

# ANNUAL FINANCIAL STABILITY REPORT



National Bank of Serbia

# 2013



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STABILITY REPORT

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**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 management of risks.

Articles 3 and 4 of the Law on the National Bank of Serbia (“RS Official Gazette”, Nos 72/2003, 55/2004, 44/2010, 76/2012 and 106/2012) 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 will 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 the end of 2013.

The *Financial Stability Report* was adopted by the National Bank of Serbia’s Executive Board in its meeting of 19 June 2014. Earlier issues of the Report are available on the National Bank of Serbia’s website (<http://www.nbs.rs>).

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Diana Dragutinović, Vice Governor

Đorđe Jevtić, Director of the Administration for Supervision of Financial Institutions

## **ABBREVIATIONS**

**ARIMA** – Autoregressive Integrated Moving Average

**BIS** – Bank for International Settlements

**bln** – billion

**bp** – basis point

**CAR** – Capital Adequacy Ratio

**CESEE** – Central, Eastern and Southeastern Europe

**DvP** – Delivery vs. Payment

**EBA** – European Banking Agency

**ECB** – European Central Bank

**EMBI** – Emerging Markets Bond Index

**FDI** – foreign direct investment

**Fed** – Federal Reserves

**LtD** – Loan-to-Deposit ratio

**GDP** – gross domestic product

**GSFR** – Global Financial Stability Report

**IFEM** – Interbank Foreign Exchange Market

**IFIs** – international financial institutions

**IMF** – International Monetary Fund

**lhs** – left hand scale

**mln** – million

**NPL** – non-performing loan

**pp** – percentage point

**Q** – quarter

**rhs** – right hand scale

**RTGS** – Real Time Gross Settlement

**VAT** – Value Added Tax

**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>- change in the behavioural pattern of European banks towards reducing cross-border exposure, which could become an obstacle to domestic credit and economic growth in the medium term;</li> <li>- results of the comprehensive assessment (asset quality review and stress testing) carried out by the ECB may put pressures on European banks to raise additional capital, and thus negatively affect the volume of activity of their subsidiaries;</li> <li>- sluggish recovery of key trade partners in the EU and the escalation of the crisis in Ukraine;</li> <li>- heightened tensions in the domestic financial market due to normalisation of the Fed's monetary policy;</li> <li>- high share of foreign investors in the domestic government debt market may give rise to significant volatility in the event of stronger shocks and sudden capital outflow;</li> <li>- insufficiently clear implications of the establishment of the Banking Union, especially of the framework for the restructuring and resolution of European banks' subsidiaries, for countries outside the EU.</li> </ul>	<ul style="list-style-type: none"> <li>- active participation in international forums, such as the Vienna Initiative;</li> <li>- cooperation with banking groups, home supervisors, working groups within the Vienna Initiative, European and international financial institutions;</li> <li>- maintaining a high level of capitalisation of domestic banks, relying primarily on internally generated sources;</li> <li>- increasing reliance on the domestic sources of funding by strengthening the local investor base (e.g. pension funds and similar);</li> </ul>
<b>Internal risks:</b>	
<ul style="list-style-type: none"> <li>- lack of robust fiscal adjustment;</li> </ul>	<ul style="list-style-type: none"> <li>- consolidation of public finance and implementation of structural reforms are needed; this calls for decisive action and may have a negative short-term impact on growth;</li> </ul>
<ul style="list-style-type: none"> <li>- exposure of the financial system to credit/foreign exchange risk;</li> </ul>	<ul style="list-style-type: none"> <li>- consistent implementation of the dinarisation strategy by all relevant stakeholders: NBS, government of the Republic of Serbia, banks and IFIs; the government needs to support the use of the dinar at all levels, as well as to consider additional measures encouraging the use of the domestic currency;</li> </ul>

Key risks	Mitigating measures
<b>Internal risks:</b>	
<ul style="list-style-type: none"> <li>- persistently high share of NPLs increases banks' risk aversion, dampens credit growth, jeopardises the profitability of the banking sector and represents a systemic risk;</li> </ul>	<ul style="list-style-type: none"> <li>- creation of a macroprudential policy framework and strengthening of macroprudential supervision as the first line of defence;</li> <li>- improving the regulatory framework for NPL resolution;</li> </ul>
<ul style="list-style-type: none"> <li>- negative credit growth and languid economic recovery;</li> </ul>	<ul style="list-style-type: none"> <li>- implementation of structural reforms and removal of obstacles slowing FDI;</li> <li>- interest rate subsidy programme to bolster demand;</li> <li>- NPL reduction to boost supply;</li> </ul>
<ul style="list-style-type: none"> <li>- poor corporate governance in some financial institutions, but special emphasis should be put on those in state ownership;</li> </ul>	<ul style="list-style-type: none"> <li>- ownership consolidation, improving corporate governance and taking additional steps to boost capital adequacy of those institutions;</li> </ul>
<ul style="list-style-type: none"> <li>- considerable exposure of banks to government securities and other sovereign debt placements may lead to a negative feedback loop and to the crowding out of the private sector;</li> </ul>	<ul style="list-style-type: none"> <li>- providing incentives to banks to channel their funds to lending to the economy;</li> </ul>
<ul style="list-style-type: none"> <li>- subdued capital flow to the banking sector due to a change in the business model of European banks, lower profitability of the domestic market and bad market conditions for the sale of government shares in well-performing banks;</li> </ul>	<ul style="list-style-type: none"> <li>- providing incentives to banks to focus on the issue of long-term dinar debt with a view to broadening the sources of funding;</li> </ul>
<ul style="list-style-type: none"> <li>- inadequate real estate valuation which puts at risk banks that rely on real estate as collateral in case of a need to activate such collateral.</li> </ul>	<ul style="list-style-type: none"> <li>- building a real estate database and introducing mandatory application of international standards in real estate valuation.</li> </ul>

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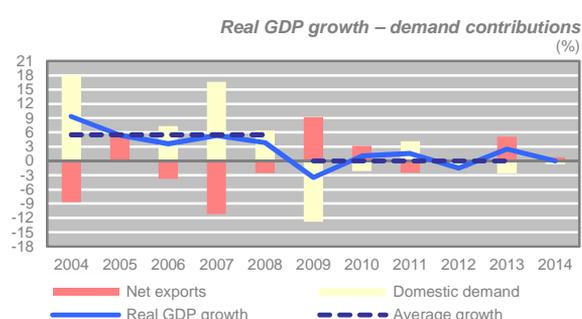


## Overview

*The key risks stemming from the international environment are recessionary trends, uneven recovery due to fiscal consolidation of the euro area, and normalisation of the Fed's monetary policy.*

*Further steps have been taken towards creation of a banking union. Banking supervision is expected to be centralised under the auspices of the ECB beginning from autumn 2014.*

*The recovery of Serbian economy began in 2013, when GDP grew 2.5%. Y-o-y inflation recorded a sharp decline in 2013 and returned within the target tolerance band in September. In 2014, GDP is expected to stagnate and inflation to move within the target tolerance band.*



*The sustainability of public debt and fiscal policy is more than topical since public debt reached 63.8% of GDP at end-2013 and consolidated fiscal deficit – 5.0% of GDP. The government is facing the tough challenge of fiscal adjustment. The sustainability of fiscal policy and public debt affects the sustainability of the balance of payments deficit and external debt.*

After two years of contraction, the euro area economy is expected to return to moderate growth in 2014. As the US economy rebounds and emerging markets expand in the coming period, the euro area economy will gather pace, led primarily by external demand. The highest growth rates are expected in East European countries, while South and West European countries, affected by the fiscal crisis in the previous years, are forecast to grow modestly. The ECB maintained an accommodative monetary policy stance throughout 2013, while the Fed made a decision to wind down its QE programme beginning from early 2014.

In September 2013, the European Parliament adopted a set of regulations establishing the Single Supervisory Mechanism (SSM) and entrusting the ECB with supervision of all euro area banks. The ECB will supervise directly around 130 banks holding nearly 85% of total banking sector assets. The main goals of the SSM are to ensure the safety and soundness of the European banking system and to increase financial integration and stability in Europe. Underway are also the asset quality review and stress testing of European banks in order to identify the extent of bank resilience to external shocks.

Economic growth in 2013 was driven by the export-oriented industry, the main contributors to export growth being the automobile and oil industries. Y-o-y inflation fell from 12.2% at end-2012 to 2.2% at end-2013. Low inflationary pressures in 2013 reflected well-calibrated monetary policy measures, good agricultural season, low aggregate demand and relatively stable exchange rate. High unemployment rate and low domestic demand will continue to act as the main disinflationary factors in 2014.

The government's capacity to service its debt on time is an important source of security for the financial sector. The share of government securities in gross banking sector assets is around 10%, while total claims on the government, local government authorities and public enterprises make up around 15% of gross banking sector assets. The risks in the financial sector spill over to the government sector through two channels: (1) higher fiscal expenditure for financial sector support (in the form of recapitalisation, issue of guarantees, loans or subsidies) and the rise in public debt; and (2) cross-border deleveraging of the financial sector and the consequent decline in credit supply, economic activity and tax revenue.

*All traditional and composite indicators suggest that the level of foreign exchange reserves is adequate and that they can protect the stability of the financial system against extreme shocks.*

*Industrial and agricultural production recorded significant growth in 2013, while the construction industry declined. Faster growth in exports than imports drove the foreign trade deficit down and provided a positive contribution to GDP growth. Corporate lending contracted in real terms and its share in GDP went down. The upward trend in the share of FX-indexed and FX liabilities of the corporate sector continued. What raises concern are the high share of NPLs, deteriorating performance of the corporate sector and increased balances in blocked accounts subject to enforced collection.*

*Real wages and the purchasing power of households declined, as did the number of formally employed. Household savings grew at a slower pace than in 2012, despite an appreciable improvement in dinar savings and the share of long-term deposits. Household lending*

End-2013 foreign exchange reserves of EUR 11.2 bln (gross) or EUR 7.8 bln (net) stand as an important guarantee of the financial system's resilience to sudden shocks. The adequacy of foreign exchange reserves gauged by the "right measure for Serbia" indicator increased in 2013 relative to the year before primarily owing to the projected narrowing of the current account deficit of the balance of payments.

The first signs of the euro area exit from recession and its nascent recovery with a sustainable outlook exerted a positive impact on Serbia's gradual economic recovery. Serbia's GDP grew 2.5% in 2013 and industrial production 5.4%. These trends reflected primarily the upswing in automobile and auxiliary export-oriented industries, as well as in the production of petroleum products, electricity, chemicals and chemical products. As the weather was auspicious, the physical volume of agricultural production increased by 20.2% from 2012. Retail trade volumes, however, plummeted further in real terms, exerting a negative effect on the dynamics of economic activity. Better performance of the manufacturing industry, and the rising exports of agricultural products in the second half of the year, brought about a significant narrowing of the foreign trade deficit in 2013.

After more than two years of sluggish growth, total corporate lending recorded a decline in 2013 (6.9%), driven mostly by the high negative growth rates of domestic lending. Thus, corporate debt, measured as the share of GDP, contracted by 8.9 pp to 59.2%. The share of NPLs in gross corporate lending went up by 5.3% in 2013, to 24.5%, showing the difficulties faced by corporates in servicing their liabilities to banks. FX-indexed and FX receivables made up 80.0% of domestic banks' total receivables from the corporate sector. Given the currency mismatch between their income and expenses, it can be said that domestic corporates are highly exposed to the risk of exchange rate volatility. Interest rates on corporate loans are declining. The corporate sector's performance remains strained by low liquidity and profitability, shortage of net current assets, debt servicing burden and a partial maturity mismatch between assets and liabilities. The amounts in blocked accounts of legal persons and entrepreneurs soared by RSD 90.1 bln or 73.0% in 2013, while the number of enterprises whose accounts are blocked decreased.

As wages and pensions lagged behind the consumer price growth and formal employment recorded further, though modest, decline, the standard of living deteriorated. Continuation of these negative trends could have a negative impact on disposable household income, which

slowed down, but stayed within the positive zone. The share of the dinar in total household loans increased and that of the Swiss franc decreased. Its debt being low, the household sector remains a significant net creditor of the financial system.

could strain households' debt servicing capacity and push up the level of NPLs.

Total household savings gained RSD 40.0 bln in 2013, reaching 30.7% of total banking sector liabilities. FX savings grew at a slower pace (1.8%), while dinar savings nearly doubled (91.0%). The growth in household lending slackened further, but remained positive (4.0%). The share of dinar loans in total lending increased from 35.0% to 37.9% and that of Swiss franc-indexed loans shrank from 17.1% to 15.0%. Interest rates on loans and deposits are on the decline. Its debt still being low (18.6% of GDP), the household sector remains a significant net creditor to the financial system as it uses, through loan agreements, 60.6% of its total financial assets.

The banking sector is well-capitalised and highly liquid. In the second half of 2013, credit growth turned negative. The share of NPLs in total loans is high, but fully provisioned for. Still, NPLs are a drag on profitability. Banks are relying increasingly on the domestic sources of funding.

The Serbian financial sector is bank-based. The share of the banking sector in total financial sector assets equalled 92.4% at end-2013. Effective functioning of this sector is therefore critical to preserving the country's financial stability.

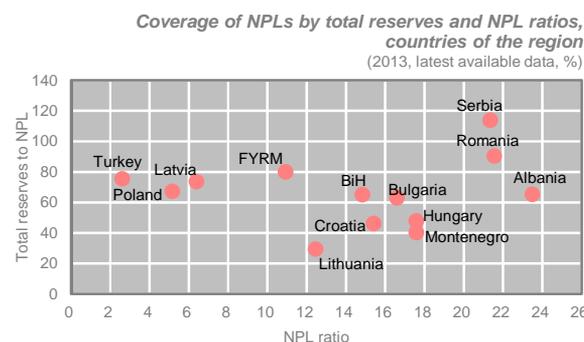
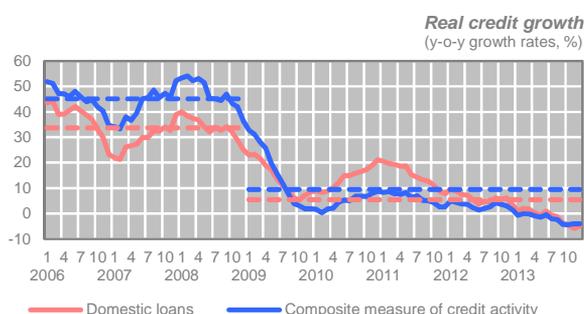
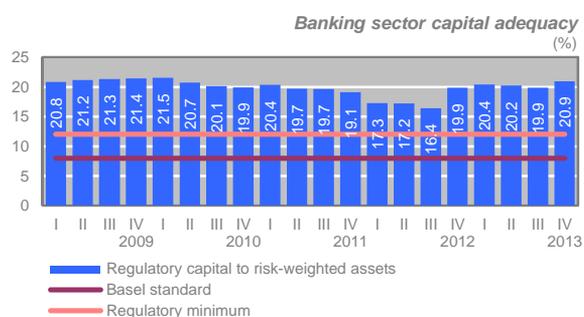
The banking sector is well-capitalised – at end-2013 CAR equalled 20.9%, which is significantly above the domestic regulatory threshold. In fact, the Republic of Serbia has a banking sector with the highest capital adequacy in the region.

Credit portfolio continued to account for the major portion of banking sector assets, even though its share narrowed down. Namely, credit growth has been negative since mid-2013 as a result of both supply and demand side factors. On the other hand, the share of securities, notably those issued by the government, increased as banks show a clear bias towards less risky assets.

The share of NPLs in total banking sector loans edged up by 2.7 pp in 2013, amid a rise in gross NPLs, but also a fall in total credit activity. At 21.4%, NPLs are above the regional average, though it should be taken into account that data comparability is limited due to varying definitions of NPLs. On the other hand, the level of total (accounting and regulatory) reserves for potential losses on these loans is the highest in the region.

Banking sector profitability declined from the previous year, reflecting high write-off of uncollectible claims at the expense of operating result in some banks and negative corporate credit growth rates. At the same time, the structure of interest income shifted towards a greater share of lower-yielding but less risky assets.

Based on all criteria, the liquidity of the Serbian banking sector is exceptionally high, which means that liquidity risk poses no threat to financial stability.



**Insurance companies are still not giving their full contribution to building a more diverse and resilient financial system.**



**Judging by the key parameters, VPFs are growing. And yet, this segment of the financial system remains underdeveloped because of the low standard of living and the economic crisis.**

**Key performance indicators of the financial leasing sector showed a decline at end-2013 relative to the year before.**

**Conditions in the market of dinar government securities, which is the largest segment of the domestic securities market, were volatile in the course of 2013. Around mid-year, the market was under the dominant sway of the Fed's hint at QE tapering to which foreign investors reacted by scaling down their purchases and by not renewing their investment in dinar government securities. The risks from the international environment relating to the US monetary policy subsided as of September.**

In extending their financing, banks continued to rely most on domestic deposits, which accounted for 60.7% of banking sector liabilities.

The banking sector's exposure to market risks is marginal. Thanks to proper currency matching between banks' investments and sources of funding, the FX risk ratio is below the regulatory minimum. However, the FX risk comes back to the banking system indirectly, as a foreign exchange-induced credit risk.

The insurance sector was solvent in 2013. Still, its low profitability, attributable above all to high insurance administration expenses, could be a foretaste of solvency problems. Despite the uninterrupted rise in the share of life insurance in total insurance premium and the increase in technical reserves, the Serbian insurance sector, as the most significant domestic institutional investor, remains underdeveloped.

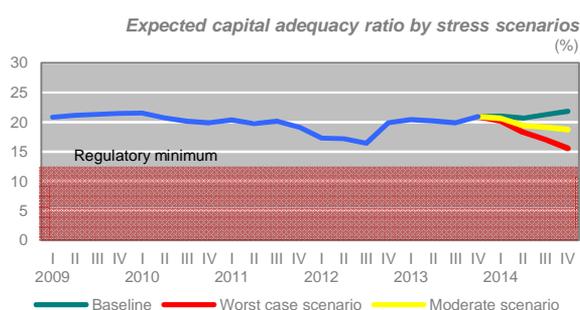
Judging by the key parameters, the sector of VPFs in Serbia recorded modest growth in 2013. Total net assets of VPFs increased by 23.0%, while the number of VPF users rose to around 184,000. Despite recording positive results, this sector remains underdeveloped due to the low standard of living and the economic crisis. In addition to activities which should provide a favourable investment climate and widen the capital market, the development of this sector calls for greater public awareness of the benefits this type of long-term saving entails.

Total balance sheet assets of the financial leasing sector dropped by 6.3% in 2013, to RSD 67.5 bln. Despite the negative operating results, it cannot be said that the risks stemming from the operations of financial leasing providers are a serious threat to the stability of the financial system as a whole.

Low interest rate policy and unconventional monetary policy measures applied by the central banks of advanced economies led to a fall in the yields on bonds issued by those countries. Looking out for higher yields, foreign investors increasingly turned to emerging market bonds. For the major part of 2013 (January–April, October–December), foreign investors' demand for Serbia's government bonds was rather high, both on account of the above trends in the international capital market and the developments at home, notably the relatively stable exchange rate, adoption of fiscal consolidation measures and low inflation. However, "normalisation" of the US monetary policy may pose a major challenge to emerging markets, Serbia included, in terms of their external borrowing. Public finance consolidation would help reduce the risk premium and cut

*Unfavourable trends in the real estate market continued. There is a spillover of risks from this market to the banking sector through several channels.*

*The results of financial stability assessment show that the Serbian financial system is stable, though less so than in the pre-crisis period. Limited availability of budget funds warrants action to boost capital adequacy in banks exposed to the risk of undercapitalisation.*



the costs of borrowing, thereby increasing the resilience to external shocks.

DOMex for Serbia lost 1.4% in the course of 2013. At the same time, its value was 1.2% higher compared to end-2008. The number of real estate purchases financed from insured loans was around 2.5 times lower than in 2008. There is a spillover of risks from the real estate market to the banking sector primarily through sizeable NPLs of construction companies. The downturn in construction pushed NPLs to 52.7% of total bank loans granted to the construction sector. Considering the high share of real estate in the banking sector collateral portfolio, changes in the value of mortgaged property have a material impact on the quality of bank loan portfolios.

Macroprudential solvency stress-tests aim to assess banking sector's resilience to a rise in credit risk. Their results indicate that CAR of the Serbian banking sector would stay above the regulatory minimum even in a worst-case scenario. However, looking at banks individually, by the end of 2014 CAR could slip below the regulatory minimum in some banks which do not hold a high share in total balance sheet assets of the banking sector.

Factors of instability that could give rise to NPLs in the course of 2014 are the slowing growth of the corporate sector and negative credit growth.

Liquidity stress-tests aim to gauge liquidity risk on account of a loss of confidence and unfavourable economic developments. Their results show that the liquidity ratio of the Serbian banking sector would stay far above the regulatory minimum even under the assumption of the largest deposit outflow.

Based on the results of network modelling, it may be inferred that there are no major systemic elements that expose the banking sector to risk. Besides, interconnectedness of the banking sector is such that it enables the absorption of potential shocks stemming from difficulties in the operation of individual banks.



# I. International and domestic environment

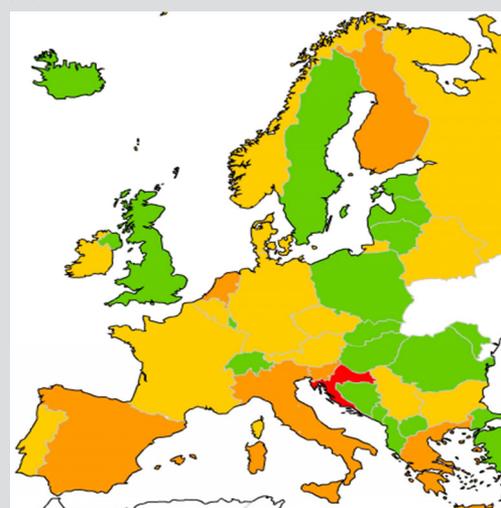
The euro area is expected to see a halt in recessionary trends and a moderate recovery of economic activity in 2014. The adjustment of European banks' business model towards reducing cross-border exposure proceeded in 2013. Further steps have also been taken towards forming a banking union. Banking supervision is expected to be centralised under the auspices of the ECB beginning from autumn 2014. The Single Supervisory Mechanism will aim to ensure the safety and soundness of the European banking system and to increase financial integration and stability in Europe. In contrast to the euro area, the domestic economy began to recover in 2013. GDP growth of 2.5% was driven mainly by exports. Y-o-y inflation fell sharply (from 12.2% to 2.2%) and inflation expectations stabilised within the target. In 2014, inflation is expected to move within the target tolerance band. The adequacy of FX reserves, which serve as a buffer against extreme shocks, increased relative to end-2012. External imbalances narrowed in 2013, though the need for external sources of funding persists. Consistent implementation of fiscal consolidation measures in the medium term is expected to reduce the high fiscal imbalance and act as an incentive for foreign investors.

## I.1. Risks from the international environment

The key risks stemming from the international environment in 2013 were recessionary trends, an uneven pace of recovery due to fiscal consolidation in the euro area, and the announcements of a change in the Fed's accommodative policy. On the other hand, progress and further steps towards forming a banking and fiscal union in the euro area, as well as a rebound of the US economy, signal better prospects for the years ahead.

After two years of contraction (0.7% in 2012 and 0.5% in 2013), the euro area economy is expected to return to moderate growth in 2014. Based on the IMF's projections<sup>1</sup>, it will grow 1.2% in 2014 and 1.5% in 2015. Stagnant growth and recession were observed in the majority of euro area members in 2013, but hit most badly Cyprus and Greece, which recorded high negative GDP growth rates. Central and Eastern Europe fared better compared to the euro area, posting an average growth rate of 2.8% in 2013. Looking at the Balkan region<sup>2</sup> alone, the strongest growth was registered in Montenegro (3.4%), followed by Macedonia (3.1%) and Serbia (2.5%).

Chart I.1.1. GDP growth projections for 2014 - European countries (%)



Source: NBS, based on IMF data.

All European countries, but Croatia (-0.6%) and Cyprus (-4.8%), are poised for recovery and positive growth rates in 2014. The highest growth rates are expected in East European countries, while South and West European

<sup>1</sup> World Economic Outlook, April 2014.

<sup>2</sup> Albania, Bosnia and Herzegovina, Bulgaria, Greece, Macedonia, Serbia, Croatia and Montenegro.

countries, affected by the fiscal crisis in the previous years, are forecast to grow modestly – from 0 to 1% (Chart I.1.1.).

As the US economy rebounds and emerging markets expand, the euro area economy will gather pace, led primarily by external demand. Concerns over potential breakup of the currency bloc amid debt crises in several member states dissipated with the stabilisation of public debt, volatility declined and the investment climate improved, resulting in a brighter outlook for private investment. And yet, high unemployment and low inflation continue to pose significant downside risks to the healing of domestic demand. At end-2013, the unemployment rate was 11.9%, while y-o-y inflation stood at 0.8%, which is under the target of close to but just below 2%. The unemployment and inflation data series suggest that it will take a while before domestic demand strengthens enough to provide a material contribution to economic growth.

Standing at 47.7 points<sup>3</sup> on average in H1, PMI Composite for the euro area manufacturing trended up in H2 to the average level of 51.4 points, signalling an improvement. In the euro area services, economic activity was on an almost uninterrupted decline since January 2012. However, from August 2013, the index rose to above 50 points, reflecting chiefly the high average value

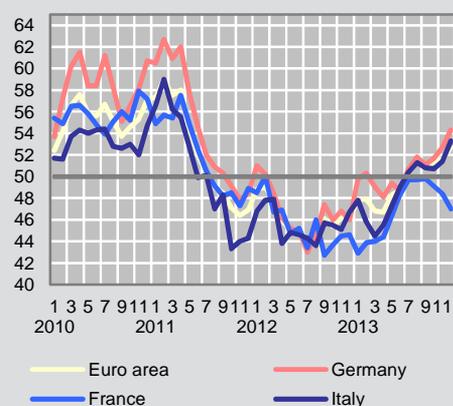
of 53.3 points recorded in Germany in H2. Charts I.1.2. and I.1.3. show that in the countries observed the index value is much more dispersed in the sector of services than in manufacturing.

The main source of volatility in the euro area in H1 2013 were the parliamentary elections and political upheavals in Italy and banking sector crises in Cyprus and Slovenia. H2, on the other hand, was marked by uncertainties over the future course of the Fed's policy and by the announcements of a possible QE tapering, which caused turmoil in many markets, especially those in emerging economies.

The banking crisis in Cyprus was in the spotlight of international attention in Q1 2013. Having invested in sovereign bonds, Cypriot banks amassed huge exposure to Greece. The drop in prices and a high haircut imposed on Greek bonds during the debt crisis caused a sharp fall in the value of Cypriot banks' assets, a rise in their debt and a shortage of capital. The sheer size of the banking sector plunged Cyprus into a deep crisis. Its debt ballooned and Cyprus became yet another member of the euro area in need of financial assistance (after Greece, Ireland, Spain and Portugal).

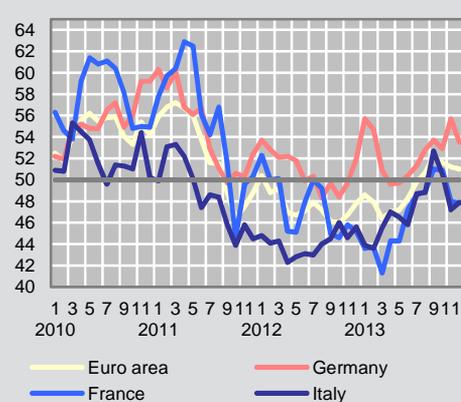
After long negotiations, which stirred up speculations of Cyprus exiting the currency bloc, agreement was reached

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



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

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



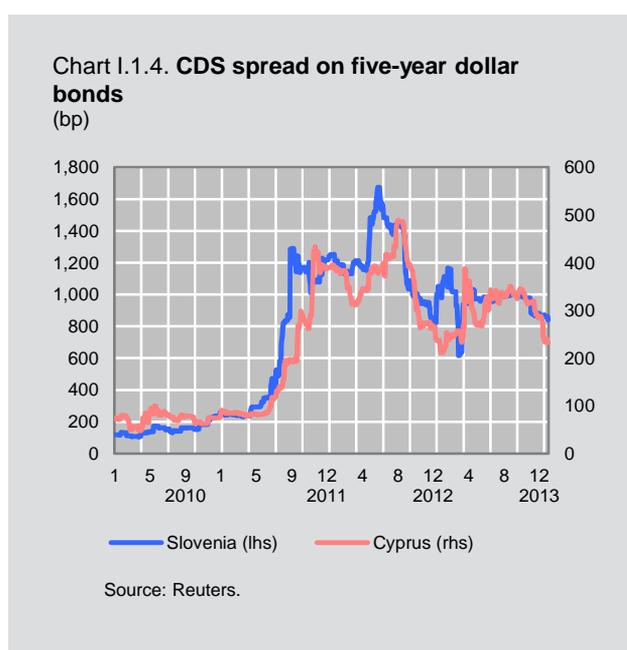
\* Purchasing Managers Index (PMI).  
Source: Markit Group.

<sup>3</sup> A reading of 50 or higher indicates economic expansion, whereas a reading of below 50 indicates economic contraction.

on how to resolve the issue of financing of insolvent Cypriot banks. In addition to agreeing on a bailout package from the EU and the IMF, it was decided that a part of the costs be borne by depositors through conversion into capital of the portion of uninsured deposits in excess of EUR 100,000. As this deposit-related measure also applied to foreign depositors, present in the Cypriot deposit market to a significant degree, it provoked turbulent reactions in other markets as well, the Russian in particular<sup>4</sup>. Since there were significant outflows from bank accounts during the bailout negotiations with the IMF and EU officials, Cypriot banks were closed for two weeks in March in order to avert a massive deposit flight.

The turmoil in Cyprus sent ripple effects and dented the confidence in banks throughout Europe, especially the peripheral countries, leading to a rise in CDS spreads for Italian and Spanish banks. At the same time, because of the credit rating downgrade, government bonds issued or guaranteed by the Cypriot government were temporarily suspended as eligible collateral for monetary operations with the ECB.

The presence of Cypriot banks in Serbia is limited to one bank which, at end-Q1 2013 when the Cypriot crisis escalated, held a market share of 0.85%<sup>5</sup>.



Slovenia is another member of the euro area that faced a new wave of crisis in 2013. In the preceding several years Slovenia had already experienced a shock which resulted in heavy losses and a number of bankruptcies. After the collapse of construction industry, the country's main engine of growth before the recession, Slovenia was hit by a high level of NPLs which ushered in a new crisis in the banking sector. Due to the bad state of the banking sector and capital shortfalls, Fitch lowered the ratings of five Slovenian banks in April – by three notches in case of the two largest banks, from BBB- to BB-. Immediately thereafter, Moody's cut Slovenia's credit rating from Baa2 to Ba1, practically junk level, mainly due to the state of the banking sector.

The main problems affecting the Slovenian banking sector are the high level of NPLs<sup>6</sup> and the bad asset quality of banks in majority state-ownership. After the collapse of the construction industry, NPLs recorded the highest increase in that sector of the economy, but they also rose in other sectors reflecting the generally weaker performance. The costs of earlier recapitalisation of banks and other loss-making state-owned enterprises aggravated the country's fiscal position, which together with tepid investor interest in the auctions of primary sale of government securities led to a rise in the cost of borrowing. In the course of 2013, the Slovenian government tried to raise the missing capital in the financial market and thus avoid seeking assistance from international financial institutions. Following recapitalisation of three state-owned banks<sup>7</sup>, the plan was to transfer NPLs from those banks to the Bank Assets Management Company<sup>8</sup> (founded for those purposes) and privatise them thereafter.

The presence of Slovenian banks in Serbia is limited to two banks. Neither of them is systemically important and their market share at end-2013 was 2.8% (measured by net assets).

### I.1.1. ECB's monetary policy in 2013 and shift in Fed's policy

*As lending to the real sector decreased further in 2013, the economy failed to recover. Together with a well below the target inflation rate, this prompted the ECB to maintain an accommodative monetary policy stance. The*

<sup>4</sup> For more information on banking crisis in Cyprus and its impact on Russia, see: The Central Bank of the Russian Federation, Financial Stability Review, July 2013, p. 13-15.

<sup>5</sup> Measured by the share in net banking sector assets.

<sup>6</sup> Based on data for June 2013, NPLs made up 17.4% of total loans.

<sup>7</sup> Nova ljubljanska banka, Nova kreditna banka Maribor and Abanka.

<sup>8</sup> Družba za upravljanje terjatev bank.

*Fed, by contrast, made a decision to wind down its QE programme beginning from early 2014.*

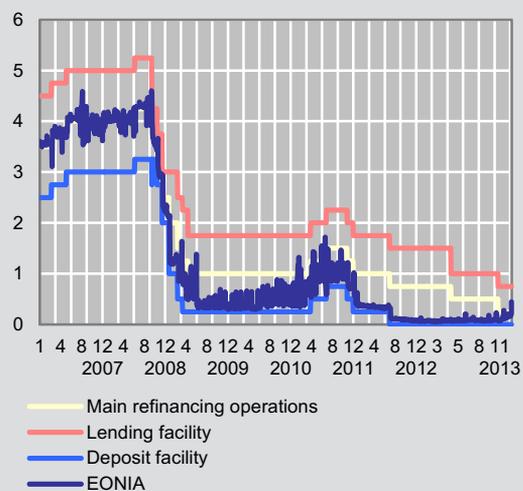
Though it was expected that the ECB would offer a new round of longer-term refinancing operations (LTROs<sup>9</sup>) in 2013, this did not come about. Instead, the ECB lowered its main interest rate in May and November, by 25 bp each, to the historical low of 0.25%. The interest rate on deposit facilities was kept at 0.0%, while the rate on lending facilities was trimmed from 1.5% to 1.0% in May and then further down to 0.75% in November. Such decision was motivated by the October inflation which plunged to its four-year low (0.7%, y-o-y), i.e. by the desire to fend off potential deflationary pressures. The ECB officials said the rate would be kept low for an extended period of time, until economic recovery takes hold.

The fate of outright monetary transactions (OMT<sup>10</sup>) remains uncertain. These transactions are aimed at reducing the cost of public debt financing for countries under a programme with the European Stability Mechanism (or European Financial Stability Facility) through the purchase of sovereign bonds in the secondary market. The Constitutional Court of Germany raised the question of the legality of the programme with a view to establishing whether the ECB's bond-buying activities are threatening the central bank mandate and generating risks to the euro area. The Bundesbank argued that the ECB would assume risks by buying sovereign bonds and that its action would exceed the mandate defined by European law which prohibits monetary financing of the budget.

The ECB, on the other hand, defended the programme by saying outright monetary transactions were specifically designed to repair the impeded transmission mechanisms, i.e. the links between the monetary policy and the real economy, given that the ECB's conventional measures are not equally transmitted to all credit markets of the euro area. Failing to make the final decision, the German Constitutional Court referred the case to the European Court of Justice in early 2014.

By the end of 2013, Mario Draghi, president of the ECB, highlighted the critical importance of keeping the European perspective, standing up for common interests, and working towards greater unification of credit terms in

Chart I.1.5. ECB's interest rates and EONIA (%)



Sources: ECB and Bloomberg.

the euro area market. This view is also shared by the Financial Stability Board which underlines the significance of the openness of the global financial system and maintains that the fragmentation arising from nationally inspired policies could slow global growth by standing in the way of efficient allocation of capital.

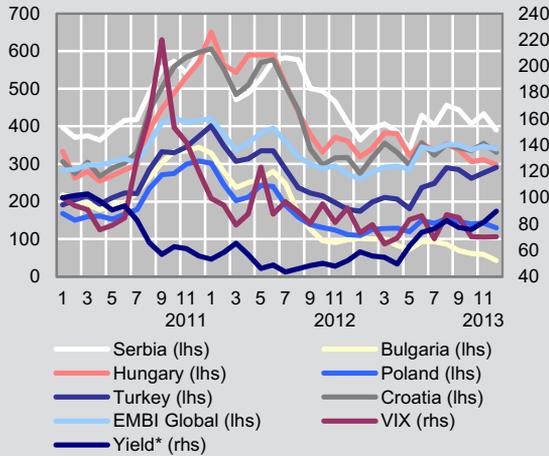
Since the start of the financial crisis in 2008, the US economy has got used to regular monetary stimulus in the form of purchase of securities by the Fed. However, as the first signs of recovery cropped up in the course of 2013, the prospect of QE tapering became imminent. In May 2013, the Fed hinted that it could start reducing the asset purchase programme in H2 2013 and wind it down altogether by mid-2014 if the values of economic indicators (unemployment rate and inflation rate) permit so.

This hint shook the financial markets globally, pushing up the yields on US treasuries and feeding through into higher volatility indices (VIX). The ripple effects were felt in our region too, notably through increased risk aversion, higher risk premiums, falling stock exchange indices and depreciation pressures in nearly all emerging economies (Charts I.1.6, I.1.7. and I.1.8). Chart I.1.9. illustrates the effect of the Fed's May hint on Serbia which experienced depreciation of the dinar and a dwindling number of foreign investors in the auctions of

<sup>9</sup> In December 2011 and February 2012, the ECB offered to euro area banks significant three-year low interest rate funding against the collateral of sovereign bonds (LTRO and LTRO2).

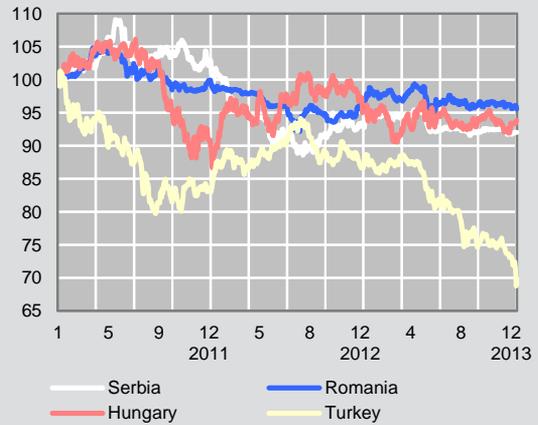
<sup>10</sup> The programme was announced on 2 August 2012 and the criteria a country must meet in order to qualify for debt purchase were published on 6 September. Though not a single transaction was performed since the start of the programme, the very announcement reduced the pressure on the cost of financing.

**Chart I.1.6. EMBI for Serbia and other regional peers, VIX and yields on US bonds**



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

**Chart I.1.8. Exchange rates of selected national currencies against the euro\***  
(daily data, 31 Dec 2010 = 100)



\* Growth indicates appreciation.  
Sources: central bank websites.

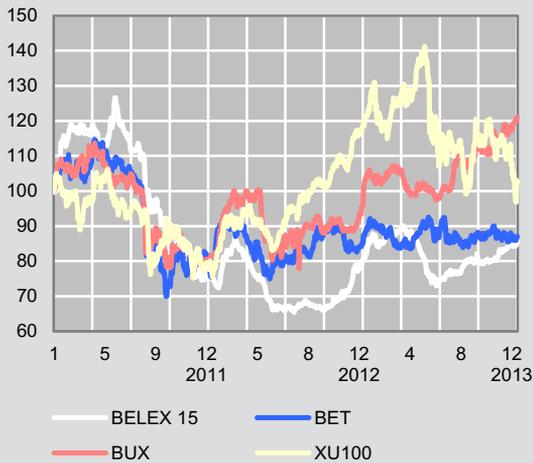
government dinar bonds over the following three months. Uncertainties in the international market eased as of September, when the Fed decided to postpone the start of tapering for some time. In conjunction with the adoption of fiscal consolidation measures, this had a soothing effect on the domestic market.

The decision to scale down the volume of monthly purchases of securities, delayed temporarily in the Fed's September and October meetings for lack of compelling evidence of a faster economic recovery, was finally made

in late December. It was decided that, starting from January 2014, the monthly asset purchases of USD 85 bln would be reduced by USD 10 bln a month (USD 5 bln – mortgage-backed bonds and USD 5 bln – government bonds).

Although the decision to start the tapering was made, the Fed highlighted that the tapering was void of any pre-defined schedule and that its pace would be dependent on inflation readings and situation in the labour market, but also on other relevant information on the expected

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



Sources: Stock exchange websites.

**Chart I.1.9. Exchange rate movements and participation of foreign investors in auctions of dinar government bonds**



Source: NBS.

economic and financial developments. Looking at the positive side, the Fed's policy move suggests its officials believe that the US economy is firm enough to withstand the cutting of stimuli provided in the previous five years.

Given the still unsatisfactory pace of growth of advanced economies, we are of the view that low interest rate policy will be maintained throughout 2014, wherefore no short-term risks to the Serbian financial system should be expected from interest rate movements in the benchmark money markets. Further ahead, the end of unconventional measures and a rise in the policy rates of the world's leading central banks may have a negative impact on interest rates in the foreign exchange segment of the Serbian credit market and therefore requires special attention in monitoring systemic risks in the medium term.

### **1.1.2. Establishing the Single Supervisory Mechanism – a step closer towards forming a banking union**

*In September 2013, the European Parliament adopted a set of regulations establishing the Single Supervisory Mechanism (SSM) and entrusting the ECB with supervision of all euro area banks. The ECB will supervise directly around 130 banks<sup>11</sup> holding nearly 85% of total banking sector assets. The main goals of the SSM are to ensure the safety and soundness of the European banking system and to increase financial integration and stability in Europe. The establishing of the SSM is an important milestone towards a banking union.*

It is expected that it will take the ECB, in collaboration with national supervisors, around a year to build the infrastructure needed for the effective exercise of supervision. More specifically, the SSM is expected to be set-up and operational in autumn 2014. Since banks in the EU have been supervised by national authorities thus far, differences in the effectiveness of supervision have occurred. Besides, another considerable problem was the lack of a single definition of NPLs, which made the cross-comparison of financial indicators difficult. The SSM will mitigate the risk of uneven application of single EU rules in different countries.

Standardised definitions, advocated by the ECB, will increase transparency through disclosure of harmonised

and comparable data and will thus help bond holders in making their investment analyses. The above weakness will be overcome through establishment of the SSM, and the EU countries still using their national currencies, such as Sweden for instance, will be given an opportunity to join the SSM on a voluntary basis.

In practice, the SSM will function as a network of national supervisors with the ECB at its centre. The ECB will supervise directly banks that meet at least one of the following three conditions:

- the value of the bank's assets at the highest level of consolidation exceeds EUR 30 bln;
- the value of the bank's assets exceeds both EUR 5 bln and 20% of GDP of the member state in which it is located;
- the bank is among the three largest credit institutions in the member state in which it is located.

The ECB will supervise directly around 130 banks, while being responsible also for the monitoring and supervision of all other banks in the euro area. Other than that, the ECB will have a discretionary right to place under its direct supervision a larger number of banks, without the consent of national authorities.

Though effective supervision under the SSM is scheduled to start in autumn 2014, the ECB is already implementing the asset quality review (AQR) in respect of banks falling under its direct supervisory authority. The AQR will be based on the minimum capital adequacy ratio of 8% and the definitions harmonised across member states.

The AQR is regarded as the ultimate test of the ECB's credibility as the future supervisor and the ECB aims to complete it by the summer of 2014. The AQR will be implemented in parallel with the stress testing which is in the competence of the European Banking Authority. The AQR will assess the fair value of bank assets, while the stress testing will project movements in the value of those assets under the impact of adverse events. These two processes will be carefully coordinated so as to avoid further build-up of uncertainties and volatility.

The advantages of centralised supervision will be evident fully once the other building blocks of the banking union are put in place<sup>12</sup>, referring in particular to

<sup>11</sup> The number reflects a consolidated perspective, i.e. banking groups which include a number of institutions will be counted as one institution. For a complete list of entities by countries, see [http://www.ecb.europa.eu/pub/pdf/other/en\\_dec\\_2014\\_03\\_fen.pdf?21d953cb19106056a509a22888c646a8](http://www.ecb.europa.eu/pub/pdf/other/en_dec_2014_03_fen.pdf?21d953cb19106056a509a22888c646a8).

<sup>12</sup> For more information on the formation of banking union and its building blocks, see the Annual Financial Stability Report 2012.

the Single Resolution Mechanism and Single Deposit Guarantee Scheme.

### I.1.3. Fall in credit activity and continued bank deleveraging in the CESEE countries

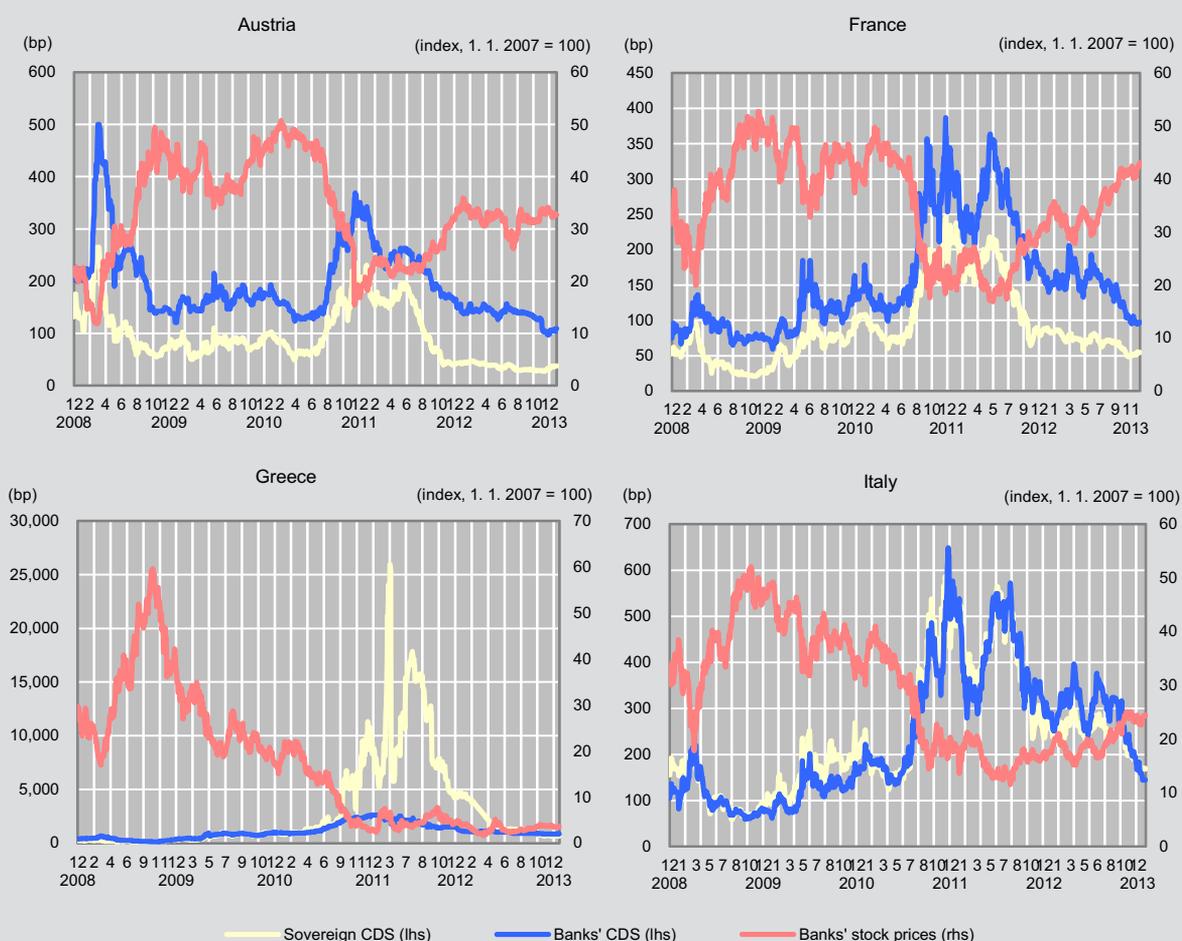
*Changed financing conditions faced by parent bank groups lessen their capacity to provide appropriate financial support to local subsidiaries. Besides, it is expected that the announced centralisation of supervision of European banks and the results of the AQR and stress testing will put additional pressure on*

*parent banks in terms of raising capital adequacy ratios and reducing cross-border exposure.*

Ever since the crisis broke out in 2008, European banks have been changing their business models towards a smaller share of cross-border exposure. There is evidence of increased home bias and reduced cross-border banking activity. Lending activity in the countries where their subsidiaries operate is increasingly reliant on the local sources of funding, notably household deposits.

While the determinants of reduced exposure can be found on both supply and demand side, those on the supply side seem to prevail.

Chart I.1.10. Developments in the home markets of domestically present banks



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

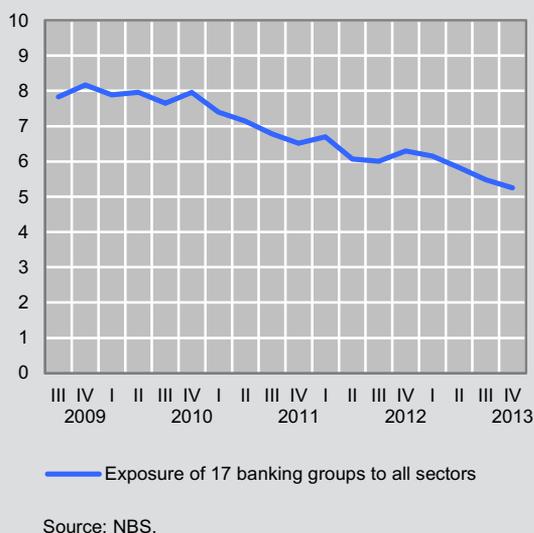
As GDP grows and domestic loan demand follows suit, loan supply and its determinants will become the key constraints to cross-border borrowing. This conclusion is based on the results of the latest bank lending survey, carried out under the Vienna Initiative<sup>13</sup>. According to the survey, the dominant constraining factors on the supply side are high NPLs and the unpredictable effects of regulatory changes at both local (CESEE region) and EU level due to new financial architecture in the euro area. The survey also shows that while cross-border banks remain committed to the region, they are being more selective in their country strategies, a risk that will require a greater amount of attention in the future.

Similar conclusions have been also reached by the NBS based on the survey it started implementing in early 2014. Namely, bank lending survey results indicate that loan supply is more constrained than loan demand because of the perception of growing risk with regard to collectability of claims<sup>14</sup>.

As subsidiaries of European banking groups account for around 75% of the domestic market, overall developments and credit activity in the euro area have a significant impact on the financing of subsidiaries in Serbia. Chart I.1.10 shows developments in the home markets of banking groups present in Serbia, i.e. relative stability of the markets of Austria and Greece and volatility of the markets of Italy and France.

With a high share of foreign banks, notably those from the EU, deleveraging continued to be one of the important risks in the Serbian banking system in 2013. Banks reacted to that challenge by adjusting their business models, or more specifically, by increasing the share of domestic in total sources of funding (chiefly dinar deposits). Based on consolidated statistics<sup>15</sup>, exposure was relatively stable in 2013. Locational statistics, however, indicates a reduction, which suggests that foreign banks

**Chart I.1.11. Vienna Initiative, banks' exposure to the Republic of Serbia, net**  
(EUR bln)



did change their sources of funding, but remained committed to the Serbian market.

Net exposure<sup>16</sup> of 17 banking groups towards all sectors of the Republic of Serbia was lower at end-2013 than at end-2012. Still, considering that all banks operating in Serbia are legal entities registered in accordance with domestic regulations and guaranteeing for their liabilities with own capital, we think that a systemic withdrawal of cross-border sources of funding at the level of the entire banking sector is not likely. Deleveraging could jeopardise financial stability only if it were sudden, disorderly and large in scope, which is definitely not the case in Serbia. Detailed analysis of credit growth and movements in the banking sector is presented in Chapter II.1.

