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The Central Bank of the Russian Federation



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STABILITY
REVIEW**

Moscow

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SUMMARY

External Risks

External economic conditions deteriorated in 2015 Q3. Urals oil prices recovered in Q2, reaching \$60 per barrel, and renewed their plunge in August amongst China's economic slowdown and increased volatility in the global financial markets, dropping below \$40 per barrel in mid-November. In the meantime, heightened expectations of an interest rate increase by the US Fed resulted in capital flight and weakening currencies of the emerging market economies.

The commodity prices are likely to remain low in the medium term. The economy of the key consumer (China) continues to slow down and the structural transformation of China's economy involves faster growth of the services and high-tech sectors which do not consume a significant amount of commodities. China's high growth rates in previous years were attained through an accelerated increase in total debt, which has already exceeded 280% of GDP. In these conditions further adjustment in China's financial markets is likely, while financial linkages may be underestimated, as a substantial proportion of funding is provided by the shadow banking system. At the same time, one positive factor is China's relatively low external debt along with the considerable size of the FX reserves. Many other emerging market economies show the opposite tendency, which is their key vulnerability. Increased interest rates in the USA may bring about capital outflow from these markets, lead to rising funding costs, shortage of the US dollar liquidity, and an adjustment of the value of financial assets.

Russia maintains a relatively stable position compared to other countries, partly as a result of deleveraging in 2014–2015 against the backdrop of closed external markets. This is confirmed by a reduction in Russian CDS premiums by early November 2015 below the level of the countries with a comparable sovereign credit rating. Implied volatility of the ruble exchange rate in the last few months consistently remained at about 40% of the oil price volatility. 2015 Q3 recorded a net private capital inflow into Russia of \$5.3 billion for the first time in five years, according to a preliminary estimate by the Bank of Russia. Net capital inflow is caused by decreased payments on external debt, raising of new foreign loans, and pre-payments on foreign trade contracts received by some large companies. In this context, foreign exchange liquidity continued to improve. This is evidenced by a narrowing spread between the RUONIA rate and the one-week foreign exchange swap rate which reached minimum values (the average of -2 bp between 1 April and 10 December 2015) from the peak of 400 to 500 bp in December 2014, and a reduction in banks' debt to the Bank of Russia on repo operations in foreign currency from the maximum of \$33.9 billion to \$19.4 billion by 14 December 2015.

A survey of 25 largest banks conducted by the Bank of Russia in August 2015 showed that their positive aggregate foreign exchange gap (the difference between assets and liabilities with a maturity date of up to 1 July 2016) is \$54.6 billion. Banks and non-financial companies have sufficient foreign exchange liquidity to service external debt, which will contribute to stability in the foreign exchange market.

Low oil prices entail risks for Russia and other exporting countries in terms of budget balance. Today Russia has a low ratio of total government debt to GDP (13.6% of GDP as of 1 July 2015.) However, fast spending of the Reserve Fund to compensate the budget deficit raises concerns. In order to maintain budget sustainability and reduce inflationary pressure, it is necessary to cut expenditures and the budget deficit in the medium term.

Non-Financial Organisations' Risks

The situation in the non-financial sector is highly varied in different industries. Export-oriented industries are in a relatively favourable position (for instance, despite a decrease in the global prices for oil and metals, weakening of the ruble, and predominance of ruble costs in the expenditure structure allowed many oil and metals and mining companies to increase their ruble income and reduce debt burden). Meanwhile, many sectors focused on the domestic market faced income reductions resulting from falling consumer demand. Among those in a vulnerable position are airlines, car manufacturers, trade and construction companies, and companies operating in the commercial real estate sector. The highest risks are carried by companies operating in the latter three sectors, which generate mostly ruble income, but used to rely on foreign currency funding.

Banking Sector Risks

Credit risk is still the main problem of the banking sector: the share of overdue debt has exceeded the maximum level of the 2008–2009 crisis in a range of sectors (e.g., in the construction sector it grew to 15.6%). The share of restructured loans among large loans increased by almost 5.3 pp to 31.6% from the beginning of this year to 1 October. A significant deterioration in credit quality was typical for loans extended to small and medium-sized businesses.

The peak of quality deterioration has not yet been reached in the unsecured consumer lending sector; and the bad loans share increased to 16.8% as of 1 October 2015 given the negative household income dynamics. Meanwhile, one of the positive factors is the improved operating performance of the banks focused on retail lending: cost-saving allowed them to prevent a further fall in return on equity (a year-on-year return on equity was -7% as of 1 October 2015 after -8.8% in June 2015). The mortgage segment maintains high credit quality with the share of bad loans (unserviced for at least 90 days) of 2.9% as of 1 October 2015. The drop in the amount of granted loans reached the maximum in March 2015, and the loan supply is gradually recovering primarily due to the government-funded programme for interest rate subsidies.

Increased loan loss provisions along with materialisation of the interest rate risk resulted in a substantial fall in the profitability of the banking sector since the end of 2014. The influence of the interest rate risk weakened in Q3 due to a reduction in the key rate and repayment of expensive deposits raised by banks in December 2014: the banking sector generated 93 billion rubles in net profit in August and September. Return on equity continued to fall, but this primarily resulted from an increase in equity of the banks which received capital under the government-funded capitalisation programme financed by OFZs. 2015 Q4 will see a continuing trend towards decreased influence of interest rate risk, which will facilitate recovery of profitability of credit institutions.

The currently implemented additional capitalisation programme will positively affect the banks' required ratios and lending dynamics. An increase in the ratios (capital adequacy, maximum risk per borrower or a group of related borrowers) was temporarily assisted by regulatory easing (in terms of creating provisions and using fixed foreign exchange rates). Nevertheless, their impact is low: according to a survey of systemically important credit institutions, the capital adequacy saving is 0.7 pp on average. In 2016, the Bank of Russia will enact a set of regulatory changes aimed at a fuller implementation of the standards of the Basel Committee on Banking Supervision and stimulating growth in lending in the priority segments (reduction of the risk ratio with regard to lending to small and medium-sized businesses to 75%, and to 35% for the highest quality mortgages).

Non-Credit Financial Institutions' Risks

The material risks for NPFs are credit risks, most of all on investments in related parties. Low asset quality was the main reason for revocation of licences from NPFs. At the same time, the financial position of NPFs, which have joined the system of guaranteeing the rights of insured persons, is assessed as

acceptable (potential losses from credit risk materialisation within a one-year horizon for NPFs admitted to the guarantee system are three times lower than those of other NPFs).

Macroeconomic risks have a negative effect on financial stability of insurance companies due to a drop in voluntary insurance premiums and growing insurance indemnities as a result of inflation, weakening of the ruble, and an elevated level of insurance fraud. Nevertheless, increased rates of the compulsory motor third party liability insurance (OSAGO) and rising investment incomes of insurance companies allowed them to show record profits for the first nine months of 2015 (95.7 billion rubles vs. 51.3 billion rubles for the same period of the previous year). However, these results cannot be considered sustainable: deposit yields are falling, and a rise in liability limits and modified procedures for damage assessment under OSAGO may cause a surge in insurance indemnities in this sector. Besides, low asset quality of some insurers exposes them to liquidity risks in view of declining voluntary insurance demand.

Deterioration in the financial position of some airlines — key customers of leasing companies — and reduced leasing demand in the context of falling corporate investments in fixed assets negatively affect the position of leasing companies. These financial institutions account for approximately 3% of assets of the financial system, and currently they are outside of the regulatory perimeter. Their information disclosure standards are substantially lower than those of credit institutions. At the same time, they are characterised by strong connections with banks: they are either part of banking groups or borrowers of credit institutions. Absence of regulation may result in regulatory arbitrage, delayed provisioning, and concealment of bad assets.

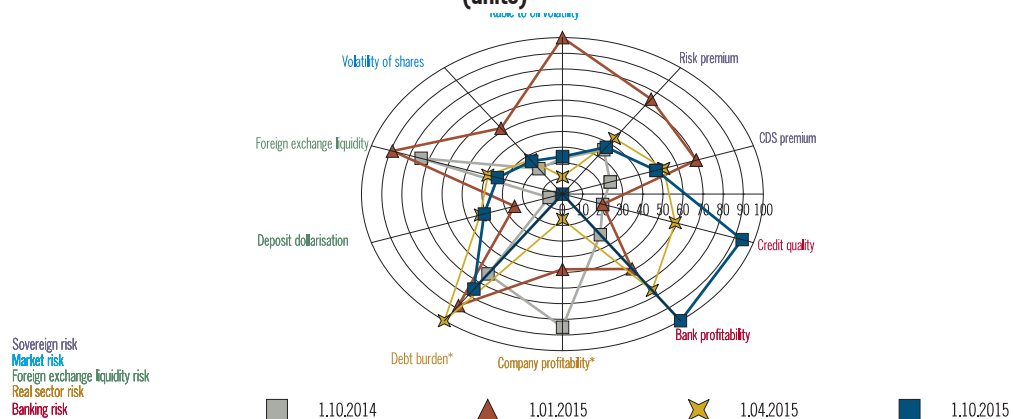
1. RISK MAP

Throughout 2015 Q2-Q3, the market indicators maintained stable dynamics, with many returning to the levels observed before the high volatility period late last year. The non-financial sector experienced

a decline in the debt burden. The credit quality of bank assets continues to deteriorate, which is reflected in an increase in the share of overdue loans and falling return on equity.

Chart 1

Changes in key Russian financial market indicators (units)



* Profitability for companies and debt burden are shown as of 1 July 2015.

Note:

The scale of 0-100 units reflects minimum and maximum indicator values over the horizon from 1 January 2012 to 1 October 2015.

Indicators deteriorate from the centre to the periphery.

- CDS premium is the 5-year premium on Russia's sovereign CDS.
- Risk premium is the yield spread of Russia's sovereign Eurobonds to US Treasuries (JPMorgan EMBI+).
- Ruble to oil volatility is the ratio of three-month implied volatility of ATM options on USD/RUB exchange rate to three-month implied volatility of oil prices.
- Volatility of shares is implied volatility of the RTS index.
- Foreign exchange liquidity means the spread between the plain vanilla interest rate swap and cross-currency swap for one-year period.
- Deposit dollarisation means the share of retail foreign currency deposits in total retail deposits (adjusted for exchange rate revaluation).
- Debt burden means the ratio of debt less cash and cash equivalents to earnings before interest, taxes, and amortisation (Net Debt / EBITDA) (calculated for a sample of 107 companies with annual earnings exceeding 500 million rubles).
- Company profitability means the ratio of earnings before interest, taxes, and amortisation to sales revenue (EBITDA margin) (calculated for a sample of 107 companies with annual earnings exceeding 500 million rubles).
- Bank profitability means the ratio of net profit to equity (calculated for 12 months).
- Credit quality means the share of overdue loans to non-financial organisations and individuals.

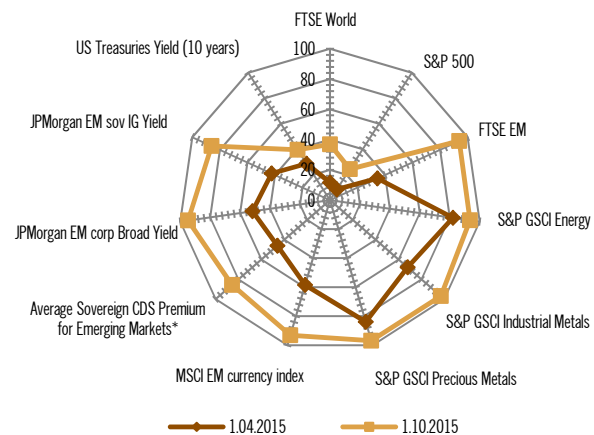
2. GLOBAL ECONOMIC AND FINANCIAL MARKET RISKS

Today the global economy is exposed to two key factors – continued normalisation of monetary policies pursued by the leading central banks, in particular, the US Federal Reserve (Fed), and a structural transformation of China's economy accompanied by a slowdown in growth. In this context, global economic growth forecasts remain moderate with higher instability risks in the global financial markets. Russia's position looks stable compared to some other countries: external debt coverage with gold and foreign currency reserves is relatively high.

According to the estimates made by the International Monetary Fund (IMF) in October 2015, global GDP growth rates will fall to 3.1% in 2015 from 3.4% in 2014. The developed economies are expected to experience growth acceleration by 0.2 pp to 2.0% (although less substantial compared with April's estimates), whereas growth rates in the developing countries will slow down by 0.6 pp to 4.0% (Table 1).

Chart 2

Changes in key global financial market indicators (units)



* The sample includes China, Brazil, South Africa, Indonesia, Philippines, Malaysia, Mexico, Peru, Chile, Turkey, Hungary, and Poland.

Economic growth in developed countries in the coming years will exceed similar indicators for the recent years due to recovery from crisis (the 2008 global financial crisis and the European debt crisis)

Table 1

GDP growth rates

	GDP growth rates, %				Deviation from April 2015 forecast (pp)	
	2013	2014	October 2015 forecast		2015	2016
			2015	2016		
World	3.4	3.4	3.1	3.6	-0.4	-0.2
Developed countries	1.4	1.8	2.0	2.2	-0.4	-0.2
United States	2.2	2.4	2.6	2.8	-0.5	-0.3
United Kingdom	1.7	2.6	2.5	2.2	-0.2	-0.1
Eurozone	-0.5	0.9	1.5	1.6	0.0	0.0
Japan	1.6	-0.1	0.6	1.0	-0.4	-0.2
Emerging markets and developing countries	5.0	4.6	4.0	4.5	-0.3	-0.2
China	7.8	7.3	6.8	6.3	0.0	0.0
India	6.9	7.2	7.3	7.5	-0.2	0.0
Brazil	2.7	0.1	-3.0	-1.0	-2.0	-2.0
South Africa	2.2	1.5	1.4	1.3	-0.6	-0.8
Turkey	4.2	2.9	3.0	2.9	-0.1	-0.7
Mexico	1.4	2.1	2.3	2.8	-0.7	-0.5
Oil exporting countries						
Russia	1.3	0.6	-3.8	-0.6	0.0	0.5
Iran	-1.9	4.3	0.8	4.4	0.3	3.1
Venezuela	1.3	-4.0	-10.0	-6.0	-3.0	-2.0
Saudi Arabia	2.7	3.5	3.4	2.2	0.5	-0.5
UAE	4.3	4.6	3.0	3.1	-0.2	0.0

Source: IMF.

and continuous support provided by a supersoft monetary policy. The emerging markets will continue to be exposed to the negative influence of accumulated structural imbalances and excess volatility in all financial market segments (Chart 2) amid further Fed rate increases and rebalancing in China.

Expected Impact of Further Fed Rate Hikes

An increase in the Fed rate in December 2015 will bring about an increase in the cost of borrowing in US dollars in various financial market segments (money market and Eurobond market) and growth in demand for dollar liquidity. The increase in the existing debt service costs will be limited since debt grew mostly due to Eurobonds, which are usually issued at fixed rates. However, the cost of accumulated debt refinancing will increase. The developing countries have accumulated a large amount of foreign currency debt not only in the corporate, but also in the banking sector.

The ratio of external debt of non-financial companies (according to the World Bank data as of the end of 2015 Q2) to GDP (IMF data for 2014) is the highest in Hungary (70.8%), Ukraine (52.6%), Chile (43.4%), the Czech Republic (28.6%), Poland (24.7%), Malaysia (21.8%), Thailand (19.6%), South Africa (17.6%), and Turkey (17.3%); the ratio of banks' external debt to GDP is the highest in Malaysia (22.8%), Turkey (22.5%), and the Czech Republic (16%) (Chart 3). Russia's experience

in 2014 Q4 also shows that increased capital outflow through the external debt channel may be accompanied by growing demand for foreign assets among residents, thus increasing demand for foreign exchange liquidity.

An adjustment of asset prices and asset sell-off in the local markets will follow. Reduced investors' risk appetite has already recently caused a decrease in capital inflow into the emerging markets. According to the International Institute of Finance (IIF), the portfolio investment inflow into the emerging markets slowed down in 2015 Q2 and gave way to outflow in 2015 Q3 (-\$40 billion).

Increased costs of debt raising, servicing, and refinancing may cause corporate defaults in some emerging market economies.

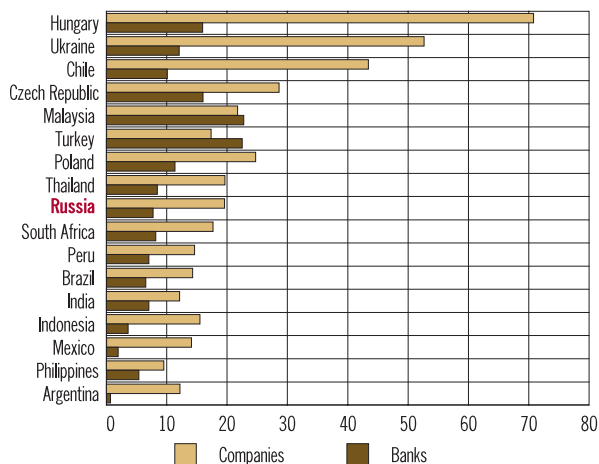
The corporate sector shocks may spread to banks given an ongoing increase in lending and investment in corporate bonds. A decrease or cessation of lending, in its turn, may further inhibit economic growth.

A further increase in the Fed interest rate will be accompanied by US dollar appreciation. US dollar index to the DXY currency basket increased by 10% from the start of 2015 to 17 December 2015. Contraction of the total dollar supply amid tightening of Fed monetary policy may put pressure on the commodity prices.

A key driver of the financial system stability is the availability of adequate reserves of the central banks. In the last few years many emerging market

Chart 3

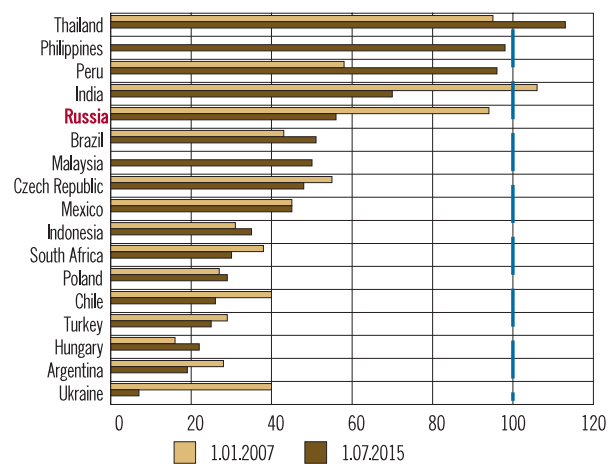
External debt of companies and banks to GDP in emerging market economies (%)



Sources: World Bank, IMF.

Chart 4

Central bank foreign currency reserves to total external debt in emerging market economies (%)



Sources: World Bank, Bloomberg.

economies lost their ability to compensate potential demand for foreign exchange liquidity (Chart 4). From the beginning of 2007 to 1 July 2015, the ratio of foreign currency reserves of the central bank (Bloomberg) to the total external debt (World Bank) decreased: by 33 pp to 7% in Ukraine; by 14 pp to 26% in Chile; by 9 pp to 19% in Argentina; and by 8 pp to 30% in South Africa. Russia's external debt coverage with foreign currency reserves also declined; however, it remains relatively high (56% as of 1 July 2015). This indicator went up to 62% as of 1 October 2015 due to ongoing external debt reduction and renewed growth in foreign currency reserves of the Bank of Russia from May 2015. 2015 Q3 recorded a quarterly net private capital inflow for the first time in five years (\$5.3 billion according to a preliminary estimate by the Bank of Russia).

Thus, compared with other emerging market economies, the positions of Russia appear relatively stable due to availability of adequate foreign currency reserves, ongoing deleveraging in the private sector, and a sustainable budget (compared to other oil-exporting countries).

Growing Concerns Related to China's Economic Risks

Another important factor affecting the global financial markets, in particular, the commodity markets, is the cooling of the Chinese economy. China's import annual growth rates have been negative from November 2014, and PMI remains below 50 points (close to a three-year minimum). Cooling of China's economy has resulted from a structural transformation focused on rectifying the accumulated economic disproportions in the country. First, large government investment over many years no longer supports fast growth of the industrial sector. Second, investment surplus contributed to the creation of excess production capacity. Third, a surplus of unsold goods gave rise to the problem of searching new markets amid falling external demand.

