from 2.05% to 0.95%, while return on equity stood at 7.62% at end-2017, which is considerably lower than at end-2016 (16.00%).

### 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 84.2% share in total investment, up by 0.8 pp in relation to 2016.

As can be seen from Chart II.3.15, entrepreneurs accounted for 4.5% of total investment (3.7% in 2016), public enterprises – 4.4% (4.9% in 2016), natural persons – 3.3% (3.1% in 2016) and farmers – 2.7% (3.6% in 2016).

### Structure of investment by lease asset

As Chart II.3.16 indicates, financing of freight vehicles, minibuses and buses, which has the largest share in the structure of investment by lease asset, rose further (from 40.7% at end-2016 to 43.1% at end-2017). Financing of

passenger vehicles also went up (from 31.0% in 2016 to 33.2% in 2017), while the share of financing of agricultural machinery and equipment went down from 7.3% to 6.1%, which may be associated also with the decreasing share of farmers in the structure of lessees.

Though still underdeveloped, the financial leasing sector experienced positive trends, which drove up the share of its balance sheet assets in the country's financial system (from 1.9% at end-2016 to 2.0% at end-2017). However, this share is still relatively low, which means that potential risks in its operations could not have a significant effect on the stability of the overall financial system.



### II.3.4 Sector of payment institutions and electronic money institutions

*Payment institutions were introduced to increase market competition, improve the quality and diversity of payment services and, consequently, reduce the prices that users pay for those services. The number of payment institutions operating in Serbia rose further in 2017.*

Based on the Law on Payment Services, in effect as of 1 October 2015, special institutions registered to provide payment services and issue electronic money operate in Serbia. Payment institutions are legal persons headquartered in Serbia, 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, services of issuance and/or acceptance of payment instruments, money remittance services, etc. At end-2017 there were a total of 12 payment institutions licensed by the NBS to provide payment services (up from eight at end-2016). Three leading global companies for fast international money transfer perform operations through payment institutions and their agents. Along with Western Union, already present in Serbia, MoneyGram and Ria Money Transfer started to operate through newly founded payment institutions in the domestic financial market as of 2017.

Electronic money institutions are legal persons headquartered in Serbia, licensed by the NBS to issue

electronic money. The first and so far the only licence to issue electronic money was issued in 2016. Since this licence allows an institution to provide payment services as well, this institution also transfers funds and electronic money in domestic payment transactions (payments between residents in Serbia). Unlike the domestic licensed electronic money institution, services of foreign electronic money institutions (e.g. Paypal, Skrill and Payoneer) 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 issuing licences, the NBS also supervises all payment service providers and electronic money issuers in the part of their operations that relates to the provision of payment services and/or electronic money issuance.

### **Text box 5: Development of FinTech and impact on financial stability**

FinTech stands for “financial technologies” and refers to technological innovations that impact financial services.

The FinTech industry consists of different players, mostly start-up companies such as, for instance, peer-to-peer lenders, robotised (automated) investment advisors (digital platforms providing automatic algorithm-based financial planning services, with minimum involvement of people or without their involvement), digital wallets and online payment service providers. There is also another segment of the industry, consisting of technological companies such as Apple, Google, Facebook, IBM and Microsoft, which rely on their knowledge and experience to enter the financial services sector and thus strengthen their market position. At the same time, an increasing number of traditional banks and other financial institutions began to use FinTech applications and change their business processes. Given the increasing number of established partnerships, it is becoming harder to draw a line between traditional and non-traditional participants.

FinTech companies provide a wide range of financial services, which can be classified in five groups: a) payment, netting and settlement, b) deposits, lending and capital raising, c) insurance, d) investment management, and e) market support.

This industry is growing at an increasingly faster pace, and the trend is expected to continue.

An important issue is the potential impact of the FinTech industry on financial stability, particularly in the early phase of its development, given its wide application.

Benefits arise from:<sup>71</sup>

1. **greater decentralisation and diversification**, which reduces the possibility that the bankruptcy of a single market participant will jeopardise financial stability of the system;
2. **high degree of automation**, which increases efficiency and reduces the costs for clients and society as a whole;
3. **higher transparency**, which reduces information asymmetries and enables better risk assessment and the development of new instruments that protect from specific risks;
4. **widening access to financial services** to a larger number of clients, particularly in the segment of households and small- and medium-sized enterprises.

Unfortunately, it is not possible to exclude microfinancial and macrofinancial risks to financial stability. Microfinancial risks may arise as a result of traditional banking operations of FinTech companies (given that they, like banks, face credit, liquidity, financial dependence, maturity mismatch and different operational risks). Macrofinancial risks may be generated by procyclicality, interconnectedness, (ir)replaceability and systemic importance of FinTech companies.

The final effect is not possible to envisage at the current moment. It is therefore necessary to monitor the development of this industry and bear in mind the following key factors.

**Services of FinTech companies that are traditionally provided by banks.** FinTech companies offering traditional banking services (loans, liquidity, maturity transformation) can strengthen financial stability to the extent these activities increase the diversification of credit and liquidity risks in the financial system. On the other hand, due to insufficient experience, particularly in the banking field, these new participants may potentially create systemic vulnerability, particularly in the downward phase of the financial cycle or in the event of market shocks. As the majority of FinTech companies do not rely on own funds, since they either rely on banks (and other financial institutions), or their activity does not entail loans or liquidity support – the potential of contagion through the credit or liquidity channel is now small, but must be monitored.

<sup>71</sup> FSB (2017) Financial Stability Implications from FinTech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017.

**Procyclicality of FinTech companies.** FinTech companies are prone to procyclicality. Thus, the interaction between investors and borrowers, in an environment of NPL growth, may lead to the depletion of funding sources. In addition, risk assessment models are based on similar algorithms, which increases the amplitudes of lending activity and property prices.

**The impact of the FinTech industry on competitiveness.** FinTech companies increase competitiveness and reduce client fees. At the same time, the number of operational points that may be the target of cyberattacks is increasing.

**The impact of FinTech companies on concentration risk.** Although the FinTech industry is growing rapidly, it is still small. The entry of FinTech companies in the financial services market may reduce concentration as non-traditional participants compete with the traditional ones. FinTech credit platforms may help diversify the sources of capital. However, the possibility of a FinTech company becoming large and, consequently, systemically important, cannot be neglected. Still, even if it were large, the impact on financial stability depends on the degree of the replaceability of services.

**Replaceability of FinTech services.** These services are quickly and easily replaceable. Financial services that can be easily replaced generate less systemic risk.

**The impact of FinTech companies on financial connectedness.** The interconnectedness of entities offering financial services significantly impacts financial stability. A large number of connected players most often reduce systemic risk as it is distributed among a large number of participants. However, in some cases, interconnectedness may impact the spread of a large shock across the system. FinTech companies impact financial connectedness in the following ways:

- the appearance of a new company creates a new node that is linked to the existing one, which makes the network more elaborate and complex, and thus more exposed to cyberattacks;
- partnership between FinTech companies has the same effect – it increases interconnectedness and complexity, particularly negative effects of cyberattacks;
- some FinTech applications rely on highly decentralised structures, thus leading to a lower risk of concentration and greater resilience.

**Automated decision-making.** FinTech companies apply innovative techniques in order to automatise financial services and make them faster and more efficient. However, decisions are made based on algorithms, which are usually unknown to regulators. The absence of expert supervision may generate new risks, which is why people must also be involved in the decision-making process.

## Regulatory framework and initiatives

If FinTech companies perform activities subject to regulation and require licences, such as, for instance, lending, execution of payment transactions, money transfer, etc. – they must be licenced as credit institutions, payment institutions, electronic money institutions, etc. However, given enormous potential benefits from the FinTech industry, regulatory initiatives emerge around the world, aimed at supporting FinTech companies and reducing risks. One such initiative concerns the introduction of regulatory sandboxes and practices to soften regulation in the period of testing a financial product or service, i.e. before they become widely accepted. This helps strike a balance between the promotion of innovations and preservation of financial stability and the protection of financial service consumers. For a financial product to be covered by sandbox, it must be either an innovation or innovatively use the existing technology and, secondly, it must bear the potential to resolve a problem and bring benefits to the consumer and/or industry. All sandboxes contain special risk protection mechanisms. This mostly pertains to limitations as to the number and type of clients, total turnover value, etc. Some include additional client protection measures, such as the establishment of compensation arrangements, strict control of managing risks against cyberattacks, and stricter reporting requirements.

The Financial Stability Board highlighted the need for international cooperation in this field. As an international body promoting financial stability at the global level, the Board was established in 2009 at the initiative of the G20, in lieu of

the Financial Stability Forum. As part of its mandate, the Financial Stability Board monitors vulnerabilities in the global financial system and issues recommendations for risk mitigation.

In June 2017, a report was published analysing the potential impact of the FinTech industry on financial stability. Three priorities for international cooperation have been recognised in this field:<sup>72</sup>

*1. Operational risks management by non-financial entities*

Competent authorities should determine whether the current regulatory frameworks for non-financial entities are adequate.

*2. Mitigating cyber risks*

It is necessary to implement cyber security by adopting timely plans in the event of cyberattacks, exchange information and implement supervision. Financial and technological literacy may reduce the probability of cyber events that have a negative impact on financial stability.

*3. Monitoring macrofinancial risks*

There are currently no financial risks from FinTech innovations, due to the relatively small value of this sector compared to the financial system. However, experience warns that they can emerge quickly if left unchecked. Therefore, in assessing risks and shaping the regulatory framework, international bodies and national regulators must take into account FinTech activities as well.

In May 2017, a joint report about the rise in FinTech loans was published by the Financial Stability Board and the Committee on the Global Financial System.

According to this and the above analysed report, official data on FinTech activities are limited, while their greater availability and quality would warrant greater attention by regulators, particularly in view of the fast development of the industry.

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<sup>72</sup> FSB (2017) Financial Stability Implications from FinTech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017.

## III Financial markets

*Owing to monetary policy easing in an environment of strong fiscal adjustment and improvement of macroeconomic characteristics of the economy, costs of borrowing declined, as there was less need to borrow and interest rates in the domestic and foreign markets went down. NBS key policy rate cuts reflected on a decline in all dinar interest rates in the money and capital markets. As the country risk premium touched its historical low and the credit rating was upgraded, all euro interest rates in money and bond markets recorded a decline and foreign investors' appetite for long-term government securities expanded. Liquidity of the secondary market of government securities significantly increased. New financial instruments were introduced. However, there is still plenty of room for improvement of the regulated capital market, especially the corporate bond market.*

### III.1 Money market

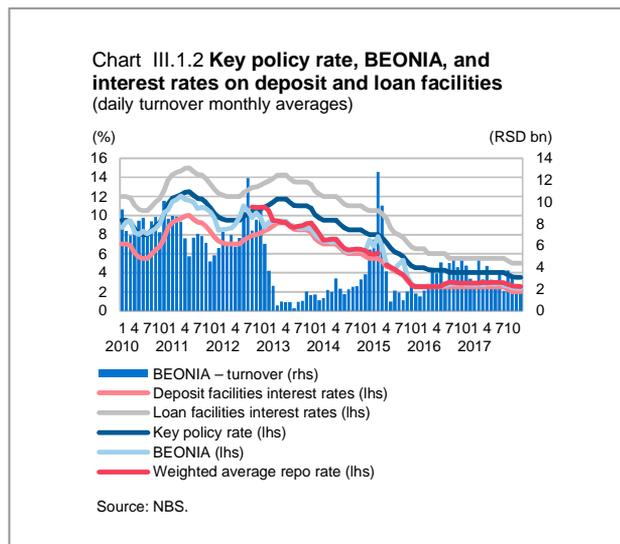
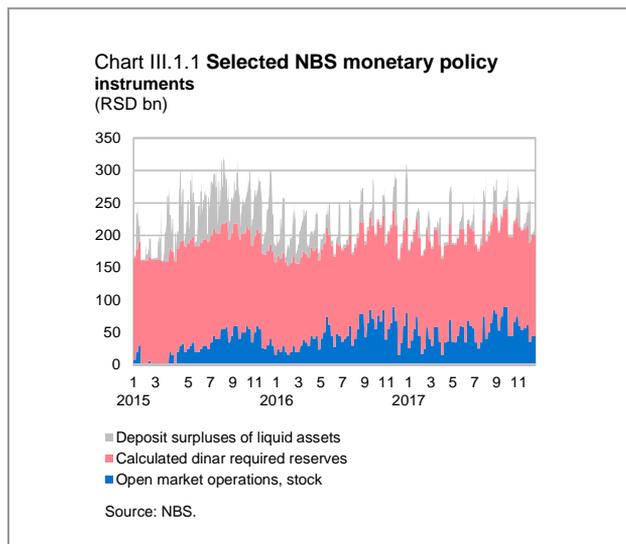
In 2017 the global financial environment was relatively favourable owing to extremely low interest rates and an improved global economic growth outlook. However, risks stemming from diverging monetary policies of leading central banks and the uncertainty associated with their influence on global capital flows toward emerging economies could not be neglected. In conditions of growing economic activity and further strengthening of the US labour market, the Fed increased its target range three times in 2017 (in March, June and December) and from October started to reduce its balance sheet (during the period of accommodative monetary policy, the Fed's balance sheet expanded through purchases of government and mortgage securities) by gradually decreasing monthly reinvestments. On the other hand, the ECB kept its interest rates at a historical low and plans to continue with its quantitative easing programme by end-September 2018, with net asset purchases reduced to EUR 30 bn per month.

In Serbia, monetary policy accommodation, amid strong fiscal and structural adjustment, helped to improve macroeconomic characteristics of the economy and reduce the impact of shocks from the international environment.

Relative stability of the dinar exchange rate was preserved. Depreciation pressures were recorded early in the year, fuelled by uncertainties in the international

financial market, primarily due to Fed's decision to continue monetary policy normalisation, as well as the seasonal rise in FX demand of domestic companies (mainly energy importers). Appreciation pressures prevailed as of April 2017, so the dinar strengthened during the major part of the year. Appreciation pressures were fuelled by better import results, a high FDI inflow, increased foreign investor appetite for government securities, relatively high purchases of foreign cash and growth of FX-indexed bank assets. In 2017 the dinar strengthened by 4.2% against the euro, and the NBS intervened to prevent excessive volatility of the exchange rate by net buying EUR 725 mn (in total, it bought EUR 1,355 mn and sold EUR 630 mn), thereby additionally boosting the country's FX reserves. Also, as a result of the euro's appreciation against the US currency, the dinar strengthened against the dollar by as much as 18.2% in the same period.

Strong fiscal adjustment not only reduced the country's borrowing needs but also indirectly reflected on the decline in costs of borrowing both in the domestic and international market. Monetary policy easing directly contributed to the decrease in interest rates and costs of borrowing in dinars. Also, monetary policy offset potential negative effects of fiscal adjustment on growth. The quality of macroeconomic management and better macroeconomic prospects were confirmed in the international context by Serbia's steadfast progress in international competitiveness lists. At end-December



2017, country risk premium dropped to 96 bp, its historical low. In addition, all three rating agencies upgraded the country's credit rating (Moody's Investors Service – in March, from B1 to Ba3, Standard and Poor's and Fitch Ratings – in December, from BB– to BB). Such developments contributed to a lower cost of borrowing in foreign currency. The quality of macroeconomic management – despite the uncertainty of global capital flows in an environment of divergent monetary policies of leading central banks – boosted foreign investor interest in long-term investment in government securities, with lower return.

The NBS, in cooperation with the Serbian Government, decided to lower the inflation target from  $4\% \pm 1.5$  pp to  $3\% \pm 1.5$  pp as of January 2017. This decision was motivated by the following: inflation was stabilised at a low level; inflation expectations were anchored at a low level; the country's macroeconomic characteristics and prospects were significantly improved. In 2017 inflation moved within the new band, arriving at the 3.0% target in December, which confirms that the correct decision was made.

The key policy rate was lowered two times in 2017 – in September and October, by 0.25 pp each, arriving at 3.5%. Monetary policy accommodation was primarily motivated by the weakening of inflationary pressures based on factors in the domestic and international environment. On the other hand, uncertainty in the international financial and commodity markets mandated caution in the conduct of monetary policy in the

remaining part of the year. The cycle of key policy rate cuts begun in May 2013 brought this rate to its lowest level since the introduction of the inflation targeting regime. This created conditions for a further fall in interest rates on new and existing dinar loans, which entailed significant savings for the government, corporates and households.

