Bank of Russia
The Central Bank of the Russian Federation

No. 2
Q2 – Q3 2016

Information and Analytical Review

FINANCIAL STABILITY REVIEW

Moscow

All statistical data and calculations in this Review are provided as of 1 October 2016.

This Review is released in the Russian and English languages on the Bank of Russia's website (http://www.cbr.ru/publ/?PrtId=stability).

For notes, comments, and proposals relating to the Review's structure and content, please contact the Bank of Russia via e-mail: reports@cbr.ru.

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SUMMARY

Main findings

In 2016 Q2-Q3 the Russian economy continued to adjust to low oil price environment. Capital outflow in January-September 2016 amounted to $9.6 billion – the lowest since 2008. Banking sector profitability and liquidity recovery strengthen the resilience of the Russian financial system. At the same time the following main risks remain:

External risks include low global economic growth, uncertainties about UK and US economic policies, possible risks of the US federal funds rate increase, potential problems in the Chinese banking sector. Oil prices decline and capital outflow could serve as the main contagion channels for the Russian economy. According to the Bank of Russia estimates, banks increased their resilience to shocks in 2016. The Bank of Russia may use its toolkit of stabilisation measures where appropriate.

Credit risk remains the main risk for the banking sector. This type of risk demonstrates signs of stabilisation: some stressed industries showed negative trends in credit quality while others demonstrate improvement. Nevertheless, if external conditions deteriorate, the financial position of companies may worsen, which will give rise to credit risk.

Considering the negative experience of 2014-2015, when active foreign currency lending by banks amplified volatility in financial markets, in 2016 the Bank of Russia implemented macroprudential policy aimed at reducing dollarization of assets and liabilities of the banking sector.

Growth of budget deficit backed by low oil prices and potential difficulties of fiscal consolidation may alter sovereign risks and cause persistently high cost of borrowings. High budget deficit leads to either fast exhaustion of the Reserve Fund or higher public borrowings, which may have a negative impact on the debt market. The current program of fiscal consolidation and public borrowings seems well balanced, however, plans for fiscal consolidation should be fully implemented in order to maintain financial stability. Monitoring the financial sustainability of quasi-government borrowers (regions, development institutions, public corporations) is also important.

Apart from possible materialisation of these risks, the Bank of Russia acknowledges the possibility of a positive scenario which involves capital inflow, lower costs of borrowings and accelerated credit growth rates. These factors may lead to bubbles in financial markets, which will be addressed by marcroprudential measures of the Bank of Russia.

Assessment of risks of the financial system and its sectors

External risks

The reporting period observed an improvement of external environment: foreign capital inflow into EMEs continued backed by accommodative monetary policies of major central banks, while prices on commodities recovered. Russian sovereign bond yields returned to the level of the beginning of 2014, the share of foreign investors in the OFZ market reached its maximum of 27%.

Nevertheless, economic recovery may be hindered by the expected rise of the US federal funds rate. The recent months the increase in the cost of USD funding has been observed – both interbank lending rate (LIBOR) and foreign currency swap spreads in domestic markets of some countries. Given the persistent imbalances in the number of countries including high debt burden of the corporate sector and high credit risks of the banking sector (e.g. in China) and also the weak mid-term economic outlook, the

US federal funds rate increase can cause a negative revaluation of assets and capital outflow from EMEs. Uncertainties about the exit of Great Britain from the European Union also serve as a source of volatility. In case of investors' risk appetite reduction, a negative revaluation of oil prices is plausible.

The Bank of Russia estimates the maximum amount of external loan redemptions by companies and banks at around $14 billion in December 2016 and $20 billion in 2017 Q1. A survey of 27 biggest banks conducted by the Bank of Russia in October 2016 revealed that the combined positive gap of foreign currency (the difference between assets and liabilities with a maturity date of up to 1 July 2017) amounts to $60.3 billion (in the previous year it amounted to $54.6 billion), which proves that FX liquidity conditions have improved. Banks can utilize the Bank of Russia refinancing instruments to cover short-term mismatches if necessary.

The consequences of the LIBOR increase for Russian companies are limited since the share of their debt portfolio bind to LIBOR is relatively low and the impact of higher LIBOR on interest payments is not substantial.

Banking sector's risks

Conditions in the banking sector are gradually improving, which is reflected by the increase in the financial result estimated at around 632 billion rubles over nine months of 2016 – five times the amount of the same period of 2015, 430 banks out of 644 showed total profits of 875 billion rubles. The financial position of retail banks significantly improved: the annualised return on equity amounted to 8.8% on 1 October 2016 (-11.9% on 1 October 2015). Given increased amounts of new loans issued by state-owned banks and the low-base effect, moderate positive growth rates of unsecured retail lending are expected.

The corporate credit portfolio growth remains moderate: annual growth rates of ruble denominated loans lowered by 2.1 p.p. from 1 April 2016 to 1 October 2016 and amounted to 3.2%. The share of IV and V categories of loans increased in the above-mentioned period by 0.5 p.p. and amounted to 10.6%. The growth of the share of bad loans is still inherent to non-tradable sector – construction, real estate, wholesale and retail trade.

In the fast growing financial technology environment, Russia, together with the rest of the world, has seen an increase in cyber risks. These cases have not been systemic yet, although cyber risks potentially can have severe implications for the financial system. In this respect the efforts of credit institutions to improve their information systems and other risk management aspects, as well as information exchange on cyber-attacks with regulators and other market participants, gain more importance.

Non-bank financial organisations' risks

According to the survey of 39 biggest leasing companies, leasing, which is the second largest segment of the financial services market, continued its contraction in the reported period backed by negative investment dynamics. Combined volume of market portfolio of these companies contracted by 7% by 1 July 2016 comparing to the level of 1 July 2015. The share of restructured loans in leasing portfolio in this period increased from 1.8% to 3.8%. At the same time the amount of overdue debt (NPL 90+) contracted by 40% and the share of overdue debt in the leasing portfolio contracted by 2 p.p. (from 6.8% to 4.8%). Considering the high importance of the leasing market in Russia, in October 2016 the National Council on Ensuring Financial Stability (FSC) agreed to implement the leasing sector reform in 2017-2018 aimed at improving the legal framework for leasing activities, and enhancing transparency of leasing and protection of lessors' interests and lessees' rights. It is anticipated that by 2019 leasing companies will switch over to the book of accounts for non-credit financial organisations and will adhere to IFRS standards. In 2017 it is planned to create a self-regulatory organisation in the leasing market which will develop standards for the industry.

The dynamics of insurance premia for most common types of insurance showed positive trends. In the fully comprehensive insurance (CASCO) segment the contraction of premia collection continued but

insurance companies managed to lower the loss ratio significantly. In the compulsory motor third party liabilities (OSAGO) segment insurance companies bore increased losses due to insurance fraud and judicial practice. Limitations on offerings by insurance companies in certain regions caused problems with the OSAGO availability, which were addressed by the "single agent" system of the Russian Association of Motor Insurance Companies and by amendments in legislation which obliged insurance companies to sell electronic OSAGO policies and ensure the continuity of servicing of these policies.

The amount of pension savings of all NPFs in the first half of 2016 increased by 303 billion rubles and reached 2 023 billion rubles, first of all due to the transfer of funds from the Pension Fund of Russia and also due to the positive investment profitability of NPFs. At the same time investment risks of NPFs' portfolios did not change substantially in 2016 Q2.

Macroprudential Policy

Reducing dollarization of assets and liabilities of the banking sector

In order to limit systemic risks of the high share of banks' assets denominated in foreign currency, the Bank of Russia increased the risk weight of foreign currency loans to non-financial organisations from 100 to 110%[1]. The same measure is applied to exposures to debt securities denominated in foreign currencies. The risk weight on loans in foreign currency to legal entities for the purpose of real estate purchase was increased from 100 to 130%. In order to discourage the growth of foreign currency liabilities of banks, the Bank of Russia increased the mandatory reserve requirements for credit institutions' liabilities denominated in foreign currency in three phases (in total by 1.75 p.p. for liabilities to households in foreign currency – to 6% and by 2.75 p.p. for other liabilities in foreign currency – to 7%).

The measures implemented helped to reduce the supply of foreign currency denominated loans in favour of ruble-denominated ones. The portfolio of loans to non-financial organisations denominated in foreign currency contracted by $12.3 billion (or 775.8 billion rubles, taking into account FX revaluation) from 1 April to 1 October 2016, while the portfolio of ruble-denominated loans increased by 225.4 billion rubles. This was partially caused by the contraction of legal entities' foreign currency deposits, which amounted to $6 billion in 2015 and $15 billion in January-September 2016. The contraction of non-financial organisations' foreign currency denominated deposits is also caused by the redemptions of external debt and lower oil prices in 2016. At the same time, ruble-denominated liabilities raised from organisations grew by 10.1% (in 2015 – by 4.7%), which points to the effectiveness of measures implemented by the Bank of Russia to reduce dollarization.

Development of macroprudential measures to reduce risks in the unsecured retail lending market

Currently the retail lending market does not show any signs of overheating and is only starting to recover. At the same time lower interest rates have highlighted the need for adjusting the risk weights for unsecured retail loans with regard to the full loan value.

The experience of the Bank of Russia and other countries shows the importance of having an effective toolkit of macroprudential instruments in advance. Regulation based on the ratio of borrowers' debt to income (DTI) is a widely spread practice. The Bank of Russia is currently studying the possibilities of potential implementation of this instrument into the regulation and supervision of banks in case the market shows signs of overheating.

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[1] Excluding loans to Russian residents with foreign currency revenues in the nearest financial year equals to no less than 60% of total revenue and no less than 120% of total debt service payments in the current year denominated in the same currency as revenue. The requirement on the match between currencies of loan and revenue does not apply to international reserve currencies used by the IMF in the SDR valuation process.

Oversight of public development institutions

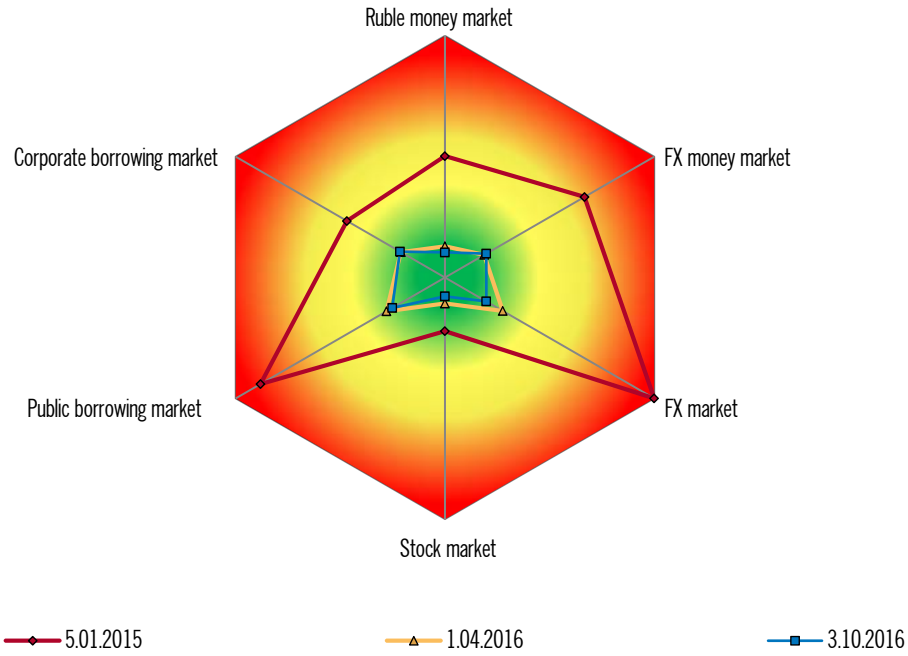
Amid reduction in oil and gas budget revenues and sovereign funds exhaustion, a necessary precondition for maintaining financial stability in the long run is to cut budget deficit and limit the debt level. In this process it is very important to take into account not only the debt of the Ministry of Finance of the Russian Federation, but that of regional budgets as well and also that of development institutions and public corporations. In this regard the FSC established two working groups for the assessment of potential systemic risks of the Agency for Housing Mortgage Lending (AHML), the Federal Corporation for Development of Small and Medium Enterprises, the Bank for Development (Vnesheconombank) and the Fund for Industry Development. The aim of these working groups is to make proposals for development strategies of these organisations, risk management improvement, increase of their efficiency in order to minimise budget risks.

RISK MAP

The situation in the Russian financial market continued to improve in 2016 Q2-Q3 amid the persistence of the relatively favourable foreign market situation, despite the Brexit factor. Credit risk remained a key risk of the banking sector.

Chart 1

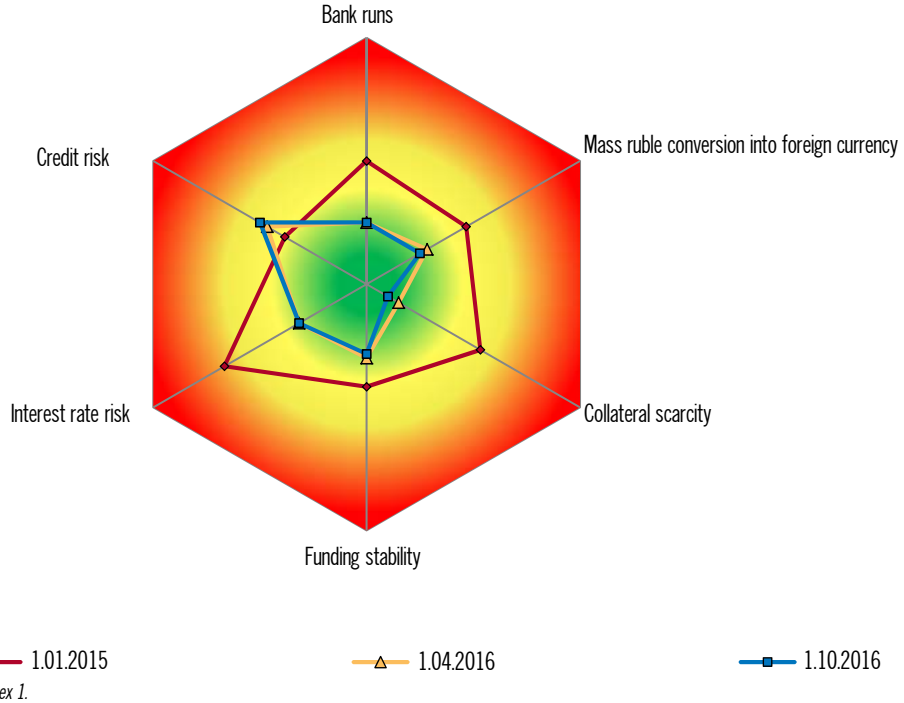
Key Russian financial market indicators* (units)



** Calculation methodology is described in Annex 1.*
Source: Bank of Russia.

Chart 2

Key banking sector indicators* (units)



** Calculation methodology is described in Annex 1.*
Source: Bank of Russia.

1. GLOBAL ECONOMIC AND FINANCIAL MARKET RISKS

While global financial and commodity markets remained stable in the period under review, new upsurges of volatility are possible in the short-term perspective. Imbalances continue accumulating in many countries amid the persistence of low interest rates (the fall of banks' profitability and the growth of the debt burden) while fundamental macroeconomic indicators remain weak. A further increase of the US Federal Reserve's interest rate and the subsequent growth of the cost of borrowings, the economic slowdown and higher credit risks in China and the persisting uncertainty over the terms of Great Britain's exit from the European Union (Brexit) are the key potential triggers of volatility.

In the period under review, many international organisations and national regulators[1] lowered their economic growth forecasts. In the IMF's estimates as of October 2016, the world's GDP growth will slow down in 2016 to 3.1% from 3.2% in 2015 and equal 3.4% in 2017 (Table 1). Considering low inflation and weak economic growth, the leading central banks continued their monetary stimulus policies. The US Federal Reserve left its key rate unchanged at its September meeting and the rate increase is expected in December 2016. The European Central Bank (ECB), the Bank of Japan and the Bank of England expanded their asset purchase programmes in the period under review. The ECB also launched TLTRO-II as the next stage of its targeted longer-term refinancing programme while the Bank of England lowered its key rate to 0.25% for the first time since March 2009.

The leading central banks continued their accommodative monetary policies, which contributed to low volatility in global financial markets in the period under review (Chart 3). The implied volatility of equity indices returned to minimum levels on a long-term interval (15 years). The historical volatility of Brent crude oil prices fell considerably compared to the beginning of the year but still remained increased (40%). Capital inflows into emerging market economies resumed in July-September 2016. According to the EPFR's data, the net capital inflow into the funds investing in the equities and bonds of emerging market economies reached a record $24.2 billion in July 2016 since February 2013 ($16.2 billion in August 2016). Nonetheless, the following key global risks are observed in world markets.

INCREASE IN THE COST OF BORROWINGS IN US DOLLARS

The cost of borrowings in US dollars is currently growing in global markets despite the persistence of accommodative conditions. This is facilitated by the expectations of the US Federal Reserve's further key rate increase. According to Bloomberg data, the probability of the Fed's rate hike in December 2016 has come close to 100% (as of November

Table 1

GDP growth rates (%)

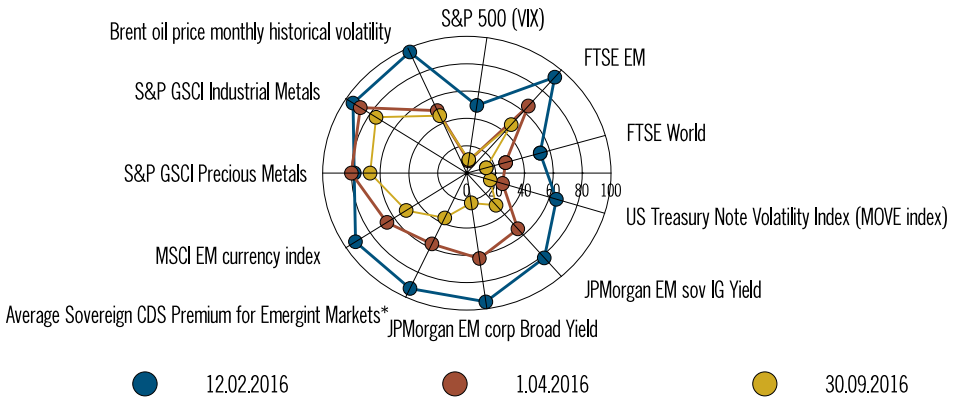
	GDP growth rates (%)				Deviation from April 2016 forecast (pp)	
	2014	2015	October 2016 forecast		2016	2017
			2016	2017		
World	3,4	3,2	3,1	3,4	-0,1	-0,1
Developed countries	1,8	2,1	1,6	1,8	-0,3	-0,2
United States	2,4	2,6	1,6	2,2	-0,8	-0,3
United Kingdom	2,9	2,2	1,8	1,1	-0,1	-1,1
Eurozone	0,9	2,0	1,7	1,5	0,2	-0,1
Japan	0,0	0,5	0,5	0,6	0,0	0,7
Emerging markets & developing countries	4,6	4,0	4,2	4,6	0,1	0,0
China	7,3	6,9	6,6	6,2	0,1	0,0
India	7,3	7,6	7,6	7,6	0,1	0,1
Russia	0,6	-3,7	-0,8	1,1	1,0	0,3
Brazil	0,1	-3,8	-3,3	0,5	0,5	0,5
South Africa	1,5	1,3	0,1	0,8	-0,5	-0,4
Mexico	2,3	2,5	2,1	2,3	-0,3	-0,3

Source: IMF.

[1] *The US Federal Reserve lowered in September 2016 its outlook for economic growth in 2016 from 2% to 1.8% and kept its forecast on growth in 2017 at 2% while the European Central Bank slightly improved in September 2016 its expectation of economic growth in 2016 from 1.6% to 1.7% but downgraded its forecast for 2017 from 1.7% to 1.6%.*

Chart 3

Changes in key global financial market indicators (units)



** The sample includes: China, Brazil, South Africa, Indonesia, Philippines, Malaysia, Mexico, Peru, Chile, Turkey, Hungary, Poland.*
Note: Scale of 0 to 100 units reflects minimum and maximum values of the indicators on time horizon from January 1, 2012 to October 1, 2016.
From centre to periphery: the fall of stock indexes, the growth of VIX volatility, the growth of Brent volatility, the decline in the prices of industrial and precious metals, the weakening of emerging market currencies, the growth of yields on (government and corporate bonds, the increase of sovereign CDS premiums.

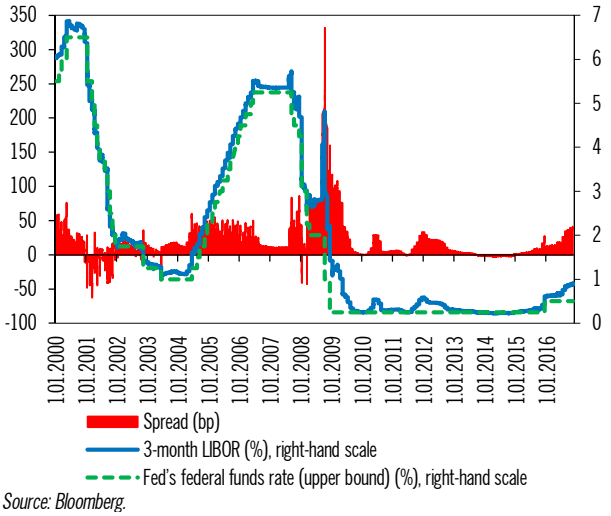
Source: Bloomberg.

24, 2016). At the same time, the prospects of the US economy's development are becoming less certain, considering possible changes in the US trade and immigration policies and changes in the fiscal sphere after the victory of Donald Trump at the presidential elections in the United States.

The 3-month US dollar LIBOR rate rose to 0.92% (the highest level since May 2009) amid the persisting expectations of the US Federal Reserve's key rate increase while the spread between LIBOR and the Fed's key rate has increased noticeably in the past few months (to 42 bps) (Chart 4). The LIBOR rate is observed to rise also due to the money market funds reforms, which the US Securities Exchange Commission (SEC) is implementing. The new rules came into force in October 2016 (Box 1).

Chart 4

Spread between the Fed's federal funds rate and 3-month LIBOR dollar rate



Source: Bloomberg.

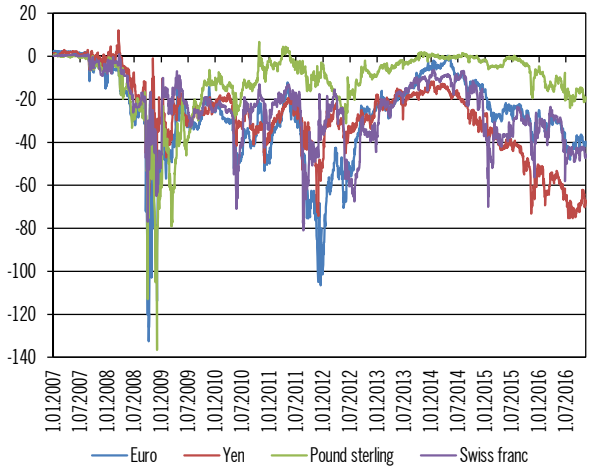
US dollar-denominated rates are also growing in offshore markets. The demand for US dollars is primarily growing in Europe and Japan amid divergent monetary policies.

The cross-currency swap basis reflecting premium to the US dollar LIBOR rate (calculated as the difference between the US dollar-denominated LIBOR interest rate and the US dollar rate in cross-currency swaps for relevant maturities) serves as an indicator of the increase in the cost of borrowings outside the United States. In developed countries, the considerable increase in the cost of the US dollar has been observed in the past few years. The LIBOR premium in the eurozone, the UK and Japan has risen by 44, 25 and 65 bps since the beginning of 2014 to 49, 24 and 78 bps, respectively (Chart 5). Among emerging market economies, the LIBOR premium has increased in China, Turkey and Russia by 45, 37 and 36 bps, respectively, since the US Federal Reserve System raised its key rate. However, this premium so far stays at acceptable levels in many emerging market economies, including Russia (about 100 bps) (Chart 6).