<sup>13</sup> IIF Emerging Markets Bank Lending Conditions Survey, October 2013; CESEE Deleveraging and credit monitor, Prepared by the staff of the IFIs participating in the Vienna Initiative's Steering Committee February 2014.

<sup>14</sup> For more information on survey results, see the Inflation Report – February 2014.

<sup>15</sup> For more information on locational and consolidated statistics of the Bank for International Settlements, see the Annual Financial Stability Report 2012, Text box 1: Interpretation of BIS data, p. 18.

<sup>16</sup> Under the Vienna Initiative, net exposure is defined as the sum of total loans and deposits of parent banks less the funds of local subsidiaries deposited with parents.

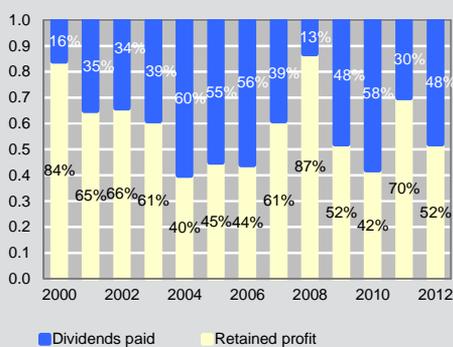
### Text box 1: Resilience of the Polish financial system during the crisis and the absence of major cross-border deleveraging

Beginning from 2006, there is an integrated model of financial supervision in Poland under the jurisdiction of an independent entity – the Polish Financial Supervision Authority (PFSA)<sup>1</sup>. For the first two years the PFSA supervised capital market institutions, insurance companies and pension funds and, since 2008, the banking sector as well. Including banks under an integrated surveillance framework just a few months before the outbreak of the global financial crisis was a challenge for both the banking sector and the supervisor. An aggravating factor was the fact that most of the banks operating in Poland were in foreign ownership and there was a concern therefore that the problems faced by parent banks could spill over to subsidiaries in Poland. Taking into account the external character of the sources of risk, the PFSA put all of its efforts in continuing the policy of internal strengthening of the banking sector of Poland through rigorous capital requirements and liquidity standards. This enabled the country's banking sector to successfully weather the crisis with a strong capital base and with no need for government assistance.

During the financial crisis, the Polish banking sector maintained its business model in which additional sources of capital originated from profit or shareholders, rather than from the government. Due to increased uncertainty in international financial markets and weak economic growth, the strategy of strengthening the capital base of financial institutions in Poland was implemented through a conservative dividend policy. Nearly 90% of the profits of commercial banks earned in 2008 was not distributed through dividends, but retained, thereby enabling the creation of capital reserves in the banking sector. The criteria a bank must meet in order to qualify for the dividend payment include CAR over 12%, Core Tier 1 ratio above 9%, and good results of the stress tests and SREP. This policy was continued in subsequent years, but was gradually relaxed. Subject to meeting the above criteria, banks are now allowed to pay dividends up to 100% of the profit earned in 2013. Stronger capital base, in terms of quantity and quality, eased the decline in lending activity in the aftermath of the global economic crisis and allowed accomplishment of higher capital requirements, consequently leading to an increase in the Polish banking sector's CAR by 2.1 pp within the span of one year only (from 11.2 % in 2008 to 13.3 % in 2009). At the end of 2013, this ratio stood at 15.7%.

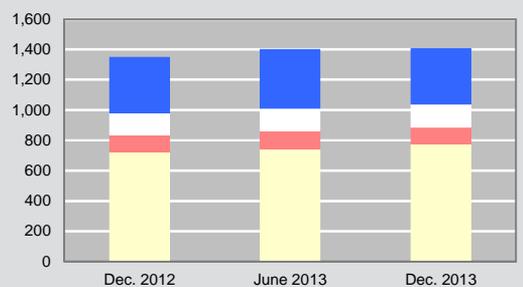
Despite the restrictions on dividend payment, foreign banks have remained loyal to the Polish market thanks to high profitability<sup>2</sup>, which is among the top five in the EU. In the ten-year pre-crisis period (1998-2008), average return on

Chart O.1.1. Dividend policy of PFSA (%)



Source: Komisja Nadzoru Finansowego.

Chart O.1.2. Sources of financing of the Polish banking sector (PLN bln)



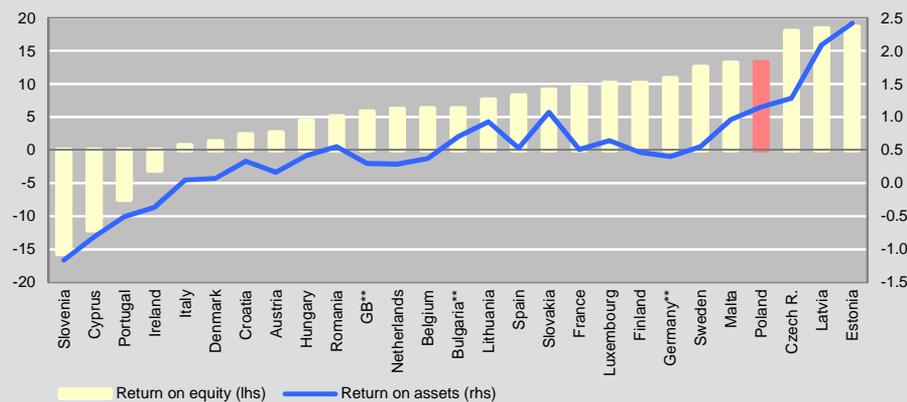
Source: Komisja Nadzoru Finansowego.

<sup>1</sup> Komisja Nadzoru Finansowego.

<sup>2</sup> Measured by return on assets and return on equity.

equity was 14.9% and return on assets 1.3%. According to the IMF's data for 2013, return on assets of the banking sector of Poland was 1.2%, exceeded only by the Czech Republic (1.3%), Latvia (2.1 %) and Estonia (2.4%), while return on equity was 13.2%.

**Chart O.1.3. Profitability of EU\* countries' banking sector in 2013**  
(%)



\* Excluding Greece due to lack of data for ROE for 2012 and 2013.

\*\* Latest available data are for 2012.

Source: IMF, *Financial Soundness Indicators*.

Regulatory recommendations have also contributed to the reduction of risk in the banking sector. One of the PFSA recommendations, which yielded good results in the assessment of borrowers' creditworthiness, refers to lending standards in the retail sector. The so-called recommendation "T", which came into force in late 2010, included practical guidelines for credit risk management in respect of loans granted to households. Qualitative standards were replaced by the quantitative ones and the DTI ratio<sup>3</sup> was established at the level of 50% if the borrower's income is lower than or equal to the average income, or at the level of 65% if the borrower's income is higher than the average income in Poland. However, as the market conditions changed, recommendation "T" was revised in February 2013: its scope was narrowed to lending that is not secured by a mortgage (mainly consumer loans), a single DTI ratio was abandoned and banks are now allowed to set limits to customers according to their internal standards, but with somewhat greater caution when it comes to clients with DTI ratios above 40% (or 50% for clients with above average income).

A set of recommendations "S"<sup>4</sup> was made in response to the growing risk of lending in foreign currency, especially mortgage lending. In accordance with the changed market conditions, recommendation "S" was revised in June 2013: its scope was narrowed only to mortgage-secured lending, and the same as with recommendation "T", a unique DTI ratio was abandoned – banks are now allowed to determine their own limits for customers, with special attention to customers whose ratios exceed the aforementioned value. Lending in foreign currency is limited to customers whose regular income is also in foreign currency. Maximum LTV ratio<sup>5</sup>, which has not been defined before, is established for all mortgage loans, with a gradually declining trend in the three-year transition period starting from the value of 95% in 2014. Euroisation, measured by the share of foreign currency loans in total loans of the non-financial sector, amounted to 30% at the end of 2013, which is its lowest level in the last five years. Also, this indicator has recorded a relatively steady downward trend since October 2011 when it stood at 35.4%.

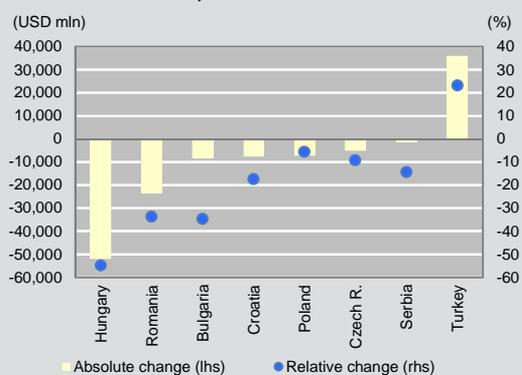
<sup>3</sup> Debt-to-income ratio.

<sup>4</sup> Recommendation "S" (2006), its revision (2011) and amendment (2012), and Recommendation "S II" (2008).

<sup>5</sup> Loan-to-value ratio.

A cutback in foreign currency lending, resulting from the PFSA recommendations, also had a positive impact on reducing subsidiaries' dependency on parent banks and their need for parent funding. Domestic sources still prevail in the total sources of financing, while deposits of the non-financial sector account for more than half of the total sources. The resilience of the financial system of Poland is also underpinned by the relatively low level of non-performing loans. The share of non-performing loans in total loans of the non-financial sector was 8.5% at the end of 2013 (11.5% corporates, 7.0% retail - of which housing loans 3.1% and consumer loans 14.6%)<sup>6</sup>. The financing of subsidiaries from foreign parent banks remained stable in recent years as a result of a combination of regulatory measures and the specific characteristics of the Polish financial system, the most important among them being size, stability, high profitability and the consequently low level of non-performing loans. Unlike other countries in the CESEE region, Poland recorded no major outflows on account of cross-border deleveraging.

**Chart O.1.4. Change of cross-border exposure to selected countries, Q3 2008 – Q4 2013**



Source: BIS, locational statistics, resident principle.

<sup>6</sup> The share of non-performing loans in total loans was 5.2% in June 2013. Compared to other countries of Central and Eastern Europe, Poland has recorded the lowest value of this indicator after Turkey (2.6%).

## I.2. Overview of domestic macroeconomic developments

*In 2013, GDP grew 2.5% and y-o-y inflation returned in September within the target tolerance band. In 2014, GDP is likely to stagnate, while y-o-y inflation is expected to stay within the target tolerance band. High unemployment and weak domestic demand will remain the main disinflationary factors in 2014. Consistent implementation of fiscal consolidation measures is expected to reduce fiscal and external imbalances and to increase the resilience of the domestic economy to external shocks.*

After negative growth rates in 2012 due to the bad agricultural season, low investments and recession in the euro area, Serbian GDP grew 2.5% in 2013. It was mainly driven by exports, primarily in automobile and oil industries (Fiat Automobiles Serbia and Serbian Oil Industry). Charts I.2.1. and I.2.2 illustrate the rebalancing of the economic growth model in place after 2008 – the key elements of growth in the post-crisis period are exports and investments on the expenditure side, and a greater contribution of tradeable at the cost of non-tradeable sectors on the production side. With the recovery in the euro area and more robust external demand, net exports are expected to contribute to GDP growth in 2014, though to a lesser degree than in 2013.

A negative contribution to GDP growth in 2013 originated primarily from low government investment and dented private consumption, triggered by austerity

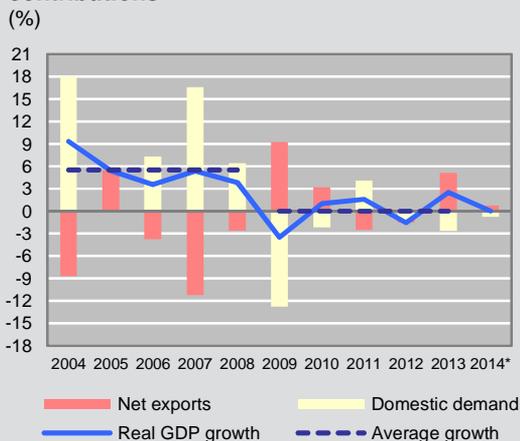
measures under the fiscal consolidation programme and poor purchasing power of households. Net private investment was also negative y-o-y, with recovery expected in 2014. Further, the start of negotiations on Serbia's EU accession, consistent implementation of fiscal consolidation measures and structural reforms, and conclusion of an arrangement with the IMF, should have a positive impact on foreign investors' perception and bolster investments in the period ahead.

After rising vigorously in 2012, due to a bad agricultural season and the resulting food price hike, y-o-y inflation plummeted from 12.8% in January to 2.2% in December 2013. Inflationary pressures were rather low in 2013 owing to well-calibrated monetary policy measures, a good agricultural season, low aggregate demand and the relatively stable exchange rate. In September, y-o-y inflation returned within the target tolerance band, whilst in Q4 2013 it temporarily slid below the lower bound of the target tolerance band reflecting the unexpectedly sharp reduction in unprocessed food prices. In 2014, however, it is expected to move within the target tolerance band.

Responding to inflationary pressures, the NBS tightened monetary policy by raising its key policy rate by 225 bp in total from June 2012 to February 2013.

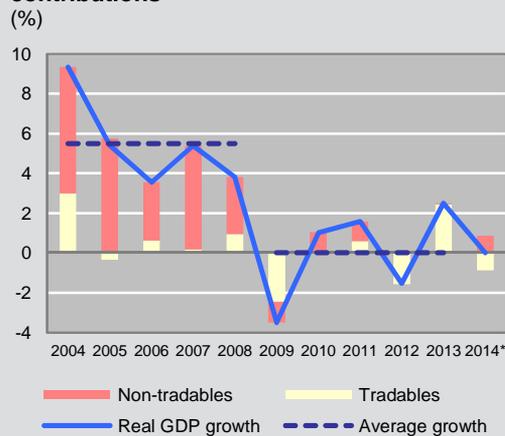
Low domestic demand, posting negative y-o-y growth rates since 2009, was the key disinflationary factor. Its negative trend is likely to continue into the years to come, whilst recovery is anticipated only in 2016.

Chart I.2.1. Real GDP growth – demand contributions



\* NBS projection, June 2014.  
Source: NBS.

Chart I.2.2. Real GDP growth – supply contributions



\* NBS projection, June 2014.  
Source: NBS.

The dinar was relatively stable vis-à-vis the euro in 2013. It appreciated in the first five months of the year, only to depreciate in late May and early June. Depreciation of local currencies was observed not only in Serbia, but in most emerging markets, in response to Fed's hints at QE tapering. Right after the Fed's announcement, foreign investors cut back on investment in Serbia as well and refrained from reinvesting the proceeds from maturing dinar government securities, which resulted in increased demand for foreign currency and generated depreciation pressures around mid-2013. As pressures abated in September, the dinar lost 0.8% in nominal terms at the level of entire 2013.

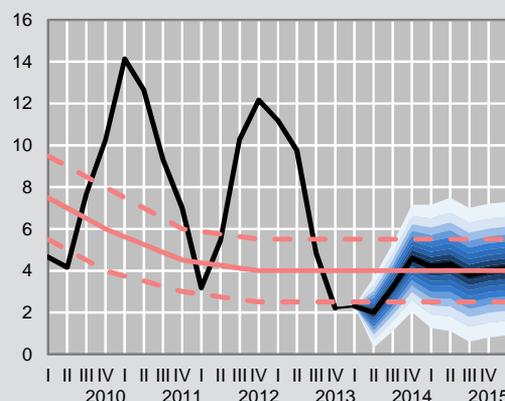
In 2013, the NBS intervened in the IFEM in both directions – it sold EUR 435 mln and bought EUR 615 mln, i.e. it purchased EUR 180.0 mln net. Interventions were aimed at easing excessive short-term volatility of the dinar, preserving price and financial stability, and maintaining an adequate level of FX reserves. In conditions of pronounced financial euroisation, like in Serbia, high volatility of the exchange rate affects not only inflation, but also the balance sheets of real and public sectors because of the asset-liability currency mismatch. Hence higher depreciation of the dinar leads to deterioration in credit portfolios of banks and financial stability at large.

In contrast, the weakening of the dinar has a beneficial impact on the current account deficit – by increasing the competitiveness of the domestic economy it serves as a fillip to export-based GDP growth. Due to the simultaneous

divergent impact of depreciation on the balance of payments on the one hand, and inflation, dinar-denominated public debt and NPLs on the other, monetary and macroprudential instruments and measures need to be carefully fine-tuned. In such circumstances, a prompt central bank response is also geared at maintaining an adequate level of FX reserves. In 2013, gross FX reserves went up from EUR 10.9 bln in 2012 to EUR 11.2 bln in 2013. The degree of their adequacy was also raised.

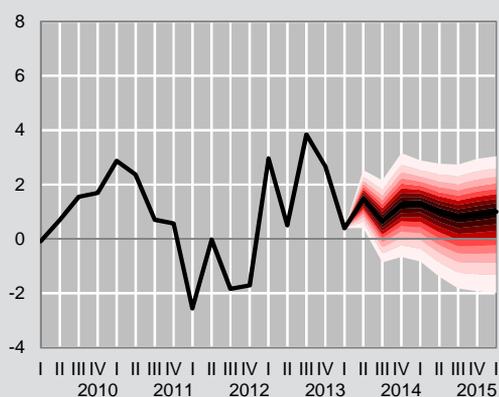
In light of a higher public debt to GDP ratio on the one hand, as well as a sharp reduction in the current account

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



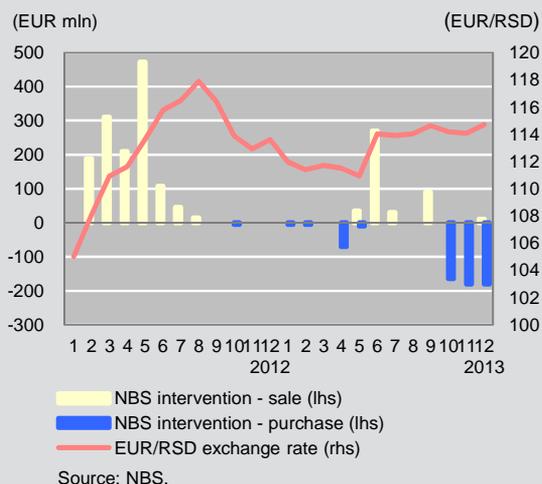
\* May 2014.  
Source: NBS.

Chart I.2.3. Projection\* of real GDP growth (%)



\* May 2014.  
Source: NBS.

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



Source: NBS.

deficit and a higher degree of adequacy of FX reserves on the other hand, it cannot be unambiguously concluded that the macroeconomic imbalance narrowed in 2013 compared to 2008.<sup>17</sup> Moreover, though the share of private external debt in GDP declined, the degree of banking sector euroisation<sup>18</sup>, as one of the key risks to financial stability, increased from 70.8% to 73.2%.

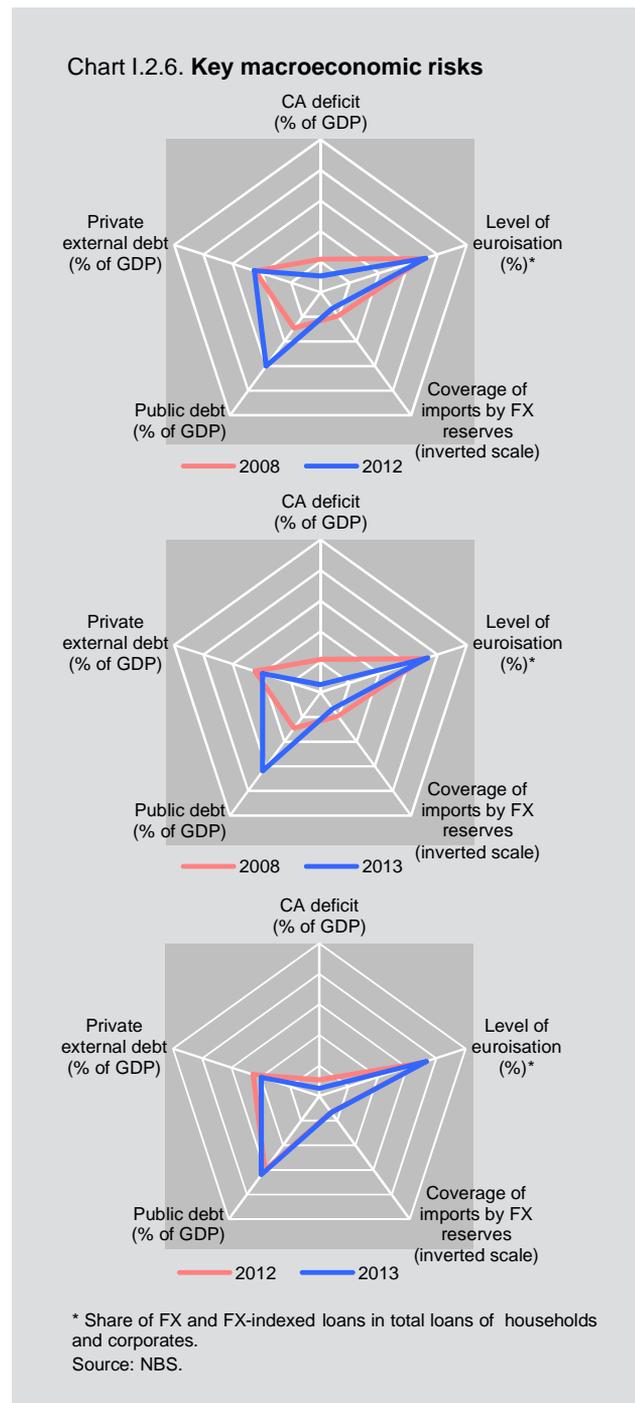
Relative to 2012, however, the vulnerability of the financial system diminished somewhat in 2013, as suggested by the current account deficit which was more than halved (from 10.5% in 2012 to 5.0% of GDP in 2013) and a decline in the share of private external debt (from 45.1% to 39.6% of GDP). In contrast, public debt continued to rise (from 60.0% to 63.8% of GDP), exceeding significantly the limit of 45% of GDP, envisaged by the Budget System Law. Its currency structure is also unfavourable as around 80.0% is FX-denominated. However, the refinancing risk declined owing to the favourable maturity structure of public debt. Still, consistent implementation of fiscal consolidation measures, adopted in late 2013, is expected to reduce the fiscal and external imbalances and ensure sustainable economic growth in the medium run.

### 1.3. Foreign exchange reserves as insurance against shocks

*The level of foreign exchange reserves in 2013 was adequate and high enough from the aspect of maintaining financial stability. At year-end, gross foreign exchange reserves equalled EUR 11.2 bln and net – EUR 7.8 bln. Different stress scenarios run through the foreign exchange reserves adequacy model show that the foreign exchange reserves of the Republic of Serbia are high enough to safeguard the domestic system from external shocks.*

The National Bank of Serbia holds foreign exchange reserves for the purposes of financing balance of payments needs, easing excessive exchange rate volatility and dealing with contingencies such as natural disasters.

The adequacy of foreign exchange reserves is assessed from the aspect of materialisation of individual risk or a combination of several risks. The most common risks,



based on which relevant indicators are construed, are the necessity to finance imports of goods and services for some time against the backdrop of reduced capital inflows from abroad, the necessity to service short-term external debt at remaining maturity in conditions of strained

<sup>17</sup> The key vulnerability indicators for the Republic of Serbia are shown in Chart 1.2.6. The Chart shows changes in the balance of payments 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>18</sup> Measured as a share of FX and FX-indexed loans in total loans granted to household and corporate sectors.

Table I.3.1. Adequate level of FX reserves, end-2013

Adequacy indicator	Adequate level (EUR bln)
Coverage of three months of imports	4.5
Coverage of three months of current payments	5.0
Coverage of short-term external debt at remaining maturity	5.2
Coverage of 20% of broad money (M3)	3.0
Coverage of foreign exchange deposits (100%)	9.9
Coverage of short-term external debt at remaining maturity and current account deficit	5.6
Wijnholds–Kapteyn indicator	6.8
Roaf–Norris indicator (stress-scenario)	9.2
"Right measure for Serbia"	6.2
<b>Level of FX reserves</b>	
Gross	11.2
Net	7.8

Source: NBS.

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	2%	2%	2%	2%	0.4%
$g$	Average GDP growth	1%	1%	1%	1%	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%	25%	25%	25%
$\Delta Q$	Real depreciation	0%	10%	0%	10%	10%
	Optimal level of reserves (EUR bln)	7.0	8.4	8.6	10.0	10.0
Gross FX reserves of NBS (2013, EUR mln)		11,189				

Source: NBS.

access to international capital markets, and the withdrawal of deposits.

Here we will explain in short the Wijnholds–Kapteyn, Roaf–Norris and “right measure for Serbia” indicators which imply simultaneous occurrence of several different shocks.<sup>19</sup>

According to the Wijnholds–Kapteyn indicator, foreign exchange reserves should cover the sum of short-term external debt at remaining maturity and 5–10% of broad money. For the purposes of this analysis, we used a conservative scenario, which implies 10% of M3.

The Roaf–Norris indicator measures the coverage of the sum of 50% of short-term external debt at remaining maturity, 50% of portfolio investments, 5% of broad money (M3) and 15% of exports.

In our efforts to make the best possible assessment of the adequacy of foreign exchange reserves, we developed an indicator that takes into account all the specificities of the Serbian economy. This indicator, known as “the right measure for Serbia”, gauges the coverage of the sum of short-term debt at remaining maturity, the deficit of the balance of payments adjusted by FDI, 15% of FX deposits and 5% of dinar deposits.

In making these assessments, it is useful to take into account the dynamics of mutual relations between the factors on which the adequate level of foreign exchange reserves actually depends. The Jeanne–Ranciere model<sup>20</sup> determines an optimal level of foreign exchange reserves as a share in GDP ( $\rho$ ), depending on the size of the shock ( $\lambda$ ), probability of a sudden stop ( $\pi$ ), damage caused by the sudden stop ( $\gamma$ ), real depreciation ( $\Delta Q$ ), risk aversion ( $\sigma$ ), return on reserves ( $r$ ), opportunity cost of holding reserves ( $\delta$ ) and real GDP growth ( $g$ ):

$$\rho = \frac{\lambda + \gamma - (1 - \frac{(r-g)}{(1+g)})\lambda(1 - p^{\frac{1}{\sigma}}) + \frac{1+r}{1+g}\lambda\Delta Q}{1 - \frac{\pi}{\pi + p(1-\pi)}(1 - p^{\frac{1}{\sigma}}) + (1 - \frac{\pi}{\pi + p(1-\pi)})\Delta Q} (1 + \Delta Q)$$

Based on the reserve adequacy indicators, parameter sensitivity analysis and the five stress scenarios run through the reserve adequacy model, it can be concluded that the level of Serbia’s foreign exchange reserves at end-2013 was comfortable. Furthermore, the adequacy of foreign exchange reserves measured by the “right measure for Serbia” indicator increased in 2013 relative to the year before (from 151.4 to 179.1), and has been

<sup>19</sup> For detailed explanation of the indicators see the Annual Financial Stability Report 2011.

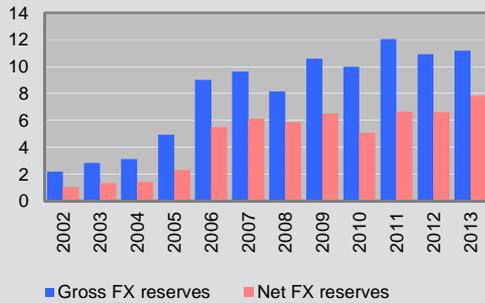
<sup>20</sup> See O. Jeanne, R. Ranciere (2008): The Optimal Level of International Reserves for Emerging Market Countries: A New Formula and Some Applications, CEPR Discussion Papers 7623, as well as the Annual Financial Stability Report 2011.

above the lower bound of 100% since 2008. The rise in this indicator reflects primarily the projected narrowing of the current account deficit and increase in FDI inflows.

The NBS also contributed to the rise in foreign exchange reserves in 2013 by acting as the net buyer of EUR 180

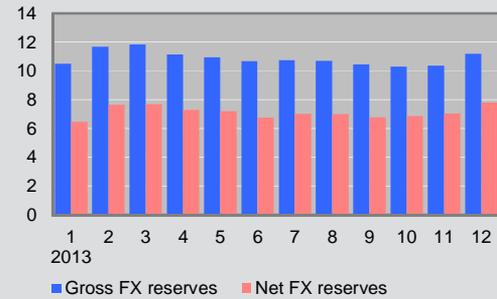
mln in the foreign exchange market. Namely, to ease excessive daily volatility of the exchange rate of the dinar and to ensure smooth functioning of the market, the NBS intervened in the interbank foreign exchange market in 2013 in both directions – by selling EUR 435 mln and by buying EUR 615 mln.

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



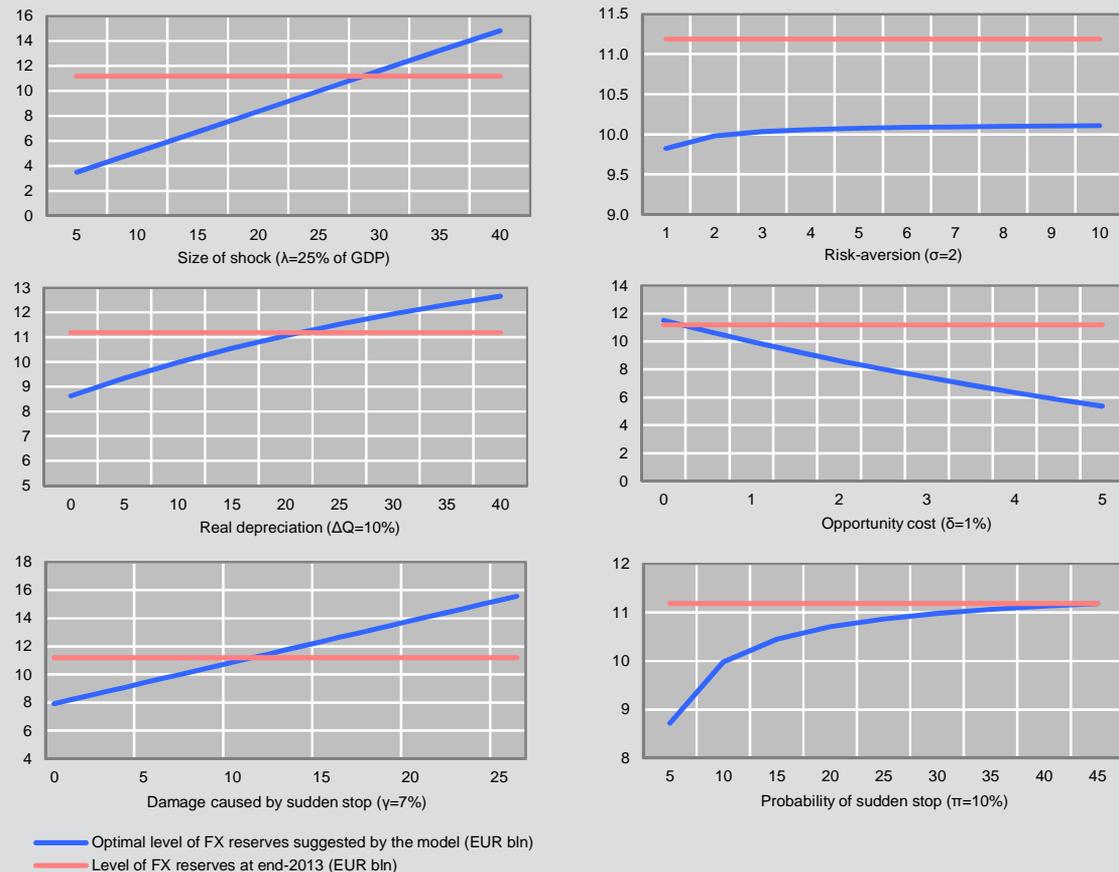
Source: NBS.

**Chart I.3.2. FX reserves of the National Bank of Serbia in 2013 (EUR bln)**



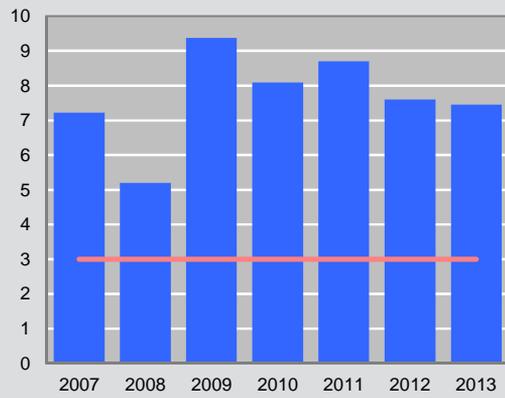
Source: NBS.

**Chart I.3.3. Sensitivity analysis of the parameters of FX reserves adequacy model, based on the fifth scenario**



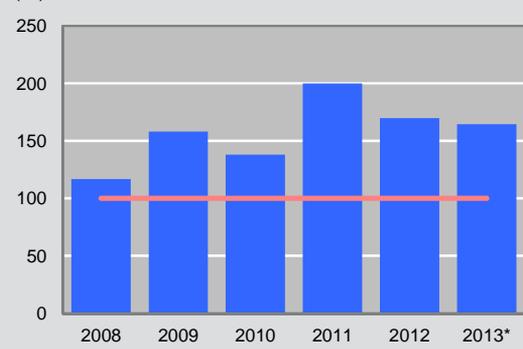
Source: NBS.

Chart I.3.4. Months of imports covered by gross FX reserves



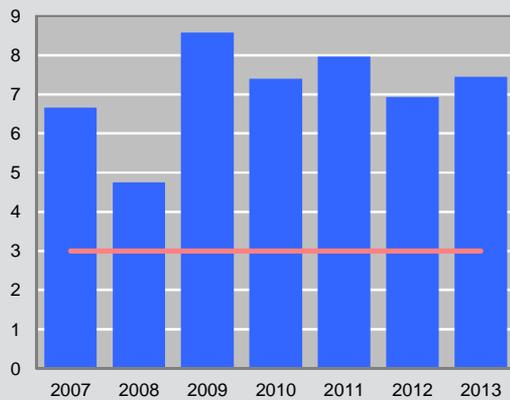
Source: NBS.

Chart I.3.7. *Wijnholds-Kapteyn* indicator for gross FX reserves (%)



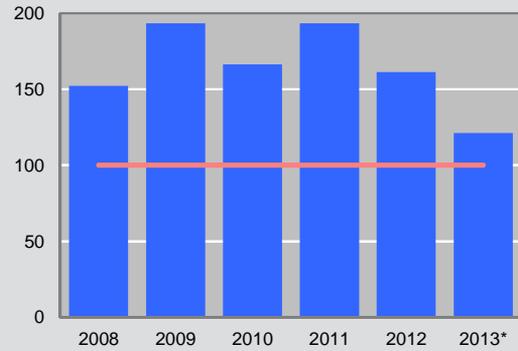
\* Short-term external debt at remaining maturity is projected by the NBS.  
Source: NBS.

Chart I.3.5. Months of current payments covered by gross FX reserves



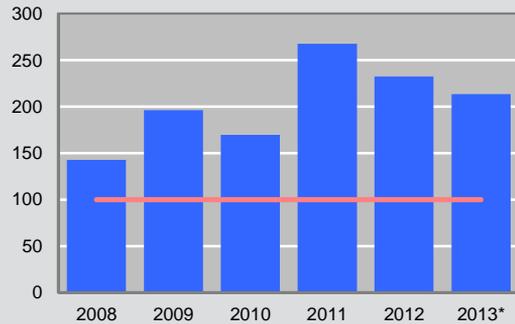
Source: NBS.

Chart I.3.8. *Roaf-Norris* indicator for gross FX reserves (stress-scenario) (%)



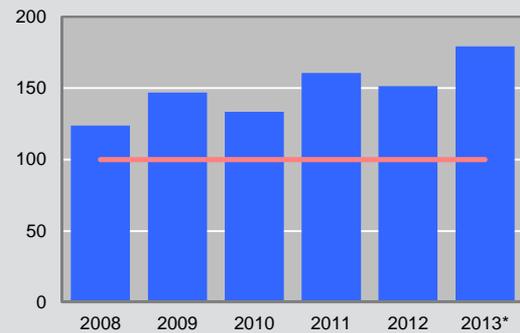
\* Short-term external debt at remaining maturity is projected by the NBS.  
Source: NBS.

Chart I.3.6. Coverage of short-term external debt at remaining maturity by gross FX reserves\* (%)



\* Short-term external debt at remaining maturity is projected by the NBS.  
Source: NBS.

Chart I.3.9. "Right measure for Serbia" for gross FX reserves (%)



\* Short-term external debt at remaining maturity, CA deficit and FDI are projected  
Source: NBS.

## I.4. Fiscal policy and sustainability of public and external debts

*The government's capacity to service its debt on time is an important source of security for the financial sector. Though exposure to government securities is not considered a significant source of risk to the financial sector of the Republic of Serbia, the pace of its growth raises some concern. The risk of default by the government is a systemic risk to financial stability. Furthermore, there is a feedback loop at play here – the risks in the financial sector work their way into the government sector through two channels: (1) higher fiscal expenditure for financial sector support (in the form of recapitalisation, issue of guarantees, loans or subsidies) and the rise in public debt, and (2) cross-border deleveraging of the financial sector and the consequent decline in credit supply, economic activity and tax revenue. The sustainability of public debt and fiscal policy is currently the most topical issue since public debt at end-2013 amounted to 63.8% of GDP. Adding non-guaranteed debt of local governments, as well as accumulated arrears, even though this is not a de iure but is a de facto debt, the public debt figure shoots above 65% of GDP. Consolidated and augmented consolidated fiscal deficits<sup>21</sup> are 5.0% and 5.9% of GDP, respectively. Cross-country comparison of fiscal deficit levels in Europe shows that Serbia ranks second after Bosnia and Herzegovina. The government is facing the tough challenge of implementing a fiscal adjustment equivalent to 4% of GDP between 2014 and 2017.*

Government bonds are considered to be risk-free, high-quality liquid assets because the credibility of a government by far exceeds that of other issuers. The government holds a monopoly on tax collection, which puts it in a rather unique position. Yet, government securities are risk-free only if the government has the capacity to service its debt on time. As this may not always be the case, the relationship between investment and fiscal policy, which has a crucial impact on the level of public debt, can be fragile, and as the public debt grows, this relationship can become rather volatile too.

Financial stability depends on the interconnectedness of the two sectors. The public sector provides security to the financial sector – through direct capital injections, but

also serves as a benchmark for the valuation of riskier assets. The financial sector provides credit to the real sector and ensures government funding.

The downside of this interconnectedness comes strongly to the fore in times of crisis. The risks in the financial sector spill over to the government sector through two channels: (1) higher fiscal expenditure for financial sector support (in the form of recapitalisation, issue of guarantees, loans or subsidies) and the rise in public debt; (2) cross-border deleveraging of the financial sector and the consequent decline in credit supply, economic activity and tax revenue. On the other hand, increased government needs in terms of public debt financing may lead to the crowding out effect, thus creating a negative feedback loop between public finance and the financial sector.

In order to maintain financial stability, both public and financial sector must be sound and stable. Building up sufficient capital and liquidity reserves in the financial sector is not enough. Fiscal policy and public debt must be sustainable as well. This is why the NBS must monitor and assess the risks arising from the close linkages between the financial and public sector and mitigate them by appropriate prudential policy response.

### Fiscal policy

In 2013, consolidated fiscal deficit reached RSD 181.4 bln, i.e. 5.0% of GDP (or 5.9% of GDP including below-the-line expenses). At the same time, as some budgeted expenditure items were not executed, the fiscal deficit came lower than envisaged by the revised budget (by around 0.6% of GDP). However, the deficit was high despite the savings made on discretionary spending (for subsidies, goods and services, and capital projects), because of a sharp fall in revenue. Though consumption taxes (VAT and excise tax) were raised, revenue recorded a real drop due to the scarring effects of recession on a good part of the economy, the illiquidity of enterprises and the growth of the grey economy. Also, we must not disregard the permanent loss of tax revenue on account of lower customs receipts and a shift to the export- and investment-based model of economic growth. While savings on discretionary spending are necessary and welcome, a reduction in capital expenditure has an adverse effect on investment and

<sup>21</sup> Augmented consolidated fiscal deficit is fiscal deficit plus below-the-line expenses (resolution and recapitalisation of banks, payment of liabilities under issued guarantees, etc). All calculations in the Report are made using the augmented deficit figures.

infrastructure development, and thereby on future economic growth.

A significant deficit component is expenditure for bank resolution and coverage of losses of public and other state-owned enterprises (payment of their liabilities under prior government-guaranteed borrowing, and similar).

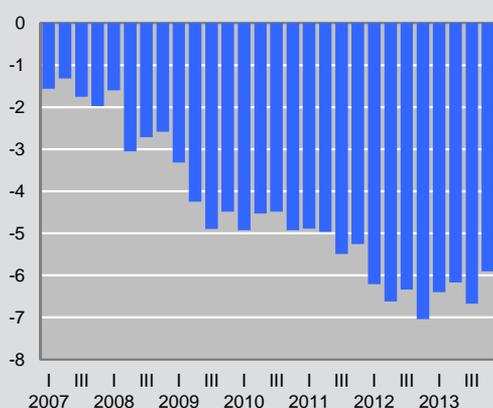
Total fiscal deficit can be decomposed into primary fiscal deficit and interest payments. The primary deficit is an important indicator of a country's fiscal position. It indicates the size of the fiscal deficit excluding interest payments, i.e. assuming zero public debt. In 2013, the augmented primary fiscal deficit amounted to around 3.3% of GDP or 3.7% of GDP including arrears, which suggests that there is a substantial imbalance between revenue and expenditure, which is not a consequence of the size of public debt. Interest expenses reached 2.6% of GDP. If the augmented primary fiscal deficit is not reduced, there is a threat that public debt growth could become self-generating.

Absent any changes in fiscal policy, the consolidated fiscal deficit (including below-the-line expenses) in 2014 could well exceed the 7.1% of GDP envisaged by the Fiscal Strategy.

A strong fiscal consolidation is needed to bring public finance back on a sustainable path and to create conditions conducive to economic growth. A sustainable and socially acceptable objective could be to reduce the consolidated fiscal deficit to 3% of GDP in 2017, which requires savings equivalent to 4% of GDP in the period 2014–2017. At the same time, the reduction of fiscal deficit should not lower investment in physical capital (infrastructure) nor jeopardise human capital (quality of education, healthcare and social welfare, protection of the most vulnerable social groups). Finally, the stark reality that it will not be possible to decrease substantially all subsidies (such as in agriculture and railways) must be faced up to.

Amendments to tax legislation were adopted along with the budget for 2014. Thus, an upward revision was enacted to property tax, excise tax and the special VAT rate. The range of products subject to the special VAT rate was narrowed down. Solidarity tax, equivalent to a direct wage cut, was introduced for public sector employees. However, this set of measures proved to have a limited effect. The most important reforms that need to be implemented in order to ensure fiscal policy and public debt sustainability include: reform of the pension system by introducing actuarial fairness and by raising the

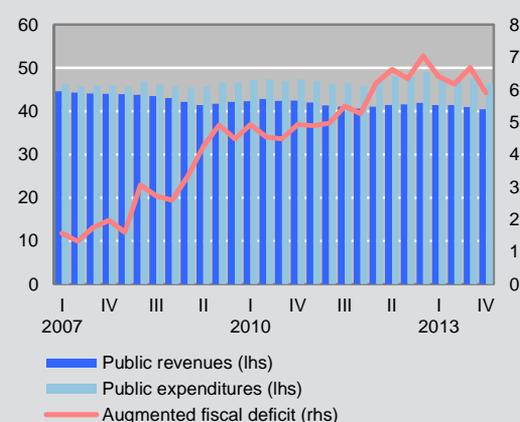
**Chart I.4.1. Augmented fiscal result\***  
(% of GDP)



\* Ratio of 4Q moving sums.

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

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



\* Ratio of 4Q moving sums.

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

retirement age for women; restructuring of public enterprises and optimisation of the price of their goods and services so that they can meet their obligations on their own, i.e. without government financing; reduction of budget allocations for subsidies through alignment with EU rules on government assistance; reform of healthcare and education through rationalisation of the network of schools and healthcare institutions so as to ensure at least the same quality of service, but at a lower cost. Reform of the economic system would go along the lines of cutting government spending, improving tax collection, lowering tax debt, as well as enhancing the business environment and stimulating entrepreneurship and investment. Establishing firm budget restrictions and completion of the process of privatisation of enterprises in social and public ownership would help decrease expenditure, while the reform of the labour market and the pension system and fighting against the grey economy would help boost revenue.

### Public debt sustainability

Based on the official data of the Ministry of Finance, public debt amounted to EUR 20.1 bln or 63.8% of GDP at end-2013. According to the data released by the IMF, the share of Serbia's public debt in GDP at end-2013 was 65.7%. The 2% difference is accounted for by the inclusion into public debt of non-guaranteed debt of local governments and accumulated arrears at all state levels. In addition to its level, the pace at which public debt rises is also judged to be extremely unfavourable – from 2010 to 2013 public debt rose an average EUR 2.6 bln a year. In relative terms, public debt growth (as pp of GDP) was somewhat slower because of the moderate real

**Table I.4.1. Public debt and structural fiscal result of CESEE countries and Turkey**

	Public debt (% of GDP)		Structural fiscal result (% of GDP)	
	2013	2014*	2013	2014*
Albania	70.5*	71.7	N/A	N/A
BiH	42.7	42.4	-8.5	-9.0
Bulgaria	17.6*	21.7	-1.0*	-1.2
Croatia	59.8	64.8	-4.0	-3.4
Hungary	79.2*	79.1	-1.7*	-2.4
Macedonia	35.8*	36.3	N/A	N/A
Montenegro	56.8	58.8	N/A	N/A
Poland	57.5	49.5	-3.4	-2.7
Romania	39.3	39.7	-1.8	-1.3
Serbia	65.7	69.7	-5.5	-6.4
Turkey	35.8	35.9	-4.5	-4.4

\* Projections.

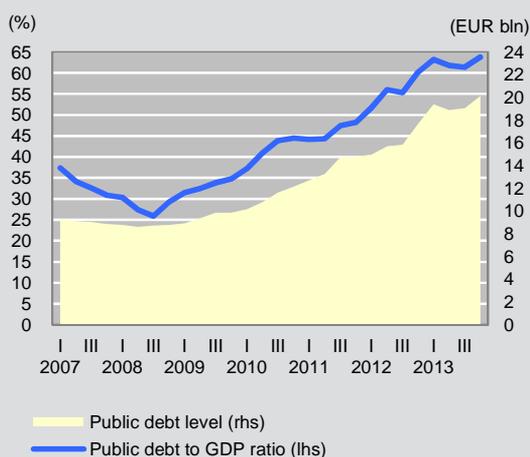
Source: IMF, World Economic Outlook Database, April 2014.

appreciation of the dinar against the euro and a slight increase in GDP.

Provided consolidated fiscal deficit in 2014 does not depart from the planned level (around 7% of GDP), the increase in indirect government liabilities matches the one recorded in 2013, inflation remains within the target band, the real exchange rate stays unchanged and the real GDP stagnates, Serbia's public debt is estimated to reach around 70% of GDP at end-2014.

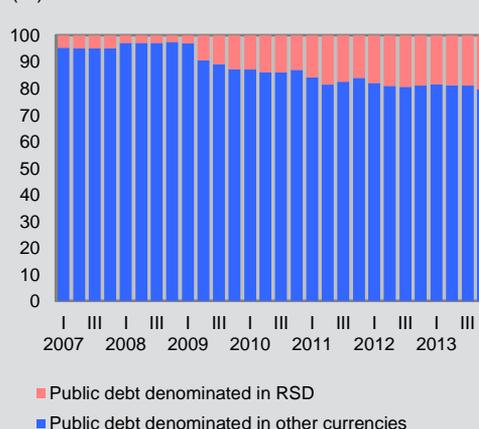
High augmented consolidated fiscal deficit (expenses on account of called guarantees, resolution of banks and corporates) is the main driver of public debt growth. In accordance with the Budget System Law, the Fiscal Strategy for 2014–2016 lays down the general and

**Chart I.4.3. Public debt dynamics**



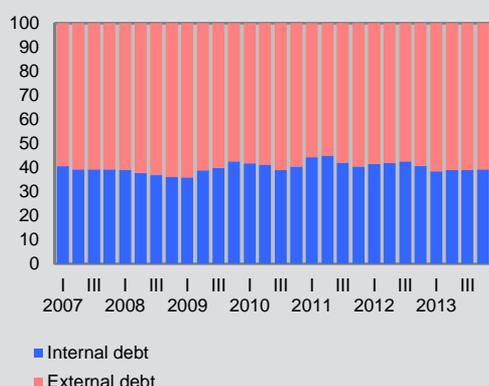
Source: NBS, based on the data from Ministry of Finance.

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



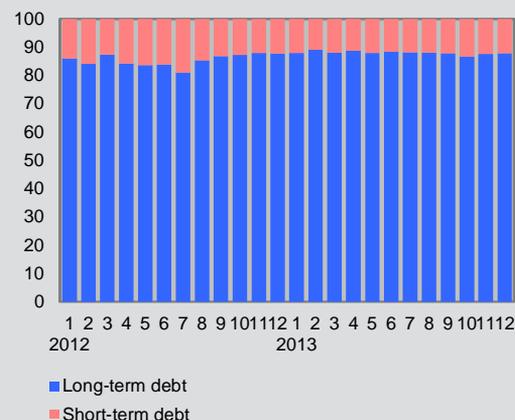
Source: Ministry of Finance.

Chart I.4.5. Internal and external component of public debt (%)



Source: Ministry of Finance.

Chart I.4.7. Public debt by remaining maturity (%)



Source: Ministry of Finance.

special fiscal rules, whose application is expected to help stabilise public debt and lower it to the debt ceiling of 45% of GDP (including issued guarantees). If the share of public debt in GDP exceeds the statutory ceiling, the government must adopt a debt reduction programme for the purposes of compliance with the Law. Pursuant to the Public Debt Reduction Programme, integral to the Fiscal Strategy, public debt should stabilise at 69.7% of GDP by end-2016, and gradually fall to 45% of GDP by 2025. Public debt should stabilise as a result of application of the general fiscal rule, under which the size of fiscal adjustment depends on the economic growth rate and the actual deficit's distance from the target level, as well as application of special fiscal rules relating to the indexation of wages and pensions, employment and the

trajectory of expenditure, most notably expenditure for subsidies and budget loans to the corporate sector. In addition to the full application of the said rules, the Public Debt Reduction Programme envisages restrictions on the issue of new guarantees, especially guarantees to public enterprises and local governments, the refinancing of a portion of expensive debt using soft loans and privatisations receipts, and restrictions on signing new project loans when those previously approved were not used efficiently. Strict observance of the said fiscal rules should ensure the sustainability of fiscal policy and public debt.

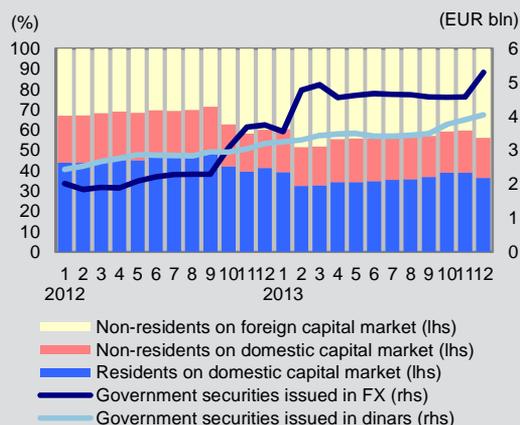
The currency, maturity and investor structure of public debt plays a significant role when it comes to debt

Chart I.4.6. Public debt by original maturity (%)



Source: Ministry of Finance.  
\* 53w T-bills are included in short-term debt since July 2013.