To absorb excess liquidity of the banking sector, in 2017 the NBS continued to implement reverse repo transactions (repo sale of securities with maturity of one week) as its main open market operation. It applies the auction method, a variable multiple interest rate and a predefined amount of securities. The highest interest rate that banks may offer equals the key policy rate of the NBS. Dinar treasury bills issued by the NBS exclusively for repo transactions were used in trading.

In the first eight months of 2017, the average monthly repo rate<sup>73</sup> was relatively stable and moved in the interval 2.90% – 2.97%. Together with the lowering of the key policy rate in September and October, the average repo rate was also cut by 0.2 pp in both rounds. By the year-end the repo rate remained relatively unchanged, amounting to 2.57% at the last repo auction held in 2017 (2.88% at the last auction in 2016). Compared to end-2016, at end-2017 banks increased their investment in NBS repo securities (from RSD 33.8 bn to RSD 45.1 bn). In the same period, dinar allocations of required reserves were slightly increased, while banks' overnight deposits with the NBS were reduced (Chart III.1.1).

<sup>73</sup> The rate achieved at repo auctions weighted by the amount of securities sold.

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

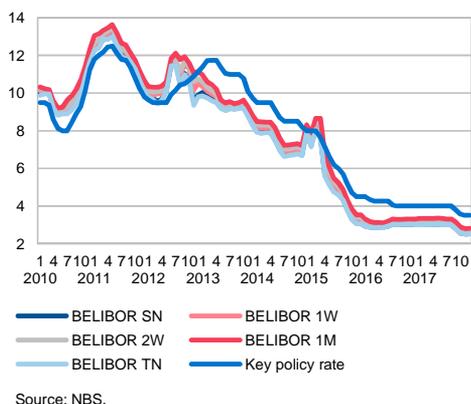
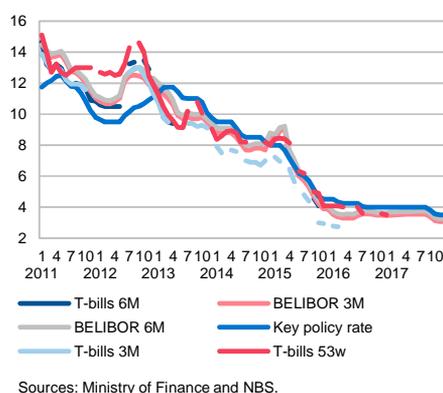


Chart III.1.4 Money market interest rates  
and auctions of government bills  
(monthly averages, %)



Trading volumes in the interbank overnight money market decreased compared to last year (Chart III.1.2). Average daily trading volumes in 2017 equalled RSD 2.9 bn (RSD 3.8 bn in 2016). As the dinar liquidity of banks increased, trading volumes in the overnight money market shrunk quarter after quarter, so in Q4 2017 the average daily trading volume was only RSD 2.5 bn.

The interest rate BEONIA<sup>74</sup> mirrored the movement of the average repo rate. The average value of BEONIA measured 2.4% in December 2017 (2.8% in December 2016). BEONIA dropped in the second half of the year, reflecting the cuts in the key policy rate and average repo rate, as well as somewhat lower trading volumes in the interbank overnight money market. Throughout the year, BEONIA trended lower than the key policy rate, closer to the deposit facility rate. The spread between the average monthly value of BEONIA and the deposit facility rate moved from 18 bp (in August) to 44 bp (in October).

Average monthly BELIBOR rates in December 2017 ranged from 2.5% for the shortest to 3.2% for the longest maturity. For the sake of comparison, in December 2016, these rates moved in the range from 3.0% to 3.6% (Chart III.1.3).

To encourage the development of the interbank swap market, the NBS organises regular two-week and three-month swap FX purchase/sale auctions, which provide additional FX/dinar liquidity. In 2017, the NBS swap bought and sold EUR 546.5 mn, somewhat more than in

2016 (EUR 440.0 mn). In interbank swap transactions, trading volumes also increased – to EUR 202.7 mn in 2017 (EUR 111.0 mn in 2016).

In order to reduce refinancing risk and thanks to improved macroeconomic characteristics, the government switched from short-term sources of funding to issuance of mid-term and long-term financial instruments. In the course of 2017, only three auctions of government dinar bills were held (12 in 2016) – one auction of six-month and two auctions of one-year (53-week) T-bills. Total T-bill issues in 2017 were worth only RSD 23.0 bn (six-month T-bills accounted for RSD 3.0 bn, and one-year T-bills for RSD 20.0 bn), down by RSD 74.0 bn compared to the year before. The demand for T-bills (RSD 7.5 bn) was much lower than the supply, and the sale volume was also lower, reaching only RSD 2.6 bn. Accordingly, at end-2017, the stock of dinar T-bills<sup>75</sup> was RSD 1.8 bn only, down by RSD 46.5 bn from end-2016.

At end-2017, the stock of euro-denominated T-bills<sup>76</sup> came at EUR 188.2 mn (EUR 324.6 mn at end-2016). In the course of 2017, six auctions of these T-bills were held, and relatively high demand was recorded (89% of the issue).

Due to a small number of new issues, interest rates on dinar T-bills remained almost unchanged (2.64% on six-month and 3.48% on one-year T-bills). The interest rate on euro-denominated T-bills was lowered by 30 bp (to only 0.48%). Although interest rates were cut less sharply

<sup>74</sup> The weighted average overnight rate in the interbank money market in the Republic of Serbia.

<sup>75</sup> Government 53-week securities.

<sup>76</sup> Government 53-week securities.

than in previous years, interest rates on T-bills at end-2017 touched a historical low. They were below the key policy rate and BELIBOR rates of comparable maturity (Chart III.1.4).

### 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 Public Debt Administration of the Ministry of Finance by the auction method at a single interest rate. Considerable progress was made in the previous period with regard to the increase in the average maturity of government dinar securities and the reduction in funding costs on account of this type of borrowing.

Dinar government bonds allow the government to borrow in the domestic market under relatively favourable terms, while 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 was further reduced, with less frequent auctions, a smaller amount of securities offered for sale and relatively favourable interest rates. The major portion of government bond issues were longer-term dinar securities, with a view to raising the share of these instruments in the total portfolio of government bonds.

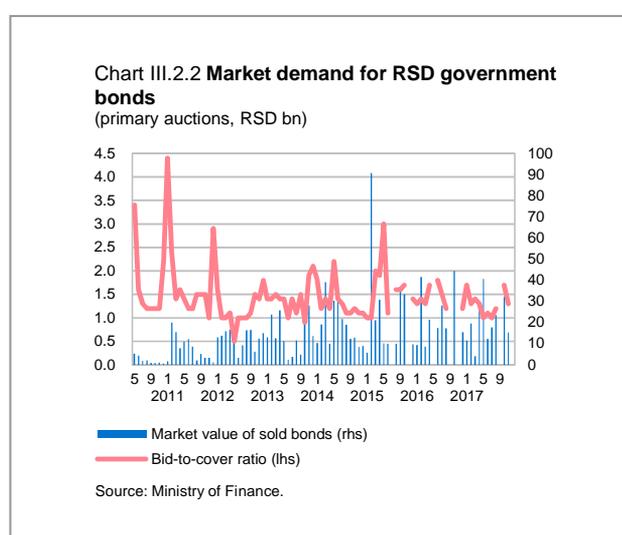
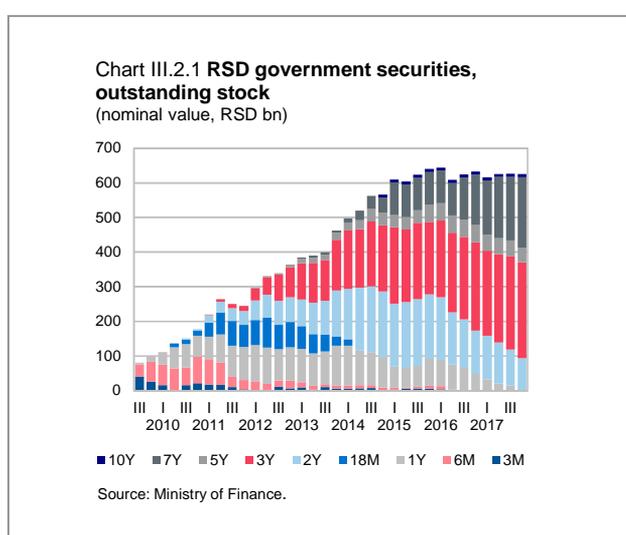
The stock of dinar government bonds maturing in over one year amounted to RSD 623.6 bn at end-2017, up by 6.6%

from end-2016 (Chart III.2.1). In the structure of dinar government bonds at end-2017, same as at end-2016, three-year bonds held the largest share (44%), while seven-year bonds rose considerably (from 25% to 33%).

After the successful performance of benchmark bonds issues in 2016, the same strategy was applied in 2017. 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, and contribute to the decline in return interest rates on reopenings. 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.

Although the total size of government bond issues<sup>77</sup> in 2017 came at RSD 839.9 bn, the planned sales volume was significantly lower. Reduced borrowing needs enabled the government 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 values (1.7) in January and October, and lowest values (1.0) in May and July 2017 (Chart III.2.2). Also, performance at primary auctions of dinar government bonds was extremely favourable relative to the planned sales volumes at those auctions.

Coupon rates and accepted rates at primary auctions of government bonds were reduced further in 2017. Coupon rates on dinar government bonds fell from 4% to 3.5% on



<sup>77</sup> Government securities with two-year, three-year and seven-year maturity.

two-year bonds, and from 6% to 4.5% on three-year bonds. Of the accepted interest rates at primary auctions of dinar government bonds, the rate on seven-year government bonds declined the most – from 5.64% to 5.00% (by as much as 64 bp), followed by the interest rate on three-year bonds – by 45 bp to 4.29%. Given that both cases concerned the issues of benchmark bonds, these decreases were largely due to frequent reopenings. In the same period, the interest rate at primary auctions of two-year dinar bonds dropped by 25 bp to 4.05%. Coupon rates on euro-denominated government bonds also went down – by end-2017, three-year bonds were issued with the coupon rate of 1.5% (down from 2.0%), and five-year bonds with the rate of 2.25% (down from 2.5%). As coupon rates declined, accepted interest rates at primary auctions of these bonds also went down. Five-year euro-denominated government bonds declined the most (by 52 bp to 2.38%). The rates on two-year bonds fell by 8 bp, on three-year bonds by 16 bp, and on ten-year bonds by 20 bp.

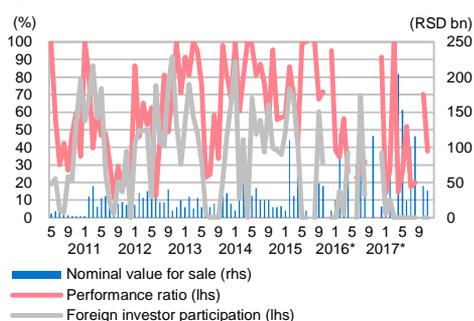
In 2017 foreign investor participation in the dinar government bond portfolio shrank from 32.2% (in December 2016) to 28.6% (in December 2017). As shown in Chart III.2.4, as of end-2015 government bonds are predominantly owned by domestic banks. Their share in the portfolio of dinar securities<sup>78</sup> in 2017 edged up by around 0.7 pp, to 55.4% in December. Other domestic investors (insurance undertakings, pension and investment funds) are still much less involved in auctions of dinar government bonds, but there has been a notable 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.

The issue size of euro-denominated government bonds<sup>79</sup> (EUR 1.3 bn) was lower in 2017 than in 2016 (EUR 1.5 bn). At auctions of these bonds demand was high (around 96% of the issue), and performance was also relatively high (around 79%), which resulted in an increase in the stock of euro-denominated bonds with the maturity of over one year by EUR 0.4 bn, to EUR 3.0 bn in 2017 (Chart III.2.5). The highest share in the total portfolio of euro-denominated government bonds was that of five-year (30%) and three-year bonds (28%).

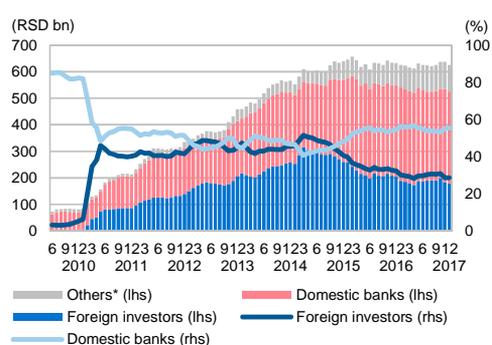
Trading volumes in the secondary market of dinar government bonds in 2017 were higher than in the year before, reaching RSD 410.1 bn. Secondary trading in euro-denominated securities amounted to EUR 899.0 mn. The strategy of issuing benchmark bonds significantly boosted trading volumes in the secondary market. As of November 2015, long-term government bonds were admitted to BSE prime listing, and total trading in these bonds in the BSE in 2017 came at RSD 58.6 bn. The introduction of government bonds to regular trading in the BSE 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

**Chart III.2.3 Performance ratio and foreign investor participation in auctions of RSD government bonds**



\* For benchmark bonds total value of issue for sale is shown and realisation is expressed as percentage of that value. Planned value for sale on these issues was lower than total value of issue.  
Source: Ministry of Finance.

**Chart III.2.4 Structure of portfolio of RSD government bonds**



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

<sup>78</sup> Including government bonds and 53-week T-bills.

<sup>79</sup> Government securities with two-year, three-year, five-year, 10-year and 15-year maturity.

secondary market of government bonds, and will in time enable market efficiency in the process of valuation of these securities. A liquid secondary market enables fast and efficient purchase and sale of bonds, while the elimination of the liquid risk premium also reduces the government's cost of borrowing.

The introduction of benchmark bond issues positively impacted the volume and continuity of secondary trading and improved market efficiency in the sale of government bonds in the primary market. The market of government securities could be further upgraded by introducing the concept of primary dealers, which can provide a sound foundation for improving market efficiency of the secondary market of government securities.

In order to further develop the market of government securities and ease the investment in government securities for adult natural persons, on 27 December 2017, the Republic of Serbia issued a new financial instrument – savings bonds. Savings bonds were issued in dinars and euros, with maturities of two, three, five and ten years. The individual nominal value is RSD 2,000 for dinar and EUR 100 for euro-denominated savings bonds. One investor can buy no more than 5,000 dinar-denominated or 500 euro-denominated savings bonds per one issue. Savings bonds were issued as coupon bonds, with coupon rates varying depending on maturity and currency (in dinar savings bonds, the coupon rate is between 4% for two-year and 6.25% for ten-year savings bonds, while for euro-denominated bonds of the same

maturities the coupon rate ranges from 1% to 4%) and paid annually. Savings bonds cannot be traded in the secondary market, but under the certain conditions they can be redeemed prior to maturity. At the issue in December 2017, the total nominal amount of savings bonds sold was RSD 0.2 bn and EUR 17.5 mn.

BSE market capitalisation at end-2017 came at RSD 548.9 bn (around 12% of GDP). Compared to end-2016, it edged down by around 7% (Chart III.2.6). Market capitalisation contracted mostly in the MTP<sup>80</sup> segment of the BSE, due to exclusion or withdrawal of a certain number of issuers, while market capitalisation of the prime listing was slightly higher than in the year before.

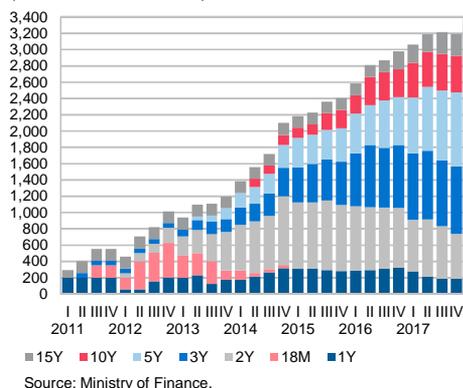
At end-December 2017, BELEX15 (the index of the most liquid shares) was up by 5.9% from end-2016, measuring 759.8. In the same period, the BELEXline index increased by 5.9% to 1,662.5. Share prices rose the most in Q1 2017 and recovered further in the second half of the year, so at end-2017 BELEX15 reached the highest value since June 2011 and BELEXline since October 2008.