Therefore, the cost of US dollar-denominated borrowings can be expected to increase further in global markets compared with the cost of borrowings in the United States as the US Federal Reserve continues to normalise its policy, which will adversely affect countries with a high level of their

Chart 5

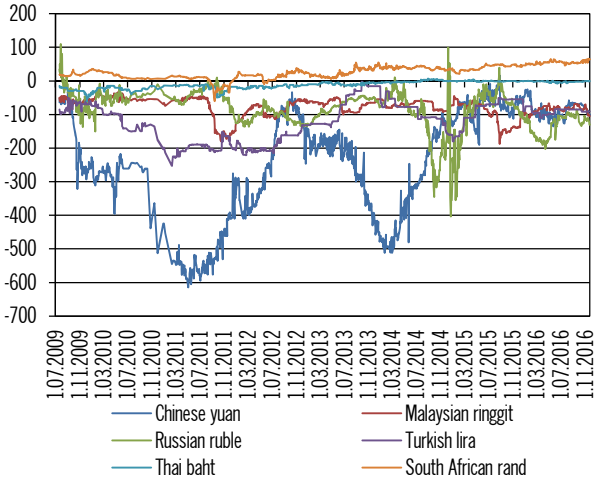
Cross-currency spreads in developed countries (bp)



Source: Bloomberg.

Chart 6

Cross-currency spreads in emerging market economies (bp)



Source: Bloomberg.

economies' dollarization, including the countries that have accumulated a considerable volume of debt obligations denominated in foreign currency.

The increase in the LIBOR interest rate has quite a limited effect on Russian companies considering that the share of their debt portfolio linked to the LIBOR rate remains low. Foreign currency funding was largely raised by big exporters with high creditworthiness. At the same time, a LIBOR floating rate and some spread established depending on the terms of a transaction and the borrower's credit quality are traditionally applied only to bilateral and syndicated lending and actually are not used in the practice of raising funds through Eurobond issues.

Box 1.
Money Market Fund Reform in the United States

The US Securities and Exchange Commission (SEC) adopted rules on 14 October 2016 aimed at making a number of considerable changes in the activity of money market funds (MMFs) in the United States. The ongoing changes can be divided into three basic areas: the classification of funds, the method of evaluating the value of investment units and the rules of redemptions.

1. New classification of retail and institutional funds. Before the reform, money market funds were not clearly distinguished as retail and institutional entities and financial consultants assigned funds to one or the other category depending on the minimum investment threshold. At the same time, institutional investors were not banned from investing in retail funds. Starting from 14 October, the funds defined as retail operators under the SEC rules can take investments only from private individuals. At the same time, no ban is stipulated for private individuals' investments in institutional money market funds. Therefore, retail funds are the funds where only private individuals can be their beneficiaries while institutional funds include all the other entities.

2. The required floating NAVs for money market funds

This approach requires money market funds to calculate investors' holdings daily using the market-based value of assets, in which they invest. This measure applies only to institutional funds as they are believed to be especially exposed to the risk of a depositors' run. Retail funds (including funds investing in government securities) will be able to continue rounding off the value of investment holdings to $1.00 per share. US money market funds experienced investors' runs during the latest global financial crisis, which considerably increased financial market volatility. As a result, the money market fund reform (reducing the reducing of susceptibility of MMFs to runs) was included in the list of the areas of work of the Financial Stability Board (FSB) to enhance supervision and regulation of the shadow banking system.

3. New rules of imposing fees on withdrawals and suspending redemptions. The new rules allow money market funds to impose fees on investors. Specifically, if a fund's liquid assets fall below 30% of its total assets (the regulatory

minimum), its management can decide to impose a fee of up to 2% on redemptions and suspend redemptions for a term of 10 business days.

These rules do not apply in an obligatory manner to the funds investing in government securities. However, these funds can use these rules, if necessary. The new rules also require money market funds to daily disclose information on their liquid assets, fees, suspensions, etc. on their websites.

Impact of the reform on the market

As a whole, industry representatives perceived the reform positively, recognising its beneficial effect on the funds' sustainability. They also noted that the largest changes would apply to institutional investors. The reform has prompted cash outflows from money market funds into funds investing in government securities. At the same time, funds that can invest in a wide range of instruments are forced to build up the share of liquid assets. These factors are pushing up interbank loan rates and yields of commercial papers and other money market products.

A poll of major Russian credit institutions held by the Bank of Russia in October 2016 showed that the share of loans to companies at floating rates did not exceed 20%. At the same time, according to Cbonds data, the median credit spread of companies' public loans relative to the LIBOR rate equals about 245 bps, which means the LIBOR holds a small share in the floating rate structure and its increase will cause an insignificant growth of interest rate payments.

Deterioration of the situation in China's economy and banking sector

The fears of a sharp slowdown in China's economic growth slightly weakened in the period under review. According to the IMF's estimates, China's economic growth will slow down from 6.9% in 2015 to 6.6% in 2016 and 6.2% in 2017. At the same time, market participants' substantial fears continue to be related to China's highly non-transparent banking sector. According to data of the Bank for International Settlements, the debt of the country's non-financial sector amounted to 210% of GDP in the first quarter of 2016. China is characterised by an extremely low share of companies' financing through their own funds, which contributes to the high loan burden. At present, the share of bad loans in the portfolios of Chinese banks officially equals 1.8% but this share may actually be higher, considering the practice of loan restructuring. In the estimates of Fitch rating agency, the share of bad loans in Chinese economy may be as high as 15-21%.[2]

Investors' concerns about the credit quality of banks' portfolios are evidenced, in particular, by the market value of the shares of the four largest Chinese banks on the list of global systemically important banks, which is currently below their book value. These banks' price-to-book ratio equals 0.7-0.8 and is at the minimum levels for the past 10 years. The Chinese authorities are working out measures to reduce systemic risks in the banking sector, including draft rules (as of July 2016) for limiting the issuance of wealth management products (WMP) and the share of underlying low-liquidity assets.

Considering the high degree of China's involvement in the world economy through trade and financial ties, negative consequences for other countries, especially emerging market economies, may prove to be considerable, if shocks materialise. It should be noted, however, that the Chinese authorities have the possibilities to prevent the worst-case scenario and settle the stress situation.

Formation of bubbles in financial markets

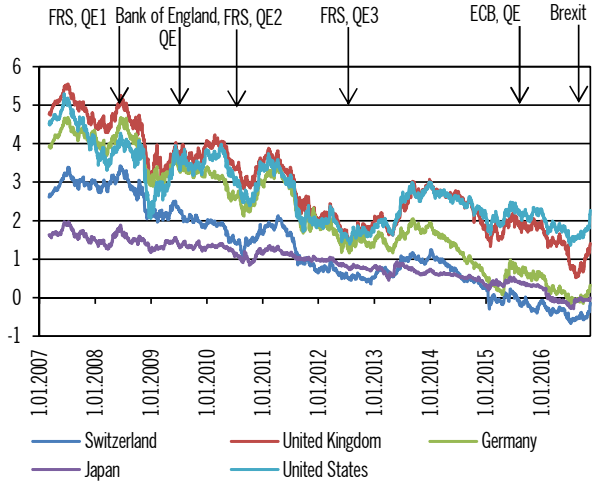
As the leading central banks continue their accommodative policies, super-low yields have been observed to develop in sovereign bond markets in recent years along with bubbles in some segments of the global financial market, which is facilitated by the increase of the investors' risk appetite. The low (and even negative) rates on sovereign bonds reflect accommodative monetary policies conducted in the euro area, Switzerland and Japan (Chart 7).

The extent of matches between the yields of sovereign bonds and fundamental macroeconomic

[2] *CNBC International. http://www.cnbc.com / 2016 / 09 / 23 / chinastoxic-debt-pile-may-be-10x-official-estimates-fitch.html.*

Chart 7

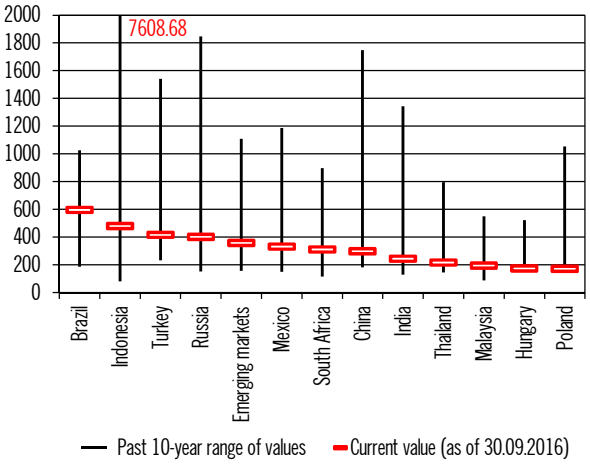
Yields of ten-year government bonds of several developed countries (%)



Source: Bloomberg.

Chart 8

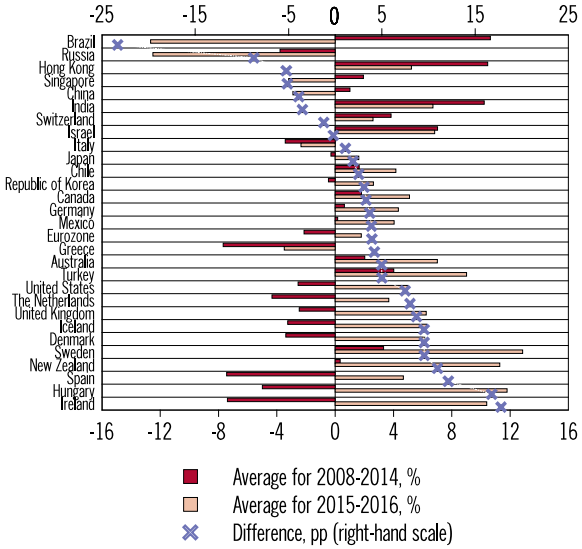
Spreads of corporate yields in emerging market economies (bp)



Source: Bloomberg.

Chart 9

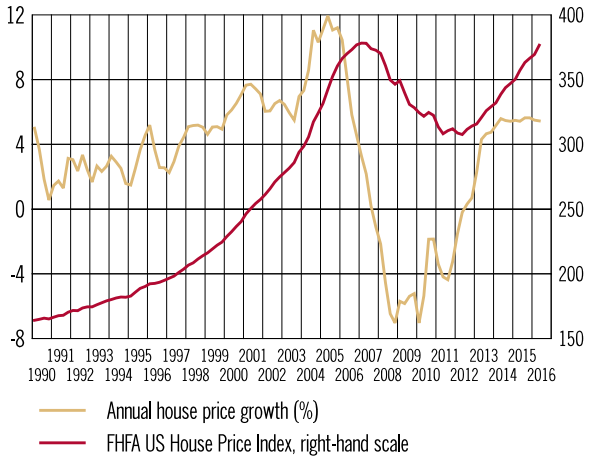
Annual growth in real housing prices in different countries



Source: BIS.

Chart 10

US house prices



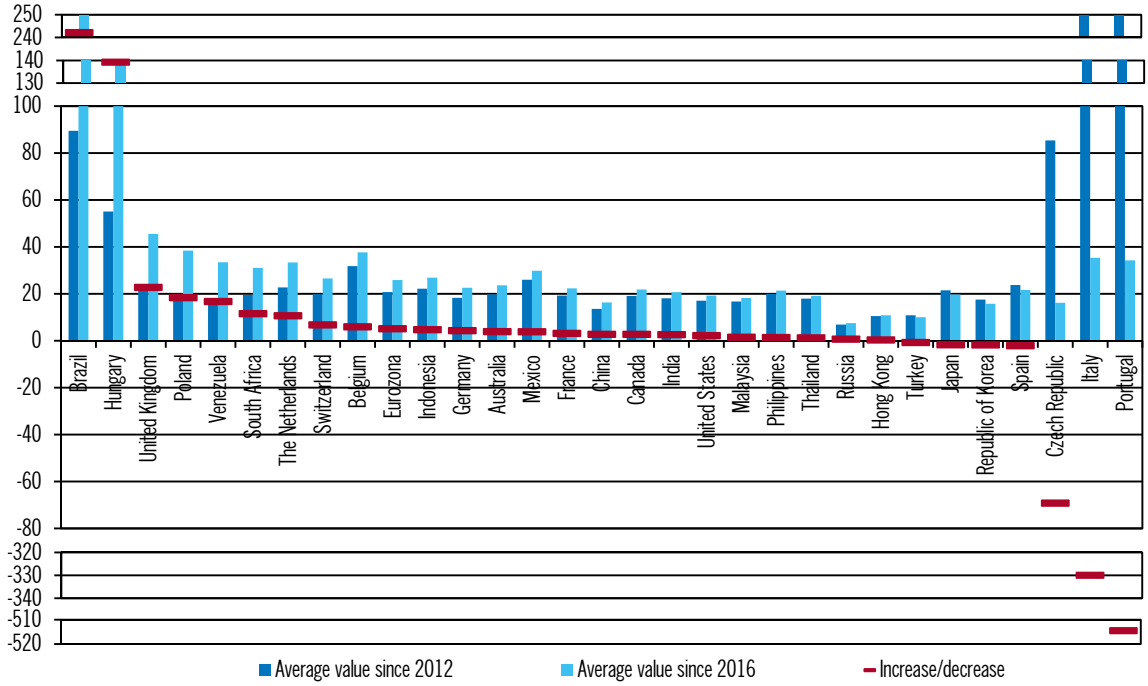
Source: Federal Housing Finance Agency (FHFA), Bloomberg.

factors, especially in problem euro area countries, remains an open question. For example, the spreads between the yields of two-year government bonds of some peripheral European countries (Spain with the S&P rating of BBB+ and Italy rated as BBB- by S&P) and Germany's bonds (the S&P rating of AAA) have been observed to stay since early 2014 at levels that were typical before the ratings' review. In a longer run, as other central banks gradually tighten their policies, apart from the US Federal Reserve, sovereign bond markets will inevitably see a trend correction and yields are likely to increase. The purchase of sovereign bonds at a higher price means that their holder will register losses when they are redeemed at their par value.

A considerable revaluation of bonds is observed in the market of risk assets. Amid low risk-free yields, market participants are channeling their freely available resources into more risky instruments in the search for yield, which is increasing the demand for them. The risk premium on many corporate bonds of emerging market economies has dropped to very low levels, which may evidence that market participants underestimate possible risks. The JP Morgan CEMBI Broad Composite Spread between the yields of corporate and sovereign bonds of

Chart 11

P/E ratio in different countries



Source: Bloomberg.

emerging market economies has dropped to the level of 370 bps registered at the beginning of 2008 and 2014. In many countries, this indicator is close to minimum levels of the past 10 years (Chart 8).

Some countries are witnessing a recovery of real estate markets that were seriously affected during the global financial crisis of 2007-2009 (Chart 9). US house prices grew at an annual rate of 6.4% in August 2016 and the FHFA US House Price Index reached the level preceding the subprime mortgage crisis (Chart 10). A boom in the real estate market is traditionally observed in the period of low interest rates and may give way to a decline when monetary conditions are tightened.

No clear bubble signs can be found in equity markets when the price of equities is compared with the fundamental indicators of the activity of companies and banks. As a whole, the P/E ratio dynamics looks quite stable; however, this indicator has been growing substantially in some countries since the beginning of 2012 and points to potential risks of equity revaluation (Chart 11). In Russia, the P/E ratio is among the lowest in the world (for the equities included in the MICEX index, this ratio equalled 8.5 as of 24 November 2016), which is attributable to the relatively high level of interest rates (the expected equity yields normally exceed bond yields) and the expectations of slow economic growth. At the same time, this ratio has been observed to grow in some sectors lately (for details, see Box 9).

Global Banks' Problems

The market fears about the creditworthiness of global financial institutions, first of all, European banks, intensified since early 2016. The Euro Stoxx composite index reflecting the dynamics of banks' equities plunged by 35% in the first half of 2016 to the level of mid-2012 when the index hit its lows after the aggravation of the eurozone debt crisis (it fell by 17.5% from early 2016 to November 24). The banking sector's profitability is affected by negative interest rates amid the ECB's stimulus measures. The results of stress tests held by the ECB and the European Banking Authority (EBA) for 51 European banks whose assets account for 70% of the EU banking system's assets have shown that most European lenders will maintain adequate capital ratios in a crisis scenario. Nevertheless, a high level of credit risk persists in Europe (the total volume of overdue loans held by all the stress test participants exceeded 1 trillion euros).

Share of bad loans remain at very high levels in Greece and Cyprus (about 45% of the portfolio), Portugal (about 20%), Italy and Spain (about 15%).

The market participants' fears about the sustainability of Germany's Deutsche Bank AG, which reappeared in late September 2016, are an important indicator of the unresolved nature of problems in the European banking sector. The cost of raising US dollars in the European market through euro-dollar currency swaps increased sharply after the US Department of Justice demanded that Deutsche Bank pay a penalty for improperly valuating mortgage derivatives before the 2008 financial crisis. Amid this background, the cost of raising US dollars in the Russian market of currency swaps also increased on 30 September 2016. However, the situation quickly came to normal.

UK's exit from the European Union (Brexit)

Along with the uncertainty of the prospects of the world economic growth, a new risk factor – the United Kingdom's exit from the European Union (Brexit) – has emerged. Immediately after the referendum results were announced, volatility was observed to increase in global financial markets (the fall of stock indices, the weakening of the Pound sterling). UK closed-end real estate funds were confronted with a depositors' run and some of them were forced to suspend redemptions. The FTSE 350 Real Estate Investment Trust Sector Index fell by 17% from the beginning of 2016 to 24 November 2016. Global markets stabilised quite quickly; however, Brexit remains an important factor of the potential increase in market volatility. Thus, the depreciation of the Pound sterling against the US dollar and the euro accelerated in October 2016 amid the rising expectations of Brexit's tough scenario materialisation. The Pound sterling suffered a flash crash at the beginning of trades in Asian markets on 7 October 2016: the UK currency weakened by 6% against the US dollar within several minutes, which was largely due to the prevalence of algorithmic trading in the market (for details about other flash crash cases, see Box 2). Brexit's long-term consequences remain unclear. Brexit will primarily adversely affect the UK economic growth, and may also have a negative effect on the economy of European countries and the world economy as a whole. According to a statement by UK Prime Minister Theresa May, the process of the country's exit from the EU in accordance with article 50 of the Treaty of Lisbon will be launched by the end of March 2017.[3] According to estimates of the consulting company Oliver Wyman[4], UK banks will fully lose access to the common market in the worst-case scenario, which will lead to a fall in revenues by 32-38 billion British pounds and threaten 65,000-75,000 jobs.

Brexit's impact on the financial and trade ties between Russia and the United Kingdom will probably be quite moderate, including amid Western sanctions against Russia and the restricted access to international capital markets.

The Russian banks' assets relative to UK residents have decreased considerably in US dollar terms in recent years: from $51.9 billion as of 1 January 2014 to $18.8 billion as of 1 October 2016 (according to preliminary estimates). The volume of Russian banks' liabilities to UK residents fell over this period from $31.9 billion to $10.2 billion.

Therefore, the tightening of the US Federal Reserve's monetary policy is a key volatility factor both for developed countries and emerging market economies. At the same time, potential risks for Russia where the debt burden is relatively low are related not to the increase in the cost of US dollar-denominated financing for borrowers, but to the possible "contagion" effect: the collapse of bubbles in global financial markets, capital outflows from emerging market economies and the fall of commodity prices.

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[3] *http://money.cnn.com / 2016 / 10 / 02 / news / economy / brexitarticle-50-theresa-may /.*

[4] *http://www.oliverwyman.com / content / dam / oliverwyman / global / en / 2016 / oct / OW%20report_Brexit%20 impact%20 on%20Uk-based%20FS.pdf.*

Box 2.
Market flash crash

The term Flash Crash/Flash Rally is used in the situations of a sharp fall/growth in the value of securities over a short period of time (minutes, hours), which is normally followed by the market's opposite movement (i.e. a sharp movement is not related to the key news influencing the market valuation of assets. There can be different causes for a sharp change in prices but frequently they are intensified through the work of high-frequency trading programmes (bots). Bots use the algorithm that identifies a price deviation, for example, due to proposals filed for the sale of an asset, and respond automatically, beginning the sale of assets to prevent further losses.

Date	Financial market indicators	Causes and events
2010 Dow Flash Crash 6 May 2010	The Dow Jones Index plunged by 1,000 points (9%) within 10 minutes. The index recovered 70% of its fall until the close of trade.	Several basic hypotheses were put forward: 1) technical errors – the indication of bln (B) instead of mln (M); 2) the use of the high-frequency trading mechanism – trader Navinder Sarao used the prohibited practice of layering[1] by placing and quickly cancelling several hundred futures contracts E-mini S&P; 3) fears of the crisis in Greece intensified by the mechanism of high-frequency trading.
Facebook Debut 18 May 2012	The shares debuted on the Nasdaq stock exchange with a 30-minute delay. The Facebook stock opened more than 10% higher of the IPO price and traded at a level of up to $42 per share but fell several times during the trading to the $38 share price. The Facebook stock fell by 11% to $34 on May 21 and by 8% to $31 on May 22.	The Nasdaq stock exchange was hit by a technical glitch due to the public placement of Facebook shares, which became the largest stock offering for the exchange. During several hours, traders were unable to get information on more than 30,000 applications. The glitch impeded many investors to sell their shares.
Nasdaq Flash Crash 22 August 2013	The securities quoted on the Nasdaq stock exchange fell for three hours being offline	The Nasdaq trading was halted from 12:14 to 15:25 as one of NYSE computer servers stopped to interact with the Nasdaq server, which kept data on the price quotations of over 2,700 listed stocks
Bond Flash Rally 15 October 2014	The yields of 10-year US Treasury bonds fell by 30 bps to 1.86% within 30 minutes	The exact causes of the incident were not identified; no important news and large bids were noticed during that period. It is believed that volatility could have been intensified by the mechanism of high-frequency/algorithmic trading, which accounts for up to 15% of trade in US government bonds, amid the limited offer of Treasuries on the secondary market.

[1] An asset market price is artificially raised through the imitation of the demand, after which the asset is quickly sold with a profit at increased prices.

2. BANK OF RUSSIA MACROPRUDENTIAL POLICY

2.1. Experience of implementing macroprudential measures in Russia

The 2007-2008 global financial crisis revealed the need for large-scale financial regulation reforms in the world's leading countries. On the one hand, new requirements for financial institutions were agreed at the level of the G20 and international organisations (Basel III, special regulation for systemically important institutions and so on) that are currently at the stage of their implementation pursuant to the established schedule. On the other hand, the crisis also demonstrated faults in the policies of the leading countries' regulators: it became obvious that price stability, supervision and regulation of particular financial institutions were not enough to ensure the financial system's sustainability. After the crisis, the concept of macroprudential policy, i.e. the policy aimed at maintaining the financial system's stability as a whole, is actively developing in the world. The first collection of international recommendations for macroprudential policy – Elements of Effective Macroprudential Policies – was presented to the leaders of the G20 countries in September 2016 as a joint document of the IMF, the FSB and the BIS (Box 3).

In the past few decades, the rapid growth of lending and the volatility of capital flows have been typical to a larger extent for emerging market economies, which used macroprudential policy measures to minimise risks. The Bank of Russia also has the experience of using macroprudential instruments for the purposes of limiting systemic risks and improves its policy in compliance with the best international practices.

