Bank of Russia

The Central Bank of the Russian Federation

Monetary Policy Guidelines

for 2018-2020

Moscow

Approved by the Bank of Russia Board of Directors on 10 November 2017

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INTRODUCTION

The systematic and consistent stabilisation policy of recent years has allowed the Bank of Russia to overcome the acute phase of the crisis, avert the threat to financial stability and induce earlier-than-forecast recovery of economic growth and inflation reduction to the level close to 4%. Macroeconomic stability will certainly remain an important factor of effective economic development in future. However, efforts should be made to address structural constraints for the stability to be sustainable and bring long-term improvement in Russians' welfare. Only resolute steps towards diversifying the Russian economy, overcoming its dependence on commodity exports, improving governance at all levels in both the private and public sectors, upgrading fixed assets and infrastructure and introducing new technologies will reduce Russia's vulnerability to external economic volatility, increase labour productivity and ensure a shift towards an economic model based on internal development sources. Effective interaction of private and government efforts aimed at addressing structural problems and close cooperation of all public institutions, including the Bank of Russia, will gain in importance in tackling these challenges.

Given the nature of the issues addressed and the available instruments, the Bank of Russia's policy cannot for objective reasons constitute a key driver for economic growth. However, the Bank of Russia shores up price and financial stability and ensures the financial sector's and the payment systems' sustainability and development, thus providing important conditions for economic growth and social welfare. Only a technologically advanced, reliable and credible financial system the Bank of Russia strives to create can effectively serve the economy and meet business needs. Price and financial stability, in its turn, makes economic conditions more predictable and allows households and businesses to feel more confident when making their family, production and investment plans, extending their time horizons. Consistently low inflation is important both for economic growth and social welfare. It protects incomes and savings from fast and unpredictable depreciation. This stimulates ruble savings and creates long-term internal resources.

Over the past two years, the moderately tight monetary policy allowed the Bank of Russia to reduce inflation from double-digit values to the 4% target. For most of 2017, consumer price growth has been within 4%. In effect, this is only the first step towards price stability where the 4% inflation target is poised to become a reliable benchmark for all economic agents. Other countries' experience demonstrates that it will take quite a long time.

We still have to anchor inflation near 4%, build up confidence in the central bank's policy and drag down inflation expectations. The latter are persistently elevated in Russia and respond even to temporary price fluctuations. To address these issues, the Bank of Russia will ease its monetary policy piecemeal, taking a close look at developments in the financial environment and a response from the economic system and prices. The Bank of Russia will stick to a conservative and balanced approach in its key rate decision-making and forecasting. This is poised to prevent underestimation of not only inflation risks but also threats to economic growth and financial stability. This is especially important in a changeable and largely unfavourable external environment. Transparency and communication of monetary policy's goals, measures and outcomes to the public will also gain in importance for confidence building and reducing inflation expectations.

This approach will subsequently make predictable financial conditions and households' and businesses' confidence in them an integral part of economic relations and a favourable environment for long-term sustainable development.

1. MEDIUM-TERM MONETARY POLICY GOALS AND PRINCIPLES

Key macroeconomic policy tasks and monetary policy's role in inducing economic growth and prosperity

In previous years, macroeconomic policy was tasked with the stabilisation of the real and financial sector, inflation reduction and Russian economic recovery in the aftermath of a series of external shocks it experienced between late 2014 and early 2016. However, now that the economy is turning to growth, the creation of conditions and incentives for future sustainable development has come to the fore. It is becoming increasingly evident that extensive growth drivers are exhausted and external factors fail to provide a stable ground for long-term economic growth. In the foreseeable horizon, they are even likely to constrain it. In this environment, the whole society, including all businesses, has to make efforts to consolidate, and in many cases create, foundation of further economic development. Such efforts will be encouraged, among other things, by the development of a long-term public strategy designed to overcome structural challenges, and coordinated efforts of all public authorities aimed at its implementation. These structural constraints may partially call for conservative and sometimes unpopular measures. In this environment, the explanation to the public of the moves and their outcomes expected in the medium and long term is becoming of paramount importance.

The stabilisation policy of recent years that combined transparent and consistent efforts, full compliance with the announced strategy and operational flexibility smoothed the acute phase of crisis, facilitated the adjustment of the economy to the new environment, played an important role in bringing down uncertainty, removed accumulated imbalances, reduced inflation and helped shift to recovery. The macroeconomic policy of that period should definitively be kept in mind when developing and implementing the economic strategy in future.