Chart I.4.8. Primary market buyers of government securities



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

sustainability. Though the dinar share of public debt is rising, around 80% is denominated in foreign currency (45% in euros) which makes public debt rather sensitive to changes in the exchange rate.

As for public debt refinancing, the maturity structure is favourable given that 87.9% of debt has a residual maturity over a year.

Around 75% of public debt is contracted at a fixed interest rate and there should be no problems in managing the interest rate risk. However, the local investor base is underdeveloped and except for domestic banks, there are no significant local investors in government securities. The external component accounts for around 60% of public debt. Data on primary market trade in government securities in 2013 show that foreign investors held 44.0% of the portfolio of dinar securities issued in the domestic market and 10.6% of the portfolio of euro-denominated securities. In the international primary market of Serbia's eurobonds, the participation of foreign institutional investors was 100%. The sale of government eurobonds in the international capital market is positive because it widens the investor base. Still, foreign investors tend to react more quickly to the news regarding domestic and international macroeconomic environment than their Serbian counterparts. The sensitivity of public debt securities to foreign investors' decisions could be diminished by further strengthening of the banking sector, development of the local institutional investor base and promotion of the dinar capital market.

The future trajectory of public debt depends on its current size, the level of real interest rates at which the

government borrows in the international financial market, real exchange rate, real economic growth rate and the primary fiscal result which is under the direct impact of fiscal policy.

Public debt could become unsustainable due to the high primary fiscal deficit and potential depreciation of the exchange rate, but also due to the widening gap between the average interest rate of borrowing and the economic growth rate, which creates the so-called snowball effect on public debt.

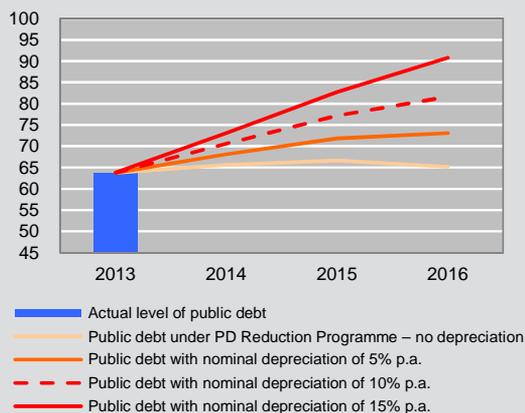
To maintain public debt at 63.8% of GDP in 2014, the primary fiscal deficit needs to be lowered to 0.6% of GDP under the assumption that:

- annual real GDP growth rate is 1% in 2014; 1.5% in 2015 and 2% in 2016,
- consumer price growth is 4.8% in 2014; 4% in 2015 and 4% in 2016,
- share of foreign currency-denominated debt is 80%,
- nominal depreciation is zero,
- average interest rate on government borrowing in the domestic market is 8.3% in 2014; 7.6% in 2015 and 7.6% in 2016, and in the international market – 4% in all of these years.

If the primary fiscal deficit is maintained at 3.7% of GDP, which is the level registered in 2013, public debt will continue to grow, even if there are no depreciation shocks, and will shoot past 70% in 2015.

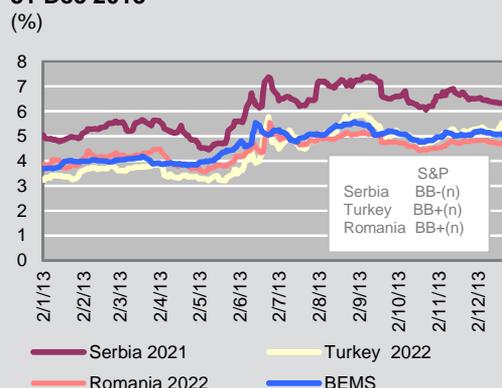
The Public Debt Reduction Programme covers the period until 2025. It envisages the lowering of primary deficit to

Chart I.4.9. Effect of depreciation on public debt movements (% of GDP)



Source: NBS.

Chart I.4.10. Yields on government eurobonds and BEMS\*, S&P country credit rating as at 31 Dec 2013 (%)



\* BEMS – Bloomberg Dollar Emerging Market Sovereign Bond Index.

Source: Bloomberg.

2.5% in 2014 and 1.6% of GDP in 2015, and a reversal of the fiscal result into a surplus of 0.6% of GDP in 2016. The targeted public debt level of 45% of GDP could be reached in 2025 if the primary surplus is sustained beyond 2016.

Considering the currency structure of public debt, depreciation of the exchange rate could push public debt high above the target level and make its stabilisation contingent upon an even stronger fiscal consolidation than planned (Chart I.4.9).

The level of interest rates at which Serbia borrows is also influenced by external factors, such as monetary policy decisions of the Fed and the ECB. Thus, the accommodative monetary policy stance of advanced economies encouraged investors in 2013 to invest in emerging market bonds. The “normalisation” of the US monetary policy represents a huge challenge for Serbia and other emerging economies in terms of external borrowing. Besides, as the economy recovers, investors will be increasingly turning away from government bonds towards riskier assets. Building up fiscal buffers would lower the risk premium and cost of borrowing, making the emerging market economies more resilient to external shocks.

The Republic of Serbia has established cooperation with the following rating agencies: Standard & Poor’s, Fitch and Moody’s, and they are the ones that issue its long- and short-term foreign currency and local currency credit ratings. Serbia’s long-term foreign currency rating by Standard & Poor’s is BB- with a negative outlook, while that by Fitch is B+ with a stable outlook. In July 2013, Moody’s issued its first assessment of Serbia’s credit rating – B1 with a stable outlook, the rating being lower than the one issued and maintained by *Standard & Poor’s*. Still, this had no major effect on the rising yields on Serbian eurobonds which followed in the footsteps of their counterparts issued by other emerging market economies and mirrored the movements of the Bloomberg USD Emerging Market Sovereign Bond Index.

The results of stress-testing point to the sensitivity of public debt to shocks simulated through variation of key model parameters – real depreciation, GDP growth rate, primary fiscal result and real interest rate.

To contain public debt at 63.8% of GDP assuming zero real depreciation, a primary surplus must be recorded at an economic growth rate of less than 4%. Keeping public debt at 63.8% of GDP in conditions of real appreciation of, let’s say, 3%, allows for a smaller primary deficit at the

economic growth rate of 2%. However, if the exchange rate of the dinar depreciated in real terms, a much larger adjustment, i.e. a surplus, would be needed even if economic growth measured 6%.

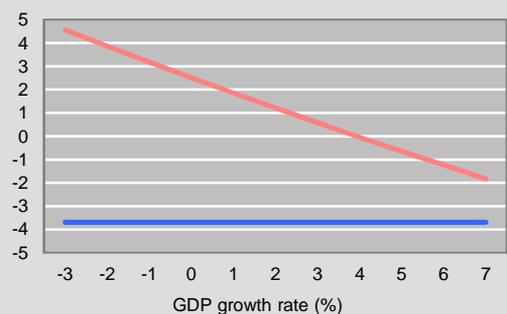
Curbing public debt to 45% of GDP requires strong fiscal adjustment over a longer time horizon. In Table I.4.4. we first simulated the size of fiscal adjustment which allows for the reduction of public debt to 45% of GDP, and only then the size of fiscal adjustment required to keep it at that level. The size of the required adjustment leaves no room for doubt – it cannot be implemented over a short period of time.

### Macprudential policy and sovereign risk

Serbian government bonds account for around 10% of gross banking sector assets, while total claims on the government, local government authorities and public enterprises make up around 15% of gross banking sector assets.

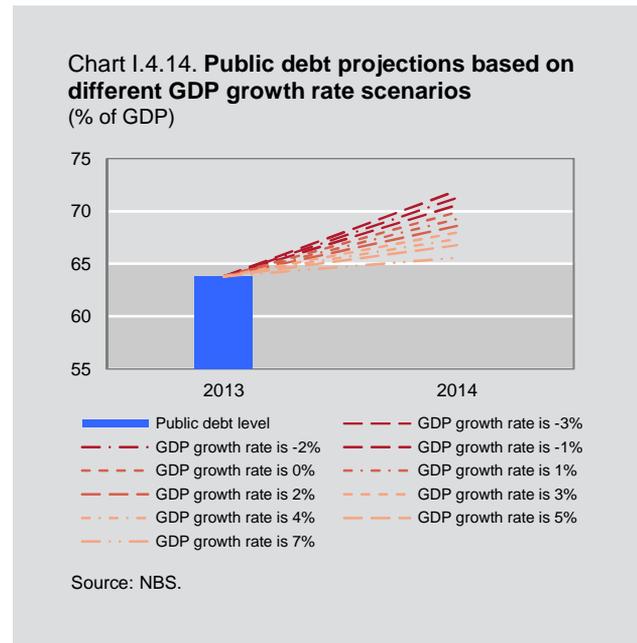
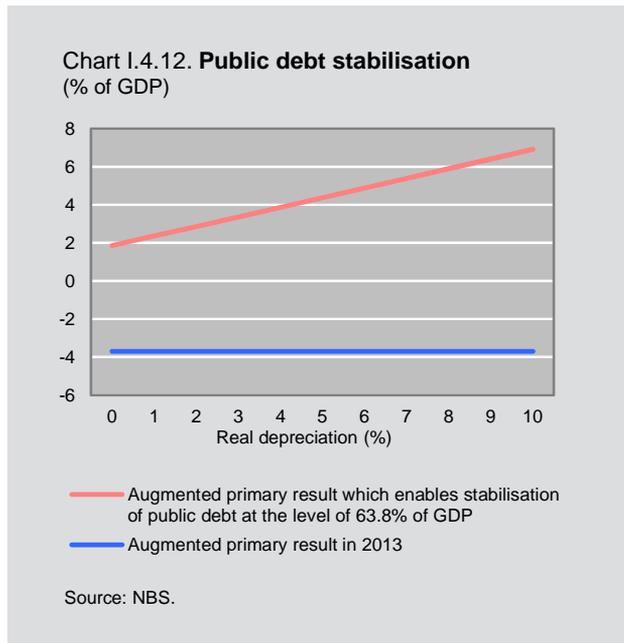
Within the Bank for International Settlements, experts are considering possible amendments to international regulations with a view to encouraging banks to improve their sovereign risk management. According to the relevant EU regulations (Basel II, Basel III and the Capital Requirements Directive), if denominated and funded in local currency, the bank’s exposure to government bonds is considered to be risk-free, whereas if such bonds are denominated in foreign currency, they are assigned appropriate risk weights. Pursuant to the NBS Decision on Capital Adequacy for Banks, all bank exposures towards the Republic of Serbia, irrespective

Chart I.4.11. **Public debt stabilisation**  
(% of GDP)



— Augmented primary result which enables stabilisation of public debt at the level of 63.8% of GDP  
— Augmented primary result in 2013

Source: NBS.

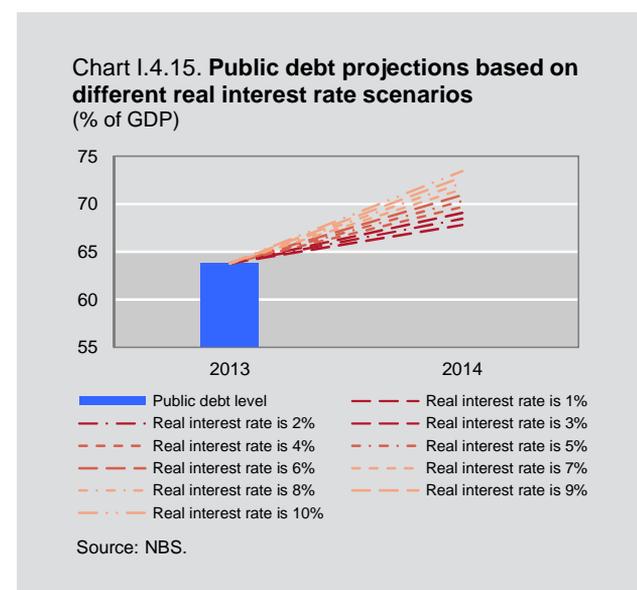
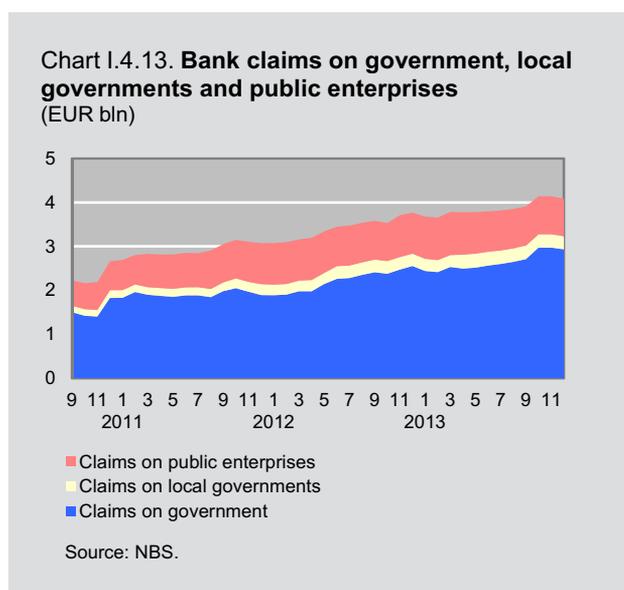


of currency denomination, are considered to be risk-free until 1 January 2018, after which date exposures in foreign currency will be assigned appropriate risk weights.

The proposed changes to EU regulations envisage the assigning of risk weights to bank sovereign exposures denominated in local currency with regard to the sovereign’s creditworthiness. The creators of this proposal argue that such an arrangement would improve the sovereign risk management in banks and mitigate the risk of sovereign default and the risk of a rise in yields on sovereign bonds denominated in local currency. It would also decrease the occurrence of the crowding out of the private sector by the government through its

intensive borrowing. The proposed solution could backfire if banks sell off a large chunk of government securities within a short period of time or dramatically scale down their purchases. This would cause a fall in the value of government securities, trigger an increase in sovereign risk and give rise to public debt refinancing problems.

The second solution for mitigating the sovereign risk is to introduce public debt haircuts, i.e. assessment of the riskiness of sovereign exposure and the necessary level of provisioning if securities are held to maturity – when setting up adverse macroeconomic scenarios in the stress testing of banks. The stress tests implemented by the EBA include this solution.



**Table I.4.2. Basic scenario assumptions for the simulation of public debt dynamics**

Real GDP growth rate (%)	Augmented primary result (% of GDP)	Weighted average nominal interest rate (%)	Deflator (%)
0.0	-3.7	4.9	4.8

Source: NBS.

**Table I.4.3. Augmented primary fiscal result which enables stabilisation of public debt in 2014 at the level of 63.8% of GDP, depending on real depreciation and GDP growth**  
(% of GDP)

Real depreciation (%)	GDP growth rate (%)	-3	0	2	6
		-3	3.0	10	-0.3
0	4.6	2.5	12	-12	
4	6.7	4.5	3.2	0.7	
10	9.8	7.6	6.2	3.6	

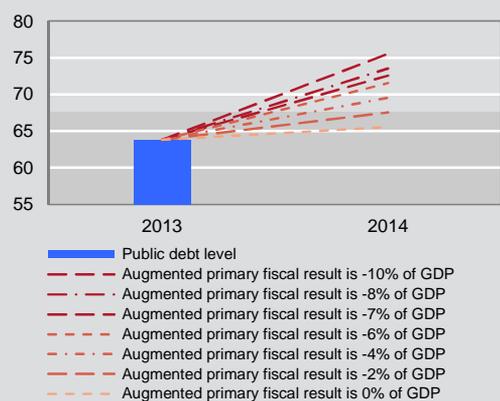
Source: NBS.

**Table I.4.4. Augmented primary fiscal results which enable the reduction of public debt to the level of 45% of GDP and ensure the maintenance of that level, depending on real depreciation and GDP growth**  
(% of GDP)

Real depreciation (%)	GDP growth rate (%)	-3		0		2		6	
		64 to 45	45 to 45						
		-3	21.7	2.1	19.7	0.7	18.4	-0.2	16.0
0	23.3	3.2	21.2	1.8	19.9	0.9	17.5	-0.9	
4	25.4	4.7	23.2	3.2	21.9	2.3	19.4	0.5	
10	28.5	6.9	26.3	5.4	24.9	4.4	22.3	2.5	

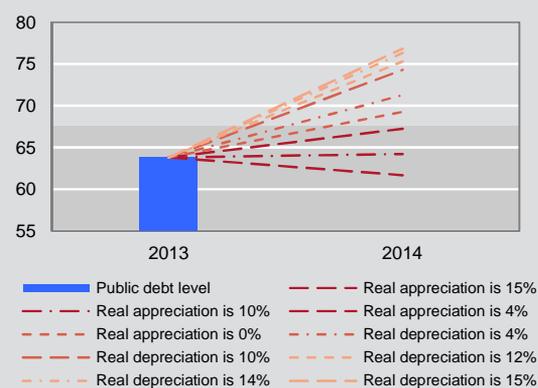
Source: NBS.

**Chart I.4.16. Public debt projections based on different primary fiscal result scenarios**  
(% of GDP)



Source: NBS.

**Chart I.4.17. Public debt projections based on different real exchange rate scenarios**  
(% of GDP)

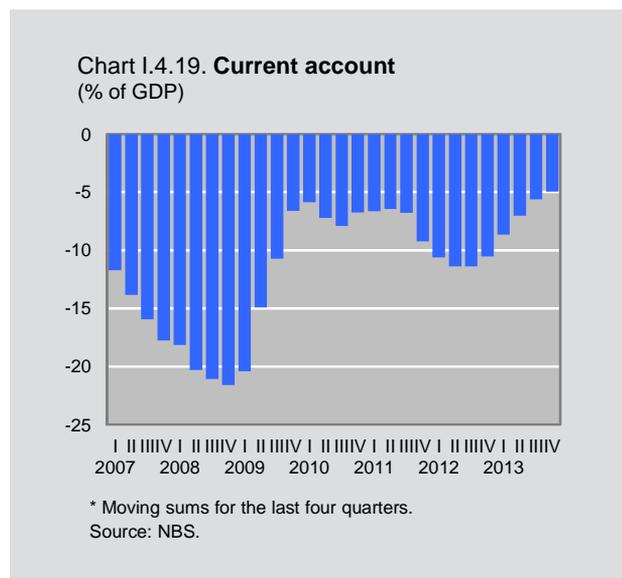


Source: NBS.

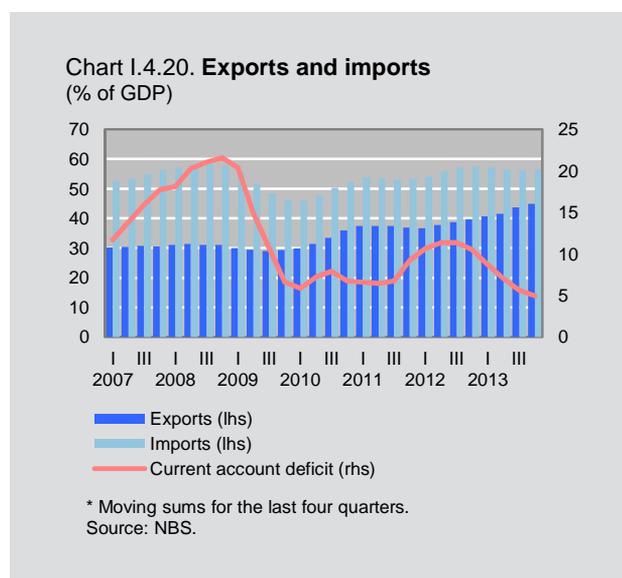
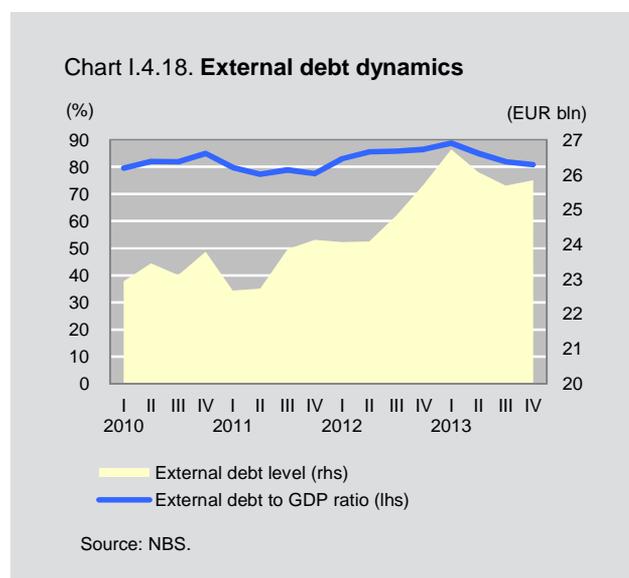
## External debt sustainability

*The sustainability of fiscal policy and public debt affects the sustainability of the balance of payments deficit and external debt. By lowering government deficit, the fiscal adjustment weighs down on aggregate demand and reduces the balance of payments deficit. A lower government deficit means a smaller need for government borrowing locally and abroad. It is quite clear that the fiscal adjustment is an important determinant of the sustainability of external imbalances. The sustainability of external imbalances also depends on the expected foreign capital inflow, notably FDI. Creating an environment that will attract more FDI, primarily in the sector of tradeables, must therefore be a priority on the economic policymakers' agenda.*

The level of Serbia's external debt spells a warning. At end-2013, it amounted to EUR 25.8 bln or 80.8% of GDP, though its growth lost some pace in the course of the year. As a result, total external debt rose by EUR 0.1 bln and its share in GDP contracted by 6.2 pp. The pace of growth was also slowed by the narrowing of the current account deficit from 10.5% of GDP in 2012 to 5.0% in 2013. The sharp drop in the current account deficit is attributable not only to the growth in exports (though its impact was decisive), but also to the sluggishly rising imports strained by depressed domestic demand. The contraction of the share of external debt in GDP was additionally aided by the 2.5% GDP growth in 2013. Still, external debt of the public sector continued to grow<sup>22</sup> – from EUR

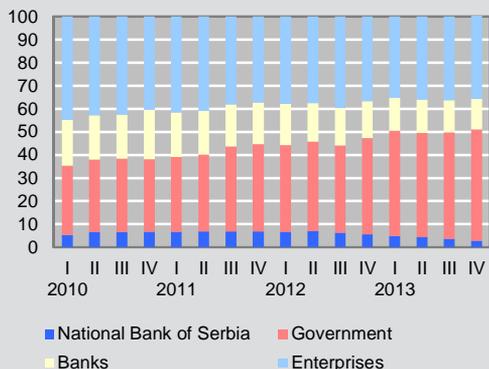


12.2 bln at end-2012 to EUR 13.2 bln at end-2013. It should be taken into account, however, that external debt of the public sector includes NBS liabilities towards the IMF, which were slashed down by EUR 0.7 bln in 2013. External debt of the private sector was lowered by EUR 0.9 bln as banks net repaid their external debt by EUR 0.7 bln and corporates by EUR 0.2 bln. It may be possible to mitigate the risk of a rise in external debt refinancing costs in the coming period by increasing domestic savings, reducing the current account deficit further and improving the country's credit rating. The risk of a sudden stop in capital flows could be alleviated by a larger and more stable inflow of FDI. In 2013, net inflow of FDI was



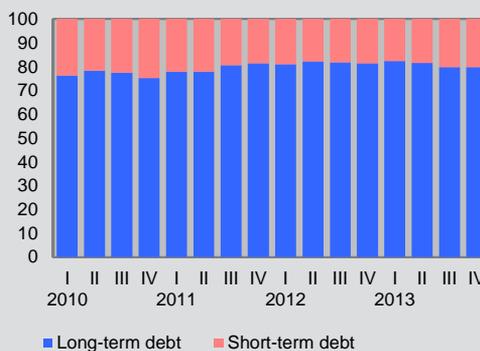
<sup>22</sup> External debt of the public sector includes debt of the government, NBS, local governments, state funds and agencies, and debt guaranteed by the government.

Chart I.4.21. External debt by borrower (%)



Source: NBS.

Chart I.4.23. External debt by remaining maturity (%)



Source: NBS.

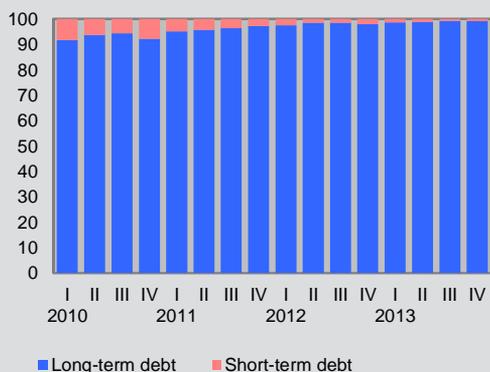
low. In fact, it was almost twice lower than the current account deficit. Portfolio investments generated a net inflow of EUR 1.97 bln, of which EUR 0.73 bln was accounted for by the sale of five-year government eurobonds in the international financial market. If the restructuring of public enterprises results in their higher competitiveness, positive effects are likely on FDI and export growth in the years ahead.

External debt growth is potentially risky for Serbia. The risk could materialise in the event of a sudden slowdown in foreign capital inflow due a change in investor sentiment. Foreign exchange reserves of Serbia are high

enough to absorb the impact of a large, but not a permanent shock and it would be rather difficult to service external debt obligations from foreign exchange reserves over an extended period of time.

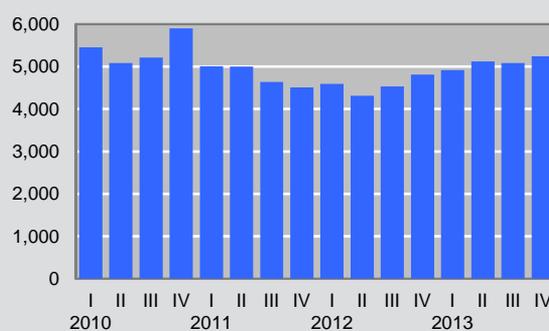
Keeping external debt at 80.8% of GDP requires a substantial balance of payments adjustment. This is clearly indicated by Charts I.4.26. and I.4.27, and particularly obvious from Table I.4.6. Keeping external debt at 80.8% of GDP at zero economic growth and zero real depreciation requires a surplus on the current account of the balance of payments. Economic growth above 3% would allow for a current account deficit. On the other

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



Source: NBS.

Chart I.4.24. Short-term external debt by remaining maturity (EUR mln)



Source: NBS.

hand, if the dinar appreciated in real terms by 3%, for instance, and the economy grew by 1%, external debt could be maintained at the said level even if there is a slight current account deficit. However, if the dinar depreciated in real terms by, let's say, 10%, a much larger adjustment, i.e. surplus, would be required at the economic growth rate of as much as 6%.

Lowering external debt to below 80% of GDP (e.g. to 75%) calls for an even stronger balance of payments adjustment. Simulation in Table I.4.7. starts with the size of the balance of payments adjustment which enables the lowering of external debt to 75% of GDP and continues with the size of the adjustment needed to keep it at that level. The size of the adjustment points unequivocally to:

(a) the importance of fiscal adjustment that will help ease external imbalances; (b) the importance of capital inflows, notably FDI – since privatisation has passed its momentum and the structural reforms are the ones which are expected to assure investor interest; (c) the importance of a floating exchange rate in terms of autonomous reduction of external imbalances, while making sure that this floating does not jeopardise the inflation target and overall price and financial stability.

Based on the results of stress tests, simulated by changing the values of key model parameters – primary current account balance, real depreciation, GDP growth and interest rate, we may conclude that external debt is sensitive to shocks.

**Table I.4.5. Baseline scenario assumptions for the simulation of external debt dynamics**

Real GDP growth rate (%)	Current account (% of GDP)	Weighted average nominal interest rate (%)	Deflator (%)
0.0	-5.0	5.5	4.8

Source: NBS.

**Table I.4.6. Current account which enables stabilisation of external debt in 2014 at the level of 80.8% of GDP, depending on real depreciation and GDP growth (% of GDP)**

Real depreciation (%)	GDP growth rate (%)	GDP growth rate (%)			
		-3	0	3	6
-3		2.6	0.1	-2.3	-4.6
0		5.1	2.5	0.0	-2.3
4		8.5	5.8	3.2	0.7
10		13.5	10.6	7.9	5.4

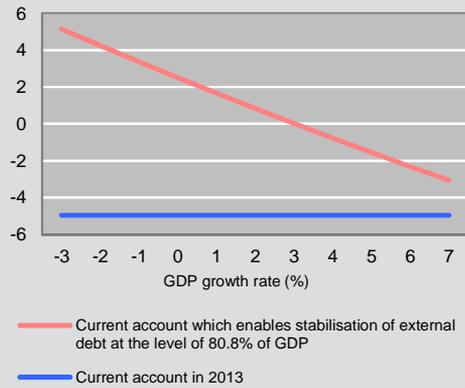
Source: NBS.

**Table I.4.7. Current account which enables the reduction of external debt to the level of 75% of GDP and ensures the maintenance of that level, depending on real depreciation and GDP growth (% of GDP)**

Real depreciation (%)	GDP growth rate (%)	GDP growth rate (%)							
		-3		0		3		6	
		81to 75	75 to 75	81to 75	75 to 75	81to 75	75 to 75	81to 75	75 to 75
-3		8.4	2.3	5.9	-0.1	3.5	-2.3	12	-4.4
0		10.9	4.6	8.3	2.2	5.8	-0.1	3.5	-2.3
4		14.3	7.7	11.6	5.2	9.0	2.8	6.5	0.6
10		19.3	12.4	16.4	9.7	13.7	7.2	11.2	4.8

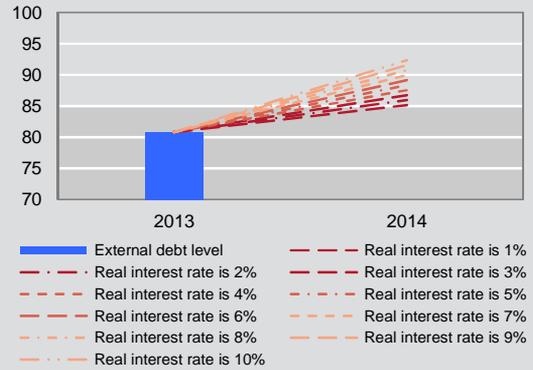
Source: NBS.

Chart I.4.25. External debt stabilisation (% of GDP)



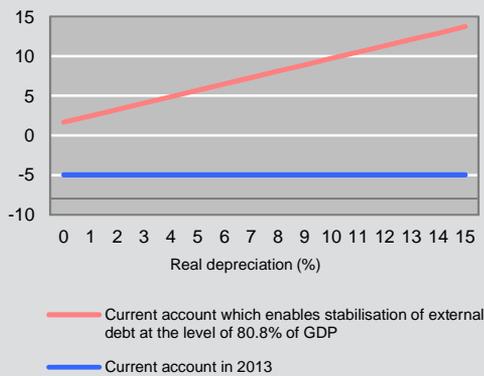
Source: NBS.

Chart I.4.28. Projections of external debt based on different real interest rate scenarios (% of GDP)



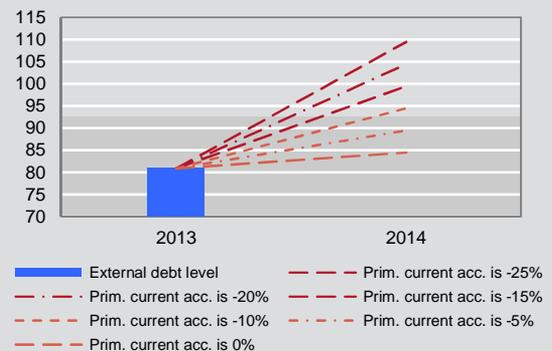
Source: NBS.

Chart I.4.26. External debt stabilisation (% of GDP)



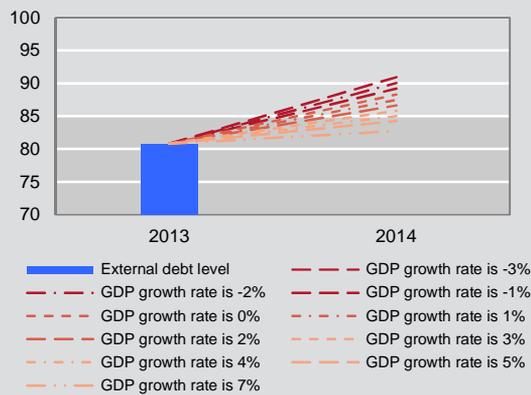
Source: NBS.

Chart I.4.29. External debt projections based on different primary current account scenarios (% of GDP)



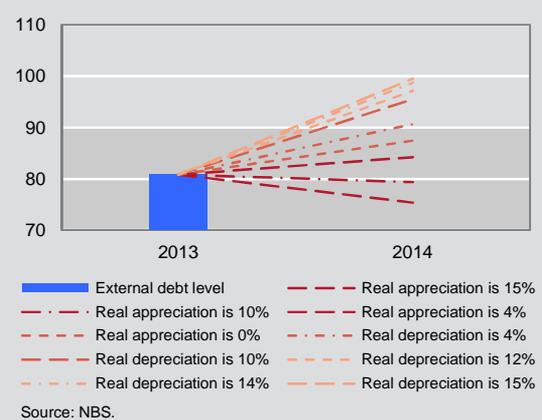
Source: NBS.

Chart I.4.27. Projections of external debt based on different GDP growth rate scenarios (% of GDP)



Source: NBS.

Chart I.4.30. External debt projections based on different real exchange rate scenarios (% of GDP)



Source: NBS.

## I.5. Corporate sector

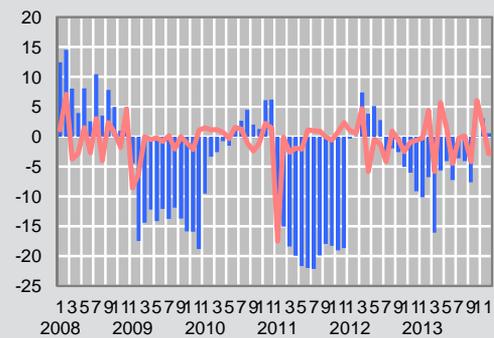
*The year 2013 experienced robust growth in industrial and agricultural production, while the construction sector declined. Faster growth in exports than imports drove down the foreign trade deficit and gave a positive contribution to GDP growth. Corporate lending contracted in real terms and its share in GDP went down. The upward trend in the share of FX-indexed and FX liabilities continued. What is interpreted as a worrying signal is the high share of NPLs, deteriorated performances of the corporate sector and increased balances in blocked accounts subject to enforced collection.*

In 2013, the corporate sector operated in more favourable macroeconomic conditions compared to 2012. Inflation was record low at 2.2% y-o-y in December and the exchange rate was relatively stable. Furthermore, the first signs of the euro area exit from the recession and nascent recovery with a sustainable outlook exerted a positive impact on Serbia's gradual economic recovery.

Following a 1.5% decline in 2012, GDP gained 2.5% in 2013. At the same time, industrial production grew 5.4%. Such trends were fuelled by the expansion in automobile and auxiliary export-oriented industries, as

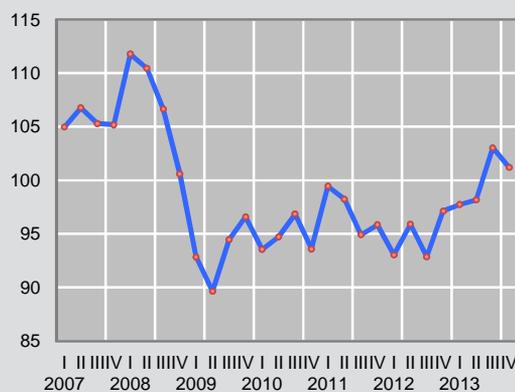
well as the production of petroleum products, electricity, chemicals and chemical products. As the weather was auspicious, the physical volume of agricultural production increased by 20.2% from 2012. The strongest negative impetus to GDP in 2013 was provided by the construction sector which dipped 25.7%. The decline was the most pronounced in H1, while it slowed in H2.

**Chart I.5.2. Retail trade movements**  
(seasonally-adjusted and y-o-y growth rates, real terms, %)



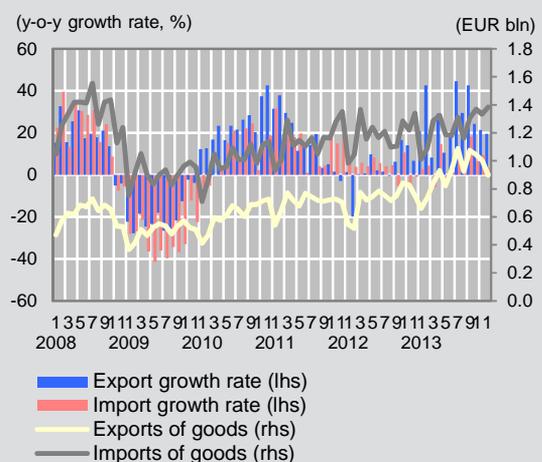
Source: Statistical Office of the Republic of Serbia.

**Chart I.5.1. Industrial production**  
(index, seasonally-adjusted, 2013 = 100)



Source: Statistical Office of the Republic of Serbia.

**Chart I.5.3. Export and import of goods**

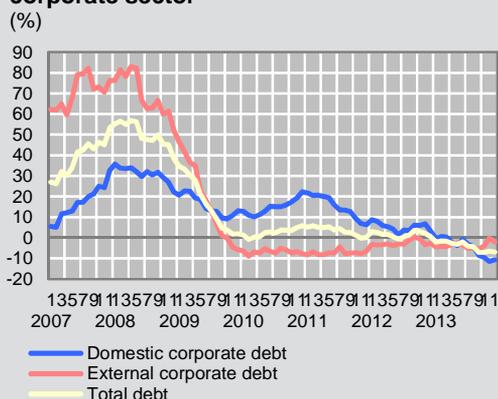


Source: Statistical Office of the Republic of Serbia.

Retail trade volumes plummeted further in real terms, exerting a negative effect on the dynamics of economic activity. In 2013, retail trade volumes at constant prices declined by 5.2%.

In 2013, exports and imports amounted to EUR 11.0 bln and EUR 15.0 bln respectively, up by 25.6% and 5.1% from 2012. The foreign trade deficit narrowed by 27.4%

**Chart I.5.4. Real growth rate of loans to corporate sector\***



\* At the RSD/EUR exchange rate of 31 August 2008, assuming that all FX and FX-indexed loans are granted in EUR.

Source: NBS.

to EUR 4.0 bln. As a result, the coverage of imports by exports increased by 12.0 pp to 73.4%.

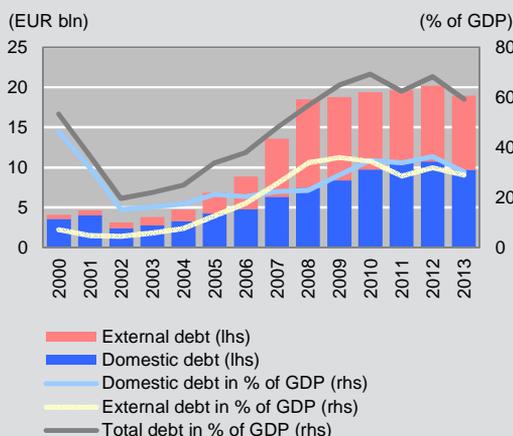
Following more than two years of sluggish growth, 2013 witnessed a 6.9% decline in total corporate lending (domestic and foreign). At the same time, loans extended by domestic banks to the corporate sector recorded higher negative growth rates (10.7%) compared to external corporate borrowing (1.9%).<sup>23</sup> Though less pronounced, the decline in lending was observed even excluding receivables of two domestic banks delicensed in 2013.<sup>24</sup>

Total debt of the corporate sector fell by EUR 1,243.4 mln (6.2% nominally) to EUR 18,940.4 mln. Domestic bank receivables from corporate clients declined by EUR 1,076.4 mln to EUR 9,673.3 mln, down to the 2010 level. In the same period, external corporate debt fell by EUR 166.9 mln to EUR 9,267.2 mln.

Measured by the share in GDP, corporate debt declined from 68.2% in 2012 to 59.2%. Consequently, the share of corporate external debt in total sources of corporate funding rose by 2.2 pp to 48.9%.

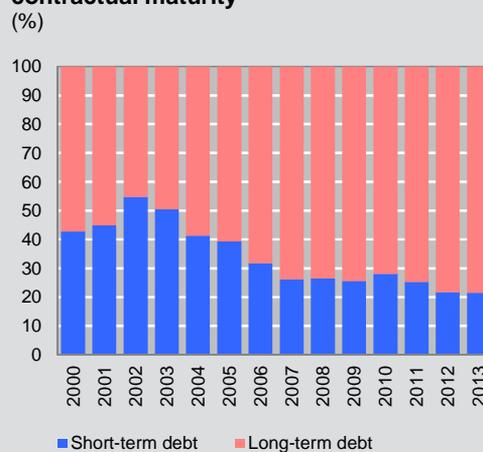
In terms of original maturity, long-term liabilities remained dominant at 78.5% (a 0.3 pp increase relative to 2012).

**Chart I.5.5. Debt level of Serbian corporate sector**



Source: NBS.

**Chart I.5.6. Corporate sector debt by contractual maturity**



Source: NBS.

<sup>23</sup> Calculated at the RSD/EUR exchange rate of 31 August 2008, assuming that all FX and FX-indexed loans are approved in euros.

<sup>24</sup> Razvojna banka Vojvodine AD Novi Sad and Privredna banka Beograd AD Belgrade.

According to remaining maturity, external corporate debt due for payment in 2014 accounted for EUR 2.2 bln or 24.2% of total external debt.

In the course of 2013, the corporate sector repaid long-term foreign loans worth EUR 1,368.4 mln and borrowed EUR 1,176.9 mln, which shows that the Serbian economy has access, though limited, to the international financial market. In the same period, the corporate sector disbursed EUR 306.9 mln more in trade loans than in 2012. At end-2013, the stock of these loans equalled EUR 1,228.6 mln.

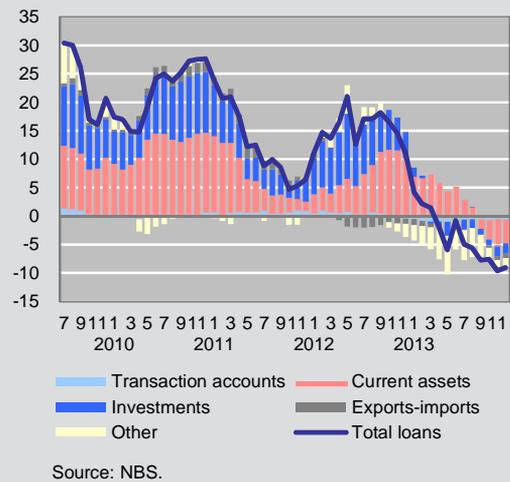
The share of bank receivables from non-tradeable sectors declined by 2.8 pp to 61.7% in 2013, thereby halting the upward trend in these receivables. This was due to net debt repayments of these sectors totalling RSD 104.9 bln or 13.3%. Tradeable sectors<sup>25</sup> reduced their liabilities towards banks by RSD 8.7 bln or 2.0%.

Observed by purpose, all corporate loans recorded negative growth rates in 2013. The strongest contribution to the decline in lending to the corporate sector, i.e. to the negative nominal growth rate of domestic bank loans of 9.0% in 2013 came from current assets loans with 4.2 pp, and investment and other loans with 1.8 pp and 1.7 pp respectively. Because of strained corporate liquidity, current assets loans remained dominant in the structure of domestic bank loans, accounting for 41.2% at end-2013,

while the share of investment loans was 30.8%. A RSD 20.2 bln decline in investment loans may adversely affect new production programmes and modernisation of the existing capacities.

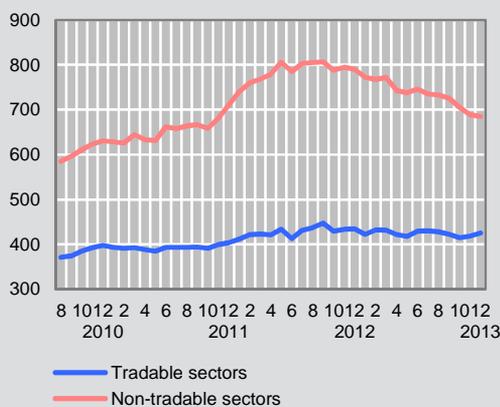
The extension of loans under the Programme of Subsidised Loans Aimed at Liquidity Maintenance and

**Chart I.5.8. Contributions to growth of bank loans to corporate sector by purpose**  
(y-o-y growth rates, pp)



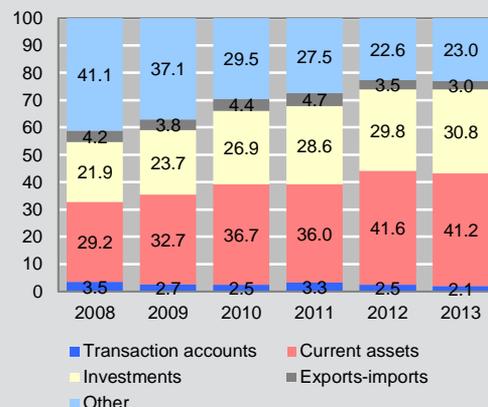
Source: NBS.

**Chart I.5.7. Domestic debt of Serbian economy by sector**  
(RSD bln)



Source: NBS.

**Chart I.5.9. Bank loans to the corporate sector by purpose**  
(%)

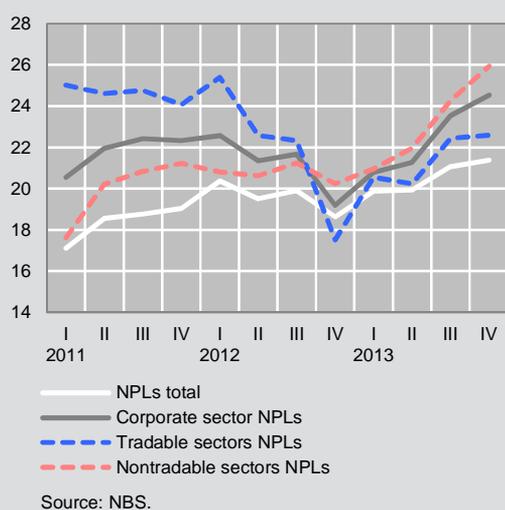


Source: NBS.

<sup>25</sup> Tradeable sectors: A – Agriculture, forestry and fishing; B – Mining; C – Manufacturing; D – Electricity, gas, steam and air conditioning supply; E – Water supply, use and waste water treatment.

Current Assets Financing continued in Q1 2013 until full disbursement of budget funds earmarked for such purpose (EUR 35.0 bln). Of total loans disbursed, new loans made up 89.6%, while the rest was used for refinancing purposes. Of all subsidised loans, none were extended to finance exports.

Chart I.5.10. Corporate sector NPLs (%)



The credit portfolio narrowed and its quality deteriorated. By late-2013, gross NPLs accounted for 24.5% of gross corporate loans. Relative to end-2012, their share was up 5.3%, which suggests serious difficulties facing the sector in servicing credit liabilities towards banks. A rise in the NPL share in 2013 was due primarily to an increase in NPLs (by 15.6%) and a reduction in gross corporate lending (by 9.6%).

Broken down by sector, the share of gross NPLs of tradeable and non-tradeable sectors was 22.6% and 25.9% in late 2013 respectively. NPLs in non-tradeable sectors increased most notably in the sectors of construction, retail and wholesale, and the repair of motor vehicles and motorcycles.

Within the currency structure of domestic bank receivables from the corporate sector, the share of FX-indexed and FX receivables increased to 80.0% in late 2013 (up by 4.2 pp). The major portion of foreign currency receivables was denominated in euros (92.3% – up by 0.5 pp on 2012). Considering that the whole of external corporate debt is contracted in foreign currency, the exposure of this sector to exchange rate risk is quite significant.

Corporate deposits fell by RSD 7.2 bln (1.7 pp) in 2013, making up 13.5% of total banking sector liabilities (a 0.2

Chart I.5.11. Currency structure of domestic corporate loans (%)

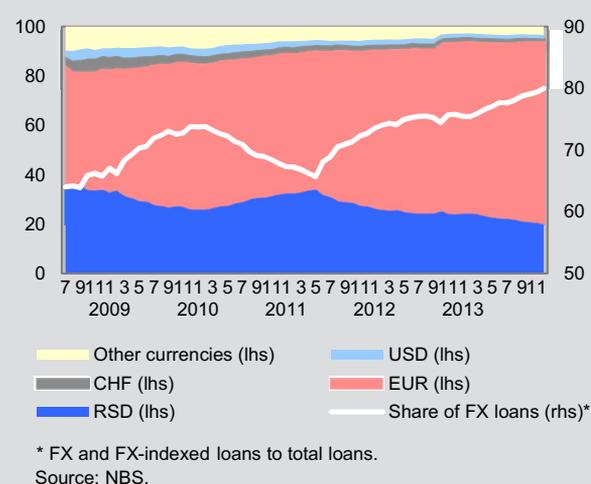


Chart I.5.12. Level of corporate sector deposits

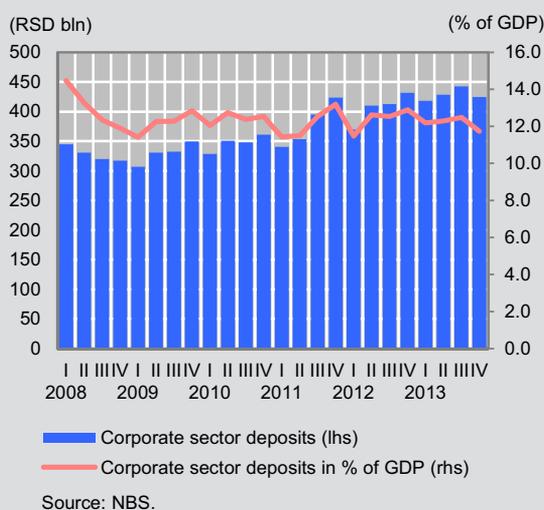
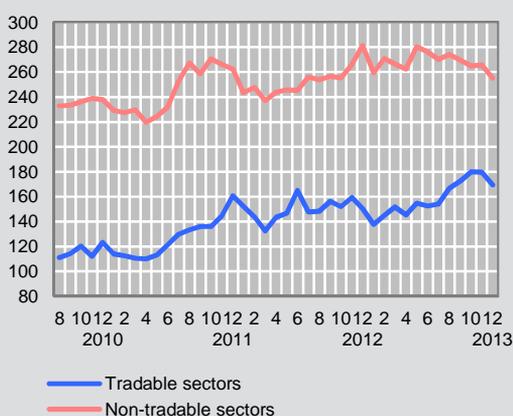
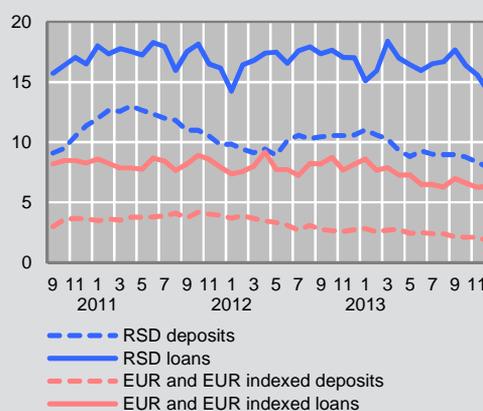


Chart I.5.13. Corporate deposits by sectors (RSD bln)



Source: NBS.