Box 3.
Best international practice of macroprudential policy implementation (based on the joint FSB-BIS-IMF report)

The Financial Stability Board (FSB) posted a report on its official website on 31 August 2016, summarising the experience accumulated by countries in developing and applying macroprudential policy. The report was prepared jointly with the International Monetary Fund and the Bank for International Settlements for the G20 summit (hereinafter the report). This document was based on the reports of the FSB, the BIS and the IMF, the experience of some countries, and also scientific research.

Definition, objectives and scope

According to the report, macroprudential policy means the use of primarily prudential tools to limit systemic risk. Systemic risk is defined as the risk of widespread disruption to the provision of financial services, which can cause serious negative consequences for the real economy.

Macroprudential policy pursues the following objectives:

1) increase the resilience of the financial system to aggregate shocks by building and using buffers;

2) reduce procyclicallity of asset prices and credit and contain unsustainable increases in leverage, debt stocks, and volatile funding in the financial system;

3) control structural vulnerabilities within the financial system that arise through interlinkages in the financial system, and the role of large (systemically important) intermediaries in key markets.

It is important to note that a whole range of other economic policy areas – microprudential regulation and supervision, insolvency resolution, monetary and fiscal policies – interacts with macroprudential policy. The tasks of these areas can give rise in various circumstances to both complementarities and tensions.

Institutional arrangements

Macroprudential policy should be based on formal institutional mechanisms. Such arrangements should provide the financial authorities with a possibility to act timely and effectively, solving the tasks of limiting systemic risk. At the same time, there is no single approach to the institutional foundations of macroprudential policy – institutional arrangements need to suit county-specific circumstances and institutional backgrounds.

The body responsible for macroprudential policy implementation, be it a financial market regulator or a collective council, must have a clear mandate. In addition to the clearly defined tasks of the macroprudential body, incentives should be stipulated to take timely action, which can be achieved through the mechanisms of ensuring transparency and accountability (for example, to the parliament).

In many countries, the central bank is not a mega-regulator and the functions of supervision and regulation are vested in a separate agency (for example, in Germany) or several institutions (in the US). Regardless of this, the experience of countries shows that the central bank should play a key role in macroprudential policy. In some countries, the board of directors (or the governor) of the central bank is empowered to make decisions on macroprudential policy measures (Hong Kong, Ireland, New Zealand) or the governor of the central bank chairs the inter-departmental committee for macroprudential policy (the UK, Malaysia, South Africa). Macroprudential authorities normally comprise supervisory bodies and regulators (they are subsequently assigned the tasks of implementing most of the measures), and also the finance ministry (which provides for the political legitimacy of macroprudential policy and the possibility to discuss policy choices in other fields, for example, in the fiscal sphere). Sometimes, external experts are involved both on a permanent basis (the UK, ESRB) and episodically (the Netherlands). Besides, a dedicated unit responsible for macroprudential policy (for example, the Financial Stability Department) is frequently set up within the central bank. This unit is charged with the analysis of systemic risks, the development and monitoring of systemic risk indicators and the preparation of proposals for policy responses (Germany, the UK, the US, India and the Netherlands). In some cases, such units also function as the secretariat for collective macroprudential bodies.

The strength of macroprudential bodies' powers with respect to a well-defined set of tools can be "hard" (direct macroprudential policy decision-making) based on a "comply or explain" mechanism when the set of tools can be much broader in scope or "soft" when the policymaker issues a warning and/or unbinding recommendations. Sometimes, a combination of these approaches is used (Germany, the UK).

Operational considerations

A comprehensive framework for monitoring systemic risks is important for the effective implementation of macroprudential policy. Such mechanism should cover economy-wide vulnerabilities (for example, form an excessive growth in total credit), sectoral vulnerabilities, and also mismatches of assets and liabilities by foreign currencies and maturities.

Macroprudential policy tools should be defined in the regulators' powers in advance. Macroprudential policy objectives need to be clearly formulated (including the indication of the level of quantitative indicators where possible). This will help assess the effect of applying macroprudential policy tools and timely enhance them or suspend their use. The higher efficiency of information collection and exchange will facilitate closing data gaps and raise the reliability of risk assessment.

The authors of the report single out the following types of macroprudential policy tools:

1) broad-based capital tools (dynamic provisioning requirements, the counter-cyclical capital buffer, leverage ratio caps and others);

2) sectoral capital and asset-side tools (for example, restrictions for investments in specific sectors, sectoral capital requirements and risk-weight floors, the ratios LTV, DSTI and LTI[1] ratios in the sphere of mortgage lending);

3) liquidity-related tools (tools to build up a stock of highly liquid assets, for example, the liquidity coverage ratio (LCR)).

Macroprudential policy should address the potential for financial activity to migrate to the areas outside the scope of application of the macroprudential tool and envisage relevant measures. Such "leakages" can occur within the national financial system and can also be of the cross-border nature. In the opinion of the authors of the research,

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[1] LTV – the loan-to-value ratio (the ratio of the loan principal and the estimated value of an asset provided as a collateral); DSTI – the debt-service-to-income ratio (the ratio between installment payments for aggregate debt servicing and income); LTI – the loan-to-income ratio (the ratio of the loan amount and income).

major leakages may arise from capital-based tools when credit intermediation frequently migrates from the tightly regulated banking sector to the less regulated shadow banking system.

Capital-based tools appear to have limited effects on loan growth amid an economic upturn (especially in the long-term period) but succeed in ensuring banks' sustainability amid a crisis. Simultaneously, sectoral capital requirements can limit loan growth of targeted sectors, although credit boom leakages may seriously reduce the efficiency of these measures. Borrower-based tools (LTV, DSTI) can generally effectively increase the resilience of borrowers and reduce credit growth. Besides, some researches show that reserve requirements can limit credit growth rates.

International consistency

Effective domestic macroprudential policy can support financial stability elsewhere, lowering the probability of a financial crisis and the spread of shocks. Likewise, the improper use of macroprudential measures can create undesirable spillovers for other countries. Therefore, this prompts the need for coordination of macroprudential policies at the international level. The use of the Basel III counter-cyclical capital buffer is an example of such coordination. The data on the buffer's national ratios are posted on the website of the Basel Committee on Banking Supervision while regulators can apply their ratios to the risk-weighted assets of national credit institutions in the relevant countries.

Institutional arrangements for macroprudential policy

In March 2011, the Financial Stability Department was established in the Bank of Russia. In the process of creating a mega-regulator, amendments were made in 2013 to Federal Law No. 86-FZ "On the Central Bank of the Russian Federation (the Bank of Russia)" to stipulate an objective in the Bank of Russia's official mandate to ensure the stability of the Russian financial market.

In November 2014, the Bank of Russia established the Financial Stability Committee (FSC) chaired by the Central Bank Governor Elvira Nabiullina. FSC meets on a regularly basis to assess systemic risks and financial system sustainability, discuss macroprudential and anti-crisis measures. The National Council on Ensuring Financial Stability (FSC) was established in July 2013 to improve inter-departmental coordination. The FSC has been chaired by the First Deputy Chairman of the Russian Government Igor Shuvalov since 2015. The Council comprises heads of the Ministry of Finance, the Ministry of Economic Development, the Deposit Insurance Agency and the Bank of Russia. The FSC discusses the issues of financial stability and develops recommendations for the relevant authorities.

Following the recommendations given by the Financial Stability Board in its report based on the results of its country peer review of Russia, amendments were made to the Regulation on the FSC, under which the Ministry of Finance, the Ministry of Economic Development and the Bank of Russia are required upon the receipt of FSC recommendations to provide information on their fulfillment or non-fulfillment within the timeframe specified in the minutes of a meeting (the comply or explain principle).

Bank of Russia's macroprudential measures

As of now, three examples of macroprudential policy measures used by the Bank of Russia can be singled out. The first of them refers to the period of 2007-2008, which was characterised by a considerable foreign capital inflow into the Russian market and the growth of the share of foreign debt in the banking sector's liabilities. The second case was observed in 2013-2014 amid a boom in the unsecured consumer lending market. The third episode is related to the use of measures in 2016 to restrain the dollarization of the banking sector's assets and liabilities.

Episode of 2007-2008

Systemic risks and causes for the use of macroprudential measures

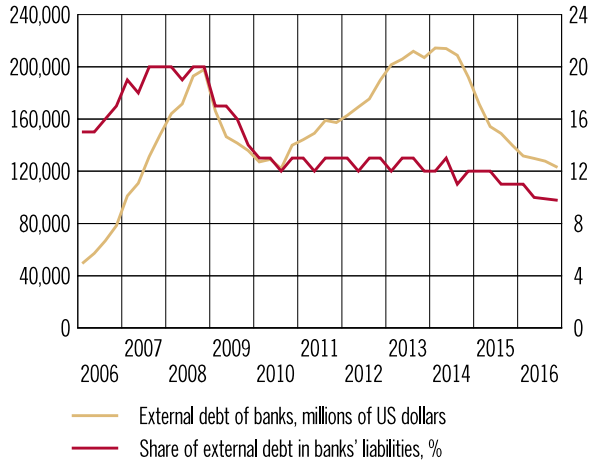
In 2006-2007, the net private capital inflow into Russia amounted to $131.5 billion, which intensified inflation risks and also increased the dependence of Russian banks on foreign debt (Eurobonds, foreign banks' loans). The share of foreign borrowings[1] reached 20% of the banks' liabilities, which characterises not yet critical but already considerable dependence on external resources[2].

[1] *Foreign debt, which includes in compliance with the IMF Balance of Payments and International Investment Position Manual the principal, accrued interest and preferred shares held by non-residents.*

[2] *For example, the share of foreign debt in the banks' liabilities came close to 50% in Kazakhstan in 2007, which made the country's banking sector vulnerable to external market shocks.*

Chart 12

External debt of Russian banks in 2006-2016



Source: Bank of Russia.

The high share of foreign debt gives rise both to considerable refinancing risks (amid a deteriorating situation, foreign creditors would most likely refuse to roll-over loans) and foreign exchange risks as foreign debt is traditionally raised in foreign currency. The limit on the open foreign exchange position[3] allows limiting direct foreign exchange risks; however, in this situation, credit risks may intensify, if banks provide foreign currency loans to borrowers that have insufficient volumes of foreign currency proceeds.

Implemented macroprudential measures

For the purposes of limiting the negative consequences of capital inflows, the Bank of Russia took measures in 2007-2008 to consistently change reserve requirements for credit institutions (Table 2).

Table 2

Required reserve ratios for credit institutions in 2007-2008 (%)

Date	Liabilities		
	to non-resident banks	to private individuals in rubles	other liabilities
January 2008	4.5	4.0	4.5
March 2008	5.5	4.5	5.0
July 2008	7.0	5.0	5.5
1 September 2008	8.5	5.5	6.0
18 September 2008	4.5	1.5	2.0
October 2008	0.5	0.5	0.5

Considering that obligations to non-resident banks are potentially the most volatile component of liabilities, increased required reserve ratios were set for this item (the maximum increment reached 3 pp). Amid the deteriorating liquidity situation in the Russian banking sector after the bankruptcy of Lehman Brothers, the required reserve ratio for all categories of liabilities was set at 0.5%.

Assessment of the efficiency of measures

The foreign capital inflow in the Russian banking system gave way to a sharp outflow in September 2008. That is why it can't be assessed whether the measures that were taken were sufficient for preventing further build-up of systemic risks. However, these measures obviously increased the banking sector's sustainability: the higher required reserve ratios contributed to the creation of the "cushion" of liquid assets, which was used by the Bank of Russia in the period of an acute shortage of liquidity in the banking sector. The lowering of the ratio allowed banks immediately to return about 400 billion rubles of liquid assets and maintain the banking sector stability before additional special measures were introduced, in particular, unsecured lending.

The share of foreign debt in liabilities had no time to reach a critical level and the proportion of non-residents' funds in banks' liabilities was observed to decrease in a calm manner. The quality of foreign currency loans to non-financial organisations was also gradually recovering. The share of overdue debts on such loans reached its maximum level by 1 September 2009 (5.5%) and varied between 2% and 3% in the post-crisis years.

Episode of 2013-2014

Systemic risks and the reasons for the use of macroprudential measures

Excessive credit growth was observed in the market of unsecured consumer lending in 2011-2012. The annual rates of growth of the portfolio of unsecured consumer loans were as high as 60% in mid-2012, which considerably exceeded the growth of the portfolio of loans to non-financial organisations (24.4%). At the same time, the total cost of unsecured consumer loans exceeded 50% amid inflation at 6.6% in 2012, which negatively

[3] *The open position in any currency should not exceed 10% of capital and the sum of all long (short) open foreign currency positions should be no more than 20% of capital in compliance with Bank of Russia Instruction No. 124-I, dated 15 December 2005, 'On Setting Open Currency Position Limits, Methodology for Their Calculation and the Specifics of Monitoring Their Observance by Credit Institutions'*

affected the low-margin segments of lending. In particular, banks specialising in mortgage and corporate lending found it problematic to attract household deposits to finance their activities as households more frequently gave preferences to retail banks' high-yield deposits. The possibilities of banks focusing on mortgage and corporate lending to increase yields on deposits were limited due to the relatively low level of interest rates on their products compared with unsecured consumer loans.

Implemented macroprudential measures

Confronted with these challenges, the Bank of Russia took a number of consistent measures to limit risks in the segment of unsecured consumer lending. The loan-loss provisions for unsecured consumer loans without overdue payments and with overdue payments of 1 to 30 days were doubled in 2013. Also, risk weights for consumer loans were raised depending on the currency of the loan and the level of the loan total cost (Table 3). From the beginning of 2014, the Bank of Russia additionally raised loan-loss provisions for unsecured consumer loans by 50%, and also increased risk weights.

Assessment of the efficiency of measures

The excessive growth of consumer lending led to the accumulation of credit risks, which materialized in the period of the recession of 2014-2015. Nevertheless, the Bank of Russia's measures helped reduce systemic risks in the segment of unsecured consumer lending in the following areas.

The structure of the banking portfolio of unsecured loans underwent changes. Banks were

Table 3

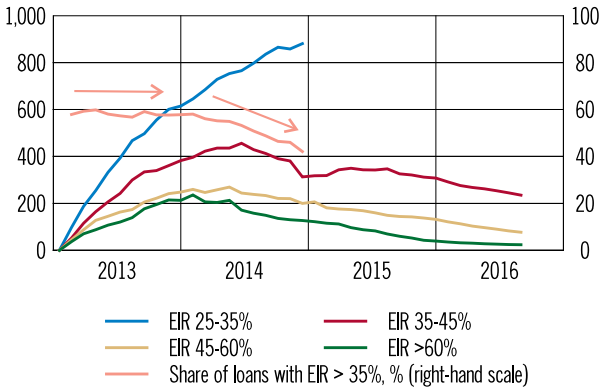
Change in risk weights for unsecured consumer loans in 2013-2014*

Date of changes	Loan currency	Loan total cost	Risk weight, %
1 July 2013	rubles	from 25% to 35%	110
		from 35% to 45%	140
		from 45% to 60%	170
		over 60%	200
	foreign currency	from 20% to 25%	170
		over 25%	200
1 January 2014	rubles	from 45% to 60%	300
		over 60%	600
	foreign currency	from 20% to 25%	300
		over 25%	600

* *Prior to 1 July 2013, the risk weight for unsecured consumer loans equalled 100%.*

Chart 13

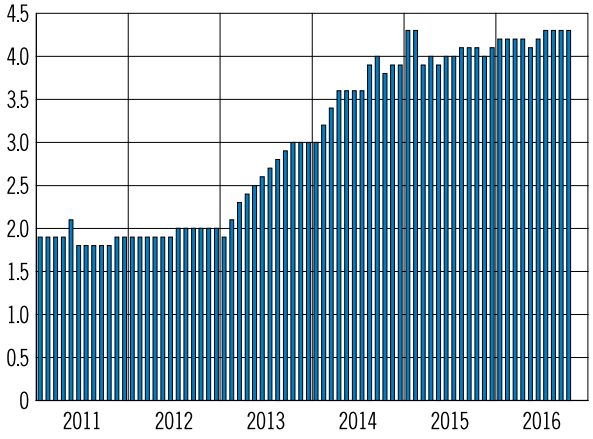
Debt on unsecured consumer loans not subject to increased risk ratios (billions of rubles)



** The share of loans with EIR > 35% is calculated for the portfolio of loans not subject to increased risk ratios (loans with EIR > 25% which have been issued since 1 July 2013).*
Source: Bank of Russia.

Chart 14

Reserve coverage ratio for performing unsecured loans and for unsecured loans with up to 30-day overdue payments (%)



Source: Bank of Russia.

gradually reducing the share of loans with the loan total cost of over 35% in the portfolio of loans, which were subject to increased risk weights (loans with the loan total cost of more than 25%), although the effect of macroprudential measures was stretched over time. The trend towards the decrease of the share of loans with the loan total cost of over 35% developed only 12 months after the date the restrictive measures were introduced while this share remained actually unchanged during the first 12 months, i.e. these measures had limited effect over this period (Chart 13).

The Bank of Russia's measures allowed banks specialising in unsecured consumer loans to build up their provisions, which finally raised the financial

Box 4.
Consumer lending market

Unsecured consumer lending segment

After its continuous decline that started in the beginning of 2015, the unsecured consumer lending market demonstrated the signs of stabilisation of the aggregate household debt in 2016 Q2-Q3. The annual rates of growth of outstanding loans in the banking sector as a whole remained in negative territory but grew gradually to -5.8% as of 1 October 2016 (with the minimum level of -12% at the beginning of 2016). This growth reached 2.3% for the group of banks with a state participation.

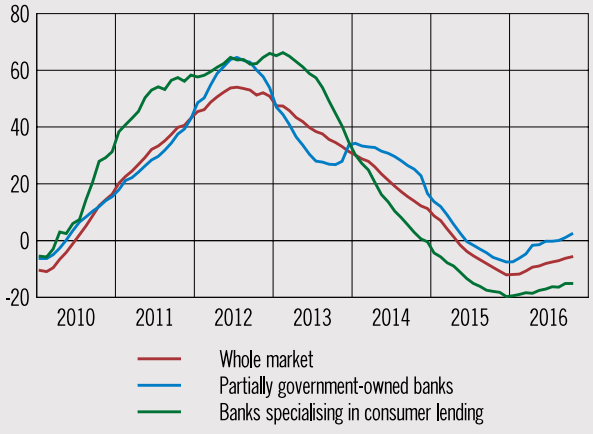
The fall of household real incomes (-5.3% in January-September 2016 compared to the same period of 2015) is the factor that restrains the segment's further recovery, which limits the growth of the supply of new bank loans.

Along with the recovery of the rates of growth in outstanding loans in 2016 Q2-Q3, the level of credit risk[1] was observed to decrease (Chart 16). This indicator returned to the levels of 2013 (7.3%) for the group of retail banks[2] and to the levels of mid-2012 (2.9%) for the market as a whole. The higher quality of the portfolio of unsecured consumer loans was achieved through loan vintages issued after 2014: the expected share of bad loans[3] under these credits equals 5-6% on the 12th month of their provision (compared with 10-12% in 2014). The early indicators of the quality of loans issued in 2015 Q4 – early 2016 also reflect the households' higher payment discipline. The lower risk for newly issued loans observed from the beginning of 2015 resulted in the decrease of the share of bad loans in the loan portfolio as a whole with a lag of 18 months: this indicator passed its peak levels in the banking sector only in 2016 Q1 (17.7%) and fell to 17.0% as of 1 October 2016. The Cash Loan segment, the largest segment of unsecured consumer lending, shows the absence of the signs that banks further ease their requirements to borrower incomes. The average debt burden of new customers defined by the PTI ratio[4] remains at the level of 44-45% and relative to all borrowers with obligations to a bank it stays at 27%, which corresponds to the figures observed at the beginning of 2016[5].

The return on equity in retail banks continued recovering over the period of 12 months and reached 8.8% as of 1 October 2016 (compared with -11.9% a year earlier). The financial result posted by this group of credit institutions

Chart 15

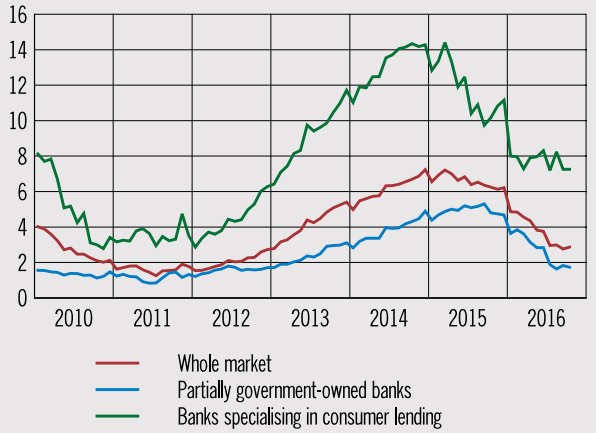
Annual growth of outstanding unsecured consumer loans (%)



Source: Bank of Russia.

Chart 16

Credit risk* for the portfolio of unsecured retail loans (%)



** Ratio of loan-loss provisions and volume of written off loans for 12 months to loan portfolio for 12 months less provisions (NPL origination ratio).*

Source: Bank of Russia.

[1] *The growth of loan impairment provisions and write-offs over 12 months relative to the average size of the loan portfolio over 12 months less created provisions (the NPL origination ratio).*

[2] *The following criteria are used for inclusion in the group of banks specialising in unsecured consumer lending: unsecured loans of over 10 billion rubles; the unsecured loans to assets ratio of over 20%; the share of interest income on household loans in total interest income at over 35%.*

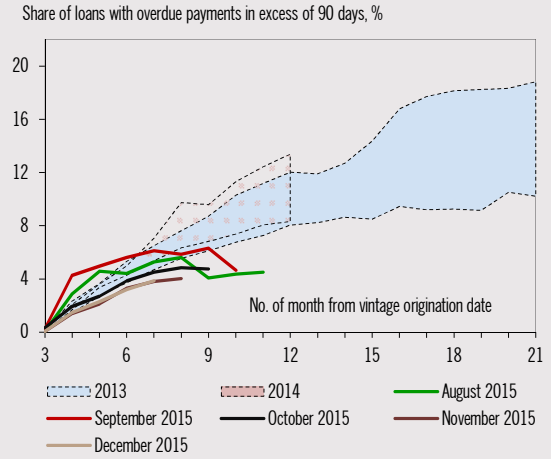
[3] *Loans with overdue payments of over 90 days.*

[4] *PTI (Payment-to-Income) is an indicator of the borrower's debt burden, which is calculated as a ratio of the payment amount established by a loan agreement to the borrower's income per quarter.*

[5] *According to data of the Bank of Russia's project for monitoring households' outstanding loans.*

Chart 17

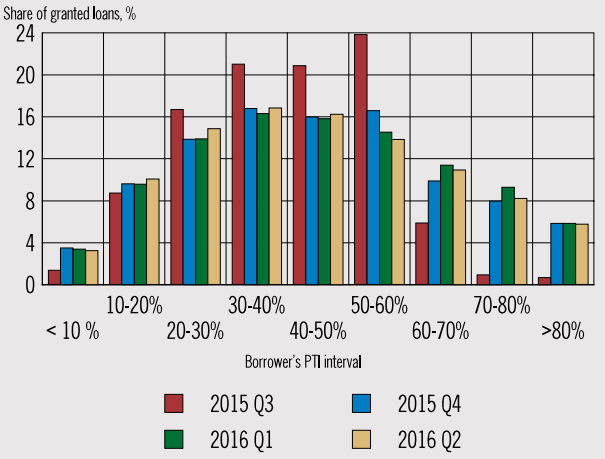
Dynamics of bad loans by vintages*



* Calculated with the data provided by «National credit history bureau», covers more than 50% of the market.
Source: Bank of Russia.