Indices in regional stock exchanges displayed varying trends in 2017, while indices in leading stock exchanges worldwide recorded significant growth compared to the end of last year (Chart III.2.7).

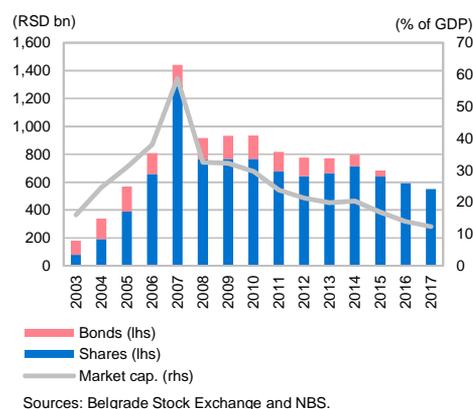
Total shares turnover in the BSE in 2017 amounted to RSD 8.3 bn, up by RSD 1.8 bn from 2016. The largest share turnover was recorded in the prime listing (RSD 3.9 bn).

**Chart III.2.5 EUR government bonds, outstanding stock**

(nominal value, EUR mn)



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



<sup>80</sup> MTP – multilateral trading platform.

The monthly share turnover ratio<sup>81</sup> is one of the indicators of market liquidity. The low average value of this ratio of only 0.07% in December 2017 suggests low BSE liquidity (Chart III.2.8). The ratio slightly dropped compared to 2016 (0.08%), and remained well below its pre-crisis value (1.3% in 2007). However, stock market liquidity is even more unfavourable, taking into account that the ratio of the monthly turnover of shares in total turnover also includes block trading which, being a one-off purchase of shares, is only registered on the BSE and does not reflect its actual liquidity.

The trend of a decreasing number of transactions in the BSE, which went further down compared to 2016, testifies to the still insufficient development of the capital market.

Foreign investor participation in total BSE turnover was 38.1% in 2017, down by 2.1 pp relative to 2016. Foreign investors were more active on the sale (41.4%) than on the purchase side (34.8%).

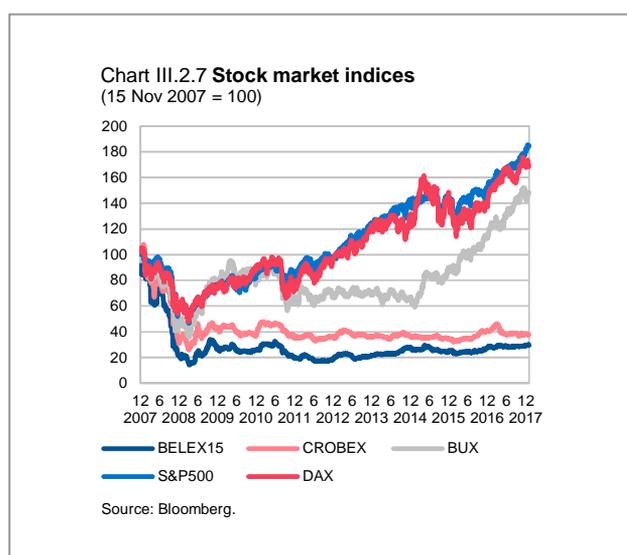
Bonds issued by the European Bank for Reconstruction and Development in the domestic market are also admitted to BSE prime listing. These three-year dinar bonds of individual nominal value of RSD 10 mn, and the total issue size of RSD 2.5 bn, were issued on 5 December 2016. These were the first dinar securities issued by an international financial institution in the domestic market. They were issued at a variable interest rate (0.4 pp plus 3m BELIBOR) and quarterly coupon payment. The issuance of these bonds was a new step

forward in the development of the Serbian capital market and provided additional support to the dinarisation process. In 2017, only one transaction of these bonds was recorded in the BSE.

Municipal bonds issued by the City of Šabac and the Municipality of Stara Pazova can be traded in the MTP segment of the BSE. However, these bonds were not traded in the BSE in 2017.

The corporate bond market is still quite underdeveloped, with only few enterprises that issued these bonds, chiefly at unfavourable terms. These bonds are not listed in the BSE. As corporate bonds are an alternative way to finance enterprises, which can be cheaper than borrowing from banks, the development of this segment can be very significant for domestic enterprises. Still, the development of this market requires activities that would contribute to higher supply of these instruments (e.g. lower costs of admission of these instruments to the regulated market), but also further development of domestic institutional investors (insurance undertakings, pension and investment funds) interested in corporate bonds.

To further improve the regulated capital market, domestic companies should be encouraged to finance their growth by collecting 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.



<sup>81</sup> It is calculated as the ratio of the total monthly shares turnover to the average stock market capitalisation at two points in time (the end of the month observed and the end of the previous month).

The development of new financial instruments can additionally contribute to further development of the domestic financial market. To increase investment of domestic natural persons, additional efforts need to be made to educate citizens. The improvement of current regulations and their alignment with the movements of the capital market at the EU level can also have additional positive effects on further development of the domestic financial market.

### III.3 Financial infrastructure

*Payment systems and systems for the settlement of financial instruments make up the financial market infrastructure, important for timely execution of payment transactions and financial instruments transfer transactions stemming from economic activities of various entities. A safe and efficient financial infrastructure is a prerequisite for the stability of the financial market and the financial system as a whole.*

Payment systems provide for the timely transfer of funds among participants in the system and processing, netting and/or settlement of payment transactions. Settlement systems carry out activities covering the transfer of financial instruments. They are linked to payment systems due to the need to settle the monetary part of transactions in respect of trading in financial instruments and ensuring DvP<sup>82</sup> mechanisms.

Payment systems performing processing and netting – the calculation of net settlement positions – are also important for strengthening public confidence in the domestic currency and a stable financial system. These systems are used to execute transfer orders whose participants' multilateral net positions, calculated in these systems, are settled in the NBS RTGS system in accordance with those systems' and the NBS RTGS system's operating rules. The following payment systems perform the processing and netting functions in the Serbian market: the NBS clearing payment system, NBS interbank FX clearing, NBS DinaCard payment system, ASB cheque clearing and ASB direct debit clearing.

Under the Law on Payment Services and the decision adopted based on that Law, the NBS RTGS and clearing payment systems are identified as important payment systems, significant for the stability of the overall financial system, where settlement finality is ensured in case of participants' inability to settle their liabilities. The

NBS Real Time Gross Settlement System (RTGS) is a payment system for the transfer of dinar funds among its participants in real time at gross principle, up to the level of coverage of funds in participants' accounts. Safe, sound and efficient functioning of the NBS RTGS payment system is of particular importance for ensuring the stability of the financial system of the Republic of Serbia. Its systemic importance lies in the fact that it is the only system for the transfer of funds in real time in the financial market, ensuring an efficient channel for the implementation of monetary policy measures, enabling the settlement of financial receivables and liabilities originating in other payment systems, and providing for the settlement of the financial part of transactions in respect of trading in financial instruments.

NBS RTGS system participants are able to adequately manage credit risk because settlement is carried out in real time and at gross principle. Given that the settlement of mutual transactions is carried out in central bank money, participants are not exposed to credit and liquidity risks arising from the settlement agent. On the other hand, to participate in the NBS clearing payment system, a participant is obliged to ensure a net debit cap.

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

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

	Average for period 2010–2016	2017
NBS RTGS		
Value, RSD bn	44,652.05	46,432.33
Number of payments, mn	135.60	154.00

Source: NBS.

<sup>82</sup> Delivery versus payment, the simultaneous transfer of financial instruments and funds.

Table III.3.2 RTGS payment indicators (network-level)

		Mean	Median	Max.	Min.	Std. dev.
Payments	Value (RSD mn)	59,581.53	60,656.50	73,574.67	51,890.93	6,055.01
	Number of transactions	15,388.84	15,662.43	17,592.73	13,258.32	1,105.63
	Average (RSD mn)	3.64	3.66	3.94	3.25	0.24
Network size	Nodes*	30.50	30.50	31.00	30.00	0.50
	Number of direct links	637.35	628.57	662.28	620.04	15.29
Distance measure	Avg. path length	1.24	1.24	1.28	1.21	0.02
Connectivity	Node degree	22.63	22.64	23.40	21.94	0.59
	Node out-degree	20.26	20.26	21.06	19.61	0.50
	Connectivity	65.54%	65.55%	68.35%	63.27%	1.80%
	Average clustering	81.86%	81.70%	84.39%	80.49%	1.24%
Others	Betweenness centrality	3.23%	3.23%	3.33%	3.23%	0.03%
	Dissimilarity index	0.38	0.30	0.58	0.27	0.12

\* Own calculations based on daily reports from the NBS RTGS system, for the period Jan-Dec 2017, interbank payments (MT202 and MT103), during December 2017.

Jubanka was active for 16 days.

Source: NBS.

A total of 154.0 mn payments were carried out through the NBS RTGS system in 2017, with total turnover amounting to RSD 46,432.33 bn. The highest monthly turnover was recorded in November (RSD 4,574.62 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 2017, RTGS turnover was around ten times the value of Serbia's GDP.

The availability of these systems in 2017 was at 100%, which is one of the factors supporting the stability of the financial market.

### 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 in the face of potential shocks, and the effects of shock transmission in the network.

Network characteristics were analysed using daily data for the January–December 2017 period, based on reports on interbank transactions in the NBS RTGS payment

system. During 252 business days, only MT202 and MT103<sup>83</sup> interbank messages were analysed and used for each business day to model separate networks. Table III.3.2 shows the results of the analysis and the values of indicators for the entire network.<sup>84</sup>

In 252 business days in 2017, for the observed sample of transactions (MT202 and MT103), the average daily turnover was RSD 59.6 bn and the average value per transaction – RSD 3.64 mn. The average daily number of transactions was 15,388.

The size of a financial network is defined by the number of its participants. The NBS RTGS payment system numbered 31 banks as active participants, and as of July 2017 – 30 banks.<sup>85</sup> The daily average of direct interbank links was around 637, which means that a large number of banks executed interbank transactions of MT202 and MT103 type on a daily basis. The average connectivity ratio of 65.54% was relatively high, which means that the interdependence of financial institutions was high as well, as indicated by the average path length of 1.24,<sup>86</sup> i.e. the mean value of shortest paths to any node.

Important parameters for analysing a network of this type are the mean value of the node degree and the value of the degree of out node, which denotes the number of

<sup>83</sup> Under the SWIFT standard, MT202 messages are used for the transfer of funds between payment system participants, and MT103 messages for single transfer order for the account of payment service users. In addition, MT102 messages – group orders for retail payments – are also executed in the NBS RTGS system.

<sup>84</sup> A detailed explanation of the indicators is contained in the Financial Stability Report for 2015, Text box 4 – Network modelling.

<sup>85</sup> At end-2017, 29 banks operated in the Serbian banking system, but Jubanka participated in the RTGS system for only 16 business days in December.

<sup>86</sup> 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 lengths for each node and the number of nodes,  $l = \frac{1}{n-1} \sum_i l_i$ .

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 20.26, which is relatively high given the total number of banks participating in the system.

The clustering coefficient, as the “potential” for clustering, was also high, averaging 81.86%, 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 betweenness centrality of 3.23% is rather low. However, following an analysis carried out in 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 mean of the dissimilarity index, which is used to compare the entire network from the perspective of all pairs of related nodes, equalled 0.38 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.

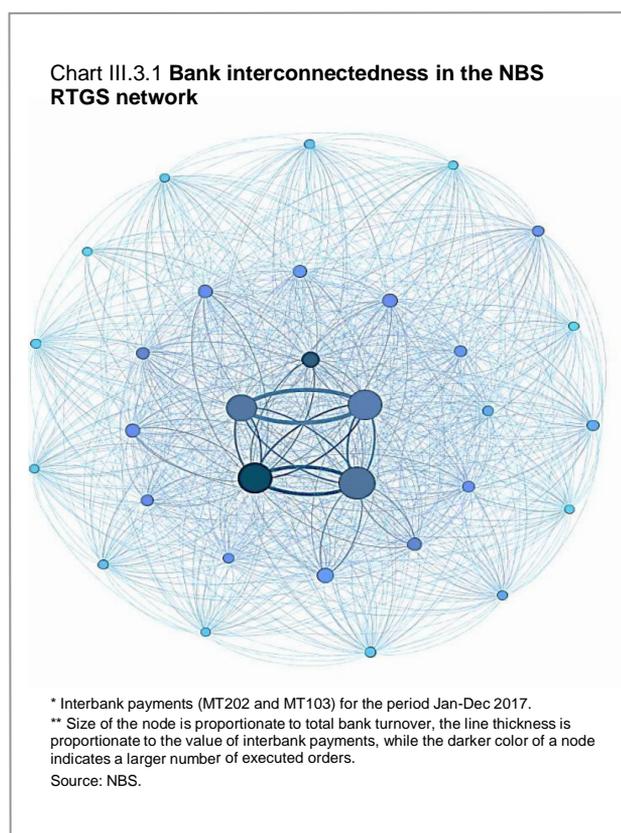
Network indicators used to describe the characteristics of the payment system network take into account interbank connectedness, while the turnover value in the form of a weight branch factor is also taken into account for the assessment of importance of a financial institution in the payment system 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

Given that a safe and efficient financial infrastructure is a prerequisite for the stability of the financial market and the entire financial system, it is particularly important to identify which banks are important payment system participants, given the impact of their potential inability to perform payment transactions on payment system stability.

Being 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<sup>87</sup> carried out in the NBS RTGS payment system during 2017, it is possible to identify groups of banks whose importance in the NBS RTGS system can be determined based on their position in the network. As Chart III.3.1 shows, a small number of



<sup>87</sup> January–December 2017, interbank payments (MT202 and MT103).

important nodes may be identified in the network, i.e. a small number of important participants in this payment system, which can be determined according to centrality measures (degree of an individual node, betweenness centrality, closeness centrality and prestige).

Network modelling of payment systems and the identification of systemically important participants are a suitable basis for implementing payment system stress tests. The ECB,<sup>88</sup> central banks and the IMF<sup>89</sup> include increasingly frequently in their publications the stress testing of the financial market infrastructure, taking into account the importance of the smooth operation of the financial infrastructure.

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 no wonder that central banks are particularly interested in ensuring its reliable and efficient functioning.

### Instant payments

In light of technological advancements and the development of telecommunications, there is an increasingly greater need to enable payments from anywhere at any time. Since business is crossing into the digital realm, particularly in the form of e-commerce, use of smartphones as multi-purpose devices, and integration of sales channels open 24/7/365 by merchants, payment service consumers expect to be provided with solutions that will allow them faster and more efficient payments.

The Euro Retail Payments Board has defined instant payments as electronic retail payment solutions that are available 24/7/365 and result in close-to-immediate crediting of the payee's account.<sup>90</sup> Besides the cost aspect, this is the second most important advantage of instant payments as compared to card payments. Recognising this as a major innovation in the retail payments market, the European Payments Council launched the SEPA Instant Credit Transfer scheme (SCT Inst) on 21 November 2017. A special working group headed by ECB representatives prepared the specification of user requests for new TARGET instant payment services, so as to overcome the differences between national solutions and build a digital single market, which is one of the priority projects of the European Commission.

In addition to the EU General Data Protection Regulation, which came into effect on 25 May 2018, and the PSD2 Directive,<sup>91</sup> which amended the directive on payment services in the EU internal market and came into effect in January 2018, an instant payment system (TIPS)<sup>92</sup> should be introduced in November 2018, which will also be available 24/7/365.

The NBS considers the introduction of an instant payment system a strategic objective in the field of payment systems, besides financial infrastructure modernisation, payment speed enhancement, and ensuring a uniform solution for access to financial services (financial inclusion).