Chart I.5.14. Interest rates on corporate loans and deposits – new business (weighted average, %)



Source: NBS.

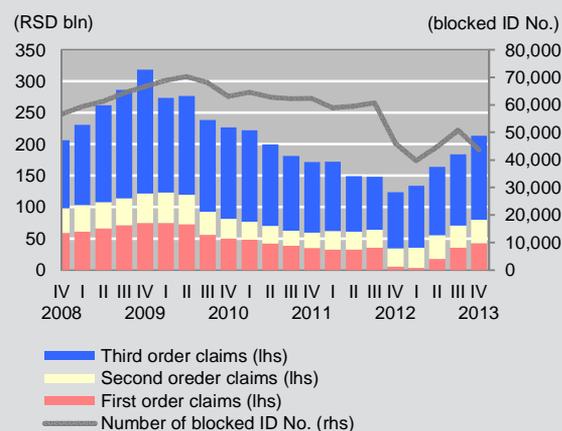
pp reduction in share relative to 2012). Furthermore, their share in GDP declined from 12.9% to 11.7%. Most corporate deposits were short-term, making up 94.5% of total corporate deposits (a 0.4 pp reduction from the previous year).

Deposits of tradeable sectors were up by RSD 19.0 bln in 2013 (12.6 pp), while deposits of non-tradeable sectors declined by RSD 26.2 bln (9.3 pp). As a result, the share of tradeable sector deposits increased by 5.1 pp – from 34.8% to 39.9%.

Costs of corporate borrowing were lower in 2013 as average rates on new dinar loans and deposits fell by 2.8 pp and 2.7 pp respectively. Consequently, the average interest margin in the dinar segment of the market fell by 0.1 pp to 6.3 pp in late 2013. In the same period, average rates on new euro and euro-indexed loans and deposits also declined – by 1.8 pp and 0.9 pp respectively. A larger decline in lending rates pushed down the average interest margin by 0.9 pp to 4.5 pp by end-2013. The downward tendency in deposit rates serves as a solid basis for a further decline in lending rates.

Amounts in blocked accounts of legal persons and entrepreneurs subject to enforced collection went up for all three orders of priority. The total amount of blockade was RSD 213.7 bln in late year, up by RSD 90.1 bln or 73.0% from last year. As the blockade by the first order of priority declined by end-2012 (decisions of tax, customs

Chart I.5.15. Movements of claims through enforced collection by priorities



Source: NBS.

and other competent authorities) because of application of the Law on Conditional Interest Write-Off and Tax Debt Standstill, the year 2013 saw a sharp increase, which offset the previous decline.

In the same period, the number of corporate entities whose accounts were blocked declined by 2,162 or 4.7%. The decline was prompted by application of Article 91 of the Company Law, in effect as of 1 February 2012. Under this Article, based on the request for deletion from

**Table I.5.1. Quarterly dynamics of economy in 2012 and 2013\***

(Index: the same quarter of the previous year = 100)

	Operating income	Operating expenses
I 2012	105.3	106.6
II	104.8	105.5
III	106.9	104.6
IV	104.2	103.0
I 2013	108.5	106.9
II	103.8	105.3
III	102.4	101.0
IV	101.9	100.7

\* Preliminary data for 2013.

Source: Statistical Office of the Republic of Serbia.

register filed by the NBS or Tax Administration, an entrepreneur must wind up operations if its account is blocked for more than two years.

In the course of 2013, the NBS Enforced Collection received from commercial courts 187 decisions opening bankruptcy proceedings (down by 818 from the previous year), 99 decisions confirming the adoption of reorganisation plans (up by 52), and 496 decisions

opening and concluding bankruptcy proceedings, adopted pursuant to Article 153 of the Bankruptcy Law (legal persons that suspended all payments in an uninterrupted period of at least one year, but have not entered a restructuring procedure under privatisation regulations), based on which debt enforcement against the entities concerned was repealed. Furthermore, the NBS received six decisions from the Privatisation Agency to launch restructuring procedure for entities under privatisation.

The corporate sector still features low profitability, insufficient liquidity, shortage of net current assets, high loan debt burden, funding of the maturing portion of long-term debt from short-term borrowing, and high accumulated losses from earlier years.<sup>26</sup>

According to Statistical Office data on quarterly dynamics of corporate sector operation, revenue grew faster than expenditure in 2013 (except in Q2). Such growth began in H2 2012, suggesting better performance in the period observed.

Aggregate data on corporate sector performance in 2013 were not available at the time of preparation of this Report. We therefore present data on corporate operation for the 2009–2012 period, based on communications of the Business Registers Agency.

<sup>26</sup> The Business Registers Agency: Communication on Performance of the Corporate Sector in the Republic of Serbia in 2012.

**Table 1.5.2. Overview of key corporate sector performance indicators**  
(in %, unless indicated otherwise)

	2009	2010	2011	2012
<b>Accrued income, operating result and assets</b>				
<b>Total income (RSD bln)</b>	<b>6,328.0</b>	<b>7,260.1</b>	<b>8,108.9</b>	<b>8,693.4</b>
Total income (EUR bln)	66.0	68.8	77.5	76.4
Total income (in % of GDP)	227.9	246.2	246.1	258.2
<b>Total expenses (RSD bln)</b>	<b>6,409.3</b>	<b>7,339.3</b>	<b>8,009.9</b>	<b>8,747.6</b>
Total expenses (EUR bln)	66.8	69.6	76.5	76.9
Total expenses (in % of GDP)	230.9	248.9	243.1	259.9
<b>Net profit - loss (RSD bln)</b>	<b>-102.2</b>	<b>-101.5</b>	<b>64.1</b>	<b>-62.8</b>
Net profit - loss (EUR bln)	-1.1	-1.0	0.6	-0.6
Net profit - loss (in % of GDP)	-3.7	-3.4	1.9	-1.9
<b>Operating income (RSD bln)</b>	<b>5,888.9</b>	<b>6,773.6</b>	<b>7,483.3</b>	<b>8,145.3</b>
Operating income (EUR bln)	61.4	64.2	71.5	71.6
Operating income (in % of GDP)	212.1	229.7	227.2	242.0
<b>Operating expenses (RSD bln)</b>	<b>5,701.2</b>	<b>6,491.5</b>	<b>7,191.1</b>	<b>7,780.9</b>
Operating expenses (EUR bln)	59.5	61.5	68.7	68.4
Operating expenses (in % of GDP)	205.3	220.2	218.3	231.1
<b>Operating profit (RSD bln)</b>	<b>187.7</b>	<b>282.2</b>	<b>292.2</b>	<b>364.4</b>
Operating profit (EUR bln)	2.0	2.7	2.8	3.2
Operating profit (in % of GDP)	6.8	9.6	8.9	10.8
<b>Financial income (RSD bln)</b>	<b>198.8</b>	<b>241.7</b>	<b>279.9</b>	<b>302.9</b>
Financial income (EUR bln)	2.1	2.3	2.7	2.7
Financial income (in % of GDP)	7.2	8.2	8.5	9.0
<b>Financial expenses (RSD bln)</b>	<b>419.2</b>	<b>533.3</b>	<b>422.6</b>	<b>556.1</b>
Financial expenses (EUR bln)	4.4	5.1	4.0	4.9
Financial expenses (in % of GDP)	15.1	18.1	12.8	16.5
<b>Profit - loss from financial activities (RSD bln)</b>	<b>-220.4</b>	<b>-291.7</b>	<b>-142.7</b>	<b>-253.2</b>
Profit - loss from financial activities (EUR bln)	-2.3	-2.8	-1.4	-2.2
Profit - loss from financial activities (in % of GDP)	-7.9	-9.9	-4.3	-7.5
<b>Cumulative loss (RSD bln)</b>	<b>1,649.9</b>	<b>2,008.4</b>	<b>2,274.2</b>	<b>2,462.8</b>
Cumulative loss (EUR bln)	17.2	19.0	21.7	21.7
Cumulative loss (in % of GDP)	59.4	68.1	69.0	73.2
<b>Fixed assets (RSD bln)</b>	<b>5,482.0</b>	<b>5,672.1</b>	<b>6,875.7</b>	<b>7,063.7</b>
Fixed assets (EUR bln)	57.2	53.8	65.7	62.1
Fixed assets (in % of GDP)	197.5	192.4	208.7	209.8
<b>Inventories (RSD bln)</b>	<b>1,081.8</b>	<b>1,188.1</b>	<b>1,255.1</b>	<b>1,374.2</b>
Inventories (EUR bln)	11.3	11.3	12.0	12.1
Inventories (in % of GDP)	39.0	40.3	38.1	40.8
<b>Net working capital (RSD bln)</b>	<b>-143.6</b>	<b>-187.0</b>	<b>-337.3</b>	<b>-279.7</b>
Net working capital (EUR bln)	-1.5	-1.8	-3.2	-2.5
Net working capital (in % of GDP)	-5.2	-6.3	-10.2	-8.3
<b>Lack of long-term capital (RSD bln)</b>	<b>1,208.2</b>	<b>1,352.6</b>	<b>1,593.2</b>	<b>1,653.8</b>
Lack of long-term capital (EUR bln)	12.6	12.8	15.2	14.5
Lack of long-term capital (in % of GDP)	43.5	45.9	48.4	49.1
<b>Equity (RSD bln)<sup>1)</sup></b>	<b>3,563.0</b>	<b>3,495.0</b>	<b>4,503.9</b>	<b>5,501.9</b>
Equity (EUR bln)	37.2	33.1	43.0	48.4
Equity (in % of GDP)	128.3	118.5	136.7	163.4
<b>Growth of income, operating results and assets</b>				
Total income growth		14.7	11.7	7.2
Total expenses growth		14.5	9.1	9.2
The growth in net profit - loss		-0.7	-163.2	-198.0
Operating income growth		15.0	10.5	8.8
Operating expenses growth		13.9	10.8	8.2
Operating profit growth		50.3	3.5	24.7
Financial income growth		21.6	15.8	8.2
Financial expenses growth		27.2	-20.8	31.6
The growth of profit - loss from financial activities		32.4	-51.1	77.4
Accumulated losses growth		21.7	13.2	8.3
Fixed assets growth		3.5	21.2	2.7
Inventories growth		9.8	5.6	9.5
The growth in net working capital		30.2	80.4	-17.1
Equity growth		-1.9	28.9	22.2
<b>Performance indicators</b>				
Return on assets after taxes	0.1	0.2	1.9	0.6
Return on equity after taxes	-2.9	-2.9	1.6	-1.4
Own capital ratio	38.7	35.1	39.7	37.5
General liquidity ratio (times)	1.0	1.0	0.9	1.0
Interest coverage ratio (times)	0.3	0.3	1.8	0.6
<b>GDP (EUR bln)</b>	<b>29.0</b>	<b>27.9</b>	<b>31.5</b>	<b>29.6</b>

<sup>1)</sup> Equity adjusted for losses over equity level.

Source: NBS, according to Serbian Business Registers Agency's data.

## I.6. Household sector

*Real wages and the purchasing power continued down, accompanied with a further decline in the number of the formally employed. Though household savings rose at a slower pace compared to 2012, dinar and long-term savings went up. Despite further deceleration in real lending, the share of dinar loans increased and the share of CHF-loans declined. Its debt standing at a low level, the household sector remained a significant net creditor of the financial system.*

Despite record low y-o-y inflation, relative stability of the exchange rate, nascent economic recovery and economic growth, the standard of living plummeted in real terms in 2013 because growth in wages and pensions lagged behind the rise in consumer prices and the number of the formally employed declined further, by 21,239 or 1.2%.

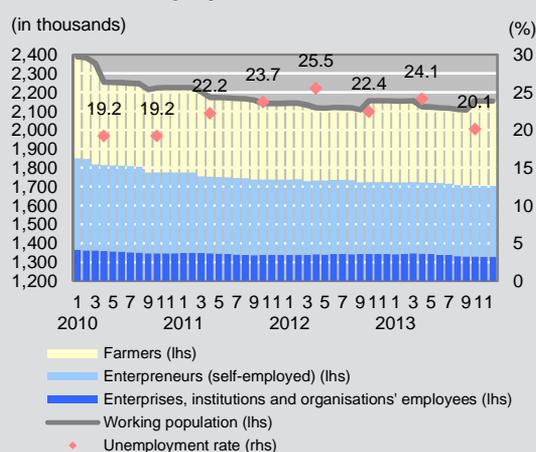
The Labour Force Survey of October 2013 registered a 2.3% decline in the unemployment rate y-o-y. The drop was due to the status change of some of the unemployed into informally employed (a 2.4 pp rise in October 2013 y-o-y) and a greater number of temporary and seasonally employed workers.<sup>27</sup> Total employment (including farmers) declined by mere 695 persons or 0.03%.

The average net wage was 6.2% higher in nominal terms compared to 2012. Given a 7.8% average annual rise in

consumer prices in 2013, the average net wage lost 1.5% in real terms<sup>28</sup>. The average pension was RSD 23,378 or 53.4% of the average net wage<sup>29</sup>, down by 3.4% y-o-y in real terms.

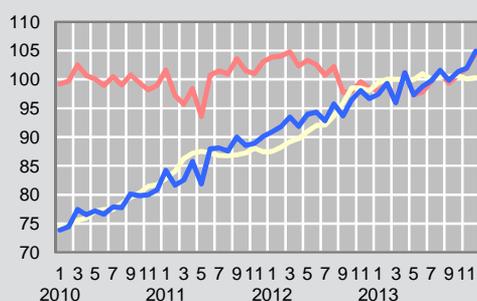
The continuation of negative trends would adversely affect the available income of the household sector, which may aggravate the servicing of household obligations towards the banking sector and raise the level of NPLs.

Chart I.6.2. Employment trends



Source: Statistical Office of the Republic of Serbia.

Chart I.6.1. Consumer prices and net household wages (index, 2013 = 100)

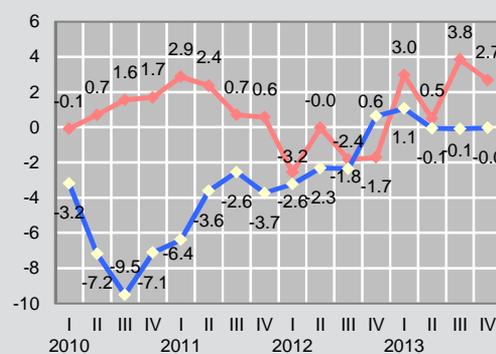


Legend:

- Real net wages\*
- Consumer price index (CPI)
- Nominal net wages\*

\* Seasonally adjusted data.  
Source: NBS.

Chart I.6.3. Real GDP growth and employment (y-o-y growth rate, pp)



Legend:

- Real GDP growth
- Employment

Source: NBS and Statistical Office of the Republic of Serbia.

<sup>27</sup> Ministry of Finance – Public Finance Bulletin for December 2013.

<sup>28</sup> Communication of the Serbian Statistical Office of 31 January 2014.

<sup>29</sup> Ministry of Finance – Public Finance Bulletin for December 2013.

Late 2013 saw increased coverage of the new average consumer basket by the nominal net wage relative to the year before (from 73.6% to 78.2%). In December 2013, the average nominal net wage and new average consumer basket were 8.3% and 2.0% higher respectively. However, it should be borne in mind that average wages are the highest in December because of the 13th month payment, bonuses and other wage supplements<sup>30</sup>.

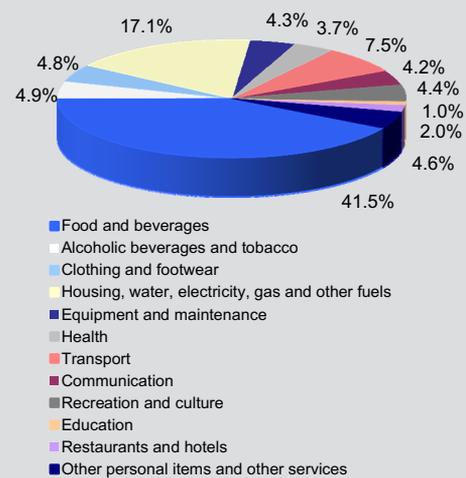
According to the quarterly Household Consumption Survey conducted by the Serbian Statistical Office, monthly household consumption was RSD 55,881 on average in Q4 2013 (up by 7.9% y-o-y). Expenses for food and non-alcoholic beverages still accounted for the largest share (41.5%, down by 2.3%), followed by expenses for dwelling, water, electricity, gas and other fuels (17.1%, up by 0.9%).

Total household savings rose by RSD 40 bln to RSD 967.5 bln in 2013, accounting for 30.7% of total banking sector liabilities and 26.7% of GDP.

In terms of the currency structure, household FX (resident) savings rose modestly in 2013 – by EUR 144.8 mln or 1.8% in real terms<sup>31</sup>, which is much below the previous-year rate of growth (7.9%). As a result, the ratio of FX savings to GDP fell from 27.2% in 2012 to 25.8% in 2013.

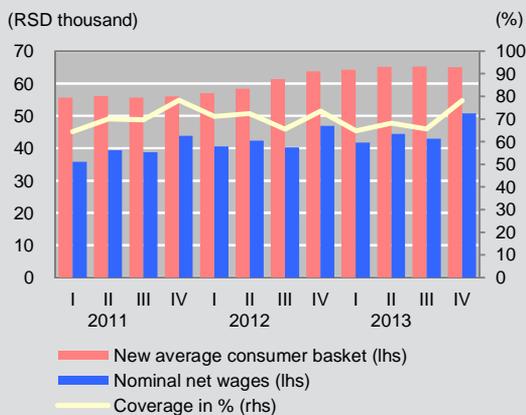
The customary increase in FX savings was not recorded in November because of the negligible increase in interest rates during the “Savings Week”. Instead, FX savings were reduced by EUR 14.1 mln or 0.2 pp, while rates were down 1.3 pp y-o-y. In fact, banks acted upon the NBS recommendation to refrain from attracting new

Chart I.6.5. The structure of household consumption as at 31 December 2013 (%)



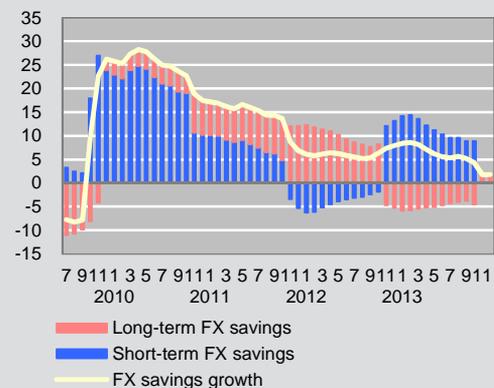
Source: Statistical Office of the Republic of Serbia.

Chart I.6.4. New average consumer basket coverage by nominal net wages



Source: Ministry of External and Internal Trade and Telecommunications.

Chart I.6.6. Contributions to real growth of FX household savings\*



\* Excluding exchange rate effect.

Source: NBS.

<sup>30</sup> “Purchasing Power of Households – Consumer Basket”, publication of the Ministry of External and Internal Trade and Telecommunications.

<sup>31</sup> Calculated at the EUR/RSD exchange rate of 31 August 2008, assuming that all FX savings are deposited in euros.

savings deposits by offering inordinately higher interest rates, but instead by improved terms and a wider range of products. For the third year in a row, the NBS issued a recommendation to banks not to set rates on term deposits in the “Savings Week” at levels that would deviate significantly from their average levels during the remainder of the year. A more responsible interest rate policy by banks positively affects their stability and the

stability of the overall financial system. As the cost of sources of funds affects the price of bank loans, such behaviour of banks is doubtless a necessary precondition for a decline in lending interest rates.

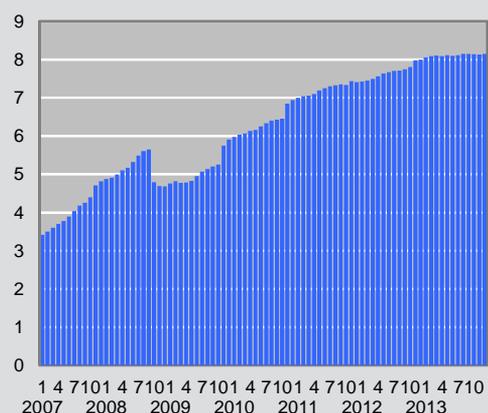
Although the dynamics of savings in 2013 did not mirror the upward trend recorded in previous years, Q4 2013 saw moderate improvement in the maturity structure of FX savings as the share of long-term in total FX savings rose to 20.7% (up by 1.1 pp relative to 2012).

If the weighted average rate of interest paid on FX and FX-indexed deposits (3.09%) is applied on the average amount of FX savings (EUR 8.1 bln), it is estimated that around EUR 250 mln constitute interest income of which around EUR 38 mln capital income tax (pursuant to the Law on Individual Income Tax). Considering the level of the increase in FX savings, it may be concluded that a considerable portion of calculated and paid interest was not reinvested in FX savings.

Furthermore, in the course of 2013, the government paid through banks EUR 281.1 mln to cover public debt arising from household FX savings<sup>32</sup>. Since the start of redemption in 2002, total EUR 2,641.2 mln was paid for that purpose.

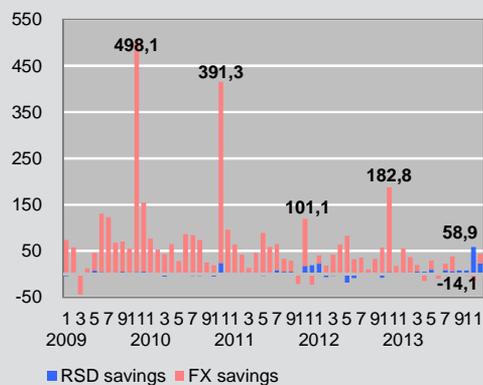
What is encouraging from the aspect of financial stability

Chart I.6.7. **Stock of household FX savings** (EUR bln)



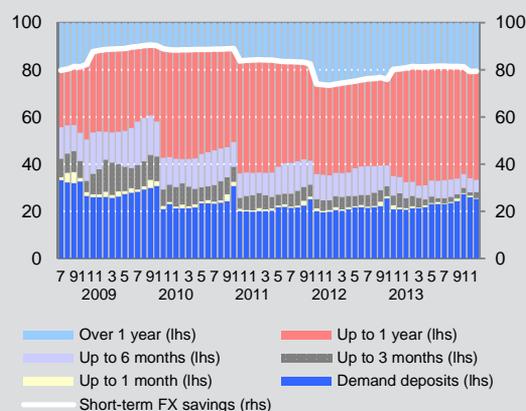
Source: NBS.

Chart I.6.8. **Monthly changes of household savings** (EUR mln)



Source: NBS.

Chart I.6.9. **FX household savings by maturity** (%)



Source: NBS.

<sup>32</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 banka AD Beograd undergoing liquidation, and FX household balances deposited with Banka privatne privrede Montenegro DD Podgorica.

is that the share of FX deposits in total household deposits declined by 2.7 pp to 89.4% by end-2013. Also, the shift in the currency structure of FX deposits in favour of the Swiss franc and US dollar, recorded in late 2011 and in 2012, was halted primarily due to renewed confidence in the euro following its appreciation and weakening of other two currencies. As a result, the share of deposits in the Swiss franc and US dollar remained unchanged relative to end-2012 – at 2.9% and 2.8% respectively.

By contrast to FX savings, whose rise did not follow the dynamics of previous years, dinar savings almost doubled in 2013 (up by RSD 16.0 bln or 91.0%). The growth was particularly robust in the final quarter (RSD 10.3 bln or 64.4% of the total). Citizens generally opted for saving in dinars because of higher interest rates compared to those paid on FX savings, more favourable tax policy<sup>33</sup>, and relative stability of the exchange rate. Furthermore, though still modest, the share of dinar savings rose by 1.6 pp – from 1.9% to 3.5% in late 2013.

In Q4 2013, the share of short-term savings in dinars in total savings declined from 92.2% in 2012 to 91.7% in late 2013.

In its communication with the public, the NBS

highlighted not only the importance of pursuing a responsible savings policy in terms of interest rate levels, but also aimed to underline the profitability of dinar savings. The support for and promotion of saving in dinars is at the same time an element of the strategy to achieve and maintain financial stability as the increased use of the dinar in the financial system also means lower vulnerability of all sectors to exchange rate changes.

Movements in FX and dinar savings effectively confirm that trust in Serbia's banking sector has been preserved and that citizens increasingly choose to save in dinars and on longer terms, which creates a more stable deposit base of banks.

Lending to the household sector also increased and though decelerating further in 2013, it remained positive at RSD 20.2 bln or 4.0%<sup>34</sup>. The slowdown may in part be explained by the delicensing of two banks<sup>35</sup> which ceased to operate in 2013, with part of their loans being struck off from banking sector balance sheets. Other factors include a smaller volume of subsidised loans, banks' increased caution in assessing clients' creditworthiness, including citizens' caution in an environment ridden with uncertainties. Though subsidised lending to the household

Chart I.6.10. Currency structure of household deposits (%)

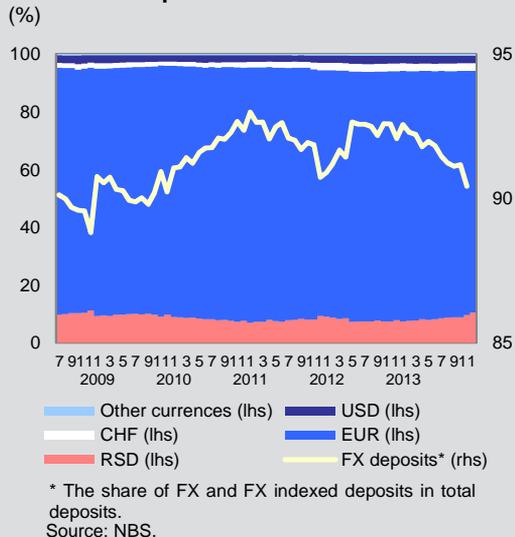
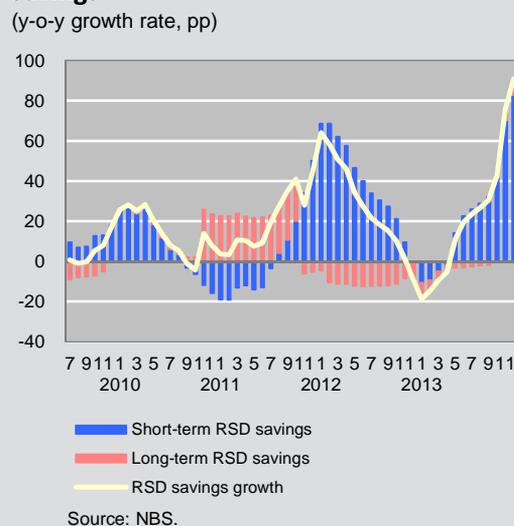


Chart I.6.11. Contributions to growth of RSD savings (y-o-y growth rate, pp)



<sup>33</sup> Interest earnings on FX household savings are subject to a tax rate of 15%, while interest on dinar savings are tax-exempt.

<sup>34</sup> Calculated at the EUR/RSD exchange rate of 31 August 2008, assuming that all FX and FX-indexed loans are extended in euros.

<sup>35</sup> Razvojna banka Vojvodine AD Novi Sad and Privredna banka Beograd AD Belgrade.

sector continued into 2013, with housing loans worth RSD 8.7 bln, the amounts extended were significantly lower relative to last year (by RSD 6.0 bln), notably because of the absence of subsidised agricultural loans.

The upward trend in the share of bank dinar receivables in total receivables from the household sector continued into 2013. Since mid-2011, when the trend was set in place, dinar loans accounted for around 65% of new household loans, as a result of NBS regulations which favour borrowing in dinars. Thus, by end-2013 dinar receivables made up 37.9% (a 2.9 pp increase). Euro-indexed receivables accounted for 47.0%, while the share of Swiss franc receivables declined further – by 2.1 pp to 15.0%.

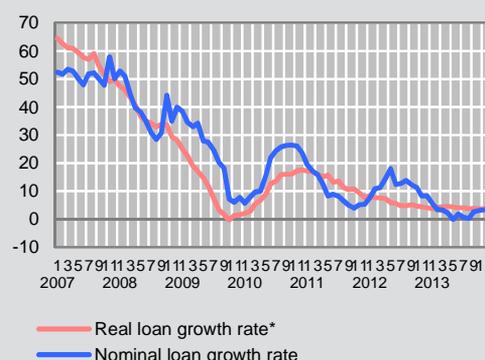
Broken down by purpose, the volume of cash loans increased in 2013 (RSD 29.8 bln or 20.3%), followed by housing loans (RSD 5.4 bln or 1.7%), overdrafts on current accounts (RSD 1.2 bln or 4.8%) and credit cards (RSD 0.2 bln or 0.6%). Other loans (consumer loans, loans for entrepreneurs and other loans) fell by RSD 16.5 bln or 13.1%. At end-2013, housing and cash loans remained dominant at 47.3% and 26.5% respectively.

Furthermore, the household sector owes RSD 10.1 bln in

leasing agreements, down by RSD 0.2 bln or 2.1 pp from last year<sup>36</sup>.

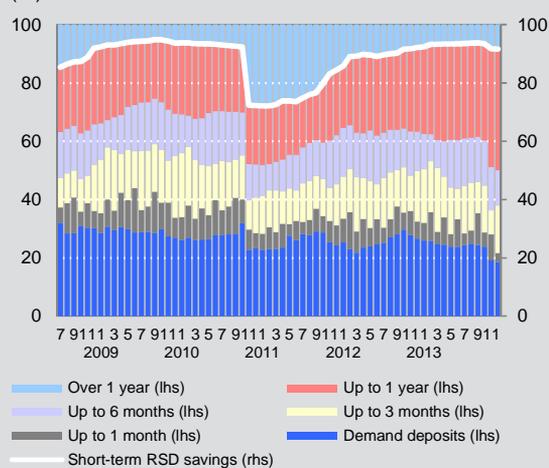
Housing loans worth RSD 316.2 bln gross were disbursed to 103,497 clients in late 2013. Of this, 22,143 loans worth RSD 97.1 bln gross were CHF-indexed (30.7%).

Chart I.6.13. Household lending growth rate (y-o-y growth rate, %)



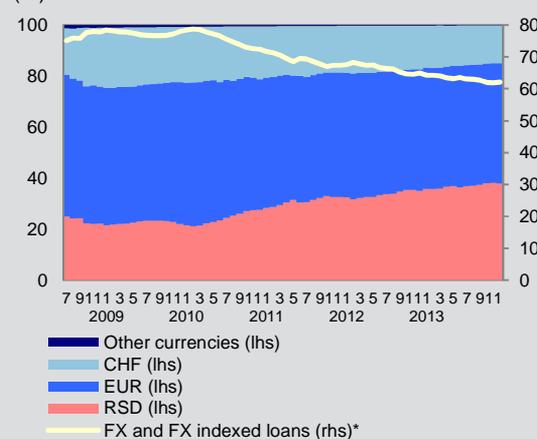
\* At the RSD/EUR exchange rate of 31 August 2008, assuming that all FX and FX-indexed loans are granted in EUR.  
Source: NBS.

Chart I.6.12. RSD household savings by maturity (%)



Source: NBS.

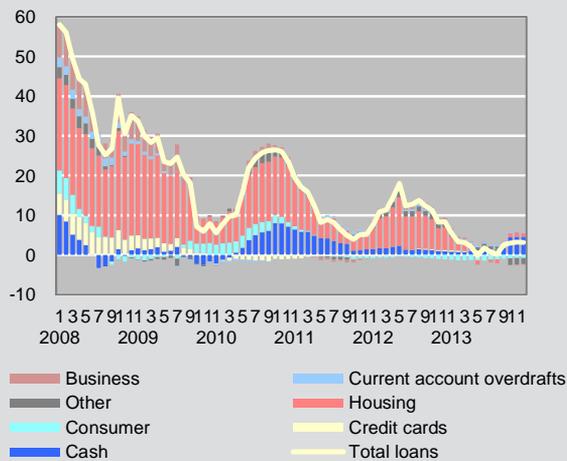
Chart I.6.14. Currency structure of bank claims on households (%)



\* The share of FX and FX indexed loans in total loans.  
Source: NBS.

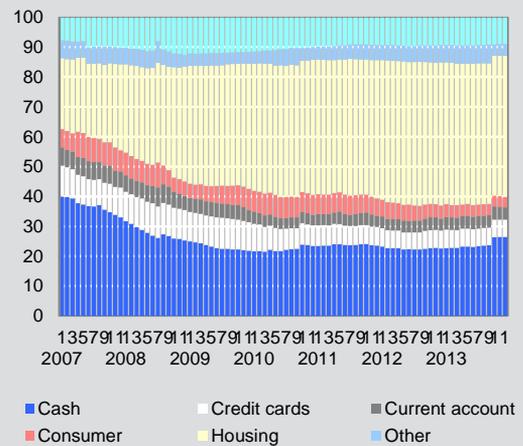
<sup>36</sup> Data of the Association of Serbian Banks.

**Chart I.6.15. Contributions to growth of bank loans to households by purpose**  
(y-o-y growth rate, pp)



Source: NBS.

**Chart I.6.16. Bank loans to households by purpose**  
(%)

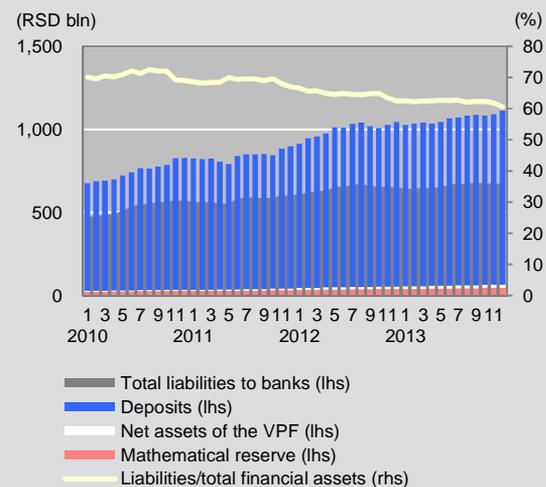


Source: NBS.

Of total housing loans, NPLs accounted for 5,375 and were worth RSD 21.8 bln or 6.9%. CHF-indexed NPLs, worth RSD 12.9 bln, accounted for 1,919. This is 4.1% of total housing loans, 13.3% of CHF-indexed loans, and 59.2% of total housing NPLs.

By end-2013, the share of housing NPLs at the banking sector level was lower than that of total household NPLs (10.8%)<sup>37</sup> and lower than the share of NPLs in total bank loans (21.4%). The significance of the NBS Recommendation BAN 001/13 of 31 May 2013 concerning the resolution of the issue of CHF-indexed housing loans lies particularly in the fact that CHF-indexed NPLs accounted for 59.2% of total housing NPLs and that loan beneficiaries found it increasingly difficult to meet loan payments. In 2013, the National Corporation for Insurance of Housing Loans raised the number of insured loans by 5,335, in the amount of EUR 166.8 mln. The number of insured loans was 75,734 in late 2013 and the initially insured amount EUR 2.75 bln, of which CHF-indexed loans accounted for 34.0%. The Corporation portfolio contained 592 loans worth EUR 28.0 mln which were declared due because of events of default, whereas the Corporation will be paying annuities until the sale of mortgaged property. The loans due made up 1.0% of the initially insured value of the Corporation portfolio. CHF-indexed loans accounted for 72.0% of all due insured

**Chart I.6.17. Net households position to the financial sector**



Source: NBS.

loans in the portfolio. Furthermore, by end-2013, total 54 mortgages were activated in respect of insured housing loans, of which 43 in respect of CHF-indexed loans.<sup>38</sup>

Based on data of banks and the Corporation, the share of

<sup>37</sup> Household sector: domestic natural persons, foreign natural persons (residents), entrepreneurs, private households with employed persons and registered agricultural producers.

<sup>38</sup> Data of the National Mortgage Insurance Corporation.

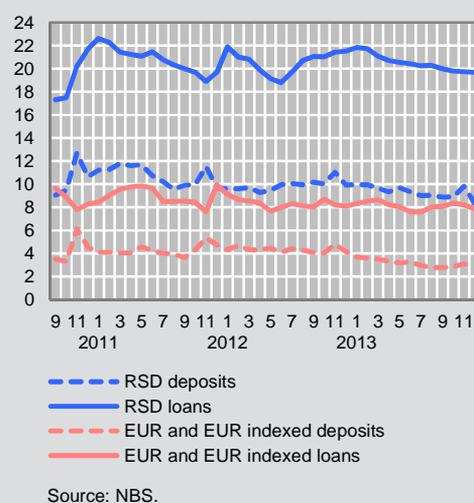
insured housing loans declared due because of events of default and for which the Corporation is paying annuities, is lower than the share of housing NPLs. Further worsening of the degree of collectability of bank housing loans may imply greater involvement of the Corporation in case of occurrence of insured events.

It is noteworthy that household sector debt remained low at 18.6% of GDP, down by 0.9 pp from end-2012. In contrast, the average loan amount per capita rose by 3.2% in 2013 – from EUR 792.6 to EUR 818.3, partly due to shrinking population numbers in Serbia.<sup>39</sup> The average loan amount by debtor equalled 12.4 of average net wages in December 2013, down by 0.1% y-o-y.

Contrary to the corporate sector which is a net debtor, the household sector remained an important net creditor of the financial system. By end-2013, total household liabilities towards banks made up 60.6% of total household financial assets in banks, insurance companies and voluntary pension funds (62.5% in late 2012).

Borrowing costs of the household sector were also somewhat lower in 2013 as rates on new dinar loans and deposits fell by 1.8 pp and 1.6 pp respectively. Owing to a significant drop in lending rates, the interest margin in the dinar market declined, but remained high at 11.3 pp.

**Chart I.6.18. Interest rates on household loans and deposits – new business**  
(weighted average, %)



In the same period, rates on new euro and euro-indexed loans and deposits also declined – by 0.2 pp and 1.3 pp respectively, whereby the spread widened by 1.1 pp to 5.0 pp by end-2013. Though the spread between rates on dinar loans and euro and euro-indexed loans remained high (11.8 pp), it narrowed by 1.6 pp in late 2013 because of a sharper drop in rates on dinar loans.

What follows are the main indicators on the household sector for the 2008–2013 period.

<sup>39</sup> Estimate of the Serbian Statistical Office.

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

	2008	2009	2010	2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013
<b>Total indebtedness</b>												
<i>RSD bln</i>	428,2	462,3	571,2	601,7	628,5	655,6	660,0	652,7	649,3	668,1	677,4	673,7
<i>EUR mln</i>	4.832,7	4.821,7	5.414,3	5.750,5	5.644,0	5.660,3	5.737,4	5.739,5	5.799,5	5.852,1	5.911,2	5.876,5
<i>% of GDP</i>	16,1	17,0	19,8	18,8	19,5	20,2	20,0	19,5	18,9	19,2	19,1	18,6
<b>FX to total loans<sup>1</sup></b>	77,8	77,9	72,4	67,4	67,8	66,6	65,2	65,0	64,1	63,6	62,7	62,1
<b>FX to total deposits<sup>1</sup></b>	88,8	90,2	92,4	90,7	91,7	92,6	92,2	92,1	92,2	91,8	91,1	89,4
<b>FX deposits to FX loans<sup>1</sup></b>	124,5	157,2	177,2	191,2	195,8	203,5	207,1	214,7	218,1	217,7	219,9	223,3
<b>Short-term loans to total loans</b>	14,7	14,8	13,2	12,3	12,6	13,4	14,1	14,3	14,8	14,9	15,0	15,3
<b>LTV ratio<sup>2</sup></b>	63,6	66,1	65,4	64,3	65,6	65,6	65,6	65,6	65,7	65,7	65,8	65,9
<b>Average loan per employee</b>												
<i>RSD thousand</i>	166,0	193,1	256,8	281,0	294,7	309,4	313,2	302,9	301,3	315,5	321,8	312,8
<i>EUR</i>	1.873,4	2.013,6	2.434,5	2.685,8	2.646,5	2.671,0	2.722,8	2.663,8	2.690,8	2.763,0	2.807,8	2.728,3
<b>Average loan per resident</b>												
<i>RSD thousand</i>	58,3	63,2	78,5	82,7	86,8	90,5	91,1	90,1	90,4	93,0	94,3	93,8
<i>EUR</i>	657,9	659,5	744,1	790,3	779,4	781,7	792,3	792,6	807,6	814,9	823,1	818,3
<b>Average loan amount</b>												
<i>RSD thousand</i>	330,3	384,1	441,5	452,5	470,3	483,0	481,9	474,2	469,7	489,4	501,7	505,1
<i>EUR</i>	3.727,7	4.006,2	4.185,2	4.324,8	4.223,5	4.170,3	4.189,2	4.170,3	4.195,0	4.286,2	4.378,0	4.405,6
<b>Average loan per user</b>												
<i>RSD thousand</i>	401,1	461,7	525,6	546,5	570,4	591,0	593,0	587,1	582,0	609,1	628,2	631,0
<i>EUR</i>	4.526,6	4.815,1	4.982,5	5.222,8	5.122,3	5.102,5	5.154,9	5.163,1	5.198,7	5.335,0	5.481,8	5.504,4
<b>Indebtedness to financial assets</b>	83,9	67,4	69,0	67,0	65,6	64,8	64,7	62,5	62,4	62,6	62,3	60,6

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

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

Source: NBS, Association of Serbian Banks, National Mortgage Insurance Corporation and Statistical Office of the Republic of Serbia.

## II. Financial sector

*Serbia's financial sector is bank-based – the share of bank assets in total assets of the financial system was 92.4% in late 2013. Hence, the focal point of financial stability is the soundness of banks and their capacity to perform their core function of financial intermediation, thereby underpinning domestic economic growth. In the course of 2013, the banking sector was adequately capitalised mainly due to recapitalisation, but also to liquidation of non-solvent banks. Since mid-2013, lending activity was on a y-o-y downturn. Despite the rising share of NPLs, the banking sector remained stable owing to the high level of reserves for estimated losses. Banking sector profitability entered the negative zone for the first time since 2008, not only because several banks posted losses and high write-offs of NPLs, but also because the structure of bank assets changed in favour of less risky but lower-yielding investments. The credit risk was the key risk facing the banking sector, while the liquidity risk was rather low.*

### II.1. Banking sector

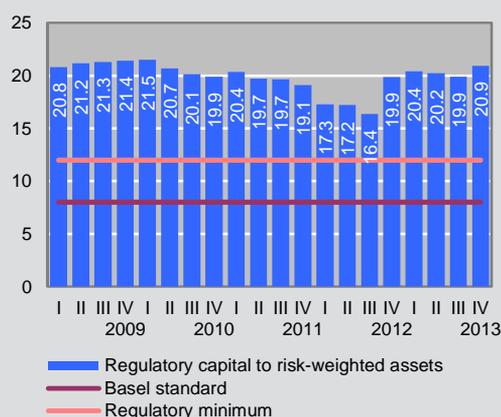
#### Capital adequacy

Serbia's banking sector was well-capitalised in 2013. The capital adequacy ratio (CAR) stood at 20.9% in late 2013, which is significantly above the country's regulatory minimum (12.0%) and 2.5 times above the EU threshold.

Recapitalisation (RSD 19.4 bln) and the delicensing of two banks that recorded negative values of regulatory

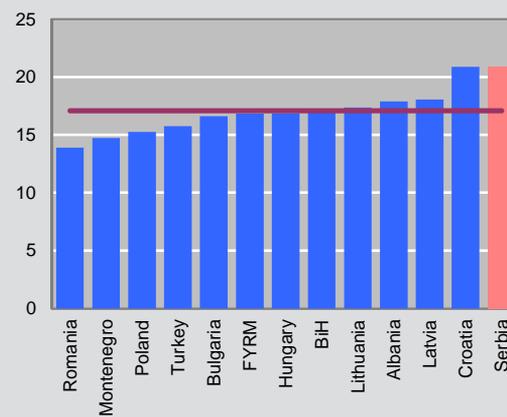
capital, had a positive impact on the sector's total regulatory capital. However, as losses reported by some banks acted in the opposite direction, the value of total regulatory capital remained broadly unchanged from end-2012. By contrast, risk-weighted assets contracted in 2013, notably on account of the credit downturn, the delicensing of two banks and assignment of receivables of some banks to non-banking entities. In terms of international comparison, owing to its conservative prudential regulations, Serbia's banking sector CAR held the first place among countries of Central and Eastern Europe.

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



Source: NBS.

Chart II.1.2. **Regulatory capital to risk-weighted assets, countries of the region** (2013, latest available data, %)



Source: NBS.

Due to the high level of NPLs, particularly in the corporate sector, the most important risk in Serbia's banking sector was the credit risk. Hence 86% of capital requirements were credit risk-related, while 12% accounted for operational risk and 2% were market risk-related.

### Level, structure and quality of assets

At end-2013, net assets of the Serbian banking sector amounted to RSD 2,846 bln or 78.7% of GDP.

As banks in Serbia engage in traditional credit-deposit activities, the credit portfolio was the major component of banking sector assets (56.8% in late 2013). Other components were callable loans and deposits (14.3%), securities, equity and investment (12.1%) and cash and cash equivalents (9.4%). Though remaining dominant, the share of the credit portfolio declined compared to previous years. Conversely, the share of securities, stakes and participations, notably government securities, increased by as much as 7.5 pp in 2013 compared to 2009, or by more than 2.2 pp y-o-y. A smaller share of risky investment and moderate shrinking of the credit portfolio are indicative of banks' risk aversion, which buttresses the sector's solvency, but at the same time reduces profitability and certainly does not constitute a solid basis for economic growth.

### Lending activity

Lending contracted in y-o-y terms from mid-2013. Real lending activity which, in addition to domestic loans, includes corporate cross-border loans, lost 4.0% compared to the previous year.

The decline in the composite measure of lending activity was prompted by a lower level of corporate domestic and external borrowing. Domestic corporate lending recorded negative real growth of 10.7% y-o-y, down from 3.1% in 2012. Corporate external debt repayment, down by 1.9% in real, y-o-y terms, acted in the same direction. Both supply- and demand-side factors weighed down on lending activity. The supply of loans declined mainly because of banks' increased risk perception regarding the collection of receivables. On the other hand, the economic slowdown and dented domestic and external demand made domestic entrepreneurs more cautious and cut the demand for loans, thus hampering any rollovers. Furthermore, the

Chart II.1.3. Structure of assets of the Republic of Serbia's banking sector (%)

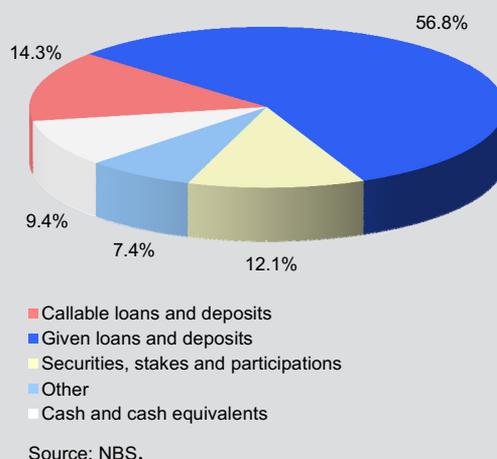
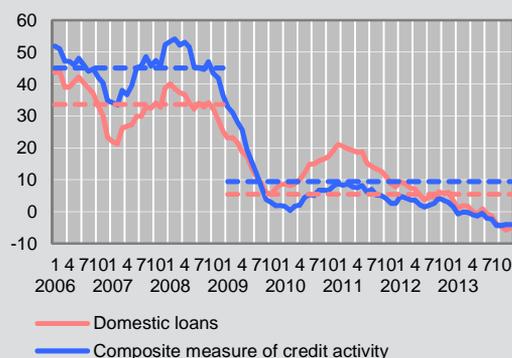
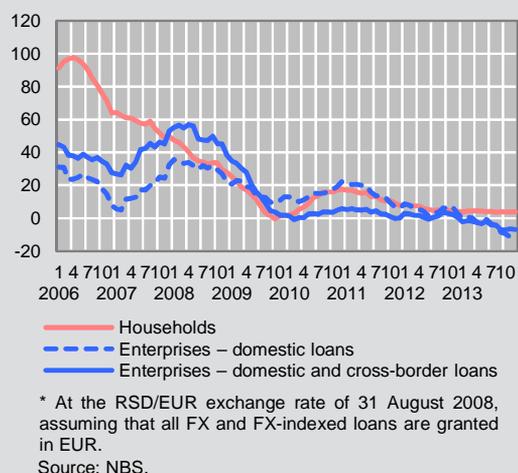


Chart II.1.4. Real credit growth\* (y-o-y growth rates, %)

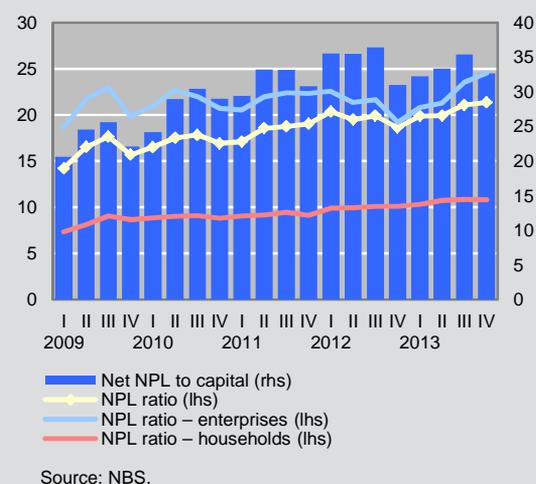


credit portfolio contracted as subsidised loans (with an important share in total lending in 2012) fell due and the receivables of delicensed banks were struck off from banking sector balance sheets. Besides, the assignment of bank outstanding receivables to non-financial entities also had a dampening effect on the credit portfolio. The assignment of NPLs was observed across the region. In the long run, this will prop up lending and enhance confidence in the banking sector, through a reduction in

**Chart II.1.5. Real growth of loans to households and enterprises\***  
(y-o-y growth rates, %)



**Chart II.1.6. Non-performing loans**  
(%)



capital requirements for the credit risk and the collection of a portion of assigned receivables. For the same reason, the Italian banking groups Intesa and Unicredit posted significant losses in Q4 2013, but, as a result, their share prices climbed up.

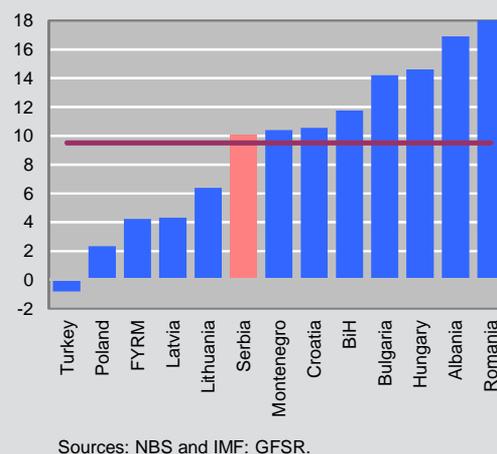
Contrary to the corporate sector, lending to households continued to record positive growth rates (4% y-o-y). At the same time, the share of dinar cash and refinancing loans was significant.

### Credit portfolio

The credit portfolio was worth RSD 1,686 bln in late 2013. The major portion accounted for corporate<sup>40</sup> (around 52%) and household<sup>41</sup> loans (around 36%). Total corporate loans amounted to RSD 871 bln net, of which 85% were in foreign currencies (80% in euros). Household loans amounted to RSD 610 bln in late 2013, with housing loans making up RSD 307 bln. The FX portion of household debt equalled 64% (48% in euros).