Chart 18

Granting of cash loans by borrowers' PTI*



* Based on indebtedness of natural persons monitoring project by the Bank of Russia.
Source: Bank of Russia.

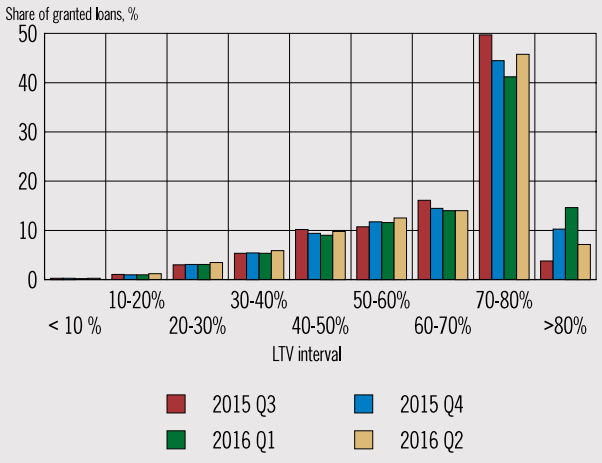
totalled 7.6 billion rubles for 2016 Q3, which along with the effect of the loan portfolio stabilisation allowed retail banks to maintain their capital adequacy ratios at last year's levels (13.2% as of 1 October 2016).

The segment of housing (including mortgage) lending (hereinafter, housing lending, housing loans, loans)

The steady growth in outstanding housing loans persisted in 2016 Q2-Q3 as well. The annual rates of growth in outstanding loans amounted to 11.8% as of 1 October 2016 compared to 11% as of 1 April 2016[6]. The trend towards the growth of the demand for housing loans was registered in all the federal districts, which reflects the absence of regional specifics and the dominant influence of general market factors on the segment's development as a whole. The portfolio of housing loans grows also due to the state programme of subsidising the interest rate. This category of loans accounts for about 33.3% of all loans issued in 2016 Q2.19 A considerable part of housing loans issued by

Chart 19

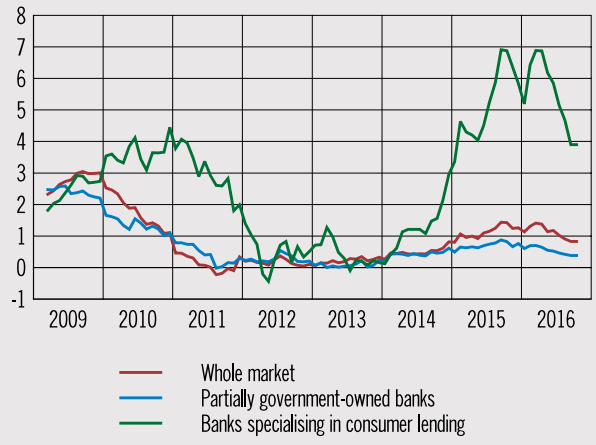
Mortgage loans by LTV in 2015 Q3 - 2016 Q2



Source: Bank of Russia.

Chart 20

Credit risk for the portfolio of mortgage loans to households (%)



Source: Bank of Russia.

[6] *According to data of sections 1 and 3 of form 0409115 'Information on the Quality of a Credit Institution's Assets'.*

banks is secured by the pledge of claims under agreements of shared participation: this type of loans accounted for 38.7% of all loans issued in April-September 2016 and for 19.7% of the remainder of the debt as of 1 October 2016.

While some banks announced a reduction of interest rates on housing loans, the average-weighted rate on the loans provided in 2016 Q2-Q3 equalled 12.8% or 0.2 pp higher than the level of 2015 Q4 – 2016 Q1. The household debt is actively building up amid the high quality of the loan portfolio: the share of bad loans[7] remains at the levels reached in late 2015 (2.9% as of 1 October 2016) while the level of credit risk for the market as a whole stays below 1% and demonstrates a downward trend. As the underwriting standards remain high (the share of loans with the LTV>80%[8] issued in 2016 Q2 equalled 7.1%; Chart 19), which creates the basis for the stable development of the mortgage segment of the loan market in the future.

[7] Loans with overdue payments of over 90 days.

[8] LTV (Loan-to-Value) an indicator of leverage under a loan, which is calculated as the loan amount relative to the market value of the mortgage as of the time the loan is provided.

sustainability of these banks. The provisioning coverage ratio for unsecured consumer loans without overdue payments and with overdue payments of 1-30 days increased for retail banks[4] from 1.9% as of 1 January 2013 to 4.3% as of 1 January 2015 (Chart 14).

Therefore, the Bank of Russia's experience of using macroprudential measures in the segment of unsecured consumer lending is generally positive. However, the efficiency of these measures could have been even higher. Measures based on increased risk weights cannot always produce immediate effect on banks' credit activity. Many retail banks had a sufficient capital stock in the segment of unsecured lending in 2013, which allowed them to continue building up lending volumes with the limited effect on capital adequacy ratios. The high level of the loan total cost on loans and the relatively low level of credit risks allowed retail banks for some time to cover costs from increased risk weights through interest rate margin.

A law directly restricting the provision of loans with the given level of the loan total cost could have become a more effective measure to limit high loan total cost levels in the segment of unsecured consumer lending in the period of 2012-2013. Such a law came into force on 1 July 2014 (Federal Law No. 353-FZ of 21 December 2013 "On Consumer Credit (Loan)") while the actual caps on the loan total cost were introduced only from 1 July 2015 due to a considerable change in the market conditions influencing the loan total cost, which occurred in late 2014.

[4] The following criteria are used for inclusion in the group of banks specialising in unsecured consumer lending: unsecured loans of over 10 billion rubles; the unsecured loans to assets ratio of over 20%; the share of interest income on household loans in total interest income at over 35%.

Box 5.
Survey of the segment of consumer micro loans of banking MFOs

The tightening of banking regulation in the form of increased risk weights for retail consumer loans with the high level of the loan total cost[1] and the enhanced requirements for the creation of provisions for households' unsecured loans could stimulate banks specialising in retail loans to establish affiliated microfinance organisations (hereinafter, banking MFOs[2]).

As of 30 September 2016, the microfinance market registered at least 18 banking MFOs[3], the share of which increased from 8.3% to 24.1% over the year while their total portfolio of micro loans amounted to 20.6 billion rubles (1.5% of the retail loan portfolio of the relevant banks[4]; Chart 21). Several banking MFOs affiliated with large retail banks, which entered the microfinance market in the second half of 2015, became the growth drivers.

In 2016 Q3, banking MFOs largely issued micro loans with the loan total cost ranging from 25% to 65% (Chart 22), the use of which in the banking practice is regulated by increased risk weights in the calculation of ratios of credit institutions' activities.

For the purpose of control of possible regulatory arbitrage risks and the consistent policy for limiting the household debt burden, the Bank of Russia considers the following measures:

1. For MFOs:

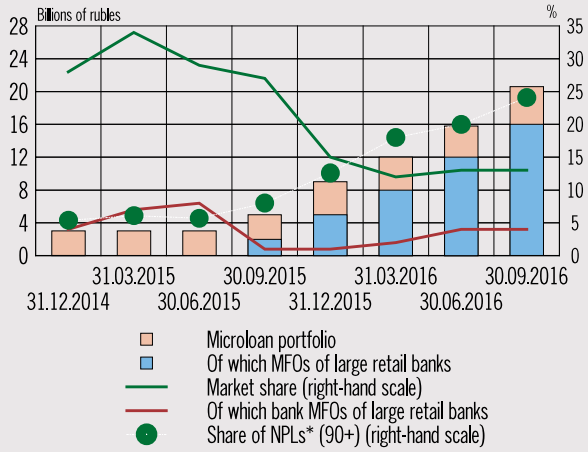
– introducing risk weights for the calculation of economic ratios for the activities of MFOs;

– applying the increased ratio of loan-loss provisions for outstanding micro loans, depending on the level of the loan total cost;

– limiting the maximum number of possible prolongations and the maximum number of micro loans issued to one borrower.

Chart 21

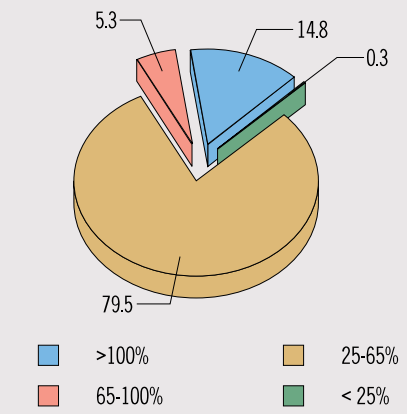
Key indicators of bank MFOs



* Non-Performing Loans.
Source: Bank of Russia.

Chart 22

EIR structure of bank MFOs by microloans issued in 2016 Q3 (%)



Source: Bank of Russia.

[1] *The increased risk weights used in the calculation of the ratios of credit institutions' activities are effective for unsecured consumer loans provided after 1 January 2014 with the loan total cost of 35% pr annum and higher (Bank of Russia Instruction No. 3097-U of 29 June 2016). Starting from 1 August 2016, the increased risk weights apply to the agreements with the loan total cost of 25% and higher (Bank of Russia Instruction No. 4055-U of 29 June 2016).*

[2] *Banking MFOs are MFOs affiliated with credit institutions both on legal and economic grounds, considering the principle of the priority of the operations' economic nature over their legal form.*

[3] *The number of banking MFOs was determined by the Bank of Russia as part of a separate project to survey the activities of the largest MFOs.*

[4] *Except for auto loans and mortgages.*

2. For credit institutions:

– improving the law enforcement practice of determining the structure of bank holding companies and setting binding requirements for them similar to the requirements stipulated for credit institutions and banking groups.[5]

At the same time, considering the specifics of the microfinance market (the client segment, the accessibility of funding sources and so on), there are no plans at present to use quantitative regulation parameters for MFOs similar to banking regulation. This will help avoid the creation of pre-requisites for the critical squeeze of the legal microfinance market and the growth of the risks of retail lending migrating to the unregulated financial system.

[5] The relevant package of amendments to Federal Law No. 395-1 of 2 December 1990 "On Banks and Banking Activity" and Federal Law No. 86 of 10 July 2002 "On the Central Bank of the Russian Federation (the Bank of Russia)" is currently at the stage of approval to vest the Bank of Russia with the powers of supervision of bank holding companies.

Episode of 2016

Systemic risks and reasons for the use of macroprudential measures

The high level of dollarization of the banking sector's assets and liabilities increased volatility in financial markets in the second half of 2014.

The negative effect of a considerable share of foreign currency manifested itself in two areas:

– high volatility of credit institutions' required ratios, considering that capital is largely denominated in rubles. The revaluation of assets as a result of the ruble's weakening exerted considerable pressure on the ratios. In order to partially solve this problem, the Bank of Russia allowed credit institutions in the period of 1 January 2015 to 1 January 2016 to use special foreign exchange rates to calculate required ratios. In 2016 Q1, banks were allowed to re-calculate assets denominated in five foreign currencies at the exchange rates set by the Bank of Russia as of 1 January 2016 for the calculation of two required ratios: the maximum risk per borrower or per group of related borrowers (N6) and the maximum risk per borrower or per group of related borrowers of a banking group (N21);

– increased credit risks related to the provision of foreign currency-denominated loans to companies without sufficient foreign currency revenues. Organisations engaged in construction and real estate operations and airlines are especially exposed to this kind of risks. The share of overdue debts in these branches of economic activity increased from 2.1 to 6.2 percentage points from 1 January 2015 to 1 October 2016. Considerable growth in the share of overdue debts on foreign currency loans in the period under review was also demonstrated by the companies engaged in wholesale and retail trade (1.8 pp).

Implemented macroprudential measures

Considering the experience of 2014-2015 and for the purposes of limiting the build-up of risks in the future related to the high level of dollarisation, the Bank of Russia took a number of measures aimed at both the active and the passive side of the banking sector's balance sheet.

In 2015, the Bank of Russia introduced increased risk weights for foreign currency claims on households[5]. From 1 May 2016, the Bank of Russia also raised from 100% to 110% the risk weight for foreign currency loans provided to corporate entities with insufficient foreign exchange earnings to service debt obligations[6]. A similar measure was applied to investments in securities denominated in foreign currency. The Bank of Russia also raised from 100% to 130% the risk weight for foreign currency loans to corporate entities for the purchase of real estate.

The need to set increased risk weights for loans for the purchase of commercial property is also highlighted by the Basel Committee on Banking Supervision (BCBS). As part of revising

[5] 300% for foreign currency mortgage loans from 1 April 2016; 300% for consumer loans with the loan total cost of not more than 20% from 1 August 2015; 300% for other household foreign currency loans from 1 August 2015.

[6] The exception was made for the loans to borrowers from among Russian residents, which posted foreign currency revenues of no less than 60% of their total earnings for the latest completed financial year and no less than 120% of aggregate loan payments for the current calendar year in the same foreign currency as the currency of the revenues. The requirement for a match between the currency of the loan and the currency of revenues does not apply to international reserve currencies used by the International Monetary Fund for valuating special drawing rights.

approaches to credit risk assessment[7], the BCBS proposes to separate loans secured by mortgages on commercial real estate and cash flows from the lease of such property. The quality of such loans depends to a lesser extent on the borrower's financial sustainability and is determined to a larger degree by the characteristics of a real estate asset. Owing to this, the BCBS considers setting an increased risk weight of up to 150% for such loans if a real estate asset or loan parameters are inconsistent with the BCBS requirements or an increased risk weight of up to 130% where consistency is ensured but the loan has a high LTV (over 80%).

For the purposes of de-stimulating the growth of foreign currency-denominated obligations in the structure of credit institutions' liabilities, the Bank of Russia increased the mandatory reserve requirements for credit institutions' liabilities denominated in foreign currency in three phases (in total, by 1.75 pp for foreign currency liabilities to households and by 2.75 pp for other foreign currency liabilities[8]).

Assessment of the efficiency of measures

Measures taken by the Bank of Russia helped limit the growth of foreign currency obligations in the structure of banks' liabilities and reduce the supply of foreign currency loans in favour of the growth of ruble lending. The portfolio of foreign currency loans to non-financial organisations contracted by $12.3 billion from 1 April to 1 October 2016 while the portfolio of ruble loans increased by 225.4 billion rubles. The share of household and corporate foreign currency deposits in the banking sector's liabilities rose by 7.5 pp in 2015 (from 17.2% to 24.7%) whereas in the first nine months of 2016 it fell by 5.9 pp to 18.8% (excluding the effect of revaluation from a change in the ruble exchange rate).

This was partially caused by the continued contraction in corporate deposits, which shrank by $6 billion in 2015 and by $15 billion in January-September 2016. The decrease in the volume of non-financial organisations' foreign currency deposits was also prompted by the contraction of the largest companies' external debt and by the lower level of oil prices in 2016. At the same time, the volume of funds raised from organisations in rubles increased by 10.1% from the beginning of 2016 (by 4.7% in 2015), which allows for a general conclusion about the efficiency of the Bank of Russia's measures for the gradual reduction of the level of dollarization.

2.2. Bank of Russia's plans for macroprudential policy development

The experience accumulated by the Bank of Russia in the use of macroprudential instruments for unsecured consumer loans (Section 2.1) testifies to the importance of the availability of an effective set of such tools in the regulator's toolkit. At present, the consumer lending market is not demonstrating the signs of overheating; however, the Bank of Russia is working on new methods of responding to potential systemic risks.

Along with the legislative restriction of the loan total cost, the existing approach to risk regulation in the segment of unsecured consumer lending allows limiting the provision of highly risky loans at excessive interest rates. The constant decrease in interest rates is also facilitated by slower inflation and the improving liquidity situation in the banking sector. Apart from the legislative restrictions on the loan total cost, increased risk weights are applied to the claims with the increased level of the loan total cost for the calculation of the capital adequacy ratio to minimise consumer lending risks. As interest rates are decreasing, the need has risen to switch to a new scale of the loan total cost: credit institutions are actually now using only the ratio of 1.1 (relative to ruble loans with the loan total cost of 25% to 35% annual interest, which account for the larger share of loans issued by banks whereas the proportion of loans with the loan total cost of over 35% is minimal).

The relevant amendments are set forth in the Bank of Russia draft Instruction "On Making Amendments to Bank of Russia Instruction No. 139-I of 3 December 2012 'On Banks' Required Ratios,'" which envisages lowering the boundaries of the loan total cost across all ranges for ruble loans, and also for foreign currency loans subject to

[7] *BCBS. Revision to the Standardised Approach for credit risk. Issued for comment. December 2015.*

[8] *In August 2016, required reserve ratios were also raised for ruble liabilities for the purposes of monetary policy implementation (the absorption of a liquidity inflow through the budgetary channel).*

increased risk-weighted ratios. Nevertheless, a high effective rate on a specific loan is only one of risk factors for consumer loans. A considerable role is also played by the aggregate size of the borrower's debt. A new boom in the market of unsecured consumer lending may also emerge amid low interest rates on consumer loans. Considering this factor, it looks promising to use the borrower's debt burden indicator, in particular, the borrower's debt to income (DTI) ratio as part of macroprudential regulation to differentiate risky loans.

The DTI is widely used in many countries, for example, in Singapore, the United Kingdom, the Netherlands and Ireland. Also, considering that many borrowers normally take several loans, most countries differentiate credit risk at the level of the borrower rather than particular loans, depending on the ratio of the borrower's aggregate debt on all outstanding loans to the borrower's income (DTI), for the purposes of increasing the efficiency of their macroprudential policies.

Based on this indicator, and also its variations (LTI[9], PTI[10]), countries are using the following macroprudential instruments:

1) limits on bank loans with a specific level of the DTI;

2) limits for credit institutions on the share of loans with a specific level of the DTI in the aggregate volume of loans provided by the credit institutions;

3) differentiated risk weights for the calculation of capital adequacy and provisioning ratios for loans, depending on the DTI level.

The Bank of Russia is already using in its regulatory practice differentiated risk weights for mortgage loans depending on the levels of LTV[11] and PTI. The regulator is currently studying the possibility of switching over to risk limitation in the segment of unsecured consumer lending based on the DTI indicator and is not planning to introduce it into the banking practice in the short term. This change requires the development of the infrastructure that meets the segment's specifics to ensure the high speed of banks' decisions on the results of examining applications for the provision of loans. In this context, it is necessary to stipulate that banks should promptly receive data both on the aggregate debt of a potential borrower as a private individual through the Credit History Bureau and on the borrower's income.

The institution of credit history bureaus that has in Russia meets the requirements for calculating the borrower's aggregate debt burden[12]. The wide use of this instrument is limited by the price policy of credit history bureaus for data provision and the quality of stored information.

In the absence of the confirmed information on the borrower's income and considering the need to promptly take a decision on the provision of an unsecured consumer loan, banks largely use the following sources of information characterising the borrower's solvency: the borrower's account with a bank (for example, for those borrowers who have salary accounts opened with the bank), information from credit history bureaus on the borrower's credit history, the data from a questionnaire with the borrower's stated income.

Work is currently underway on the possibility for banks to promptly receive data on the potential borrower's incomes. A draft law has been submitted to the State Duma of the Russian Federation to stipulate a requirement for the bodies of Russia's Pension Fund to provide information to insured persons on the salaries or the income, on which insurance contributions are accrued, for the subsequent transfer to credit institutions to

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[9] LTI (Loan-to-Income) is an indicator of the borrower's debt burden, which is calculated as the ratio of the debt on the outstanding loan to the borrower's income in an established time horizon. As compared to the DTI, the debt burden is calculated for one loan instead of all of the borrower's outstanding loans.

[10] PTI (Payment-to-Income) is an indicator of the borrower's debt burden, which is calculated as the ratio of aggregate annual payments (the principal and interest) relative to the aggregate annual income of the borrower (the other members of the borrower's family).

[11] LTV (Loan-to-Value) is an indicator of leverage under a loan, which is calculated as the amount of the loan principal relative to the current (fair) value of the mortgage as of the date the loan is issued or as of the date required ratios are calculated.

[12] In compliance with article 5 of Federal Law No. 218-FZ, dated 30 December 2004, 'On Credit Histories,' credit institutions, microfinance organisations and credit co-operatives are required to submit information specified by this law on borrowers, guarantors and principals to at least one credit history bureau without receiving the consent to its provision.

Box 6.
Recommendations following the results of the 2016 FSAP

In the second half of 2015 and the first half of 2016, a mission of experts from the International Monetary Fund (IMF) and the World Bank carried out a comprehensive assessment of the financial sector of the Russian Federation (the Financial Sector Assessment Program, FSAP). Pursuant to the IMF rules, participation in the FSAP is obligatory for the Russian Federation as a country with the systemically important financial sector.

In its final IMF report "Russian Federation: Financial Sector Assessment Program" published in July 2016 after the analysis of the state of the financial system and the quality of its regulation, the FSAP Mission noted the Bank of Russia's successful implementation of the recommendations from the latest assessment of 2011, and also the efficiency of the Bank of Russia's measures aimed at stabilising the financial system.

In the course of its work, the Mission carried out a detailed assessment of macroprudential policy implementation, following which a technical note was published.[1]

As a whole, the Mission's experts assessed Russia's existing institutional mechanisms of implementing macroprudential policy and ensuring financial stability as effective. It was underlined that the assessment of systemic risk covered the entire financial system. The experts noted considerable progress achieved in the development of the methodology of credit institutions' stress testing, and also that the Bank of Russia had successfully passed an assessment of the quality of stress tests. The results of the work for the development of the financial market infrastructure were assessed positively.

Following its assessment, the Mission's experts formulated recommendations for macroprudential policy (the proposed time limits for the implementation of the recommendations range from one to three years).

Main recommendations

1. Making amendments to the Federal Law "On the Central Bank of the Russian Federation (the Bank of Russia)" to expand the list of macroprudential policy tools, which the Bank of Russia has the power to use. In the IMF's opinion, the Bank of Russia should have a wider range of macroprudential policy tools available (for example, the limits on the LTV and the DSTI) to effectively manage systemic risks.

2. Expanding the use of macroprudential policy tools for the purposes of creating conditions for ensuring financial stability in the medium term. The Mission's experts believe that the increase of volatility related to the oil price dynamics may require creating larger capital buffers in the banking sector. This can be implemented in the context of the counter-cyclical capital buffer or the Basel II framework for bank capital (possibly, as part of the Internal Capital Adequacy Assessment Process, ICAAP). Stress testing can also be used to assess the adequacy of capital buffers. In this context, liquidity management instruments can be involved to prevent the excessive growth of lending.

3. Improving the analysis of macrofinancial and systemic risks. The IMF proposes holding early warning exercise assessments, macroprudential stress testing and a more profound assessment of relationships inside the financial system and with the real sector. The implementation of these tasks will require expanding available information on the risks of non-financial companies and households.

Other recommendations

1. Applying macroprudential instruments for the purposes of supporting the economy's de-dollarization, first of all, for managing systemic risks. International experience evidences that the process of de-dollarization proceeds more successfully upon the existence of the proper motivation and the necessary conditions, the most important of which is the flexible exchange rate of the national currency. In these circumstances, macroprudential policy tools can be used to manage the risks of liquidity in foreign currencies and make a more adequate assessment of foreign exchange exposures, thus contributing to the lower level of dollarization.

2. Improving the calibration of the counter-cyclical capital buffer, using a broader set of indicators for the accurate assessment of the credit cycle. Owing to the continued development of the financial sector and the sensitivity of the economy and the financial sector to oil prices, it is insufficient to focus solely on the analysis of the credit gap in Russia. In this regard, it can be useful to use additional indicators of the debt burden and the liquidity of banks.

3. Specifying the functions / powers of the National Council on Ensuring Financial Stability (FSC) in compliance with its role as a consultative body. This is required for confirming the independent status of the Bank of Russia in the

[1] *http://www.imf.org/external/pubs/ft/scr/2016/cr16307.pdf*.

field of macroprudential policy implementation and also rule out the overlapping of the mandates of the FSC and the Bank of Russia.