In 2017, in step with European and global trends, the NBS started a project for establishing an instant payment system, which will also permit cashless transactions 24/7/365. This payment system will be introduced as an upgrade to the NBS RTGS payment system, which will ensure the necessary degree of connectedness between these two payment systems, since financial liabilities will be settled through accounts in the NBS RTGS system. The instant payment system is envisaged to be used for dinar payments, up to the set limit per transaction and the cap for individual transfer orders, which may be lower than the prescribed amount (RSD 300,000), and will be determined by commercial banks based on their own business policies. Access to the instant payment system will be given to all payment service providers, including payment institutions and electronic money institutions. The household and corporate sectors will be able to make payments by m-banking, e-banking and similar digital services, or make payments at the point of sale and/or by e-commerce, after which they will receive a payment confirmation, and the payee's account will be credited within a few seconds. This payment system is expected to be operational and available to all payment service providers and end consumers in October 2018.

Having an appropriate payment system infrastructure that supports instant payments will help increase the efficiency of cashless payments and reduce the share of cash payments, which will in turn suppress the grey economy in Serbia. The NBS plans to have an extremely low-priced tariff policy, considerably cheaper than for card payments, which will also encourage the development of instant payments as the most advanced form of payments so far.

<sup>88</sup> ECB, Stress-Testing of liquidity risk in TARGET2 (February 2017).

<sup>89</sup> Macrofinancial Stress Testing – Principles and Practices, IMF (2012).

<sup>90</sup> Pan-European instant payments in euro: definition, vision and way forward, ERPB, 2014.

<sup>91</sup> Payment Service Directive 2, Directive (EU) 2015/2366.

<sup>92</sup> TARGET Instant Payment Settlement.

## FinTech in financial market infrastructure

The development of technological innovations in financial services (FinTech) poses a new global challenge to the existing standards in the provision of financial services.

Digitisation of financial services implies the introduction of new technologies for the provision of financial services, among other things. Still, this process requires an adequate assessment of risks, which mostly pertain to cybersecurity and arise from the use of various non-standard technologies. On the other hand, this issue is further complicated by a lack of compliance between regulations and standards in this area. The use of technological innovations in financial market and payment system infrastructure should provide greater financial inclusion by facilitating access to financial services.

Some central banks are developing their own FinTech projects based on the concept of cryptocurrencies. They use blockchain technologies and artificial intelligence<sup>93</sup> in real-time gross settlement systems. At its April 2017 Summit, the G20 set as one of its priorities the necessity to engage in blockchain development.<sup>94</sup> Among other things discussed in the Summit was whether the G20 should establish the Central Banks Blockchain Consortium to study the monetary and fiscal policy implications of the rise of cryptocurrencies and other blockchain technologies.

The Organisation for Economic Cooperation and Development published in its report<sup>95</sup> that the frequency of cyber incidents and companies affected by such incidents is growing significantly. For this reason, the

Global Risk Report at the World Economic Forum 2017 recognised cyber risk as one of the most significant risks.

The European Securities and Markets Authority (ESMA), European Banking Authority (EBA) and European Insurance and Occupational Pensions Authority (EIOPA) issued in February 2018 a joint warning to consumers regarding the risks that may arise from the use of virtual currencies.<sup>96</sup> These authorities expressed their concern because an increasingly larger number of consumers are trading in virtual currencies, without being fully aware of the risks involved.

The European Commission, published a document on FinTech<sup>97</sup> in cooperation with the EBA and ECB. It is intended for the expert community, whose aim is to assess the advantages and risks arising from the use of these technologies from the aspect of financial stability.

The ECB and EBA are involved in the development of financial technology innovations, and in ensuring the minimum regulatory standards for protection against new risks stemming from innovations in the area of financial technology, particularly operational risks and risks related to cyber security.

The NBS continuously supports innovative solutions in the field of payment services. The Law on Payment Services is a suitable legal basis for both the introduction and provision of modern and high quality payment services, and for the testing of modern and innovative payment services. Accordingly, companies and entrepreneurs may test certain innovative payment models in a controlled environment, with the support of the NBS and its knowledge of such testing.

<sup>93</sup> The Bank of England has developed an artificial intelligence system to verify the quality of transaction-related data (<http://www.bankofengland.co.uk/publications/Documents/news/2017/029.pdf>).

<sup>94</sup> The G20 Countries Should Engage with Blockchain Technologies to Build an Inclusive, Transparent, and Accountable Digital Economy for All.

<sup>95</sup> Supporting an effective cyber insurance market, OECD report for the G7 presidency, May 2017.

<sup>96</sup> Virtual Currencies Warning.

<sup>97</sup> European Commission, Consultation document – “FinTech: A More Competitive and Innovative European Financial Sector”.

### **Text box 6: National DinaCard system**

The NBS manages the national DinaCard system. The national payment card successfully operates in the domestic market despite intense market competition. Its introduction was aimed at improving competition in the payment card market, curbing the grey economy and facilitating non-cash payments for citizens and corporates. In addition to managing the DinaCard system as its operator under the Law on Payment Services (RS Official Gazette, No 139/2014), the NBS is also mandated with the adoption of Operating Guidelines for the national card system as well as ensuring the improvement of its operation.

Around two million cards issued in the DinaCard system (around one third of the total number of issued cards in the country) may be used at all terminals in the acceptance network in Serbia – at more than 65,000 POS terminals and more than 2,700 ATMs. The system includes 25 banks operating with payment cards on the territory of the Republic of Serbia and seven processing companies<sup>98</sup>. The Law on Payment Services allows also other payment service providers to be the issuers and acquirers of DinaCard cards in the capacity of system members.

**The role of domestic card systems.** The existence of local card systems provides banks and other payment service providers with a better selection. Domestic card systems adjust better to the needs of domestic buyers and merchants, non-cash payments become more accessible both to citizens and corporates, and at the same time they contribute to financial inclusion.

The most significant advantage of national card systems is for sure their cost-efficiency. The available data are indicative of significantly lower payment costs for national cards in the domestic operations compared to the costs of using the international brand cards for payments in the country. Since more than 90% of all transactions in Serbia, as well as in Europe, are domestic transactions, the choice of domestic banks to dominantly issue national cards would mean significant savings opportunities for the banking sector. Considering that, as a rule, these costs, directly or indirectly, spill over to customers, costs paid by the community at large would be reduced. Furthermore, costs of transactions made by these cards in the country are not an outflow, but just the opposite, they support the national economy.

**DinaCard as a domestic card system.** DinaCard is a typical national card system in every respect. Owing to DinaCard, total card transaction costs in the market went down. Interbank commissions, on which the card-related costs of merchants depend, are considerably lower in the DinaCard system than in other systems. This enables banks and other payment service providers to offer the most favourable acceptance terms to merchants.

Reduction of merchant fees increased the number of points of sale where one can make an easy and fast card payment, without the need for using cash. In this way, DinaCard also contributes to domestic economic growth since a higher number of points of sale means higher private consumption and vice versa.

DinaCard has other advantages typical for national card systems. Since these are domestic systems, rules of operation for national payment cards are efficiently adjusted to the needs of the local market, and so the introduction of new services for card issuers is considerably more simple, faster and cheaper.

With a view to meeting the needs of domestic payment card users and merchants and offering modern, electronic substitute for the cheque, the largest DinaCard issuer introduced the possibility of paying with DinaCard debit cards in instalments, free of any fees and interests. In addition, DinaCard is the only card in our market which can be used for paying property tax for natural persons directly at the counters of the Treasury Administration of the Ministry of Finance free of commission, including other liabilities.

<sup>98</sup> <http://www.dinacard.nbs.rs/sr/index.html>.

As a result of cooperation with the Government of the Republic Serbia in the process of digitalisation of electronic services and establishment of non-cash community, liabilities to the government can be settled with DinaCard on the e-Government portal. In this way many administrative procedures have been simplified for citizens and corporates.

The NBS introduced a new service with the amendments to DinaCard system Operating Guidelines, known globally as cash back. This means that citizens paying for goods and services with the national payment card will now be able to simultaneously withdraw cash at that merchant's POS terminal.

Even though the national card is primarily intended for domestic activities, DinaCard can also be used abroad, depending on the issuer, at acceptance networks of Discover, Diners Club International, and Pulse, owing to the agreement on cooperation which the NBS signed with the Discover company.

In 2017, the NBS, as the operator of the national card system, signed the Memorandum on Cooperation with the company China UnionPay, which manages the largest card system in the world – Chinese national card system China UnionPay. The Memorandum establishes grounds for the future cooperation between national card systems of the Republic of Serbia and China. The cooperation will enable the following: acceptance of the UnionPay card in the entire acceptance network of the Republic of Serbia, acceptance of DinaCard abroad in the acceptance network of the UnionPay system and improvement of the DinaCard system in the use of new technologies.

The NBS invests efforts into making DinaCard a recognisable national brand, accepted by the citizens and corporates for its many advantages. In addition, the NBS will support a constant rise in the number of transactions and turnover in the DinaCard system through its regulatory activities, and by developing new functionalities of the national payment card. In this way, the NBS will be reduce the costs of card transactions for citizens, corporates and the financial sector and encourage non-cash payments.

### III.4 Real estate market

*Accepting real estate as loan collateral is a widespread practice in the Serbian banking sector. Hence, changes in the market value of real estate affect the quality of banks' loan portfolios. Consequently, the inability to adequately determine the value of real estate is one of the potential risks to the financial system. For this reason, the Law on Real Estate Valuers was adopted in late December 2016 and came into effect on 5 June 2017. In addition to the database on valuation of mortgaged real estate and loans secured by mortgage kept by the NBS, this Law is a solid foundation for further regulation of this field.*

The DOMex real estate index, published by Serbia's National Mortgage Insurance Corporation since 2012, reflects the purchase/sale prices of real estate financed by loans insured by the Corporation. In its calculations, DOMex does not include data on the prices of real estate financed by cash or loans not insured by the Corporation. Also, the calculation does not exclude the impact of qualitative changes in the composition of the real estate index through observed periods (e.g. new residential homes, number of rooms, number of storeys, type of heating system, energy efficiency, etc.).

DOMex is obtained by comparing the average of all prices per square metre in a specific territory over a particular period of time with the average of all prices per square metre in the same territory in the base period. As

measured by DOMex, real estate prices fluctuated after 2008, after which they started to decline. Since early 2016, real estate prices have been showing signs of recovery. DOMex for Serbia gained 3.1% in 2017, driven by the prices in Belgrade, which rose by 4.6%, pointing to a recovery of the real estate market. At end-2017, the average LTV for total initially insured loans stood at 67.4.

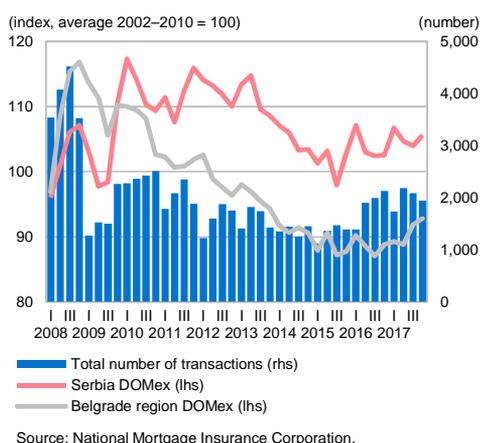
The average real estate price in Serbia equalled EUR 889 per square metre in Q4 2017. Prices were highest in the Belgrade region, averaging EUR 1,178.09 in Q4, the highest value in the last four years.

The year 2017 saw the sale of 7,936 apartments financed by loans insured by the Corporation – 7.3% more than in 2016, but almost two times less than in 2008 (15,650 apartments), when the greatest number of transactions was made since DOMex has been monitored. Out of the total number of apartments purchased by insured loans, almost one half (48.7%) were in Belgrade.

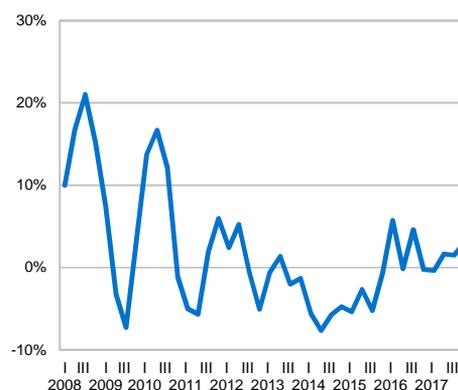
The number of real estate transactions increased as a result of both demand and supply factors.

The results of the lending survey confirmed that housing loan demand grew in 2017 and that banks expect this trend to continue in the period ahead. Banks assessed that demand rose owing to improvements in the general economic situation, as can be seen from wage and employment increases. Banks also assessed that they continued to relax standards for FX housing loans in 2017, that the terms for the approval of loans improved

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

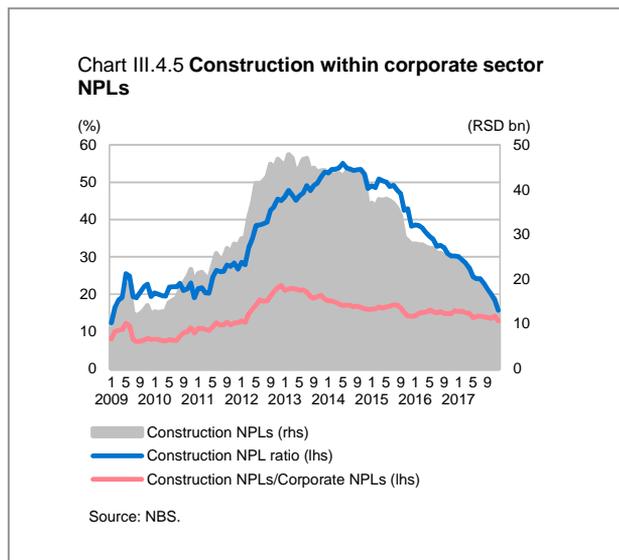
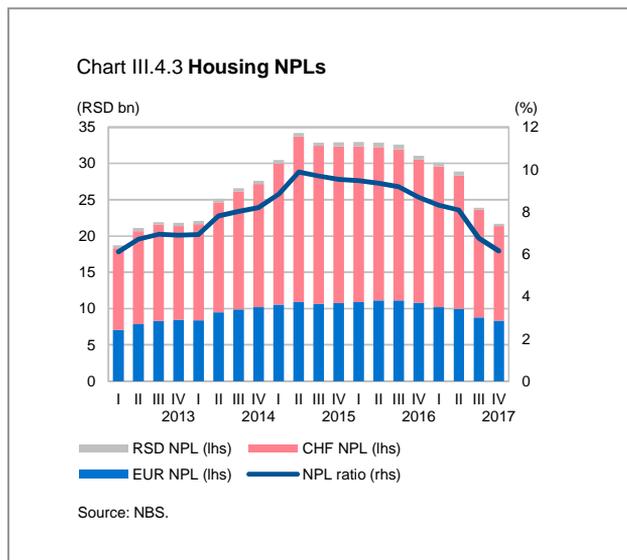


**Chart III.4.2 Real estate prices**  
(y-o-y growth rates, %)



Source: National Mortgage Insurance Corporation.

<sup>99</sup> [https://www.nbs.rs/internet/english/90/anketa\\_kab/index.html](https://www.nbs.rs/internet/english/90/anketa_kab/index.html).