As loans constitute the key component of banking sector assets, the credit portfolio crucially determines the quality of overall assets. Since 2008, the share of NPLs in total banking sector loans has been on a rise. At end-2013, gross NPLs made up 21.4% of total gross loans approved. The 2.7 pp increase was due not only to a rise in gross NPLs, but also to a reduction in total banking sector

**Chart II.1.7. Developments of NPL ratio, countries of the region**  
(2013 relative to 2008, pp)



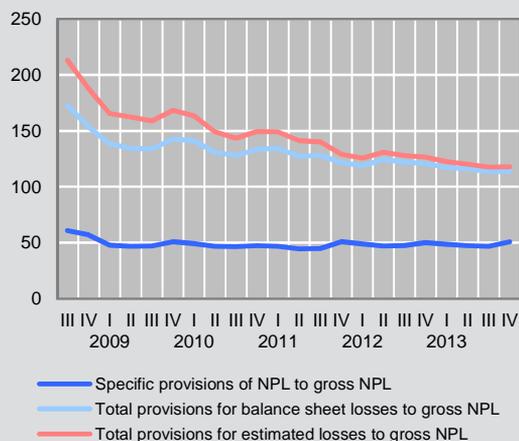
loans. However, it should not be overlooked that Serbia entered the crisis with a relatively high level of NPLs (11.3% at end-2008) and recorded no major growth in NPLs during the crisis as did most other countries. Note should also be taken of the fact that the NBS applies a rather rigorous definition of NPLs.

The share of NPLs in total loans in 2013 was also influenced by the delicensing of Razvojna banka

<sup>40</sup> The corporate sector includes public enterprises and companies.

<sup>41</sup> The household sector includes entrepreneurs, domestic natural persons, foreign natural persons – residents, registered agricultural producers, private households with employed persons and non-profit organisations.

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



Source: NBS.

Vojvodine and Privredna banka Beograd. A part of the distressed credit portfolio of closed banks was assumed by the Insurance Deposit Agency and another was written off, which largely accounts for the decrease in corporate NPLs in the period observed.

To protect the interests of depositors and other creditors, and to preserve financial stability, the NBS requires, in addition to reserves prescribed by the IFRS, the creation of regulatory reserves, i.e. reserves for estimated losses. By end-2013, the calculated reserve for the coverage of on- and off-balance sheet losses was sufficient to cover 117.9% of gross NPLs. Despite the narrowing coverage by reserves for estimated losses, NPLs, though high, do not jeopardise financial stability.

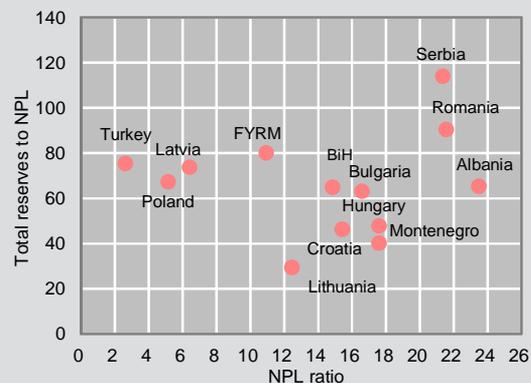
In the international context, the share of NPLs in total loans of the Serbian banking sector was above the region average. Besides, their coverage by total reserves for estimated losses was the highest in the region.

In sectoral terms, the share of NPLs remained significantly higher in the corporate than in the household sector. In late 2013, the share of NPLs in total corporate loans was 24.5%, up by 5.3 pp y-o-y. The level of NPLs stayed the highest in the construction sector (52.7%), excluding public enterprises. Besides, the construction sector also witnessed the highest increase in NPLs in 2013 (over 7 pp). The increase was due to a sharp drop in total loans extended to the construction sector.

NPLs of the household sector went up in 2013, though much more moderately than in the corporate sector. The

Chart II.1.9. Coverage of non-performing loans by total reserves and NPL ratios, countries of the region

(2013, latest available data, %)



Sources: NBS and IMF: GFSR.

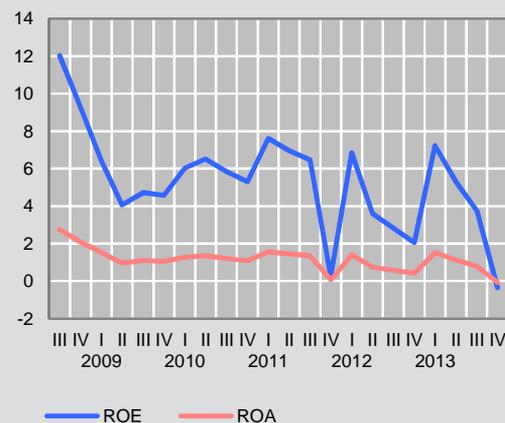
share of NPLs in gross household loans was 10.8% in late 2013, up by 0.7 pp y-o-y. Debtor obligations were serviced most regularly in regard to housing loans, which represent the most significant segment of household loans. At the same time, the share of NPLs in total consumer loans rose considerably relative to the year before.

## Profitability

Profitability of the Serbian banking sector declined significantly in 2013. With ROA of -0.1% and ROE of -0.4%, profitability was below the region average. The

Chart II.1.10. Profitability indicators

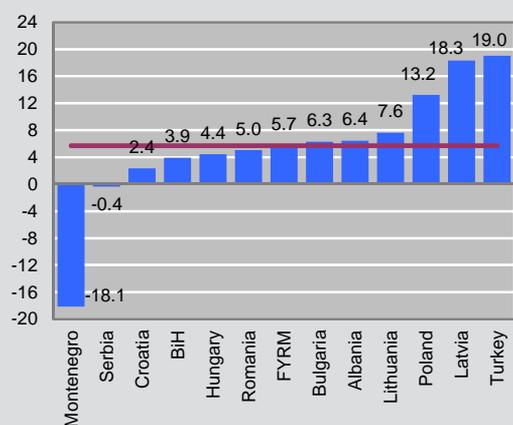
(%)



Source: NBS.

**Chart II.1.11. Return on equity, countries of the region**

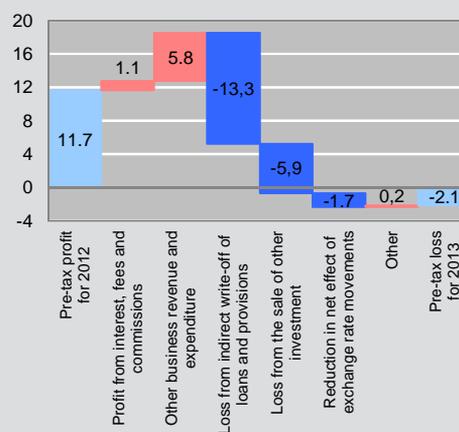
(2013, latest available data, %)



Sources: NBS and IMF: GFSR.

**Chart II.1.13. Contributions to changes in pre-tax result in 2013**

(RSD bln)



Source: NBS.

decline was due to losses prompted by high write-offs of NPLs at the expense of the operating result of some banks and negative lending growth rates in the corporate sector. At the same time, the structure of interest earnings changed in favour of less risky, but lower-yielding investment.

Domestic state-owned banks accounted for 18.8% of banking sector net assets. The share of domestic private banks and foreign-owned banks was 6.9% and 74.4% respectively.

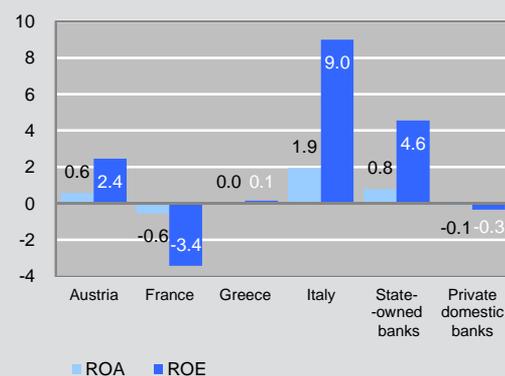
It is noteworthy that foreign-owned banks recorded both the highest and lowest profitability in the course of 2013.

Negative profitability of domestic private banks was mainly due to losses posted by one delicensed bank.

In terms of average profitability by the country of origin, banks in majority ownership of Slovenian, Hungarian, Belgian and Cypriot shareholders faced the greatest challenges in the domestic market. Still, the share of these banks in banking sector net assets was not high, equalling mere 4%. French and Greek banks posted weak, and in some years of the 2008–2013 period even negative results. By contrast, Italian and Austrian banks operated at a profit, on average. Profitability indicators of Italian banks were

**Chart II.1.12. Profitability indicators, by majority shareholder's country of origin and ownership structure in 2013**

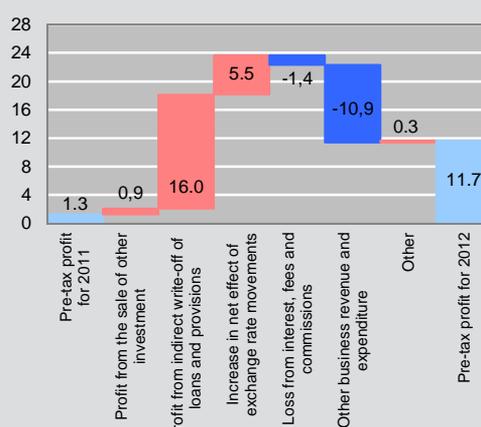
(%)



Source: NBS.

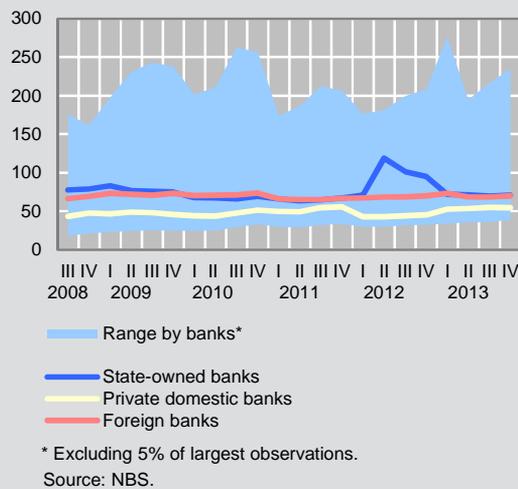
**Chart II.1.14. Contributions to changes in pre-tax result in 2012**

(RSD bln)



Source: NBS.

Chart II.1.15. **Cost-to-income ratio (%)**



exceptionally high in late 2013, though somewhat lower compared to previous years. In the period observed, Italian banks reported a two-digit ROE.

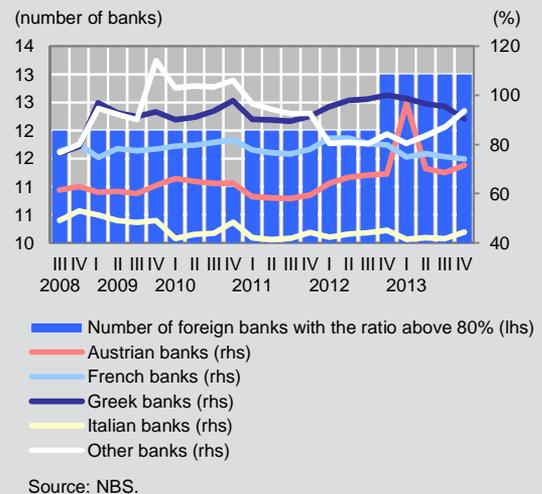
Despite losses recorded by some of them, state-owned banks were profitable.

Pre-tax loss of the banking sector equalled RSD 2.1 bln in 2013. Fifteen banks posted profit of RSD 32.6 bln, while 15 banks recorded a loss in the amount of RSD 34.7 bln. Pre-tax profit was lower by RSD 13.8 bln than in 2012, with the greatest positive effect exerted by a rise in other operating revenue and a decline in other operating expenditure (RSD 5.8 bln), as well as an increase in interest earnings, fees and provisions (RSD 1.1 bln). The major negative contribution was provided by losses under indirect write-offs of loans and provisions (RSD 13.3 bln), losses from sale of other investments (RSD 5.9 bln) and a dampened net effect of exchange rate developments<sup>42</sup> (RSD 1.7 bln).

Broken down by individual components of business result, net expenses for indirect write-offs of loans and investments increased significantly, vs. a sharp drop observed in 2012. Moreover, 2013 saw a diminished net effect of exchange rate differences and a loss from sale of other investments, while their contribution in 2012 was positive. Besides, the contribution of interest, fees and commissions was positive in 2013, but negative in 2012.

<sup>42</sup> Net effect of exchange rate changes and changes in the value of assets and liabilities.

Chart II.1.16. **Cost-to-income ratio of foreign banks**



The cost-to-income ratio varied depending on the banks' ownership structure. In the 2008–2013 period, domestic private banks recorded the lowest value. In terms of the country of origin, Greek banks and banks classified as “other” recorded the highest value of the ratio.

## Liquidity

As Serbia's banking sector is highly liquid according to all valid criteria, the liquidity risk poses no threat to

Chart II.1.17. **Average monthly liquidity ratio**

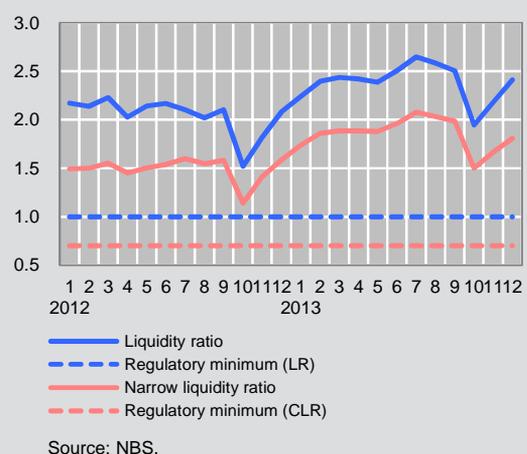
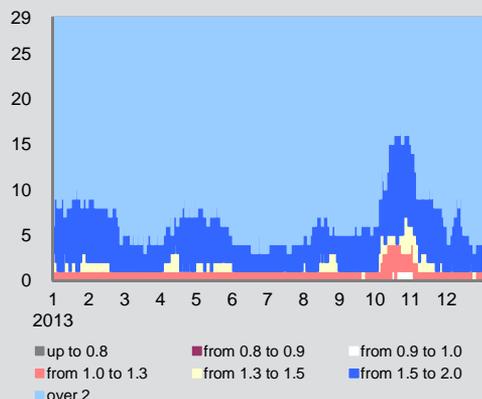


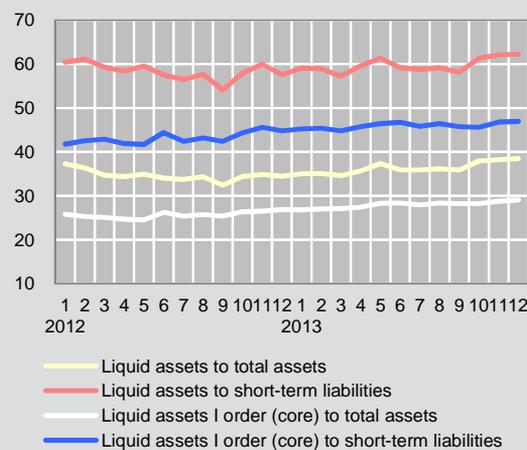
Chart II.1.18. **Distribution of liquidity ratio\***  
(number of banks)



\* Excluding Razvojna banka Vojvodine, Privredna banka Beograd and Univerzal banka.

Source: NBS

Chart II.1.20. **Liquid assets**  
(%)



Source: NBS.

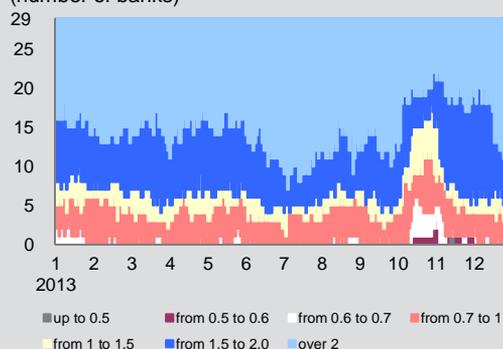
financial stability. In December 2013, the average monthly liquidity ratio of 2.41 was much above the regulatory minimum (1.0). The average monthly narrow liquidity ratio of 1.81 was also significantly above the regulatory minimum (0.7). According to results of stress tests, Serbia's banking sector remains highly liquid, even in conditions of extreme deposit withdrawal.

A decline in the liquidity ratio, observed in November each year, was due to maturing deposits termed during the

“Savings Week”. Charts II.1.18 and II.1.19 show the effects of the “Savings Week” and the distribution of liquidity ratios by banks. By end-2013, liquid assets covered 38.5% of total assets and 62.2% of short-term liabilities. In terms of first-degree liquid assets, their share in total assets and the coverage of short-term liabilities was 29.0% and 46.9% respectively.

Substantial provisions of liquid assets doubtless contribute to the sector's stability, but may also diminish profitability. A high share of liquid assets carries a low risk, but also the pertaining lower returns.

Chart II.1.19. **Distribution of narrow liquidity ratio\***  
(number of banks)



\* Excluding Razvojna banka Vojvodine, Privredna banka Beograd and Univerzal banka.

Source: NBS.

## Sources of funding

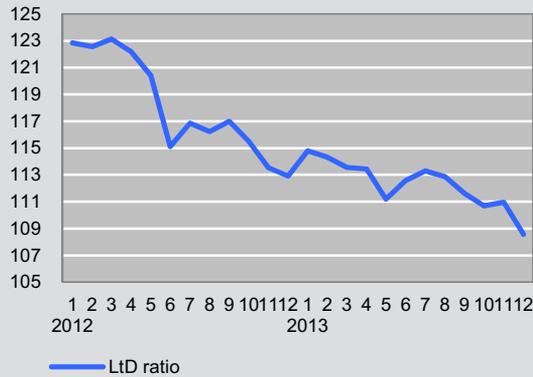
Banks operating in the Republic of Serbia increasingly rely on domestic, stable sources of funding. Strengthening of the domestic deposit base closes the gap between local loans and deposits, which reduces the vulnerability of the domestic financial system to external shocks. The downward trend in the loan-to-deposit ratio in 2013 was prompted by a stronger deposit base and the credit downturn.

At end-2013, total deposits made up 60.7% of total banking sector liabilities (a 1.7 pp rise from 2012), bank capital accounted for 20.9% (up by 0.4 pp) and disbursed loans for 12.6% (a 1.3 pp drop). Banking sector liabilities consisted predominantly of domestic deposits. The

currency structure of deposits showed the continuing high presence of FX deposits, with a moderate downward tendency. Of total deposits, 73.3% were in foreign currencies, most notably in euros (67.3 pp of total or 90%

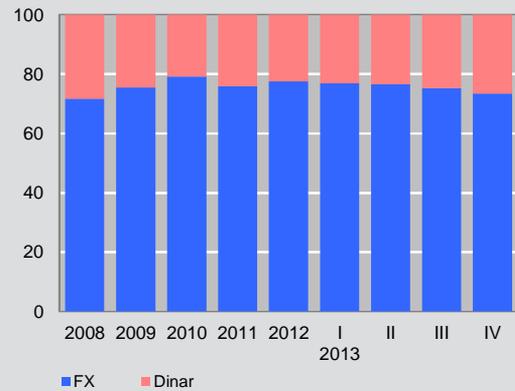
of FX deposits), down by 3.5 pp y-o-y. In terms of the maturity structure, short-term deposits<sup>43</sup> were dominant at 92.5%. On the other hand, bank external liabilities were generally long-term – 82.9%.

**Chart II.1.21. Developments in loan-to-deposits ratio (in %)**



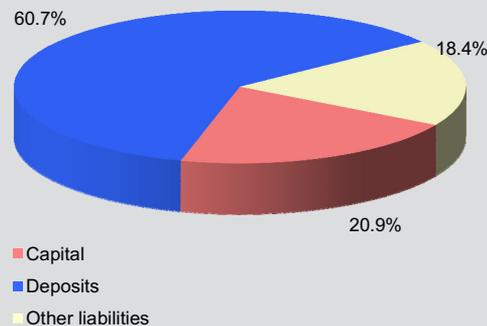
Source: NBS.

**Chart II.1.23. Currency structure of deposits (%)**



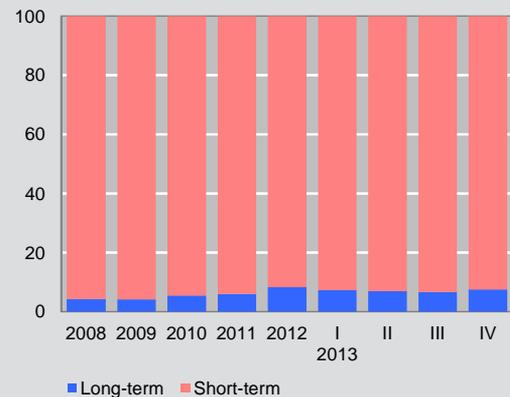
Source: NBS.

**Chart II.1.22. Sources of banking sector funding (%)**



Source: NBS.

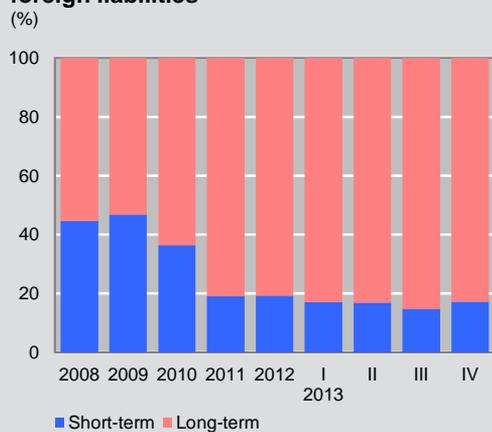
**Chart II.1.24. Maturity structure of deposits (%)**



Source: NBS.

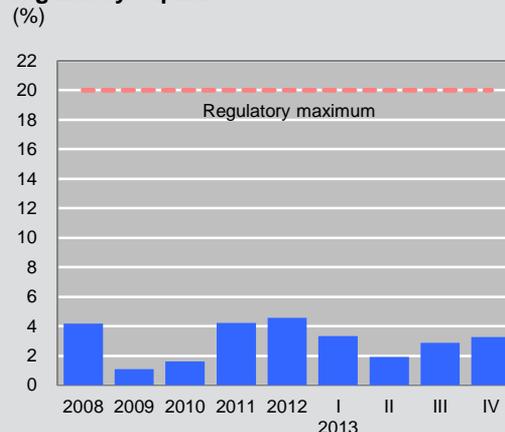
<sup>43</sup> Deposits with the remaining maturity less than one year.

Chart II.1.25. **Maturity structure of banks' foreign liabilities**  
(%)



Source: NBS.

Chart II.1.26. **Net open FX position to regulatory capital**  
(%)



Source: NBS.

### Sensitivity to market risks

Serbia's banking sector was exposed to market risks to a minimum extent. Only 1.6% of capital requirements were market risk-related.

The FX risk indicator was 3.3% in late 2013, far below the regulatory maximum of 20.0%.

The currency structure of bank assets and liabilities was matched. Tapping funds dominantly from FX sources, banks hedged against the FX risk by extending FX clause-indexed loans. Despite the well-balanced FX position, which did not make them directly exposed to the FX risk, banks were indirectly exposed to the FX risk. Consequently, as FX clause-indexed loans were extended to unhedged clients, the FX risk fed back to banking sector balance sheets as an FX-induced credit risk.

### **Text box 2: Measures to revive credit activity<sup>1</sup>**

Weak credit growth is one of the main challenges facing public authorities in countries affected by the global financial crisis and is considered to be the main cause of slow economic recovery. It has become obvious at the international level that this problem cannot be resolved by monetary and macroeconomic policy relaxation only and that specific policy measures need also be implemented to tackle the very core of this issue. However, in order to define and implement these policies, the root causes need to be identified first.

#### **Causes of weak credit activity**

The causes of weak credit activity may be classified in two groups. On the demand side, the causes generally lie in the build-up of excessive debt in the economy and households and their illiquidity and insolvency. On the supply side, they are reflected in high financial leverage, i.e. shortage of capital in the banking sector, and high costs of financing. Among the causes one should also mention a drop in the value of the collateral which often comes as a consequence of financial crises (decline in prices of real estates often used as collateral in household credits) which in turn often leads to lower supply of fresh loans because of the losses incurred by banks on loans collateralised by such mortgages. The above causes are described in detail in the text that follows:

(1) *Debt overhang*: Debt overhang may affect credit demand by discouraging excessively indebted firms to pursue otherwise profitable business opportunities. Instead, these firms may strive to bring down their financial leverage, thus lowering credit demand. A similar pattern of behaviour can be observed for individuals who prefer to focus on paying off their debts rather than on taking out new loans, even though doing so could increase their overall current and future well-being. This is the way in which debt overhang leads to a fall in real estate prices, which ultimately leads to a drop in collateral value. Besides, as banks cannot fully recover the amount of loans approved through foreclosure of the collateral, the scope for new credit activity narrows down. Further on, banks are rather reluctant to grant new loans to highly indebted persons because of their exposure to substantial credit risk and the related regulatory requirements.

(2) *High leverage of the banking system*: Debt overhang in banks affects the supply of credit because highly indebted banks do not easily get access to new sources of funding and even if they do, they borrow at high cost. Hence fresh lending is restricted either by the shortage of new sources of funding i.e. liquidity, or if access to sufficient liquidity is gained, then the cost of borrowing becomes a restraining factor which reflects on the level of bank lending rate, leaving very few able to service such loans.

(3) *Loss of value of the collateral*: To secure a loan, a borrower must often post a collateral to the bank (some type of asset, like real estate, security etc.) because a bank may not be fully acquainted with the repayment behaviour of the loan beneficiary to know whether a loan will be repaid or not. A drop in the value of collateral as a result of asset price decline in a financial crisis shrinks the loan that can be obtained with that collateral, tightening credit demand as well as supply. Indeed, the amount of collateral required by banks may also rise if bankers forecast further decline in its value in the near future and, as a result, demand more collateral as security. Lower collateral prices also lower the amounts banks will lend to each other in interbank markets, restricting bank funding and again tightening credit supply.

<sup>1</sup> This text box is based on *Assessing policies to revive credit markets*, published in the IMF's Global Financial Stability Report: Transition Challenges to Stability, October 2013, p. 63–103.

The identification of the causes of weak credit growth is only the first step in resolving the problem. Once these causes are identified, decisive measures should be undertaken to eliminate them.

### **Policies to revive credit growth**

Credit growth may be encouraged by appropriate public policies, which should be designed to remove the above described obstacles. On the demand side, they should be primarily aimed at mitigating the problems related to debt overhang, while on the supply side, they should encourage credit activity.

Based on the comparable practice, policies intended to resolve the problem of excessive indebtedness include the following:

a) *Corporate debt restructuring*: Many governments have decided to intervene in the area of corporate debt restructuring through state-owned banks and through asset management companies that took over the assets of distressed banks. In some countries, bankruptcy regulations were modified and speedier out-of-court resolution procedures were implemented.

b) *Household debt restructuring*: The strategies applied in household debt restructuring are similar to those applied in the corporate sector and mainly relate to housing loans when, due to unfavourable market developments, the loan balance substantially exceeds the value of the property mortgaged. In some countries, personal bankruptcy rules were modified and the pace of out-of-court resolution was stepped up.

c) *Bank restructuring*: In the recent past, many governments have recapitalised banks (either directly or through incentives for private investors). In addition, the programs of purchase or assumption of NPLs are also undertaken and guarantees are provided for bank loans. In many countries, the rules on deposit insurance have also been tightened.

Policies to stimulate credit supply fall into several broad categories:

a) *Monetary policies*: Central banks have introduced novelties aiming to encourage credit growth. To illustrate, under the influence of changed market conditions, the ECB changed the auction model of its main refinancing operations and adopted the “fixed-rate full allotment” policy, in which banks’ bids for liquidity from the central bank are satisfied in full and at a fixed rate (on condition banks secure adequate collateral), and also activated long-term refinancing operations, which were envisaged by the monetary policy operational framework, but were not implemented prior to the crisis. Many central banks have eased collateral constraints for banks relating to monetary operations. Some have adopted policies of direct credit easing through purchases of corporate bonds, mortgage bonds, and other private sector assets. A few central banks have engaged in indirect credit easing by making available special lending facilities to promote bank lending.

b) *Fiscal programs*: Many national ministries of finance have sought to promote expansion of corporate and mortgage loans through direct extension of loans and through subsidies or guarantee programmes for new loans. These programmes have often been implemented through state-owned or state-sponsored institutions.

c) *Financial regulations*: On the macroprudential level, regulatory authorities have introduced measures to encourage banks to restart lending by eliminating specific regulatory requirements. In some countries (particularly

within the EU), regulatory authorities have relaxed capital requirements for loans to SMEs. Some countries have implicitly or explicitly allowed forbearance on recognition of NPLs by allowing unsanctioned loan rollover or rescheduling.

d) *Measures to develop capital market*: To promote the diversification of financing options for firms, some countries lowered the barriers to corporate bond issuance for SMEs.

Most countries have relied on a variety of policies to support both credit demand and supply, recognizing that these are often complementary. Measures applied in comparative practice are enumerated in the Appendix.

#### **Defining effective credit revival policies**

Credit revival policies should be defined for each country separately since the sources of weak credit growth differ by country. Namely, restraining factors on the supply and on the demand side may be of different intensity in different countries. For example, demand side factors may be more pronounced in a certain economy (build-up of excessive debt, illiquidity and insolvency of corporates and households) and the supply side factors in the other (high banking sector leverage, build-up of excessive debt in banks, lack of sources of finance, loss of asset value, etc), which is why the credit revival policy should be adjusted to the specific circumstances. For that particular reason, it is very important that a reliable analysis is conducted and negative factors which affect credit growth in each country are clearly identified.

The credit revival policies may be oriented towards encouraging credit growth in specific sectors where a problem has been identified, for example in the SMEs. Also, they may be oriented towards promoting alternative sources of financing outside of the banking system – promoting the market of debt instruments in order to by-pass the banking system especially if that is where the source of weak credit growth lies. However, it is most important to emphasize that the analysis of comparative practices has shown that swift and comprehensive policy action leads to better outcomes (as in the Nordic countries in the early 1990s).

In many cases, demand- and supply-oriented policies are complementary, but may sometimes also be conflicting for which reason they have to be coordinated. For example, the restructuring of household and corporate debt may negatively affect bank balance sheets. Hence, to restart credit growth, the restructuring of this debt must go hand in hand with more general repair of bank balance sheets. The sequencing is also important: policies to ease credit supply constraints may be appropriate initially, but once they take hold, credit demand may become the constraining factor and additional policy measures may be necessary to boost credit demand. Finally, policymakers should attempt to determine whether constraints are temporary or require a more permanent form of intervention. Emergency measures implemented in times of crisis may not be warranted during more tranquil times.

Credit revival policies can usefully underpin financial stability by preventing a deeper downturn than otherwise and by sustaining an economic recovery, but policymakers should also recognise the limitations of credit policies. Most policies will be effective only to the extent that they can target underlying constraints to credit demand or supply. Ill-targeted measures may have adverse or conflicting effects. For example, the direct provision of credit by government institutions or government-sponsored institutions can lead to a suboptimal allocation of capital and significant credit risk if loans are awarded on a non-commercial basis. Also, for countries in which the deleveraging process in banks is seen as an essential element for bringing the financial sector back to health, policymakers may need to accept a period

of slower credit growth or a decline in credit. Finally, because policies take time to have an impact, there should be no rush to judgment as to their effectiveness and the need for additional measures.

The potential effectiveness of policies in the near term should be balanced with potential risks to financial stability in the longer run. If multiple policies to enhance credit would be effective, relatively more effort should be placed on those policies likely to have the least detrimental effect on financial stability. Risks to financial stability fall into several broad categories:

- *Credit risk*: Policymakers should keep in mind that some policies, while potentially effective in supporting credit, may provide adverse incentives that raise financial stability risks, most importantly by accumulating credit risk in banks. For example, an attempt to encourage lending to SMEs by relaxing prudential rules (such as reducing prudential risk weights) could jeopardize financial stability if the resulting risk weights do not appropriately account for the risks embedded in those exposures. Also, caution is needed in respect of NPLs considering that the delay in their recognition may result in a large accumulation of losses, thereby jeopardizing financial stability. Government guarantees of loans may also lead banks to relax their screening and monitoring of the credit risk of their borrowers.

- *Liquidity risk*: Central bank provision of ample liquidity to banks, in part to encourage credit extension, may weaken liquidity management and discourage repair of private bank funding markets, leaving banks overly reliant on central bank funding.

- *Market risk*: Low interest rate policy implemented by central bank authorities to promote credit growth may later, if the rate rises abruptly, cause an increase in the share of NPLs. Namely, in case of variable interest rate loans a change in the commercial interest rate increases total debt of loan beneficiaries.

- *Risk of moral hazard*: Government financial support carries the chance that financial institutions will take more risks than they otherwise would, anticipating that the government will again intervene and bail them out if they face trouble. For that particular reason it is important that government support to distressed banks follows strict rules so as not to create incentives for the assumption of risks.

In sum, measures to stimulate credit growth should be designed with care. Policies to boost lending in the short term can be beneficial, but can also carry costs and potential risks to future financial stability if poorly designed or targeted. For prudent policymaking in this area, authorities should (1) identify the constraints to loan demand or supply; (2) align the policies with the identified constraints; (3) be mindful of interactions with other policies, including regulatory measures; (4) keep in mind direct and contingent costs of these policies; (5) assess potential longer-term financial stability implications of such policies; and (6) establish appropriate prudential measures to mitigate such stability risks.

## APPENDIX

In order to revive credit growth, the following policies were implemented:

### **Policies enhancing credit supply**

#### *Monetary policies, direct involvement of non-banks*

- Monetary policy operations
  - Widening of collateral eligibility to include private sector assets
  - Allow non-bank financial institutions to access central bank liquidity operations

- Allow non-financial corporations to access central bank liquidity operations
- Direct credit easing
  - Purchase of corporate bonds
  - Purchase of corporate stocks and exchange-traded funds
  - Purchase of commercial papers, money market funds and other corporate short-term assets
  - Purchase of mortgage-backed securities, real estate investment trusts and other real estate-related assets
  - Guarantees on asset prices
- Indirect credit easing
  - Special lending facilities to promote bank lending to corporates
  - Special lending facilities to promote bank lending to households

*Fiscal programmes by governments and state-owned institutions*

- Corporate loans and funding
  - Direct provision
  - Subsidies and tax programmes
  - Guarantees
- Mortgage loans
  - Direct provision
  - Subsidies and tax programmes
  - Guarantees

*Financial sector regulations*

- Reduction of risk weights for SME loans when calculating capital adequacy ratio
- Forbearance on recognising NPLs and collateral seizure
- Counter-cyclical macroprudential regulations

*Capital markets*

- Lower barriers for SMEs to issue corporate bonds
- Create securitisation markets for SME loans
- Create securitisation markets for household debt

**Policies mitigating debt overhang**

*Bank restructuring programmes*

- Recapitalisation programmes
  - With conditions to expand bank lending
- Asset purchase scheme
- Guarantees for bank asset value
- *Ad hoc* public assistance

*Other policies to contain banking sector vulnerability*

- Stress tests
- Coverage enhancement of deposit insurance

*Corporate debt restructuring*

- Government-led scheme with contingent fiscal liabilities
  - Restructuring of loans provided or owned by state-owned institutions
  - Restructuring of loans using asset management companies
  - Subsidies and tax programmes to encourage banks to restructure loans
  - *Ad hoc* public assistance
- Legal approach (without direct fiscal involvement)
  - Centralised arbitration scheme
  - Moratorium on debt service
  - Forced write-down of loans
  - Legal changes in corporate bankruptcy-related procedures
  - Improvements in accounting standards for SMEs
  - Changes in securities and related laws
- Coordination of creditors (and debtors) to reach orderly workout plan

*Household debt restructuring*

- Government-led scheme with contingent fiscal liabilities
  - Restructuring of loans provided or owned by state-owned institutions
  - Restructuring of loans using asset management companies
  - Subsidies and tax programmes to encourage banks to restructure loans
- Legal approach (without direct fiscal involvement)
  - Centralised arbitration scheme
  - Moratorium on debt service
  - Forced write-down of loans
  - Legal changes in personal bankruptcy-related procedures
- Coordination of creditors (and debtors) to reach orderly workout plan

*New regulatory barriers to strengthen credit flows*

- Ring fencing and subsidiary requirements for cross-border banking
- Other policies to increase regulatory barriers to potentially depress credit flows

The ECB and other European institutions (EIB or EBA) are directly involved in a larger number of measures implemented in the euro area, including EU level policies implemented by each member state individually:

- Widening of collateral eligibility to include private sector assets (since October 2008);
- Purchase of corporate bonds (from July 2009 to October 2012);
- Direct lending (since January 2007);

- Subsidies and tax programmes (since January 2007);
- Guarantees (since January 2007);
- Reduction of risk weights for SME loans when calculating capital adequacy ratio (since January 2013);
- Bank recapitalisation programmes (since June 2013);
- Stress tests (since September 2009);
- Tightening of regulatory barriers in certain segments: introducing higher capital requirements than the minimum required by the Basel 3 standards (since December 2011).

Of individual countries of the euro area, the greatest number of policy measures to revive credit growth is in place in Slovenia (16), Austria (7), Estonia (6), the Netherlands (6), France (3), Belgium (4) and Germany (3).

As expected, distressed countries implement by far a larger number of credit-enhancing policies: Greece (9), Ireland (17), Italy (12), Spain (12) and Portugal (10).

Outside of the euro area, Great Britain and Iceland come before all other advanced EU economies (15), and are followed by Norway (5), Denmark (5) and Sweden (3).

Outside of the euro area, in the CESEE region, the greatest number of policies to boost credit growth is currently in place in Serbia and Ukraine (15), Moldova (12), Croatia, Latvia and Romania (11), Russia (10), Macedonia and Hungary (8), Albania (6), Bulgaria, Lithuania, Poland and Montenegro (4), Bosnia and Herzegovina (3), and Turkey (1).

A large number of policies to stimulate credit growth are also in place in selected countries in the rest of the world: USA (23), Japan (20), Korea (17), India (14) and Australia (2).

Table II.1.1. **Serbia: Key macroprudential indicators, 2008-13<sup>1</sup>**

(in %, unless otherwise indicated)

	2008	2009	2010	2011	2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013
<b>Capital adequacy</b>									
Regulatory capital to risk-weighted assets	21.9	21.4	19.9	19.1	19.9	20.4	20.2	19.9	20.9
Regulatory Tier I capital to risk-weighted assets <sup>2)</sup>	17.9	16.5	15.9	18.1	19.0	19.2	19.1	18.9	19.3
Non-performing loans net of provisions to capital	13.4	22.1	29.0	30.8	31.0	32.2	33.4	35.4	32.7
Capital to assets	23.6	20.7	19.7	20.6	20.5	21.2	21.0	20.8	20.9
Large exposures to capital	33.0	33.7	39.6	65.0	61.9	50.7	53.2	52.2	52.8
Regulatory capital to total assets	20.5	17.1	16.1	12.2	12.2	12.4	12.1	11.6	12.2
<b>Asset composition and quality</b>									
Gross non-performing loans to total loans	11.3	15.7	16.9	19.0	18.6	19.9	19.9	21.1	21.4
Sectoral distribution of gross loans									
Banking sector	1.1	0.6	0.1	0.1	0.3	0.4	0.2	0.2	0.3
NBS	6.6	10.9	2.8	6.6	2.1	3.9	3.9	4.9	5.8
Public sector	0.9	1.7	3.5	3.4	3.0	2.9	2.6	2.5	2.3
Other financial organisations	0.7	0.5	1.2	1.6	1.6	1.6	1.6	1.5	1.6
Corporate sector	52.4	53.3	57.0	54.8	58.2	57.3	56.2	54.7	54.1
of which: agriculture	3.3	3.1	3.0	2.8	3.0	3.0	2.9	2.7	2.7
of which: industry	18.4	17.9	19.3	17.2	17.9	17.8	17.9	17.7	18.4
of which: construction	5.7	5.3	6.9	6.2	5.8	5.6	5.4	4.9	4.6
of which: trade	16.9	17.3	16.6	14.7	15.0	14.9	14.6	14.2	13.5
of which: other branches	8.1	9.8	11.3	13.9	16.5	16.1	15.4	15.2	14.9
Households and NPISH	35.3	32.2	33.3	31.8	33.0	33.0	33.8	34.1	34.8
of which: housing loans	13.9	13.7	15.4	15.0	16.1	16.0	16.3	16.4	16.8
Foreign sector	2.8	0.8	2.0	1.6	1.9	0.9	1.7	2.1	1.1
Specific provisions of NPL to gross NPL	56.9	50.9	47.2	51.0	50.0	48.7	47.3	46.7	50.9
Loan loss reserve to gross NPL	133.6	142.5	133.6	121.4	120.7	117.3	115.9	113.9	113.8
Total provisions to gross NPL	164.9	168.1	149.4	129.2	126.5	122.4	120.1	117.7	117.9
Specific provisions of total loans to total gross loans	8.2	9.6	9.1	10.8	10.2	10.7	10.4	10.8	11.9
<b>Profitability</b>									
Return on Assets - ROA	2.1	1.0	1.1	0.0	0.4	1.5	1.1	0.8	-0.1
Return on Equity - ROE	9.3	4.6	5.3	0.2	2.0	7.2	5.3	3.8	-0.4
Net interest margin to gross income	61.9	63.9	65.7	69.0	65.6	67.0	66.8	69.3	69.2
Noninterest expenses to gross income	62.8	66.3	67.1	65.9	69.8	68.8	65.7	67.8	69.4
Personnel expenses to noninterest expenses	37.3	37.7	37.4	37.6	34.4	35.5	36.3	36.1	35.3
<b>Liquidity</b>									
Liquid assets to short term liabilities	85.8	74.4	58.4	60.4	57.2	59.5	58.0	62.1	63.2
Liquid assets to total assets	35.7	34.1	27.2	25.4	23.9	25.1	24.0	25.5	26.1
Customer deposits to total (noninterbank) loans	88.3	95.7	86.7	91.8	93.2	95.0	96.6	99.9	103.4
Foreign-currency-denominated loans to total loans	73.9	75.8	76.8	69.8	74.1	72.3	72.8	72.1	71.6
Average monthly liquidity ratio	1.8	1.9	2.0	2.2	2.1	2.4	2.5	2.5	2.4
Average monthly narrow liquidity ratio	1.2	1.2	1.3	1.5	1.6	1.9	2.0	2.0	1.8
<b>Sensitivity to Market Risk</b>									
Net open FX position (overall) to capital	3.6	0.9	1.3	2.5	2.7	1.9	1.1	1.6	1.9
Foreign-currency-denominated liabilities to total liabilities	74.3	77.7	81.8	79.0	80.1	79.4	79.3	78.3	76.7

<sup>1</sup> Since Q3 2013, banking sector indicators are in full compliance with the IMF FSI Compilation Guide.

For the sake of comparability, the methodology contains monthly data of 2008.

<sup>2</sup> Up to Q3 2011, an adjustment is made in the deductibles of Tier 1 capital.

Source: NBS.

Table II.1.2. Serbia: Financial Sector Structure, 2008-13

	2008			2009			2010			2011			2012			2013		
	Assets			Assets			Assets			Assets			Assets			Assets		
	No.	RSD billion	%															
<b>Financial sector</b> <i>(in % of GDP)</i>	<b>85</b>	<b>1,989</b>	<b>100.0</b>	<b>88</b>	<b>2,378</b>	<b>100.0</b>	<b>84</b>	<b>2,759</b>	<b>100.0</b>	<b>87</b>	<b>2,868</b>	<b>100.0</b>	<b>85</b>	<b>3,108</b>	<b>100.0</b>	<b>80</b>	<b>3,081</b>	<b>100.0</b>
		74.7			87.4			95.7			89.4			92.8			85.2	
<b>Banking system</b>	<b>34</b>	<b>1,777</b>	<b>89.3</b>	<b>34</b>	<b>2,160</b>	<b>90.8</b>	<b>33</b>	<b>2,534</b>	<b>91.8</b>	<b>33</b>	<b>2,650</b>	<b>92.4</b>	<b>32</b>	<b>2,880</b>	<b>92.6</b>	<b>30</b>	<b>2,846</b>	<b>92.4</b>
State-owned banks	8	284	14.3	9	378	15.9	8	454	16.4	8	472	16.5	8	522	16.8	6	534	17.3
Local private banks	6	154	7.7	5	178	7.5	4	217	7.9	4	213	7.4	3	194	6.3	3	196	6.4
Foreign-owned banks	20	1,339	67.3	20	1,605	67.5	21	1,863	67.5	21	1,965	68.5	21	2,163	69.6	21	2,117	68.7
<i>Greek</i>	4	301	15.1	4	353	14.8	4	427	15.5	4	393	13.7	4	426	13.7	4	409	13.3
<i>Italian</i>	3	352	17.7	3	457	19.2	2	526	19.1	2	591	20.6	2	657	21.1	2	679	22.0
<i>French</i>	2	107	5.4	2	140	5.9	3	202	7.3	3	263	9.2	3	287	9.2	3	299	9.7
<i>Austrian</i>	4	387	19.4	4	454	19.1	4	469	17.0	4	493	17.2	3	449	14.4	3	429	13.9
<i>Other</i>	7	193	9.7	7	202	8.5	8	238	8.6	8	225	7.8	9	345	11.1	9	301	9.8
<b>Nonbank financial institutions</b>	<b>51</b>	<b>212</b>	<b>10.7</b>	<b>54</b>	<b>218</b>	<b>9.2</b>	<b>51</b>	<b>226</b>	<b>8.2</b>	<b>54</b>	<b>218</b>	<b>7.6</b>	<b>53</b>	<b>228</b>	<b>7.4</b>	<b>50</b>	<b>235</b>	<b>7.6</b>
Insurance companies	24	85	4.3	26	99	4.2	26	117	4.2	28	126	4.4	28	140	4.5	28	148	4.8
Pension funds	10	5	0.2	11	7	0.3	8	10	0.4	9	12	0.4	9	16	0.5	6	20	0.6
Leasing companies	17	123	6.2	17	111	4.7	17	99	3.6	17	80	2.8	16	72	2.3	16	67	2.2

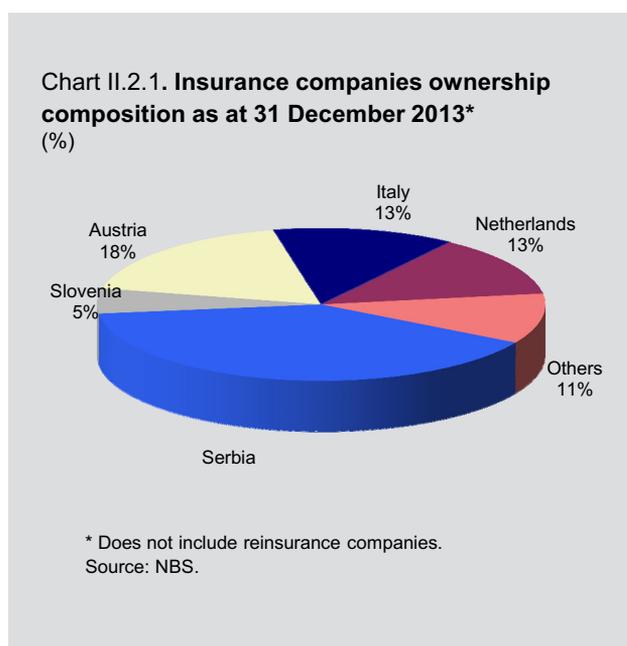
Source: NBS.

## II.2. Non-bank financial sector

### II.2.1. Insurance companies

*Serbia's insurance sector was well-capitalised in 2013. However, low profitability of insurance companies, resulting primarily from high administration costs, may signal solvency problems. Despite the rising share of life insurance in total insurance premia and a rise in technical reserves, Serbia's insurance sector, as the most important domestic institutional investor, remains undeveloped.*

Accounting for 4.8% of the balance sheet total of the financial sector supervised by the NBS (banks, leasing and insurance companies and voluntary pension funds) and close to 30% of total employment at end-2013, the insurance sector held the second place in the Serbian bank-based financial market. At end-2013, the insurance market comprised 28 insurance companies, of which 24 engaged in insurance activities only and four were specialist reinsurance companies. Of insurance companies, seven were exclusive life insurers, 11 exclusive non-life insurers, while six provided both life and non-life insurance. The breakdown by ownership shows that 21 companies were in majority foreign and seven in majority domestic ownership (Chart II.2.1).



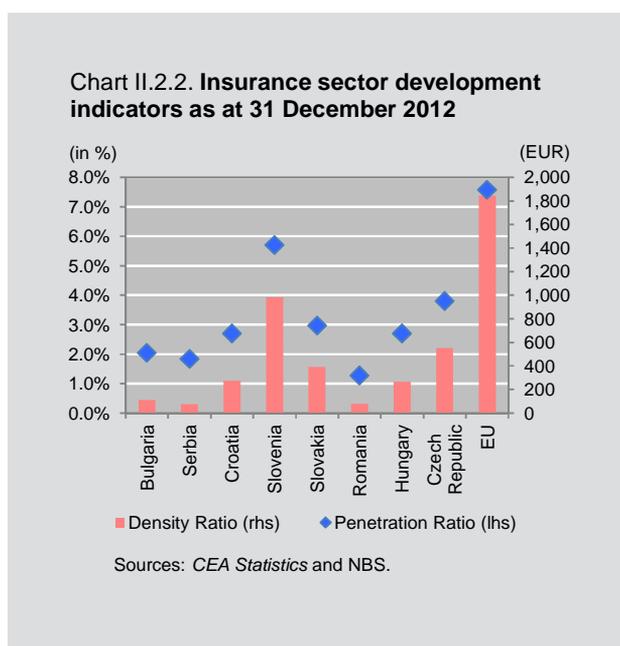
Around 40% of total capital of all insurance companies was owned by the Republic of Serbia and domestic legal persons. The Republic of Serbia is the majority owner of the largest insurance company “Dunav osiguranje” which made up 27.4% of total insurance premium. The two largest insurance companies – “Dunav osiguranje” and “Delta generali osiguranje” accounted for 46.9% of total insurance premium in 2013. In terms of share in total premium, concentration in the insurance market, measured by the Herfindahl-Hirschman Index, was moderate and equalled 1,112 (1,132 in 2012 and 1,117 in 2011).

In addition to insurance companies, the insurance market also comprised companies dealing with insurance agency/brokerage and other insurance-related services, natural persons – entrepreneurs engaged in insurance agency activities, agent banks, as well as natural persons licensed to deal with insurance agency/brokerage.

Compared with EU member countries, Serbia's insurance sector remained undeveloped, as indicated by penetration and density ratios.

Namely, in 2012 the penetration ratio at the EU-level was 7.6%<sup>44</sup> vs. 1.8% in Serbia.

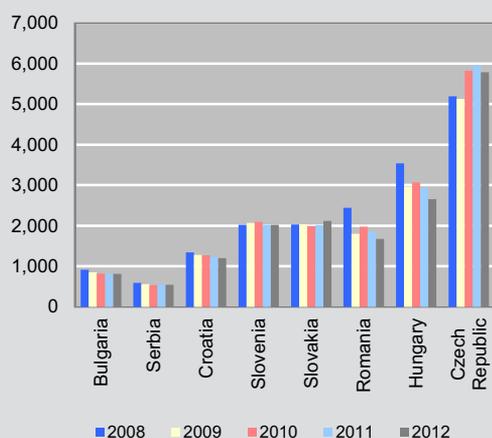
The density ratio in 2012 was EUR 1,843<sup>45</sup> in the EU vs. EUR 75 in Serbia.