4. Creating a formal mechanism of the regular discussion of systemic risks at meetings of the Bank of Russia Board of Directors.

5. Raising the Bank of Russia accountability in macroprudential policy implementation through efforts to ensure the high level of transparency. In addition to the Financial Stability Review, it is proposed to introduce the practice of publishing the results of the discussion of systemic risks and macroprudential policy, including recommendations and warnings, and also the opinion of the Board of Directors members, which was not supported by the majority of those present at the meeting.

6. Finalising the Financial Stability Review for the purposes of bringing more clearly to the public's notice the Bank of Russia's general assessment of financial stability risks and the degree of the financial system sustainability. It is proposed that the Financial Stability Review could include the matrix of risk assessment and a risk map, and also the description of potential measures for minimising the risks that have been identified.

7. Enhancing prudential requirements for liquidity for the purposes of improving the structure of bank funding. In particular, it is proposed to consider the issue of tightening the requirements for liquidity indicators (N2, N3 and N4) to stimulate banks to maintain the adequate level of highly liquid assets and ensure the lesser degree of the use of short-term funding.

8. Finalising the set of the Bank of Russia's liquidity-providing tools to ensure that risks are adequately addressed in the value of the instruments.

9. Considering the possibility of making amendments to the Federal Law "On the Central Bank (the Bank of Russia)" for the purposes of more fully reflecting all the aspects of the financial stability mechanism in this legislation.

10. Establishing a special committee in the Bank of Russia (for example, the Financial Policy Committee) with the relevant tasks, functions and powers for macroprudential policy implementation. The committee should be responsible for systemic risk monitoring and have the powers to take decisions on applying macroprudential instruments (changing their parameters) and issue recommendations to the Bank of Russia's other relevant committees.

11. Expanding the Bank of Russia's possibilities for receiving information on the balance sheets of companies and households. In this regard, it is recommended to collect financial statements of a wide range of non-financial companies, hold polls of households and ensure the compilation of statistics on cash flows. The Bank of Russia is also recommended to identify and remove gaps in data, especially on the unregulated types of financial activity (for example, leasing), cross-sectoral and cross-border financial transactions.

make it possible for citizens to obtain commercial loans.[13] The bill stipulates that such information is transferred electronically with the use of special infrastructure. This will allow borrowers to promptly provide information on their income to banks and receive a reply to a loan application while banks will be able to analyse the borrower's risks thoroughly.

The Bank of Russia will continue developing approaches to the analysis of the efficiency of macroprudential tools that have been used, and approaches to the assessment of the influence of proposed measures on the basic parameters of the financial sector's operation, including the conditions of monetary policy implementation.

[13] *Draft law No. 1072874-6, dated 16 May 2016. The relevant State Duma committee recommended adopting the bill in the first reading.*

3. ASSESSMENT OF BANKING SECTOR'S SYSTEMIC RISKS

3.1. Corporate lending risks

The volume of foreign currency loans continues to fall in the segment of corporate lending. This is caused by a whole number of factors: the Bank of Russia's macroprudential measures (Section 2.1), the contraction of banks' liabilities denominated in foreign currency and the increased risks of foreign currency lending to some sectors of the economy. The credit quality deterioration was largely typical of the sectors oriented to the domestic market, such as construction and real estate operations, wholesale and retail trade, and also loans to small and medium business. Some other sectors demonstrated positive credit quality dynamics. Banks continued to actively revise the terms of loan agreements for solvent borrowers experiencing temporary financial difficulties.

In April-September 2016, the portfolio of foreign currency loans to non-financial organisations fell by $12.3 billion whereas the portfolio of ruble loans increased by 225.4 billion rubles. The banks' investments in the ruble-denominated debt instruments of Russian non-financial organisations grew by 195 billion rubles. At the same time, the dynamics of the ruble loan portfolio growth remains restrained. The annual rates of growth in outstanding ruble loans fell by 1.1 pp from 1 April to 1 October 2016 to 3.2% while these rates for foreign currency loans decreased by 8.1 pp to –7.1%

Table 4

Portfolio of loans to non-financial organisations by the type of economic activity*

Sector	Loan currency	Share of loans in the total volume of loans*, %	Share of overdue loans, %	Change in the share of overdue loans (April-September 2016), pp
Mining	Rubles	3.6	1.5	-0.1
	Foreign currency	3.5	3.7	-2.2
Manufacturing industries	Rubles	16.3	5.7	-0.2
	Foreign currency	6.8	2.4	0.1
Production of machinery and equipment	Rubles	1.7	4.2	-1.2
Production of transport means and equipment	Rubles	3.8	1.7	-0.4
	Foreign currency	0.7	1.9	-0.1
Electricity, gas and water production and distribution	Rubles	4.1	1.8	-0.4
Agriculture, hunting and forestry	Rubles	5.2	9.7	-0.9
Construction	Rubles	5.6	24.7	1.9
	Foreign currency	2.1	3.5	0.1
Transport and communications	Rubles	4.3	8.3	-0.3
	Foreign currency	1.2	4.2	-1.2
Wholesale and retail trade	Rubles	12.1	13.4	1.3
	Foreign currency	2.0	4.7	-1.5
Real estate transactions, lease and services	Rubles	10.5	6.5	1.4
	Foreign currency	5.2	4.6	0.5
Other activities	Rubles	12.8	6.8	0.6
	Foreign currency	4.3	0.9	-1.2

** According to the data of reporting form 0409302 "Information on Placed and Raised Funds."*

Box 7.
Situation in some sectors

The sectors focused on the external market generally demonstrated an improvement in their financial state or maintained it at the level that had been achieved amid the recovery of export prices from their minimum levels registered at the beginning of the year. As it was expected, the most considerable improvement of financial indicators was demonstrated by companies of the chemical industry, the mining sector and the larger part of the non-ferrous industry. At the same time, the financial indicators in the oil and gas sector, coal mining and the iron and steel industry remained stable enough. The debt burden increase due to revaluation of foreign currency loans was offset by the persisting high operating margin and the profitability of operations for the larger part of companies from these sectors.

Construction

The current negative situation in the construction sector is largely attributable to a sharply contracting demand from the government, the corporate sector and households, which is confirmed by the continued stagnation of revenues in construction in nominal terms (-2.5% year on year as of the end of the first half of 2016). Also, the construction industry's profitability[1] remains the lowest among the key branches of the economy at an annual rate of 3.4% compared to an average of 6.6% for all types of economic activity. As the total volume of outstanding loans is gradually decreasing, the sector's debt burden[2] is also demonstrating downward dynamics (from 5.0 as of the beginning of the year to 4.5 as of the end of the first half of 2016) but remains at a high level. Growth in the volume of construction works restarted in the second half of this year, which can testify to the beginning of a gradual improvement in the financial state of construction companies.

Real estate transactions, lease and services

As compared to the construction industry, companies from the sector of real estate transactions showed positive dynamics as of the end of the first half of 2016 for revenues (they grew at an annual rate of 18.7%) and the return on sales (it increased from 4.8% as of the beginning of the year to 10.8% as of the end of the first half of the year). As the exchange rate stabilised and the share of the foreign currency debt decreased, the sector's debt burden was observed to fall (from 9.1 as of the beginning of the year to 6.5 as of the end of the first half of 2016).

Wholesale and retail trade, repair of motor vehicles, motorbikes, household appliances and personal items

Wholesale and retail trade came second by the share of overdue ruble loans as the sector was among the worst affected key branches of the economy largely due to the continued fall in household real disposable money income. Retail trade turnover has been falling for the second consecutive year. In the first seven months of 2016, the turnover volumes contracted by 5.6% in comparable prices from the same period last year. The nominal rates of growth in the sector's revenues slowed down to an annual rate of 6.9% in the first half of 2016 while the growth rates of the sales profit switched to negative territory (-7.1% on an annual basis) along with a decrease in the return on sales (from 6.1% as of the beginning of the year to 5.2% as of the end of the first half of 2016). The debt burden of the sector's companies remains moderate, with a trend towards its gradual increase (this indicator grew from 3.2 as of the beginning of the year to 3.9 as of the end of the first half of 2016).

It should be noted, however, that the largest trade chains are demonstrating financial results that are higher than the sector's average.

Agriculture, hunting and forestry

The agricultural sector held the third place by the share of overdue ruble debts. Despite this, the sector maintained the high rates of growth in revenues in the first half of 2016 (12.1% on an annual basis) and the maximum levels of the return on sales (13.0% year on year). The positive financial results achieved largely through the growth of export and internal prices allowed the sector's companies to reduce their debt burden sharply (from 17.4 as of the beginning of 2014 to 4.5 in 2015). As of the end of the first half of 2016, the ratio of the debt on outstanding loans to the sales profit measured 4.7 on an annual basis. Nonetheless, big differentiation persists inside the sector: some companies took advantage of the ruble's weakening and trade restrictions imposed on competitors' agricultural output while other producers suffered to a considerable extent from the contraction of the consumer demand and the growth of the cost of imported raw materials and components.

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[1] *Net profit margin.*

[2] *The debt burden indicator is calculated as the ratio of the debt on outstanding loans to the sales profit on an annual basis (Rosstat data).*

The credit quality of the portfolio of loans to non-financial organisations slightly decreased. The share of category IV-V loans increased by 0.5 percentage points from 1 April to 1 October 2016 to 10.6%. The share of overdue ruble loans increased by 0.4 percentage points to 8.9% while the proportion of overdue loans in foreign currency decreased by 0.5 percentage points to 2.8%. The growth of overdue debt is observed in those kinds of economic activity, which earlier also registered an increased level of credit risks, namely, construction, real estate transactions[1], wholesale and retail trade[2] and air transport.

Overdue debt on ruble loans issued to construction companies reached 24.7%, increasing by 1.9 percentage points from 1 April to 1 October 2016. The growth of overdue loans was caused by the build-up of overdue payments both on loans earlier recognised as problem or bad debts[3] and loans, on which borrowers earlier timely serviced their debt. As before, every second large loan for this type of economic activity was a restructured one.[4]

The segment "real estate transactions" associated with construction also registered a considerable growth of overdue debt (by 1.4 percentage points for ruble loans and by 0.5 percentage points for foreign currency loans in the period under review). The high level of credit risks in this segment is caused by the following circumstances. As a rule, borrowers make loan repayments through payments received from the lease of commercial properties (the shopping floorspace and others). However, amid retrained economic activity and the households' falling solvent demand, lessors have to cut rent rates to keep occupancy levels, which leads to a decrease in lease payments and difficulties with servicing loans. If rent rates had been kept at the previous levels, many leaseholders would have been unable to timely make rent payments due to the fallen demand of households and companies for products, which would have finally also reduced the volume of payments received by lessors.

Banks are also revising the terms of loan agreements to keep borrowers solvent. Thus, every second large loan provided to companies engaged in real estate transactions is a restructured debt, like in construction, whereas at the beginning of 2015 only every third loan was restructured.

The high levels of overdue debts remain in the segment of air transport operations, which is due to failures by the airline Transaero currently undergoing the reorganisation procedure to make ruble and foreign currency loan repayments. The share of overdue debt for this type of economic activity equalled 39.2% on ruble loans and 9.0% on foreign currency loans as of 1 October 2016.

In the other types of economic activity, no considerable growth of overdue loans was observed in the period of 1 April – 1 October 2016. Loans to companies in the mining sector and the manufacturing industries are characterised by the relatively high credit quality. The level of overdue debt on ruble loans to companies engaged in agricultural activities fell by 0.9 percentage points to 9.7% in the period under review. The share of overdue debt on loans to companies that produce transport means is currently insignificant. As of 1 October 2016, it equalled 1.7% for ruble loans and 1.9% for loans denominated in foreign currency.

The segment of lending to small and medium enterprises continues to be characterised by the increased credit risk.[5] Amid increased credit risks, banks are reducing outstanding loans to small and medium enterprises. The aggregate debt on loans to the SME segment totals about 4.4 trillion rubles (15.4% of outstanding loans in the portfolio of loans to non-financial organisations). The share of category IV-V loans measured 23.9% as of 1 October 2016, increasing by 0.7 percentage points from 1 April 2016. In the future, the quality of the portfolio of loans to non-financial organisations will depend on the rates of growth in economic activity and in the segment of wholesale and retail trade it will depend on the household solvent demand.

[1] *Real estate transactions, lease and services.*

[2] *Wholesale and retail trade, repair of motor vehicles, motorbikes, household appliances and personal items.*

[3] *In accordance with the classification of Bank of Russia Regulation No. 254-P of 26 March 2004.*

[4] *According to the data of reporting form 0409117 "Data on Large Loans," which includes information on 30 largest loans provided by a credit institution.*

[5] *All the data on loans to small and medium enterprises are given with regard to credit institutions operational as of 1 October 2016.*

Box 8.
Assessment of the current phase of the credit cycle in the Russian economy

The credit gap assessment made pursuant to the methodology of the Basel Committee on Banking Supervision (BCBS)[1] points to the termination of the phase of the debt burden growth observed from 2014 Q3 and the return of the aggregate supply of credit[2] to the levels of its long-term trend.

At the same time, the credit gap decomposition shows that revaluation of foreign currency obligations accounting for over 50% of the debt of non-financial corporations was the main driver of the fluctuations of excessive credit in the economy in 2014-2016. This factor is dominant in the periods of high volatility in financial markets and exceeds the aggregate effect of other factors by its influence on the change of the economy's credit burden. Owing to this, the Bank of Russia makes factor decomposition of the credit burden growth, in addition to the BCBS standard methodology, which allows this analysis to exclude those credit gap changes that are prompted by the revaluation of the non-financial sector's foreign currency obligations and the GDP contraction rather than by the growth of banks' lending activity. The need of foreign currency readjustments is also indicated by the short duration of the periods of credit expansion calculated under the BCBS standard methodology: 1.5-2 years, which is considerably less than the average term of lending in the economy (3-4 years).

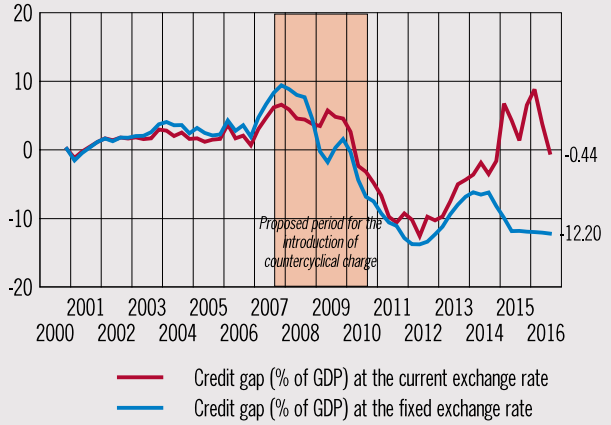
After the effect of the foreign currency revaluation is removed, the credit gap cyclical component turns negative from 2010, which can suggest that the banking system is at the descending phase of the credit cycle.

The levels of some auxiliary indicators used by the Bank of Russia to assess the phase of the credit cycle in addition to the standard methodology (the growth rates of banking portfolios, the share of unserviced loans, the volume of debt repayments) are also typical of the descending phase of the credit cycle.

In these conditions, the Bank of Russia considers it expedient to keep the zero level of the countercyclical capital buffer.

Chart 23

Assessment of credit gap* (in broad definition, pp)

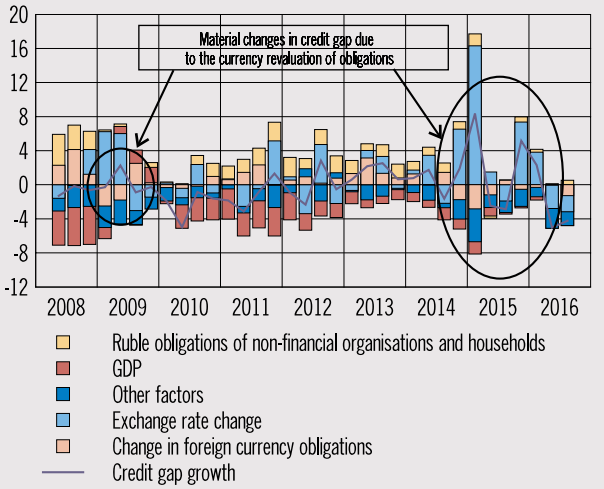


** Banking loans of natural persons and non-fincial organisations are included, as well as liabilities on debt securities and external liatilities of non-financial organisations.*

Source: Bank of Russia.

Chart 24

Contribution of individual factors to credit gap change (broad definition, pp)



Source: Bank of Russia.

[1] *Guidance for national authorities operating the countercyclical capital buffer. Basel Committee on Banking Supervision. December 2010.*

[2] *It includes the debts of households and non-financial organisations on bank loans, and also takes into account non-financial organisations' obligations under debt securities and external liabilities.*

3.2. Cyber risk: threats to financial stability and measures to manage it

Cyber risk is becoming ever more significant in the activities of financial organisations and may potentially have consequences for financial stability, if cyber attacks target systemically important banks, central banks or financial infrastructure facilities (including payment systems). Perpetrators are using ever more sophisticated methods while cyber attacks are refocusing from clients' payment applications provided by financial institutions to the information infrastructure of the financial institutions themselves. The perpetrators' activity is frequently organised in nature and has no national borders.

According to data received from required reporting on incidents with information security, the number of reports on unauthorised transactions for money transfers from private individuals' accounts performed through remote banking services is observed to grow (Chart 25). The growing number of reports on incidents is caused by the rapid increase in the number of private individuals who use the services of the Internet and mobile banking. In many cases, cyber scams against private individuals are implemented by quite simple methods, normally relying on the methods of social engineering (encouraging clients to disclose information necessary for money transfers on their behalf). Restrictions imposed by banks on money transfers through remote banking services, in particular, the introduction of limits and the need for clients to additionally confirm a transaction, are an effective method to minimise damage from unauthorised transfers from private individuals' accounts. The reduction of risks related to unauthorised money transfers from bank accounts is facilitated by the checks of the quality of payment appliances and their certification.

In early 2016, the instances of targeted attacks were registered when perpetrators attempted to substitute the entry data for the automated workplaces of Bank of Russia clients and steal 2.87 billion rubles from correspondent accounts opened with the Bank of Russia. In these attacks, the theft of 1.67 billion rubles was prevented, including 1.1 billion rubles that were temporarily blocked by financial institutions, in which the perpetrators had opened accounts for unauthorised money transfers, and 0.57 billion rubles. The Bank of Russia suspended money transfers from the correspondent accounts.

The following can be referred to the basic types of damage from the perpetrators' activity:

– direct financial damage related to unauthorised money transfers;

– the withdrawal of funds from the legal turnover;

– the disruption of stability in the activity of financial institutions;

– reputational damage to financial institutions and the emergence of distrust for their activities.

In the Bank of Russia's opinion, the basic causes of increased cyber risks are as follows:

– the existence of vulnerabilities in information systems and payment applications used by financial institutions;

– faults in information security provision, the failure by financial institutions to duly comply with the requirements set by regulatory acts and sectoral standards;

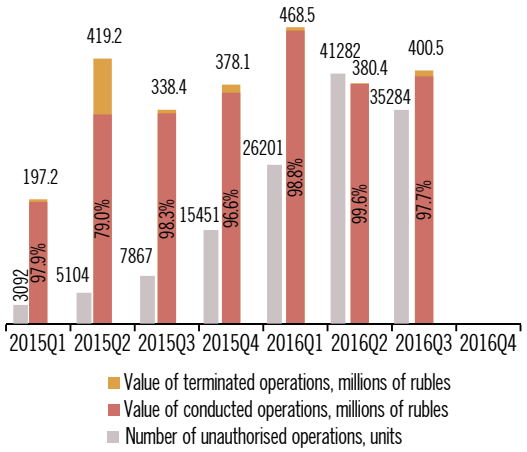
– the absence of the required coordination of financial institutions' activity for countering mass (rolling) and typical cyber attacks.

In order to ensure financial stability and maintain trust in financial organisations, it is important for authorised bodies and financial organisations themselves to quickly adopt measures aimed at reducing existing cyber risks.

Measures for countering cyber attacks in financial institutions' information security and risk management systems. The increased risks of cyber attacks arise, in particular, from a financial

Chart 25

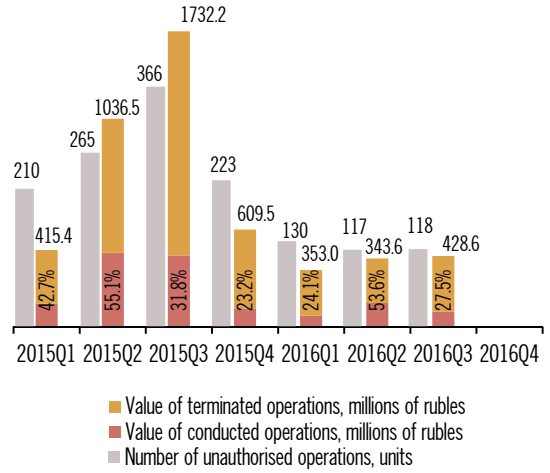
Unauthorised operations across private accounts using remote banking services



Source: Bank of Russia.

Chart 26

Unauthorised operations across corporate accounts using remote banking services



Source: Bank of Russia.

institution's insufficient work on the internal procedures of managing these risks, the absence of action plans in the case of cyber attacks and the employees' incompetence. In view of this, the system of managing the risk of cyber attacks should be brought into compliance with the requirements for risk management systems established by the Bank of Russia for banks and non-bank financial institutions. Specialised requirements for information security are set forth in standards of the Bank of Russia and recommendations for standardised information security provision.[6]

An audit of the system of the cyber attack risk management and its regular self-evaluation are an important element of the system's efficiency. Financial institutions are also recommended to hold assessments of the suppliers of information technology services and test IT-products and services to reveal vulnerabilities and undeclared possibilities. Large banks are creating Security Operation Centres (SOC) with account for the best practices of their development while discussions are underway on the possibilities of outsourcing and centralisation of some SOC functions. Amid the swift digitalisation of financial services, banks with weak information protection systems may be unprepared to counter cyber attacks and protect their clients' funds.

Coordination of financial institutions' activity in countering cyber attacks and investigating incidents. For the purpose of coordinating the activity of financial institutions and law-enforcement bodies for countering mass (rolling) and typical cyber attacks, in 2015 the Bank of Russia established the Centre for Monitoring and Responding to Computer Attacks in the credit and finance sphere (FinCert).

At present:

– an information exchange with the Federal Security Service (FSS) of Russia, the Ministry of Internal Affairs and the state system of detecting, warning and eliminating the consequences of cyber attacks on the information resources of the Russian Federation (GosSOPKA) has been established;

– work has been done to connect about 300 financial institutions to the information exchange through FinCert servers;

– measures have been taken to ensure the participation of the authorities (the FSS and the Ministry of Internal Affairs), payment systems, software developers and communications operators in the FinCert's activity;

– work has been organised to regularly inform participants in the information exchange about exposed vulnerabilities in information security.

Upon receiving a report from an information exchange participant about a threat, the FinCert holds its analysis, including an expert study of malware and sends out information bulletins, following the results of this analysis. In 2016 Q1-Q3, the FinCert made 164 info dispatches about the exposed actual threats of cyber attacks and software vulnerabilities and initiated blocking of 362 domains used for the purposes of gathering confidential information and spreading malware and spam. The FinCert's report for the period of 1 July 2015 to 31 May 2016[7] published statistics on cyber attacks, the technical description of the basic types of cyber attacks, and also gave recommendations to financial organisations on measures to counter these attacks.

The development of cyber security legislation and standards. The modern instruments of reducing cyber risks and the adequate methods of investigation that help identify the perpetrators that have committed a cyber attack can't be used without the development of specialised legislation.