In order to ensure structural transformation China liberalises the financial markets. The country has implemented one of the key reforms, that is, introducing more liberal interest rates. For instance, in October 2015 China decided to cancel the cap on deposit interest rates; one of the reasons was

to make the instruments offered by the parallel banking system less attractive. To reduce the debt burden of the regions, the Chinese authorities implemented a programme to restructure the debt of local governments, which allows local and regional authorities to convert liabilities into debt securities offered at lower rates for longer periods (thus reducing the costs of debt refinancing).

Meanwhile, China's key problem of high debt burden (the total debt exceeds 280% of GDP) remains unsolved, and growth continues to be stimulated by lending.

The People's Bank of China (PBC) is easing its monetary policy to maintain the planned economic growth rates (an interest rate decrease cycle has been continuing for over a year now along with mass liquidity injections and decreasing reserve requirements). The PBC's measures to support the economy include the RMB depreciation.

Vulnerable spots in China's financial system are showcased by a burst bubble in the stock market (in two phases, in June and August 2015). This caused a collapse in the global stock and commodity markets on 24 August 2015 (stock market sell-off): the daily fall of Shanghai Stock Exchange Composite was 8.5%; S&P 500 fell by 3.9%; FTSE EM went down by 5.4%; and Brent crude price, by 6.1%.

To stop the stock sell-off by investors and recover financial stability of China's stock market, the Chinese government and core national regulators implemented a set of extraordinary stabilisation measures, including: bringing down the PBC's annual deposit rate, decreasing reserve requirements for some banks, authorising government pension funds to invest in shares, introduction of a six-month moratorium on selling shares of public companies by shareholders owning more than 5% of shares, suspending new IPOs, reducing the stamp duty on transactions in securities for the Shanghai and Shenzhen Stock Exchanges, authorising investors to use real estate as security to purchase shares, liquidity injections in the China Securities Finance, a special-purpose state-owned agency (focused on rendering financial assistance to brokerage firms), etc.

The structural transformation of the Chinese economy has so far remained manageable and has no crisis implications. However, there is a potential for even more acute crisis events in the country.

The Chinese authorities face a non-trivial challenge of stimulating economic activity. On the one hand, a decrease in the foreign trade growth rate and sustained problems in the stock market require supporting measures; and on the other hand, China

has already reached an extremely high level of debt burden, and continuing expansion of the shadow banking system is underway (from 8.4% of GDP in 2010 to 26.5% of GDP in 2014, according to the Financial Stability Board).

3. NON-FINANCIAL ORGANISATIONS' RISKS

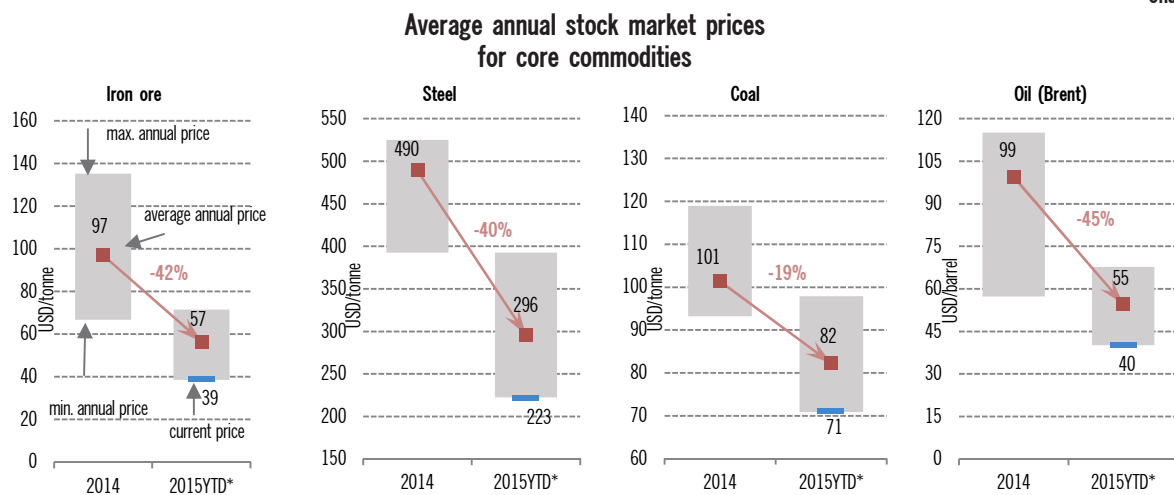
3.1. The Current Situation in the Commodity Markets and the Financial Position of Commodity Exporters

Commissioning of excess extraction and production facilities, stagnating commodity demand from China as the largest importer, and strengthening of the US dollar in light of an expected Fed interest rate increase are the main drivers of the further decline in commodity prices which set

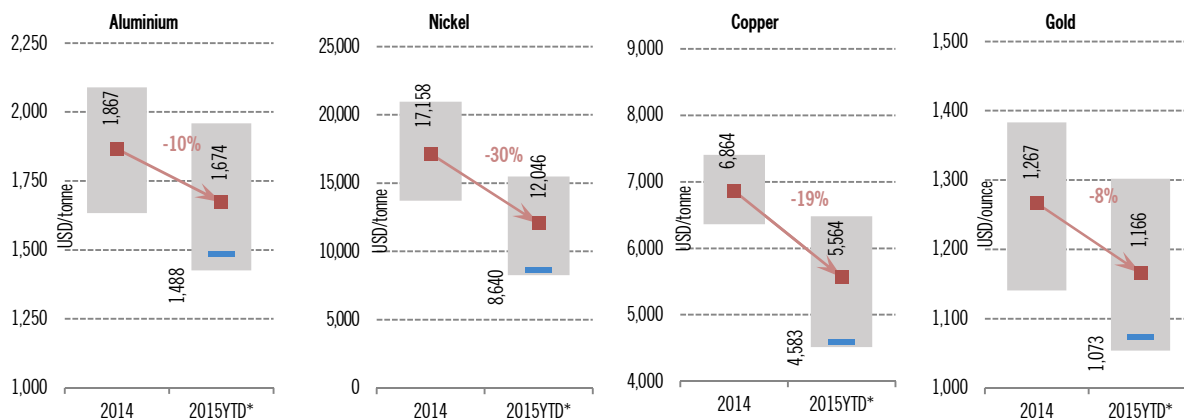
the new minimums for the last few years in 2015 Q3 (Charts 5 and 6).

Out of the core energy commodities, crude oil experienced the largest decrease in US dollar prices of -45% from the average price of last year. Natural gas export prices are tied to stock market prices for crude oil and follow them with a 6 to 9 months time lag. Coal prices in US dollars experienced a smaller decrease (by 19%); however, this downward trend in coal prices has been continuing for several years.

Chart 5



Iron ore, price of delivery to Qingdao, China, per 1 tonne; steel, export price for steel feeds (slabs), CIS, per 1 tonne; coal, coking coal export price, Australia, per 1 tonne; oil, futures per 1 barrel of Brent crude on ICE.



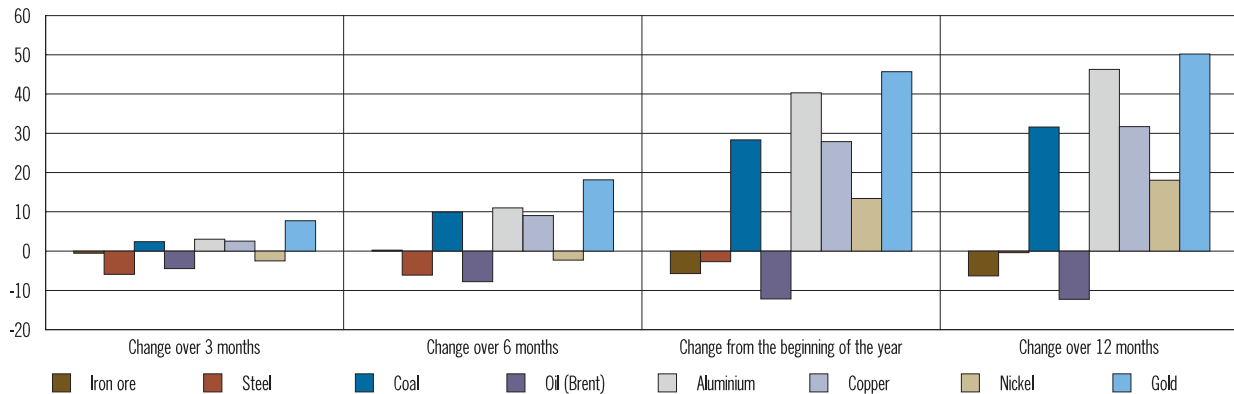
Aluminium, nickel, and copper, spot price per 1 tonne on the London Metal Exchange (LME); gold, spot price per 1 ounce on the London Metal Exchange (LME).

* 2015YTD, from beginning of the year to 10 December 2015.

Source: Bloomberg.

Chart 6

Average annual ruble prices* for oil, coal, base metals and ores (as of 10 December 2015, %)



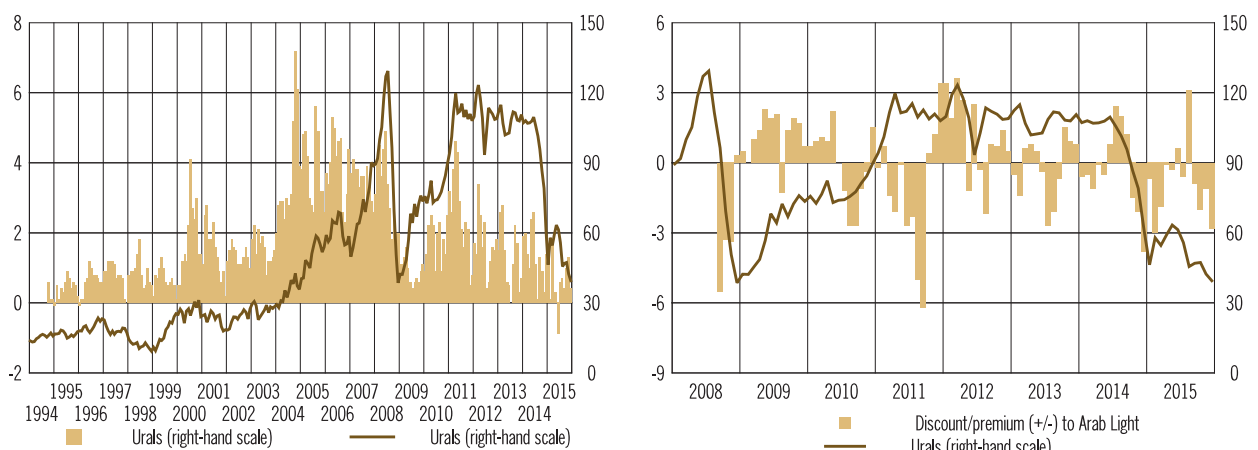
Note: Iron ore, price of delivery to Qingdao, China, per 1 tonne; steel, export price for steel feeds (slabs), CIS, per 1 tonne; coal, coking coal export price, Australia, per 1 tonne; oil, futures per 1 barrel of Brent crude on ICE; aluminium, nickel and copper, spot price per 1 tonne on the London Metal Exchange (LME); gold, spot price per 1 ounce on the London Metal Exchange (LME).

* Stock market quotes were converted to rubles at the Bank of Russia exchange rate as of 10 December 2015.

Source: Bloomberg.

Chart 7

Price spreads between Brent, Urals, and Arab Light (monthly average, USD/barrel)



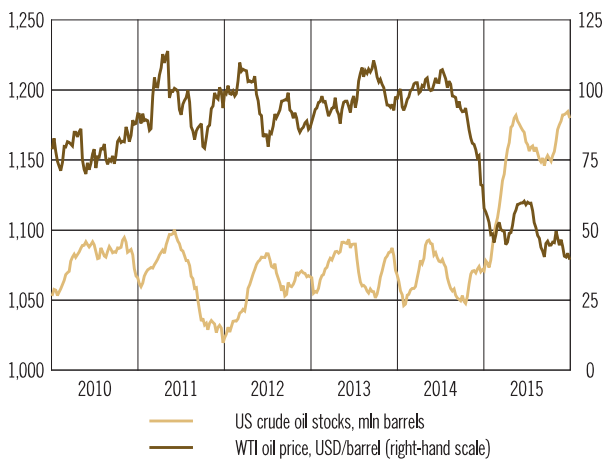
The maximum decrease in average annual US dollar prices for metals was observed in iron ore and steel (42% and 40% respectively) and all related products of the iron and steel industry (rolled steel, slabs, and cast iron).

Of the main non-ferrous metals, the maximum US dollar price decrease was shown by nickel (30% of the average 2014 price), while the average annual copper and aluminium prices fell by 19% and 10% respectively. The largest aluminium producers (RUSAL, Alcoa) have announced their plans for an additional reduction of industrial capacities to eliminate excess supply and maintain prices amid

the growing aluminium exports from China. With a similar intent, Glencore announced closure of some copper, zinc, and nickel mines and production facilities.

However, a stronger weakening of the ruble during the period under review caused the ruble prices for all types of commodities and metals (other than oil and iron ore) to show growth from the previous year (Chart 6). This was one of the main reasons for improved positions of Russia's extracting companies on the global cost curve and contributed to a substantial improvement in their financial status.

Chart 8
Brent prices and commercial crude stocks in the USA
(latest available data are for December 2015)



Source: Bloomberg.

Russian Urals crude¹ is traded with a discount to Brent crude, and the highest discount level was observed in mid-2000s amid growing oil prices (Chart 7). Relatively stable or decreasing prices led to a decline in Brent crude discount. The Arab Light oil (Saudi Arabia) price shows no statistically significant discount or premium to Urals².

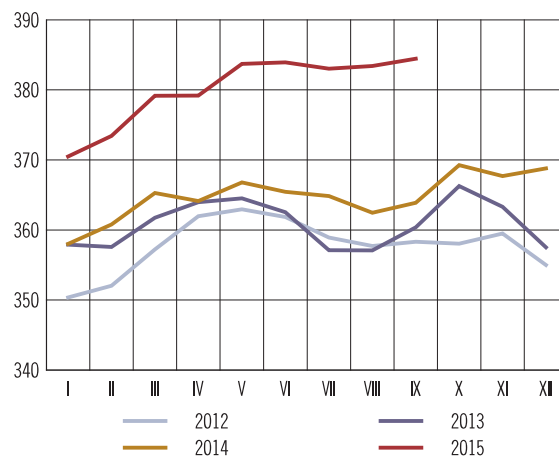
Currently, the average annual discount to Brent is at its historical low for the period for which data are available (Chart 8) both in absolute terms and in terms of price per barrel. However, oil prices in various export destinations may show more substantial deviation from Brent prices (e.g., the spread on Urals North West Europe price FOB was \$3.7 as of mid-November 2015).

Currently a widening of the absolute and relative spread is observed as compared to the middle of this year; however, it is moderate by historical standards. A reduction in the discount to Brent crude is unlikely in view of the prospective growth of competition from other producers of oil of similar grades (Arab Light, Iranian Heavy) in the traditional Russian oil markets.

¹ Urals is a mix of heavy sour oil and light oil produced in the Khanty-Mansi Autonomous Area, Bashkortostan, Tatarstan, and the Samara Region. The Urals crude price was historically determined at a discount to Brent crude price per barrel as Russian oil is heavier (contains less petrol and gasoil fractions and, consequently, has higher density) and contains more sulphur.

² The spread value is calculated using average monthly Brent spot prices (in US dollars) FOB (Sullom Voe North Sea), Urals (Europe) CFR, and the official Arab Light price according to Thomson Reuters.

Chart 9
Crude oil stocks (by country with stocks of over 1 million tonnes as of January 2012, mln tonnes)



Source: Joint Organisations Data Initiative Oil database.

Despite an already substantial decrease in commodity prices, a further decline may take place if China's core sectors drop at a faster rate and the supply remains high.

Given slack global demand, the crude oil stocks in major countries are currently much higher than in previous years (the stock growth exceeded 6% in September 2015 compared to the corresponding period in 2014, against an average crude oil stock increase of about 1% in earlier periods) (Chart 9).

The decline in commodity prices during the reporting period was accompanied by high volatility of share prices of the world's largest oil traders (e.g., Glencore). As an important part of the commodity markets, the commodity trading companies have substantial influence on the market supply and demand by both concluding supply agreements and providing trade financing to extracting companies in the form of short-term and long-term advance payment and pre-payments for commodity deliveries.

Traders are characterised by low operating profit margin, minimum demand for capital expenditures, operating cash flow resistant to price volatility in the commodity markets (working capital effect³), trade transaction hedging, higher debt burden caused by the need to finance reserves, and dependence on the availability of cheap financing.

³ During a period of falling commodity prices, the trading companies receive additional cash inflow from reduced investment in working capital, which boosts the declining operating cash flow. An opposite situation is observed in the period of growing commodity prices.

The end of supercycle in commodity markets

The 2000–2008 period saw an unprecedented growth in prices for natural resources, which was named the commodities supercycle due to seemingly endless prospects of continuing growth and deviations from the normal cycle dynamics of previous years. During this time, the aggregate Bloomberg Commodity Index¹ showed continuous upward growth, increasing 2.7 times from early 2000 to mid-2008. Prices fell during the 2008–2009 global financial crisis but recovered soon after.

The sustained price growth for almost all core commodities was based on fundamental economic laws, with non-resilient short-term supply failing to meet growing demand (which, in its turn, was caused by China's industrial growth). Other commodity price growth drivers included the monetary policy of developed countries (primarily the USA and EU), which provided substantial support for prices after the global financial crisis (maintaining low interest rates and the quantitative easing programmes). In addition, strengthening or weakening of currencies (the US dollar) used for nominating the commodity prices also determine the price dynamics. For example, from 1991 the US dollar index² shows a relatively high negative correlation with commodity prices, which are nominated and traded in US dollars (Chart 10).

From 2012, the average annual aggregate Bloomberg Commodity Index began its yearly fall, which caused economists to announce a formal end of the commodities supercycle. In early 2015, the aggregate Bloomberg Commodity Index returned to the 1991 level and continued its gradual decline (Charts 10 and 11). The "death" of the supercycle is linked to both oversupply caused by introduction of new extracting technologies by mining companies and excess investment in new commodity projects and a transformation of economic growth models in China and other emerging economies.

A further slowdown in the Chinese economy will primarily affect the demand for such commodities as iron ore, non-ferrous metals, and oil (Chart 12) and is not likely to reduce demand for natural gas and aviation fuel. In addition, some sectors (petrochemistry, metals, and coal-fired power industry) may also suffer from tightening of environmental protection laws in China.

In general, the current absence of a large-scale developing economy comparable to China in the natural resource demand potential, continuing long-term trends towards a low-carbon economy in the developed and developing world, and a growing alternative energy sector and technologies aimed at reduced consumption of natural resources will most likely lead to a more moderate rate of commodity demand growth.

The situation on the supply side is also complex. On the one hand, low commodity prices will push companies with high production cost out of the market. On the other hand, the companies remaining in the market will ramp up production to compensate for a fall in earnings as a result of declining prices. Weakening currencies of the commodity exporting countries and continued development of the natural resource production technologies will allow commodity companies to avoid a sharp drop in production and processing of raw materials in the long term.

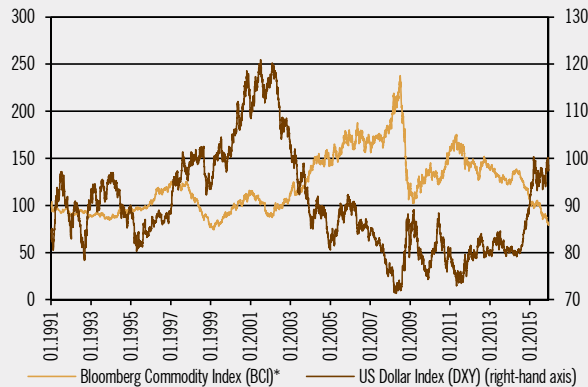
The commodity price volatility has been strongly affected by the development of the financial markets and instruments. A stable increase in commodity prices over several years resulted in an unprecedented growth of investment in financial instruments linked to commodity prices, from non-deliverable commodity futures to commodity hedge funds and exchange-traded funds.

The World Bank has downgraded its previous forecasts for core commodity prices in the Commodity Market Outlook for 2015 Q4 and does not expect a quick recovery of global prices for oil, non-ferrous metals, agricultural produce, and fertilisers. Oil prices will continue to fall in the coming years due to substantial stocks accumulated by the largest consumers, stable supply, and expectations of Iran's return to the oil market when the international sanctions are lifted. Gas prices will follow the oil price dynamics with a certain time lag; and coal prices will continue falling as a result of contracting demand from China. Nominal prices for non-energy commodities are also unlikely to increase substantially. Among the risks of a further decline in metal prices the World Bank highlights a fall in demand

¹ Includes 22 exchange-traded products and is calculated based on futures contract prices on the major stock exchanges.