<sup>44</sup> Source: CEA Statistics.

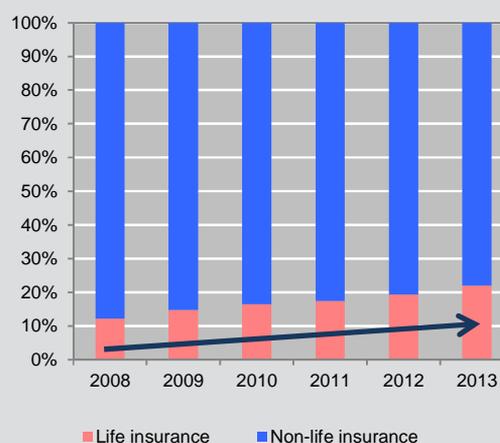
<sup>45</sup> Source: CEA Statistics.

Chart II.2.3. Total insurance premium (EUR mln)



Sources: CEA Statistics and NBS.

Chart II.2.4. Insurance premium structure (%)



Source: NBS.

Serbia's insurance sector is undeveloped also compared to the observed group of countries of Central and Eastern Europe (although some of these countries reported similar ratios), where the average penetration and density ratios equalled 2.8% and EUR 266 in 2012 respectively (Chart II.2.2).

Based on the absolute level of total premium, Serbia held the last place among the countries observed (Chart II.2.3).

Still, measured by the premium growth and structure, a moderately positive trend was maintained in the insurance market.

Total premium equalled RSD 64.0 bln in 2013, up by 4.2% and 2.0% in nominal and real y-o-y terms respectively.

A positive trend was also observed in the total premium structure that witnessed a continuous rise in the life insurance premium (from 19.3% in 2012 to 22% in 2013) (Chart II.2.4).

Judging by the premium structure, Serbia was also far below the EU average (life insurance accounted for over 58% of total premium on average) and below the observed group of countries (around 40% on average). This is, however, not the case if the Serbian insurance sector is compared with individual countries from the group (Chart II. 2.5).

In the structure of total insurance premium, motor vehicle liability insurance was dominant at 30.6%, followed by

property insurance at 21.6% (down from 22.2% in 2012) and full coverage motor vehicle insurance at 10%.

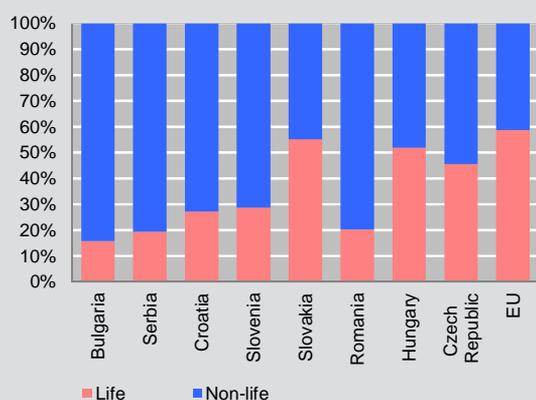
Given Serbia's high exposure to the natural disaster risk and budget costs of natural disaster recovery, the development of property insurance against natural disasters is of particular importance. Such insurance would bring considerable advantages both for individual households and small entrepreneurs, as well as for the state. Namely:

- it would lower fiscal expenditure for liabilities resulting from exposure to natural hazards and would enable fast access to liquid funds needed to eliminate the consequences of natural disasters;
- if offered to households, it would serve as important financial support, helping property owners to protect their property investment;
- it would mitigate the adverse impact of natural disasters on operating results of enterprises and borrowing costs.

However, it is noteworthy that such type of insurance if taken out on commercial terms, is exceptionally expensive and most citizens cannot afford it (similarly to other countries), which is why it is usually based on public-private partnerships.

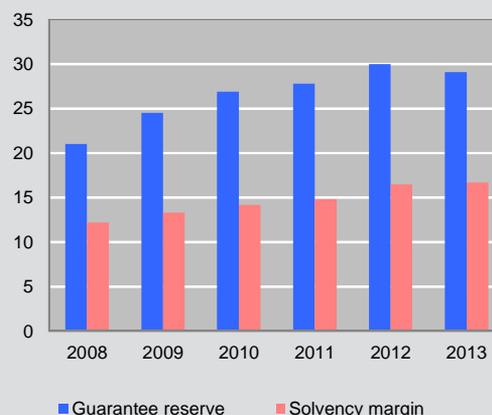
Serbia's insurance sector is well-capitalised considering the risks it is exposed to. Under the Insurance Law, guarantee reserve must always exceed the solvency margin. The guarantee reserve to solvency margin ratio of 177.7% for non-life insurance and 187.2% for life insurance, implies that the solvency of Serbian insurance

Chart II.2.5. Comparison of premium structure end of 2012 (%)



Sources: CEA Statistics and NBS.

Chart II.2.6. Insurance companies' solvency (RSD bln)



Source: NBS.

companies, despite a moderate decline in guarantee reserve, is at a satisfactory level (Chart II.2.6).

The adequate level of capital, measured by the capital-to-assets ratio, reflects the degree of a company's exposure to credit and market risks, and enables a company to cover losses in case these risks materialise. In aggregate terms, the ratio in non-life insurance companies was on a decline for several years, but its value remained above the desirable level (20%), equalling 23.3% in late 2013, vs. 24.8% in 2012. Life insurance companies also saw a decline in the ratio – from 23.7% in 2012 to 21.2% in 2013. Despite the fall, the ratio in life insurance companies remained far above the desirable level (8%).

For a company to be able to timely and fully meet its obligations, i.e. to pay claims, it must create an adequate amount of technical reserves on the one hand, and invest, taking account of the maturity of obligations, profitability and dispersion of investment, on the other hand.

The coverage of technical reserves was 100.6% and 100.3% for non-life and life-insurance companies respectively. The value below 100% would indicate that technical reserves are not covered by adequate forms of investment, which may cause problems in the settlement of obligations towards the insured.

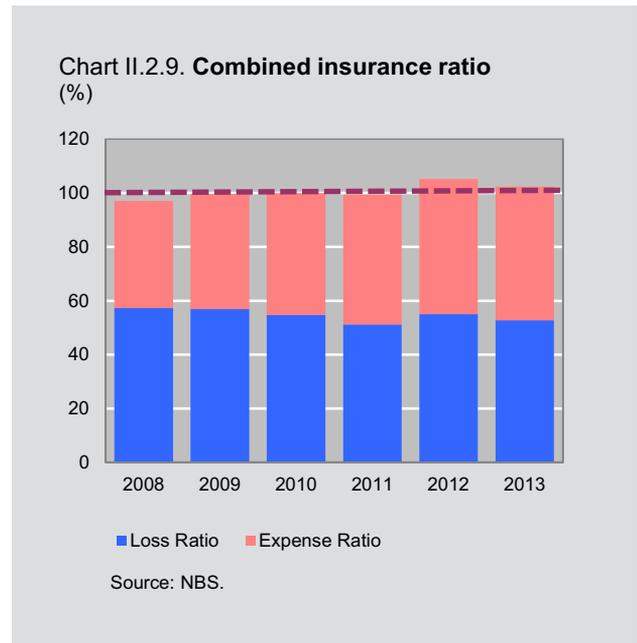
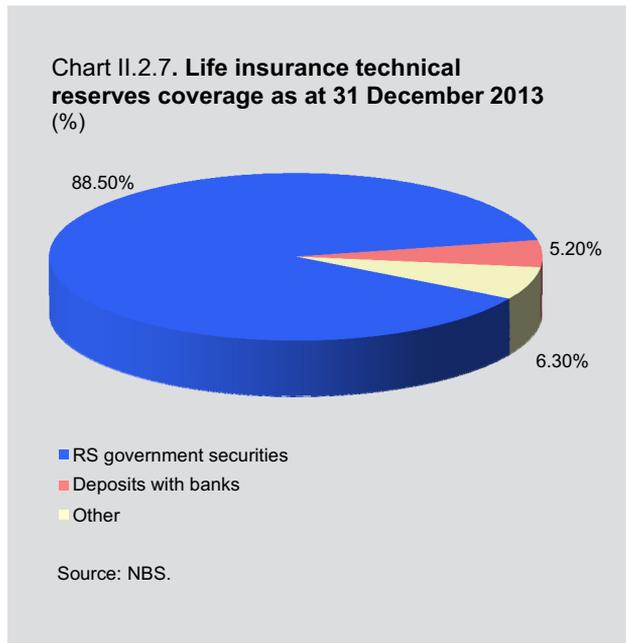
In the structure of coverage of technical life insurance reserves, low-risk investment accounted for over 93% in 2013 (government securities – 88.5% and bank deposits – 5.2%) (Chart II.2.7).

In regard to non-life insurance, over 73% related to low-risk and liquid investments (government securities – 38.9%, bank deposits – 19.7% and cash – 14.5%), and 11.7% to investment property (Chart II.2.8).

Special focus should be placed on monitoring the risk of investment concentration in only one, domestic market.

In assessing the quality of assets, particular attention is paid to the liquidity of individual forms of investment and the existence of adequate methodologies for assessing their value. Classes of investment assets, characterised by limited marketability and demanding valuation, include intangible investments, real estate, non-tradeable securities and claims. Despite a downward trend recorded over the recent years, the share of less liquid investment in total assets of non-life insurance companies stood below the upper limit of the desirable level (35%), equalling 30% of assets in late 2013. In life insurance companies, the share of less liquid investment was 3.8%.

The efficiency of the insurance administration process, measured by the expense ratio, remained inadequate, despite a moderate decline in the ratio. In insurance companies dealing predominantly with non-life insurance, this ratio was on an upward path from 2005 to 2012, only to decline slightly, to 49.63% in late 2013. The loss ratio shows the extent to which an insurance company is capable of settling damages by premium revenue, and indicates the adequacy of price policy of companies engaged predominantly in non-life insurance. The ratio declined from 55.0% in late 2012 to 52.77% in



late 2013. The combined ratio, as the sum of expense and loss ratios, fell from 105.1% at end-2012 to 102.40% at end-2013 in non-life insurance companies, which is slightly above the threshold level of 100% (Chart II.2.9).

The ratio exceeded the threshold level (100%) for the first time in 2012, when it reached 105.1%. This trend continued in 2013, which implies that in defining the premium level companies count on potential revenue from investment in financial and real estate markets. The ratio above 100% is considered unsustainable in the long run as potential revenue from investment belongs to shareholders, which increases the risk that an insurance

company considers investment activities a priority compared to insurance service activities.

For the first time since the global crisis spilled over to Serbia in 2008, ROE and ROA in non-life insurance companies turned negative, equalling -0.21% and -0.05% in 2013 respectively (Chart II.2.10). The strongest contribution to the negative result came from two companies that were recapitalised in the meantime.

In contrast, following negative values recorded over the prior two-year period, ROE and ROA in life insurance companies were positive in 2013, at 0.14% and 0.03% respectively (Chart II.2.11).

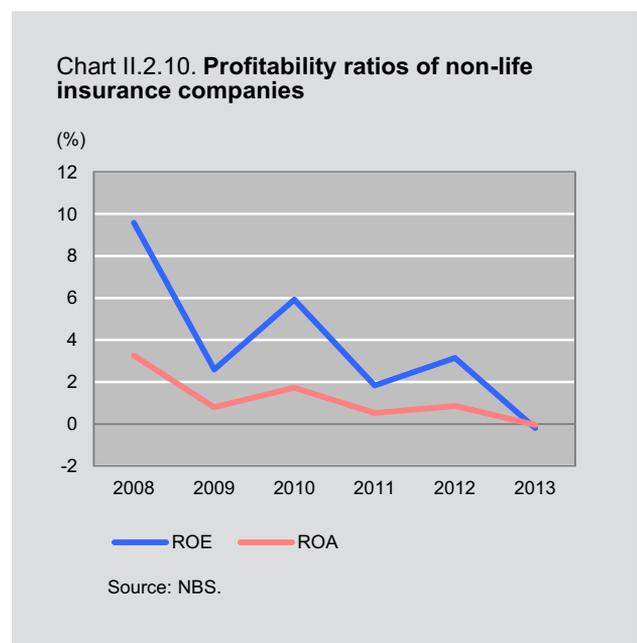
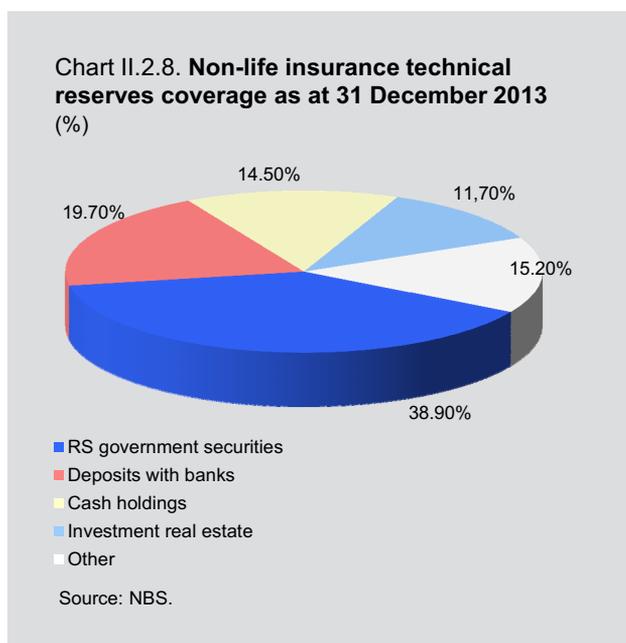
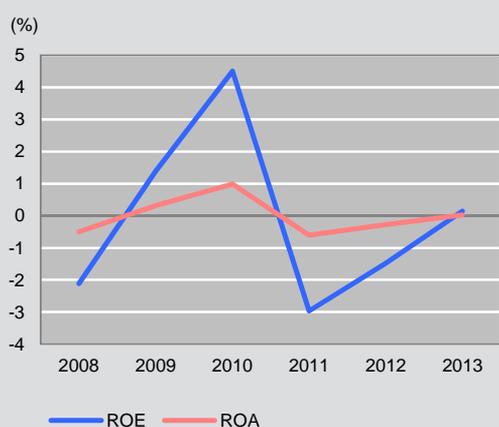
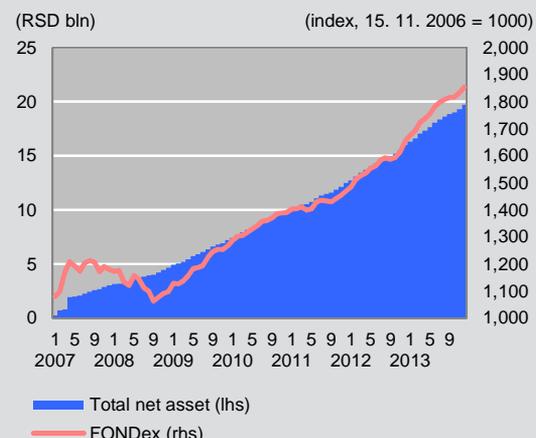


Chart II.2.11. Profitability ratios of life insurance companies



Source: NBS.

Chart II.2.12. Total VPF net assets and FONDex



Source: NBS.

Given the above, Serbia's insurance sector features low profitability, which in case of non-life insurance companies is mainly due to high insurance administration expenses relative to retained premium.

Successful operation of an insurance company affects the level of insureds' confidence. Low profitability signals problems, notably in regard to solvency. However, the solvency of insurance companies depends primarily on the adequacy of the level of technical reserves for assumed obligations and the real value of their coverage, as well as on the ratio of guarantee reserve to solvency margin as a buffer for unforeseen operating losses which cannot be covered from technical reserves. The solvency of Serbian insurance companies is satisfactory – technical reserves are adequately covered and are constantly rising, and the ratio of guarantee reserve to solvency margin is significantly above the prescribed level.

The development of the insurance sector would prop up financial stability as it would raise the importance of insurance companies operating in Serbia as institutional investors in the domestic capital market.

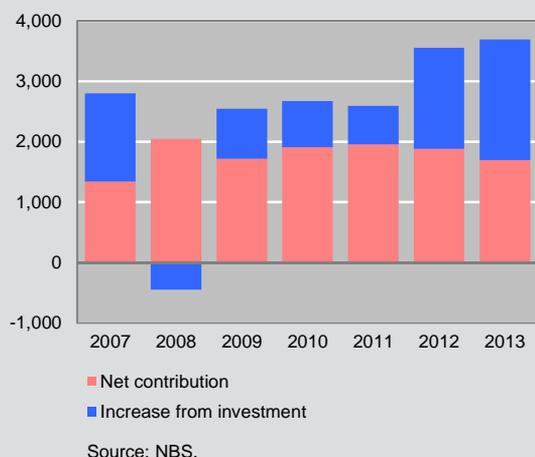
## II.2.2. Voluntary pension funds

*Net assets of VPFs in Serbia stood at RSD 19.7 bln at end-2013. Total membership consisted of 183,508 pension beneficiaries holding close to 245,000 pension plans. Total net assets of VPFs increased by 23.0% from a year earlier thanks to high returns from investment of assets and net membership contributions.*

The pension system reform is currently one of the topical issues and high on the agenda of both developed and developing countries. The reform aims to prevent pauperisation of older generations but also to reduce fiscal pressures. Compulsory pension and disability insurance in Serbia (the first pillar) is based on financing pensions from current inflows. This system assumes that pensions are paid out from current pension contributions and the pension fund is in fact only a type of a pass-through account which is filled in by crediting pension contributions and emptied by debiting payment for pensions. On the other hand, there are pension fund systems which assume investment of pooled funds in the capital market. Payment of contributions into pension funds may be on a compulsory (the second pillar) and voluntary basis (the third pillar). And though the idea of introducing the second pillar was entertained in Serbia in the period from 2001 and 2003, it was rejected on account of high deficit accumulated within the first pillar and high transitional costs. Late in 2006 and early 2007, first voluntary pension funds were set up and started operating in Serbia (the third pillar of the pension system). Though the net result of VPFs in Serbia is positive, this segment of the pension system remains underdeveloped due to high costs of living and the current economic crisis. For this sector to develop, it is necessary to ensure that the public is properly informed about the advantages of this form of long-term saving, in addition to implementing activities aimed to ensure a favourable investment climate and expand operations of the capital market.

Total net assets of VPFs came at RSD 19.7 bln at the end of 2013, which is RSD 3.7 bln (23.0%) higher than a year

Chart II.2.13. Annual increase in VPF net assets and net contributions (RSD mln)



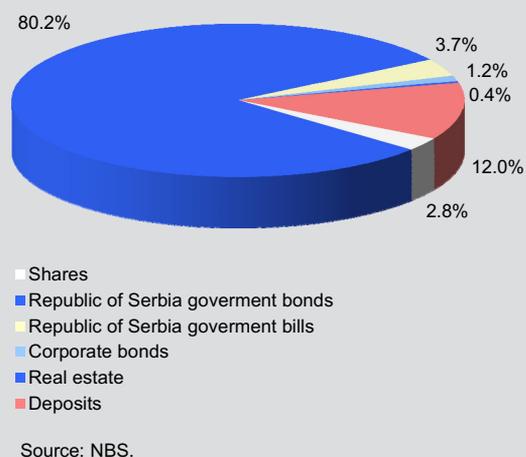
earlier. The increase in net assets resulted from payment of member contributions (RSD 1.7 bln) and positive net return of investment of VPF funds (RSD 2.0 bln).

At the end of 2013, FONDex<sup>46</sup> reached the value of 1,853 points, which is 199.0 points (12.0%) higher than a year earlier. Such increase in the value of this index is substantially above the rate of inflation in 2013 and the change in the dinar/euro exchange rate, which means that the net worth of VPFs was not only preserved but also substantially increased. The initial value of this index on 15 November 2006 when the first VPFs became operational was 1,000 points.

At the end of 2013, the VPF sector comprised four management companies in charge of managing assets of six voluntary pension funds.

Voluntary pension funds manage their assets in line with their investment policies which however remain exceptionally conservative. At end-2013, almost 96.0% of their assets were invested in securities issued by the Republic of Serbia (bills and bonds) or placed on deposit with banks (term deposits with banks and balances in custody bank account). In late 2013, 16.1% of total assets were in a foreign currency (13.5% in euros and 2.6% in US dollars), which is much less than a year earlier when the share of foreign denominated assets (primarily in euros) in total assets was 22.7%.

Chart II.2.14. VPF investments as at 31 December 2013 (%)



Since the share of debt instruments and bank deposits is very high in fund portfolios, majority of VPF assets is actually exposed to interest rate risk.

The systemic risks to which VPFs are exposed in Serbia are primarily those of investment concentration and liquidity of domestic financial instruments. Like in the preceding period, VPFs made no investment abroad in the course of 2013. The development of the domestic capital market represents a key precondition for the diversification of VPF investments, and in return, the dispersion of risks. In order for this system to become more accessible to a greater number of users, it is necessary that all relevant parties undertake activities in order to provide up-to-date information and promote this form of long-term saving.

### II.2.3. Financial leasing

*The key leasing indicators declined by end-2013 compared to the year before. This was particularly visible in the contraction of balance sheet assets of leasing providers, a sharp reduction in their capital and a rise in operating losses.*

A decline in key leasing indicators, observed in 2012, continued into 2013. The adverse situation in the sector is

<sup>46</sup> FONDex reflects movements in investment units of all VPFs in the market.

borne out by the contraction of balance sheet assets of leasing providers, a sharp reduction in their capital, and a rise in operating losses. The number of financial leasing providers remained the same (16), while the number of employees rose slightly (from 426 at end-2012 to 435 at end-2013).

The financial leasing market saw a reduction in total balance sheet from RSD 71.9 bln at end-2012 to RSD 67.5 bln at end-2013, which implies a 6.3% reduction. Capital of financial leasing providers followed the same trend. As at 31 December 2013, capital of all providers totalled RSD 6.0 bln, down by 22.6% from RSD 7.7 bln in late 2012. Capital declined on account of an increase in losses and a fall in retained earnings and reserves. Relative to 2012, total revenue and profit lost 21.6%, while total expenditure and losses added 14.5%. Of the total, ten financial leasing providers were in full or majority foreign ownership.

### Structure of lessees

Non-financial companies continued to account for the majority of lessees (82.9%).

Entrepreneurs accounted for 3.8% (which is close to 3.9% recorded in 2012) and public enterprises for 3.0% (up

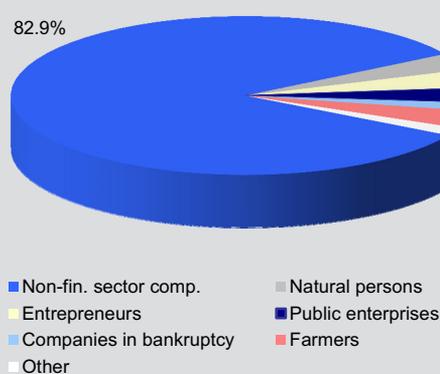
from previous year's 2.2%). Farmers also increased their participation— from 1.9% to 3.6%.

### Structure of investment by lease asset

By end-2013, the structure of investment by lease asset was broadly unchanged from the previous year. The financing of freight vehicles, minibuses and buses (34.9%) continued to account for the largest share, followed by passenger vehicles (24.8%). The share of production machines and equipment declined by 3 pp to 9.7%. Though introduced in 2011, the share of real estate leasing remained insignificant (1.8% at end-2013).

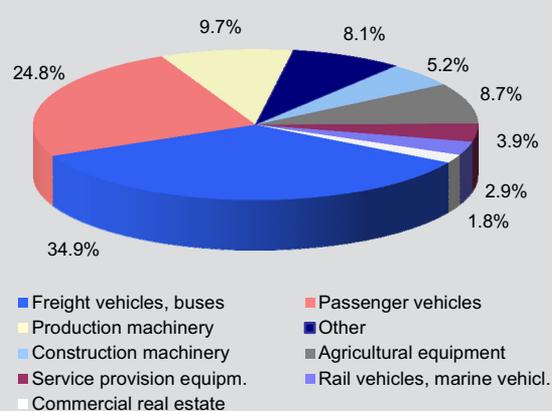
Because of the negative pre-tax result, profitability indicators of leasing providers were negative by end-2013. At the same time, solvency decreased as liabilities exceeded capital 10.3 times. Therefore, the situation in the financial leasing sector is not satisfactory. Nonetheless, despite the negative results posted by financial leasing providers, it may not be concluded that risks prevailing in the sector pose a serious threat to financial stability. The conclusion is based on the sector's insignificant share in the country's financial system, as also confirmed by the fact that balance sheet total of financial leasing providers accounts for only around 2.4% of banking sector balance sheet total.

Chart II.2.15. Investment structure by lessee as at 31 December 2013 (%)



Source: NBS.

Chart II.2.16. Investment structure by lease object as at 31 December 2013 (%)



Source: NBS.



## III. Financial markets

*To encourage economic growth and cut unemployment, central banks of advanced economies have been employing unconventional monetary policy instruments combined with very low policy rates. The discontinued or diminished use of such instruments is considered a source of risk for emerging markets. As a result, uncertainties as to the future decisions of the Fed and ECB pose potential risk to the stability of Serbia's financial system, as foreign institutional investors are among the largest buyers of government securities. A shift in the direction of monetary policies of advanced economies and possible withdrawal of foreign investors from the Serbian market may generate pressures on the dinar exchange rate and dinar interest rates.*

### III.1. Money market

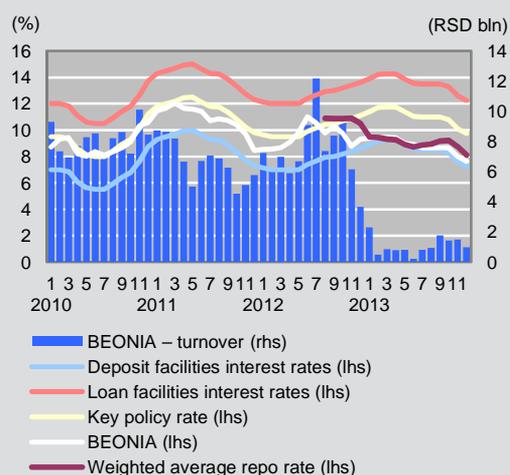
Reverse repo transactions (repo sale of securities), aimed at the absorption of excess liquidity of the banking sector, are NBS's main open market operations. Trading takes place at auctions, at the variable multiple interest rate, where a pre-defined amount of securities of seven-day maturity is sold by the NBS. The highest bidding rate by banks equals the NBS's key policy rate. In 2013, only dinar securities issued by the NBS were employed in these transactions.

Q1 2013 saw an increase in banking sector liquidity, notably due to monetisation of government FX deposits and their subsequent spending for the settlement of current obligations. This fuelled banks' demand at NBS repo auctions and drove down the weighted average repo rate. As the model of repo auctions currently applied in Serbia supposes that only some of the most favourable, and not all bank bids are accepted, the weighted average repo rate trended closer to the lower boundary of the interest rate corridor, i.e. to the deposit facilities rate. Because of a small difference in interest rates, reflecting excess systemic liquidity and the auction model, banks actively placed overnight deposits with the NBS.

However, in Q2 2013, particularly in late May and in the course of June, volumes at repo actions increased and depositing of funds with the NBS abated, bringing about a mild increase in the weighted average repo rate. Adverse developments in the international financial market,

notably hints at Fed's QE tapering, made foreign investors withdraw from emerging markets and generated depreciation pressures on local currencies. Like many other central banks of emerging economies, the NBS intervened in the IFEM in order to ease excessive short-term volatility of the dinar exchange rate. Increased volumes of liquidity absorption at repo auctions and the resulting moderate rise in the weighted average repo rate reflected the NBS's efforts to moderate depreciation pressures through the channel of FX interventions.

**Chart III.1.1. Key policy rate, BEONIA, and interest rates on deposit and loan facilities** (daily turnover monthly averages)



Source: NBS.

Uncertainties in the international financial market subsided as of September. Besides, the Government unveiled its new fiscal consolidation measures in October. As a result, and owing to a further reduction in inflationary pressures, monetary policy easing, set in train in May and temporarily halted over the above uncertainties, continued into Q4 2013. As appreciation pressures prevailed over depreciation pressures during this period, the NBS intervened by purchasing foreign currency, guided by the same objective – to pre-empt excessive short-term volatility of the dinar. Furthermore, to avert market pressures triggered by elevated dinar liquidity, the NBS resorted to partial sterilisation through increased trading at repo auctions.

The above trends impacted not only on central bank operations with banks, but also on the volume of activity in the interbank money market. Trading volumes in the overnight interbank market receded by 86% in 2013 relative to the year before. The daily average volume of trading came at mere RSD 1.1 bln, down by RSD 6.4 bln from 2012 with many days without any trading activity.

Movements in benchmark rates in the money market also mirrored the above developments. A fall in money market rates, in place since September 2012 and prompted by high liquidity, slowed down in Q2 2013. Uncertainties in the international financial market subsided as of

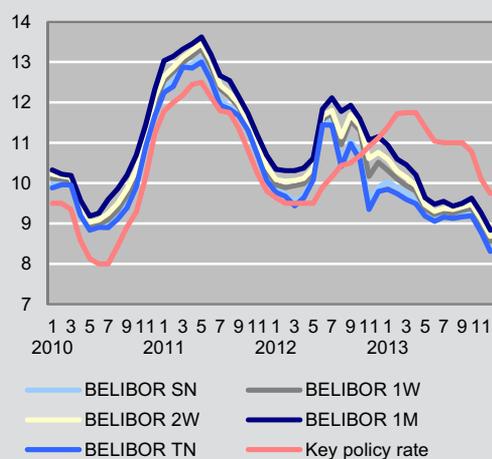
September, whilst monetary policy easing at home in Q4 2013 drove down money market rates that mirrored the key policy rate cuts made in October, November and December 2013.

In terms of maturity, BEONIA averaged 7.6% in December 2013, down by 1.7 pp y-o-y. BELIBOR rates of all maturities recorded a decline in 2013 (to 2.9 pp), which was steeper than the fall in weighted average repo rate (2.24 pp). In December, average BELIBOR rates ranged between 8.3% for the shortest and 9.4% for the longest maturity.

Though available only to domestic investors, T-bills were in high demand. Both three- and six-month rates on T-bills declined in 2013. They moved below BELIBOR rates of the same maturity, reaffirming banks' preference of less risky assets.

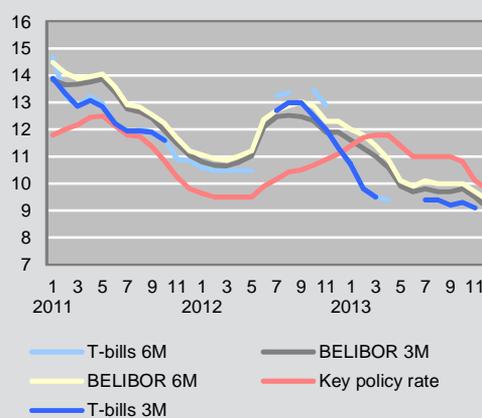
The factors impacting on money market rates in the course of 2013 – high banking sector liquidity, uncertainties in the international financial market around the middle of the year and monetary policy easing by the NBS in Q4 2013, also held a decisive sway over interest rates at primary auctions of T-bills. Namely, under the combined impact of the above factors, the accepted rate at primary auctions of three-month bills fell by 2.2 pp to 9.1% in late 2013 y-o-y. The fall was more pronounced than the cut in the key policy rate in the same period (1.7

Chart III.1.2. **BELIBOR interest rates**  
(monthly averages, %)



Source: NBS

Chart III.1.3. **Interest rates in the money market and auctions of government bills**  
(monthly averages, %)



Sources: Ministry of Finance and NBS.

pp), but came close to the decline in the weighted average repo rate (2.2 pp). At primary auctions of six-month T-bills, the accepted rate saw an even sharper drop (by 3.6 pp to 9.0%). As a result, rates on T-bills trended below the key policy rate throughout 2013.

## III.2. Securities market

Low policy rates of central banks of advanced economies and unconventional monetary policy measures drove down the yields on these countries' bonds in 2013. In pursuit of higher yields, foreign investors stepped up investment in emerging market bonds. During most of 2013 (January–April, October–December), foreign investors' demand for Serbia's government bonds was rather high, both on account of the above trends in the international capital market and the developments at home, notably the relatively stable exchange rate, adoption of fiscal consolidation measures and low inflation. However, "normalisation" of monetary policy in the US may pose a major challenge to emerging markets in terms of their external borrowing, Serbia included. Public finance consolidation would diminish the risk premium and cut the costs of borrowing, thereby increasing the resilience to external shocks.

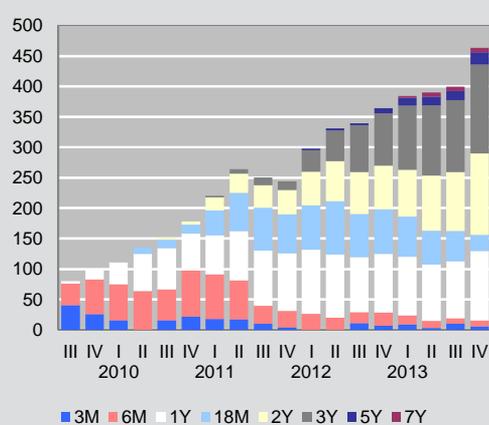
The Public Debt Administration of the Ministry of Finance organises the primary sale of government

securities in the domestic market – by the auction method at the single interest rate. Starting from 2013, the coupons of government bonds issued in the domestic market are redeemable at the annual rather than semi-annual level. The maturity of bonds was also extended, which is particularly important for the development of the dinar money market. In March 2013, the Ministry of Finance issued its first seven-year dinar bond at an annual coupon rate of 10%. The bond with the same feature was issued in April and September.

In late 2013, the stock of government securities sold but not yet redeemable totalled RSD 600.3 bln<sup>47</sup> in nominal terms, of which dinar bonds accounted for RSD 463.1 bln and euro bonds for RSD 137.22 bln (EUR 1.2 bln). Relative to end-2012, the stock of government securities issued in the domestic market rose by RSD 120.6 bln, almost exclusively in the dinar segment of the portfolio. The government thus provided a further impetus to the development of the dinar segment of the financial market and to the process of dinarisation.

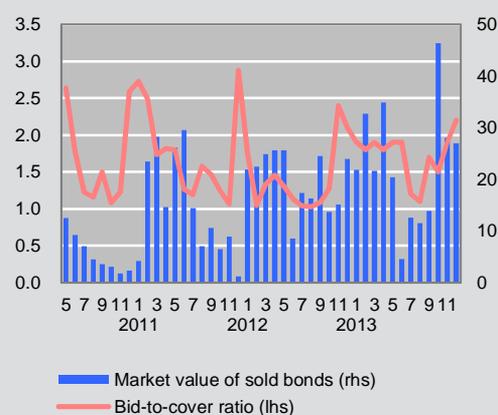
Conditions in the market of dinar government securities, this being the largest segment of the local securities market, varied throughout 2013. The bid-to-cover ratio at primary auctions paints a brighter picture for late 2013 compared to mid-year. The ratio equalled 2.2 in December vs. 1.1<sup>48</sup> in August. In mid-2013, market conditions were dominantly shaped by hints at Fed's QE

Chart III.2.1. RSD government securities, outstanding stock (nominal value in RSD bln)



Source: Ministry of Finance.

Chart III.2.2. Primary market demand for RSD government bonds (auctions, in RSD bln)

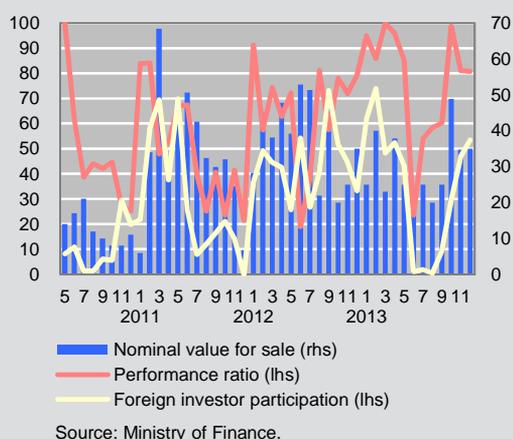


Source: Ministry of Finance.

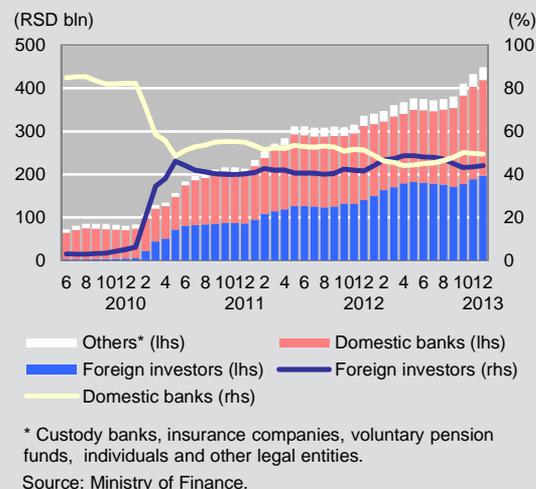
<sup>47</sup> Including bonds worth RSD 19.6 bln, issued in accordance with the Programme of Measures to Preserve Financial Stability of Banks.

<sup>48</sup> The bid-to-cover ratio above 2 indicates a successful auction.

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



**Chart III.2.4. Structure of portfolio of dinar government bonds from primary auction**



tapering. In this period, auction performance was conditional on the behaviour of foreign investors who reacted to pressures by cutting investment and refraining from reinvestment in dinar government securities. Risks emanating from the international environment lessened from September onward.

As auction performance was also affected by other macroeconomic factors, the average performance at primary auctions of dinar government bonds was 80.1% in 2013, up by 19.4 pp on 2012. Measured by the amount of sold securities, foreign investors and domestic banks accounted for the largest share at auctions – 44.0% and 49.4% respectively.

Foreign investors are eligible to buy only long-term government securities issued by the Ministry of Finance. They showed the greatest interest in purchasing three-year dinar government bonds, which made up 32.7% of total dinar government bonds at end-2013. Unlike domestic banks and foreign investors, domestic institutional investors (insurance companies, pension and investment funds) and natural persons did not show much interest in dinar government bonds. This is due to small amounts of funds at their disposal, but also to the currency structure of their assets and liabilities.

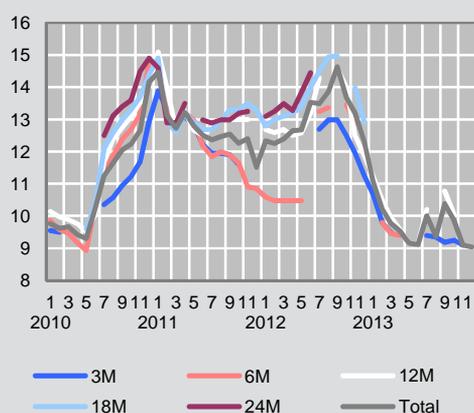
High investor demand for dinar government bonds, which marked 2013 (measured by the bid-to-cover ratio) and a

1.75 pp cut in the key policy rate, drove down yields at primary auctions. Yields on one-year bonds fell by 3.0 pp to 8.9% in late 2013. Rates on two-year bonds fell by an almost same degree – by 2.9 pp to 10.1%, while those on three-year bonds (accounting for the largest share in the total portfolio of dinar securities) plunged the most – by 3.8 pp to 10.2%. Yields on government bonds declined in 2013 also on account of successful sales of eurobonds in the international market, which eased the pressure of public debt financing.

An upturn in 2013 was also recorded in the secondary market of government securities. Transactions by trade date show the total turnover of RSD 259.4 bln. Trading in dinar securities came at RSD 245.4 bln, while euro-denominated bonds accounted for EUR 122.5 mln. Trading in dinar securities went up by 66.6% and 306.3% relative to 2012 and 2011 respectively. In 2013, annual trading turnover in dinar government securities in the secondary market was 59.8%.

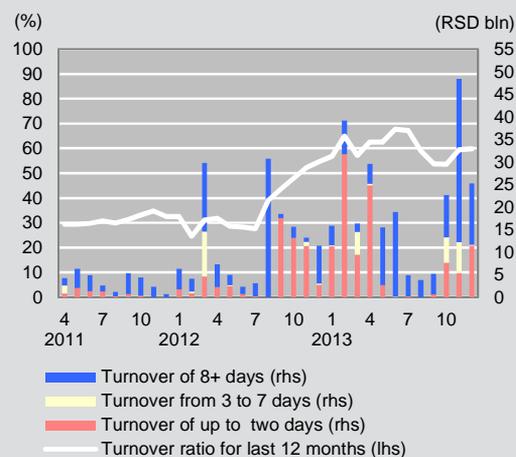
Though the secondary market of dinar government securities was improved significantly relative to previous years, it still cannot not be considered liquid because of a small number of transactions and rather low daily trading volumes. Most trading consists of transactions after the primary settlement day. Of total secondary trading in dinar securities in 2013, trading in dinar government securities, taking place up to seven days from the primary

**Chart III.2.5. Interest rates on zero coupon RSD government bonds**  
(auctions, weighted monthly averages, %)



Source: Ministry of Finance.

**Chart III.2.6. RSD government bonds annual turnover and turnover ratio**



Source: Ministry of Finance.

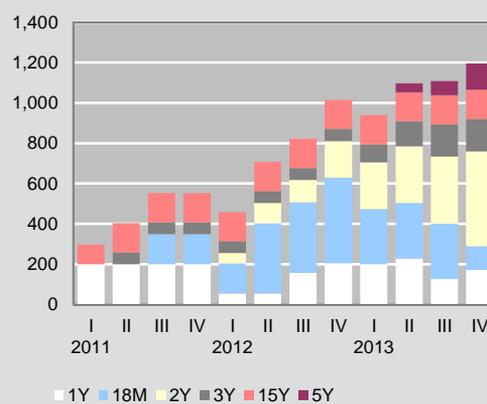
settlement day, accounted for 50.5%. It can therefore be assumed that buyers were actually investors who reached the upper limit to the size of competitive bids at primary auctions (30% of total issue). In 2012, such trading accounted for 47.2% of total secondary trade in dinar government securities. A liquid secondary market, providing for swift and efficient purchase and sale of bonds even in inauspicious conditions would cut the cost of government borrowing through elimination of liquidity risk premium.

Euro-denominated government securities are issued only for the period longer than one year. The average performance at auctions of euro-denominated government bonds was 80.3% in 2013. Their stock was up from EUR 1.0 bln at end-2012 to EUR 1.2 bln at end-2013.

Despite the progress achieved, the market of government securities remains highly vulnerable to global financial shocks, chiefly due to high participation of foreign investors. Important for further development of the domestic capital market is not only macroeconomic stability, reflected primarily in low inflation and exchange rate stability in 2013, but also a stronger base of domestic institutional investors.

Market capitalisation of the Belgrade Stock Exchange (BSE) climbed 3.4% from end-2012 to RSD 663.9 bln in late 2013. In contrast, the ratio of total BSE capitalisation

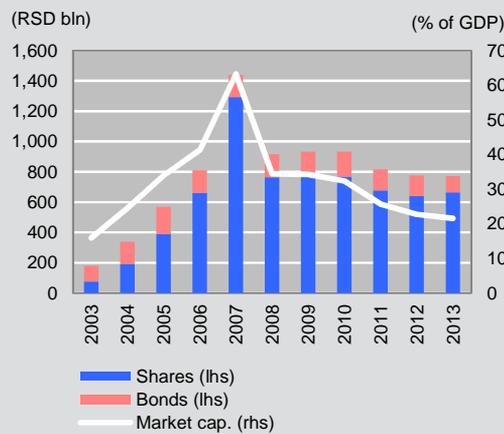
**Chart III.2.7. EUR government bonds, outstanding stock**  
(nominal value, EUR mln)



Source: Ministry of Finance.

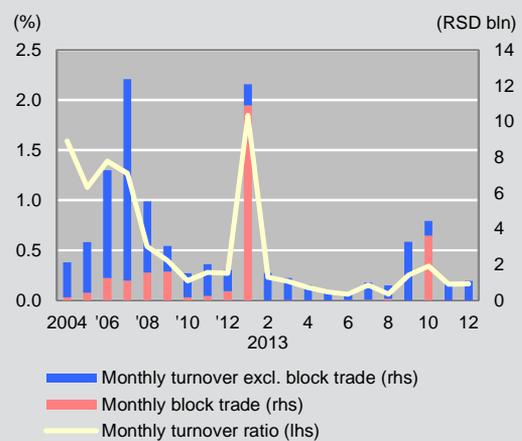
(including all shares and bonds traded on the BSE) to GDP has shown a downward tendency since the onset of the global economic crisis. However, though relevant for advanced markets, the ratio does not carry the same importance for the domestic market and should be taken with reserve – despite the downward trend, it may still be overestimated. Namely, market capitalisation also includes the capital of companies whose shares are very rarely traded on the BSE, i.e. there are few issuers whose

**Chart III.2.8. Belgrade Stock Exchange market capitalisation**



Sources: Belgrade Stock Exchange and NBS.

**Chart III.2.10. Belgrade Stock Exchange equity market turnover**



Source: NBS based on Belgrade Stock Exchange data.

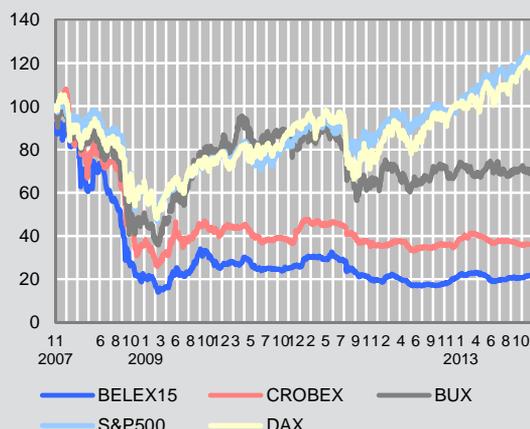
shares, assuming a satisfactory volume of trading, are actively traded.

The increase in BSE capitalisation in 2013 was led by a 6.5% y-o-y rise in BELEX15, the index of the most liquid shares. Indices of most countries in the region displayed similar movements in 2013. Still, in contrast to regional indices that witnessed a drop in May and an upturn in late June, BELEX15 began to recover in early July 2013.

Contrary to increased market capitalisation, the average monthly turnover ratio of 0.31% suggests low BSE

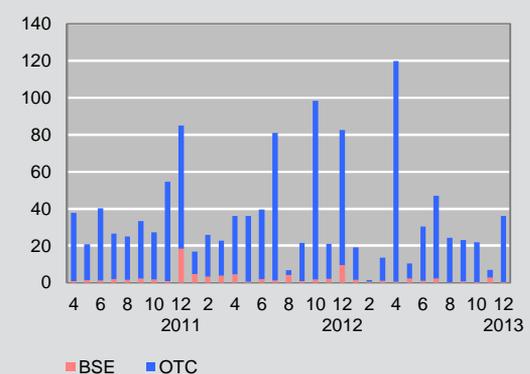
liquidity. Though only slightly higher than in 2012 (0.27%) and 2011 (0.28%), the ratio stays significantly below the pre-crisis level of 1.27% (2007). It is calculated as the quotient of total monthly trading revenue and the average stock market capitalisation by the end of the month observed and the previous month. However, it fails to adequately illustrate the degree of stock market liquidity as it also covers block trading which, being a one-off purchase of shares, is only registered on the BSE and does not indicate its actual liquidity. For instance, block trading amounted to RSD 14.7 bln in 2013, of which RSD 10.9 bln only in January, making up 51.8% of total trading in shares on the BSE.

**Chart III.2.9. Stock market indices**  
(15 Nov 2007 = 100)



Source: Bloomberg.

**Chart III.2.11. Government frozen foreign currency savings bonds turnover**  
(EUR mln)



Sources: Central Securities Depository and Clearing House, and Belgrade Stock Exchange.

As in earlier years, foreign investor participation was significant – 72.3%. Foreign investors were more active on the sale (77.8%) than purchase side (66.8%). Higher sales reflected the global reaction to Fed’s hints at QE tapering, which spilled over to the majority of emerging markets.

Frozen FX savings bonds are also traded on the BSE, as well as bank corporate bonds, though to a lesser extent. Although included on the BSE Prime Listing, frozen FX savings bonds (zero-coupon euro-denominated bonds issued to citizens to settle debt under FX savings) are traded generally on the OTC market. The unredeemed portion of frozen FX savings bonds, maturing on 31 May each year up to 2016, was worth EUR 988.9 mln in late 2013.

Trading in corporate bonds is particularly undeveloped given their insignificant supply. Only two dinar corporate bonds were traded in 2013. They were issued by Société Générale bank Serbia and Erste banka a.d. Novi Sad in 2012, with an aim to widen and further diversify their sources of funding.

Secondary trading in corporate bonds is very sparse – it was recorded only in January and May 2013. However, the issue and sale of dinar bonds pushes up the share of long-term dinar sources of funding of the issuing commercial banks, i.e. the capacity of these banks to extend dinar loans increases in the long run, which weakens the FX risk in the domestic system. Moreover, top-rated international financial institutions (EBRD, IFC and WB) showed interest in the issuance of dinar bonds. This would increase the dinarisation of the financial system and help attract new investors.

### III.3. Financial infrastructure

Financial infrastructure includes systems that facilitate the clearing, settlement and management of payments and other financial instrument transactions. Secure and efficient financial infrastructure is critical to the stability of the financial market and the stability of the financial system as a whole.

The key components of financial infrastructure are payment and securities settlement systems.

Payment systems provide for timely transfer of funds, processing, netting and/or settlement of payment transactions between or among participants in the system. Securities settlement systems enable clearing and settlement of transactions with different financial instruments.

Payment systems are designed and organised so as to minimise the risk exposure of payment system participants. Still, due to the strong cross-dependence of payment systems participants, a potential materialisation of risk can cause systemic shocks and give rise to instability in the financial system at large. For this reason, the authorities need to provide for safe and sound functioning of all payment systems and for effective management of all risks, most notably credit, operating and liquidity risks.

In this context, safe, sound and efficient functioning of the Real Time Gross Settlement System (RTGS) operated by the NBS is of paramount importance for preserving the financial stability of the Republic of Serbia. Its systemic importance is reflected in the fact that it represents the infrastructure for monetary operations, that it enables settlement of the financial part of transactions under trade in financial instruments, as well as the final settlement of all dinar payment transactions originated in other payment systems.

In 2013, the availability of the RTGS and clearing system was 100%, which means that there was no downtime or disruption to users. In other words, the RTGS and clearing system operated smoothly and in compliance with the relevant performance parameters, and thus contributed to the stability of the financial system of the Republic of Serbia.

The NBS clearing system uses a liquidity-saving multilateral net settlement mechanism and is organised in three clearing cycles. The RTGS provides for effective **credit risk management** as the settlement of transactions among RTGS participants is carried out in central bank money, while participants in the clearing system are obliged to make available the amount of limit for calculated negative net positions (debit caps).

The RTGS also facilitates **liquidity risk management** as it provides the participants with the possibility to view all of their transactions, account balances and changes in the sequence of execution of payment orders. Besides, one of the NBS’s regular instruments is the daily liquidity loan facility for banks. These are collateralised interest-free loans granted at banks’ request. The collateral for this type of loans, as well as for all monetary operations, are dinar securities of the NBS, the Republic of Serbia and prime international financial institutions. Banks’ access to additional liquidity in this way is vital for the smooth operation of payment systems.