For the purposes of raising the level of financial institutions' coordination for countering cyber attacks, amendments to the legislation have been

[6] *http://cbr.ru / credit / Gubzi_docs /.*

[7] *http://cbr.ru / credit / Gubzi_docs / FinCERT_survey.pdf.*

prepared with the Bank of Russia's participation with the aim to:

– legislatively seal the rights of a financial organisation to suspend money transfers in case of revealing the signs of conducting money transfers without the payer's consent;

– establish the procedure of a financial organisation's actions in case of revealing the signs of money transfers without the payer's consent with the aim of returning the funds to the legitimate owner and the procedure of returning the funds when it is proved that the transfer was made without the client's consent;

– exclude the use of the legal mechanisms of banking secret protection in the situations when disclosures on operations are made for the purposes of preventing the performance and the exposure of operations performed without the client's consent.

Also, a draft of amendments to the Criminal Code of the Russian Federation has been prepared with the Bank of Russia's participation to stipulate the introduction of a new article establishing criminal liability for such types of activity as the theft of funds kept on a bank account, electronic funds, including thefts committed with the use of forged payment cards or payment cards belonging to another person, and also for interferences in the operation of the technology for computer information storage, processing or transmission.

The following measures are planned until 2018 as part of the work of the inter-agency task group[8] for coordinating the issues of creating a unified system of countering information threats in the credit and finance sphere:

– creating legal and technological conditions for carrying out a sweeping check of the quality of payment applications by way of their certification or analysis for their compliance with the requirements of information security to ensure control of the absence of vulnerabilities and undeclared possibilities;

– creating legal and technological conditions for the all-embracing introduction of technological protection mechanisms requiring an additional confirmation of instructions for money transfers in the case of using untrusted environments for payment instructions, in the first place, in remote banking services systems and in the Internet;

– developing and implementing the national standards of the Russian Federation establishing detailed technical requirements for information security in financial institutions, and developing the sectoral set of Bank of Russia standards for information security provision;

– creating an independent system of confirming the compliance of information security in financial institutions with the requirements of national information security standards (an external audit of information security);

– creating legal conditions for the mandatory use of national information security standards in financial institutions, and also for the obligatory confirmation of the compliance with the requirements of national standards;

– setting requirements for financial institutions' capital adequacy based on the assessment of operational risk using the results of an external audit of information security and the data on incidents.

The higher efficiency of cyber attack management in financial institutions and coordinated measures for preventing and investigating cyber attacks, the constant improvement of protection means and the removal of the vulnerabilities of new technologies are expected to reduce cyber risks in the financial sphere. Along with this, new approaches towards regulation in the sphere of information security will be developing for organisations involved in the provision of financial services. Special attention will be paid to raising the financial literacy of the users of electronic banking technologies.

[8] *With the participation of the Bank of Russia, the Ministry of Internal Affairs of Russia, the Ministry of Communications and Mass Media of Russia, the Federal Service for Technical and Export Control of Russia and the Ministry of Finance of Russia.*

4. SYSTEMIC RISKS OF NON-BANK FINANCIAL INSTITUTIONS

4.1. Key Trends in the Leasing Market

The significance of the leasing market is ranked the second after the banking sector, the volume of the former totalling roughly 3 trillion rubles. The Bank of Russia continued studying the leasing market, using questionnaires for polling leasing companies, among other tools. Questionnaires took into account basic indicators of market players' activity that were absent in official data sources[1] for the majority of companies. As of 1 July 2016, companies were selected for the study by the size of their leasing portfolio. 39 companies took part in the study. The questionnaires received covered about 52%[2] of the estimated value of the leasing market. Of the total number of polled companies, 54% of companies (21) submit IFRS statements and 45% (18) provide data under Russian Accounting Standards (RAS).

Depending on the type of ownership of leasing companies, this market consists of several groups which feature different business models and risk profiles.

The first group comprises lessors that are members of banking groups or are affiliated with banks. Such lessors are mainly financed by parent banks and account for roughly 34% assets of the leasing sector. These are characterised by low capital adequacy ratio (capital/leasing portfolio ratio) of about 3% (excluding companies that are part of foreign banking groups) and considerable funding received from parent banks. They are concentrated in the following segments: railway equipment, construction and road construction machinery, commercial vehicles and air transport.

The second group includes stated-owned[3] companies. They account for further 40% assets of the leasing sector and are characterised by diversified liabilities, including external borrowings, and rather high, compared with other groups, capital adequacy ratio of about 30%. These are concentrated in the following segments: air transportation, railway equipment and agricultural equipment.

The third group is made up of independent leasing companies with diversified sources of financing, including bonds, external borrowings and bank loans. The group also comprises captive companies of large producers of transport means or machinery, and companies of non-financial sector. The totality of independent and captive companies accounts for slightly more than 20% of the overall leasing portfolio. Independent companies are more focused on working with SMEs, and captive companies mainly work with large businesses or with respective parent companies. For independent companies, the capital adequacy ratio stands at 20%, whereas for captive companies, the range of the ratio values is very wide: from 3-4% to 80%. Smallest values for capital adequacy ratio are observed among subsidiaries of large foreign producers of machinery. The value of this ratio is generally higher among captive companies belonging to Russian non-financial groups.

The capital adequacy ratio for independent companies is at 20-30%. The concentration of these companies in the segments of passenger and commercial vehicles, railway and agricultural machinery is high.

The total number of participants in the study comprised 14 companies that were members or affiliates of banking groups, 7 government-owned companies, 8 captive companies, and 10 independent companies.

According to the values of concentration indices (CR) and the Herfindahl–Hirschman Index (HHI)

[1] *The size of the leasing portfolio, the amount of provisions created by companies, the maturity of assets and liabilities, the existence of considerable debt to non-residents and respective covenants, and also information on major counterparties of leasing companies.*

[2] *The market size is determined by the aggregate value of the leasing portfolio.*

[3] *Excluding companies that are part of large state-owned banking groups.*

Table 5

Descriptive statistics for the panel sampling of leasing companies as of 30 June 2016

Characteristic	Leasing portfolio, mln rubles	Own funds (equity) / portfolio, %	Reserves / portfolio, %	Reserves / volume of overdue leasing payments, %	(NPL 90+)*/ leasing portfolio, %
Average value	46.74	19	3	70	7
Median value	9.45	18	2	64	2
Maximum value	582.49	75	21	409	69
Minimum value	1.06	–5	0	0	0

** Overdue debt indicator. Here and below overdue debt shall mean the value of leased property on lease agreements that were not cancelled, under which there are overdue payments for the continuous period of more than 90 days.*

calculated on the basis of the leasing portfolio, the leasing market is categorisied as moderately concentrated: CR = 62% (for 10 top companies), HHI = 1602. Overall, five companies play a dominant role in the market, accounting for slightly more than 50% of the total leasing portfolio.

Main trends

The aggregate market portfolio (residual value of lease payments less VAT) contracted by 7% as of 30 June 2016 compared with 30 June 2015. Railway and air transportation equipment continue to hold leading positions in the structure of the leasing portfolio.

New business (all lease agreements concluded (signed) in the period under review) grew by 18% over 2016 H1, with a slight 2% fall in the total number of agreements concluded over the same period. The totality of given companies demonstrated mixed trends: new business grew in roughly half of the companies, whereas the others showed a decline. The negative growth of new business is generally higher than the percentage reduction in the number of concluded agreements. This may indirectly point to a decrease in the average size of the concluded agreements, and to the shift of these companies' focus on to smaller-size businesses.

Considerable number of companies demonstrated both growth in new business and reduction in the number of concluded agreements, or a relative growth in the volume of new business in percentage terms coupled by a sluggish increase in the number of agreements. It is, therefore, clear that market share increase is driven by large-value buyers/transactions rather than by a big number of small-value agreements.

The share of agreement concluded in US dollars contracted by 2.6 pp in the volume of new business (from 18.6% as of 30 June 2015 to 16% as of 30 June 2016). However, it should be noted that virtually all foreign currency agreements were concluded by this segment's leaders, i.e. government- or major banking group-owned leasing companies. Foreign currency operations were mainly conducted in the air transportation segment. The polled independent and captive companies did not conclude foreign currency agreements over the period under review.

Quality of leasing portfolio

The first six months of 2016 saw a considerable growth in the volume of restructuring year of year (more than twofold from 31 to 67 billion rubles, and with regard to the leasing portfolio of the sample of companies – from 1.8% to 3.8%).

The value of overdue debt (NPL 90+)[4] contracted by 40%, and the share of overdue debt in the total leasing portfolio reduced by 2.01 pp (from 6.77% as of 30 June 2015 to 4.75% as of 30 June 2016). This was mainly caused by the withdrawal of bad assets of TRANSAERO from the leasing portfolios of this sector's largest companies and a 0.4 pp reduction (from 3.01% to 2.61%) in the share overdue payments in the leasing portfolio. After TRANSAERO was excluded from the calculation by major lessors, the share of overdue debt in the total leasing portfolio totalled 0.81% as of 30 June 2016 compared with 0.88% as of 30 June 2015 (a 0.08 pp reduction).

[4] *(NPL 90+) is an indicator of overdue debt. Here and below the overdue debt shall mean the value of leased property on lease agreements that were not cancelled, under which there are overdue payments for the continuous period of more than 90 days.*

Over the reviewed period, the total amount of provisions created for possible losses under leasing agreements grew by 7% or by 0.6 pp with regard to the leasing portfolio (from 2.4% to 3%). Similar to growth in the amount of reserves, the reserve coverage of outstanding debt also improved (as of 30 June 2016, the reserves / outstanding debt ratio grew by 15 pp year on year, from 42% to 57%). The amount of withdrawals remains small, with the ratio of withdrawn assets to the leasing portfolio standing at 1.58% as of 30 June 2016 (compared with 0.4% as of 30 June 2015).

Findings of the leasing market study. Descriptive statistics by group of companies

Among the surveyed groups of leasing companies, the biggest amount of overdue debt (the NPL 90+ / leasing portfolio indicator) is registered for state-owned companies. However, compared with 30 June 2015, the average indicator for groups declined markedly, i.e. by 11 pp (from 31.1% to 20.2%). Though the average value for reserves / leasing portfolio ratio picked up from 0.82% to 3.12% (by 2.3 pp) over the period under review, it is still not sufficiently high for the given overdue debt.

Captive companies also demonstrated rather high metrics for the NPL 90+ / leasing portfolio indicator (6.77% as of 30 June 2016), it grew by 1.83 pp over the respective period. These companies featured an increase in the share of overdue payments in the leasing portfolio from 6.99% to 11.89% (by 4.9 pp). This trend is partly supported by the average share of reserves in the leasing portfolio, which grew from 0.9% to 4.9% (by 4 pp). However, the amount of reserves created is still lagging behind the increase in outstanding payments.

The observed indicators of companies, that are members of banking groups or are affiliated with banks, demonstrate the most stable behaviour. Given growth in average values of the NPL 90+ / leasing portfolio indicator by 1.43 pp (from 0.87% to 2.3%) and in the share of overdue payments in the leasing portfolio by 1.29 pp (from 1.48% to 2.77%), the share of reserves in the leasing portfolio grew by 1.48 pp (from 0.35% to 1.83%).

Independent companies typically showed a decline in the average values of reserves / leasing portfolio and NPL 90+ / leasing portfolio indicators (by 0.47 and 1.13 pp respectively), whereas the average value of overdue payments / leasing portfolio indicator increased slightly (by 0.26 pp).

According to the completed study of the leasing market, the financial leasing market showed a persistent contraction in volume. Over the period under review, the total leasing portfolio fell by 7% across the companies covered by the study. However, a noticeable revival in the market as a whole was registered, with the volume of new business growing by 15% in the first six months of 2016 year on year. Existing evidence suggests that a number of companies seek to raise the quality of leasing portfolio, which improves aggregate indicators for the overall market. Over the period under review, the reserve coverage of overdue debt

Table 6

Quality of leasing portfolio by group of leasing companies*

No.	Category	Statistical feature	Size of leasing portfolio (LP), billions of rubles	NPL 90+ /LP, %	Reserves/LP, %	Amount of overdue payments/LP, %	Share of NPL 90+ in LP across the sample, %
I	State-owned companies	Average	93.75	20.2	3.12	13.56	7.55
		Median	9.45	9.42	1.52	3.5	
II	Bank companies	Average	39.93	2.3	1.83	2.77	3.7
		Median	9.99	1.17	1.2	2.29	
III	Independent companies	Average	8.55	2.06	0.28	1.65	1.12
		Median	3.45	0.98	0.16	1.49	
IV	Captive companies	Average	14.89	6.77	4.9	11.89	3.74
		Median	7.98	1.75	1.9	10.77	

** All values are given as of 30 June 2016.*

(NPL 90+) grew from 19% to 31%, and a decline in NPL 90+ to leasing portfolio ratio equaled 2.01 pp. At the same time, the cost of funding for leasing companies exceeded the average values for the market: as of 30 June 2016, the average weighted yield to maturity of the bonds of leasing companies was 12.93%, which was 1.61 pp higher than the same indicator of corporate bonds (11.32%). The total volume of bond issues in circulation was around 300 billion rubles in the first six months of 2016.

4.2. NPF Investment Risks

The system of guaranteeing the rights of insured persons included 43 NPFs as of end-2016 Q3. Since early 2016, the size of pension savings held at all NPFs grew by 366 billion rubles to 2,085 billion rubles. This was mainly due to the funds transfer from the PFR and positive investment yields demonstrated by NPFs. Over the first nine months of 2016, yields on pension savings amounted to 10.6% p.a., and on pension reserves – 10.9% p.a. All funds demonstrated positive investment dynamics for pension savings. Only one fund posted loss for pension reserves.

Investment risks inherent in the portfolios of NPF pension savings[5] and pension reserves[6] did not change significantly in 2016 Q3. Over five-year horizon, credit risk amounted to: -12% for the portfolio of pension savings; -15% for the portfolio of pension reserves; market risk increased by 1 pp and totalled -8% for the portfolio of pension savings, and -7% for the portfolio of pension reserves (Charts 28 and 29).

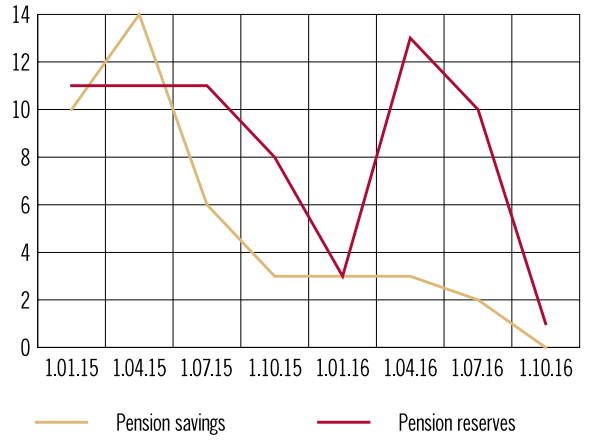
To analyse NPF sensitivity to financial shocks, the stress-testing of funds was held using two scenarios: the repeat of 2008 crisis events and the default of assets rated Caa1 or lower, and unrated assets categorised under maximum and medium risk levels. Under the first scenario, potential estimated losses on the aggregate portfolio of pension savings caused by the securities market disruption may total -20%, and they may equal -26% on the portfolio of pension reserves. In case of the

[5] *Here and below pension savings are considered across NPFs belonging to the system of guaranteeing the rights of insured persons.*

[6] *Here and below pension reserves are considered across 20 top NPFs by the size of pension reserves.*

Chart 27

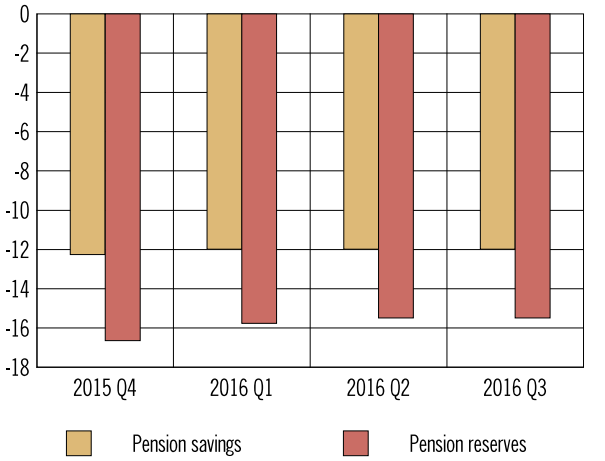
Share of NPFs with negative returns



Source: Bank of Russia.

Chart 28

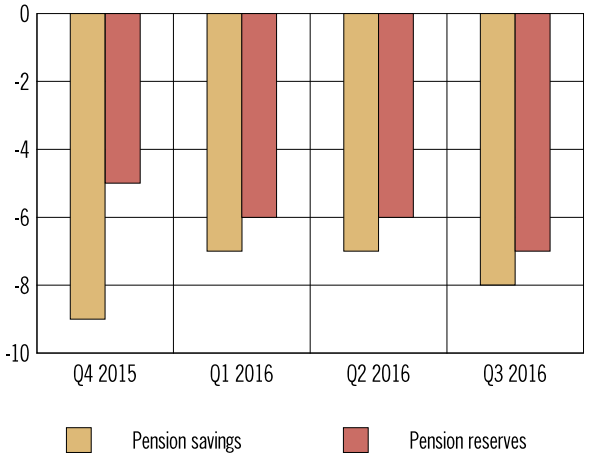
Change in NPF credit risk over 5-year horizon (%)



Source: Bank of Russia.

Chart 29

Change in NPF market risk (%)



Source: Bank of Russia.

Table 7

Risk indicators for the aggregate portfolio of pension savings

	Credit risk		Market risk (CVaR-30 days)	Scenario 1: 2008 crisis	Scenario 2: default of assets with low rating
	over 1-year horizon	over 5-year horizon			
Potential estimated losses, %	-2	-12	-8	-20	-12
Funding ratio	0.98	0.88	0.92	0.80	0.88
Burden on capital	0.54	3.67	2.44	6.22	3.66

default of assets, potential estimated losses on the aggregate portfolio of pension savings may total -12%, and they may equal -48% on the portfolio of pension reserves.

Overall, the analysis of the pension savings market revealed the resilience of funds to credit risks over the mid-term horizon. Even though the value of funding ratio[7] is slightly below one for 40 out of 43 NPFs, only five funds have the ratio of estimated losses to capital (burden on capital) above one in case credit risk materialises over a one-year horizon. The worst scenario for funds seems to be the 2008 crisis: 30 out of 43 funds may experience capital deficit if this scenario materialises.

As part of regulatory changes, the Bank of Russia has elaborated a draft regulation[8] that will replace Regulation No. 451-P, dated 25 December 2014. The document stipulates the following essential changes:

1. Possibility to invest pension savings in the shares of Russian joint-stock companies admitted to trading on the ilM-Prime segment of MICEX SE (not more than 5% of the investment portfolio value), and to conclude transactions with derivatives and repos (not more than 10% as of the moment of transaction).

2. Gradual replacement of mortgage participation certificates with the investment units of investment funds.

3. Introduction of a 10-percent cap on the share of securities with enhanced risk in the investment portfolio.

4. Gradual reduction in the maximum share of investment in the banking sector (from 40% to 25%).

4.3. Risks of insurance organisations

In 2016 Q3, insurance organisations' return on equity remained high at 29.7%, and the aggregate net profit of the segment reached 102.7 billion rubles. The dynamics of premiums on the majority of insurance types were positive. Motor hull insurance premiums continued their decline (-8.6% for the first nine months of 2016). Additionally, measures to optimise portfolios and expenditures implemented by insures yielded the following results: in 2016 Q3, the combined loss ratio dropped to 62.2%, and the share of companies showing negative technical result for this insurance type fell to 3.1% (by 6.8 pp) year on year (Chart 31).[9]

In 2016, the second and third quarters saw an increase in the share of insures registering negative technical result for OSAGO (Chart 31). For the whole market, the combined loss ratio for OSAGO stood at 92.5% in Q3, net of administrative expenses. Insurers incurred persistent and elevated expenses caused by expanding insurance fraud and the judicial practice addressing it. According to the Russian Association of Motor Insurers (RAMI), in 2016 Q2, the amount of insurers' overhead expenses adjudicated by court rulings was comparable with the amount of court-ordered insurance payments (by 1% lower than the amount of principle claims).

[7] *The ratio of liabilities coverage by NPF assets.*

[8] *Draft regulation 'On Additional Restrictions on Investing Pension Savings Placed with a Non-governmental Pension Fund Providing Mandatory Pension Insurance, Additional Requirements for Credit Institutions with Which Servicemen Pension and Housing Savings are Placed, and Additional Requirements for Management Companies under Pension Savings Trust Management Agreement'.*

[9] *The combined loss ratio characterises the efficiency of insurance activity. It represents a ratio of the sum of incurred losses, business expenses, etc. (net of management expenses) to the value of insurance premium received. Technical result is a difference between insurance activity-related revenue and expenses of the insurer.*

Box 9.
Russian stock market analysis aimed at the identification of 'bubbles'

As part of its efforts to assess systemic risks of the financial sector, the Bank of Russia analysed the Russian stock market to check the existence of 'bubbles'. To do this, work is underway, in line with IMF[1] recommendations, to create a methodology to identify 'bubbles' on the basis of a comprehensive approach and using the following methods:

– comparative analysis of shares using multipliers (Price to Earnings, Price to Sales, Price to Book Value);
– quantitative analysis (debt burden, SPO volume, analysis of consensus forecasts of company prices);
– price analysis (deviations from sectoral indices and the broad market index, technical analysis indicators).

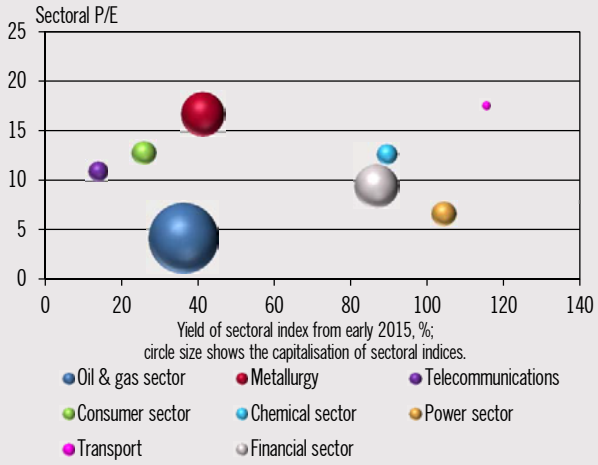
The subject of analysis was a hypothetical portfolio of all outstanding 50 shares (common and preferred) issued by 44 companies included in the MICEX index (hereinafter, the MICEX portfolio). The analysis of financial indicators across these companies was based on data from their IFRS statements for 2007 and 2015.

As of 21 November 2016, the market capitalisation of the MICEX portfolio was 30.33 trillion rubles or 90.9% of the total capitalisation of the Russian stock market. Top-10 companies account for 67.8% of the MICEX portfolio capitalisation.

Summary analysis of sectoral indices movements from early 2015 and sectoral Price to Earnings (P/E) ratios has not identified signs of an emerging 'bubble' in the Russian stock market. Growth in the sectoral P/E ratios has been observed for the power sector (amid the recovering profitability of companies and due to the low base effect) and metallurgy (as a result of improved situation in the commodity market since the 2016 summer).

Chart 30

Ratio between yield and P/E indicator for sectoral indices



Sources: Bank of Russia, Bloomberg.