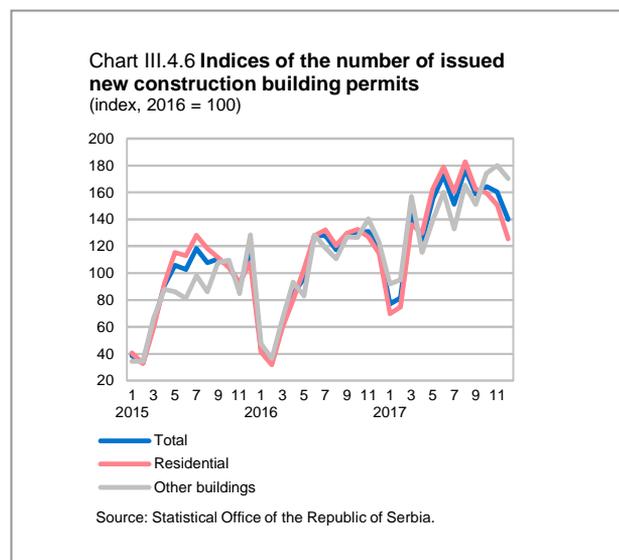
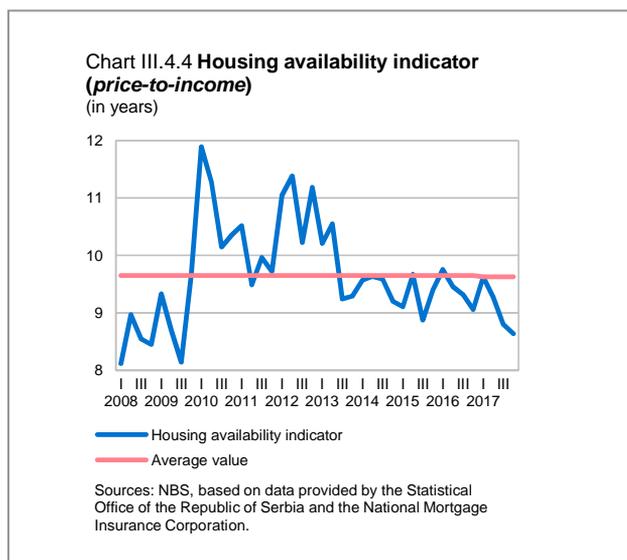
with the reduction in interest margins and associated costs, and that requirements regarding collateral were eased as well.

Apart from demand-side factors, the number of real estate transactions increased also on the back of the recovery in construction – a supply-side factor. The economic crisis brought about a contraction of construction activity, but as of 2015 this sector also embarked on a path of gradual recovery. According to the data of the Serbian Statistical Office for 2017, the value of total construction works performed in Serbia, at constant prices, rose by 5.2% relative to 2016, and the value of works performed on buildings by 8.1%. An increase was also recorded in the total number of permits issued for new construction (45.7%), for buildings (47.3%) and other construction (41.0%). Compared to 2016, the number of issued construction permits for

dwellings surged by 33.2%, and total apartment floor area – by 38.3%.

Another indicator signalling a recovery in construction in 2017 was growth of credit activity in this area. Project financing also rose, where, in addition to lending for the construction of residential buildings, banks also offered loans to citizens to purchase apartments in those buildings. NPLs also continued down, by 14.6 pp y-o-y.

The year 2017 saw a rise 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. Housing loan liabilities are regularly settled, making the rate of default on insured loans and the related risk relatively low. However, should there be an increase in defaults, a large number of real estate properties offered at



the market could precipitate a decline in real estate prices significantly below the 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 dinar price of an average 60m<sup>2</sup> apartment to the disposable income 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-2017, the price-to-income ratio equalled 8.6 years, which, although below its multi-year average (9.6), still indicates that a household earning an average income cannot afford to buy an apartment. This indicator decreased (from 9.1 years at end-2016 to 8.6 years at end-2017) owing to the rise in the average net wage, particularly in the private sector, further decline in unemployment, lower individual consumption expenditures, and to a lesser degree, the drop in dinar-denominated apartment prices due to the dinar's strengthening against the euro in 2017.

Inadequate real estate valuation poses a risk to banks, because by accepting real estate as loan collateral they are directly exposed to price fluctuations in the real estate market. In fact, poorly collateralised loans were one of the underlying causes of the global economic crisis, which undermined confidence in financial institutions. Regulating the profession of real estate valuers and using internationally accepted standards in real estate valuation were recognised in the NPL Resolution Strategy as a requirement for the improvement of efficiency of the real estate market in Serbia and reduction in the share of NPLs. The Law on Real Estate Valuers (RS Official Gazette, No 108/2016) was adopted in late December 2016 and came into effect on 5 June 2017. This Law regulates the conditions and manner of conducting real estate valuation by licensed valuers, as well as professional competences and licensing requirements for valuers. The Law also prescribes that real estate valuation must be carried out in compliance with the Law. The Law further regulates the supervision of real estate valuation, examination of work of licensed valuers, disciplinary responsibility of licensed valuers, the establishment and remit of the Professional Committee, accredited valuer associations, and other issues related to real estate valuation by licensed valuers. The adoption of this Law enhanced legal security, owing to the regulation of conditions, criteria and manner of carrying out this activity, and enabled reliable real estate valuation, which should in turn ensure greater efficiency

in the real estate market. According to the website of the Ministry of Finance, there are currently 85 registered licensed valuers (April 2018).

The Ministry of Finance also adopted the Rulebook on national standards, code of ethics and rules of professional conduct of licensed valuers (RS Official Gazette, No 70/2017 of 20 July 2017). The national standards and code of ethics are based on international valuation standards issued by the European Group of Valuers' Associations (TEGoVA), Royal Institution of Chartered Surveyors (RICS) and International Valuation Standards Council (IVSC).

At end-2015 the NBS set up a database on mortgaged real estate valuations and loans secured by mortgage so as to create conditions for reliable real estate valuation and more precise perception of credit risk, which is important from the standpoint of preserving and strengthening the stability of the Serbian financial system. In addition, the real estate database facilitates the work of all stakeholders that are directly or indirectly linked with real estate valuation, and it particularly helps licensed valuers. Based on the Law on Real Estate Valuers, the NBS adopted the new Decision on Contents, Deadlines and Method of Submission of Reports on Valuation of Mortgaged Real Estate and Loans Secured by Mortgage (RS Official Gazette, No 55/2017), which entered into force on 5 June 2017. The Decision prescribes that licensed valuers may inspect the database electronically, based on a request filed with the NBS. Access to this database improved the quality of real estate valuation, which reduces the risk of new NPLs and contributes to the development of the market of NPLs secured by property mortgage.

The Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, Nos 34/2011 and 114/2017), adopted in 2011, introduced the LTV limit at 80% for housing loans in foreign currency or indexed to a foreign currency. The Decision prescribes that banks may approve mortgage loans to natural persons provided that the amount of the loan does not exceed 80% of the value of the property mortgaged as determined by a certified valuer and reduced by the amount of other receivables secured by the first-rank mortgage over the same property. The amendments to this Decision from December 2017 introduced an exception, reducing the LTV limit to 90% of the value of the property mortgaged if the loan is approved as a government-support measure for certain groups of natural persons.



## IV Financial stability

### IV.1 Regulatory framework as support to financial stability

#### IV.1.1 Macroprudential policy

The most recent financial crisis has shown that financial instability can cause enormous costs to the financial system, public finances and the overall economy of a country. The development of a new area of public policy – macroprudential policy – has accelerated both at the international and national levels. The objective of this policy is to safeguard and strengthen financial stability using an appropriate combination of instruments aimed at limiting systemic risks in the financial system.

The Republic of Serbia has taken timely steps toward the development of macroprudential policy and in 2010 determined its policy makers. Article 4, item 3) of the Law on the National Bank of Serbia (RS Official Gazette, Nos 72/2003, 55/2004, 85/2005, 44/2010, 76/2012, 106/2012, 14/2015 and 40/2015 – CC Decision) prescribes that the NBS determines and implements, within its scope of authority, the activities and measures aimed at maintaining and strengthening the stability of the financial system. This legal mandate enables the NBS to achieve one of its primary objectives – maintaining and strengthening the stability of the financial system

(Article 3, paragraph 2 of the Law on the National Bank of Serbia).

As this legal mandate of the NBS is defined by law in a broad sense, it was necessary to define the ultimate, primary and intermediate objectives of macroprudential policy and the tools for their implementation. To this end, in March 2015 the NBS published a consultation document Macroprudential Framework.<sup>100</sup> This document sets out in detail the objectives, instruments and decision-making process of macroprudential policy.

The publishing of the Macroprudential Framework was followed by the adoption of the regulations transposing the Basel III regulatory standards<sup>101</sup> into the domestic legal framework for banks. These standards set out in detail the application of capital buffers. In accordance with the Strategy for Implementation of Basel III Standards in Serbia, at its meeting held on 15 December 2016 the NBS Executive Board adopted a set of regulations, which came into effect on 30 June 2017.<sup>102</sup> An integral part of this set of regulations is the Decision on Capital Adequacy of Banks (RS Official Gazette, No 103/2016), which regulates capital buffers – additional CET 1 capital that banks are obligated to keep above the prescribed regulatory minimum to limit systemic risks in the financial system. The same Decision lowered the minimum capital adequacy ratio from 12% to 8% of risk-

<sup>100</sup> [http://www.nbs.rs/internet/english/18/macprudential\\_framework\\_201503.pdf](http://www.nbs.rs/internet/english/18/macprudential_framework_201503.pdf).

<sup>101</sup> For more information about Basel III, see the Annual Financial Stability Report for 2011, National Bank of Serbia, 2012, pp. 75–77 ([http://www.nbs.rs/internet/english/90/90\\_2/fsr\\_2011.pdf](http://www.nbs.rs/internet/english/90/90_2/fsr_2011.pdf)).

<sup>102</sup> This set of regulations includes the decisions adopted by the NBS and published in the RS Official Gazette, No 103/16 of 22 December 2016: 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 by Banks. These decisions largely transpose the CRD IV/CRR package into Serbian law. This package includes Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (CRD IV) and 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).

weighted assets of a bank. In addition to capital requirements, this set of regulations, specifically the Decision on Liquidity Risk Management by Banks (RS Official Gazette, No 103/2016) introduced a new liquidity requirement in accordance with Basel III – Liquidity Coverage Ratio. In this way, domestic regulations specified both new capital requirements and new liquidity requirements under Basel III.

The Decision on Capital Adequacy of Banks prescribes the application of the following capital buffers:

- capital conservation buffer,
- countercyclical buffer,
- capital buffer for global systemically important banks,
- capital buffer for systemically important banks, and
- systemic risk buffer.

Capital conservation buffer is the requirement for a bank to maintain additional CET 1 capital equal at 2.5% of its total risk-weighted assets. This buffer was first introduced into the Serbian regulatory framework by the Decision on Capital Adequacy of Banks from 2011. However, the new regulations set out that this buffer may be maintained exclusively in the form of CET 1 capital, which is the highest quality capital.

Countercyclical capital buffer is an additional buffer of CET 1 capital, introduced during periods of excessive credit growth to improve the resilience of the banking sector and reduce the possibility of a financial crisis outbreak. The rate of this buffer can be set between 0% and 2.5% of risk-weighted assets of a bank, though it can be higher in exceptional circumstances (see Text box 1). The Decision on the Countercyclical Buffer Rate for the Republic of Serbia (RS Official Gazette, No 58/2017) of 8 June 2017 set this buffer at 0% as of 30 June 2017. This rate remained unchanged throughout 2017. The NBS sets the countercyclical buffer rate on a quarterly basis, taking into account the buffer guide, relevant guidelines and recommendations of the European Systemic Risk Board, and other variables it considers relevant for the monitoring of the cyclical dimension of systemic risk. The buffer guide is calculated based on the deviation of the credit-to-GDP ratio from its long-term trend. Besides the credit-to-GDP gap, the countercyclical buffer rate for the Republic of Serbia is set based on additional optional indicators, in line with the recommendation of the European Systemic Risk Board. To monitor credit activity, additional indicators are used, which reveal the characteristics of the domestic financial system related to the real estate market, external imbalances and banking sector trends.

Capital buffer for global systemically important banks is an additional buffer of CET 1 capital, which an institution, recognised under the established requirements and prescribed methodology as a global systemically important institution, must maintain on a consolidated basis. The rate of this buffer may be between 1% and 3.5% of risk-weighted assets. This buffer will be applied in Serbia as of the date of its accession to the EU.

Capital buffer for systemically important banks is an instrument under which banks recognised as systemically important for Serbia may be required to maintain additional CET 1 capital in the amount of 0–2% of risk-weighted assets. Systemic importance is assessed based on at least one of the following criteria: a bank's size, its importance for the Serbian economy – its substitutability in the financial system, its interconnectedness with the financial system, complexity of its operations and its cross-border activities. The capital buffer for systemically important banks was set in June 2017 in Serbia, and the list of systemically important banks was published on the NBS website. Two capital buffer rates for systemically important banks were applied – 1% and 2% of a bank's risk-weighted assets. The Methodology for identification of systemically important banks and the above rates is reviewed at least once per year. In this way, the structural systemic risk of systemic importance is limited.

Systemic risk buffer is an additional CET 1 capital buffer maintained by a bank to prevent and mitigate long-term non-cyclical systemic risks (see Text box 2). The rate of this buffer may be at least 1% based on exposures in the Republic of Serbia or another country to which this buffer applies, and may be introduced for one, more or all banks, with uniform or differentiated rates. The systemic risk buffer was set by the Decision on the Rate and Manner of Maintaining the Systemic Risk Buffer (RS Official Gazette, Nos 58/2017 and 3/2018) in June 2017 with the aim of limiting the systemic risk caused by euroisation. Since euroisation is a key structural systemic risk, a decision was made that all banks headquartered in the Republic of Serbia with the degree of euroisation exceeding 10% must maintain a systemic risk buffer at the level of 3% of foreign currency and foreign currency-indexed loans to corporates and households in the Republic of Serbia. This capital requirement is calculated based on foreign currency and foreign currency-indexed loans, which is expected to further encourage banks to reduce their exposure to systemic risk caused by euroisation, since the level of capital requirements will decline if they reduce the amount of those loans.

Adoption of regulations on the above mentioned capital buffers helps to contain systemic risks in the financial system and strengthen legal security of participants in the Serbian banking market. At the same time, domestic legislation is being aligned with the Basel III regulatory standards and *acquis communautaire*.

#### IV.1.2 Regulatory measures to contain systemic risks

In its Annual Financial Stability Report the NBS outlines measures that can be taken to contain the key systemic risks identified in our financial system. 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 should be contained.

##### Non-performing loans

A high level of NPLs is both a systemic risk in the financial system from the macroprudential standpoint, and a micro-risk to individual institutions (microprudential aspect).

Non-performing loans are not a problem of a financial system alone, but a drag on the overall economy as well, since their high share negatively affects 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.<sup>103</sup> Given that our banking system is adequately capitalised and highly liquid, and that non-performing loans are fully covered by provisions for estimated losses that may arise from balance sheet assets (December 2017 – 133.2%), the negative impact on credit activity materialises through banks' aversion to risk, an effect that is found even in highly 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.

A high level of NPLs in the pre-crisis period indicates that risk management in financial institutions was inadequate even before the outbreak of the crisis and that the crisis only aggravated the problem. Though the increase in the

Table IV.1.1 Recommendations

No	Brief description
1/2013/2014	<i>Draft plans to reduce the share of NPLs</i>
3/2013/2015/2016	<i>Promote the framework for consensual financial restructuring</i>
6/2013	<i>Strengthen domestic dinar sources of funding</i>
8/2013	<i>Consider introducing different insured amounts and insurance premiums for FX and dinar deposits</i>
1/2015	<i>Simulate annuity plans to interest and exchange rate risks</i>

Source: NBS.

NPL share is one of the typical consequences<sup>104</sup> of financial crises, when approving loans, banks need to take into account a wide spectrum of risks, given the systemic component that materialises during financial crises. Therefore, in carrying the burden and choosing the manner of NPL resolution, a focus should primarily be placed on the causes of high NPL levels, some of which existed even at the time of loan approval, while the regulatory authorities need to stimulate this process by their decisions.

The importance of NPL resolution was also recognised within the three-year stand-by arrangement concluded with the IMF. By the Memorandum on Economic and Financial Policies, the Serbian Government committed to develop a comprehensive NPL resolution strategy.

The share of gross NPLs in total loans in our banking system at end-December 2017 measured 9.8%, down by 7.2 pp from end-2016. The marked decrease in the level of NPLs, which is for the first time below the pre-crisis level (December 2008 – 11.28%), is a result of the comprehensive NPL Resolution Strategy (hereinafter: Strategy),<sup>105</sup> which was prepared in cooperation between relevant ministries and the NBS and adopted in August 2015, and the NBS Action Plan, which was adopted immediately thereafter to implement the Strategy.

Two action plans were prepared – one by the Government and one by the NBS. The action plans set out a broad range of activities that relevant authorities should carry

<sup>103</sup> David Woo (2000) Two Approaches to Resolving Nonperforming Assets during Financial Crises, page 3.

<sup>104</sup> A high share of NPLs can at the same time be the cause of a financial crisis; such was the case in 2008 when the materialisation of credit risk in the subprime mortgage market triggered a global financial crisis.