One of the indicators of the importance of these systems for the national economy is the value of their turnover

relative to the country's GDP. Total RTGS turnover in 2013 amounted to RSD 57,105 bln, about 15 times the value of Serbia's GDP in the same year. This clearly shows the significance of the National Bank's RTGS for the national economy, or more broadly, the critical role payment systems play in the economies they serve.

Considering that under certain circumstances financial infrastructure can not only augment but also generate systemic risk, central banks are increasingly including it into their regular stress testing exercises. Stress test is a tool, which can be used, inter alia, to assess the resilience of financial infrastructure to extreme but plausible shocks.

It is because of the significance of financial infrastructure for the stability of the financial system as a whole that the IMF recommended in its methodology for macroprudential stress testing that regular exercises should include the stress testing of financial infrastructure<sup>49</sup>.

By contrast to the stress testing of the banking sector, the stress testing of payment systems, central securities depositories and securities settlement systems does not imply the quantitative analysis of their balance sheets, but rather their safety, soundness and reliability in case of risk materialisation. The key risks analysed within stress testing are the operational, credit and liquidity risk. In fact, stress test exercises focus on the immediate response of financial infrastructure to a specific risk, i.e. on the infrastructure's capacity to end the business day and operate over the several business days after the occurrence of the shock.

Stress tests most often imply the measurement of the impact of the simulated operational incident on the entire system or a systemically important financial participant. Incidents are simulated to identify recovery times, critical participants and stop-sending limitations under different parameters.

Stress tests can help quantify the short-term impact of events, such as a bank closure or disruption in communications links, which triggers payment defaults. Stress tests capture the impact on one payment system participant, but also the effect of systemic contagion. The degree of impact of the analysed scenario on remaining participants will depend on their available collateral, initial liquidity and the potential to increase current liquidity.

In 2012, the BIS issued the *Principles for financial market infrastructures*<sup>50</sup> as a unique set of international standards for systemically important payment systems, securities clearing and settlement systems, central counterparties and trade repositories. Compliance with these standards strengthens the financial infrastructure and increases its resilience to financial shocks. Central banks and other relevant authorities should adopt the Principles for financial market infrastructures and apply them consistently. They should also create the preconditions to exercise their mandate in the fields of regulation, supervision and oversight of the financial market infrastructure, as well as join in their efforts in promoting the objectives of safety and effectiveness of the infrastructure.

Systemic importance of payment and securities settlement systems is reflected in their critical role in the markets they serve. Because of interdependencies between and among systems, risks erupting in one system may jeopardise efficient and continuous functioning of the banking system at large and thus impair the country's financial stability. Therefore, the BIS recommends that central banks also assume the role of overseeing the safety and efficiency of securities settlement systems, which is another systemically important component of the financial infrastructure. Risks in the securities settlement system may generate systemic risks not only in the securities market, but across the financial system given the interrelatedness between settlement and payment systems.

The securities settlement systems in the Republic of Serbia are operated by the Central Securities Depository and Clearing House. It performs clearing and settlement against transactions in financial instruments, and identifies liabilities and claims of its members and their clients after the settlement of mutual claims and liabilities. It also operates accounts of its members, including handling of payments and returns on financial instruments, and transfers financial instruments to accounts of its members and their clients. Transfers of financial instruments from one account to another are made simultaneously with DvP payments (delivery vs. payment), i.e. the transfer of financial instruments from the seller to the buyer is effected simultaneously with the transfer from the buyer to the seller.

The Central Securities Depository is a joint-stock company. Its rights, obligations and responsibilities are

<sup>49</sup> Macrofinancial Stress Testing- Principles and Practices, 2012, IMF.

<sup>50</sup> *Principles for financial market infrastructures*, 2012, BIS, <http://www.bis.org/publ/cpss101.htm>.

defined by the Capital Market Law and Companies Law. Under the Capital Market Law, the Securities Commission regulates and supervises the Central Securities Depository, while the NBS monitors the legality of payment operations and issues regulations governing the method of performing payment operations through money accounts with the Central Securities Depository.

To harmonise with EU regulations on payment systems and implement the new *Principles for financial market infrastructures* in the segment relating to payment systems, the NBS has prepared the Draft Law on Payment Services which regulates payment systems, in addition to payment services and electronic money. The Draft Law envisages comprehensive rules for the establishment of payment systems, identification and consistent application of requirements to improve the safety and stability of their operation and enhance market competition. Furthermore, the Draft Law incorporates provisions of the Directive 1998/26/EC on settlement finality in payment and securities settlement systems. These provisions establish the rules to ensure settlement finality in important payment systems. This should significantly reduce the legal and systemic risks in the execution of transactions. Once adopted, the Law will also apply to payment systems operated by the NBS, particularly provisions governing risk management and stable and sound operation of the payment system. The NBS will adopt secondary legislation to prescribe in more detail the manner of maintaining and improving stable and safe operation of payment systems, taking into account the requirements and standards for systemically important payment systems, as defined by the *Principles for financial market infrastructures*.

### III.4. Real estate market

*To preserve financial stability, the NBS monitors and analyses trends in the Serbian real estate market. Given the prevalence of real estate serving as loan collateral, any change in prices of mortgaged real estate affects the quality of banks' credit portfolios. The failure to adequately value real estate poses a significant risk to the financial system. Therefore, to ensure more adequate valuation, the NBS embarked on setting up a comprehensive database on real estate transactions.*

Owing to its characteristics, real estate is the most frequently used loan collateral. Its price variations affect the price and availability of loans, as well as the quality of bank portfolios. Trends in the real estate market must therefore be monitored and analysed, and activities undertaken to improve its performance.

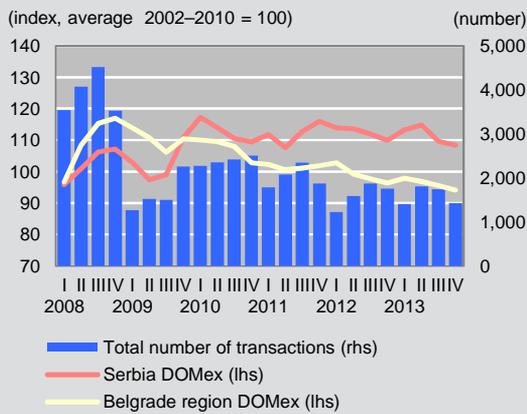
There is no comprehensive index either for residential or business facilities in Serbia. The only real estate index is DOMex, compiled by the National Mortgage Insurance Corporation since 2012. DOMex reflects purchase/sale prices of real estate financed by loans insured by the Corporation.

DOMex is obtained by comparing the average value of all achieved prices per square metre in a particular period in a specific territory with the average value of all achieved prices per square metre in the base period. The sum of data used for DOMex calculation does not include all real estate purchased and sold in Serbia because data on achieved prices for real estate financed by cash or uninsured loans are not included. In addition, its calculation does not exclude the impact of change in the composition of the real estate index basket through observed periods (e.g. new construction) or changes in the quality of traded property.

Due to dented supply and demand in 2013, DOMex showed no major changes in apartment prices. In 2013, DOMex for Serbia lost 1.4%, but added 1.2% relative to end-2008. It is noteworthy that DOMex for Belgrade plummeted by 19.5% over the last five years. Besides, relative to 2008, the year 2013 saw a 2.5 times lower value of traded property financed with insured loans. Moreover, 2013 witnessed a rise in the number of loans declared due because of events of default, where the Corporation, instead of clients, will be paying annuities to banks, until the sale of mortgaged property. An increase in annuities paid in respect of insured loans, in the event of a larger number of loans falling due at the same time, represents a risk that need to be taken into account.

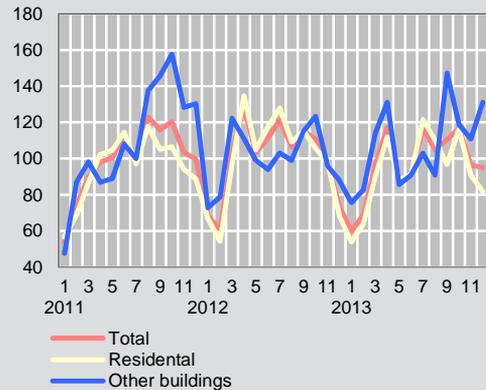
In EU member states, residential real estate prices followed varying trends in 2013. The residential real estate index lost 0.1% on average in 2013, though some countries of the Mediterranean witnessed a decline larger than 5.0%. On the other hand, all Baltic countries saw an increase.

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



Source: National Mortgage Insurance Corporation.

**Chart III.4.3. Indices of the number of issued new construction building permits (index, 2010 = 100)**



Source: Statistical Office of the Republic of Serbia.

The availability of an average housing unit to an average household in Serbia may be measured by the price-to-income ratio, calculated as the ratio of the price of a 60m<sup>2</sup> apartment to the average disposable income of an average household in Serbia<sup>51</sup>. The price-to-income ratio shows the average number of years needed for a household to buy an apartment if it were to spend all its disposable income on this purchase. At end-2013, the ratio equalled 9.3 years, which indicates that a household earning an average income cannot afford to buy an apartment. Still,

the ratio declined relative to 2012. Over the previous years, the ratio trended above its average multi-year value. The drop in 2013 is explained by an increase in disposable income of an average Serbian household and a fall in average apartment prices.

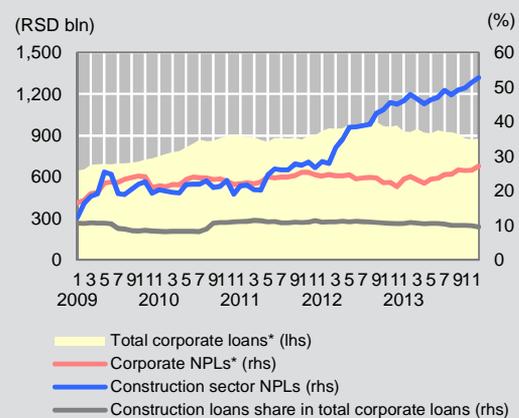
At the same time, weak demand for and supply of apartments slowed down the decline in apartment prices in 2013. But prices may decline further if a larger quantity of real estate appears in the market after real estate placed

**Chart III.4.2. Housing availability indicator (Price-to-income) (in years)**



Source: NBS based on data provided by the Statistical Office of the Republic of Serbia and the National Mortgage Insurance Corporation.

**Chart III.4.4. Construction sector's ratio of housing NPLs**



\* Excluding financial sector and public companies. Source: NBS.

<sup>51</sup> Source: Serbian Statistical Office – Household Consumption Survey.

as collateral is repossessed and sold by banks to settle their receivables under loans due. Also, prices may decline on the back of further weakening of demand, prompted by contraction in disposable income of Serbian households. In addition, no funds have been allocated in the 2014 budget for subsidising housing loans.

According to data of the Serbian Statistical Office, the number of issued building permits for new construction fell by 3.0% from 2012, while the value of planned new construction works was down 6.4%. By the type of facility, the number of permits issued for the construction of residential buildings was down 6.7%, while the value of planned new construction works fell by 28.1%.

Because of the adverse situation in the construction sector, bank receivables from the construction sector in respect of NPLs increased, equalling 52.7% of total loans extended to this sector. Credit debt of the construction sector was RSD 84.1 bln in late 2013, or 9.6% of total loans extended to companies, excluding the financial sector and public enterprises.

### **NBS activities aimed at upgrading the real estate market in Serbia**

From the legal point of view, the Serbian real estate market is not adequately regulated and lacks a comprehensive real estate database, which exacerbates real estate valuation. As a result, the impossibility to ensure adequate real estate valuation emerges as a significant risk because banks, through real estate used as loan collateral, are directly exposed to the price risk. Inadequately secured loans were among the triggers of the global economic crisis and provoked impairment of public trust in financial institutions.

In recognition of the need to upgrade the real estate market, the NBS launched, in cooperation with the USAID, the Project of the National Real Estate Transactions Database. The aim is to create a reliable database on transactions in real estate used as loan collateral, and on appraised real estate. These data are necessary for more adequate real estate valuation, a thorough market analysis and calculation of the real estate index. The NBS will be in charge of setting up and

maintaining the database. With real estate prices becoming an increasingly important analytical tool in the function of financial stability, the collection and analysis of these data will also facilitate the implementation of NBS regulations in the field of financial stability.

In addition to a comprehensive database, adequate real estate valuation also depends on the appraiser's expertise, experience and credibility. The Law on Court Experts regulates, to a certain extent, the terms for conducting expertise; however, there are no regulations on licensed appraisers which would define the terms, criteria and manner of performing this activity. Estimates of court experts in Serbia are often unreliable and do not satisfy international standards. Therefore, the process must be improved, notably given the absence of criteria for entry into/deletion from the register of court experts, as well as the lack of appraisal standards and the obligation of continuous education.

The most widely recognised international real estate valuation standards are the International Valuation Standards – IVS, European Valuation Standards – EVS and Appraisal and Valuation Manual of the Royal Institution of Chartered Surveyors – RICS Red Book. They define, *inter alia*: the criteria determining whether a person possesses adequate qualifications for real estate valuation, the valuation basis, assumptions and approach, and the minimum content of valuation reports.

According to the Mortgage Credit Directive 2014/17/EU, adopted by the European Parliament and European Council in February 2014, member states shall ensure that reliable standards for valuation of residential immovable property for mortgage lending purposes are developed and applied within their territory. To be considered reliable, valuation standards should take into account internationally recognised valuation standards, in particular those developed by the International Valuation Standards Committee (IVSC), European Group of Valuers' Associations (TEGoVA) and Royal Institution of Chartered Surveyors (RICS). Besides, member states shall also ensure that appraisers are professionally competent and sufficiently independent from the credit underwriting process so that they can provide an impartial and objective valuation.



## IV. Financial stability

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

#### IV.1.1. Macroprudential policy

The latest financial crisis has revealed the full scale of damage financial instability can inflict on the economy and public finance. It prompted the international and national authorities to explore a more systemic approach to financial regulation and develop macroprudential policy which seeks to safeguard financial stability using a set of instruments aimed at containing systemic risks.

The macroprudential policy framework is also discussed in negotiations on Serbia's membership in the EU, which opened formally in January 2014. The application of the *acquis communautaire* in the area of macroprudential policy is discussed under Chapter 17 – Economic and Monetary Policy. As regards EU legal acts governing this area, the most important ones are the ESRB's Recommendation on macroprudential mandate of national authorities (2011/3) and the Recommendation on intermediate objectives and instruments of macroprudential policy (ESRB 2013/1). Like all other recommendations issued by the ESRB, these recommendations are binding, i.e. the addressees must act on them or provide adequate justification in case of inaction ("act or explain" mechanism). Pursuant to the envisaged negotiation timeframe, amendments and supplements to domestic regulations ensuring alignment with the above acts should be adopted by no later than six months before the Republic of Serbia becomes a member of the EU and the NBS a part of the ESCB.

The macroprudential mandate of the NBS was laid down in 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 and 106/2012) back in 2010. This article prescribes that the statutory task of the NBS is to "define and implement, within its scope of authority, the activities and measures aimed at maintaining and strengthening the stability of the financial system". Under Article 14, paragraph 1, item 11) of the same law, the said activities and measures are determined by the NBS Executive Board. Thus defined statutory task of the NBS enables it to pursue one of its main objectives – to contribute to the maintenance and strengthening of the stability of the financial system (Article 3, paragraph 2 of the Law on the National Bank of Serbia).

The provisions of the Law on the National Bank of Serbia do not list macroprudential measures that may be applied, which means that the legislator has given the NBS a discretionary right to decide on the measures it will take, as well as on their timing and intensity. There are two limitations to this discretionary power, though. The first one is that these measures must be within the scope of authority of the NBS (defined by Article 4 of the Law on the National Bank of Serbia) and that they must be aimed at realising the public interest of maintaining and strengthening financial system stability.

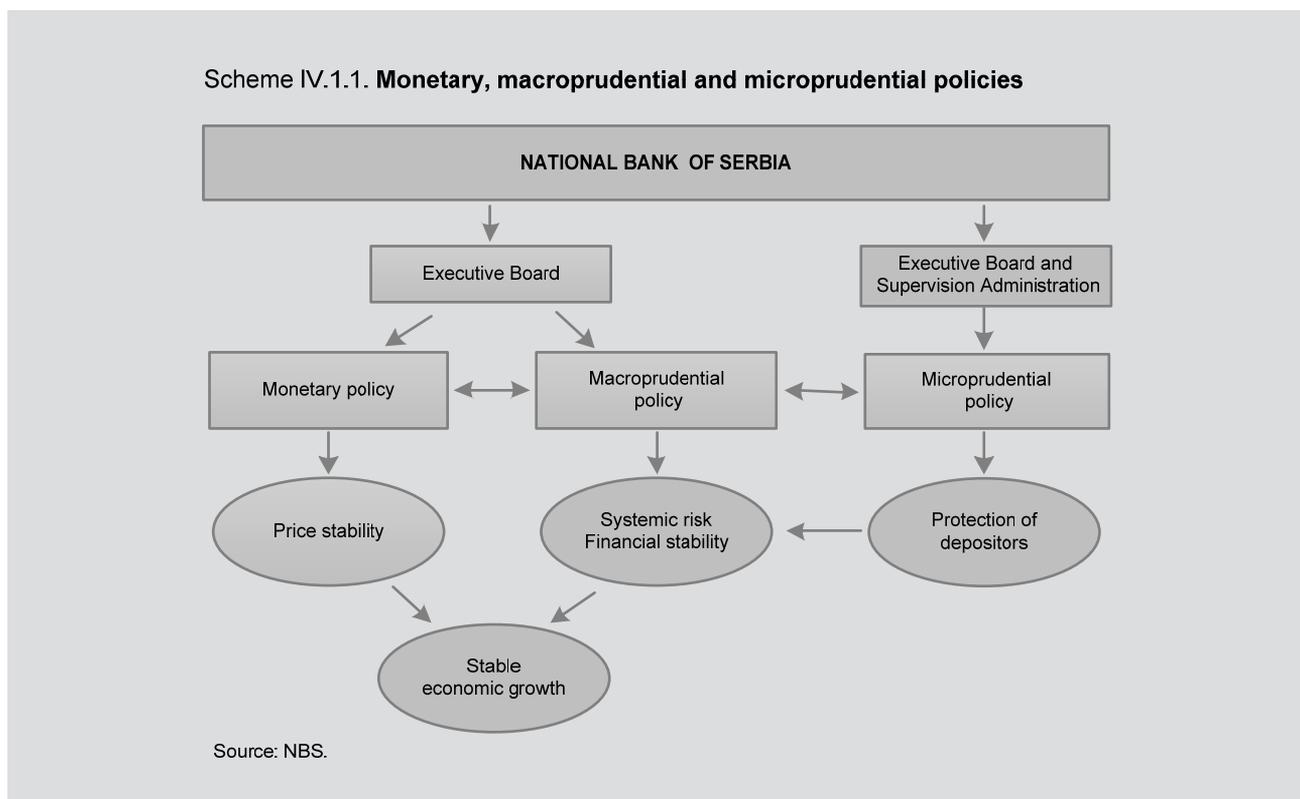
#### Macroprudential and microprudential policies

Effective implementation of macroprudential policy requires good understanding of its interaction with other policies implemented by the NBS in accordance with law. In this context, we need to cast light on the relationship between macroprudential, microprudential and monetary policies.

Microprudential policy and supervision seek to preserve the liquidity and solvency of individual financial institutions so as to protect the interest of depositors. This means that if microprudential policy is successful, i.e. it ensures the soundness of financial institutions through supervision, the financial system is stable as well. In this case, macroprudential and microprudential policies are complementary.

However, conflicts may arise in the implementation of these policies and the use of macroprudential and microprudential tools (these often being the same ones). In “good times,” the microprudential supervisor may often agree that it would be prudent for banks to build up buffers as these buffers increase the resilience of both individual institutions and the system as a whole. In “bad times”, however, the macroprudential perspective may call for a release of buffers so as to bolster the provision of credit to the economy, as well as for relaxation of other regulatory requirements, while the

Action to be taken in the NBS in extraordinary situations, when conflicts between microprudential and macroprudential policies may arise (especially in times of crisis), is regulated as follows: the Executive Board has a full macroprudential mandate and a shared microprudential mandate with the Administration for Supervision of Financial Institutions (at the Administration’s proposal, the Executive Board adopts regulations in the area of supervision and decides on the (de)licensing of financial institutions). The principal holder of microprudential mandate is the Administration as it issues individual acts in the area of financial supervision. Its director is at the same time a member of the Executive Board and hence in a position to influence the creation of macroprudential policy and contribute to the balance between micro and macro perspectives. This means that in deciding on which instrument to apply and when, the Executive Board will carefully consider which public interest prevails at the time and will make a decision accordingly that is best suited to the circumstances.



traditional microprudential perspective may seek to retain or tighten these requirements to protect the interest of depositors of individual banks.<sup>52</sup>

The relationship between monetary, macroprudential and microprudential policies in the NBS is illustrated in Scheme IV.1.1.

<sup>52</sup> IMF (2013), *Key aspects of macroprudential policy*, p. 14.

## Macroprudential and monetary policies

Macroprudential and monetary policies implemented by the NBS are, with certain exceptions, two complementary policies. The main objective of monetary policy is to achieve and maintain price stability, while the main objective of macroprudential policy is to maintain and strengthen stability of the financial system. From the aspect of economic growth, these two objectives are complementary, given that low and stable inflation and a sound and stable financial system are both prerequisites for sustainable economic growth. And yet, sometimes monetary and macroprudential policies may clash, for instance, in the following cases:

- low policy rates against the background of low inflation may contribute to excessive credit growth and the build-up of asset bubbles (e.g. in the real estate market). Thus, credit risk accumulates in the balance sheets of banks which extended loans for the purchase of assets in a particular market. The bursting of the price bubble causes financial instability through materialisation of systemic credit risk and a rise in the share of NPLs;

- there is also a risk in the opposite scenario, i.e. the increases in policy rates to counter inflationary shocks can draw in capital flows motivated by arbitrage on interest and exchange rates. Subsequent policy rate cuts or major weakening of the domestic currency may lead to large and sudden capital outflows that can jeopardise financial stability.<sup>53</sup>

Macroprudential policy needs to be clearly defined so as to provide scope for monetary policy to use its instruments with a view to achieving and maintaining the stability of prices. This means that through timely use of its toolkit, macroprudential policy should prevent the build-up of price bubbles in the above described cases despite low policy rates (for instance by tightening capital requirements for banks) or limit, by direct or indirect measures, capital flows that may cause financial instability.

## NBS macroprudential measures

The NBS carries out its macroprudential mandate by issuing:

- 1) regulatory measures, and
- 2) regulatory and other proposals.

Regulatory macroprudential measures are legally binding and are given in the form of general legal acts (decisions) published in the RS Official Gazette. Regulatory and other proposals (“other activities” referred to in Article 14, paragraph 1, item 11 of the Law on the National Bank of Serbia) actually recommend other entities to take specific measures with a view to maintaining and strengthening financial stability. They are published in the form of press releases of the NBS Executive Board.

### IV.1.2. Possible regulatory measures to contain systemic risks

Each year, in its *Annual Financial Stability Report* the NBS sets out the measures that may be taken in order to contain the systemic risks identified in our financial system. The measures are listed in Table IV.1.1, and are explained below in detail by risk areas.

Table IV.1.1. **Proposals**

Number	Proposal
1/2013/2014	<i>Draft plans to reduce the share of NPLs</i>
2/2013	<i>Regulate mandatory write-off of NPLs</i>
3/2013	<i>Improve and promote the framework for consensual financial restructuring of companies</i>
4/2013	<i>Enhance the process of out-of-court mortgage enforcement</i>
5/2013	<i>Establish the regulatory framework for personal bankruptcy</i>
6/2013	<i>Strengthen domestic dinar sources of financing</i>
8/2013	<i>Introduce different insured amounts and insurance premiums for foreign currency and dinar deposits</i>
13/2013	<i>Transpose the crisis management directive</i>
1/2014	<i>Set up an asset management company</i>

Source: NBS.

<sup>53</sup> IMF (2013), p. 10.

## Non-performing loans (NPLs)

The gross share of NPLs in total banking sector loans amounted to 21.4% at end-2013, up by 2.7 pp on the year before. The high rate of NPLs is both a systemic risk to the financial system (macroprudential aspect) and a microrisk to individual institutions (microprudential aspect).

NPLs pose a threat not only to the financial system, but also to the economy as a whole due to their potential to slow or delay economic growth. It should be noted, however, that NPLs are sitting on bank balance sheets while one of the main functions of the banking system is to manage the financial risks in that system. High NPLs indicate that the banking system was not successful enough in performing this function in the run-up to the crisis. The financial crisis has only deepened the problem and we ended up with very high NPL rates. Though high NPLs are one of the typical consequences of financial crises, when lending, banks should take into account all the risks, including those systemic that materialise in times of crisis. The choice of the method and financing of NPL resolution is therefore primarily on the banking sector, while the regulatory authorities should only support the process with their decision-making.

To address the issue of NPLs efficiently, on 8 March 2013, together with the IMF the NBS organised the Belgrade Initiative meeting, where banks, IFIs and other participants were given a chance to present their proposals for stepping up the process of NPL resolution (for more information on the latest developments within the Vienna and Belgrade initiative, see text box 3).

Based on inputs received in this meeting, NBS experts produced a Draft Belgrade Initiative Framework for NPL Resolution. The framework involves a case-by-case

approach to banks and served as a basis for the recommendations<sup>54</sup> the NBS issued in 2013. The recommendations advocate primarily the development of individual approach to NPL resolution by banks themselves. Banks are the ones who know best the quality of their credit portfolio and their business strategy, and can hence assess what methods of NPL reduction suit them best. From the aspect of the NBS, it is the result that matters the most, i.e. bringing NPLs down to a level which does not represent a systemic risk and does not threaten financial stability, while the decision on the method and the manner of financing NPL reduction is up to banks.

The concept of resolving the issue of high NPLs is explained in detail in further text. We have indicated for each proposal/recommendation whether it is new or existing, as well as the status of its implementation.

***1/2013/2014 Draft plans to reduce the share of NPLs.*** In addition to recommending that banks draft these plans, the NBS defined some of the elements the NPL reduction plans must contain:

- the target percentage share of NPLs in total loans of a bank to be achieved by implementing the said plan;
- the expected timeframe for the achievement of the targeted level of NPLs, which may be defined in stages (e.g. the NPL share will be reduced to 15% by a certain date, while full implementation of the plan will cut it down to 5%);
- method of decreasing the NPL share (sale, write-off, restructuring or enforced collection of receivables);
- financing of the process: recapitalisation by shareholders, or by a parent bank, in case of a foreign bank's subsidiary; debt or capital financing by IFIs; sale of NPLs to asset management companies, etc.

<sup>54</sup> NBS (2013), *Annual Financial Stability Report 2012*, p. 81–84.

### **Text box 3: Latest developments within the Vienna Initiative**

Current and future challenges in terms of maintaining financial stability kickstarted a series of host country cross-border forums. One of them, known as the Belgrade Initiative, was held in Belgrade on 8 March 2013. Several months later, in October, the fourth Vienna Initiative Full Forum was held in Brussels to assess the contribution of the Initiative to financial stability of the CESEE region.

#### ***Belgrade Initiative host country cross-border forum***

The meeting organised under Vienna Initiative 2.0 was hosted by the NBS and jointly sponsored by the IMF. It brought together representatives of international banking groups and their local subsidiaries, home and host supervisors, representatives of the Ministry of Finance, IFIs, ECB, European Commission, EIB, ESRB, EBA, World Bank and others.

The Belgrade Initiative meeting was conceived as a platform for the exchange of views on current and future challenges to maintaining financial stability in Serbia that will contribute to better mutual understanding and cooperation of entities whose performance has a bearing on the stability of our financial system. The meeting was not intended to generate any firm commitments, but rather to be the first in a number of similar gatherings that would consider cross-border banking issues. One of the most important issues discussed in the meeting was how to resolve high NPLs.

#### ***Fourth Vienna Initiative Full Forum***

The Fourth Vienna Initiative Full Forum met in Brussels in October 2013 and gathered representatives of the European Commission, EIB, IMF, World Bank and CESEE countries.

The focus of the forum were current financial stability issues and risks, notably cross-border deleveraging, impact of the Banking Union on the CESEE, addressing high NPLs, boosting credit growth, organising national financial stability forums, and developing local capital markets.

The participants stated that the following significant results have been achieved since the previous Full Forum held in November 2012:

- a) quarterly issues of the *Deleveraging Monitor* were prepared and published to highlight changes in the exposure of European banking groups towards the CESEE region. The Monitor was later on expanded to include information on credit terms and was accordingly renamed *Deleveraging and Credit Monitor*;
- b) in January 2013, *Observations on Cross-Border Resolution* were prepared – they stressed the need to protect the interest of countries where the subsidiaries of EU banks are systemically important for the local banking system;
- c) a working group on Banking Union prepared a report analysing stability factors in the region. Among other things, the report gives an overview of the modalities to motivate non-EU members to join the Banking Union and highlights the need to involve such countries in the Banking Union workings through special cooperation agreements with the EBA and the ECB;
- d) host country cross-border forums were organised in Croatia, Serbia, Albania and Slovenia with a view to strengthening the dialogue on key issues of cross-border banking cooperation and financial stability. The forums of this kind are particularly important for countries that are not members of the EU yet and do not have an adequate approach to coordination platforms and regulatory bodies of the EU.

#### ***In the days ahead***

In the coming period, the Vienna Initiative will focus primarily on the control of systemic risks. More specifically, the activities will focus on the following areas:

- a) deleveraging and credit growth, especially in light of the unpredictable effects of regulatory changes in the EU. The asset quality review of banks and the application of the harmonised definition of NPLs could trigger a third wave of deleveraging, as was the case in 2011 when the EBA implemented the stress test exercise. For this very reason, the

*Deleveraging and Credit Monitor* will be extended to include measures banks intend to implement to comply with regulatory requirements (including issues relating to cross-border exposure, domestic exposure, etc);

b) supporting and promoting the establishment of the Banking Union. In the second week of October 2013, the Council of the EU adopted a regulation establishing the Single Supervisory Mechanism. The next step towards a banking union is the establishing of a bank resolution mechanism. A working group on the Banking Union, operating within the Vienna Initiative, will shortly give its comments on the recently proposed Bank Recovery and Resolution Directive prepared by the European Commission, as well as on the Single Supervisory Mechanism;

c) considering credit-enhancing initiatives which include:

- addressing the issue of high NPLs and updating the recommendations produced by the Working Group for NPL Resolution. The new recommendations should relate to banks' risk mitigating strategies and credit enhancing;

- setting up a new working group on national loan guarantee schemes for SMEs and the potential role of IFIs in this field. This working group should keep in its focus the interest of non-EU members, especially with regard to defining the mechanism that would ensure efficient coordination between the EU and the EU candidates.

**1/2014 Support the setting up of an asset management company that would buy NPLs from banks.** One of the ways of resolving the issue of high NPLs is to set up a bad bank with the sole purpose of buying and managing the NPLs of commercial banks. This corporate structure would be similar to an investment fund that would invest in the purchase of NPLs. It could be set up by banks operating in Serbia, though IFIs should also be given an opportunity to hold a share in its capital. Setting up this vehicle should not be financed from the budget of the Republic of Serbia but only from private sources, notably by banks and IFIs. The bad bank would be led by a professional management team of specialists in claim enforcement and restructuring of distressed companies. This model of NPL resolution was often applied in other countries, especially during the Scandinavian financial crisis (early 1990s) and the Asian crisis (late 1990s). It was recently also applied in Italy.

**2/2013 Regulate mandatory write-off of NPLs.** Banks would be obliged to write off a receivable if it is:

- unsecured and the borrower is more than three years in arrears with repayment;
- mortgage-secured and the borrower is more than five years in arrears with repayment;
- unsecured and the borrower is in bankruptcy for more than a year;
- agreed to be written off in the process of compulsory settlement.

The institute of mandatory write-off would make sure that the evidently uncollectible receivables are recognised as such accounting-wise.

**3/2013 Improve and promote the framework for consensual financial restructuring of companies.** In August 2013, in collaboration with the EBRD, the Serbian Chamber of Commerce launched the project “Support for Effective Implementation of the Law on Consensual Financial Restructuring of Companies”. In addition to analysing the regulatory framework and the scope for its improvement, the project aims to raise awareness in the business community of the advantages of consensual financial restructuring. The NBS has taken part in the project through its representatives and continues to support all efforts aimed at strengthening the procedure of consensual financial restructuring.

**4/2013 Enhance the process of out-of-court foreclosure of mortgaged property to improve the process of mortgage enforcement.** Amendments to Article 49, paragraph 2 of the Mortgage Law (RS Official Gazette, No 115/2005) would enable, in case of foreclosure, the striking off of the rights of subsequent mortgagees, which is not possible now.

**5/2013 Establish the regulatory framework for personal bankruptcy so as to enhance the resolution of natural persons’ NPLs.** This recommendation relates to the introduction of a procedure that would give natural persons, in the event of debt overhang, a possibility of a fresh financial start after the lapse of a relatively short period, which would encourage the person concerned not to avoid debt payments. As a rule, this procedure implies considerable debt relief and a major debt restructuring. Though the share of NPLs in total loans extended to natural persons<sup>55</sup> (10.8%) is lower compared to the corporate sector (24.5%), we are of the view that the regulatory framework for personal bankruptcy should be adopted as a preventive measure.

### Cross-border deleveraging

More than 74% of the Serbian banking sector assets is in the hands of foreign-owned banks. Most of them are members of cross-border banking groups. Until the outbreak of the global financial crisis in 2008 they provided the necessary funding primarily by borrowing from their parents. However, the crisis and the financial troubles that hit the parent banks have ushered in the process of deleveraging. In order to prevent reverse capital flows from causing financial instability in the countries where the subsidiaries of international banking groups operate, the so-called Vienna Initiative was launched in 2009. The Initiative sought to maintain the exposure of Western European banks towards the CESEE region at the agreed level. However, as the crisis continued, the relevant stakeholders realised that maintaining exposure levels is not a long-term solution, which led to the re-vamping of the Initiative into Vienna Initiative 2.0 in January 2010. The aim of Vienna Initiative 2.0 is not to maintain exposure levels, but to guard against disorderly deleveraging of international banking groups. It became quite clear that the domestic financial system cannot rely on external sources of financing only and that the domestic sources need to be strengthened. Serbia has also experienced deleveraging. This process has a

<sup>55</sup> Natural persons include also entrepreneurs and farmers.

negative impact on lending and consequently on economic growth. Because of that, deleveraging represents a systemic risk to the financial system and needs to be contained to the extent possible.

Proposal:

**6/2013 Strengthen domestic sources of financing.**

Strengthening the domestic sources of finance, notably dinar, is of paramount importance in an environment of scarce external sources. It is a well-known fact that without credit growth there can be no economic growth either. Given that domestic sources of financing (capital and savings) are insufficient to finance the current volume of lending, the development of alternative, long-term sources of funding, through tax and other incentives, seems perfectly reasonable. A good example of these sources in the domestic market are VPFs.

## Euroisation

A euroised financial system in itself 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 major increase in foreign currency liabilities, expressed in the local currency, and considering that most borrowers receive their income in the local currency, their indebtedness would go up dramatically. In this way, the systemic foreign exchange risk can give rise to system-wide solvency and liquidity problems in both corporate and household sectors. Also, in conditions of high euroisation, changes to the key policy rate cannot influence the cost of servicing foreign currency-dominated debt, which diminishes the efficiency of monetary policy and limits the central bank's capacity to control systemic risk. This is why it is necessary to continue working towards greater dinarisation of the Serbian financial system. At end-2013, dinarisation measured as the share of dinar loans in total corporate and household lending equalled 26.8%, whereas measured as the share of dinar deposits in total corporate and household deposits, it amounted to 23.1%. 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 defines the three main fronts of dinarisation efforts:

- monetary and fiscal policy measures to strengthen the macroeconomic environment by securing low and stable inflation, running a managed float exchange rate regime and delivering 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.

We propose 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. When defining the amount of premium for deposit insurance, the Law did not envisage that FX deposits have a higher premium because they entail more risk to the insurer. Namely, the risk of occurrence of the insured event is higher for foreign currency than for dinar deposits given that there is no foreign exchange risk associated with the investment of the dinar sources of funding. It would be useful in this context to differentiate the insurance deposit premiums and amounts, in accordance with the risk profile of a bank, taking into account the currency of the deposit as one of the more important elements.

## Crisis management framework

**13/2013 Transpose into domestic regulations the EU directive regulating bank recovery and resolution.** On 15 April 2014, the European Parliament adopted at first reading the Bank Recovery and Resolution Directive, which lays down the crisis management framework. The Directive was published in the Official Journal of the EU on 12 June. It is essential that this directive be transposed into national regulations relatively soon, so that we can harmonise the domestic crisis management framework with the *acquis communautaire*. What makes the task pressing is the dominant share of subsidiaries of EU banks in the local banking market.

## Macroprudential policy

Recommendation 14/2013, published in the previous *Report*, related to the *coordination of different authorities with responsibilities in the area of financial stability* in the Republic of Serbia, as envisaged by the ESRB Recommendation (2011/3). This recommendation has been fully implemented with the signing of the Agreement on the Financial Stability Committee by the government, NBS, Deposit Insurance Agency and the Securities Commission in December 2013 (for more information on the Financial Stability Committee, see Text box 4).

## **Text box 4: Financial Stability Committee**

### ***Reasons for setting up a coordination body composed of institutions whose actions influence financial stability***

The challenges faced by the national financial systems during the economic crisis have revealed the need for improving the existing and introducing new macroprudential policy measures. Both systemic risks and market conditions have changed, calling for changes in the financial stability toolkit. The crisis also highlighted the need for reinforcing interinstitutional cooperation, most notably cooperation across institutions whose activities and measures have the greatest impact on maintaining and strengthening stability of the financial system.

Based on the above, in late 2011 the European Systemic Risk Board<sup>1</sup> issued a recommendation<sup>2</sup> on the macroprudential mandate of national authorities and institutional arrangements aimed at maintaining financial stability. Pursuant to the Recommendation, countries should designate in the national legislation an authority entrusted with the conduct of macroprudential policy, either as a single institution or as a board composed of the authorities whose actions have a material impact on financial stability. In both of these institutional arrangements, national central banks should have a leading role in macro-prudential oversight because of their expertise and their existing responsibilities in the area of financial stability.

With a view to meeting the above objectives and in line with the ESRB's recommendations, national regulators have set up appropriate interinstitutional bodies and entrusted them, to a greater or smaller degree, with the macroprudential mandate. Thus, financial stability or systemic risk committees or boards have been set up in the United States, the UK, Germany, Denmark, Italy, Bulgaria, Poland, Hungary, Montenegro, Bosnia and Herzegovina, and others. These bodies typically consist of central bank governors and their associates, ministers of finance and economy, and representatives of other competent financial market regulators.

### ***Significance of setting up the Financial Stability Committee***

Financial stability is critical to economic development. Without it, no sustainable preconditions can be created for GDP growth and higher employment. In an environment where the domestic economy still feels the effects of the global financial crisis, the stability of the financial system is in the focus of a large number of market participants. Its safeguarding requires swift and coordinated action of the competent authorities. For these reasons, and with a view to enhancing formal cooperation among institutions involved in the supervisory and regulatory framework of the financial sector, a special interinstitutional body called the Financial Stability Committee (Committee)<sup>3</sup> was set up by the end of 2013 in order to contribute to the strengthening and maintaining of financial system stability in Serbia.

The Committee establishes a system of regular dialogue among competent bodies and a line of communication in crisis situations. Its activities should improve the quality of systemic risk monitoring and assessment and contribute to timely and efficient exchange of information, swift and coordinated action of a larger number of institutions, strengthening of the financial system's resilience, and taking of appropriate measures to prevent systemic risks and negative effects in the financial sector and the real economy.

### ***Composition, competences and tasks of the Financial Stability Committee***

The Committee consists of eight members – representatives of institutions with responsibilities in the area of financial stability. Members of the Committee include: NBS governor, minister of finance, director of the Deposit Insurance Agency, president of the Securities Commission, director of the NBS Administration for Supervision of

<sup>1</sup> The ESRB (European Systemic Risk Board) is tasked with the macro-prudential oversight of the financial system within the EU in order to contribute to the prevention or mitigation of systemic risks to financial stability in the EU. When it identifies risks to financial stability, the ESRB issues recommendations and warnings.

<sup>2</sup> Recommendation of the European Systemic Risk Board of 22 December 2011 on the macroprudential mandate of national authorities (ESRB/2011/3).

<sup>3</sup> The Agreement on the Financial Stability Committee was signed on 6 December 2013. Its constitutive meeting was held at the NBS on 9 December 2013.

Financial Institutions, NBS vice-governor in charge of financial stability, state secretary in the Ministry of Finance in charge of financial system and the general manager of the NBS Banking Supervision Department. The work of the Committee is managed and its meetings are chaired by the governor. Committee meetings are called when necessary, and at least once in three months, while decision-making is based on the majority vote rule.

The Committee acts as an advisory body and has the responsibility to consider and assess all matters and possible measures aimed at safeguarding financial stability, as well as to coordinate activities of all stakeholders in the process. The tasks of the Committee are: to coordinate policies, measures and activities to be taken by the relevant institutions, in accordance with their competences, in order to maintain and strengthen the stability of the financial system; to determine and analyse data and information relevant to financial system stability and crisis management, and to ensure appropriate, timely and efficient exchange of data and information among contracting parties in the field of financial stability; to identify and assess important risks and weaknesses in the financial system of the Republic of Serbia; to review and follow best comparable practices in terms of measures and interinstitutional coordination in the area of financial stability, and to consider all other issues and factors relevant to the stability of the financial system.

### Text box 5: Macroprudential stress testing

Stress testing is a technique that measures the vulnerability of a financial institution or an entire financial system under different adverse events or scenarios. It is a quantitative – “what if” exercise, estimating what would happen to capital, profit and cash flows of individual financial institutions or the system as a whole if certain risks were to materialise.

Capturing the majority of systemic risks is key to obtaining reliable stress test results. Until the global financial crisis, stress tests conducted in countries with complex financial systems typically focused on credit and market risks. The crisis revealed that other sources of risks, such as liquidity, operational and sovereign risks, should also be included in stress tests. For complex financial institutions, it is necessary to incorporate cross-border activities through cross-border ownership, credit and market risk exposures and funding.

There are four types of stress tests based on the type of analysis, ultimate objective and method applied:

- macroprudential/surveillance stress testing,
- microprudential/supervisory stress testing,
- crisis management stress testing,
- stress testing as an internal risk management tool.

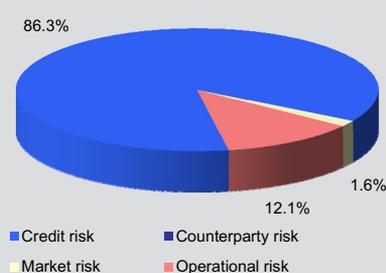
Macroprudential stress testing analyses the impact of risks on the banking sector, taking into account the feedback effects – risk transmission within the financial system at home and cross-border, and risk transmission between the financial system and real economy. Stress test results may be a source of information for early warning systems and may facilitate crisis management and resolution in individual institutions. Macroprudential stress testing usually does not propose specific measures for individual banks, but serves as the basis for macroprudential recommendations of central banks.

Stress test design and implementation should ideally be based on “best practice” principles, i.e. all testing phases should be tailored to sector circumstances while maintaining minimum standards that can enhance comparability across different exercises and enable appropriate interpretation of results. Proper stress test design requires careful examination of the transmission channels and an understanding of the range of possible responses of financial institutions and capital markets to different shocks.

Macroprudential stress testing is just one of many tools to assess key risks and vulnerabilities in financial institutions or entire systems, as well as to assess the effects of propagation of the initial shock through the financial system and real economy. They should be treated as complements to other tools that can provide information about potential threats to financial stability, such as qualitative and quantitative bank risk analysis, early warning indicators, models of debt sustainability, and informed dialogue with supervisors and market participants. Final conclusions about the resilience of the institution or system should draw on all these sources and not just on the results of stress tests.

Credit risk is the most significant risk in Serbia’s banking sector, as shown in Chart O.5.1

Chart O.5.1. **Capital requirements**  
(December 2013, %)



Source: NBS.

## IV.2. Macroprudential stress testing

*The global crisis heightened the importance of adding macroprudential dimension to the microprudential approach to the regulation and supervision of financial institutions. Therefore, in addition to microprudential, macroprudential stress tests are conducted as well, demonstrating banking sector resilience to extreme growth in credit and liquidity risks.*

### Introduction

The NBS conducts macroprudential stress testing to assess the resilience to potential risks of individual banks and the banking sector as a whole. Stress tests are conducted on a quarterly basis and are consistently improved. Basel II standards<sup>56</sup> and NBS regulations require that banks also use stress tests to assess their internal capital. This points to the significance of stress tests as a tool for evaluating the problems that may occur in a bank's behaviour model.

Stress tests are based on extreme but plausible assumptions and events that may produce negative effects on the financial system. However, poor stress test results do not necessarily mean that a sector, and an individual bank or banking group are experiencing difficulties. Results for individual banks are usually not published in order to preclude misinterpretation.

For the time being, macroprudential stress testing conducted by the NBS enables:

- measurement of banking sector resilience to an increase in capital requirements for the credit risk in case of adverse macroeconomic developments;
- measurement of the liquidity risk due to the loss of depositors' confidence and unfavourable macroeconomic conditions;
- network modelling in the estimate of banking sector systemic risk and systemic importance of individual financial institutions.

The present report sets out three approaches to analysing the impact of economic turbulences on banking sector stability. The first approach involves credit risk assessment in relation to depending on macroeconomic developments. The second involves the assessment of

whether, in case of large deposit withdrawals, the banking sector has sufficient liquidity to ensure its smooth operation. The third relates to the assessment of banking sector's systemic risk and whether the current structure of banks' interrelatedness is conducive to the propagation of shocks across the entire banking sector, i.e. how resilient the system is, as a whole, to potential shocks.

### Solvency stress testing

Credit risk is the most significant risk in Serbia's banking sector. It is most often quantified as a share of NPLs in total loans.

To assess banking sector resilience to credit risk growth over a one-year horizon, we projected a rise in NPLs.

### NPL projection by the multi-dimensional analysis of time series

The multi-dimensional analysis of time series was applied to modelling of NPLs, with changes in NPLs linked to changes in macroeconomic conditions.

Of a large set of variables eligible for an econometric analysis and with a potential impact on the monthly dynamics of NPLs, three showed reliable and predictable strength: the exchange rate, seasonally-adjusted real net wages and the key policy rate. Elasticity coefficients (indicating the impact of each variable on NPLs) and individual contributions of each variable to NPL growth, are presented in Table IV.2.1. As indicated in the Table, one-percent depreciation of the dinar against the euro causes a 0.58% rise in the NPL share.

Three scenarios are assumed within a one-year period. Their overview for end-2014 is shown in Table IV.2.2. All three scenarios of movements in the key policy rate are conditional on the assumed movements in the exchange rate and its impact on inflation. The projection of net wages (in dinars) was made independently, i.e. based on the ARIMA model. Wages were then adjusted for projected inflation based on corresponding scenarios.

Chart IV.2.1. shows the projected increase in the NPL share in total loans for three assumed scenarios – 2.17 pp, 3.63 pp and 5.17 pp, respectively.

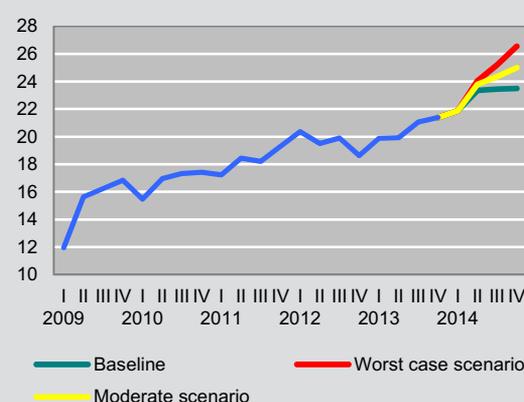
<sup>56</sup> *Principles for sound stress testing practices and supervision, (2009), BCBS, <http://www.bis.org/publ/bcbst155.pdf>.*

Table IV.2.1. **Elasticity coefficients of NPLs and contributions of independent variables in 2013 (%)**

	Elasticity coefficients	Contributions of independent variables
Nominal exchange rate	0.58	37
Seasonally-adjusted real net wages	-0.36	45
Key policy rate	0.18	18

Source: NBS.

Chart IV.2.1. **The share of gross NPLs in baseline, moderate and worst case scenario\* (%)**



\* NBS estimate.

Source: NBS.

Table IV.2.2. **Overview of scenarios**

	Baseline	Moderate	Worst case
Y-o-y growth in NPL ratios (pp)	2.17	3.63	5.17
Y-o-y depreciation of RSD against EUR (%)	/	18.05	36.30
Y-o-y change in key policy rate (pp)	/	12.00	28.00
Y-o-y growth in real net wages (%)	-5.80	-9.56	-12.86

Source: NBS.

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

### Estimate of resilience of the banking sector and individual banks in conditions of projected profit buffer

For the purposes of this analysis, banking sector resilience is defined as a change in CAR at assumed changes in variables which directly and indirectly impact the CAR level. If CAR remains above the regulatory minimum over the entire projection period, the banking sector as a whole, i.e. individual banks, is considered resilient.

The level of CAR is directly affected by changes in risk-weighted assets (the most important being credit growth),

the amount of required reserve for estimated losses on balance sheet assets and off-balance sheet items by which regulatory capital is reduced, and changes in capital positions (recapitalisation as the most important). However, there are also significant indirect effects, the most important being those of the exchange rate and profit buffer, amendments to regulations (treatment of supplementary capital, changes in calculation of required reserve for losses) etc.

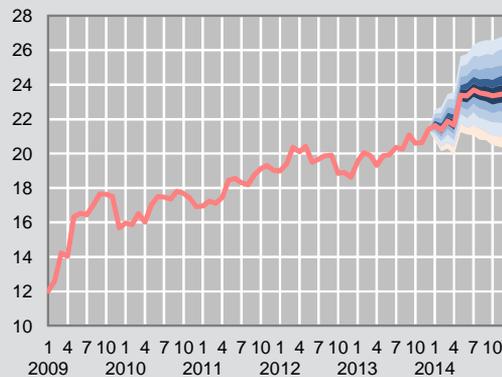
The impact of the exchange rate (primarily dinar's depreciation) on NPL growth and thus on a rise in loan loss provisions, is not the only channel through which the exchange rate affects capital adequacy (Figure IV.2.1).

The exchange rate also influences a rise in capital requirements for FX risk coverage. Given a high level of euroisation of assets, 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.

As at 31 December 2013, CAR for Serbia's banking sector stood at 20.94%.

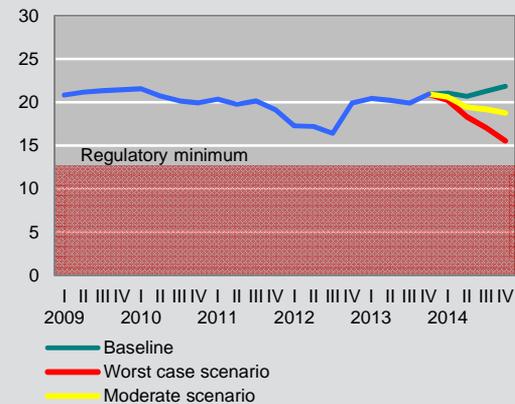
Under the baseline projection, CAR reaches 21.82%. In this case, a lower than statutory CAR would be recorded for banks accounting for 5.05% of total banking sector balance sheet assets.