² US Dollar Index (DXY) shows the ratio of the US dollar to a basket of six currencies: euro, yen, pound sterling, Canadian dollar, Swedish krona, and Swiss franc.

Chart 10
Aggregate Bloomberg Commodity Inde

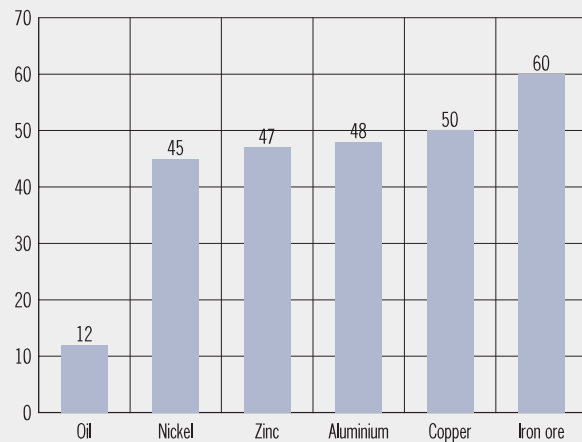


Correlation ratio = -0.6 (1991–2015)
Correlation ratio = -0.7 (2000–2015)

* Commodity prices at the beginning of 1991 are taken as 100.

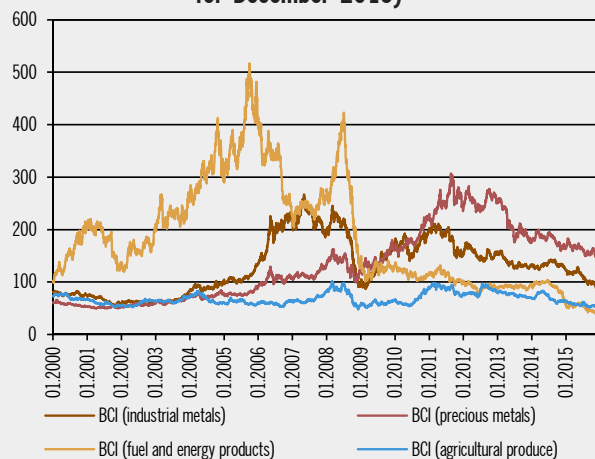
Source: Bloomberg.

Chart 12
Commodities consumption in China in 2014 on average (% of global consumption)



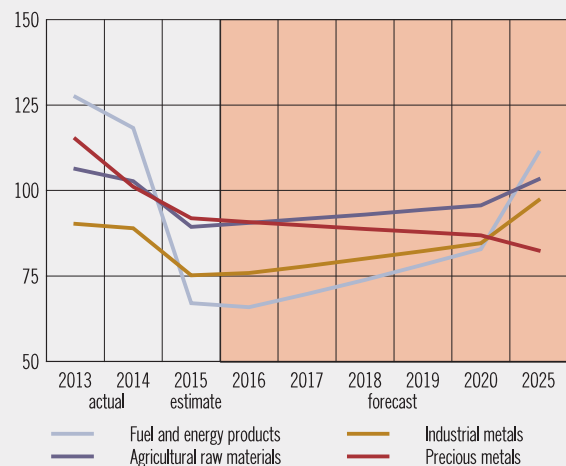
Sources: JP Morgan, Bloomberg.

Chart 11
Bloomberg Commodity Indices for core groups of commodities (the latest available data are for December 2015)



Source: Bloomberg.

Chart 13
World Bank forecast for commodity price indices (2010 = 100)



Source: World Bank.

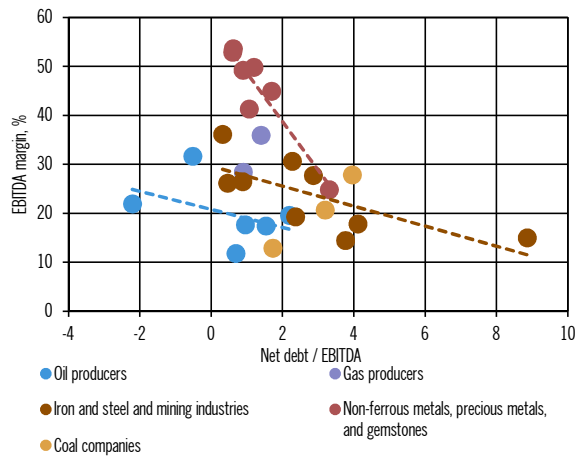
from developing and emerging market economies (primarily China). The consequences of the expected El Niño³ could potentially have a negative effect on food prices but only for the local markets of East Asia, Latin America, and Australia.

The World Bank's long-term forecast for real commodity prices until 2020 (Chart 13) expects a sustained gradual decline in prices for agricultural raw materials along with a smooth increase in prices for metals and a more substantial energy price growth from 2017. The US Energy Information Administration (EIA), The Economist, and Consensus Economics provide similar estimates.

³ El Niño is a climatic phenomenon in the equatorial Pacific Ocean which repeats every 2 to 7 years and is associated with an increase in sea temperatures in the central and eastern Pacific Ocean, which in turn causes natural disasters in East Asia, Latin America, and Australia.

Chart 14

Comparison of extracting industries' financial positions by EBITDA and debt burden



Sources: Capital IQ, Bank of Russia calculations.

The risks of largest international commodity traders remain limited as their profitability primarily depends on the value of their trade operations and margin size. However, in the conditions of falling prices, such factors as low diversification of trade operations by commodities, buyers, and regions, vertical integration with extracting companies⁴, and the expected end of the period of low interest rates in the global financial markets may negatively affect the financial position of trading companies. This, in turn, may complicate the procedure for Russian exporters to obtain funding from them.

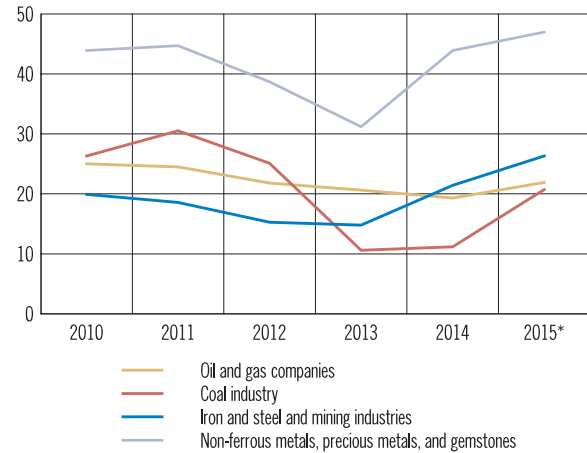
The revenue and operating profit of Russian extracting companies substantially depend on the current commodity price environment in the global markets because, first, higher prices in the external markets increase profitability of most exported goods; second, a substantial share of the products is exported (30%–50% in the iron and steel industry; 50%–90% in the non-ferrous metal industry; 30%–80% in the oil and gas sector; and 40%–70% in the coal industry).

Despite a negative growth in commodity prices, EBITDA margin of Russian extracting companies experienced a recovery in 2014 and the first six months of 2015, which was most noticeable in non-ferrous and iron and steel industries, as well as the coal sector (Chart 15). This recovery of profitability primarily resulted from several stages of the ruble weakening throughout 2014, which helped

⁴ Production losses led to a deterioration of the financial position of Glencore in 2015.

Chart 15

Median EBITDA margin of largest extracting companies by industry

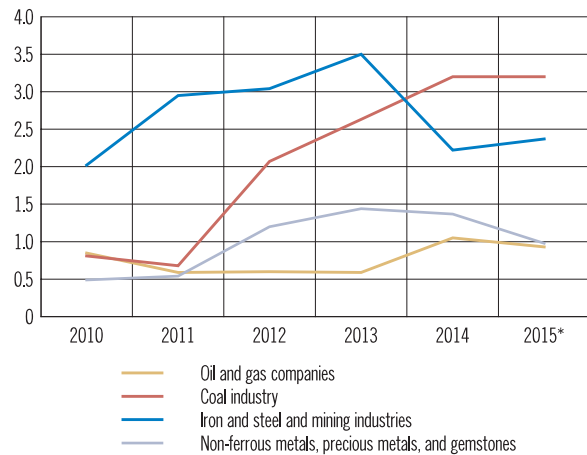


* YoY as of 30 June 2015.

Sources: Capital IQ, Bank of Russia calculations.

Chart 16

Median debt burden (net debt/EBITDA) of largest extracting companies by industry



* YoY as of 30 June 2015.

Sources: Capital IQ, Bank of Russia calculations.

companies to cut production costs. However, the debt portfolios of the Russian metal producers are primarily in foreign currency. Thus, the positive effect of the ruble weakening was partially offset by growing debt service costs.

The non-ferrous and ferrous metal companies with a moderate debt burden and a high profit margin gained the highest advantage from the ruble weakening, despite a substantial decline in prices for the produced commodities. Most large-scale oil and gas companies maintain their stable financial position as a result of the sector's relatively low average debt burden and efforts to cut costs and capital expenditures. Further persistence of

commodity prices at their current levels will have a negative impact primarily on the companies with a higher debt burden compared to the sector's average.

Due to growing EBITDA, the median debt burden of a sample of companies across all industries remained almost unchanged in the first six months of 2015 as compared to the previous year (Chart 16). The largest spread in values of the debt burden is observed in the iron and steel and mining industries, which points to very different

situations in various companies caused by their financial policies (Chart 14).

Coal and iron and steel companies and the mining sector remain the most exposed to the risk of persistence of the current situation in the commodity markets in the medium term, as any reduction in their generated cash flow may result in a rapid increase of the debt burden. For oil and gas companies and non-ferrous metal producers the highest risks involve a decline in demand for energy resources and non-ferrous metals respectively.

3.2. Risks of the Industries Oriented towards the Domestic Market

Most industries oriented towards domestic demand show stagnation, given the absence of sustainable recovery drivers. There are improvements in the agricultural sector, primarily as a result of the food embargo driving import substitution. The most troubled are commercial real estate business (office and retail premises) and airlines whose liabilities include a large share of foreign currency.

Recovery of the motor industry, housing construction, and small and medium-sized businesses will to a significant extent depend on the government support measures implemented in these sectors.

Construction and real estate transactions. Given the current situation, the commercial real estate market is exposed to considerable risks. According to forecasts⁵, by the end of the year investment transactions in the commercial real estate market will fall by 40% to reach their 10-year low. The warehousing sector seems to be the only one to successfully adapt to the crisis situation: falling lease rates and sale prices resulted in a significant increase in demand for warehouse space in 2015 Q3.

The office real estate market is the most vulnerable in the current situation. While in the past the share of unoccupied property grew due to the commissioning of new buildings, now it is driven by vacation of occupied offices. In the first nine months of 2015, unoccupied office space in absolute terms exceeds the indicator of the 2008–2009 crisis period⁶ more than 1.5 fold (Chart 17). Rental rates for class A and B office space⁷ in US dollars in the first nine months of 2015 fell below the historic lows of the 2008–2009 crisis (Chart 18).

Shopping malls are experiencing the lowest consumer flow since 2011. In most instances, shopping mall owners have managed to retain their lessees by offering them acceptable lease terms;

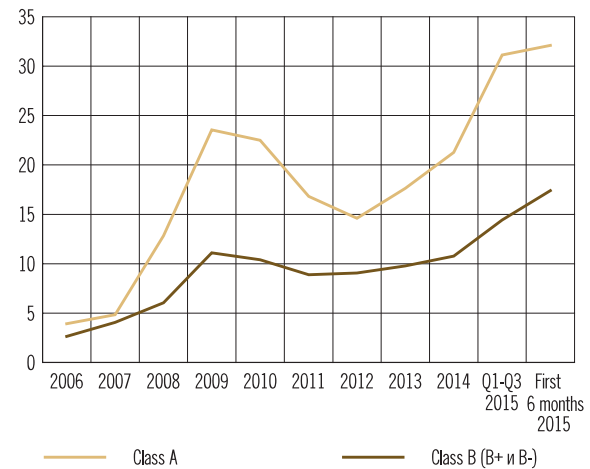
⁵ Cushman & Wakefield.

⁶ Knight & Frank.

⁷ Lease rates per 1 square meter per year, excluding operating charges and VAT. Ruble rates are converted into US dollars at the exchange rate established by the Bank of Russia as of the transaction date.

Chart 17

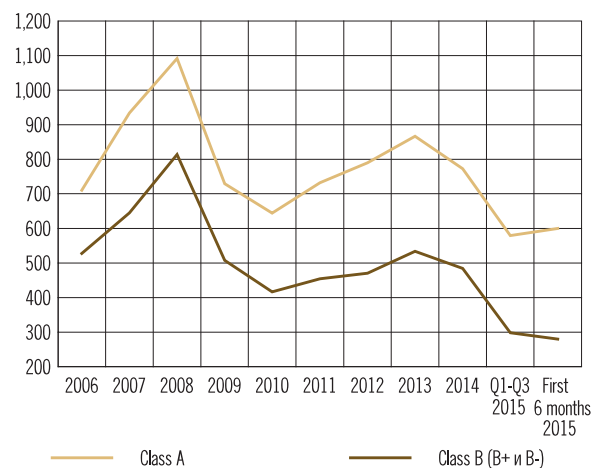
Share of vacant premises (%)



Source: Cushman & Wakefield.

Chart 18

Lease rates in US dollars



Source: Cushman & Wakefield.

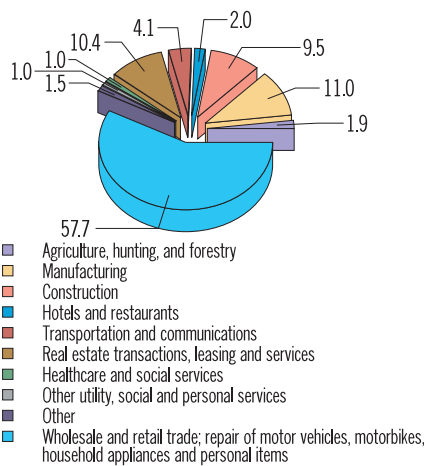
however, large international brands have frozen launches into the Russian market announced earlier, and many store chains are continuing to close unprofitable sales outlets. According to expert estimates, if the current economic situation persists, the available free space may be gradually filled over 3–4 years. A positive factor is a slowdown in falling lease rates related to the fact that most occupants have already obtained maximum discounts.

A key trend in the commercial real estate market is dedollarisation of lease agreements. The ruble (quasi-ruble⁸) rental rates have become completely

⁸ Quasi-ruble rates mean US dollar-nominated rates at a fixed RUB/USD exchange rate or rates nominated in US dollars with an established exchange rate band.

Chart 19

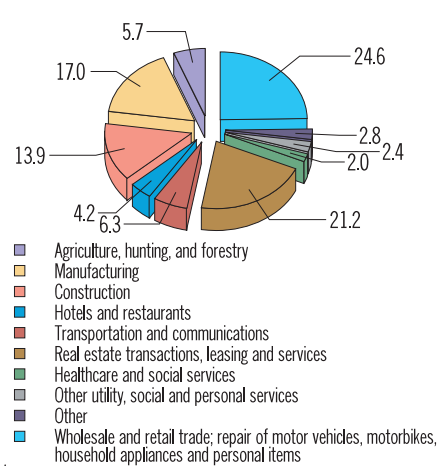
Gross revenue of small businesses (without microenterprises) by economic activity in the first six months of 2015 (%)



Source: Rosstat.

Chart 20

Average number of employees at small businesses (without microenterprises) by economic activity in the first six months of 2015 (%)



Source: Rosstat.

established mainly for Class B offices and retail premises (US dollar-based rates had been preferred earlier), but lease agreements based on ruble rates are also common in the premium segments.

Currently, foreign exchange risk is the main risk carried by the companies operating in the commercial real estate sector. A large share of their accumulated bank loans is denominated in foreign currency. This is due to the fact that lessors' income until recently had been tied primarily to the US dollar. Weakening of the ruble substantially increased the costs of companies' debt service, forcing the banks to initiate mass loan restructuring. In the current conditions, credit institutions may find it desirable to revise their lending policy with regard to construction companies and developers by gradual refocusing of borrowers on ruble loans.

Large-scale developers in the housing sector were among those few companies that managed to improve their financial status according to their reports for the first six months of 2015. Despite a decrease in earnings in the first six months of 2015, the largest public companies increased EBITDA (by 17% on average) mostly at the expense of cutting costs of the sold products. Due to the high profit margin (of 19%–24%), the largest companies of the sector have a low debt burden (the net debt/EBITDA ratio is around 0.5 on average). In 2014 and the first six months of 2015, new housing originated from projects launched 2–3 years before.

However, housing construction started to decline from June 2015. The fall in residential sales of the

largest developers may reach 30% to 50% in 2015, but the decreased debt burden and an accumulated liquidity "cushion" will allow the sector's major companies to maintain an acceptable financial position.

It is worth noting that the biggest public companies accounting for a 15% share of the construction market are not indicative of the general trends in the industry. The debt burden of the "construction" and "real estate transactions" sectors calculated on the basis of Rosstat data (Debt/Operating Profit) is the highest compared to other key sectors (7.9 and 7.0 respectively). Problems related to performance of obligations may arise among both large-scale non-public borrowers and small and medium-sized non-public construction companies which occupy a substantial share of the market.

Air transport. In January–May 2015, this segment recorded a decline (by 1.2% YoY) in passenger traffic for the first time in the last six years. However, the traditionally high summer season arrested the decline in passenger traffic, resulting in figures equal to those of the last year in the first 9 months of 2015. Nevertheless, the expected fall in passenger traffic may reach 10%–15% by the end of the year.

The sector's largest companies continue to accumulate losses. According to the Russian Association of Air Transport Operators (RAATO), losses of the airlines were 28 billion rubles in the first six months of 2015; and losses for the year are assessed at approximately the same amount – at

least 25–30 billion rubles – due to the traditionally profitable Q3. Companies' financial performance is affected by such factors as increased foreign currency-denominated payments for leased aircraft and an overall reduction in revenues related to a change in transportation structure: a decrease in foreign tour package sales led to an increased share of domestic flights⁹, which are traditionally unprofitable for Russian airlines.

If the aforementioned tendencies persist in the long term, the market will face consolidation as flight volumes decrease or unprofitable airlines leave the market. Government support measures are being implemented to stabilise the sector: adopting a law to decrease VAT on domestic flights from 18% to 10% (from 1 July 2015) and funding regional flights. Permission of overbooking is also under discussion, this will allow airlines to sell more tickets than there are passenger seats available.

The risk of a high debt burden has materialised for one of Russia's largest air carrier (Transaero). The largest creditors filed bankruptcy claims against it on 16 October 2015 and its Air Operator's Certificate was revoked on 26 October following the results of the audit. To mitigate the negative impact of the company's insolvency on the lending banks, the Bank of Russia developed a unified schedule for gradual creation of additional loan loss provisions for credit institutions. Transaero's bankruptcy will negatively affect the main lessors and require the Russian Government to consider additional capitalisation of the key leasing companies.

Small and Medium-sized Enterprises (hereinafter referred to as the SMEs). According to financial reports and surveys conducted by the Bank of Russia among 5,700 SMEs, their operations in January-September 2015 were characterised by a trend towards falling production and demand for products (services), limiting price hikes despite increased costs, reduction in the working capital, and growing tension in the area of mutual settlements. The average utilisation of production capacity by SMEs in January-June 2015 was 70.8%, down by 2.6 pp from the 2014 level.

The period of supply of SME production with orders was 5.7 months on average and remained almost unchanged from 2014.

The average monthly gross revenue of small businesses (excluding microenterprises) decreased by 6% in the first six months of 2015 as compared to 2014. The largest share in the small business structure belongs to retail and wholesale trade, real estate transactions, lease and services, construction and manufacturing (Chart 20).

These sectors showed the strongest negative trends: small wholesale and retail enterprises account for 47% of the drop in the average monthly gross revenue (including 24% in vehicle sales); construction accounts for 26% of negative growth; real estate transactions, leasing, and services, for 10% (including 3.4% in research and development). Slackening investment activity was the main negative consequence (investments in the fixed capital of small businesses were 429 billion rubles in 2014 and only 143 billion rubles in the first six months of 2015).

Retail and wholesale SMEs were negatively affected by a drop in imports to Russia from non-CIS countries (37.9% in 10 months of 2015 compared with the relevant period of the previous year). An additional negative factor for SMEs during the first nine months of 2015 was a decline in household real disposable income and retail trade turnover by 3.3% and 8.5% compared with the same period last year.