<sup>105</sup> RS Official Gazette, No 72/2015.

out to accomplish the objectives of the Strategy. The NBS Action Plan was carried out in full, and many activities from the Government's Action Plan have been completed or are drawing to a close. The results of these activities are reflected primarily in the significant decline in the share of NPLs in total loans in 2017.

As part of the implementation of the Government's Action Plan, among other things, the following laws were adopted in 2017: Law Amending the Law on Bankruptcy (RS Official Gazette, No 113/2017), Law Amending the Law on Personal Income Tax (RS Official Gazette, No 113/2017) and Law Amending the Law on Corporate Income Tax (RS Official Gazette, No 113/2017). The Law on Real Estate Valuers (RS Official Gazette, No 108/2016) was adopted in 2016 and came into effect on 5 June 2017. Last year also saw the adoption of the Authentic Interpretation of Article 48 of the Law on Enforcement and Security (RS Official Gazette, No 113/2017). The following laws were also adopted earlier: the new Law on Consensual Financial Restructuring (RS Official Gazette, No 89/2015), Law Amending the Law on the Bankruptcy Supervision Agency (RS Official Gazette, No 89/2015), and Law Amending the Law on Mortgages (RS Official Gazette, No 60/2015). Also, the Law on Organisation of Courts (RS Official Gazette, No 106/2015) and the Court Rules of Procedure (RS Official Gazette, Nos 39/2016 and 56/2016) were amended. In addition, draft national standards for real estate valuation were prepared, as were draft amendments to the Civil Procedure Law. Also, the EBRD performed the analysis of existing obstacles to the sale of NPLs in Serbia.

The NBS Action Plan defines specific activities that the central bank should undertake and the deadlines for their implementation, primarily in the segment of improving bank capacities to resolve the issue of NPLs. With that aim, key activities in the Action Plan relate to improvements in the field of bank supervision and application of the International Accounting Standards in banks, disclosure of data by banks, and support to sound valuation of mortgaged real estate.

Of the regulatory measures adopted in 2017, the one that had the greatest impact on the reduction in the share of NPLs was the mandatory accounting write-off of an NPL in the event that the calculated amount of impairment of the loan recorded by the bank in favour of allowances for

impairment equals 100% of its gross book value. This measure was prescribed by the Decision on the Accounting Write-Off of Bank Balance Sheet Assets (RS Official Gazette, No 77/2017) in August 2017, in effect as of 30 September 2017. As a result of its application, over RSD 100 bn worth of NPLs was written off in 2017, making up over 70% of the total drop in NPLs that year, which measured RSD 140.8 bn (see Text box 7). Also, in December 2017 the NBS adopted the Decision Amending the Decision on the Classification of Bank Balance Sheet Assets and Off-Balance Sheet Items (RS Official Gazette, No 114/2017) to specify the regulatory treatment of certain legal transactions related to NPLs, such as the purchase of an NPL using a loan from a bank whose portfolio contains that NPL, etc. In this way, the NBS enabled the assessment of risk of legal transactions based on their economic substance rather than legal form. In December 2017, the NBS adopted the Decision Amending the Decision on Risk Management by Banks (RS Official Gazette, No 119/2017), which, among other things, regulates reporting to the NBS on the origin of funds used to pay the price for the assigned receivable, and if the bank is providing those funds indirectly or directly – reporting on the manner in which the funds were provided and the amount of funds in the specific assignment, as well as data on all bank's receivables to the person to which the bank intends to assign the receivable. The same Decision also prescribed the obligation of the bank, in the period of 180 days from the day of submission of the notification of the assignment of the receivable, to notify the NBS without delay of any change in data relating to the indirect or direct provision by the bank of funds used for paying the fee for the assigned receivable, and of all loans approved to the person to which the receivable is assigned. In 2017 the NBS also adopted a set of regulations enabling the application of the International Financial Reporting Standard 9 (IFRS 9) as of 1 January 2018. This set of regulations includes the Decision on Forms and Content of Items in Financial Statement Forms to Be Completed by Banks (RS Official Gazette, No 101/2017), Decision Amending the Decision on the Chart of Accounts and Contents of Accounts in the Chart of Accounts for Banks (RS Official Gazette, No 101/2017), Decision on the Collection, Processing and Submission of Data on the Balance and Structure of Accounts in the Chart of Accounts (RS Official Gazette, No 101/2017), Decision Amending the Decision on Reporting Requirements for Banks (RS Official Gazette,

No 101/2017) and Decision Amending the Decision on the Classification of Bank Balance Sheet Assets and Off-balance Sheet Items (RS Official Gazette, No 101/2017).

Also, in the previous period, in accordance with the NBS Action Plan (and within the deadlines set by that plan), the NBS developed and published the Guidelines on supervisory expectations with regard to determining the impairment of receivables in banks' balance sheets in accordance with IAS 39.<sup>106</sup> The objective of the Guidelines was to lay out supervisory expectations regarding the application of IAS 39 by banks, in view of the fact that the International Financial Reporting Standards are based on general principles that need to be set out in more detail.<sup>107</sup> The NBS also developed a report on the possibilities for and obstacles to liberalisation of assignment of retail NPLs and other issues within the remit of the NBS that are relevant for NPL market development and a plan for strengthening the capacity of the NBS in the area of application of the International Accounting Standards. In relation to the development of the NPL market, the NBS adopted the Decision Amending the Decision on Risk Management by Banks (RS Official Gazette, No 61/2016), expanding the range of receivables from legal persons that banks can assign to other legal persons. These amendments enabled assignment not only of due receivables of legal persons, but also of receivables of legal persons that are not yet due but are considered non-performing in accordance with the decision governing the classification of bank balance sheet assets and off-balance sheet items. The NBS also prepared the report on possibilities for strengthening supervisory requirements concerning the treatment of collateral and improved the supervisory requirements relating to this area. Specifically, the Decision Amending the Decision on Risk Management by Banks (RS Official Gazette, No 61/2016) also prescribed the requirements that banks must meet to start monitoring the quality of collateral and the work of appraisers of that collateral. The Decision Amending the Decision on the Classification of Bank Balance Sheet Assets and Off-Balance Sheet Items (RS Official Gazette, No 61/2016) was also adopted in the previous period, which improved the regulatory framework for treatment of forborne exposures with a view to encouraging sustainable restructuring practices and preventing evergreening. These amendments introduced new definitions of non-performing and forborne exposures, in accordance with

the technical standards of the European Banking Authority.<sup>108</sup> The amendments also prescribed additional classification requirements with the aim of additional monitoring of asset quality, i.e. they set out the obligation for banks to classify exposures into: performing exposures, non-performing exposures, forborne performing exposures, and forborne non-performing exposures, whereas the conditions and time required for the transfer of exposures from one category to another were specified in more detail. Amendments to the same Decision (RS Official Gazette, No 69/2016) enabled banks to use the model for the reduction or removal of the amount of required reserves for estimated losses depending on the reduction, i.e. the share of NPLs in the banks' portfolios. In addition to the above, the Decision Amending the Decision on Risk Management by Banks (RS Official Gazette, No 61/2016) improved the process of managing bad assets in banks – it introduced the concept of bad assets, prescribed the content of the strategy, policy and procedures for managing risks in the part that relates to bad asset management, and set out the obligation for banks to establish organisational units for managing bad assets. To more efficiently manage bad assets, banks were also imposed the obligation to classify bad assets according to clear criteria, in accordance with the scope, type and complexity of the bank's operations, the bank's risk profile and the level of its bad assets. In addition, they were imposed the obligation, during the implementation of restructuring measures, to assess whether loan restructuring by individual debtor is economically justified, and to specify a restructuring plan and regularly monitor its implementation and effects.

In order to improve the system of reporting on NPLs, Decisions Amending the Decision on Reporting Requirements for Banks (RS Official Gazette, Nos 111/2015, 61/2016) were adopted, imposing an obligation on banks to submit to the NBS data on the value of collateral received on non-performing loans, interest receivables, highest exposures arising from NPLs, and accompanying data on non-performing exposures and forborne exposures in accordance with the decision governing the classification of bank balance sheet assets and off-balance sheet items.

In relation to the disclosure of data and information by banks, on 12 August 2016 the NBS published the Guidelines for Disclosure of Bank Data and Information

<sup>106</sup> IAS 39 outlines the requirements for the recognition and measurement of financial assets, financial liabilities and some contracts to buy or sell non-financial items.

<sup>107</sup> [https://www.nbs.rs/internet/english/55/smernice/smernice\\_MRS39\\_e.pdf](https://www.nbs.rs/internet/english/55/smernice/smernice_MRS39_e.pdf).

<sup>108</sup> EBA final draft Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013.

Related to the Quality of Assets. The Guidelines aim to raise transparency of bank operations and to improve the practices of disclosure of bank data and information concerning credit risk and credit risk management, in order to provide appropriate, accurate and timely data and information to interested beneficiaries.

Given that reliable real estate valuation is important for monitoring credit risk in the banking sector, since by accepting real estate as loan collateral banks are directly exposed to the risk of changes to their prices, in November 2015, the NBS adopted the Decision on Submission of Data on Valuation of Mortgaged Real Estate and Loans Secured by Mortgage (RS Official Gazette, No 93/2015), and Guidelines on electronic exchange of data between banks and the NBS. In this way, a database was set up on valuation of mortgaged real estate and loans secured by mortgage. In June 2017, the NBS adopted the new Decision on Contents, Deadlines and Method of Submission of Reports on Valuation of Mortgaged Real Estate and Loans Secured by Mortgage (RS Official Gazette, No 55/2017), which, in accordance with the Law on Real Estate Valuers (RS Official Gazette, No 108/2016), allowed access to the database to licensed real estate valuers, whose work and licensing are governed by that Law. General Terms for Accessing Real Estate Valuation Data in the Database on Real Estate Valuations by Certified Valuers were also adopted. The adopted Decision and General Terms govern in detail the conditions and manner of access, and rights and obligations relating to licensed valuers' access to the database.

All the above activities supported efforts made by banks to reduce the share of NPLs through sale, write-off, restructuring and collection. These measures are expected to continue to show results in the future.

Presented below are recommendations whose implementation could additionally help in decreasing the share of NPLs.

**1/2013/2014 Banks to draft plans to reduce the share of NPLs.** The Decision Amending the Decision on Risk Management by Banks improved the process of managing bad assets in banks. The process can further be improved by preparing specific plans to reduce the share of NPLs. Below are some elements that 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;
- method of decreasing the NPL share (sale, write-off, restructuring or enforced collection of receivables);
- sources of funding: 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.

**3/2013/2015/2016 Promote the framework for consensual financial restructuring of companies.**

In order to improve the process of consensual financial restructuring of companies, a working group was set up in January 2015 to prepare the Draft Law on Amendments to the Law on Consensual Financial Restructuring of Companies. The working group successfully completed the task and drafted a new Law on Consensual Financial Restructuring, which was adopted in October 2015 and published in the RS Official Gazette, No 89/2015. By adopting this Law, an obligation from the NPL Resolution Strategy, specifically, the Government's Action Plan, was met – to speed up and simplify the procedure of consensual financial restructuring and allow entrepreneurs to apply for this procedure. Some of the novel solutions introduced by the Law are as follows:

- the Law allows entrepreneurs, as well as companies, to take part in the procedure of consensual financial restructuring, broadening the circle of potential participants, and to benefit from the procedure;

- relaxation of the requirements for consensual financial restructuring, i.e. the “two banks condition”, by allowing domestic development institutions to participate instead of banks, and one of the banks to be replaced by an institution or domestic bank in bankruptcy or liquidation; hence the circle of potential debtors to which the procedure may be applied is broadened, which was one of the objectives of developing the new Law;

- the two banks condition was changed to one bank condition in case of entrepreneurs in order to enable more entrepreneurs to engage in the procedure, given that entrepreneurs are often debtors of a single bank;

- debt standstill agreement is set forth as a possibility, not an obligation, in order to adhere to the principle of the voluntary nature of the procedure;

- provisions on the continuity of the pledge were kept to ensure preservation of collateral in creditors' possession before the restructuring.

It is evident that the new Law has considerably improved the procedure of consensual financial restructuring. However, efforts need to be invested in the promotion of the procedure and education of corporates and other stakeholders. For that reason, the above recommendation was retained in the segment relating to the promotion of the framework of consensual financial restructuring. The NBS has always taken active part in various initiatives aimed at promoting and developing the consensual financial restructuring procedure.

**1/2015 Simulate annuity plans for interest rate risk and FX risk.** When informing clients about the terms of the loan, banks should create two alternative plans for loan repayment in order to reduce the possibility of creation of new NPLs. One plan applies to loans with a variable interest rate, in which case an increase in the interest rate should be assumed after a certain period (depending on the loan maturity). It should be made clear to clients by how much their monthly annuity and their total debt would rise in case of a sudden increase in the interest rate. The other plan applies to loans indexed to a foreign currency, in which case the depreciation of the dinar should be assumed after a certain period (depending on the loan maturity). It should be made clear to clients by how much their monthly annuity and their total debt would increase in case of a sudden strong depreciation of the dinar.

### **Cross-border deleveraging of banks**

Around three-quarters of the Serbian banking sector assets are held by foreign-owned banks (77%). Of the 29 banks that operated at end-2017, 21 are foreign-owned and hold 82.4% of total loans and 74.7% of total deposits. Most of those banks are members of cross-border banking groups. Prior to the global financial crisis in 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 a situation where the reversed flow of capital would cause financial instability 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 countries of Central, Eastern and Southeastern Europe. 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 January 2010, whose goal was no longer to maintain exposure, but to coordinate deleveraging of foreign banking groups. It became obvious by then that the domestic financial system could not rely on external sources of funding alone and that domestic sources needed to be strengthened as well. In December 2017, cross-border liabilities of the banking sector made up 11.9% of its total liabilities, which is an increase of 1.1 pp relative to end-2016 (10.8%). This rise points to mild growth in cross-border borrowing by domestic banks compared to 2016, and is a result of the business models of both domestic banks and their foreign creditors. Cross-border debt should be monitored in the coming period as well, so as to assess whether debt will rise or fall further, which was the prevailing trend following the global financial crisis.

**Recommendation 6/2013 Strengthen domestic dinar sources of funding.** Relying on domestic sources of funding, notably dinar sources, limits exposure to external risks. Also, developed 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 euroisation**

A euroised financial system implies a systemic risk that can materialise in the event of a sudden depreciation of the domestic currency. Such a scenario would lead to a very fast increase in foreign currency liabilities, expressed in the local currency, and considering that most borrowers receive their income in the local currency, their debt would suddenly go up. In this way, FX systemic 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 to 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, in March 2012, the Government of the Republic of Serbia and the NBS signed the Memorandum on the Strategy of Dinarisation of the Serbian Financial System, which rests on three main pillars:

- monetary and fiscal policy measures to strengthen the macroeconomic environment by securing low and stable inflation, coupled with a managed floating exchange rate regime and sustainable economic growth;
- development of the market of dinar securities and the creation of conditions for the introduction of new dinar products;
- development of FX hedging instruments.

At end-2017, the dinarisation of the domestic financial system, measured as the share of dinar loans in total corporate and household lending, equalled 33.0% (up by 1.8 pp from end-2016), and measured as the share of dinar deposits in total corporate and household deposits – 30.8% (up by 2 pp from end-2016). Both of these indicators point to a trend of gradual but stable growth, implying greater confidence of citizens in the domestic currency.

In addition, 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). The Decision set out measures aimed at mitigating risk in the financial system arising from a high share of loans approved in a foreign currency or in dinars indexed to a foreign currency. The Decision prescribed the following three measures:

- the LTV (Loan-to-Value) limit was introduced at 80% for housing loans in foreign currency or indexed to a foreign currency;
- a bank is allowed to approve loans indexed to a foreign currency to natural persons only if the currency is euro;
- mandatory downpayment or deposit of 30% for loans approved to natural persons indexed to a foreign currency

or in foreign currency, whereas this obligation does not relate to credit cards.