The Bank of Russia facilitates economic growth and public welfare as it fosters price and financial stability, develops a competitive financial market, promotes financial inclusion and develops the national payment systems (as described in more detail herein). The Bank of Russia seeks to achieve the results that are in line with sustainable and balanced development of the country's economy in the medium term. To do so, the central bank applies all the available instruments and ensures a timely cooperation both inside the Bank of Russia and at the parliament and government level. At the same time, it is important that the Bank of Russia's policy creates conditions for or removes obstacles to economic development, but cannot drive it. Price and financial stability, an advanced and stable financial sector, and uninterrupted payments allow the economic system function properly and the economic activity to be more efficient (thanks to reallocation of resources, among other things), mitigate uncertainty and risks. However, they cannot guarantee higher productivity of labour and other production factors, technological retooling and the emergence of new sectors. Neither can they improve the quality of management both in the public and private sector. All of these require structural policy measures. They will determine the economic development prospects and quality in the first place and partially the effectiveness of the Bank of Russia's actions.

Monetary policy ensures price stability, a part and parcel of a favourable environment for people and businesses. The Bank of Russia

achieves it under the inflation targeting regime. Under this approach, the central bank focuses on macroeconomic stability at home, especially sustainably low inflation and predictable interest rate movements. This gives households and businesses more confidence as they make plans for the future, estimate their income and expenses, savings and investment. When inflation is consistently low, households' savings are protected against depreciation. This guarantees their safety over time and encourages ruble savings. Lower uncertainty over price movements and interest rates mitigates risks associated with investment projects and current operations, and allows firms and banks to estimate their expected costs and profits, and choose the price strategy with greater confidence. As a result, it expands forecast horizons and lending maturity. Consistently low and predictable inflation is in itself one of determinants of lower interest rates on loans, given that the inflation premium factored in shrinks considerably.

Low price growth and predictable financial conditions usually remain unnoticed as long as they exist. In contrast, high inflation susceptible to considerable fluctuations and the associated uncertainty obstruct sustainable development, enhance social tensions and income inequality, undermine competitiveness of domestically-produced goods, and impede business, financial and investment activity. This is confirmed by regular public opinion polls which reflect that inflation concerned both households and businesses in previous years (Appendix 2). The polls suggest that as the Bank of Russia reduced annual inflation to the levels close to 4% in 2017, the problem of high inflation is gradually becoming less acute.

However, persistently high inflation expectations of both businesses and households, and their sensitivity to proinflationary factors show that economic agents are still unconvinced that inflation reduction is stable and long-lived. Therefore, the Bank of Russia's key task for now and the period between 2018 and 2020 is to anchor consumer price growth near 4% and to make its monetary policy credible. Low and stable price growth should become an integral part of the economic environment, and the 4% annual inflation – a reliable benchmark in decision-making and planning of households, banks and businesses.

Inflation target setting

The Bank of Russia has set its inflation target at around 4% due to the specifics of the Russian economy. They include the development of competition and market institutions, production effectiveness and diversification, consumption structure and price volatility in certain groups of goods and services. These factors were described in detail in the Monetary Policy Guidelines for 2017-2019 and listed in Appendix 4 hereto.

The Bank of Russia applies its monetary policy instruments to influence general price level. However, it cannot influence prices of specific goods, market segment or a region. Therefore, the inflation target has been set for the consumer price index (CPI) calculated for Russia by Rosstat. This index describes the average price growth for Russian households.

In normal conditions, annual headline inflation may fluctuate around 4%, because it is shaped within a complex economic system with multiple impact factors, interconnections and participants.

Even if headline inflation stays close to 4%, price growth may vary across markets of different goods or different regions at around this level. This is a natural result of different local and temporary factors' impact. These factors comprise the specifics of price formation in certain markets, geographical distribution of production, production facilities in the regions, fluctuations of logistic and transportation costs, weather conditions and exchange rate fluctuations.

Significantly, the composition and changes in the cost of consumer basket vary across

households. The proportion of different goods and services in consumption may vary considerably across different social groups united by age, family status, income and residence. These local and individual differences in price movements do not contradict the task of supporting price stability, as their scale is small and they do not cause deviations in Russia's annual inflation from 4%. Moreover, as inflation is anchored near 4% and inflation expectations stabilise at low levels, price movements will vary less across product groups and regions.

After 2017, the Bank of Russia will not set specific dates or time periods when the delivery on the inflation target is to be estimated. Instead, it will seek to permanently anchor annual inflation near 4%. Should the factors emerge which pose a threat of a considerable and continuous inflation deviation from the target, the Bank of Russia will take measures to sustain consumer price growth at around 4%.

Appendix 12 explains the choice of key parameters of the inflation target with due consideration of the international practice, among other things.

The Bank of Russia's monetary policy approach

The Bank of Russia's monetary policy approaches are determined, on the one hand, by the impact of the central bank's instruments on the economy and inflation, and, on the other hand, by the institutional specifics of the Russian economy, consumer price movements and inflation expectation dynamics.