The Bank of Russia implemented the following set of measures to support this segment. For instance, the Bank of Russia introduced a special refinancing instrument secured by loan claims against SMEs (33.4 billion rubles were disbursed out of the total limit of 50 billion rubles). As an additional measure to expand refinancing options in 2015, the Bank of Russia developed a simplified procedure for refinancing SME loans if such loans are secured with bank guarantees of the Credit Guarantee Agency, joint-stock company. Moreover, bank guarantees of the Credit Guarantee Agency were included in the security list of the first category of quality. The Bank of Russia also decreased the risk ratio on credit claims to SMEs from 100% to 75%.

⁹ Domestic flights increased by 13.8% in the first eight months of the current year, while international flights were responsible for the overall market fall, as the passenger traffic in the segment decreased by 14.0%.

4. THE EVALUATION OF BANKING SECTOR SYSTEMIC RISKS

4.1. Deterioration of Quality of the Banking Sector Corporate Portfolio

The beginning of Q3 recorded stabilisation of the situation following a slowdown in the growth of the non-financial organisations ruble loan portfolio (Chart 21). Annual growth rate of the loan portfolio was 4.8% as of 1 October 2015. This trend is a result of both measures to increase capitalisation of the banking system aimed at boosting lending to the priority sectors of the economy and a gradual decrease in interest rates. Compared with the peak values of 2015 Q1, the interest rates on ruble loans to non-financial organisations for a term of over one year decreased by 2.3 pp to 14.2% as of 1 October 2015.

Demand of non-financial organisations for foreign currency loans from Russian banks also remains low. The annual growth rate of the foreign currency portfolio as of 1 October 2015 was 3.7% excluding currency revaluation.

The quality of the portfolio of loans to non-financial organisations keeps deteriorating. Despite a relatively stable share of category IV-V loans issued to legal entities¹ including SMEs (8.9% as of 1 October 2015), the share of restructured large loans shows substantial growth. The share of restructured loans as of 1 October 2015 reached 31.6% (26.3% at the beginning of the year)².

The share of overdue ruble loans remained stable in the last months of Q3. Its value as of 1 October 2015 (7.7%) exceeded the maximum level of 2010 (7.3%). Foreign currency loans demonstrate high quality and are generally characterised by low credit risk: the share of overdue loans is less than

Chart 21

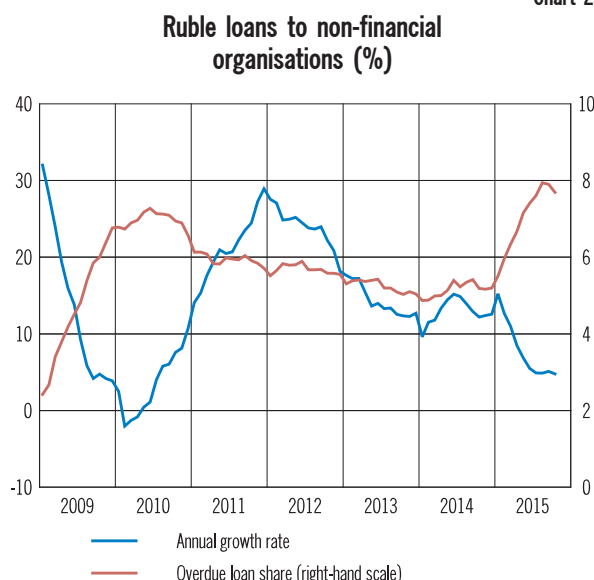


Chart 22



* Excluding currency revaluation.

2.5% as of 1 October 2015. For comparison, the peak values of this indicator reached 5.5% in 2009.

The high quality of foreign currency loans is due to the fact that borrowers of such loans are mostly export-oriented companies that receive adequate foreign currency earnings to repay their debts.

From the beginning of 2015, there has been a substantial increase in overdue bank loans to SMEs

¹ Excluding credit institutions.

² Information on the share of restructured loans in this section is provided on the basis of the data in Reporting Form 0409117 Large Loan Data. As of 1 October 2015, the total claim amount included in this reporting form is around 40% of outstanding debt of non-financial organisations.

Table 2

Quality of the portfolio of loans to non-financial organisations as of 1 October 2015

Type of economic activity	Share of loans in the portfolio of loans to non-financial organisations, %	Share of overdue loans, %	Overdue loan increase in 2015, pp	Loan currency
Air transport	0.5	21.7	12	rubles
Construction	8.1	19.1	7.7	rubles
Retail and wholesale trade	16.9	8.6	3.2	rubles + foreign currency
Real estate transactions	15.8	4.8	1.7	rubles + foreign currency
Agriculture, hunting, and forestry	5.2	9.9	0.6	rubles + foreign currency
Mining	6.5	2.8	-0.1	rubles + foreign currency
Chemical industry	2.4	2.2	-0.3	rubles + foreign currency
Production of coke, oil and nuclear materials	2.4	1.4	0.1	rubles + foreign currency

Note: The table shows lending segments with the largest share of overdue loans.

(by 4.4 pp to 12.1% as of 1 October 2015). The largest decline in quality of the portfolio is observed at the major banks. This may be a result of, first, use of scoring models relying on formal criteria for loan decision making, which allows cutting costs of the borrower's financial analysis but encourages the practice of providing loans to customers without a full analysis of their operations; second, pursuing a more proactive policy by the major banks to create provisions for such loans.

With rising risks in the SME segment, the banks continue to decrease the amount of granted loans compared with 2014. As a result, the average monthly amount of new bank loans granted to SMEs in the first nine months of 2015 totalled 437 billion rubles or 31% below the relevant figure for the similar period of 2014. The peak of the decrease was passed in May 2015 (almost a twofold decrease in granted loans), and the lending activity is gradually recovering, in particular, due to the banks participating in the programme of additional capitalisation.

The interest rates on SME loans remain high. According to the banks' financial statements, the average weighted interest rate on ruble loans for a term of up to one year granted to SMEs in September 2015 was 17% p.a., and 15.5% p.a. on loans for a term of over one year.

The situation is highly variable across certain types of economic activity. The highest credit risks are typical of the construction sector, which is characterised by a high share of overdue ruble loans (19.1% as of 1 October 2015), as well as

the highest growth rate of this indicator from the beginning of the year (7.7 pp)³.

Overdue foreign currency loans also show substantial growth since the beginning of the year (1.4 pp).

The related real estate transactions segment also shows growth in credit risks. Overdue loans in this segment increased by 1.7 pp from the beginning of the year to 4.8% as of 1 October 2015. This segment carries high risks related to foreign currency loans (a 1.7 pp growth from the beginning of the year). Foreign currency loans to the real estate sector constitute 38.8% of the aggregate loan portfolio in this segment. Given the historically large share of restructured loans in this segment (almost every second foreign currency loan and every third ruble loan have been restructured⁴), the banks are expected to pursue a loan restructuring policy to avoid a situation when non-core assets are left on the balance sheet of the lenders.

High risks are inherent in the retail and wholesale segments due to declining effective consumer demand and negative economic growth. The share of overdue ruble loans increased by 3.4 pp from the beginning of the year to 9.1% as of 1 October 2015. This segment is characterised by the second-largest (after agriculture) amount of overdue foreign currency loans (a 2 pp increase from the beginning of the year to 5.4% as of 1 October 2015).

³ Information on overdue loans in certain types of economic activity is given in accordance with Report Form 0409302 Information on Deposited and Borrowed Funds, including loans by Vnesheconombank.

⁴ The evaluation was based on data on large loans

Due to the problems of certain companies operating in the air transport sector, this sector recorded substantial growth in overdue ruble loans. From the beginning of the year, this indicator increased by 12 pp to 21.7% as of 1 October 2015.

Loans provided to companies of such export-oriented sectors as mining, production of coke, petroleum products and nuclear materials, and production of chemicals, on the contrary, are characterised by relatively high quality. From early 2015, the increase in the share of overdue loans in

these types of economic activity was below 1 pp, and certain types witnessed its decrease.

Positive trends are observed in the agriculture segment. Despite a high level of overdue loans (9.9% as of 1 October 2015), there has been a stabilisation from the beginning of 2015. Due to the import substitution programme and government support, companies of this sector show an increase in profitability, which allows them to service debts in a timely manner.

4.2. Risks of Unsecured Consumer Lending Market

The unsecured retail lending market showed signs of demand recovery in 2015 Q2 and Q3. Lending increased by between 15% (credit cards) and 66% (cash loans) in 2015 Q3 as compared to Q1. Increased lending was accompanied by a decrease in the effective interest rate (EIR), especially on cash loans (down from 27% to 22.3%) and reduced granting of loans to customers with a high debt burden. For the first time since 2011, the share of loans to borrowers with the payment to income ratio (PTI)⁵ exceeding 40% contracted to 22% (Chart 23). Further strengthening of the trend towards reduction of PTI and the cost of borrowing will create conditions for improving the quality of loan portfolios of retail banks as early as in 2016; however, it will also depend on the macroeconomic situation.

In 2014, unsecured loan vintages were characterised by high quality (Charts 23 and 24). However, from December 2014, with a decline in real income the quality of new loan vintages began to drop in spite of the banks tightening their underwriting standards. Deterioration of quality is observed in the loan vintages originated in December 2014 - January 2015. This is evidenced by early indicators of loan granting quality (the share of unserviced loans in the 8th and 9th months from their origination). The volume of the loans granted during these months was almost three times less than that for the previous periods, which will limit deterioration of the total loan portfolio. Due to this and a decrease in the loan portfolio (-10.1% over 12 months), the share of bad loans continued to grow slowly and reached 16.8% as of 1 October 2015 (Chart 26).

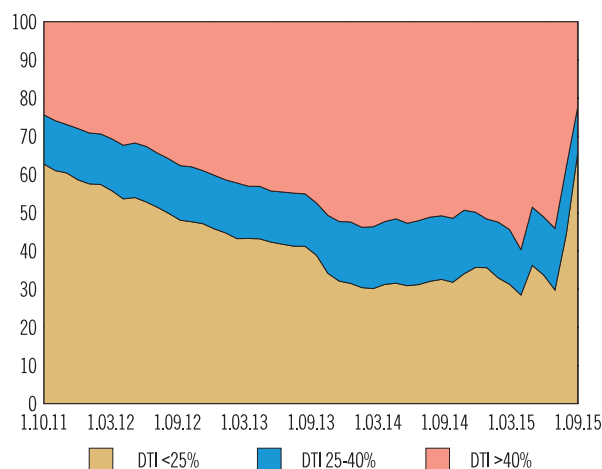
Facing high credit risks, the banks specialising in unsecured consumer lending are cutting their operating costs and reducing their branch networks.

The implemented measures allowed a stabilisation of the negative trend towards

⁵ PTI (payment to income) is a ratio of the payment amount established by the loan agreement to the borrower's income per quarter.

Chart 23

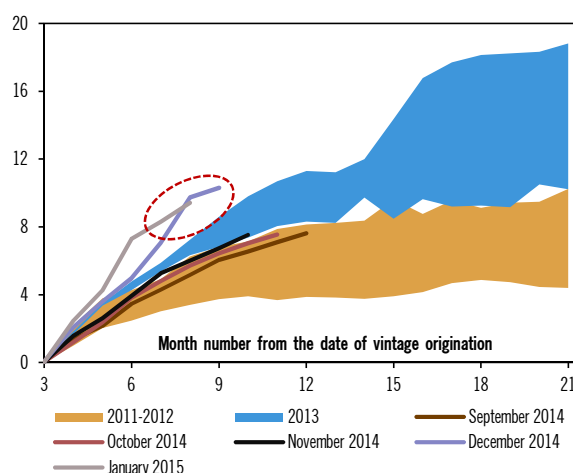
Annuity loans by customers' PTI* (%)



* Based on NBCH data. Coverage of over 50% of the market.

Chart 24

Share of bad loans* by loan vintage* (%)



* Loans overdue for over 90 days.

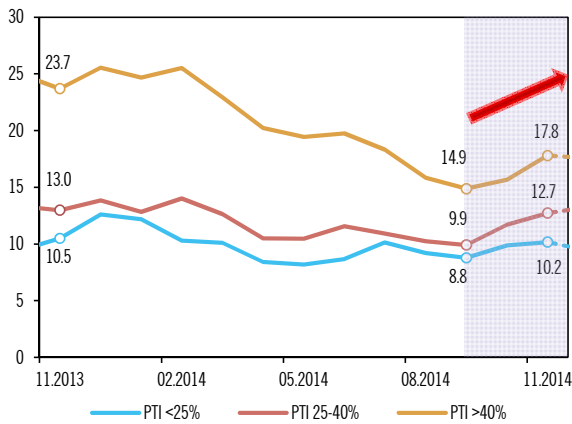
decreasing return on equity in retail banks⁶ at -7% in 2015 Q2 and Q3 (with the minimum value of -8.8% reached in June 2015). In 2015 Q3, such banks generated 2.3 billion rubles in profit (Chart 27), which along with the effects of the reduced unsecured loan portfolio allowed some retail banks to maintain their capital adequacy figures at the level of 2014 Q4 (Chart 28).

⁶ Criteria for categorising banks as specialising in unsecured consumer lending:

- total amount of unsecured loans is over 10 billion rubles;
- the ratio of the amount of unsecured loans to assets is over 20%;
- the share of interest income from retail loans is over 35% in the total interest income.

Chart 25

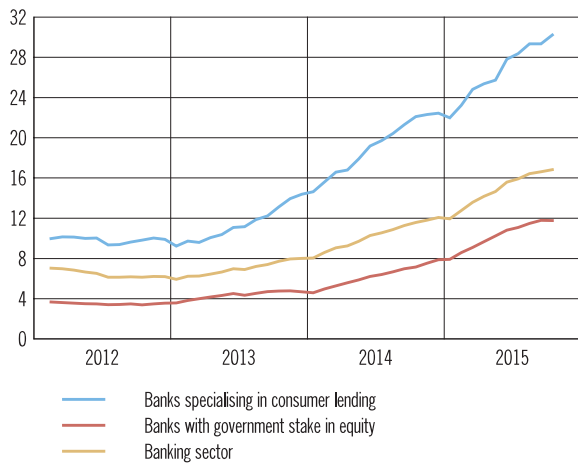
Risk level for loan vintages by customers' PTI (%)



Annual probability that non-overdue loans become loans overdue for over 90 days. Calculations for every loan vintage is made in the 12th month from its origination.

Chart 26

Share of bad loan by type of credit institutions* (%)



* Calculated in accordance with data of Form 0409115.

Chart 27

Financial performance and ROE of banks specialising in unsecured lending

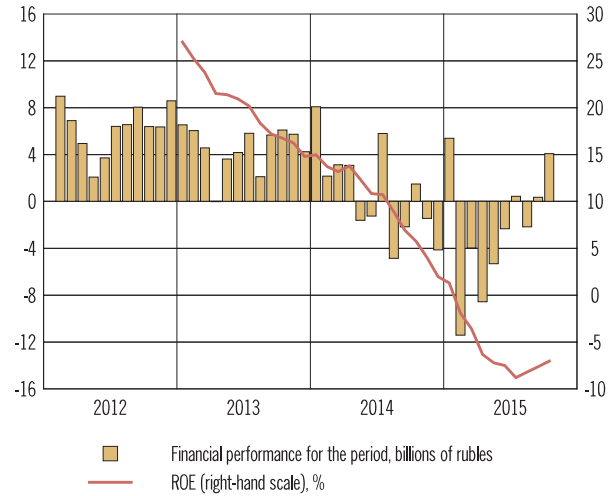
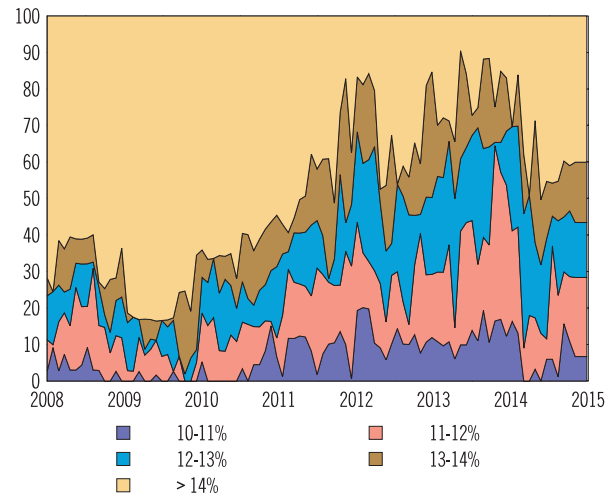


Chart 28

Equity of banks specialising in unsecured lending, by N1.0 (%)



Generally, the banking sector has adapted to the cooling consumer lending market: the banks have refocused their credit products on borrowers with a medium and low debt burden.

Credit risks accumulated during the period of excess demand in 2012–2013 have materialised

and will not have a dominant influence on market development. Nevertheless, with a decrease in real household income, there are risks that the recovery of the quality of the unsecured loan portfolio will stretch over a lengthy period of time.

Mortgage market

The fall in issued mortgages bottomed out in March–April with a twofold reduction in granting at the end of 2015 Q1 (compared to the same period last year), and currently the credit supply is recovering. Quarterly growth rates of outstanding housing loans (including mortgages) reached 3.6% as of 1 October 2015, an increase of 2.4 pp during 2015 Q3.

Despite the loan portfolio growth, the amount of loans granted in 2015 Q3 is still below the level of the same period of the previous year (about 66% of loans issued in 2014 Q3). The main driver of mortgage loan supply growth is the programme for subsidising interest rates on mortgage loans. Loans granted under this programme account for about 40% of total loans granted in Q2 and Q3¹.

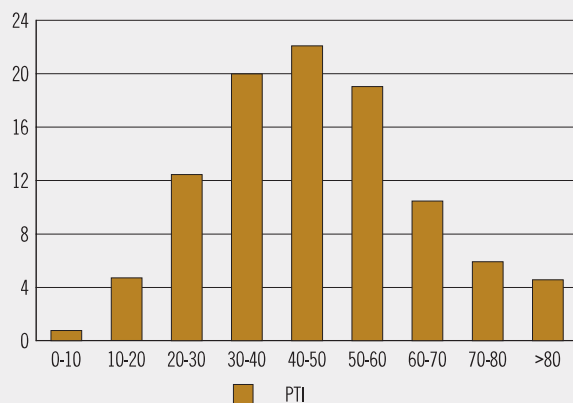
The main factor limiting mortgage demand is decreasing solvency of the population. Mortgage interest rates decreased by 1.4 pp to 13.2% from the peak figures of 2015 Q1 but are still above the average level of 2014 (12.3%). In the future, mortgage demand may increase due to further interest rate cuts. To support mortgage lending, the Bank of Russia decreased the risk ratio for highest quality mortgage loans from 50% to 35%.

The quality of the mortgage loan portfolio remains high. The share of bad² loans in the segment is insignificant (2.9% as of 1 October 2015). Banks use high lending standards: only 3.9% of total loans were issued with LTV exceeding 80% in 2015 Q3. The weighted average PTI on mortgage loans provided in 2015 Q3 was 47%.

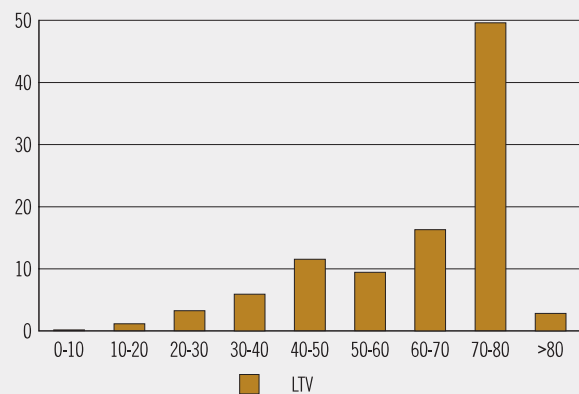
Regular stress testing by the Bank of Russia of mortgage lending by major banks, which account for about 80% of the debt on housing loans (including mortgages), also confirms the low level of risks in the mortgage lending sector. Under the stress scenario³, the share of bad loans may go up by 3.9 pp to reach 6.8% by late 2016. Nevertheless, the largest banks will generally comply with the capital adequacy standards as they have sufficient capital reserves, and the share of mortgage loans in their total assets is insignificant.

Chart 29

Structure of mortgage loans issued
in 2015 Q1-Q3 (%)



Notes: According to retail loan debt monitoring.
PTI was calculated as the ratio of the monthly payment on mortgage loans to the average monthly borrower's income.