The Decision Amending the Decision on Measures for Safeguarding and Strengthening Stability of the Financial System (RS Official Gazette, No 114/2017) adopted in December 2017 introduced an exception, increasing the LTV limit to 90% if the loan is approved as a government-support measure for certain groups of natural persons. The same Decision aligned the definition of licensed valuer with the Law on Real Estate Valuers.

We recommend the following in support of the above activities:

**8/2013 Consider introducing different insured amounts and insurance premiums for foreign currency and dinar deposits.** The Law on Deposit Insurance envisages the same insured amount for both foreign currency and dinar deposits. Since requests for withdrawal of deposits from insurance are often filed during a systemic crisis, when the domestic currency can weaken considerably, in those cases 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 foreign currency deposits even though they entail a higher risk for the insurer. Namely, the risk of occurrence of the insured event is higher for foreign currency than for dinar deposits, as there is no FX risk related to dinar sources of funding. In relation to this, it would be useful to separate premiums and insured amounts of insured deposits by deposit currency. In this context, it is possible to increase the insured amounts for dinar deposits, thus encouraging dinar savings, without changing the level of the insured amount for FX deposits.

### Text box 7: Assessment of effects of activities envisaged by the NPL Resolution Strategy

The implementation of measures defined by the comprehensive NPL Resolution Strategy, adopted in August 2015, and the accompanying action plans of the NBS and Government, had a decisive impact on the share of NPLs in total loans in 2017. Owing to the success of measures implemented in the context of the Strategy as well as lending growth, achieved despite significant NPL write-offs and assignments, the share of NPLs in total loans of the banking sector went down sharply, reaching the pre-crisis level at end-2017.

The NPL level fell by RSD 222.4 bn since the implementation of the Strategy. At end-December 2017, the share of NPLs in total loans was 9.8%, down by 12.4 pp from August 2015, when the Strategy was adopted, and by 7.2 pp relative to end-2016.

Among the factors determining the movement in the general level and share of NPLs in total loans (Chart O.7.1), we may underscore banks' stepped-up activity within the following three channels, by contribution:

1) collection (impact on a reduction in NPLs by a total of RSD 198.3 bn since the start of implementation of the Strategy, of which RSD 69.4 bn in 2017);

2) direct write-off (impact on a reduction in NPLs by a total of RSD 150.7 bn since the start of implementation of the Strategy, of which RSD 100.1 bn in 2017);

3) assignment (impact on a reduction in NPLs by a total of RSD 58.0 bn since the start of implementation of the Strategy, of which RSD 24.5 bn in 2017).

The implementation of the Strategy was particularly conducive to NPL write-off and assignment to non-banking sector entities. The contribution of these measures to the reduction in the NPL ratio from the start of implementation of the Strategy until end-2017 is assessed at -8.2 pp.

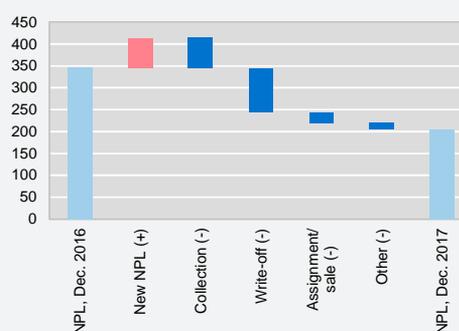
It was only during 2017 that the total level of NPLs fell by RSD 140.8 bn, of which write-off and assignment accounted for RSD 124.7 bn, contributing -5.1 pp to movements in the NPL ratio in 2017.

The impact of the NPL drop led by the write-off and assignment was stronger in the corporate than in the household sector. In the corporate sector, since the start of implementation of the Strategy until end-2017, the largest write-off and assignment amounts were observed among companies (write-off accounted for RSD 41.6 bn and assignment for RSD 33.9 bn), companies undergoing bankruptcy (write-off accounted for RSD 72.2 bn and assignment for RSD 16.9 bn), while the sector of public enterprises saw much smaller amounts (RSD 4.8 bn in respect of write-off and RSD 4.8 bn in respect of assignment). In the same period, RSD 28.2 bn worth of NPLs were written off in the household sector, and around RSD 1.8 bn worth of NPLs were assigned to non-banking sector entities.

In 2017 alone, around RSD 31.6 bn was written off in the sector of companies, and RSD 13.4 bn was assigned to non-banking sector entities. As regards companies under bankruptcy, around RSD 37 bn was written off and RSD 5.3 bn assigned. In the sector of public enterprises, RSD 4.2 bn was written off and RSD 4.0 bn assigned. In the household sector, around RSD 23.6 bn was written off and 1.3 bn assigned to non-banking sector entities.

NPL write-off was particularly intensive in 2017, when around RSD 100.1 bn worth of NPLs was written off. As a result of implementation of the Decision on the Accounting Write-Off of Bank Balance Sheet Assets<sup>109</sup> (applied as of

Chart O.7.1 Factors behind the change in NPLs in 2017 (RSD bn)



Source: NBS.

<sup>109</sup> RS Official Gazette, No 77/2017.

30 September 2017), in September 2017 total RSD 53.6 bn was written off, which is by around RSD 8 bn more than total write-offs in entire 2016. In accordance with this Decision, banks must carry out the accounting write-off of NPLs in the event that the calculated amount of impairment of the loan recorded in favour of allowances for impairment equals 100% of its gross book value. Given that the total amount of NPLs is covered by significant allowances for impairment, i.e. that a particular set of loans was fully indirectly written off, significant effects have been achieved both in terms of the NPL level and the level of total loans.

In addition, in December 2017 the NBS adopted the Decision Amending the Decision on the Classification of Balance Sheet Assets and Off-Balance Sheet Items<sup>110</sup>, in order to define the regulatory treatment of some transactions relating to the purchase of NPLs from a bank's assets, receivables from debtors to which the bank extended a loan whereby the debtor settled, directly or indirectly, a part or entire amount of the loan approved by that bank, which is considered non-performing. This at the same time contributes to containing the risk that NPLs exiting the banking sector are "returned". The Decision also defines an adequate regulatory treatment of exposure to a debtor – a newly founded company which is, in line with the Law on Banks, considered a person related to the debtor to which a bank approved a loan categorised as non-performing.

The NPL share is expected to decline further in the coming period owing not only to the activities undertaken so far, but also the continued efforts of the NBS, Government and other market stakeholders in terms of further improving the environment to resolve the NPL issue and preventing the build-up of new NPLs. The importance of these measures and decisions of the NBS is reflected particularly in the fact that the resolution of these loans opens room for new lending, which will serve as additional support to economic growth going forward.

<sup>110</sup> RS Official Gazette, No 114/2017.

## IV.2 Financial soundness indicators

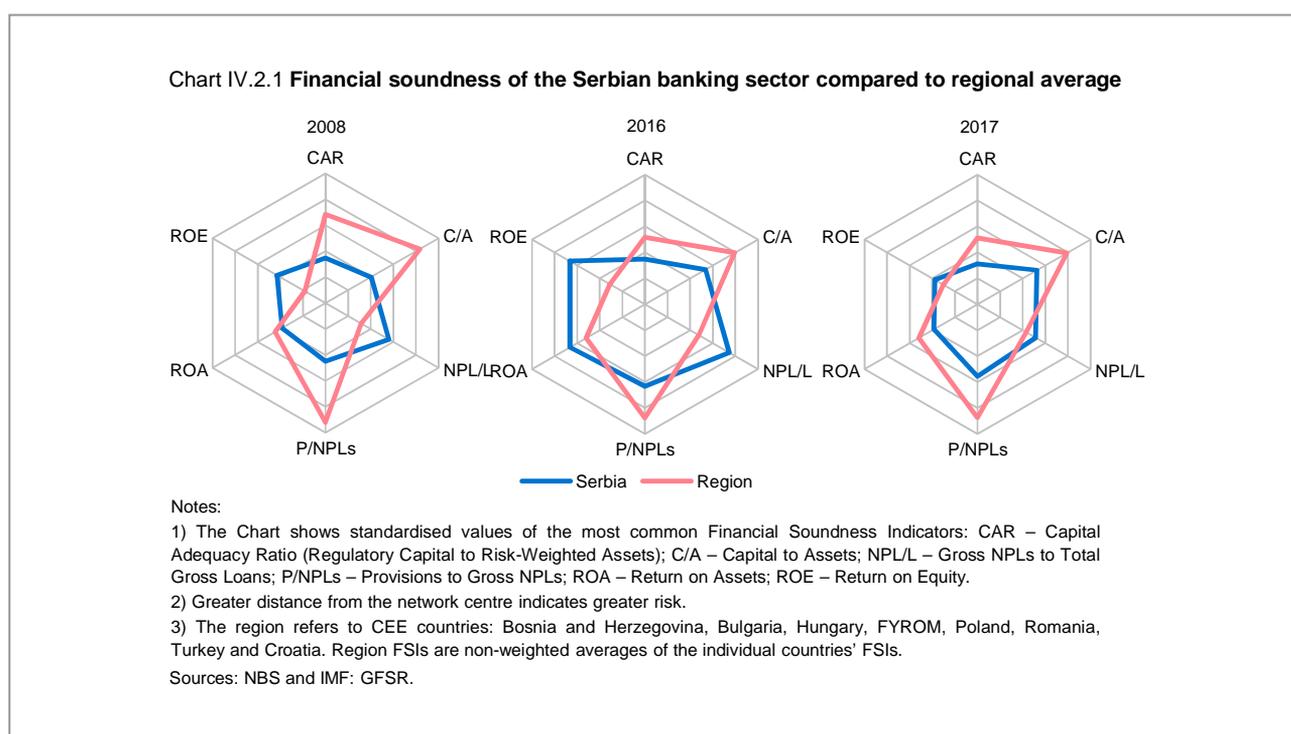
Several methodological approaches have been used to assess various aspects of stability of the financial system in Serbia, in the international context and over time.

International comparisons of financial system stability are based on selected financial soundness indicators. The stability network (Chart IV.2.1) shows six representative indicators for Serbia and the region at end-2008, 2016 and 2017: a) capital adequacy, b) balance sheet capital relative to balance sheet assets, c) share of NPLs in total loans, d) loan-loss provisions relative to NPLs, e) return on assets, and f) return on equity.

Capitalisation of the domestic banking sector was higher than in the region, which is a significant guarantee of stability for the entire financial system. The NPL ratio was somewhat above the regional average, though it was considerably reduced in 2016 and 2017.<sup>111</sup> In 2017 alone, the NPL share dropped by 7.2 pp. Also, the level of NPL coverage with loan-loss provisions was considerably above the region's average owing to conservative prudential regulations.

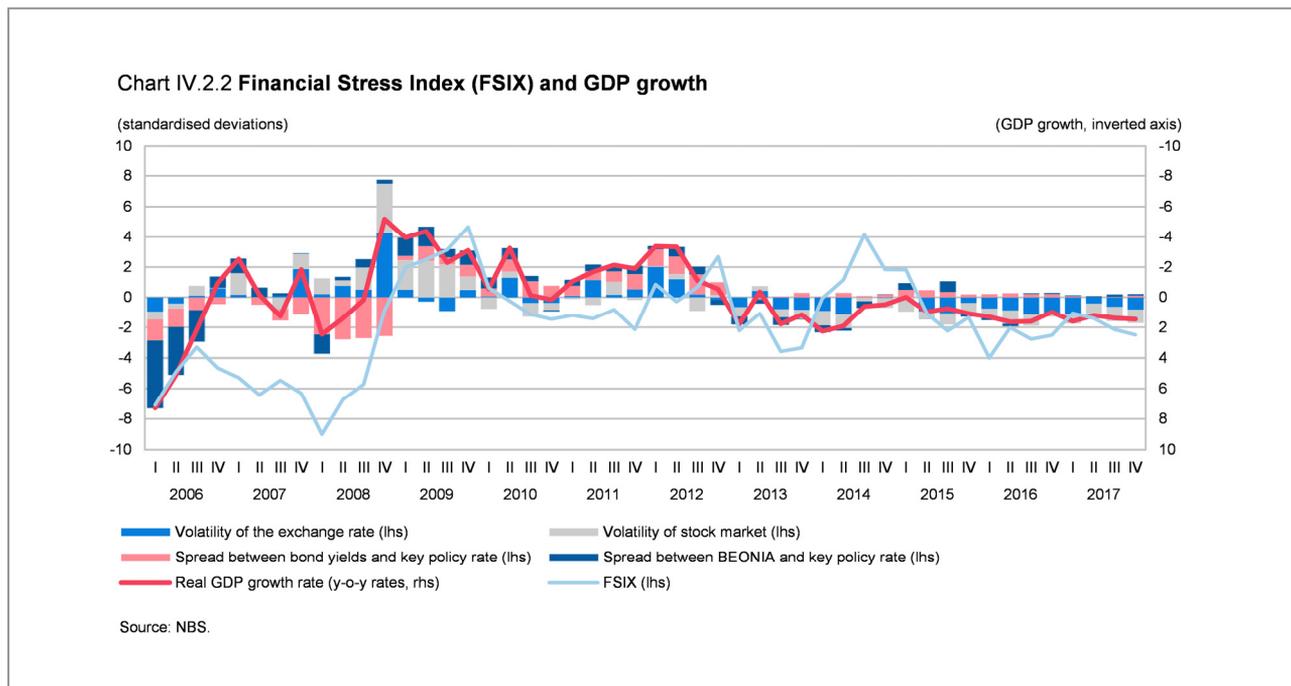
In addition to the above indicators, the Financial Stress Index (FSIX) is also used to measure financial soundness. FSIX is a composite index,<sup>112</sup> introduced to identify episodes of high financial stress, their culmination and duration, which is why it covers the key financial sector variables relevant for real economic activity. Positive values suggest an above-average financial stress level, while negative values point to a below-average level.

Lower levels of financial stress recorded over the past several years continued into 2017. The analysis of some variables indicates that the low level of financial stress reflects relatively lower volatility of the exchange rate and stock exchange indicators. Given that the domestic economy is small and open and as such susceptible to influences from the international environment, and that the bulk of the financial sector is foreign-owned, the common lender effect is applied to measure financial crisis contagion across countries reliant on the same source of funding. This indicator depends on the exposure of the lender's country to the private and public sectors of the borrower's country and the share of debt to the common lender in total indebtedness of the financial sector of the borrower's country. The obtained



<sup>111</sup> For more information about NPLs, see section II.1 Banking sector.

<sup>112</sup> For more information on indicator methodology, see the Annual Financial Stability Report for 2012.

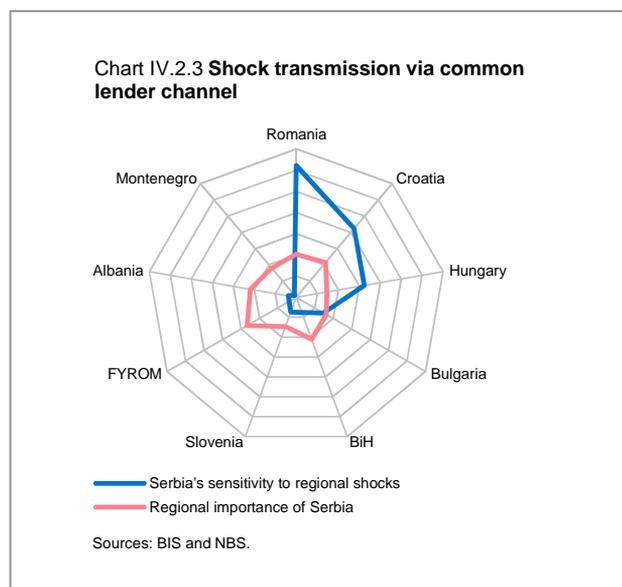


indicator<sup>113</sup> is proportionate to the probability of financial crisis contagion from one country of the region to Serbia, or probability of the crisis spilling over from Serbia to other countries in the region.

The analysis is based on consolidated BIS reports on cross-border exposures of global banking groups. These reports cover a large number of banks and countries and are therefore highly suitable for comparative analyses of cross-border exposures. Analysed were the exposures of banks from 11 countries to Serbia, CESEE countries and other chosen countries.

The results of the analysis are shown in the network in Chart IV.2.3. In the event of a liquidity shock in a country in the region, the greatest impact on Serbia, through the common lender channel, would be exerted by Romania, Croatia and Hungary, while Serbia would exert the greatest impact on Macedonia, Albania and Croatia.