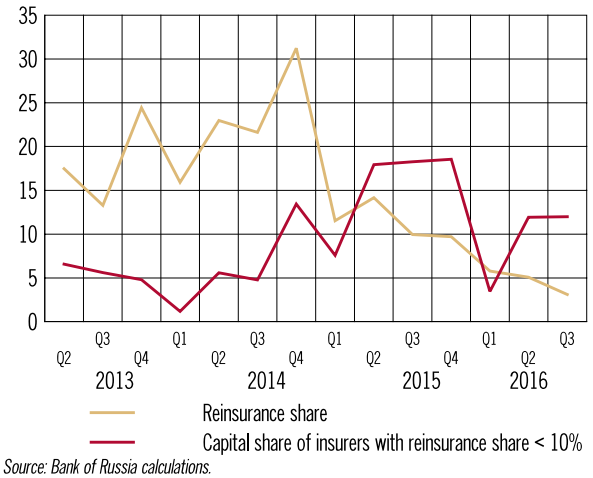
[1] *IMF Working Paper. Identifying Speculative Bubbles: A Two-Pillar Surveillance Framework, 2014.*

Across the most unprofitable regions, insurers continued to massively restrict the sales of OSAGO polices which led to growth in social tension. On 2 August 2016, seeking to ensure the accessibility of OSAGO polices, the RAMI signed a multilateral agreement on the introduction of agency sales ("single RAMI agent"), which was joined by 69 insurance companies. According to the agreement, the share of an insurer in the regions covered by the system is calculated on a weekly basis based on the total number of agreements concluded in all problem regions. After that, the derived result is compared with such insurer's share for the overall OSAGO market. If the share for problem regions is less than the share for the overall OSAGO market (with the maximum share for problem regions being capped at 20%), the insurer is included in the list of companies whose policies are sold by agents. As of early November 2016, a decision was made to launch the single agent arrangement in 15 regions and to set up 741 points to sell policies there.

According to legislative amendments, from 1 January 2017, insurers are obliged to sell electronic OSAGO policies on an ongoing and uninterrupted basis. Potential insurance fraud shall be limited due to changed loss settlement procedure: extended timeframe for pre-court settlement and mandatory delivery of damaged vehicle to be inspected by the insurer. Other prospective legislative amendments include the prevalence of in-kind compensation over cash compensation under OSAGO.

Chart 31

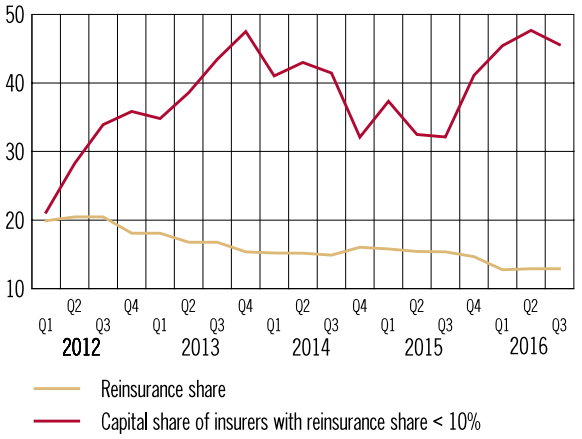
Share of capital of insurers with negative technical result in vehicle insurance in 2013-2016



Source: Bank of Russia calculations.

Chart 32

Share of reinsurance and capital share of insurers with reinsurance share below 10% in 2012-2016



Source: Bank of Russia calculations.

Increase in the proportion of capital of insurers characterised by a low share of reinsurance[10] (Chart 32) has become a negative signal for the financial resilience of the insurance industry. This suggests that some companies have increased the burden on own capital to cut expenses on reinsurance or have assumed risks which are rather difficult to cover by means of reinsurance.

In October 2016, the National Reinsurance Company (NRC) obtained licence and began to conclude agreements. This company was set up to provide insurance coverage for the property interests of insurers falling under foreign sanctions (including, several infrastructure projects), and for the owners of residential real estate that have entered into insurance contracts against the loss of property in emergency situations. The newly-created NRC shall add to the capacity of Russian insurances and enhance the transparency of their reinsurance operations, given the obligation to assign 10% risk to the NRC (with several exceptions) from 1 January 2017. In the long-term perspective, the NRC is seen to be able to provide a stimulatory effect on the insurance market development. This will be achieved via the unique opportunity to create a nation-wide information base and to build up a capacity to conduct insurance examination and create new financial products.

[10] *The share of reinsurance means the following coefficient: 1 minus the ratio of the sum of insurance premiums net of reinsurance to total insurance premiums.*

Box 10.
Results of stress-testing in insurance market

For the purpose of preventive assessment of insurers' financial resilience the Bank of Russia continued the top-down stress-testing of insurance companies to examine the pass-through effect of macroeconomic and credit risks. The stress-testing was expanded to cover all operating companies.[1]

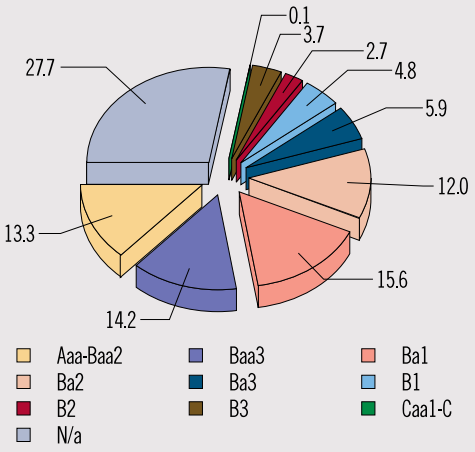
The testing results suggest that the materialisation of risk macroscenario may cause 19 companies to experience capital deficit at end-2017, with the total capital deficit reaching 38.3 billion rubles. Given the organisational models remain in effect, the level of capital deficit will exceed 50% of own capital for 13 companies.

As of 30 September 2016, the share of premium quality assets with credit ratings of Baa3[2] and higher accounted for 27.5% of the insurers' total assets, whereas the share of assets rated B2 and lower did not exceed 6.5%. The total share of unrated assets was 27.7%, including 15.4% of accounts receivable (Chart 33). The share of unrated assets of 50% and more was typical for 35 companies whose proportion in the aggregate insurance premiums did not exceed 2.5% in the first nine months of 2016.

Overall, total forecast losses for all insurance companies are unlikely to exceed 1.7% of their assets over one-year horizon and 11.1% of their assets over five-year horizon. The level of credit risk differed markedly across some companies: the amount of estimated losses ranged from 1.1% to 27.9% over five-year horizon. For the majority of insurers, the estimated losses did not exceed 20% of their assets over five-year period (Chart 34). At the same time, market players demonstrate a robust capacity to absorb losses: only seven companies from among insurers covered by the analysis had the estimated loss-to-equity ratio above 20% within one year.

Chart 33

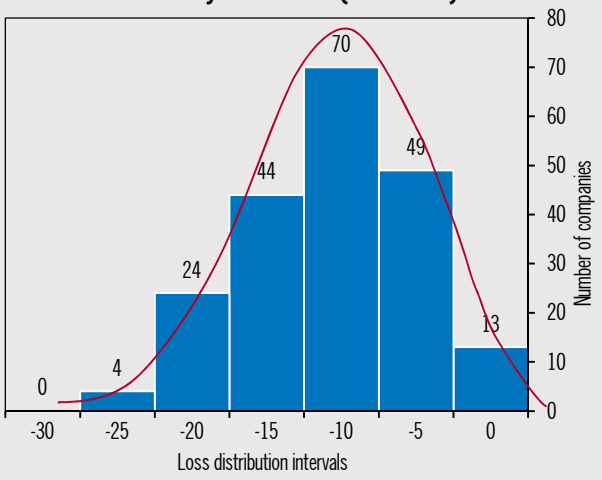
Asset structure of insurers by credit rating as of 30 September 2016 (%)



Source: Bank of Russia calculations.

Chart 34

Insurers by potential losses over 5-year horizon (credit risk)



Source: Bank of Russia calculations.

[1] *The stress testing methodology is given in the Financial Stability Review for 2015 Q2-3. The current calculations cover 212 insurers for credit risk assessment and 179 insurers specialising in insurance other than life insurance for the estimation of macroeconomic risk.*

[2] *Here and below ratings are quoted on the scale of Moody`s Investors Service.*

5. FISCAL POLICY IMPACT ON FINANCIAL STABILITY

Persistent fiscal sustainability, being one of the priorities of the state fiscal policy, is a fundamental factor underpinning financial stability. In the aftermath of the large-scale decline in global energy prices in 2014, Russia faced a structural adjustment in balance of payment, and also adjustment of the ruble exchange rate and federal budget revenues. The federal budget' expenditures typically exceed it revenues. This leads to budget deficit and calls for ways to finance it. In January-October 2016, the federal budget deficit totalled 1.577 trillion rubles of 2.3% of GDP (-0.7 trillion rubles, year on year).

In the period under review, budget revenues and expenditure demonstrated changes in the level and structure. Importantly, trend towards the reduction of federal budget revenues persisted on the back of the decline in the oil and gas component (Chart 35). Growth in non-oil and gas revenue occurred on account of sources related to domestic VAT, profit tax and domestic excise duties (Chart 36). Import-related revenues fell amid the overall contraction in import quantities.

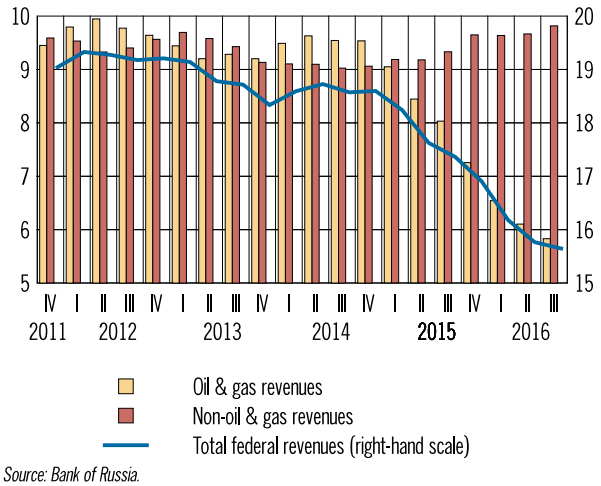
In 2016 Q2-3, federal budget expenditures were on the upward track. This growth was mainly due to the increase in expenditures on social sphere, and also general administration and the servicing of public and municipal debt.

The federal budget deficit was financed by the Reserve Fund which contracted by 1.6 trillion rubles over first nine months of 2016 and reached 1.99 trillion rubles as of 1 November 2016 (FX difference arising from the revaluation of the fund's assets was 478.9 billion rubles) (Chart 39). In the near term, decline in the volume of spent sovereign funds will be driven by the privatisation of state-owned companies.

Persistent and elevated budget deficit causes a more active use of deficit financing sources, i.e. either a faster spending of the Reserve Fund or elevated government borrowings. The use of the Reserve Fund helps smooth out the volatility of public expenditure and ensure the execution of the expenditure part of the budget irrespective of the current situation in commodities market. Depletion of the fund will restrict budget capacity in this regard. Government borrowings serves as another source of deficit financing. However, their maximum volume depends on a number of factors, including current climate in the financial markets and potential demand demonstrated by key groups

Chart 35

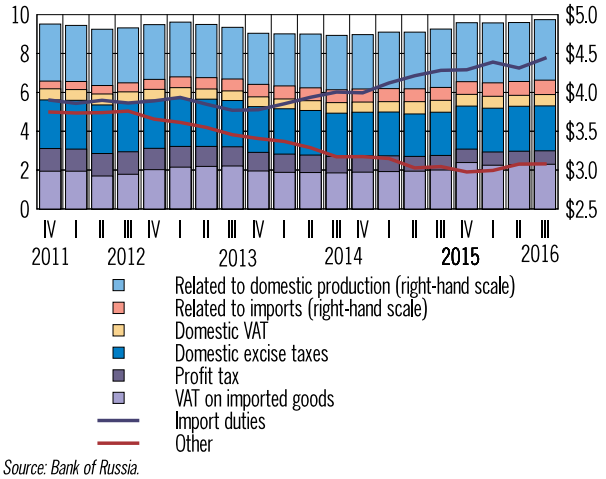
Federal budget revenues as % of GDP (series of moving annual totals, % of GDP)



Source: Bank of Russia.

Chart 36

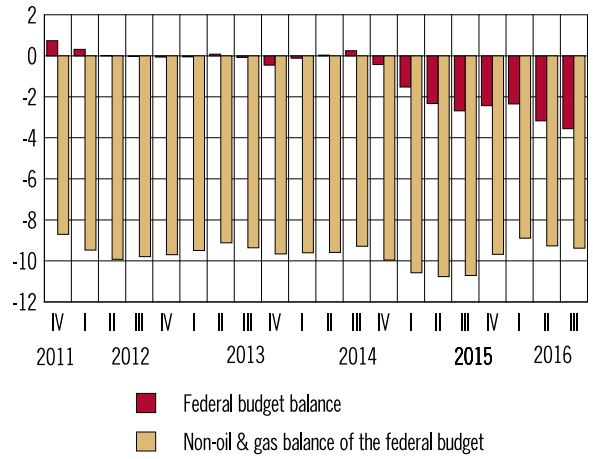
Major non-oil & gas revenue items of the federal budget (series of moving annual totals, % of GDP)



Source: Bank of Russia.

Chart 37

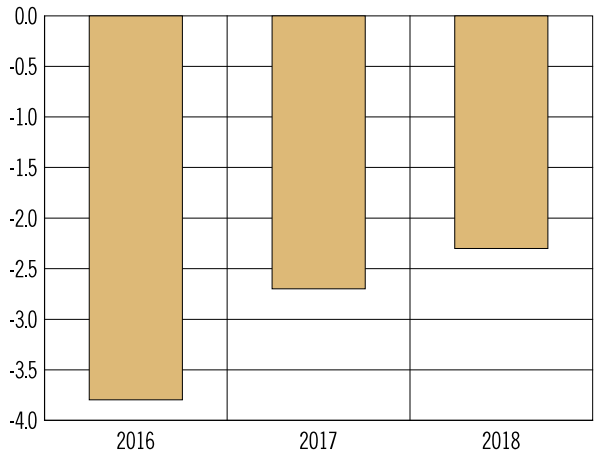
Relation between federal budget balance and GDP (series of moving annual totals, %)



Source: Bank of Russia.

Chart 38

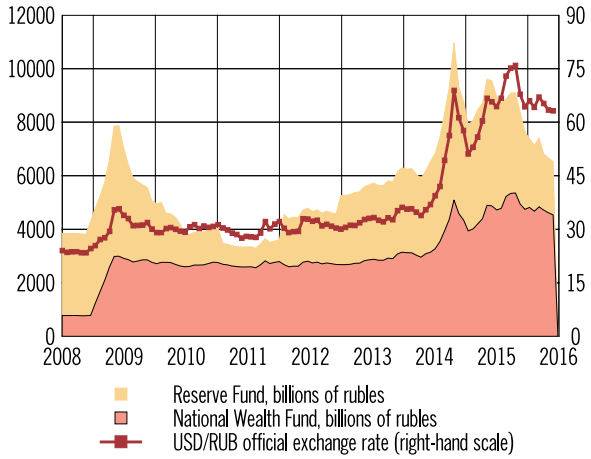
Russian state budget balance (forecast by global banks, rating and research agencies for 2016-2018 (Bloomberg ECFC, 17.11.2016, as % of GDP)



Source: Bank of Russia.

Chart 39

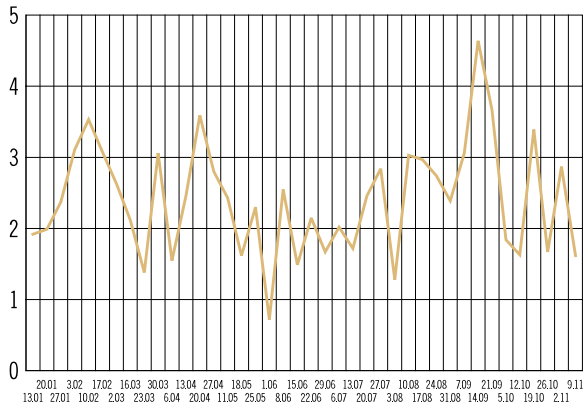
National Wealth Fund, Reserve Fund and US dollar to ruble exchange rate



Source: Bank of Russia.

Chart 40

Value of average weighted activity ratio* at OFZ auctions conducted by Russian Ministry of Finance in 2016



** Activity ratio – ratio of aggregated volume of demand in nominal value to value of supply on auction.*

Source: Bank of Russia.

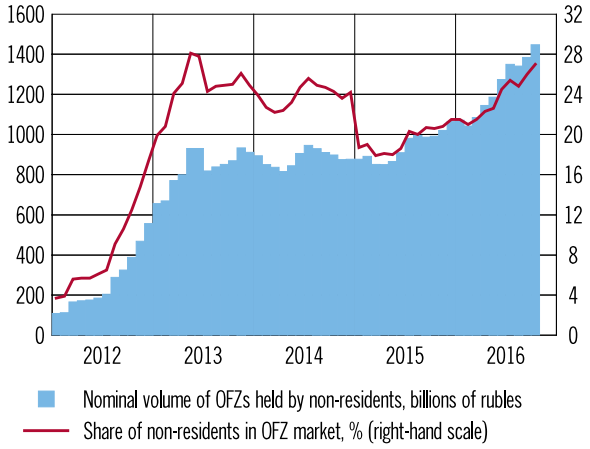
of investors. According to the experience of other countries, excessive borrowings may drag heavily on the situation in the debt market and hamper further borrowings. In view of the above, persistent and elevated budget deficit is also linked to heightened risks, as it complicates the reaching of trade-off between the increased spending of funds and growth in borrowings.

It is important to resume the practice of three-year budget plans to raise the quality of fiscal policy and to deliver on the optimal level of budget deficit. Following the adoption of the one-year law on the 2016 federal budget, a draft federal law was prepared on the federal budget for 2017 and for the period of 2018 and 2019, which will streamline the forecasting of economic processes and the planning of reforms, including on tax policy issues. For the purpose of reducing budget deficit, the draft federal budget of 28 October 2016 set expenditures at 16.24 trillion ruble for 2017, at 16.039 trillion rubles for 2018, and at 15.9 trillion rubles for 2019. In the context of a prolonged decline in oil prices, budget deficit and the using of sovereign funds, macroeconomic stability may be achieved via a more moderate growth in public expenditure and a reduced budget deficit.[1]

[1] *A. Sinyakov, K. Udaeva 'Central bank policies under significant shocks of Balance of payments and structural shifts'//Economic issues.2016, №9, p.5-39.*

Chart 41

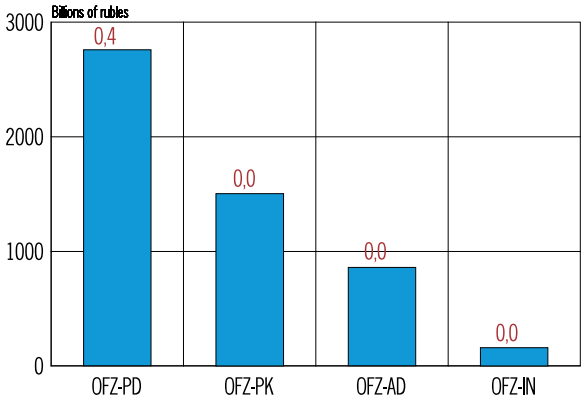
Nominal volume of federal government bonds (OFZ) held by non-residents and the market share of non-residents



Source: Bank of Russia.

Chart 42

Volume of outstanding OFZs and non-residents' investments in OFZs* (September 2016)



** Interest values over columns show OFZ shares held by non-residents*
Source: Bank of Russia.

In the draft 2017-2019 federal budget of 28 October 2016, budget deficit to GDP is expected at the level of 3.2% in 2017, 2.2% in 2018, and 1.2% in 2019. The consensus forecast prepared by global banks, rating and research agencies also expects a considerable drop in budget deficit in 2017-2018 (Chart 38). To cover the federal budget deficit the volume of net domestic borrowings in 2017 is to be raised to 1.05 trillion rubles through federal government bond (OFZ) placement. Increase in the supply of OFZ is scheduled amid a high demand for government debt instruments. In 2016, the activity of bond placement auctions was indicative of an extremely high demand for OFZ among investors (Chart 40). This points to the market's sufficient depth and a possibility to build up borrowings further.

The fulfillment of borrowing programme is expected to be facilitated by the inflow of non-residents' funds. Over 2014, the volume of non-resident investment remained stable, and from 2015 its growth has resumed (Chart 43). As of 1 October 2016, roughly 27% of outstanding OFZs were held by foreign investors.

Amid declining ruble interest rates, investment in OFZ with permanent coupon-income (OFZ-PD) remains the most attractive type of OFZ for foreign investors. This led to an enhanced proportion of non-resident investment in these securities: as of September 2016, 44% of OFZ-PD were held by foreign investors, whereas non-resident holdings across other OFZ issues were negligible (Chart 42).

Considerable volume of non-resident investment in OFZ-PD enables foreign investors to influence the pricing of fixed-rate government securities. However, increase in the market share of non-residents in the past year was mainly explained by the relatively low supply of government securities compared with the high demand by foreign investors amid slowing inflation, declining interest rates and stabilising ruble. In view of the above, increased volume of OFZ issues scheduled for 2017 will help achieve a more balanced supply/demand correlation, considering, among other things, an upward trend in the demand for government debt instruments among residents.

First, growth in non-resident demand for OFZ will be driven by the expanding resource base (liabilities) of banks formed by the inflow of funds into the banking sector as a result of using the Reserve Fund to finance budget expenditure. In early 2017, the total amount of these funds is expected to exceed 2 trillion rubles, being materially above the planned volume of net government borrowings in the domestic market.

Second, to comply with the tightening requirement on liquidity coverage ratio (LCR, Basel III), SIBs will have to hold more sizeable HQLAs from 1 January 2017, which will raise the demand for OFZs (Box 11).

Currently, more than a half of HQLAs of SIBs is made up of OFZs (46% as of 1 October 2016). Compared with Bank of Russia deposits, another

Box 11.
Increase in demand for OFZ among systemically important banks (SIBs)

From 1 January 2016, the Bank of Russia has introduced a requirement for SIBs to maintain the liquidity coverage ratio[1] (hereinafter, the LCR) at 70%, with its subsequent upgrade by 10 pp every year to reach the 100% value by 1 January 2019. Additionally, from 1 January 2017, banks will be obliged to calculate arithmetic mean for LCR for each day within a quarter, as distinct from the earlier practice of calculating these values only for the first day of each month.

LCR is calculated as the ratio of banks' high quality liquid assets (hereinafter, the HQLAs) to the net outflow of funds over 30 days. At present, LCR across all SIBs exceeds 70% (at bank-group level), however, as the required level of LCR will be raised within two years ahead, banks will have to expand the volume of their HQLAs.

The necessity to raise the volume of HQLAs is also dictated by the expected near-term net funds outflow (the denominator of the LCR formula) amid spending the Reserve Fund and ensuing overall growth in the banking sector liabilities. Over the past year, the HQLAs of SIBs exceeded net expected funds outflow by growth rate. This trend needs to be retained to enable SIBs to comply with regulatory requirements.

Though OFZs are held not only by large banks, but also by other financial market players, SIBs account for the biggest share of the overall OFZ portfolio (roughly 35%). According to the Bank of Russia estimates, to comply with tightening regulatory requirements on LCR SIBs will have to raise the size of HQLAs by 3.5 trillion rubles over the period from 1 January 2017 through 1 January 2019.

Given the stable interest in OFZ on the part of non-residents and the planned volume of net borrowings via OFZ issues to reach 2.1 trillion rubles in the two years ahead, SIBs' demand for OFZ (for the purpose of raising the amount of HQLAs) is highly likely to exceed the planned net volumes of OFZ placements.

Due to the above and in line with the recommendations of the Basel Committee on Banking Supervision, the Bank of Russia is ready to provide to credit institutions irrevocable credit lines to cover the potential deficit of HQLAs. At present, the aggregate amount of maximum limits set for irrevocable credit lines totals 687.8 billion rubles.