Notes: According to retail loan debt monitoring.
LTV was calculated as the ratio of the current loan to the housing market value as of the loan issuing date.

¹ According to retail loan debt monitoring.

² With payments overdue for over 90 days.

³ Scenario assuming oil price of \$40 per barrel in 2015 and 2016.

4.3. Outlook for Recovery of Credit Institution Profitability

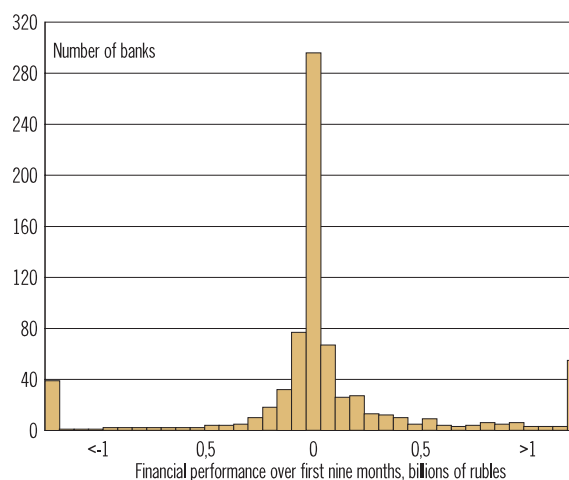
The banking sector financial performance over the first three quarters of 2015 showed mixed dynamics. The total return on equity in the banking sector over 12 months decreased from the beginning of the year by 7.5 pp to 0.4% as of 1 October 2015 (Chart 30). Positive financial performance in certain months was typical of a small group of large banks, while financial performance of most medium-sized and small banks showed near-zero or negative figures (Chart 31).

A decrease in banks' financial performance in 2015 resulted from a combination of the two factors: a decrease in the net interest income and simultaneous deterioration in the quality of the loan portfolio (Chart 32).

Despite increased provisions for losses on loan and similar debt of Quality Categories IV-V for loans granted to legal entities (other than credit institutions), the reserve coverage ratio of bad debts decreased from the beginning of the year by 4.1 pp to 63.1% as of 1 October 2015. This decrease seems to be related to expanded lending to the key economic sectors by the banks, which have received additional capital, which allowed them to increase their "operating" assets related to the non-financial sector. An opposite situation is observed in retail bad loans: the reserve coverage ratio increased by 1.5 pp to 82.3% as of 1 October 2015.

Chart 31

Financial performance of banks for first nine months of 2015



Banks increased interest rates on deposits of individuals and non-financial organisations to prevent outflow of depositors in December 2014 - February 2015. Retail deposits were raised mostly for the terms of six months to three years (67% of the funds deposited within the above period). Non-financial organisations deposited funds for a term of up to one month. Thus, an increase in interest expenses in 2015 was primarily related to raising expensive long-term retail deposits.

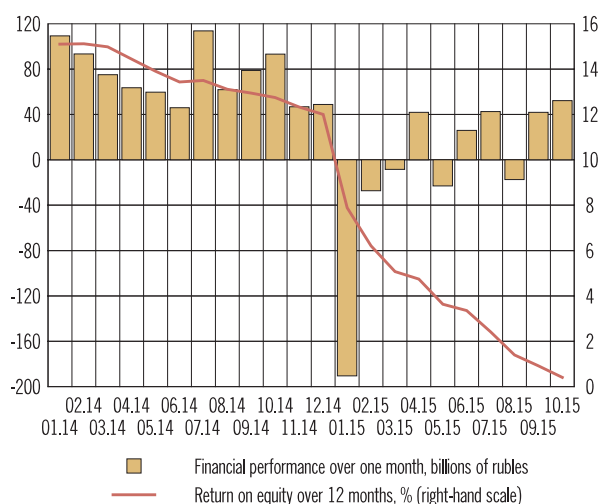
Nevertheless, interest income growth was limited in 2015. With growing credit risks in the retail and corporate segments and increased funding costs, banks were increasing their interest rates on loans, which reduced demand for borrowed funds. Banks also applied loan rationing⁷ by limiting credit risks in retail lending.

This led to a slowdown in banks' loan portfolio growth rates, which affected interest income. Additional pressure on interest income was created by an increase in overdue portfolio of loans granted to individuals and non-financial organisations, which reduced the share of "working" assets. An increase in overdue loans also resulted in the need to create additional loan loss provisions.

Facing a substantial decrease in financial performance, banks have been cutting their costs related to business maintenance since the beginning of the year (Chart 32). Operating expenses over the

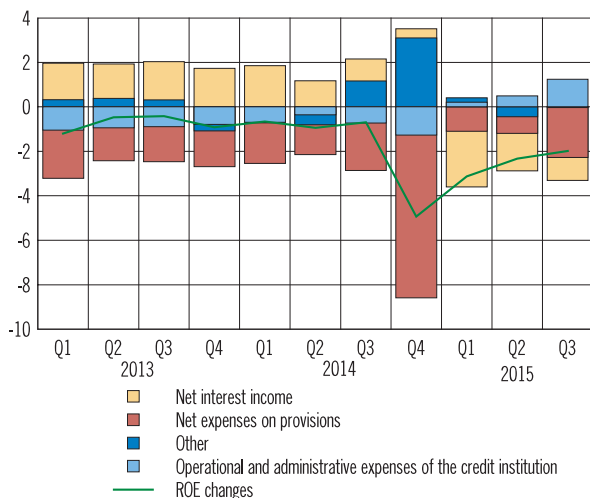
Chart 30

Return on equity in banking sector over 12 months



⁷ Limiting loan supply by non-price methods, e.g., by tightening requirements for borrowers, initial payment, debt burden, etc.

Chart 32
Drivers of changes in return on equity (ROE)
over 12 months



first three quarters of 2015 decreased by 11.5% as compared with the similar period of 2014.

According to international experts, increased operating performance is a critical element of post-crisis strategy for banks. For example, extensive

cost-cutting by Swedish banks after the 1990s crisis was a key driver of fast recovery of the banking sector⁸. According to IMF estimates⁹, many global banks also made efforts to cut operating costs after the 2008 crisis: the average ratio of operating costs to revenues of 300 largest banks had shrunk by 7 pp to 66% from 2008 to 2013, which is approximately equal to the average level in 1995–2005 (65%).

Profitability of credit institutions is expected to recover in the long term, provided that banks optimise their operating costs further and maintain their loan portfolio quality. Most “expensive” deposits will expire on 1 January 2016 (about 40% of deposits raised in December 2014 - February 2015). Given gradual recovery of lending to non-financial organisations, including by the banks involved in the additional capitalisation programme, the share of “working” loans in banks’ portfolios will grow. This will allow already in 2016 Q1 to increase the amount of net interest income of banks to the level registered in the similar period of 2014.

⁸ C. Borio, B. Vale, G. von Peter // *Resolving the financial crisis: are we heeding the lessons from the Nordics* // BIS Working Papers, No. 311, June 2010.

⁹ *Global Financial Stability Report*, October 2014.

5. SYSTEMIC RISKS OF NON-CREDIT FINANCIAL INSTITUTIONS

5.1. Financial Risks of Leasing Companies

As of 1 January 2015, the Russian leasing market (leasing portfolio) amounted to 3.2 trillion rubles. Railway equipment and air transport (most vulnerable to economic recession sectors) account for the largest market share. The major players in the Russian leasing market are banking group participants. Leasing companies receive a substantial part of their funding from credit institutions. Close relations between leasing companies and banks may potentially lead to 'contagion' of the banking system if one or more large lessors face financial difficulties, which will require improved monitoring of leasing companies and their risks.

Leasing Market and Key Market Trends

According to Expert RA rating agency, the leasing portfolio¹ of the Russian leasing market² was 2.95 trillion

rubles as of 1 October 2015; and the total market portfolio grew by 10.3% (the lowest growth since 2010) in 2014. According to the Bank of Russia's alternative estimate based on the analysis of financial investments and other non-financial assets of leasing companies recorded in the RAS statements, the market amounts to 2.2 trillion rubles.

As of 1 January 2015, the share of railway equipment and air transport leasing in the total leasing portfolio was 42% and 22% respectively. In 2014, lessors were expanding their deals with small and medium-sized businesses (+27%).

In the first nine months of 2015 new business fell almost by one third as a result of a 26% reduction in the number of leasing transactions to 385 billion rubles. Given the forced restructuring in the market, the share of bad assets was at least 10% as early as on 1 January 2015³.

The largest Russia-based players in the leasing market are banking group participants; their financial statements are consolidated in the financial statements

Global experience in regulating the leasing business

The European law does not define the term 'financial leasing', and different countries may interpret it in different ways. It is translated into different approaches to regulation of leasing companies. Thereby, the companies engaged in financial leasing participating in a banking group must comply with the same requirements as those imposed on credit institutions. Companies involved in the leasing business are licensed and, therefore, are subject to prudential regulation; they have to comply with the requirements imposed by the regulator (a minimum authorised capital and specific requirements for the composition of shareholders/board of directors). Companies providing financial leasing services must hold a banking licence and, consequently, comply with all the requirements of banking regulators.

In the USA, which have the best-developed leasing market, many bank holding companies manage leasing companies and own banks which perform leasing transactions. Bank holding companies may lease movable and immovable property, while national commercial banks are entitled to lease only movable property. In compliance with the Competitive Equality Banking Act, national commercial banks may invest up to 10% of assets in leasing agreements with unlimited residual value.

In China, in accordance with the Banking Supervision and Administration Law of the People's Republic of China (31 October 2006), leasing companies are subject to supervision and regulation by the banking regulator. The registration and the launch of business of all financial institutions must be approved by the China Banking Regulatory Commission under the State Council.

¹ Leasing payments due or lessees' debt to lessors under the current transactions less debt past due for more than two months.

² Companies registered as legal entities in the Russian Federation focused on financial lease of equipment and other items.

³ Based on questionnaires and interviews with the companies which provided data for the research carried out by Expert RA.

of their banking group. To purchase property, such companies either raise bank loans or issue bonds.

Until 2001, leasing companies were subject to licensing in accordance with Government Regulation No. 167, dated 26 February 1996, 'On Approval of Regulation on Licensing Leasing Activity in the Russian Federation'; however, Federal Law 128-FZ, dated 8 August 2001, 'On Licensing Certain Types of Activity' does not require licensing of the leasing business. Thus, leasing companies are beyond supervision and regulation and belong to the shadow financial sector.

In the previous years, the leasing market was largely growing due to the following advantages of lease funding for lenders and borrowers compared with bank loans:

1. Leasing term may last 5–10 years; and this is currently a longer period than a standard bank loan term. As a result, with lease funding, lessees

can spread their costs over a longer period and improve their financial indicators over time.

2. When a loan is issued to a leasing company, assets purchased for lease are used as collateral. If the leasing company is a banking group participant, assets essentially belong to the bank and no security enforcement is required.

3. If lenders file any property claims against a leasing company, no enforcement of leased assets is allowed.

Systemic Risks and Information Gaps

Negative developments in the sectors which are the main customers of leasing companies increase risks for the banking sector.

The banking sector and leasing companies are closely connected: banks loans issued to leasing companies and recorded in Reporting Form 0409117 Details of Large Loans alone (30 largest loans) total at least 300 billion rubles. Outstanding

bond issues of market leaders total 330 billion rubles; and their substantial part is included in banks' portfolios. If one or more large lessees face financial difficulties, the banks will incur financial losses (i.e., there is a contagion risk for the banking system).

Inadequate information transparency of leasing companies leads to a possibility of regulatory arbitrage (shadow banking system).

The exact assessment of financial status of a leasing company requires a review of financial statements prepared in accordance with the IRFS (including notes). Such statements allow making better-informed conclusions regarding the company's financial stability, both on the reporting date and in the long run⁴. Only five out ten largest companies⁵ publish their IFRS statements on the company's website (some publish incomplete and out-of-date versions).

Assessment of a company's ability to meet its debt obligations requires awareness of its transaction structure and main lessees. Information insufficient to assess the quality of loans issued by the bank to leasing companies prevents timely identification of all risks.

Thereby, operations of leasing companies, including participants of banking groups, are unregulated; thus, regulations do not govern loans granted for leasing transactions.

More comprehensive risk assessment by the Bank of Russia requires enhanced information transparency of the leasing sector.

⁴ For example, to compare future cash flows from lease payments with payments on debt obligations and evaluate currency and liquidity risks.

⁵ Based on Expert RA ranking by leasing portfolio as of 1 January 2015.

5.2. NPF Investment Risks

The core risks for NPFs are credit risks, most of all on investments in related parties. It was the low quality of assets which was the main reason for revocation of licences from NPFs in 2015. At the same time, NPFs included in the guarantee system⁶ are characterised by high financial sustainability. In spring 2015, most NPFs successfully completed the 2013–2014 transition campaign (3.5 million people switched to other NPFs and 0.3 million people switch from NPFs to the Pension Fund of the Russian Federation (PFR)).

After the transfer of 616 billion rubles from the PFR, the total pension savings in NPFs stood at 1,675 billion rubles as of 1 October 2015. Investments in corporate bonds increased by 248 billion rubles to 665 billion rubles in Q2 and Q3. Investments in shares almost doubled to a total of 196 billion rubles. Investment in deposits increased by 74 billion rubles to 380 billion rubles. The share of deposits in the investment portfolio of NPF pension savings decreased by 4 pp to 23%.

In 2016, the growth of NPF pension savings will be suspended again. In October 2015, it was decided to freeze pension savings for 2016.

The year 2015 recorded an increase in NPF profitability. During the first nine months of 2015, as many as 76 out of 78 NPFs received positive return on investments of pension savings, and 93 out of 101 NPFs received positive return on pension reserves. The return on pension savings totalled 10.6%, or 1.6 pp less than PFR yields (12.2%), and the return on pension reserves totalled 8.1%. As many as 45 out of 78 NPFs received a return on pension savings which exceeded inflation, and 48 out of 101 NPFs received such a return on pension reserves.

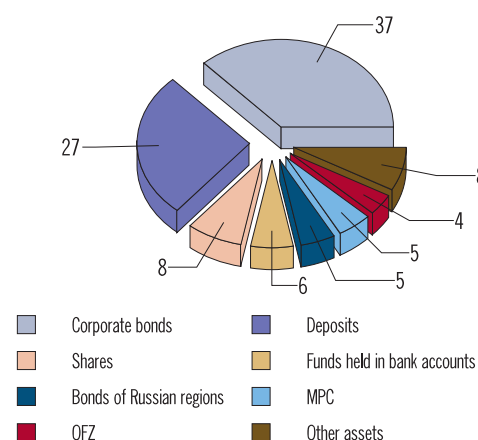
To review financial sustainability of the NPF sector, in 2015 the Bank of Russia assessed the risks of investment of pension savings by NPFs to analyse credit and market risk, liquidity, and investment portfolio concentration.

The credit risk assessment assigned every asset in an NPF's portfolio a quantitative parameter (indicator of probability of default) to determine the loss limit depending on the timeline (1, 5, and 10 years). The default probability indicator was based on credit ratings assigned by credit rating agencies or by expert assessment depending on the asset class, if there was no rating available.

The share of unrated assets in the pension savings portfolio of NPFs included in the system of guaranteeing the rights of insured persons was 15%, and 41% in other

Chart 33

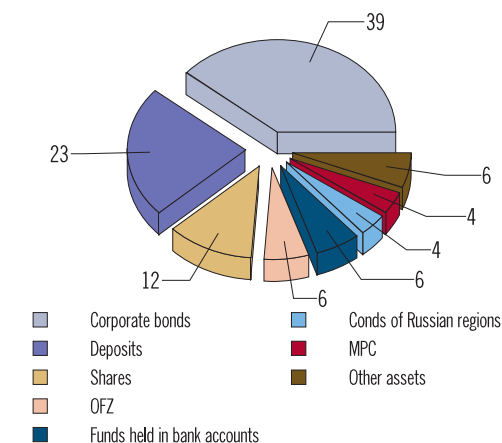
Pension savings portfolio structure
as of 1 April 2015 (%)



Source: Bank of Russia

Chart 34

Pension savings portfolio structure
as of 1 October 2015 (%)



Source: Bank of Russia

NPFs in 2015 Q2. Possible expected losses incurred upon materialisation of credit risk within 1 year and 5 years in NPFs included in the guaranteeing system may total 2% and 13%, and in other NPFs 6% and 24% respectively.

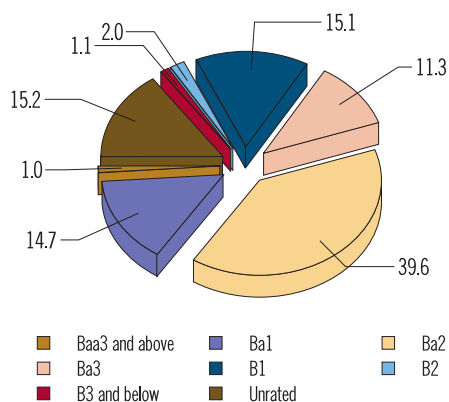
The long-term nature of NPF obligations makes them largely insensitive to market risks. At the same time, market risks may be critical to NPFs when linked to liquidity risks for the period of the transition campaign and mass retirement of the insured (currently, the largest share of the total pension savings portfolio comprises long-term assets not traded in the open market). Quantitative market risk assessment of the NPF portfolio was based on CVaR⁷ with a 99% confidence level and historical data for a 10-year period. In case of increased volatility of the stock market, potential expected losses

⁶ As of 3 November 2015, as many as 32 funds joined the system of guaranteeing the rights of insured persons; they account for 95% of the market of pension savings managed by NPFs.

⁷ Calculated as mathematical expectation of loss amounts, provided that it exceeds the relevant VaR figure.

Chart 35

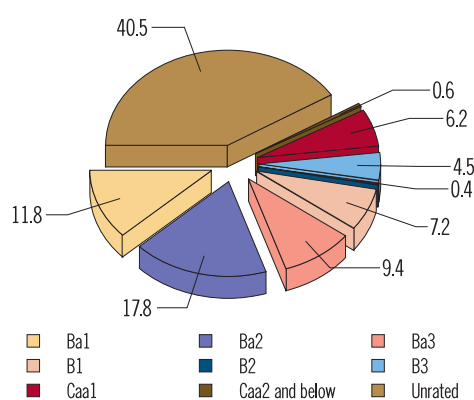
Asset breakdown by ratings (NPFs included in the guaranteeing system) as of 1 July 2015* (%)



* Moody's Investors Service comparable scale.
Source: Bank of Russia.

Chart 36

Asset breakdown by ratings (NPF not included in the guaranteeing system) as of 1 July 2015* (%)



* Moody's Investors Service comparable scale.
Source: Bank of Russia.

from materialisation of the market risk inherent in pension savings of all NPFs included in the pension guaranteeing system may total 5% and 7% respectively within 10 and 30 days.

Assessment of the concentration level considered the weight of three largest assets in the pension savings portfolio. The analysis showed that NPFs included in the system of guaranteeing the rights of insured persons have a relatively balanced investment structure: three largest assets account for 50% or less of the investment portfolio value.

To limit NPF investment risks, the Bank of Russia prepared draft Ordinance 'On Amending Bank of Russia Regulation No.451-P, Dated 25 December 2014' which stipulates that the maximum share of MPC in the pension savings portfolio will decrease from 40% to 10%⁸; this will also give rise to additional requirements to appraisers and mortgage coverage of MPC. Another important improvement aimed at enhancing the financial sustainability of NPFs is the draft Bank of Russia Ordinance 'On Requirements for the Risk Management System of Non-Governmental Pension Funds.'

⁸ As of 1 October 2015, the share of MPC was 4% of the total value of NPF pension savings (69 billion rubles); and 18 NPFs had an MPC share of the pension savings portfolios exceeding 10%.

5.3. Stress Testing of Insurance Companies

Macroeconomic risks have a substantial negative effect on financial stability of insurers due to a drop in voluntary insurance contributions⁹ and growing insurance payouts as a result of inflation, ruble depreciation, and an increased level of insurance fraud (see box 'Analysing the Insurance Fraud Risk'). Nevertheless, higher rates of the compulsory motor third party liability insurance (OSAGO) and rising investment incomes of insurance companies allowed them to show record profits for the first nine months of 2015 (95.7 billion rubles against 51.3 billion rubles year-on-year) However, these results related to profits cannot be considered sustainable: return on corporate deposits declined, and the increased liability limits and the improved procedure for assessing damage under OSAGO along with the updated reference books on full restoration value will lead to a spike in insurance payments on this type of insurance (a quarterly increase in the average OSAGO payment was 24% in 2015 Q3.) In addition, special concerns arise with regard to low asset quality that exposes some insurers to liquidity risks in view of declining demand for voluntary insurance.