In order to capture potential risks to financial stability arising from the banking system, the banking sector stability index was created.<sup>114</sup> It is calculated based on indicators of solvency, credit risk, liquidity risk, profitability and FX risk.

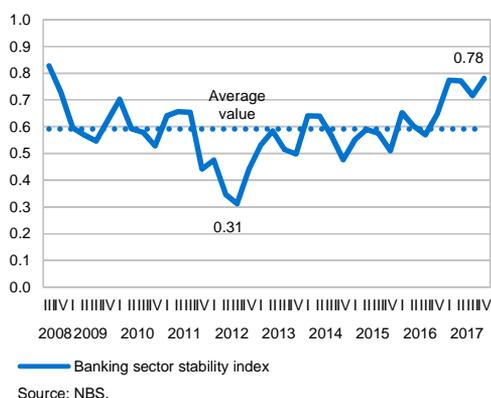


At end-2017, the banking sector stability index measured 0.78, which indicates an improvement relative to 2016. In terms of individual components, high capital adequacy (22.6%), a significantly lower level of NPLs and a low net open FX position (2.9% of regulatory capital) indicate low solvency risk, improved quality of assets and low direct FX risk exposure of banks. Liquidity and

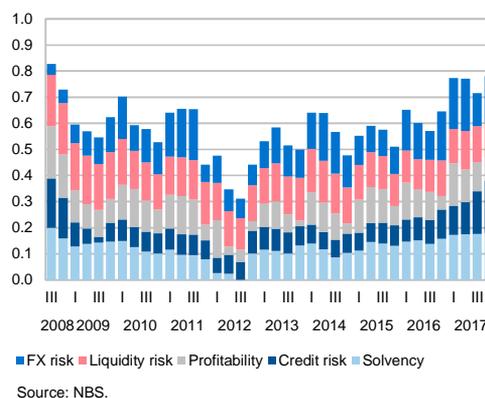
<sup>113</sup> For more information on indicator methodology, see the Annual Financial Stability Report for 2013.

<sup>114</sup> For more information on indicator methodology, see the Annual Financial Stability Report for 2014.

**Chart IV.2.4 Banking sector stability index (composite measure)**



**Chart IV.2.5 Aggregate elements of banking sector stability index**



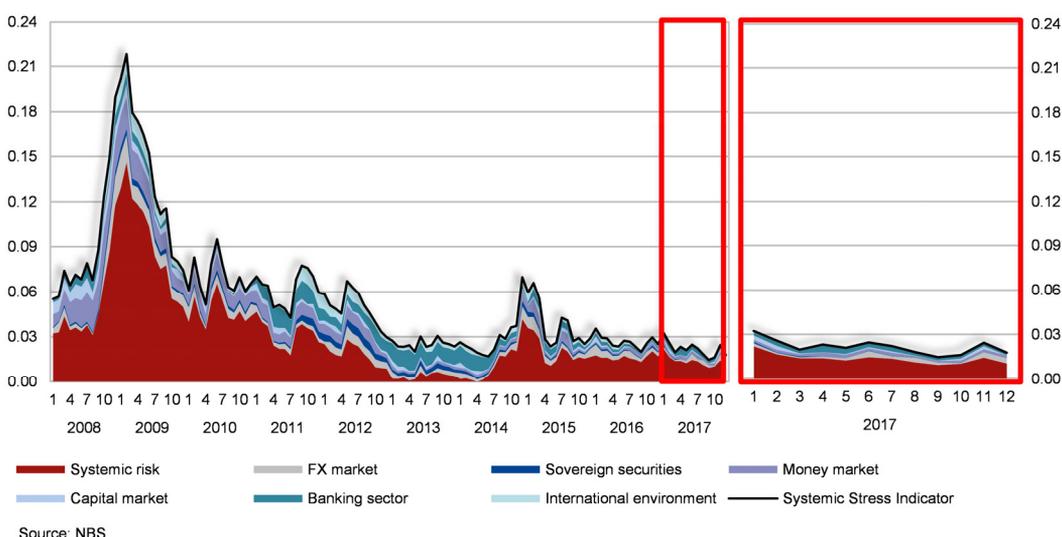
profitability indicators, which are high, also fed into the high value of this indicator in 2017.

To identify crisis periods and assess the level of systemic stress in the Serbian financial system, a methodology was developed, serving to construct a composite indicator of systemic stress. This indicator is used by the European Systemic Risk Board and 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 reflect the magnitude of financial stress in six key segments of the Serbian financial system: the FX market, government securities market, money market, capital market, banking sector and the international environment.

The analysis of the indicator of systemic stress in 2017 suggests favourable movements in all segments of the financial system.

Implementation of a consistent economic policy and coordination of fiscal, monetary, micro- and macroprudential policies gave a decisive contribution to the maintenance and strengthening of the resilience of the domestic financial system and macroeconomic stability of the country. In 2017, the systemic stress indicator pointed to a period of low risk, except in early 2017, when a slightly elevated level of risk was recorded due to developments in the capital and FX markets, predominantly seasonal in character. The systemic risk component was low and stable over the entire observed period.

**Chart IV.2.6 Systemic Stress Indicator dynamics**





## List of charts, tables and diagrams

### Charts

I.1.1	GDP growth projections for 2018 – European countries	9
I.1.2	Economic activity indicator (manufacturing)	10
I.1.3	Economic activity indicator (services)	10
I.1.4	ECB's interest rates and EONIA	11
I.1.5	EMBI for Serbia and its regional peers, VIX and yields on US bonds	12
I.1.6	Selected stock exchange indices	12
I.1.7	Exchange rates of selected national currencies against the euro	13
I.1.8	Exchange rate movements and participation of foreign investors in auctions of dinar government bonds, quarterly average	13
I.1.9	Developments in the home markets of banking groups present in Serbia	14
I.1.10	Change of cross-border exposure to selected countries, Q3 2008 – Q4 2017	14
I.2.1	Real GDP growth – demand contributions	15
I.2.2	Real GDP growth – supply contributions	15
I.2.3	Projection of real GDP growth	16
I.2.4	Inflation projection	16
I.2.5	Exchange rate movements and NBS interventions in the IFEM	17
I.2.6	Key macroeconomic risks	17
I.3.1	National Bank of Serbia FX reserves	19
I.3.2	National Bank of Serbia FX reserves in 2017	19
I.3.3	Months of imports covered by gross FX reserves	19
I.3.4	Money supply M3 covered by gross FX reserves	19
I.3.5	Short-term external debt at remaining maturity covered by gross FX reserves	20
I.3.6	“Right measure for Serbia” for gross FX reserves	20
I.3.7	Optimal levels of FX reserves under stress scenarios, Dec. 2017	20
I.3.8	Sensitivity analysis of FX reserves adequacy model parameters, based on the fifth stress scenario	21
I.4.1	Fiscal result	22
I.4.2	Public revenues and expenditures	23
I.4.3	Public debt dynamics	23
I.4.4	Public debt by currency	23
I.4.5	Public debt currency composition, 31 December 2017	24
I.4.6	Public debt interest rate composition, 31 December 2017	24
I.4.7	Public debt by original maturity	24
I.4.8	Public debt by remaining maturity	24
I.4.9	Public debt in government securities	25
I.4.10	Ownership structure of government securities denominated in dinars	25
I.4.11	Ownership structure of government securities denominated in foreign currency	25
I.4.12	General government debt projections: baseline vs historical scenario	26
I.4.13	Primary fiscal result which enables stabilisation of public debt in 2018 at the level of 62.4% of GDP, depending on nominal depreciation and GDP growth rate	26
I.4.14	General government debt projections – alternative and stress scenarios	26
I.4.15	Bank claims on government, local governments and public enterprises	27
I.4.16	Current account	28
I.4.17	Exports and imports	28
I.4.18	Current account deficit financing via FDIs	28
I.4.19	External debt dynamics	28
I.4.20	External debt by borrower	29
I.4.21	External debt by original maturity	29
I.4.22	External debt by remaining maturity	29
I.4.23	External debt interest rate composition, 31 December 2017	29

I.4.24	External debt projections: baseline vs historical scenario	30
I.4.25	Current account which enables stabilisation of external debt in 2018 at the level of 70% of GDP, depending on nominal depreciation and GDP growth rate	30
I.4.26	External debt projections – alternative and stress scenarios	30
I.5.1	Real lending activity of corporate sector	31
I.5.2	Bank claims on corporates, by sector	31
I.5.3	Currency structure of domestic corporate loans	31
I.5.4	Corporates return on equity (post-tax) by selected sectors	31
I.5.5	Return on equity of corporates (post-tax) by size	32
I.5.6	Private corporates NPLs share by sector structure	32
I.5.7	Private corporates NPLs by currency structure	33
I.5.8	Interest rates on corporate loans and deposits – new business	33
I.5.9	Movement of claims through enforced collection by priorities	33
I.6.1	Stock of household FX savings	35
I.6.2	FX household savings by maturity	35
I.6.3	RSD household savings by maturity	36
I.6.4	Currency structure of household deposits	36
I.6.5	Interest rates on RSD, EUR and EUR-indexed household loans and deposits – new business	37
I.6.6	Contributions to growth of bank claims on households by purpose	37
I.6.7	Structure of bank claims on households by purpose	38
I.6.8	Currency structure of bank claims on households	38
II.1.1	Banking sector capital adequacy	41
II.1.2	Structure of regulatory capital and capital buffers	41
II.1.3	Regulatory capital to risk-weighted assets, countries of the region	42
II.1.4	Structure of assets of the Republic of Serbia's banking sector	42
II.1.5	Non-performing loans	43
II.1.6	Developments of NPL ratio, countries of the region	43
II.1.7	Coverage of non-performing loans	43
II.1.8	Coverage of gross non-performing loans by total reserves and NPL ratios, countries of the region	43
II.1.9	Real credit growth	44
II.1.10	Real growth of loans to corporate and household sectors	45
II.1.11	Profitability indicators	45
II.1.12	Return on equity, countries of the region	45
II.1.13	Profitability indicators, by majority shareholder's country of origin and ownership structure in 2017	45
II.1.14	Ratio of operating expenses to total operating income, by origin of ownership	46
II.1.15	Pre-tax profit/loss of the banking sector	46
II.1.16	Average monthly liquidity ratio	46
II.1.17	Distribution of liquidity ratio	46
II.1.18	Distribution of narrow liquidity ratio	47
II.1.19	Liquid assets	47
II.1.20	Movements of the loan-to-deposit ratio	47
II.1.21	Sources of banking sector funding	47
II.1.22	Currency structure of deposits	48
II.1.23	Maturity structure of deposits	48
II.1.24	Foreign exchange risk ratio	48
II.2.1	The share of gross NPLs in baseline, moderate and worst case scenario	58
II.2.2	Projection of the share of gross NPLs in total loans	59
II.2.3	Expected capital adequacy ratio by stress scenario	59
II.2.4	Additional capital needed by scenario with projected profit buffer	61
II.2.5	Reduction in risk-weighted assets needed by scenario with projected profit buffer	61
II.2.6	The probability of gross NPL ratio increase in 2018 that would result in critical levels of banking sector capital adequacy ratio of 14.07% and 8%	61
II.2.7	Expected liquidity ratio for the banking sector by stress scenario	63
II.2.8	Liquidity buffer – daily for moderate scenario	64
II.2.9	Liquidity buffer – daily for worst case scenario	64
II.2.10	The structure of demand and time deposits – daily for moderate scenario	65

II.2.11	The structure of demand and time deposits – daily for worst case scenario	65
II.2.12	Confidence intervals for banking sector liquidity ratio	65
II.2.13	Banking network of the Republic of Serbia	66
II.2.14	Banking sector CAR after the insolvency of an individual bank	67
II.2.15	Impact of network structure on the drop in banking sector's CAR after the insolvency of an individual bank	67
II.3.1	Insurance undertakings ownership structure as at 31 December 2017	72
II.3.2	Insurance sector development indicators as at 31 December 2016	72
II.3.3	Total insurance premium	73
II.3.4	Insurance premium structure	73
II.3.5	Total premium according to types of insurance as at 31 December 2017	73
II.3.6	Non-life insurance technical reserves coverage as at 31 December 2017	73
II.3.7	Life insurance technical reserves coverage as at 31 December 2017	74
II.3.8	Profitability ratios of non-life insurance undertakings	74
II.3.9	Profitability ratios of life insurance undertakings	74
II.3.10	Combined insurance ratio	75
II.3.11	Annual increase in VPF net assets and net contributions	77
II.3.12	Annual VPF contributions and withdrawals	77
II.3.13	Structure of VPF assets as at 31 December 2017	78
II.3.14	Total VPF net assets and FONDex	78
II.3.15	Investment structure by lessee as at 31 December 2017	80
II.3.16	Investment structure by lease asset as at 31 December 2017	80
III.1.1	Selected NBS monetary policy instruments	86
III.1.2	Key policy rate, BEONIA, and interest rates on deposit and loan facilities	86
III.1.3	BELIBOR interest rates	87
III.1.4	Money market interest rates and auctions of government bills	87
III.2.1	RSD government securities, outstanding stock	88
III.2.2	Market demand for RSD government bonds	88
III.2.3	Performance ratio and foreign investor participation in auctions of RSD government bonds	89
III.2.4	Structure of portfolio of RSD government bonds	89
III.2.5	EUR government bonds, outstanding stock	90
III.2.6	Belgrade Stock Exchange market capitalisation	90
III.2.7	Stock market indices	91
III.2.8	Belgrade Stock Exchange equity market turnover	91
III.3.1	Bank interconnectedness in the NBS RTGS network	94
III.4.1	Real estate index DOMex and total number of transactions	99
III.4.2	Real estate prices (year-on-year growth rates, %)	99
III.4.3	Housing NPLs	100
III.4.4	Housing availability indicator (price-to-income)	100
III.4.5	Construction within corporate sector NPLs	100
III.4.6	Indices of the number of issued new construction building permits	100
IV.2.1	Financial soundness of the Serbian banking sector compared to regional average	113
IV.2.2	Financial Stress Index (FSIX) and GDP growth	114
IV.2.3	Shock transmission via common lender channel	114
IV.2.4	Banking sector stability index	115
IV.2.5	Aggregate elements of banking sector stability index	115
IV.2.6	Systemic Stress Indicator dynamics	115

**Tables**

I.3.1	Levels of FX reserves adequacy, end-2017	18
I.3.2	Stress scenarios for FX reserves	20
I.6.1	Household sector performance indicators	39
II.1.1	Republic of Serbia banking sector indicators	49
II.1.2	Serbia: Financial sector structure	50
II.2.1	Elasticity coefficients of NPLs and contributions of independent variables from Q4 2016 to Q4 2017	58
II.2.2	Overview of scenarios	59
II.2.3	Assumptions of deposit withdrawals by sector	63
II.2.4	Derived structure for share of deposit withdrawals by depositor category in total deposits withdrawn	64
II.2.5	Assumed daily deposit withdrawal rate by sector	64
III.3.1	Value and number of payments in the NBS RTGS system	92
III.3.2	RTGS payment indicators (network-level)	93
IV.1.1	Recommendations	105

**Diagram**

II.2.1	Channels of macroeconomic impact on CAR	60
--------	---	----

**Charts in text boxes**

O.1.1	Credit-to-GDP ratio and its long run trend	51
O.1.2	Credit-to-GDP gap and CCyB rate	52
O.1.3	Systemic Stress Indicator dynamics and contribution of the most important risk factors to the Systemic Stress Indicator	53
O.2.1	Share of FX and FX-indexed deposits in total corporate and household deposits	55
O.2.2	Share of FX and FX-indexed lending in total corporate and household lending	55
O.2.3	Noncyclicality of euroisation	56
O.2.4	Correlation between capital requirements and level of euroisation	56
O.3.1	Actual and estimated movement in monthly growth rate of the share of total gross NPLs	69
O.4.1	Capital buffers under different stress scenarios	71
O.7.1	Factors behind the change in NPLs in 2017	111

**Tables in text boxes**

O.3.1	Coefficient estimates	69
-------	-----------------------	----



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336

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