[1] Bank of Russia Regulation No. 510-P, dated 3 December 2015, 'On the Procedure for Calculating the Liquidity Coverage Ratio (Basel III) by Systemically Important Credit Institutions'.

source of HQLAs, OFZs feature relatively high real expected yields.[2]

Compared with less liquid assets (e.g., corporate bonds) OFZs look more preferable, as they are included in the calculation of high-quality liquid assets in full (without any discounts). Thus, when creating high-quality liquid assets in compliance with regulatory requirements, SIBs will admittedly opt to invest in OFZ.

Apart from domestic borrowings, Ministry of Finance of Russia intends to raise the maximum volume of external borrowings from 3 to 7 billion US dollars in 2017. In 2016, the Ministry of Finance has conducted two successful 10-year Eurobond placements to the total amount of 3 billion US dollars, which elicited high demand. Thus, the goal of Russia's Ministry of Finance to significantly increase the volume of borrowings is likely to be achieved.

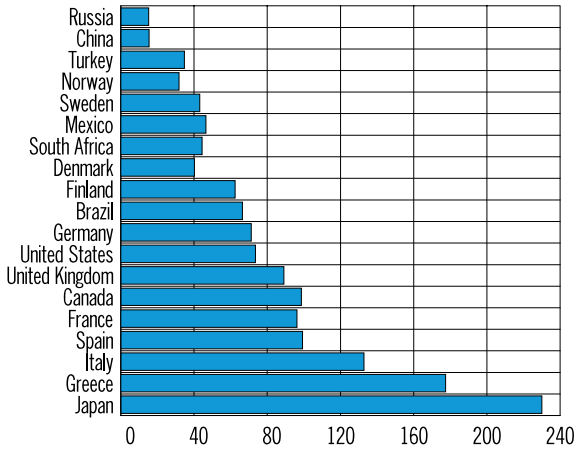
Relatively low value of Russia's public debt to GDP ratio compared with other countries is conducive to the build-up of sovereign borrowings (Chart 43). Nonetheless, besides the public external and internal debt, it is necessary to take into account the debt of Russian regions and the debt of state corporations to private creditors. These items included, the value of public debt to GDP ratio turns out to be slightly elevated, though remaining safe (Chart 44).

International practice uses various approaches to limiting budget expenditures and the level of public debt to GDP ratio, and also the consolidated debt of the state, regions and public corporations (Box 12). Therefore, if the public debt builds up further, the task of ensuring financial stability will require

[2] Considering the inflation's downward movement to the 4% target by 2017 and its staying close to this level further, investment in OFZ is characterised by relatively high real yields to maturity over a long-term horizon.

Chart 43

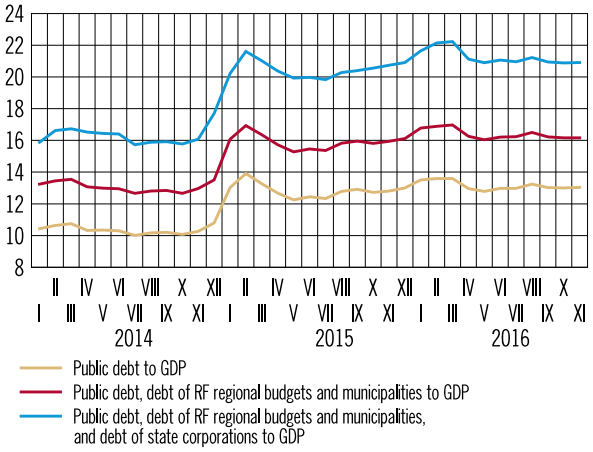
Public debt as % of GDP across various countries (% of GDP)



Source: Bank of Russia.

Chart 44

Public debt, debt of RF regional budgets and municipalities, and debt of state corporations to GDP (%)



Source: Bank of Russia.

installing controls over the financial sustainability of quasi-sovereign borrowers alongside the budget rule governing the accumulation (spending) of the reserve fund. For this purpose, the National Council on Ensuring Financial Stability (responsible for the interagency coordination of financial stability issues) set up two working groups for assessing potential systemic risks of JSC Agency for Housing Mortgage Lending (AHML), JSC Russian Small and Medium Business Corporation (RSMB Corporation), Vnesheconombank and Russian Foundation for Technological Development.

Box 12.
Situation across several oil-exporting countries

In the context of an oil price drop by more than 50%, since mid-2014 oil-exporting countries have been facing considerable risks for their fiscal sustainability.

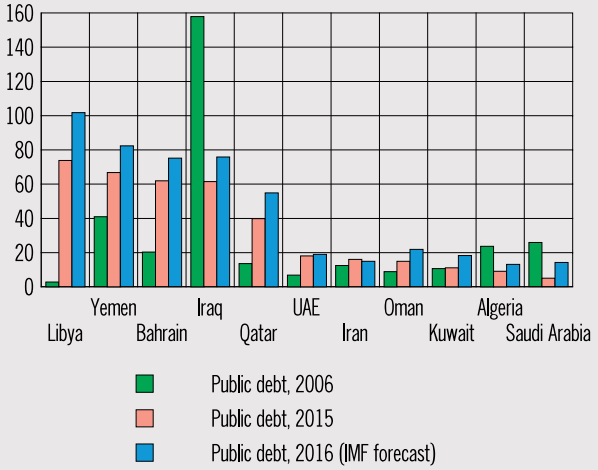
Many oil-exporting countries face budget deficit caused by a material drop in oil revenues, which, within the total 2014 budget revenues, accounted for percentage shares ranging from 23% (UAE) to more than 90% (Iraq and Algeria). According to IMF estimates, budget deficit in the Persian Gulf nations will total 12.7% of GDP and will be at 7% of GDP in the medium run, the total accumulated budget deficit of these countries totalling $900 billion in 2016-2020. Budget deficit is estimated at 7.7% of GDP for other Middle East and North African countries.

Fiscal sustainability risks remain high in oil-exporting countries despite unprecedented fiscal consolidation measures. The countries largely focused on budget cutting measures (Algeria, Iraq, UAE, and Saudi Arabia), though some of them managed to step up budget receipts on account of non-oil revenues (Oman raised tax on corporation, and Bahrain increased excise duties on tobacco and alcohol). Many Persian Gulf nations raised selling prices for fuel (petrol, gas), electricity and water. These prices will grow further over several next years. Oman and the UAE have installed automatic pricing mechanisms. Additionally, several countries (Algeria, Iran and Yemen) have devalued their national currencies to compensate for budget losses incurred by oil exports.

Oil-exporting countries resort to different finance sources to cover budget deficit, including monetary buffers (deposits with a central bank or with commercial banks, sovereign reserve funds), and also external and domestic borrowings (bond issuing). According to IMF estimates, in the current situation, Middle Eastern and North African countries (excluding Kuwait, Qatar and the UAE) will deplete existing capital buffers over a seven-year horizon. In view of this, oil-exporting countries become vulnerable to the risks of excessive debt burden growth in public sector,

Chart 45

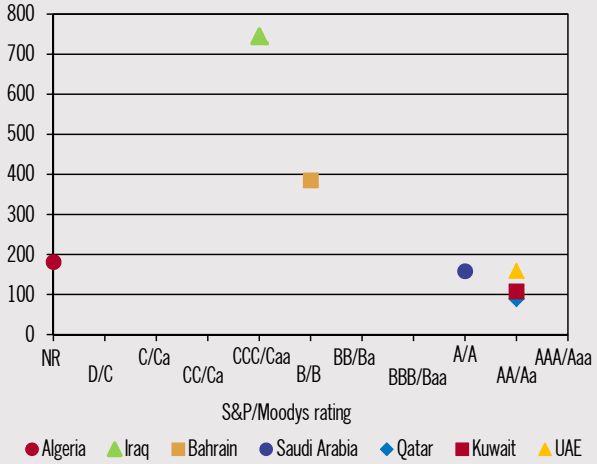
Total public debt dynamics (% of GDP)



Source: IMF.

Chart 46

Current CDS and sovereign credit rating



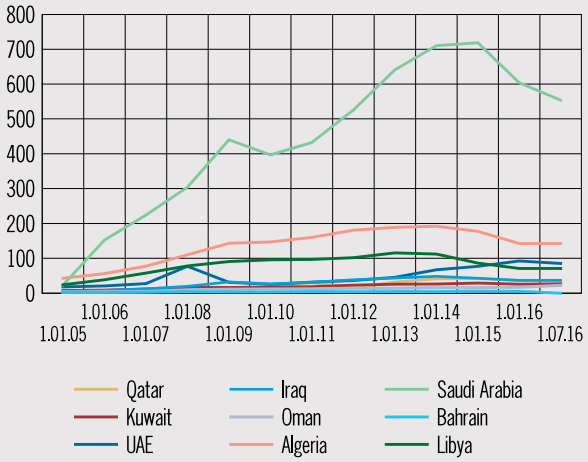
Source: Bloomberg.

despite the fact that public debt is so far small in many of these countries (Chart 45). According to IMF estimates, the aggregate public debt of Persian Gulf nations will be up from 13% of GDP in 2015 to 45% of GDP in 2021. However, it is worth mentioning that the majority of Persian Gulf nations retain high sovereign credit ratings, comparable with those of developed countries (Chart 46).

If oil prices remain low in the near term, the need to resort to the fiscal buffer may drag heavily on the financial stability of oil-exporting countries. Depleted sovereign funds may disrupt the confidence of market players, impact negatively on the attitude of foreign investors and trigger growth in the cost of borrowings. Withdrawal of government deposits from banks may lead to liquidity deficit in the banking system, exerting pressure on interest rates. Government bond placements in internal and external markets may, on the one side, support the development of financial market, but, on the other side, they will enhance risks of resilience to debt, especially amid the downturn in investors' confidence and the increase of debt servicing cost, including in view of the increase in the Fed's federal funds rate.

Chart 47

Foreign currency reserves with central banks



Source: Bloomberg.

ANNEXES

Annex 1. Description of approaches to risk assessment

To assess the extent of threat to financial stability separately for the financial market and banking sector, market situation was defined as "calm" (natural) or "stress", when market parameters are subject to considerable (shock) changes requiring special measures for getting them back to normal.

Periods of stress were determined on the basis of Kolmogorov-Smirnov (hereinafter, the KS) statistics. To minimise errors when selecting a relevant risk indicator this task used a composite risk indicator, being the main element of the total set of risk indicators.

At the initial stage, periods differed by length and by the starting point of assumed stress period. For each identified period, two distribution series were created on an accrual basis: for the assumed stress period and for the calm period. Values of the distribution function for the stress period were subtracted from the distribution function values for the calm period. The maximum of the derived differences constitutes the characteristic of a given period.[1] The final selection of the stress period out of all examined periods had to comply with the following requirements: first, the period should have the maximum value of the characteristic and, second, the given characteristic should be in the most striking contrast to the characteristic of the next period. The duration of stress periods was selected on the basis of two criteria: the value of KS statistics and the difference between these statistics for the selected duration and for the longer duration. Therefore, the higher the value of KS statistics and the bigger difference with the statistics of the next period, the more reasons for a given stress duration to be selected.

Further, the KS mechanism was used to determine threshold values for the "red" and "yellow" zones. The "red"-zone value was determined as the mean value of two indicators as of the beginning and as of the end of the crisis. The "yellow"-zone value was derived as the mean value of the "red"-zone value and the mean for the indicator over the whole time interval.

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[1] *The feature calculated by this method constitutes the Kolmogorov-Smirnov statistics, being the KS test. The statistics can be presented as follows:*

$$D = \underbrace{\max}_{I} (F_{nc}(I) - F_{c}(I)$$

Where I – is the value of indicator;
$F_{nc}(I)$ – is the distribution function for observations during the calm period;
$F_{c}(I)$ – is the distribution function for observations during the stress period.
Most often, this criterion is used to check the hypothesis according to which two samples belong to one sampled population. In this case, bigger values of D mean the greater difference between two compared periods and, eventually, higher probability for a period with big indicators to become a stress period.

Annex 2. Impact of financial technologies (FinTech) on financial stability: recent international research

Financial innovations imply the use of digital technology for the provision of financial services. The implementation of financial innovations has certain advantages:

– improvement of financial inclusion due to new methods of financial service provision, expansion of product range, and appearance of new companies in the market;

– cost cutting due to more efficient data processing and the appearance of a flexible platform which helps adapt services to customer needs;

– risk-management improvement to facilitate the quality of data gathering and processing, to determine risk concentration and to develop the framework for early crisis identification;

– competition growth in the market and diversification of risk as a result of expansion in the number of service providers, emergence of alternative products and business models;

– enhanced quality of interaction between market players as a result of streamlined information exchange.

The most active introduction of FinTech is being observed in four spheres.

1) **Alternative financing.** Key drivers underpinning growth in this market are demand for new investment types demonstrated by consumers and companies, shortage in investment potential, and high speed of service provision via Internet. This sphere primarily includes peer-to-peer lending (P2P), i.e. lending between two individuals without any intermediaries, crowdfunding, i.e. situations when a large number of creditors provide funds to one borrower.

2) **Data analysis.** New technologies increase the efficiency of information handling and allow companies to earn by processing data. Risk assessment becomes more efficient as a result of an increase in the accessibility of personal data. The automation of financial consulting services became possible due to the appearance of software used to analyse customer data. The so-called robo-advisers engage in portfolio planning, placement and rebalancing of assets, and also online risk assessment.

3) **Payments.** Financial technologies are most actively employed specifically for conducting payment operations (e.g., mobile and cross-border payments).

4) **Distributed Ledger Technology** (hereinafter, the DLT) constitutes a safe method used to record operations requiring transaction checking and verification by a big number of users, which eliminates the need to use a centralised infrastructure. Two key properties of the DLT are maintenance of ledger copies by a quite a number of participants (which protects against the irreparable damage of information) and protecting the safety of information kept in the ledger by cryptographic means. The ledger is maintained on the basis of the consensus principle of participants used to create new blocks of information.

5) **Virtual currencies (cryptocurrencies).** This type of currency exists only in cashless form, it is not linked to any official national currency, and it is not a legal tender of any company or organisation. The own value of cryptocurrency equals zero, and its current value depends on the confidence of its buyers, i.e. their confidence that it may be used to acquire goods (services) or that it may be exchanged for real currency. As of end-2015, in excess of 600 virtual currencies were in circulation. Transactions in these currencies are largely recorded by means of DLT. The most well-known and widely used type of cryptocurrency is bitcoin. Trading in bitcoins is recorded in the distributed ledger blockchain.

6) **Algorithmic trade** implies the use of computer programmes (trading robots) to engage in trading in the financial market in an automatic regime. Investors enter key parameters in the programme which make it possible to conduct operations at a materially higher speed than the speed of ordinary trades. This technology is able to record large volume of data per unit of time, to cut costs, and to reduce operation risks linked to traders' errors. High-frequency trading accounts for a considerable volume of transactions using computer algorithms. This type of trading employs complex algorithms to analyse significant volumes of data across several markets at high speed and to make large-scale deals virtually instantly.

The implementation of FinTech also bears potential risks. For example, alternative methods of financing feature the same risks as conventional credit products, i.e. default risks and liquidity risks.

At the same time, many alternative products pass these risks on to an ultimate customer (lender), whereas these segments are so far outside the scope of regulation and they do not have any customer protection mechanisms in place. The assessment of FinTech implications shall differentiate between completely new business models and more efficient alternative methods of service provision (e.g., P2P lending platforms).

Ensuring protection for the consumers of new financial services is closely linked to the protection of information submitted by them. Companies accumulate large volumes of confidential customer information, therefore it becomes essential to ensure an effective protection for databases against cyber-attacks, to raise the safety of technology used to transmit data (e.g., transmission of credit card numbers during the online payment for services).

Apart from cyber risks, operational risks also play a rather important role. Some technologies (e.g., blockchain) deem it impossible to cancel performed operations. Additionally, new products currently experience a dramatic shortage of the means of regulation, and the legal rights and obligations of parties to transaction are not always clearly defined. Growing dependence on IT-systems poses enhanced requirements for their efficiency. Increase in the proportion of non-traditional technologies used to provide financial services exacerbates the overall negative drag on the financial system in case of these risks' potential materialization.

Operations' anonymity supported by computations using virtual currencies and public distributed ledgers allows for the performance of prohibited types of activity, money laundering and terrorism financing. The FATF believes that key risks are concentrated at the intersection points of virtual currencies and the financial system based on fiat money. Therefore, regulatory measures should be primarily targeted at companies functioning as currency exchange points and other institutions performing "borderline" functions.[1] However, this measure may lose its efficiency if virtual currencies become wide-spread to the extent that one will not have to change them for fiat currencies.

It should be noted that the current volume of transactions carried out using financial technologies is not sufficiently big compared with the volume of conventional transactions. Nonetheless, leading international organisations and forums identify several potential risks for the financial stability.

Automation achieved through the use of "smart" contracts, robo advisers and trading robots may lead to the growth of market procyclicality. Increase in the market share of transactions employing financial innovations may trigger the process of concentration of new innovation players. The volume of transactions of some companies may expand dramatically, making such companies systemically important for the smooth and efficient operation of the market (too big to fail).

FinTech facilitates cost cutting for settlements, reduces transaction time and relieves of the need to engage intermediaries.

As a result, existing business models of financial institutions may become less competitive which will initiate massive increase in the use of technologies in the financial markets and raise the interconnectedness between new players and other members of the financial system.

Differences between countries in the regulation of services provision using new technologies lead to the regulative arbitrage as digital services go beyond national borders. To prevent arbitrage regulators need to coordinate their efforts and ensure the comparable level of regulation.

At the international level, efforts to study approaches to the regulation of FinTech were initiated by the Financial Stability Board (hereinafter, the FSB). In early 2016, FSB Chair and the Governor of the Bank of England Mark Carney announced that regulation in this sphere should be aimed at limiting systemic risk without "stifling" innovations.[2]

Work with regard to FinTech research, analysis, assessment and elaboration of approaches to FinTech regulation has been initiated as part of the World Economic Forum (WEF) initiative Balancing Financial Stability, Innovation and Economic Growth (FSIEG), which is primarily focused on studying trends in the transformation of business models in the financial services segment. The 2016-2017 stage of the initiative is scheduled to produce a mechanism for the identification of systemic risks in the financial services segment. This mechanism

[1] *Virtual Currencies. Guidance for a Risk-Based Approach. FATF, June 2015. http://www.fatf-gafi. org / media / fatf / documents / reports / Guidance-RBA-Virtual-Currencies.pdf*

[2] *http://www.fsb.org / wp-content / uploads / FSB-Chair-letter-to-G20-Ministers-and-Governors- February-2016.pdf.*

will be presented to WEF members at the annual meeting of the Forum in 2017. Additionally, several researches are conducted in this sphere by working groups in the Committee on Payments and Market Infrastructures, in the Basel Committee on Banking Supervision at the Bank for International Settlements and other international organisations consolidating the activities of financial market regulators.

Currently, most countries do not have in place any requirements or restrictions with regard to financial innovations. In the majority of cases, regulators adopt wait-and-see attitude and study trends. Many of them use publications to inform of the official position of regulators on FinTech issues, e.g., to virtual currencies (this helps avoid uncertainty), and of related risks.

Some countries include issues related to settlements in virtual currencies in the legislative perimeter aimed at countering money laundering and the financing of terrorism issues. In Switzerland, bitcoin buy-and-sell operations for profit and the activities of trading platforms engaged in the transfer of monetary funds and bitcoins are all subject to regulation on the basis of the law on money laundering. All transactions with bitcoins shall be conducted in line with the requirements on the verification and identification of payment participants. Canada prepares a legislative amendment according to which companies working with virtual currencies shall be subject to registration at the Financial Transactions and Reports Analysis Centre of Canada (Fintrac), shall record transactions and provide to the Fintrac information on suspicious transactions and potentially related to terrorist activities transactions. Banks will be prohibited to be in correspondence with companies not registered with the Fintrac.

In some countries, organisations working with virtual currencies are subject to licensing. In Luxembourg, all companies operating in the financial market, including those issuing virtual currencies, setting up platforms to trade in virtual currencies, and effecting payments in these currencies, are obliged to apply to the Luxembourg Financial Sector Supervisory Commission, describe the planned sphere of activities and obtain a duly permit. Japan obliges exchanges engaged in changing bitcoins for real currency to get registered with the Financial Services Agency (FSA). Registered exchanges will be obliged to maintain sufficient capital to absorb losses in case of exchange bankruptcy. They will be also subject to supervision by the FSA to counter illegal operations.

In Switzerland, platforms engaged in the transmittance of funds and virtual currencies are obliged to either join a respective self-regulatory organisation, or to obtain a financial intermediary licence from the Financial Market Supervisory Authority (FINMA). Organisations receiving bitcoins from their customers and holding them in their accounts, or conducting transactions with bitcoins on customer behalf, shall get a banking licence.[3] US administrators of virtual currencies and currency exchange companies are categorised as providers of funds transmittance services, and are therefore subject to licensing.[4] In 2015, the New York state approved an in-depth regulation[5] for virtual currencies, assuming mandatory licensing and compliance with a set of requirements (including, capital requirements) for all financial institutions using virtual currencies for business purposes (excluding individuals and companies, which use virtual currencies to buy / sell goods and to invest). The second Payment System Directive (PSD 2) approved by the European Union provides for the implementation of application programme interfaces (API) based on the principles of openness for third-party developers and customer service providers. This will materially facilitate the process of entering traditional financial markets for FinTech companies and may produce a considerable and long-term impact on financial stability and overall landscape of the financial market.

Identification of institutes subject to regulation is another important issue. With regard to virtual currencies, the regulation may be targeted at intermediaries connecting the virtual market and the rest of the economy (companies engages in foreign currency exchange), and also on other participants of the financial market, whose potential

[3] *The same applies to those crowdfunding platforms which intermediate in cash flows and hold funds in their accounts, in addition to simply "connecting" creditors and borrowers.*

[4] *Financial Crimes Enforcement Network (FinCEN) of the US Department of the Treasury clarified the status of virtual currencies in 2013. https://www.fincen.gov/resources/statutes-regulations/guidance/ application-fincens-regulations-persons-administering.*

[5] *http://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf.*

to make settlements in virtual currencies is limited. China has introduced a ban on the use of bitcoins by all financial and payment institutions (private settlements being not covered by these restrictions).

Regulators stimulate the development of financial services by creating environment conducive to innovation testing and implementation. The most wide-spread elements of this environment include the so-called "sandboxes", innovation hubs and innovation accelerators.

1. Sandboxes serve as training platforms for the real or virtual testing of new products. Regulation by respective agencies with regard to these platforms may be either preserved or cancelled. Sandboxes have been created or will appear in Singapore, United Kingdom, Australia, the Netherlands and Switzerland.

2. Innovation hubs offer to regulated and non-regulated companies assistance and guidance across existing legal, supervisory and other regulatory measures. They have been set up in Japan, Hong Kong, Republic of Korea and United Kingdom. Compared to other methods, innovation hubs have become the most wide-spread method used to facilitate the development of FinTech.

3. Innovation accelerators are partnership agreements between innovation companies, FinTech providers or companies providing financial services on the basis of new technologies, on one side, and regulatory agencies, on the other side. These stimulate the further use of new technologies. Innovation accelerators are already in place in the United Kingdom and Singapore.

Finally, another interesting trend is the use of new technologies for enhancing the efficiency of regulatory activities. To describe this, the term RegTech is being actively used. It means the improvement of existing supervisory and regulatory methods with the help of new technologies to ensure efficient risk identification and assessment, and also data gathering and analysis. Seeking to fulfill their purposes, supervisory agencies may employ standardisation and automation of information provision for the real-time monitoring of operations, and "big data" for the analysis of received information and financial market transactions.

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