To assess the systemic stability of the insurance sector, the Bank of Russia conducted a top-down stress testing for macroeconomic and credit risk effects¹⁰.

To assess resilience to macroeconomic shocks, it used a system of simulated business models of insurance companies matching the status and behaviour of companies in the market in 2015. The scenarios contemplated different depth of deterioration in the critical indicators for insurers, such as GDP, inflation, national currency exchange rate, new car sales, and overdue retail loans¹¹. The scenarios also included growth in the average payment under OSAGO.

Testing results showed that in case of the worst-case macro-scenario, the estimated aggregate capital deficit¹²

⁹ In the first nine months of 2015, insurance premiums on land vehicles other than railway transport were reduced by 13.1%, and on insurance premiums on other corporate assets fell by 10.4% year-on-year.

¹⁰ The analysis was carried out for 100 leading companies by insurance premiums over the first nine months of 2015 among the companies required to file quarterly financial reports as part of supervision.

¹¹ The scenarios were developed in accordance with the mid-term macroeconomic forecast quoted in the publication of the Guidelines for the Single State Monetary Policy in 2016 and for 2017 and 2018. The negative stress testing scenario involves an accelerated drop in GDP to 5% or more in 2016.

¹² Capital deficit means required additional capital which allows insurers to comply with the statutory requirements related to the solvency margin.

of the insurers in question may reach 13.4 billion rubles or 4.5% of equity by 30 September 2015. If their organisation models persist, capital deficit of 13 companies will exceed 50% of equity. If the worst-case scenario develops, the aggregate capital deficit may reach 35.6 billion rubles or 11.9% of equity, and the number of insurers with capital deficit exceeding 50% will increase to 19.

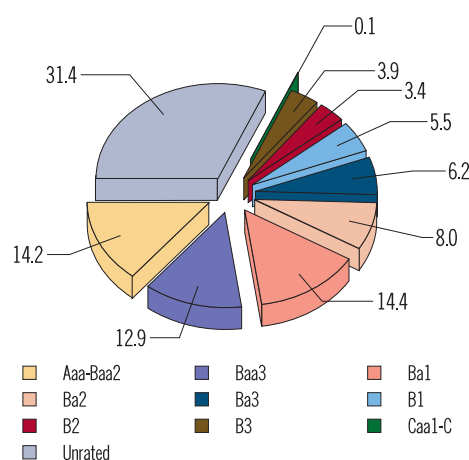
Analysis of insurers' sensitivity to credit risk involved assessment of the probability of default and the extent of potential losses on companies' existing assets based on credit ratings or expert opinions depending on the asset class, if there was no rating.

As of 30 September 2015, the share of premium quality assets with credit ratings of Baa3¹³ or higher accounted for 27% of the insurers' total assets, whereas the share of assets rated B2 or lower was below 8%. The total share of unrated assets was 31%, including 19% of accounts receivable (Chart 37). The share of unrated assets of 50% or more was typical of 31 of Top-100 insurers.

According to the estimates, the aggregate potential losses of all insurers will not exceed 2% of assets within one year and 12.3% of assets within five years. At the same time, credit risk of some companies differed substantially: potential losses within five years varied from 4.4% to 50%.

For most insurers, potential losses within the 5-year horizon do not exceed 10–20% of their total assets (Chart 38). Market players have a relatively good capacity to absorb losses from materialisation of credit risk: for all insurers in question, the ratio of estimated loss to equity remained less than 30% within one year.

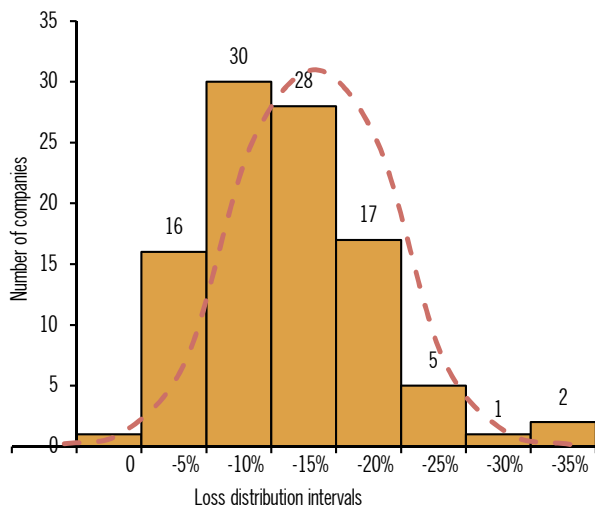
Chart 37
Insurers' asset structure by credit ratings
as of 30 September 2015 (%)



Source: Bank of Russia calculations.

¹³ Hereinafter, ratings are quoted on the scale of Moody's Investors Service.

Chart 38
Top-100 companies by potential losses over a 5-year
horizon (credit risk) as of 30 September 2015



A test exclusion of assets rated B2 or lower from financial investment portfolios was made to assess the sensitivity of insurers' liquidity indicators in relation to potential problems of the counterparties. The test

results demonstrated that four insurers in question could experience a critical decline in short-term liquidity if the largest investment of such kind was excluded.

In 2015 Q2 and Q3, the Bank of Russia continued to take measures to enhance financial stability of the insurance market. The procedure for determining systemically important insurers (SII) was established for organisation purposes. This procedure took into account the approaches of the International Association of Insurance Supervisors to determining global systemically important insurers.

The insurers were evaluated in terms of the general scope of their operations, relations with other financial institutions, volume of investment and financial activities, and their positions in relation to different insurance types. The SII list includes 22 insurers and is subject to annual reviews.

In the coming years a special regulatory regime will be established for SIIs. In addition, the expected increase in the minimum registered capital and tighter requirements related to investment of insurance reserves and equity affecting all insurers will be introduced to enhance the sector's financial stability.

Analysis of insurance fraud risk

In the unfavourable macroeconomic environment, insurers face a traditional growth in fraudulent actions. In 2014, companies which responded to a survey by the Bank of Russia (22 companies with the aggregate share of 77% of insurance premiums for the first six months of 2015) reported at least 13,000 cases exhibiting the signs of insurance fraud, including 11,800 vehicle insurance events.

The potential loss from insurance fraud inflicted in the insurance market in 2014 is generally estimated at 25–35 billion rubles, and actual losses, at 15–20 billion rubles. According to the survey, insurance companies incurred substantial losses from insurance fraud in the segments related to CASCO insurance (31% of the total loss) and retail and corporate property insurance (23% and 12% respectively).

Insurance fraud is on the rise primarily in the motor vehicle and property insurance sectors. Most common are instances of insured events staged by insured parties, including with participation of intermediaries, and provision of false information when signing an insurance agreement. Forgeries of insurance policies are also gaining ground. In view of growing OSAGO insurance rates, this type of forgery is becoming increasingly prevalent in the OSAGO segment and is a reason for reduction in the number of concluded agreements (-8.7% within the first nine months of 2015 year-on-year).

Only a quarter of all cases with signs of insurance fraud were taken to court in 2014. To counter fraud, insurance companies take proactive measures to tighten requirements related to pre-insurance inspection and selection of partners.

6. EFFECTS OF FISCAL POLICY ON FINANCIAL STABILITY

6.1. Federal Budget Sustainability and Financial Stability Risks

Sustainability of drawing up and implementation of the federal budget, which is the central core of Russia's budget system, is crucial for maintaining financial stability. In 2015, ruble revenues of the federal budget were declining due to falling oil prices and negative economic dynamics in the country. The resulting federal budget deficit was 787 billion rubles, or 1.49% of GDP, as of 1 October 2015. The Law 'On the Federal Budget for 2016' sets the budget deficit at the level of 3% of GDP. If the negative economic dynamics persists in Russia in the medium term, fast growth of budget deficit will become a potential risk for fiscal stability. However, if the Government of the Russian Federation restricts growth in federal expenditures, uses reserves moderately, and raises funds, the materialisation of this risk may be prevented.

Falling oil prices affected budget revenues: the total export customs duties on crude oil, gas, and oil products substantially decreased in 2015 (Charts 39 and 40) despite the growing MET revenues from crude hydrocarbons. The mixed dynamics of oil and gas revenue components may be partially explained by the tax manoeuvre, which involves a gradual reduction in export customs duties on oil and oil products in 2015–2017 with a simultaneous increase in the mineral extraction tax rate on oil and gas condensate. Subject to the Law 'On the Federal Budget for 2015 and the Planning Period 2016-2017' (dated 1 December 2014), the net effect of the tax manoeuvre for the federal budget was expected to amount to 22.6 billion rubles in 2015¹.

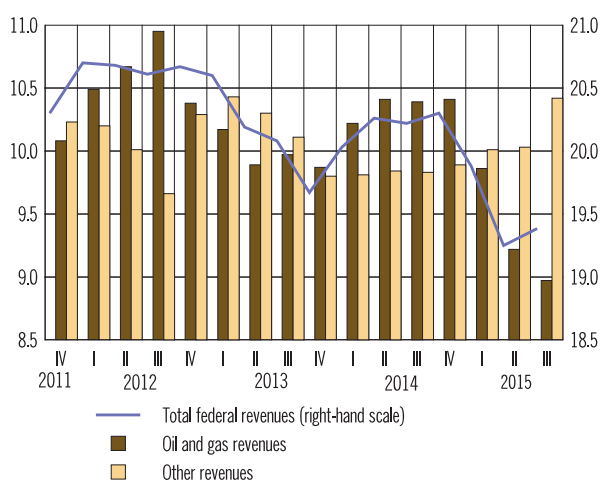
A decline in oil prices caused a deeper drop in incomes from oil export customs duties than was expected in December 2014.

In September 2015, the Russian Government decided to temporarily switch to a one-year budget

to improve federal budget planning in view of enhanced economic uncertainty. The Law 'On the Federal Budget for 2016' cuts the aggregate federal budget revenue for 2016 by over 2 trillion rubles compared with the Law 'On the Federal Budget for 2015 and the Planning Period 2016-2017' (as of 1 December 2014) primarily due to the decrease in MET proceeds by 1.46 trillion rubles and in customs duties by 580 billion rubles. Other

Chart 39

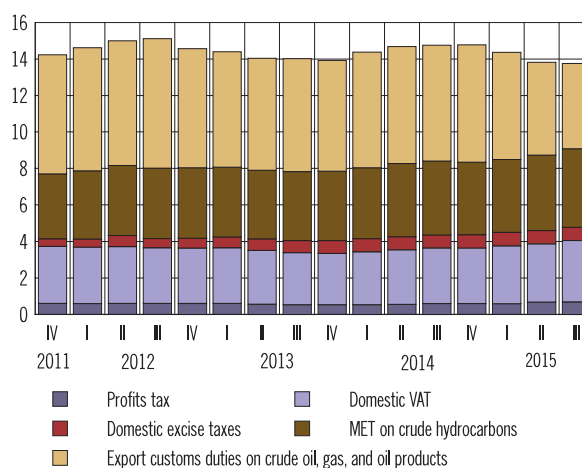
Federal budget revenues
as % of GDP in 2011–2015*



* Series of moving annual totals, as of the quarter-end.

Chart 40

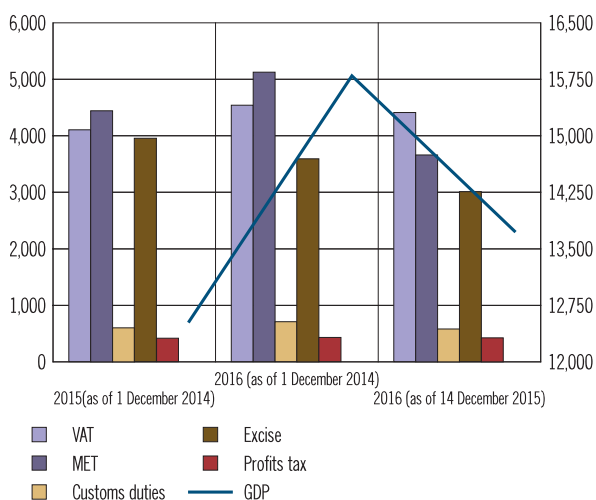
Major revenue items of the federal budget
as % of GDP in 2011–2015*



* Series of moving annual totals, as of the quarter-end.

¹ Materials of the Ministry of Finance of the Russian Federation to the Law 'On the Federal Budget 2015 and the Planning Period 2016–2017'.

Chart 41
Revenue forecasts in different versions of federal budget laws (billions of rubles)



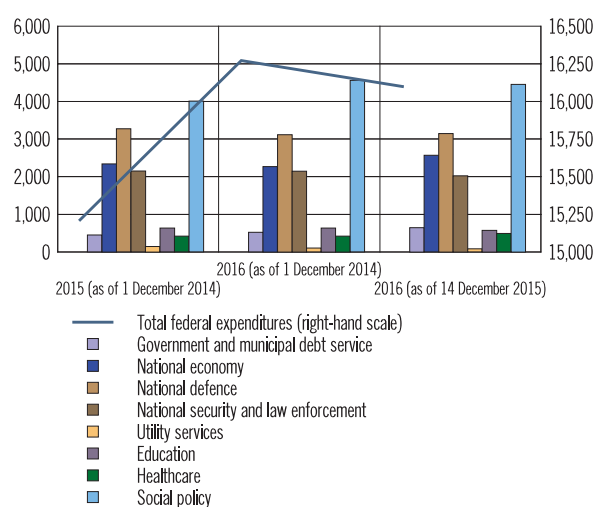
large revenue items, such as VAT and profit tax, proved to be more stable and were adjusted by far smaller amounts. The Law 'On the Federal Budget for 2016' assumes an oil price of \$50 per barrel. Thereby, if the situation in the global oil and gas market aggravates, the federal budget revenue may be less than that specified in the 2016 federal budget law.

Despite a drop in federal budget revenues, expenditures increased in 2015. A positive factor is that federal expenditures for 2016 were subject to far fewer revisions in different updates of the federal budget laws than revenues (Chart 42). Nevertheless, a restriction of any further increase in expenditures is critical to maintain federal budget sustainability in the medium term.

Along with abandoning a three-year budget, the Russian Government suspended the 'budget rule' for 2016 in September 2015. The rule defined the maximum amount of federal expenditures as equal to revenues at the average historic oil price over several years plus the budget deficit of not more than 1% of GDP. Budget revenues from oil prices exceeding the estimates was transferred to the Reserve Fund. In the current conditions, low oil prices that are substantially different from the average historic ones do not allow the 'budget rule' to operate effectively and balance the federal budget, as well as replenish the Reserve Fund when oil price is above \$50–60 per barrel.

However, cancellation of the 'budget rule' removes the cap from the federal budget expenditure and the mechanism for allocating revenues to the

Chart 42
Expenditure forecasts in different versions of federal budgets laws (billions of rubles)



Reserve Fund, exposing the federal budget of the Russian Federation to additional risks².

The example of Brazil in 2015 showed how fast the problem of fiscal sustainability can be exacerbated. Brazil's CDS premium rose by 205 bp to 465 bp from 1 July 2015 to 1 October 2015. The ratio of budget deficit to GDP is expected to grow by more than two-fold in 2015, from -4% in 2014 to -9%. The Government of Brazil announced budget cutting to tackle the problem of the 2016 budget deficit.

Currently, Russia uses the Reserve Fund to fund the budget deficit. From January to October 2015, the Russian Government spent 1.56 trillion rubles from the Reserve Fund, and the total funds in the Reserve Fund decreased by 440.5 billion rubles in October. In 2016, the Government plans to further spend the Reserve Fund as well as the National Wealth Fund. It is planned to practically use 2.137 trillion rubles from the Reserve Fund to cover the budget deficit in 2016. Given that the estimated amount of the Reserve Fund is 3.39 trillion rubles as of 1 January 2016, it is planned to spend 63% (almost 2/3) of the Reserve Fund in 2016. Thus, by the end of 2016, the Reserve Fund may total 1.051 trillion rubles, or 31% of the Reserve Fund at the beginning of 2016. As a result, the Russian

² This is supported by the position of the Ministry of Finance of the Russian Federation, which states that unless a new budget rule is enacted to define the cap on the federal expenditures in view of the new economic situation, the reserve funds may be quickly spent (as stated by Anton Siluanov, the Minister of Finance, at the State Duma meeting on 3 November 2015).

Chart 43

National Wealth Fund, Reserve Fund, and ruble exchange rate

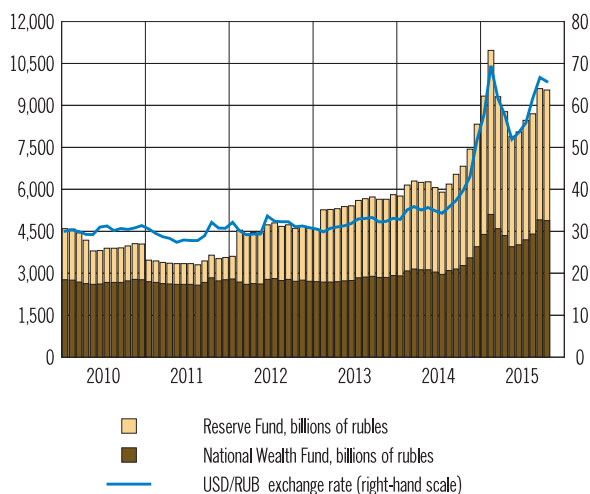
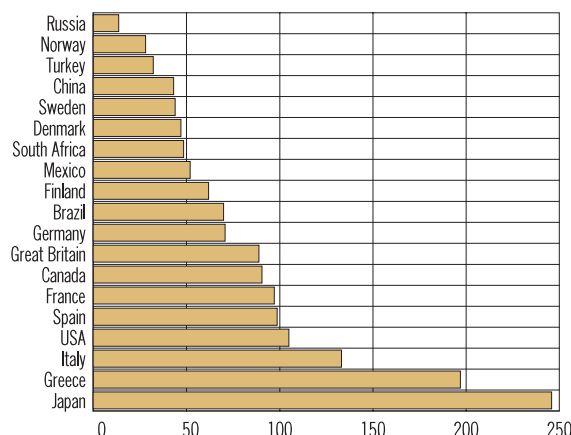


Chart 44

Government debt* (% of GDP)



*Figures for Russia are calculated in accordance with data provided by the Ministry of Finance and Rosstat as of 1 July 2015; and figures for other countries are calculated on the basis of the 2015 IMF Forecast, October 2015.

Government will have three basic sources to finance the budget deficit if it arises in 2017: the balance of the Reserve Fund in 2017, the National Wealth Fund³ and the income from government securities offered in the domestic market.

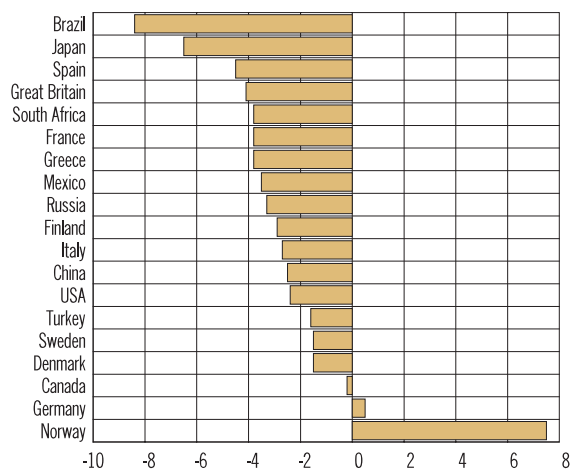
By late 2016 the National Wealth Fund may total 4.66 trillion rubles and the aggregate amount of the Reserve Fund and the National Wealth Fund may stand at 5.717 trillion rubles. Assuming that the amount allocated from the funds in 2017–2018 to balance the federal budget will be the same as in 2016, the total amount of the Reserve Fund and National Wealth Fund will be exhausted by early 2019.

The issue of government securities may become another source of budget deficit financing. The public debt of the Russian Federation as a percentage of GDP is one of the lowest by global standards: 13.5% of GDP as of 1 July 2015. Relatively high interest rates currently impede the growth of borrowings in the foreign and domestic markets. In 2016, it is planned to use 650 billion rubles (0.8% of GDP) to service the public debt. Lower inflation and interest rates will facilitate a reduction in debt service costs in the next few years.

Russia occupies the second-to-last place by the ratio of public debt to GDP among G20 countries, between Saudi Arabia (1.6% of GDP) and Indonesia

Chart 45

State budget balance, forecast for 2015 (% of GDP)



* Bloomberg ECFR, as of 18 December 2015.