**Chart IV.2.2. The share of gross NPLs of the banking sector - confidence intervals\***  
(%)



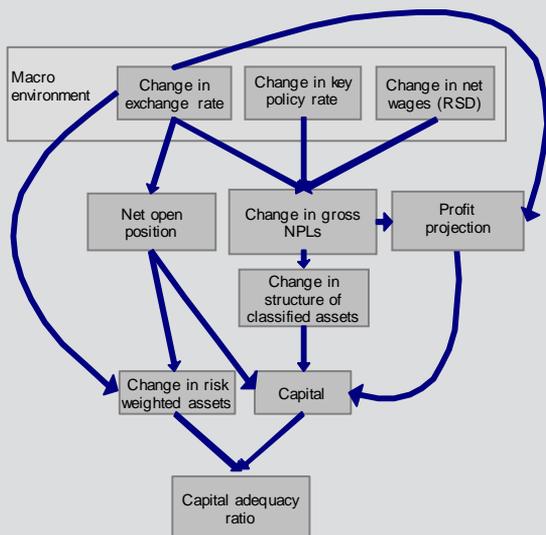
\* NBS estimate.  
Source: NBS.

**Chart IV.2.3. Expected capital adequacy ratio by stress scenarios\***  
(%)



\* NBS estimate.  
Source: NBS.

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



In the moderate scenario, CAR would fall to 18.74%. In this case, banks accounting for 10.02% of banking sector balance sheet assets would report CAR below the statutory threshold.

According to the worst-case scenario, implying a vigorous but an implausible shock, CAR would equal 15.55%. Banks accounting for 17.74% of banking sector balance sheet assets would report CAR below the statutory minimum.

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

Based on data as at 31 December 2013, banks should make additional recapitalisation of RSD 3.05 bln, or 0.88% of regulatory capital (excluding Universal bank<sup>57</sup>, recapitalisation should total RSD 0.76 bln). Alternatively, the banking sector would have to reduce risk-weighted assets by RSD 25.39 bln or 1.53% of risk-weighted assets (excluding Universal bank, risk-weighted assets must be reduced by RSD 6.36 bln). In this case, CAR of the Serbian banking sector would be 21.12%.

Chart IV.2.4. shows necessary recapitalisation of the banking sector, assuming a profit buffer, for all three scenarios.

Alternatively, the necessary reduction in risk-weighted assets for all three scenarios is shown in Chart IV.2.5.

<sup>57</sup> The NBS Executive Board delicensed Universal bank Belgrade on 31 January 2014, in accordance with the Law on Banks.

Under the baseline projection, banks should make additional recapitalisation of RSD 6.28 bln or 1.75% of estimated regulatory capital. Alternatively, the banking sector would have to reduce risk-weighted assets by RSD 52.35 bln or 3.18% (excluding Universal bank, recapitalisation totals RSD 3.23 bln, i.e. risk-weighted assets must be reduced by RSD 26.94 bln).

According to the moderate scenario, banks should make additional recapitalisation of RSD 9.45 bln or 2.84% of estimated regulatory capital. Alternatively, the banking sector would have to reduce risk-weighted assets by RSD 78.73 bln or 4.43% (excluding Universal bank, necessary recapitalisation equals RSD 5.8 bln, i.e. risk-weighted assets must be reduced by RSD 48.9 bln).

Under the worst-case scenario, banks should make additional recapitalisation of RSD 18.39 bln or 6.11% of estimated regulatory capital. Alternatively, the necessary reduction in risk-weighted assets would equal RSD 153.29 bln or 7.92% (excluding Universal bank, necessary recapitalisation equals RSD 14.20 bln, i.e. risk-weighted assets should be reduced by RSD 118.37 bln).

### NPLs which bring CAR to critical levels

The final phase of credit risk analysis aims to determine the share of NPLs in total loans, which would bring CAR from the current level down to 14.5% or 12%.

Assuming a projected profit buffer, with a 5.70 pp increase in the share of gross NPLs in total loans, CAR would fall from current 20.94% to 14.5%. A 7.05 pp increase would bring CAR to the regulatory minimum of 12%.

Based on the values of critical NPL levels which bring CAR to 14.5% and 12%, and the confidence interval of the projection of gross NPLs in total loans based on the multi-dimensional analysis of time series, we obtained probabilities of the increase in the share of gross NPLs in total loans in 2014 (Chart IV.2.6). The probability that CAR would fall to 14.5% and 12% is small – it equals only around 3.5% and 0.6% respectively.

Chart IV.2.4. **Additional capital needed by scenarios with projected profit buffer\*** (RSD bln)

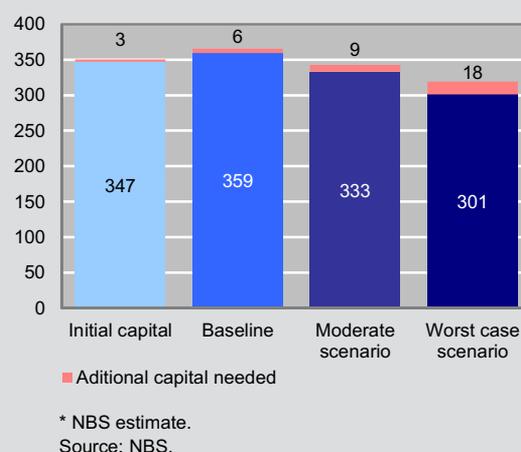
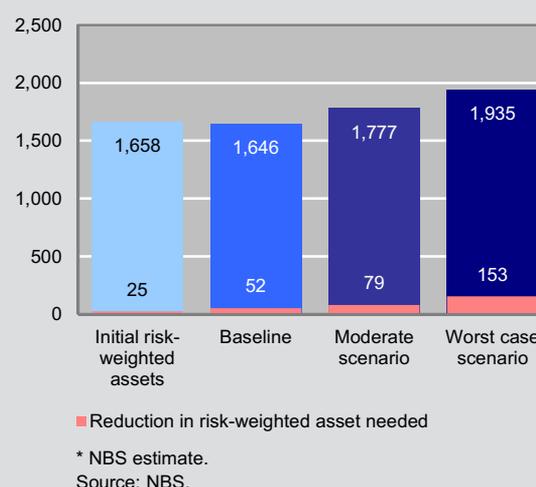
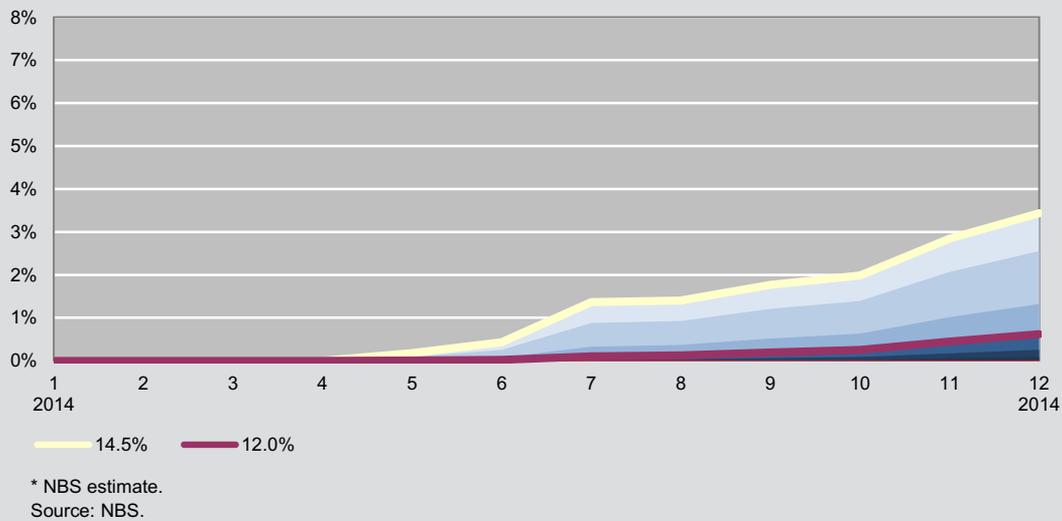


Chart IV.2.5. **Reduction in risk-weighted assets needed by scenarios with projected profit buffer\*** (RSD bln)



It should be underlined that preventive recapitalisations are necessary at the above assumptions for individual banks. Also, one of the measures would imply improving

Chart IV.2.6. The probability of NPLs increasing to the level that would result in banking sector capital adequacy ratio of 14.5% and 12%\*



the credit portfolio quality – the share of NPLs in total loans should decline so that CAR remains above or returns to the regulatory minimum.

### Liquidity stress testing

Although less significant than the credit risk in Serbia's banking sector, the liquidity risk may materialise under certain circumstances, as demonstrated by the events that unfolded in late 2008<sup>58</sup>.

Based on the analysis of historical data from September 2008 to January 2009 – the period of the deposit withdrawal shock, the deposit withdrawal structure was obtained.

Based on results of liquidity stress testing, we aim to determine whether in case of the same or similar shock the banking sector would continue to operate smoothly. Factors that depress liquidity on the liabilities side include tighter access to new sources of funding, impossibility to refinance debt and the withdrawal of funds. Events 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.

### Estimate of liquidity ratio

The above analysis of deposit withdrawal in late 2008 served to create the following scenarios:

Table IV.2.3. Assumptions of deposit withdrawals by sector

DEPOSIT WITHDRAWAL	Déjà vu 2008	Spill-over	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	1%	15%	22%
Time deposits	1%	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 bln)	183	255	362
Share in total deposits (%)	1%	15%	21%

Source: NBS.

<sup>58</sup> For more details see the Annual Financial Stability Report for 2012.

- Déjà vu scenario, envisaging deposit withdrawal worth RSD 183 bln (11% of total deposits). The scenario applies the deposit withdrawal structure from October 2008;
- Risk spillover scenario, implying the spillover of the euro area crisis to Serbia's financial sector. In addition to the deposit withdrawal of 2008, this scenario envisages deleveraging, prompted by the euro area crisis. In this scenario, deposit withdrawal increases to RSD 255 bln (15% of total deposits);
- Worst-case scenario, envisaging a two times stronger shock than in October 2008, i.e. deposit withdrawal of RSD 362 bln (21% of total deposits).

Deposits are divided into two main groups – demand and term deposits. Deposit withdrawal assumptions for all three scenarios are presented in Table IV.2.3.

In the scenarios assumed, the banking sector liquidity ratio would range from 2.53 at end-2013 to 1.49 in the worst-case scenario (Chart IV.2.7).

According to the déjà vu scenario, one bank would fall below the regulatory minimum. In the risk spillover scenario, banks accounting for 3.18% of total banking sector balance sheets would be below the minimum. In

case of the worst-case scenario, which implies a severe shock, banks accounting for 3.54% of total banking sector balance sheets would fall below the threshold. The largest percentage of banks are in the safety zone – their liquidity ratios are above one.

## Liquidity needs

Based on data as at 31 December 2013, as suggested by initial values and the scenario, there are no first-order liquidity needs.

Under the déjà vu scenario, excluding Universal bank, banks have no first-order liquidity needs.

According to the risk spillover scenario, first-order liquidity needs would equal RSD 1.3 bln or 0.17% of the initial value (excluding Universal bank, first-order liquidity needs equal RSD 860 mln).

In the worst-case scenario, first-order liquidity needs would be RSD 5.47 bln or 0.66% of the initial value (excluding Universal bank, first-order liquidity needs equal RSD 3.22 bln).

In case the assumed scenarios materialise, the NBS may react by extending liquidity loans, i.e. by exercising its lender of last resort function. As these operations are performed in dinars, while most deposits are euro-denominated, this may generate pressures in the FX market.

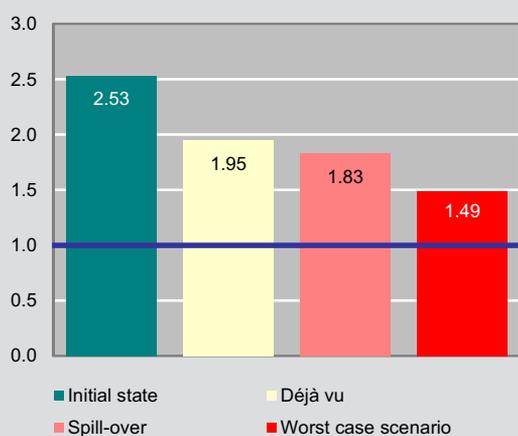
## Establishing deposit withdrawal values which bring the liquidity ratio to critical levels

The present analysis aims to determine the values of deposit withdrawals of the banking sector and individual banks which would lower the liquidity ratio to 1.5 and 1.0 respectively.

Based on assumptions in Table IV.2.3, we obtained for the déjà vu scenario the structure of deposit withdrawal by depositor categories in total withdrawn deposits (Table IV.2.4).

At the banking sector level, under the déjà vu scenario, the withdrawal of RSD 393 bln or 23% of total deposits

Chart IV.2.7. **Expected liquidity ratio for the banking sector by stress scenarios\***



\* NBS estimate.  
Source: NBS.

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

	Déjà vu
Withdrawal of demand deposits	48%
Withdrawal of time deposits	52%
Structure of total demand deposit withdrawal	
Banks	0%
Other depositors	64%
Savings	36%

Source: NBS.

**Table IV.2.5. Assumed deposit withdrawal rate by sectors**

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.

(of which RSD 187 bln demand and RSD 206 bln term deposits) brings the liquidity ratio to 1.5. The withdrawal of RSD 727 bln or 42% of total deposits (of which RSD 347 bln demand and RSD 381 bln term deposits) lowers the liquidity ratio to 1.0.

### Period of banking sector survival in case of sudden deposit withdrawal

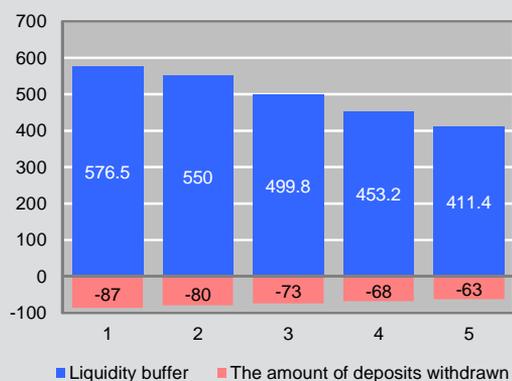
The shock observation period is called the survival period. It may consist of two stages. The first is a short period of high-intensity stress, lasting for several days, during which evaluation is made of the bank's ability to

cover liquidity outflows without the possibility of obtaining new liquid funds and without changing the business model. The second is a longer period, marked by weaker but more persistent shocks, lasting over a month.

This group of liquidity tests aims to determine the longest period of banking sector survival in case of large daily deposit withdrawal. The main withdrawal assumptions for the moderate and worst-case scenarios are presented in Table IV.2.5.

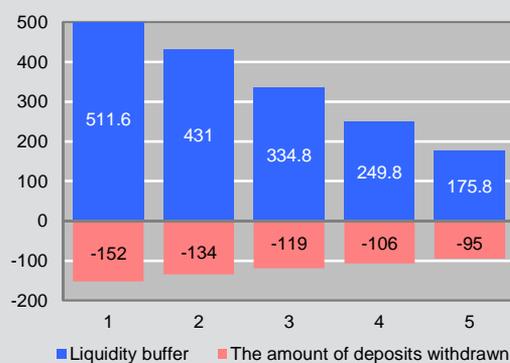
Charts IV.2.8. and IV.2.9. show available liquid assets and the amount of withdrawn deposits in the first five days (the amount of liquid assets remaining after the coverage

**Chart IV.2.8. Liquidity buffer - daily for moderate scenario\***  
(RSD bln)



\* NBS estimate.  
Source: NBS.

**Chart IV.2.9. Liquidity buffer - daily for worst case scenario\***  
(RSD bln)



\* NBS estimate.  
Source: NBS.

of liquidity needs) for both scenarios. Charts IV.2.10. and IV.2.11. give the deposit structure by days.

The entire banking sector can withhold more than 30 business days<sup>59</sup> in conditions of daily deposit withdrawal under the moderate scenario, or nine business days in the worst-case scenario.

The banking sector would remain liquid even in case of the largest assumed deposit withdrawal.

## Simulations of liquidity shocks

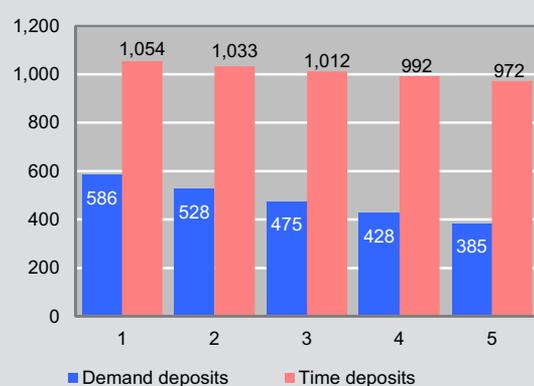
This analysis aims to determine the probability of movement in banking sector liquidity ratios under assumed negative effects, i.e. different values of deposit withdrawal.

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

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

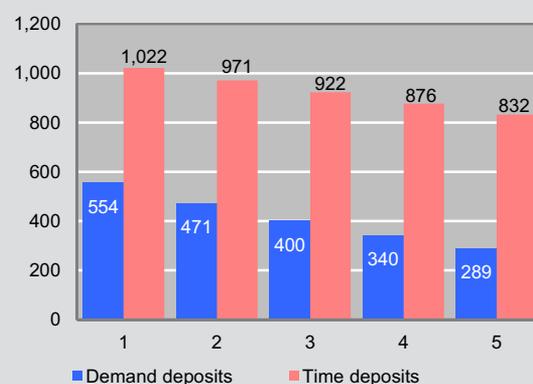
With the given confidence interval of 10%, the liquidity ratio equals 1.70, while for confidence intervals of 5% and 1%, it equals 1.66 and 1.60 respectively.

**Chart IV.2.10. The structure of demand and time deposits - daily for moderate scenario\***  
(RSD bln)



\* NBS estimate.  
Source: NBS.

**Chart IV.2.11. The structure of demand and time deposits - daily for worst case scenario\***  
(RSD bln)

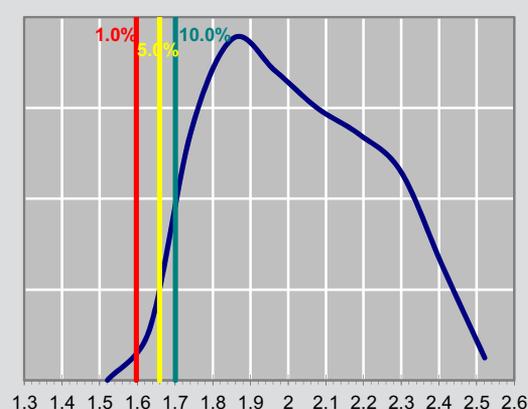


\* NBS estimate.  
Source: NBS.

In other words, we can claim with 90% certainty that the liquidity ratio in different combinations of deposit withdrawal assumptions will not fall below 1.70. Moreover, it is 99% certain that the ratio will not fall below 1.60.

As we are interested only in assumption values with a negative impact, we calculated tentative values of the variable under assumed negative effects. This produces a large number of changes in banking sector liquidity which may occur in future.

**Chart IV.2.12. Distribution and confidence intervals for liquidity ratio under stress\***



\* NBS estimate.  
Source: NBS.

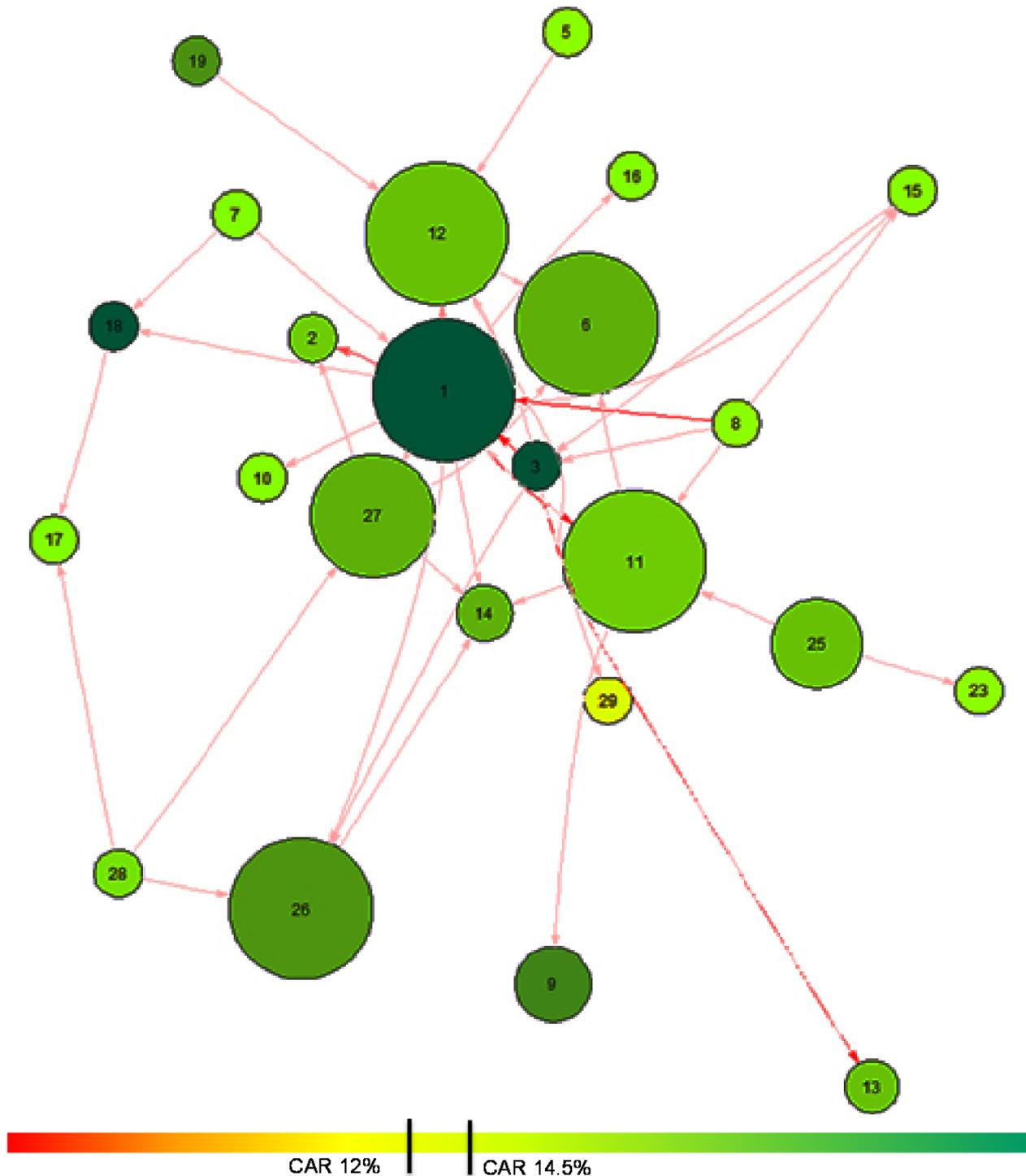
<sup>59</sup> The IMF's recommendation about the bank survival period after deposit withdrawal covers the period of five business days. After this period, it is believed that a bank will have sufficient time to consolidate its operation.

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

The 2008 financial crisis revealed the importance of observing the dynamics of mutual relations among financial institutions for the purpose of describing the systemic risk. In terms of the systemic risk, it is important to determine what financial institutions are systemically

important, whether the existing structure of mutual relations is conducive to fast transmission of the shock through the system, and notably to what extent the entire system is resilient to potential shocks. Therefore, the financial system need not be observed only as a set of institutions with particular characteristics, but it is necessary to include information on the dynamics of their mutual relations.

Chart IV.2.13. Banking network of the Republic of Serbia

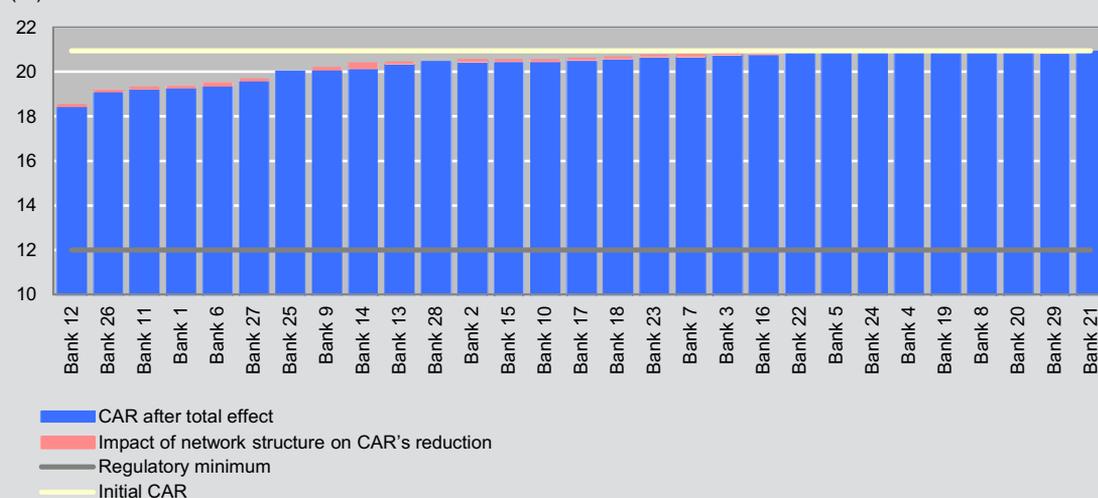


Source: NBS.

The structure describes Serbia’s 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 IV.2.13. The intensity of the edge colour indicates its weight – the greater the weight, the more intensive its colour. The edge direction is determined as follows: the edge from node *i* to node *j* relates to potential growth in required reserve

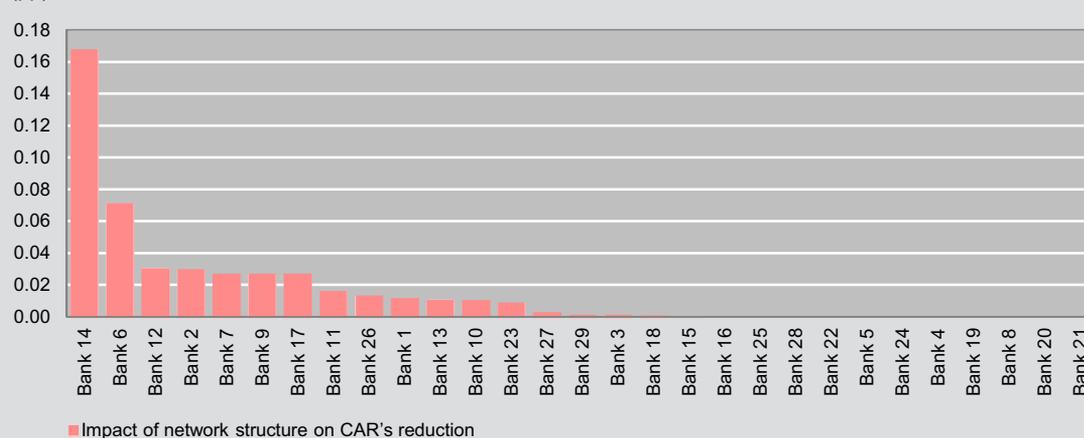
relative to the regulatory capital of bank *i*, in case of insolvency of bank *j*. The size of the circle which represents the bank shows the amount of its regulatory capital – the greater the circle, the larger the amount of regulatory capital. The circle colour indicates the level of CAR. In the spectre 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.

Chart IV.2.14. Banking sector CAR after the insolvency of an individual bank (%)



Source: NBS.

Chart IV.2.15. The impact of network structure on the banking sector of the Republic of Serbia CAR decline (pp)



Source: NBS.

Global efficiency indicates the network capacity in terms of shock transmission and equals 0.11. As global efficiency ranges between 0 and 1, while values close to 1 indicate high conductivity of shocks through the network, we can consider that global efficiency of 0.11 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, we calculated for each bank in the system the expected increase in required reserve for estimated losses. 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 CAR values obtained in the previous iteration, we obtained new probabilities of defaults for each bank (which did not become insolvent up to then). Based on this, we calculated again the expected increase in reserves for estimated losses and a new reduction in risk-weighted assets, capital and CAR. A shock is considered neutralised when further iterations show no changes in regulatory capital and risk-weighted assets of each bank. In each iteration, we can observe regulatory capital or risk-weighted assets, as well as CAR of the banking sector. Assuming the insolvency of an individual bank and the transmission of a particular shock through the system, as we have explained, the effect on each individual bank, and therefore on the system, originates from two different sources. The first 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 IV.2.14, in case of insolvency of each individual bank in the sector, shows CAR of the banking sector immediately after the assumed insolvency and the total effect of the existence of the network structure. Chart IV.2.15 shows the impact of the network structure on shock transmission, reflected in a reduction in CAR of individual banks, and/or sector, in all iterations following the first one.

The results shown in Charts IV.2.14. and IV.2.15. indicate that, in case of insolvency of any bank, CAR of the sector 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 small, which is a favourable result from the aspect of financial stability.

## Conclusion

An average CAR of the banking sector would remain above the regulatory minimum even in the worst-case scenario. The conclusion was adopted based on NPL projections performed through the multidimensional analysis of time series, their impact on the level of additional required reserves, projected changes in risk-weighted assets and off-balance sheet assets, and the projected profit buffer.

However, looking at individual banks, by end-2014 CAR may fall below the regulatory minimum in a few banks which do not hold a significant share in total balance sheet assets of the banking sector, even under the baseline projection assumptions which can be characterised as exceptionally moderate. These are banks with CAR close to the regulatory threshold in late 2013, or banks which are undercapitalised and likely to operate with losses or insignificant profit in the coming period.

As the estimate of an average CAR does not indicate a decline below the regulatory minimum even in the worst-case scenario, we conclude there is no need for urgent systemic measures to prevent financial instability. A high share of NPLs negatively impacts bank profitability and thus the access to capital and other sources of funding, which become increasingly tight amid an unabating crisis in the euro area. Consequently, lending growth slows down, which impacts on the level of NPLs.

The banking sector will remain liquid even in conditions of the largest assumed deposit outflow. Under the worst-case scenario, very few banks could enter the zone of high liquidity risk. In case the assumed scenarios materialise, the NBS may react by extending liquidity loans, i.e. by performing its lender of last resort function.

Based on network modelling, we conclude there is no significant systemic risk component in the banking sector.

## Recommendations

Despite a high degree of resilience of the Serbian banking sector to the assumed, even the most vigorous shocks, measures and activities aimed at the NPL resolution must be taken, in order to further strengthen financial stability, protect depositors and maintain public trust. Serbia has a high rate of NPLs, particularly in the corporate sector,

despite the delicensing of two banks and upgrade of the NPL regulatory framework. The main uncertainties regarding future dynamics of NPLs arise from the following:

- In 2013, the corporate financial position deteriorated. Stagnation is expected in 2014, which will push NPLs further up.

- Credit growth entered the negative zone and there are no indications of recovery in the short run. Resolution of NPLs by means of absorption or recovery of their value at zero or negative growth in loan supply is little probable.

- Adoption of harmonised NPL definitions, formulated by the EBA, may result in changed diagnostics and raise the value and share of NPLs in total sector assets.

Moreover, a **harmonised definition of NPLs and restructured loans must be adopted**. In late October 2013, the EBA released its final technical standards on **supervisory reporting on non-performing exposures and forbearance**, which will provide consistent indicators, but also leave limited scope for the flexibility of national regulators. The Vienna Initiative II recommends the use of a single standard in countries of Central, Eastern and Southeastern Europe. Given the above, **the National Action Plan of NPL Reduction must be adopted**, in cooperation with all relevant institutions. The introduction of a centralised approach must be based on the following basic principles:

a) **Minimum government intervention**, to complement negotiations between debtors and creditors, may prove efficient (as demonstrated by international experience). It would be ideal to reduce the government's role to **advisory** and particularly **coordination purposes**. This would ensure a centralised approach to process management, arbitration and mandatory implementation of agreed measures.

b) **Strict selectiveness of the centralised approach** – the aim is to resolve high-value NPLs as centralised administration of restructuring of small-value loans generates costs exceeding value added. The selection of restructuring companies must be the result of cooperation among banks, the government (as the central advisory institution) or the central bank (to the extent the system of validation of banks' internal credit ratings has been built) and international financial institutions, based on the criteria of companies' outlook and their systemic importance.

c) **Pre-emption of new NPLs** – besides NPL resolution measures, prevention measures must also be adopted. In addition to upgrading the existing decentralised resolution framework, it is necessary to institutionalise credit rating assessment, either within an independent company or the central bank. Furthermore, the level of the deposit insurance premium, to be determined according to the amount of NPLs and activities of individual banks in regard to NPL reduction, would have a double role – it would ensure faster recovery of the deposit insurance fund and prevention of further growth in NPLs.

### Text box 6: NPL determinants

Empirical research and other analytical studies have shown that in most countries NPL movements are predominantly determined by macroeconomic conditions. For this reason, macro-prudential stress tests of the National Bank of Serbia link the changes in NPLs with the impact of macroeconomic factors. Due to insufficient data to estimate Serbia-specific elasticities, in the first phase of stress-testing assumptions were made based on expert judgment and using the elasticities derived from 51 banking crises in 54 countries over ten years (1994–2004). The assumed elasticities linking key macroeconomic variables with credit risk in Serbia are -0.7, 0.3 and 0.4 for changes in output gap, exchange rate and interest rate, respectively. In the second phase, in order to empirically verify the impact of factors on the share of NPLs, we assessed the regression model of the monthly growth rate of the share of outstanding debt under loans in arrears in total outstanding debt, based on NBS data. The analysis uses the following variables which explain movements in the dependant NPL variable (LU): the nominal exchange rate of the dinar against the euro (LE), key policy rate (LR) and seasonally-adjusted real net wages (LWRS) according to the NBS and Statistical Office sources.

Since all time-series have exactly one unit root, they need to be reduced to stationary transformations – the first differences. Estimates of model parameters for the January 2009–December 2013 period, based on data on first differences of logarithmic values of series (monthly growth rates of variables) are presented in Table 0.6.1.

The estimated model shows that the variable which influences NPLs with the longest time lag (ten months) is the key policy rate, while the lag of the exchange rate and net wages equals four months. The strongest contribution to the explanation of variability of the dependant variable is provided by the exchange rate and the smallest by the key policy rate. As estimated parameters in the model represent elasticity coefficients, we may conclude that the one-percent monthly depreciation of the dinar against the euro causes a 0.58% monthly rise in NPLs after four months. On the other hand, a one-percent monthly increase in the key policy rate and seasonally-adjusted net wages leads to a monthly rise in NPLs of 0.18% or a fall of 0.34%, respectively. We highlight that individual estimates of model parameters are interpreted under the assumption of constancy (unchanged level) of other model variables. In addition to the mentioned variables, the model contains two impulse dummy variables and seasonal dummy variables for May and March, marked VS5 and VS3, respectively. The results of statistical tests show that the importance level of all variables is 1%, with the exception of wages whose importance level is 5%. Econometric tests confirm the absence of autocorrelation and the fulfilment of the assumption of normality of distribution of the stochastic model member (Table 0.6.1).

Table O.6.1. Coefficient estimates\* (%)

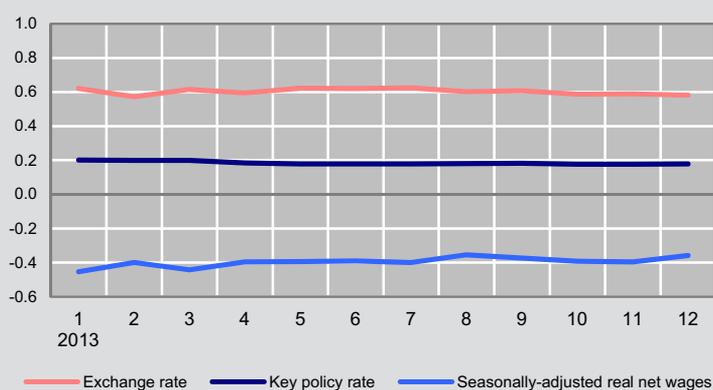
Dependent variable	DLU	
	Coefficient estimates	P-value
Constant	0.002806	0.4436
DLE (-4)	0.580797	0.0003
DLWRS (-4)	-0.35837	0.0185
DLR (-10)	0.17863	0.0026
V1 (Dec. 2009)	-0.116348	0.0000
V2 (June 2012)	-0.069884	0.0083
VS5	0.056938	0.0000
VS3	0.026296	0.0301
<b>Econometric tests</b>		
R-squared		0.6211
Prob(F-statistic)		0.0000
Prob(BLJQ(1) statistic)		0.4751
Prob(BLJQ(2) statistic)		0.2158
Prob(JB statistic)		0.9543

\* NBS estimate.

Source: NBS.

To verify the stability of model parameters, we calculated recursive coefficients (Chart 0.6.1) which represent estimated parameters obtained by shortening the analysed period by one month. These values point to a high degree of stability of the estimated model parameters. The valuation of the model prediction strength, in addition to the analysis of parameter stability, is done by comparative analysis of actual and predicted movements. Chart 0.6.2 presents actual movements in NPLs and movements predicted based on the stress test model with data as at 31 December 2013.

Chart O.6.1. Recursive elasticity coefficients\* (%)



\* NBS estimate.  
Source: NBS.

Chart O.6.2. Share of gross NPLs of the banking sector - projected and actual movements\* (%)



\* NBS estimate.  
Source: NBS.

Estimating the model as at December 2012, we predicted the share of NPLs of 21.12% for December 2013. As the actual share of gross NPLs in December 2013 was 21.37%, the prediction error in real value for the time horizon spanning from Q3 2012 to Q3 2013 was 0.25 pp and was negligibly low. The discrepancy between the projected and actual movement is most pronounced in Q1 2013 primarily due to a significant increase in new NPLs. Note that the elasticity coefficients are slightly changed because of the inclusion of the seasonal variable for March relative to the model applied until December 2012.

To improve the current methodological framework for the projection of NPLs within stress tests, we used the approximation of historical data on their movements. The estimate was made for the Q4 2005–Q2 2008 period based on data on assets classified in the categories C, D and E and data on NPLs based on the survey of 9 top banks carried out by the Association of Serbian Banks. This has enabled us to overcome the shortcomings of short time series of quarterly data on NPLs starting from Q3 2008 and also provided for the inclusion of new time series as explanatory variables. The NPLs time series with estimated movement prior to Q3 2008 are presented in Chart 0.6.3.

As noted above, the majority of empirical research explains NPLs by economic growth indicators, such as output gap or GDP growth. Hence, in order to assess the new econometric model, based on quarterly data, in addition to the explanatory variables already used in the analysis, we included time series of seasonally-adjusted real GDP (LGDP) and the rate of unemployment (LUR). The unemployment rate was calculated based on unemployment data of the National Employment Service and data of the Statistical Office.

Based on the method of gradual inclusion of the most significant explanatory variables, we estimated the econometric model presented in Table 0.6.2. for the Q1 2006–Q4 2013 period. The logarithmic values of all time series used in the model were first calculated and then reduced to the first differences, i.e. quarterly rates of growth. A major contribution of this model is the significant current impact of the quarterly growth of the seasonally-adjusted real GDP. The GDP coefficient above one reflects a high degree of sensitivity of NPLs to economic growth, which is most pronounced in case of NPLs of the corporate sector. On the other hand, NPLs of the household sector primarily depend on the rate of unemployment, which is why the importance of this factor comes as no surprise. Similar to GDP, unemployment rate has a strong current effect with a positive sign indicating that an increase in unemployment induces a rise in NPLs. The predominant share of NPLs of the corporate sector in total NPLs is most probably the reason for twice weaker current impact of the unemployment rate relative to GDP. However, unemployment rate also has a three-quarter lagged effect with the opposite sign. This impact, which is present in empirical research, is linked to the possibility of improving the financial position of an enterprise by cutting employee expenses through layoffs. The exchange rate, similar to the model using monthly data, has a two-quarter lagged

Chart O.6.3. Estimate of historical movements of the share of gross NPLs of the banking sector (%)



Table O.6.2. Coefficient estimates\* (%)

Dependent variable	DLU	
	Coefficient estimates	P-value
Constant	0.0257	0.0007
DLGDP	-1.1662	0.0246
DLE(-2)	0.4114	0.0225
DLUR	0.6329	0.0038
DLUR(-3)	-1.4068	0.0000
DLR(-1)	-0.1066	0.0256
DLR(-3)	0.1247	0.0060
<b>Econometric tests</b>		
R-squared		0.7727
Prob(F-statistic)		0.0000
Prob(BLJQ(1) statistic)		0.3864
Prob(BLJQ(2) statistic)		0.6191
Prob(JB statistic)		0.2876

\* NBS estimate.  
Source: NBS.

effect on NPLs. The lower value of the coefficient relative to the formerly used model is a consequence of the inclusion of new explanatory variables but also of the inclusion of its indirect impact through the exchange rate channel contained in the key policy rate with a one-quarter lagged effect. Hence, the key policy rate, present in the model with a one- to three-quarter lagged effect, most probably represents the exchange rate channel on the one hand, and on the other, the interest rate channel. Considering the coefficient for the exchange rate variable, we may conclude that the relation between the exchange rate channel and the interest rate reflects the degree of dinarisation. The real net wages proved not to be significant in this model.

Though this model is based on relatively short time series, its parameters are assessed as stable based on the estimated model for the period ending December 2012. In addition, the projected movement of NPLs based on the model for end-2014 is very similar to the projection based on the existing model of stress testing using monthly data. The central projection from the Inflation Report for February 2014 is assumed in the baseline GDP scenario, while the unemployment scenario represents the most probable scenario of unchanged rate of unemployment in 2014.

### Text box 7: The impact of the financial crisis through the common lender channel

Financial integration that we are all witnessing has not only led to a change in market conditions in a number of countries, but has also brought about a need to measure the financial crisis contagion from one economy to another. To gauge this impact, we need to understand how investors' decisions to invest or withdraw from one market affect other markets, that is, to what extent investment decisions depend on the situation in the financial sectors across similar economies.

Practice has shown that when a financial crisis breaks out in one country, investors from advanced economies are likely to reduce their exposure not only to the country hit by the crisis, but to other countries in the region as well. Due to the so-called common lender channel, this happens even when there is no strong direct dependence between the affected country and its regional peers. It is precisely these movements and the effects described that have led to the appearance of indirect measure of financial market integration<sup>1</sup> in literature. This measure indicates how a financial crisis in one country may affect another country through the decisions of their common lender.

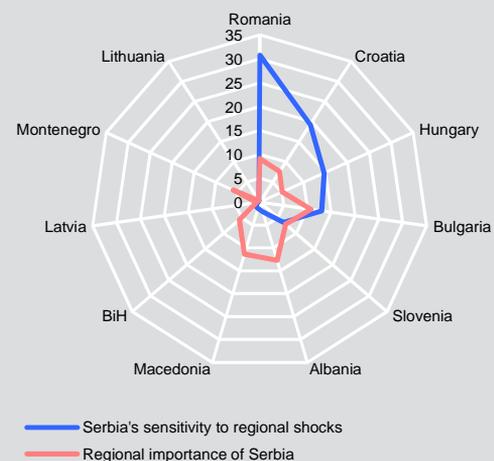
An indicator of the impact of the common lender is the measure of financial crisis spreading across countries which are reliant on the same sources of funding. It depends on the exposure of the lender's country to the private and public sector of the borrower's country and the share of debt to the common lender in total indebtedness of the financial sector of the borrower's country.

In the event of a large exposure of banks in the common lender's country to a market hit by the financial crisis, banks may be forced to withdraw their investment or to refuse to roll over their debt to other countries in the region. The larger the exposure of banks in the lender country to a specific market, irrespective of the fact that the market is not directly affected by the crisis, the larger the impact of investment withdrawal. This means that the crisis spill-over remains a possibility even in cases where financial interdependence across countries in the region is weak.

The analysis was done based on consolidated BIS reports on cross-border exposures of global banking groups. These reports cover a large number of banks and countries, which makes them suitable for comparative analyses. Analysed were the exposures of banks from eleven countries to the Republic of Serbia and CESEE countries.

The results of the analysis are shown in the grid chart O.7.1. Namely, the chart indicates that in the event of a liquidity shock in any of the countries in the region, the greatest impact on the Republic of Serbia, through the common lender channel, would be exerted by Romania, Croatia and Hungary, while the Republic of Serbia would exert the greatest impact on Albania, Macedonia and Bulgaria.

Chart O.7.1. Shock transmission via common lender channel\*



\*The indicator of the common lender impact is proportionate to the probability of financial crisis contagion from a country in the region to Serbia, i.e. to the probability of crisis contagion from Serbia to countries in the region.

Source: Bank for International Settlements.

<sup>1</sup> See M. Fratzscher (2002): *On currency crises and contagion*, ECB Working paper.

### IV.3. Financial soundness indicators

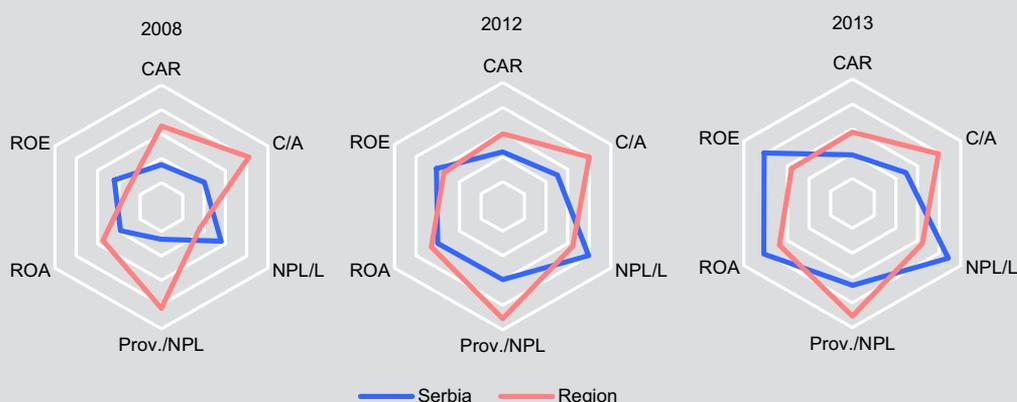
Though international comparisons call for a degree of caution, the selected financial soundness indicators suggest that the advantage held by the Serbian banking sector compared to the region average has diminished since the onset of the crisis. Two major vulnerabilities observed in 2013 concern the high share of NPLs and reduced profitability compared to 2012.

Financial stability networks (Chart IV.3.1) show the six key indicators for Serbia and the region at end-2008, 2012 and 2013: a) capital adequacy, b) balance sheet capital relative to balance sheet assets, c) share of NPLs in total loans, d) reserves for estimated losses (provisions) relative to NPLs, e) return on assets, and f) return on equity.

At end-2013, capitalisation of the domestic banking sector exceeded the regional levels, while its profitability slid below the average for the region. The share of NPLs in total loans was above the region's average, while the level of total reserves for the coverage of potential losses against NPLs was far above the region's average.

In terms of changes relative to 2008, capital adequacy of the domestic banking sector declined, while it went up in the region. Still, CAR remained significantly above the average for the region. Measured by the RoE and RoA, profitability contracted during the crisis, both at home and in the region. A decline in RoE and RoA was steeper in Serbia than in the region (by 0.6 pp and 1.5 pp respectively). The share of NPLs in total loans in 2013 relative to 2008 recorded a higher increase in Serbia than other countries of the region.

Chart IV.3.1. **Financial soundness of the Serbian banking sector compared to regional average**



Notes:

1) The Chart shows standardised values of the most common Financial Soundness Indicators: CAR - Capital Adequacy Ratio (Regulatory Capital to Risk-Weighted Assets); C/A - Capital to assets; NPL/L - Gross NPLs to Total Gross Loans; P/NPL - Provisions to Gross NPLs; ROA - Return on Assets; ROE - Return on Equity.

2) Greater distance from the network centre indicates greater risk.

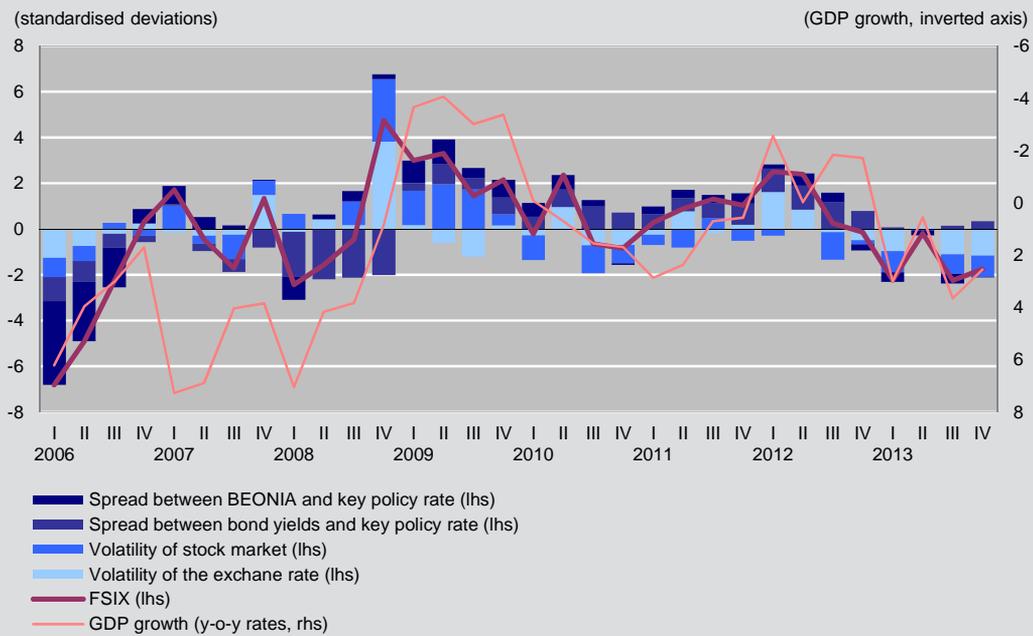
3) The region refers to CEE countries: Albania, Bosnia and Herzegovina, Bulgaria, Latvia, Lithuania, Hungary, FYRM, Poland, Romania, Turkey, Croatia and Montenegro. Region FSIs are non-weighted averages of the individual countries' FSIs.

Sources: NBS and IMF: GFSR.

The financial stress index (FSIX) is a composite indicator of financial soundness, based on the IMF's methodology.<sup>60</sup> The index was introduced to identify episodes of high financial stress, their culmination and duration. It covers the key financial sector variables relevant for real economic activity. Positive values suggest an above-average financial stress level in the Serbian market, while negative values

point to a below-average level. As expected, GDP growth is inversely proportional to FSIX.<sup>61</sup> Because of the below-average volatility of the stock market and the exchange rate, as well as a rise in GDP, FSIX turned negative in 2013. In other words, given the continuous below-average FSIX, the financial soundness of the Serbian banking sector in 2013 may be assessed as positive.

Chart IV.3.2. **Financial Stress Index (FSIX) and GDP growth**



Source: IMF.

<sup>60</sup> For more information on the methodology, see the Annual Financial Stability Report for 2012.

<sup>61</sup> The coefficient of correlation between GDP growth and FSIX was -0.6.

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