(2.5% of GDP). Substantial growth in public debt is not advisable in terms of fiscal sustainability risks, but a moderate increase in OFZ issue may have a positive impact on the Russian financial market. This will also increase the size of high-quality liquid assets held by Russian banks and expand their abilities to manage liquidity risks (today most credit institutions would fail to meet the Basel liquidity coverage ratio of 100% due to a shortage of government bond in the Russian market). Nevertheless, the public debt should increase in a well-balanced manner to prevent rising borrowing costs and squeezing out borrowers that are non-financial organisation. This may be facilitated by the introduction of a budget rule and control over the budget deficit.

³ Head of the Ministry of Finance Anton Siluanov said at the State Duma meeting on 3 November 2015 that the Russian Federation will have to spend the National Wealth Fund money to cover the budget deficit from 2017 unless the deficit is reduced.

6.2. Debt Sustainability of Consolidated Budgets of Russian Regions

According to the data related to compliance with the consolidated budgets of the Russian regions as of 1 September 2015, the regional budget surplus stood at 482.7 billion rubles⁴ (surplus of 283 billion rubles for the comparable period last year). Nevertheless, a good balance of indicators of the consolidated budgets of Russian regions in Q3 does point to reduced fiscal risks at the regional budget level.

The period of fast revenue growth versus expenses in January–August 2015 (8% and 4% year-on-year) was traditionally followed by a period when the regional expenses exceeded revenues. The regional budget imbalance will also be exacerbated as a result of overpayment of the profit tax after the companies' profits jumped in 2015 Q1 and subsequently decelerated their growth. Given the decision to offset (repay) such overpayments beginning from Q3, tax payments to the regional budgets can be expected to fall. Regional revenue stability is substantially affected by an ongoing re-registration of the largest taxpayers. Some regions failed to compensate the lost profit tax revenues by newly established consolidated groups of taxpayers.

Despite limited growth of budget expenditures, stabilisation of compliance with regional budgets and increase in regional debt burden seems unlikely. In October 2015, the Russian Ministry of Finance announced the expected deficit of consolidated budgets of the Russian regions to be 430 billion rubles in 2015. In 2016, the regional budget deficit is estimated at 412 billion rubles.

Despite the accumulated imbalance in regional budgets in 2012-2014, the public debt of Russian regions may be considered low (2.9% of GDP as of 1 January 2015). However, given the extensive differences between the regions, the debt burden of the regional budgets increased substantially: the median ratio of the region's public debt to the regional budget revenues (net of non-repayable receipts) was 61.8% in late 2014 against 39.5%

⁴ On 1 September 2015, the Moscow budget surplus was 183.6 billion rubles and the Sakhalin Region budget surplus was 128.4 billion rubles.

Chart 46

Debt and deficit of consolidated regional budgets (billions of rubles)

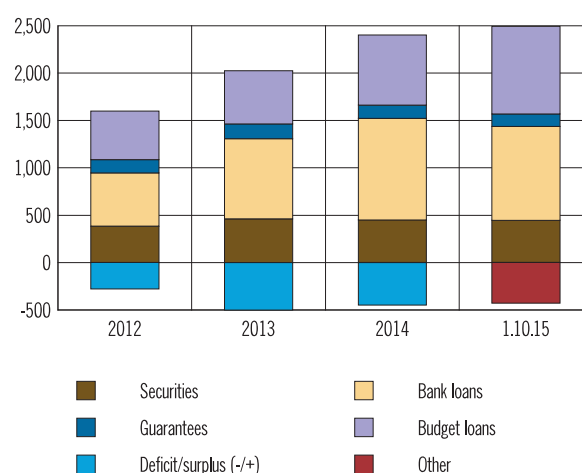
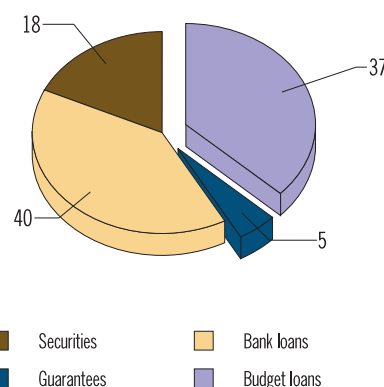


Chart 47

Debt structure of consolidated regional budgets as of 1 October 2015 (%)



Source: Ministry of Finance of the Russian Federation.

in 2012. The debt burden of 10 Russian regions exceeded 100% of their revenue (net of non-repayable receipts).

While the financially stable regions mostly cover their budget deficit through securities issues, the regions with a large debt burden raise bank and budget loans. Distribution of the aggregate loan debt of banks by groups of regions ranged by financial capacity (balance/revenue), debt burden (debt/revenue), and received subsidies (transfers/revenue) shows that the banks' loan portfolios are mostly concentrated in the high-risk regions (42% of debt) and potentially insolvent regions (30% of debt) (Chart 50). The share of the aggregate loan debt in the subsidised regions is insignificant (1%).

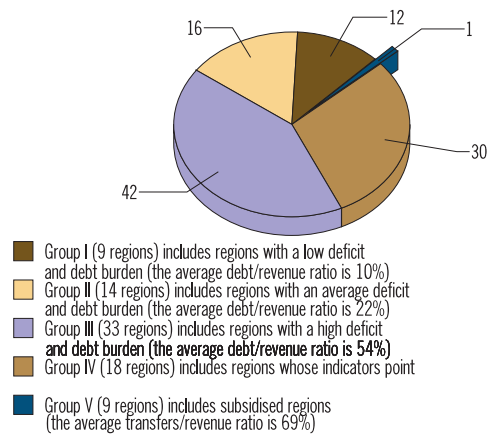
The banking sector risks in general and that of separate banks on investments in regional debts remain acceptable (total bank exposure to credit risks on liabilities of Russian regions and municipalities was below 1.5% of the banking sector assets as of 1 October 2015). In 2015, the Bank of Russia cut the discounts on liabilities of Russian regions to 2% to enhance the banks' ability to extend loans to the regions and facilitate a decrease in the cost of bank loans.

Although the debt burden of the Russian regions currently does not threaten the financial stability, this problem still needs to be addressed. Many regions follow a budget expansion policy, which is expressed in a continuous debt accumulation to finance expenditures.

At the same time, the budget policy lacks countercyclicality, and the debt burden continues to grow even during favourable economic periods. Many regions rely on market funding even if they do not have targeted revenue sources for the redemption. In this context, advisable measures

Chart 48

Distribution of bank loans to the regions by groups of regions* (%)



* The analysis was based on the data on loan portfolios of the banks which, according to the bank records, account for 89% of loan debt of Russian regions and municipalities to banks.

include enhanced federal control of regional policies and efforts focused on the regions with an excessive debt burden, which would ensure budget equilibrium and recognise the need to develop regional economic potential.

7. ANALYSIS OF RISKS IN FOREIGN EXCHANGE MARKET AND SITUATION WITH FOREIGN EXCHANGE LIQUIDITY

The foreign exchange market is one of the key markets with regard to financial stability. Therefore, the Bank of Russia regularly monitors it for the purpose of identifying potential systemic risks. Financial stability may be threatened by the situations when the market loses liquidity and becomes subject to abrupt price swings which do not reflect fundamental factors. During the last few years some developed markets have experienced a drain on liquidity leading to such phenomena as flash crash and flash rally. One of the possible factors is an increasing role of high-frequency trading in the global markets. In most cases these episodes were temporary, and the market recovered

quickly. However, the threat of significant position revaluation and bankruptcy of important players still persists. The abovementioned consequences can be caused by exchange rate fluctuations in both directions. In case of an abrupt depreciation of the national currency other negative consequences may follow: higher speculative demand for foreign currency, increase in deposit dollarisation, and strengthening of inflationary pressure.

In this regard the Bank of Russia looks into switching the trading regime to a discrete auction in the FX market of the Moscow Exchange although it is expected that this measure would not have to be used frequently.

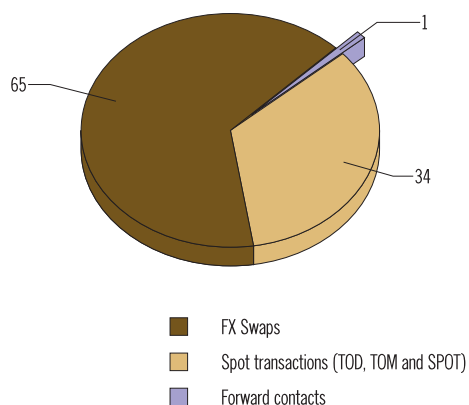
7.1. Foreign Exchange Market Structure and Systemic Risks

In September 2015 the total trading volume in the Russian interbank foreign exchange market exceeded \$1 trillion, with \$899 billion attributable to the RUB/USD currency pair. FX swaps and spot transactions are the most active in the Russian market. In October, the aggregate trading volume in the FX swap segment totalled \$617.6 billion

(Chart 49). Spot transactions accounted for \$325.9 billion (34%). FX swap segment risks are described in detail in the quarterly Money Market Review, therefore the following analysis will focus on the spot transaction segment.

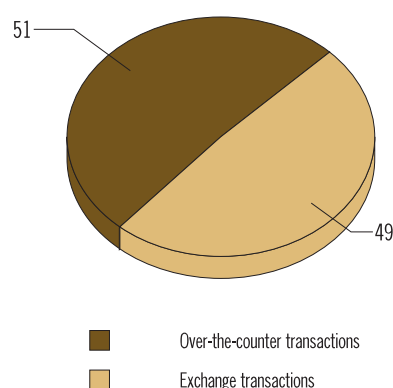
Unlike in other countries where, according to calculations of the Bank for International Settlements, the trading in FX instruments (including spot transactions) is largely attributable to over-the-counter market, the currency section of the Moscow

Chart 49
Turnover structure for spot transactions and forward contracts in October 2015 (%)



Sources: Bank of Russia, Statement on Foreign Exchange and Money Market Operations.

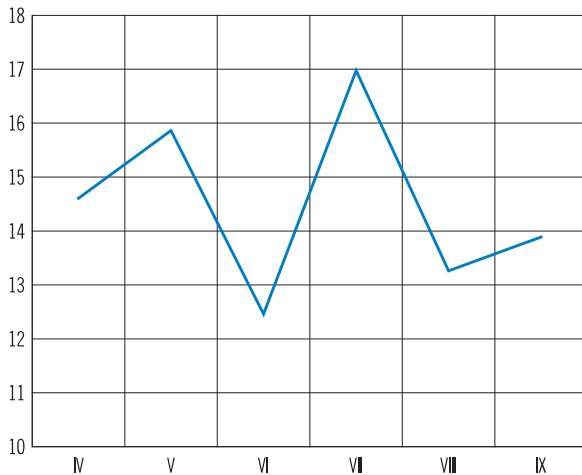
Chart 50
Structure of interbank USD/RUB operations turnover, September 2015 (%)



Sources: Bank of Russia, Statement on Foreign Exchange and Money Market Operations.

Chart 51

Net foreign currency sold by resident legal entities from April to September 2015 (millions of US dollars)



Exchange accounts for nearly 49% of all RUB/USD transactions (Chart 50).

The main providers of foreign currency to the Russian FX market are resident non-financial organisations which provide a stable inflow of FX liquidity to the Russian market. Net foreign currency sales by the largest exporters in 2015 Q2–Q3 averaged about \$14 billion. Net sales peaked in July 2015 when oil companies were receiving earnings from oil sales based on the June prices which were the highest from the beginning of the year and actively converting them for the purposes of dividend payments.

Systemic Risk Indicators in the Foreign Exchange Market

Indicators characterising the situation in the FX market can be divided into several categories:

1. Realised volatility indicators (volatility of the USD/RUB currency pair, volatility of USD/RUB at-the-money options, ratio of historical ruble volatility to historical oil price volatility, deviation of the RUB/USD exchange rate volatility from the volatility of exchange rate of comparable currencies to US dollar, deviation of the ruble exchange rate from the opening price or during a period exceeding a defined term).

In November 2015, the ruble exchange rate volatility indicator stabilised at about 20%, which is twice lower than at the end of August–beginning of September 2015. During this period ruble exchange rate volatility rose to local maxima of 38%–40%

Chart 52

RUB/USD price dynamics and 10-day volatility in 2015 Q2–Q3

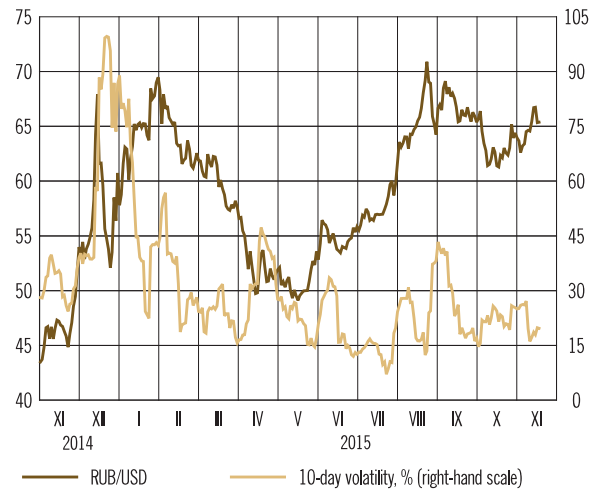
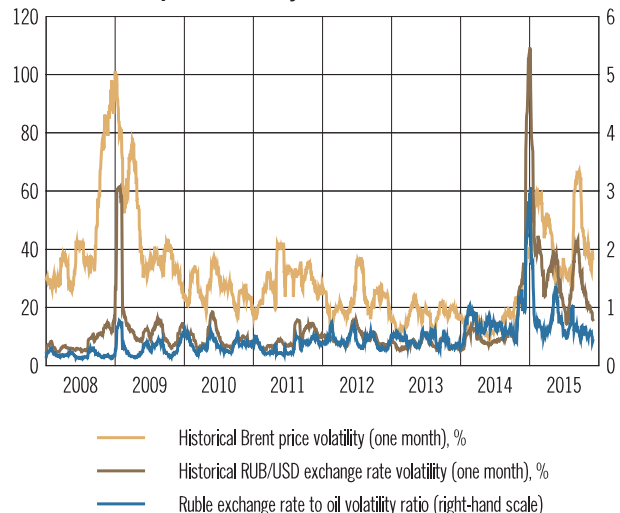


Chart 53

Historical ruble exchange rate volatility to historical Brent price volatility over one month



amid a surge in volatility in the global markets. In August, the ratio of historical volatility of the RUB/USD exchange rate to oil prices averaged 0.8, and in November it fell to 0.5.

2. Market liquidity indicators.

2.1. Price spreads (bid-ask spread of the current USD/RUB exchange rate, bid-ask spread of futures contracts price for the next month's exchange rate at the Moscow Exchange).

2.2. Trading liquidity indicators (trading volume, market order volume near the bid-ask spread, market imbalance between demand and supply).

One of the key factors which can cause an increase in ruble exchange rate volatility is a decline in the volume of placed orders. Chart 54 shows the interrelation between the ruble exchange rate and

Chart 54

Relationship between the ruble exchange rate and the volume of placed orders in one minute in thousand lots (± 50 kopecks to the purchase/sales price), 24 August 2015

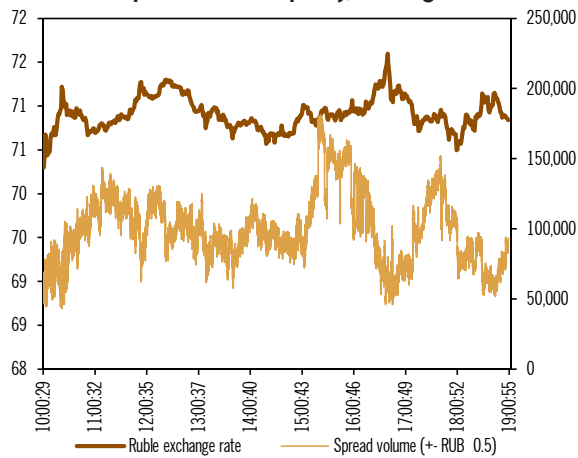
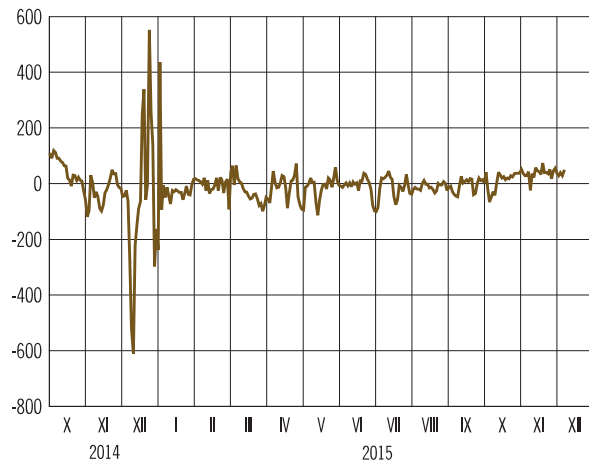


Chart 55

Spread between RUONIA and one-week FX swap rate (bp)



Assessment of foreign exchange liquidity adequacy for external debt redemption by companies and banks by 1 July 2016

The Bank of Russia conducted a survey among 25 major banks about their monthly FX asset and liability repayment schedule from 1 October 2015 till 1 July 2016. The banks presented data for two scenarios:

1. Repayment in accordance with contract terms.
2. Scenario seen by the bank as the most likely.

Banks' forecasts differ from the contract term scenario in making more optimistic assumption about refinancing of deposits of resident organisations and individuals; however, they still remain relatively conservative with expectations of an almost 100% external debt redemption (Table 3).

The aggregate gap of 25 major banks (the total difference between liquid FX assets and repayment obligations) is \$54.6 billion.

By 1 July 2016, the external debt to be repaid by 19 major non-financial exporting companies will constitute \$17 billion (according to the company survey data net of intergroup operations). Repayment volume for this period will not exceed \$25 billion for the rest of non-financial companies.

The Bank of Russia obtains data about the structure of FX assets and liabilities of 11 major exporting companies on a monthly basis. From 1 April 2015, liquid FX assets of these companies increased by 16.6% to \$61.8 billion as of 1 October 2015.

Thereby, the FX liquidity of the major banks will be sufficient for external debt repayment in the period under consideration. In addition, there is a significant unused limit of the Bank of Russia FX refinancing - \$28.7 billion as of 18 December 2015.

Table 3

Expected decrease in banks' FX liabilities from 1 October 2015 to 1 July 2016 by groups of liabilities

Expected reduction of banks' FX liabilities	Contract terms		Banks' forecasts	
	billions of US dollars	%	billions of US dollars	%
Liabilities to non-resident non-bank organisations	6.7	7	5.5	23
Liabilities to resident non-financial organisations	33.1	37	5.7	23
Interbank liabilities to residents	7.7	9	4.4	18
Interbank liabilities to non-residents	2.7	3	3.8	16
Liabilities to individuals	40.1	44	4.9	20
Total	90.3	100	24.3	100

the volume of placed orders as of 24 August 2015, which is calculated as the total of the purchase and sales orders providing a ruble exchange rate deviation by 50 kopecks. The indicator of order volume near the bid-ask spread may contain information on the risk of abrupt exchange rate swings. The larger the volume that is concentrated near the best sales and purchase price, the higher the market liquidity. If market liquidity is insufficient, then even a slight increase in trading activity may lead to a sharp change in the ruble exchange rate.

3. FX liquidity adequacy indicators (spread between RUONIA rate and one-week currency swap rate) are important as leading indicators, because in case of an acute liquidity shortage market participants may increase demand for foreign currency in cash.

December 2014 saw an increase in FX liquidity demand from financial institutions, which was expressed as a widening spread between RUONIA rate and one-week FX swap rate, which reached 550 bp (Chart 55). After this the spreads did not exceed 70 bp. In 2015 Q3, the spreads narrowed to near-zero values, thus it can be concluded that the FX liquidity of credit institutions is adequate.

4. Market performance indicators (spread between the price of one-month USD/RUB outright forwards and the current exchange rate, spread between one-week NDF USD/RUB non-deliverable forwards and the Bank of Russia one-week repo rate, dynamics of hedge fund net positions for ruble futures contracts at the Chicago Exchange).

The exchange rate expectations play a crucial role in the exchange rate dynamics, as they

On forward and future spot rates

According to the rational expectations theory, the forward rate is an unbiased predictor of the future spot rate, assuming that investors act in a rational way and with a neutral attitude to risk. Although a wide range of scientific literature refutes the rational conduct and risk neutrality assumption, there is a strong correlation between the forward and future spot rates, and deviations from this interrelation are often explained by the risk premium included in the price of forwards and by a difference in attitude towards risk of different investors.

In November 2014, the Bank of Russia abolished the currency band, delegating ruble price formation to market mechanisms. In this regard the Bank of Russia assessed changes in the market forecast power depending on the forward term. Unbiased rational expectations theory implies that in the linear regression $S(t+1) = \alpha + \beta Ft + \epsilon$ between the future spot and forward rates, coefficient β is 1 and constant α is 0.

As the forward term expands, investors' expectations involve a progressively higher ruble depreciation, while predictive power of the forward rates decreases (Table 4). The one-week forward rate model has a high determination coefficient, which implies that the market has a relatively precise forecast for the spot rate one week ahead, while the forward forecast power for a six-month period is non-existent. Thus, the FX market medium-term expectations are described by a constant and are stationary. It means that after a shift to a floating ruble exchange rate the market players' expectations became stable in time and the expected future exchange rate is, on the average, close to the current rate. Chart 56 shows a RUB/USD spot rate and weekly forward scatter diagram for January-October 2015, which demonstrates strong predictive power of the market over a one-week period.

Table 4

Outcome of regression analysis of one-week, one-, three- and six-month RUB/USD spot and forward rates

	Constant α	Coefficient β	R ²
Spot – forward 1W	3,85	0,93	0,86
Spot – forward 1M	24,62	0,59	0,35
Spot – forward 3M	88,13	-0,48	0,38
Spot – forward 6M	57,93	0,04	0,003

Chart 56

RUB/USD spot rate and weekly forward scatter diagram, 2015

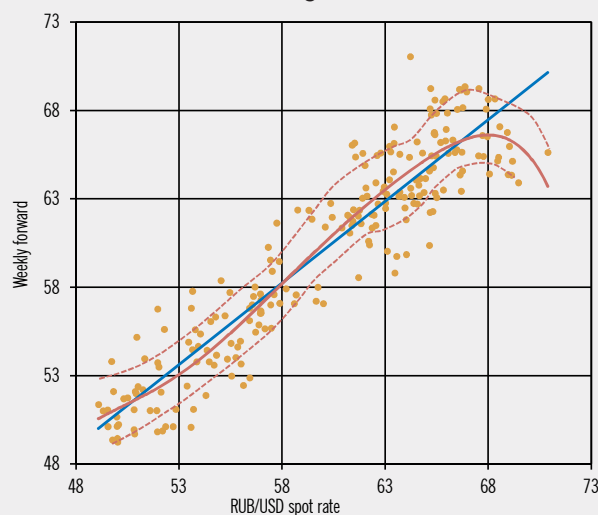


Chart 57

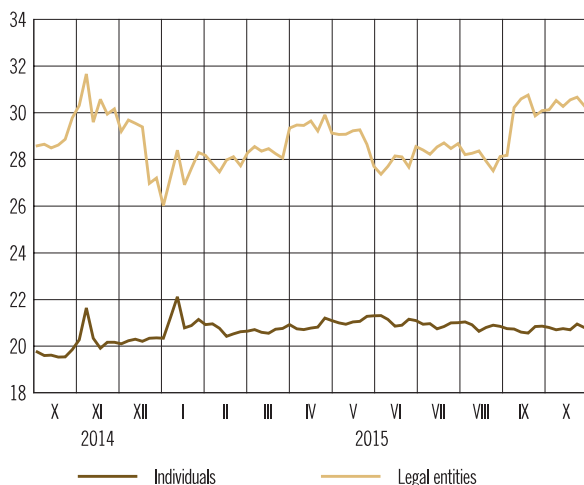
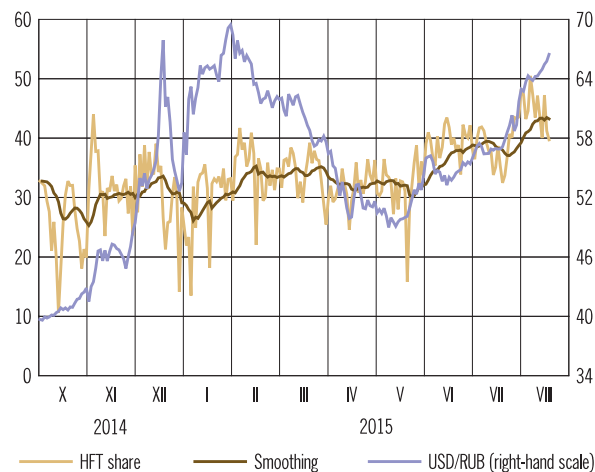
**Deposit dollarisation of individuals and legal entities
(adjusted for exchange rate revaluation)**

Chart 58

**Daily high-frequency trading share and ruble exchange rate
from 1 October 2014 till 30 June 2015**

influence the behaviour of FX market participants. In case of a considerable deviation of the exchange rate expectations from the future exchange rate determined by fundamental factors, the market participants may generate extra demand or extra supply of foreign currency, causing deviation of the exchange rate dynamics from the equilibrium.

If such a deviation becomes significant and protracted, it leads to distortion of exchange rate formation mechanism and may become a systemic risk factor.

5. Foreign currency demand indicators on the part of non-financial sector (volumes of foreign currency cash purchases in the major banks, a widening spread between the sales and purchase exchange rate at the major banks, and an increase in deposit dollarisation of individuals and legal entities).

The dual-currency basket price increase in late 2014 coincided with a significantly higher households' demand for foreign currency cash. However, the growth of the purchase volumes was unstable, and at the beginning of 2015 the net purchase indicator for foreign currency returned to near-zero.

Indicators of household and corporate deposit dollarisation in 2014 increased but mainly due to the currency revaluation. As of 20 November 2015, household deposit dollarisation totalled 29%, and that of non-financial organisations – 40.3%. Thus, the risk of mass ruble conversion into foreign currency during the increased volatility period did not materialise.

Amid a significant drop in the FX market liquidity, the activity of the participants who use automated trading systems with high order placement frequency can become an additional risk factor.

Nowadays High-Frequency Trading (HFT) is widespread worldwide and has become the main form of algorithmic trading on financial markets, using state-of-the-art equipment and algorithms for quick asset trading. It is characterised by large volumes of orders sent to the exchange and a high share of cancelled orders.

The attitude to this phenomenon of the financial markets participants varies. Different studies show that HFT strategies aimed at arbitrage and market making exert positive influence on the financial markets under normal conditions by narrowing the spreads and volatility, eradicating the market fragmentation effects, and improving the liquidity and effectiveness of market prices. However, there is also a common belief that high-frequency trading may decrease the stability of the financial system during periods of stress.

The Bank of Russia analysed high-frequency trading in the FX market for the RUB/USD spot to determine whether high-frequency activity boosted ruble volatility during normal and stress periods.

The methodology for assessing high-frequency trading and conducted econometric tests is presented in box 'Assessment of Impact of High-frequency Trading on the FX Market Volatility'. The daily share of high frequency trading was calculated as a ratio between the volumes of transactions defined as high-frequency ones to the total trading

volume for the day. Chart 58 shows the HFT and the ruble exchange rate for the period under consideration.

The current FX market structure analysis showed that the market parameters did not approach extreme values and generally remained at a stable level in 2015 Q2-Q3.

The Bank of Russia constantly monitors risks capable of increasing volatility on the FX market and retains the option of domestic FX market

interventions in case financial stability threats. The Bank of Russia regularly provides foreign currency to credit institutions on a repayable basis; additionally, in case the situation with FX liquidity aggravates the foreign currency supply can be increased in accordance with the forecast for the balance of payments. An additional measure aimed at FX market stabilisation can be a switch in the trading regime in the FX market of the Moscow Exchange to discrete auction.

Assessment of impact of high-frequency trading on the FX market volatility

Economic literature uses several different indicators for determining high frequency activity. The coefficient which is used most often is Order-to-Trade (OTR). It is calculated as a ratio of the total amount of orders to the number of transactions carried out during a certain period and the number of quick messages defined as the number of changed, cancelled, or fulfilled orders in a 100-millisecond window during one second. These indicators were used for determining high-frequency orders by market players. Numerous studies of high-frequency activity use different OTR thresholds, which is explained by varying exchange trade conditions in different countries. The threshold value for determining high-frequency traders was set at the level of more than two orders for one transaction per second ($OTR \geq 2$).

In this research the intra-day volatility was defined as a root-mean-square deviation of prices from the averaged intraday ruble exchange rate dynamics calculated with the use of the smoothing method with three different smoothing parameters (degrees of freedom $df = 40, 20, 5$). Three different smoothing levels were created to eradicate intraday trend determination bias from the analysis. Chart 63 shows an example of ruble price dynamics with three smoothed lines.

Assessment of relationship between volatility and HFT activity used a standard statistical procedure, the Granger causality test, allowing identifying a cause and effect relationship between the time series. The test was conducted for two periods with the lowest and highest volatility during the period under consideration: calm (25-30 June 2015) and stress (16-19 December 2014).

Two null hypotheses were tested sequentially: 'volatility does not cause HFT activity according to Granger', and 'HFT activity does not cause volatility according to Granger', where HFT activity was defined as intraday dynamics of

Chart 59

Intra-day OTR dynamics per second for all participants, 30 June 2015

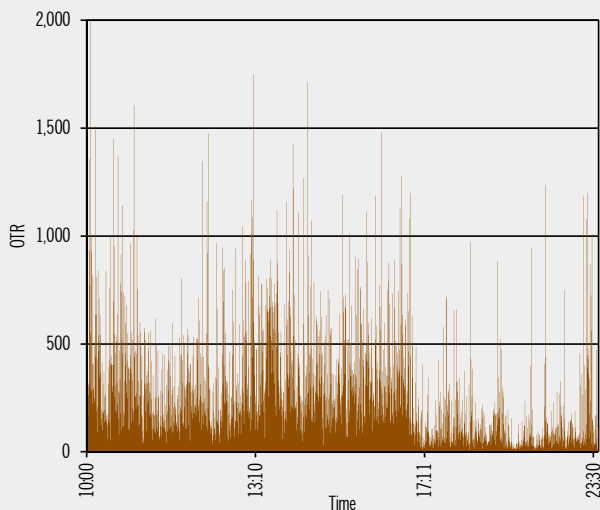
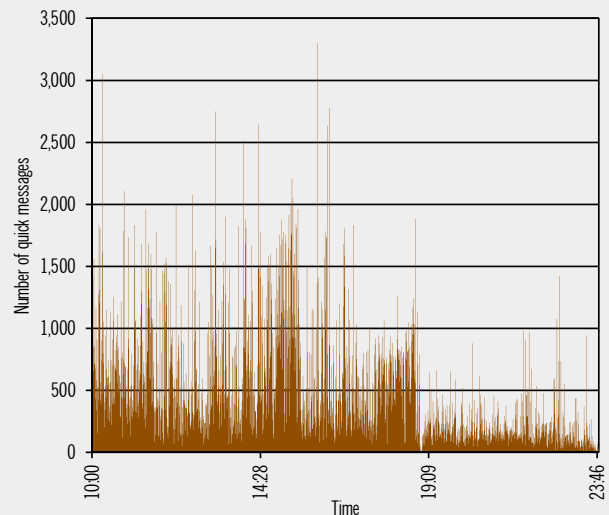


Chart 60

Number of messages in a 100-millisecond window during one second for all participants, 27 August 2015



OTR coefficient. Two regressions were built to test these hypotheses: in each regression the dependent variable is one of the variables tested for causality, and the regressors are represented by lags of the two variables.

Most of the tests for three different volatility levels in the calm period had a p-value lower than the 5% significance threshold, which indicates a refutation of the null hypothesis and means that volatility precedes high-frequency activity. During the stress period (mid-December 2014) the test results proved insignificant, thus there was no cause and effect relationships between the variables. This can be explained by the two factors:

- Most strategies of high-frequency traders are aimed at cross-border arbitrage transactions, but during the period of increased ruble volatility foreign counterparties decreased the limits for the Russian participants, preventing many players from continued trading.
- During the increased volatility period a lot of high-frequency traders experienced insufficiency of funds used as clearing collateral at the Moscow Exchange due to the increase in requirements on the part of the Exchange itself, which was also reflected in a drop in high-frequency activity.

However, it should be mentioned that a refutation of the null hypothesis about the absence of a cause and effect relationship between HFT activity and volatility does not rule out the possibility of an 'amplification effect', where volatility caused by fundamental factors could intensify due to the high-frequency trading. In this regard the Bank of Russia plans to continue the research on the mutual influence of the HFT activity and the ruble exchange rate volatility.

7.2. Currency Risks of Financial Institutions

Banking Sector

Currency risks of the Russian banking sector materialise via the following channels:

1. Open foreign exchange position revaluation. Banks with a negative/positive net open foreign exchange position (OFP) are exposed to the risk of losses following the ruble depreciation/appreciation. It should be mentioned that this risk is significantly limited by the restrictions set by the banking regulations: the amount of all open long (short) positions of the bank cannot exceed 20% of equity daily and the amount of each separate position cannot exceed 10% of equity. From the beginning of the year the ratio of the volume of negative net OFP for banks with short OFP to the banks' equity went slightly up: from 2.5% on 1 January 2015 to 2.7% on 1 November 2015. Meanwhile, this parameter increased from 2.4% to 4.4% for long OFP. Thus, the possibility of significant losses in the banking sector due to exchange rate fluctuations is not high.

2. A high share of the banks' FX assets and liabilities increases their dependence on funding in foreign currency and creates a risk of losses in case of an imbalance of claims and liabilities in terms of currencies and/or time periods.

Despite the ruble depreciation by 15% from 1 April 2015 till 1 October 2015, the banking sector did not demonstrate higher loan and deposit dollarisation (shares of FX assets/liabilities in the total volume of assets/liabilities). Thus, from 1 April 2015 till 1 October 2015, the household deposit dollarisation decreased by 0.1 pp; that of non-financial organisations - by 4.5 pp; household loan dollarisation fell by 0.2 pp; and that of non-financial organisations - by 0.7 pp¹. In nominal terms, the dollarisation of liabilities increased by not more than 2.7 pp, and that of assets - by 2.5 pp in the period under consideration. Although the share of FX liabilities and claims of Russian banks is still high (as of 1 October 2015 the share of FX deposits of non-financial organisations was 51%, and that of

loans - 37%), the decrease in the dollarisation level is a positive trend.

3. Impact on capital adequacy. This risk was minimised during 2015 because credit institutions were entitled to include FX transactions in the calculation of the required ratio at a fixed exchange rate which was raised several times during the year but still remained lower than the official exchange rate.

4. Increase in overdue foreign currency loans. An indirect foreign exchange risk is the emergence of credit risk for the borrowers with no income in foreign currency.

During the first nine months of 2015, given ruble depreciation, the share of overdue household FX loans grew from 15.5% to 19.7%, and that of loans to non-financial organisations, from 1.7% to 2.5%. The growth of overdue debt on loans to non-financial organisations poses a big threat to the banking sector with regard to possible losses, as its volume stood at 295 billion rubles, and the volume of overdue debt on retail loans was 57 billion rubles as of 1 October 2015. It should be mentioned that ruble depreciation by 26% in 2008–2009 (from June 2008 till February 2009) resulted in an increase in the share of overdue debt on loans to non-financial organisation by 5.3 pp. Meanwhile, in 2014–2015 ruble depreciation by 45% (from June 2014 till February 2015) caused a subsequent overdue debt increase only by 0.8 pp. This partially results from the banks' restriction of lending to borrowers without foreign currency earnings after the crisis of 2008. However, in some sectors of the economy the situation with overdue loan indebtedness in foreign currency is more difficult (see Section 4.1 for details).

Hence, measures to discourage foreign currency lending become relevant. Their implementation for loans granted to individuals began in 2015. In February 2015, the risk ratio for mortgages granted to individuals after 1 April 2015 was set at the level of 300%. In June 2015, the same risk ratio was set for all foreign currency loans granted to individuals after 1 August 2015. Currently, the introduction of increased foreign currency loan risk ratios for non-financial organisations is under discussion. This measure will mitigate the threat of excessive lending in foreign currency to non-financial organisations and possible problems with overdue debt in the future.

¹ Adjusted for growth in the value of FX assets/liabilities due to the ruble depreciation.

Table 5

Scheduled increase of fixed foreign exchange rates used for calculation of required ratios

Effective period of fixed exchange rate	Affected transactions	Rate value
From 18 December 2014 till 1 July 2015	For FX transactions reflected in the balance-sheet and off-balance-sheet accounts by 31 December 2014	Official FX rate set by the Bank of Russia as of 1 October 2014 (e.g., 1 US dollar – 39.38 rubles, 1 euro – 49.98 rubles)
From 1 July till 1 October 2015	For transactions in five foreign currencies reflected in the balance-sheet and off-balance-sheet accounts by 31 December 2014	1 US dollar – 45 rubles, 1 euro – 52 rubles, 1 pound sterling – 70 rubles, 1 Swiss franc – 47 rubles, 100 Japanese yen – 38 rubles
From 1 October till 31 December 2015	For transactions in five foreign currencies reflected in the balance-sheet and off-balance-sheet accounts by 31 December 2014	1 US dollar – 55 rubles, 1 euro – 64 rubles, 1 pound sterling – 86 rubles, 1 Swiss franc – 58 rubles, 100 Japanese yen – 46 rubles

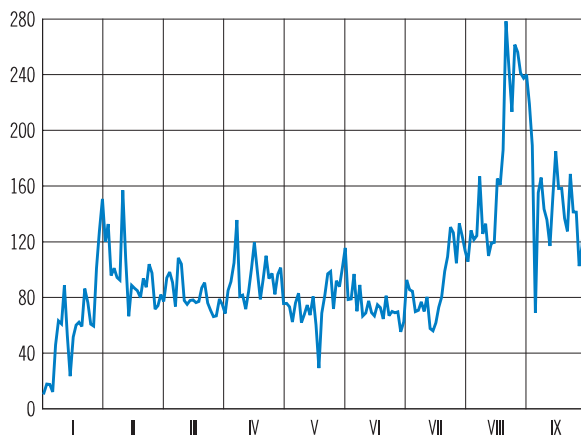
Volumes of broker trading in the FX market in 2015

Chart 61

Source: Bank of Russia based on the data of the Moscow Exchange.

Non-credit Financial Institutions

Currency risk level for non-credit financial institutions is estimated to be low.

The FX market fluctuations impact primarily insurance activities of insurance companies: in particular, according to the data of a survey among major insurers², about 58% of unearned premium reserves for motor vehicle insurance depend on the ruble exchange rate dynamics. At the same time, compared to 2014 Q2, the risks of the insurers have decreased significantly. According to the survey, the aggregate open foreign exchange position adjusted for estimated quasi-currency liabilities reached 17 billion rubles by 30 September 2015, while by the same date in 2014 it was 36 billion rubles. However, some companies remain in the risk zone: half of

the surveyed insurers specialising in other than life insurance recorded a negative adjusted open foreign exchange position.

For the purpose of managing the currency risk, insurers prefer to balance assets and liabilities for the currencies or hedge risks by forwards and swaps: the last year saw a growth in foreign currency purchase operations and transactions in derivatives on the part of insurance companies.

Non-governmental pension funds are less prone to currency risks, as it is mandatory for their liabilities to be denominated in rubles. As of 30 June 2015, investments of pension savings into FX assets were 9.1 billion rubles (0.5% of the total pension savings), and that of the pension reserves stood at 70.2 million rubles (0.01% of the total pension reserves).

Brokerage firms are the most active in buying and selling foreign currency. From January till September 2015, the volume of broker trading in the FX market totalled 19 trillion rubles, or 8% of the total amount of trading in the FX section of the Moscow Exchange (Chart 61). The transactions effected by the brokers for the benefit of non-resident legal entities accounted for 60% of the total amount of trading in the FX section of the exchange; the share of customers who were resident individuals was 24% of the total transaction amount.

From January till September 2015, the amount of funds in foreign currency accounts³ of brokerage firms increased from 9.6 to 18.2 billion rubles, while the ratio of funds in the foreign currency accounts to the brokers' equity was 14%.

² Participating in the survey were 22 insurers. Their aggregate market share totalled 77% in the first nine months of 2015.

³ As of 2 December 2015, for brokerage firms which submitted reports under Form 0420410 for 2015 Q3.

Despite a relatively low current level of susceptibility of the non-bank financial institutions to currency risks, the Bank of Russia took measures to improve their reporting, which will enable prompt monitoring of their FX positions.

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