Under the inflation targeting regime, monetary policy manages domestic demand in the first place to influence prices. The central bank impacts on inflation through a long chain of interconnections, the so-called transmission mechanism. When the Bank of Russia sets the key rate, it influences interest rates in different financial market segments. This is translated into the affordability of loans, propensity to save, internal demand and inflation. Financial market interest rates promptly respond to changes in the key rate. However, it takes from three to six quarters for the signal from interest rates to be translated into the dynamics of demand and economic activity, and affect inflation. This period is called a monetary policy transmission lag.

Given that key rate revisions have a long-term and large-scale impact on the economic system and affect most economic agents, the Bank of Russia relies in its decision-making on the macroeconomic forecast elaborated for three years ahead. To elaborate its forecast, the Bank of Russia carries out the analysis of current economic trends and inflation dynamics, considers the specifics of the monetary policy transmission mechanism, estimates the impact of macroeconomic policy measures, and assesses internal and external risk sources. Also, the Bank of Russia monitors regional trends and, thus, makes an additional assessment of sustainability and consistency of processes seen at the macrolevel. In its analytical calculations, the central bank uses cutting-edge approaches based on macroeconomic models and econometric tools. Along with expert estimates, they shape a comprehensive economic outlook and prospects.

The Bank of Russia considers aims to balance its decisions and estimate the impact of monetary policy measures not only on inflation dynamics, but also on the financial and real sector of the economy. When influencing the domestic demand, the Bank of Russia brings it in line with production capacities to avoid risks of considerable and long-lasting inflation deviation both upwards and downwards from the target, as well as risks to financial stability.

In its comprehensive economic estimate, the Bank of Russia prioritises the analysis of price dynamics. Understanding of inflation processes at different levels, in different groups of goods and services and regions, allows the Bank of Russia to determine sustainability of certain changes in consumer price growth

rates, and reveal underlying factors and possible risks. By such risks the Bank of Russia means prerequisites for inflation's persistent and considerable deviation from 4%. The Bank of Russia assesses risks of both upward and downward deviations of inflation from the target.

The Bank of Russia monitors a wide range of price indicators on a regular basis. It considers different components of consumer basket and their groups, and explores their dynamics in different time periods (month, quarter, year). To estimate the sustainability of certain processes in price dynamics, the Bank of Russia analyses core inflation and its modifications, that is, price indices, with goods with frequently and considerably fluctuating prices factored out. For the same purposes the Bank of Russia analyses average inflation indicators for different periods (for details, see Appendix 5).

The Bank of Russia also takes into account the average annual inflation for the past 12 months[1]. It is less responsive to one-off price fluctuations and helps describe how sustainably inflation is close to the target. Moreover, this indicator largely reflects the perception of inflation by businesses which for now look at the last year inflation dynamics rather than current inflation and inflation forecasts. The analysis of regional inflation plays an important role. It allows the Bank of Russia both to assess the uniformity of price dynamics and reveal specific factors invisible at the macrolevel. Along with the headline inflation analysis, the Bank of Russia also considers a wider range of indicators describing price trends in the economy. It regularly monitors producer prices; their movements may cause inflationary pressure coming from the cost side in the consumer market. The Bank of Russia analyses producer prices by economic sectors (including mining, manufacturing, agriculture, transport, and electricity, gas and heat supply) with due consideration for their nature and impact on consumer prices (Appendix 5). The analysis of price determinants in the international markets and Russia's trading partners allows the central bank to assess changes in prices of imported goods included in the consumer basket.

The Bank of Russia is focused on a comprehensive analysis that allows it to detect sustainable long-term trends. Thus, the Bank of Russia can avoid unreasonable and inconsistent key rate revisions and guarantee stability of interest rates and certainty of economic conditions overall. This approach allows the central bank to carry out a consistent policy that is better balanced in terms of the overall macroeconomic outcome. Given the above and the long-term effects of monetary policy measures on the economy, the Bank of Russia usually revises its key rate if the forecast predicts a persistent and long-lasting deviation of annual inflation from 4%. Such impact on inflation is usually exerted by supply and demand imbalances in the domestic market affecting the conduct and expectations of a wide range of economic agents. For example, other things being equal, inflationary pressure may rise if income and consumption growth unreasonably outpaces the increase in labour productivity and production capacity. When the central bank raises the key rate, it discourages borrowing and stimulates the propensity to save, thus, curbing excessive demand. Given the transmission mechanism's lagged effect, inflation returns to the target and the key rate is respectively reduced on a piecemeal basis.

In its response to inflation's considerable deviation from 4% driven by temporary factors, the Bank of Russia is guided by inflation expectations' reaction on price movements. A wide range of factors may accelerate or slow annual inflation in the short run, affect individual market segments (relative price movements) or reflect one-off movements in overall price level. These are usually supply-side factors, that is, they affect physical volumes of output of certain goods and services or changes in their cost rather than businesses' demand

[1] *Calculated as average prices over the past 12 months against average prices in the previous 12 months.*

or preferences. Therefore, monetary policy measures cannot directly constrain there factors. Weather conditions may affect harvest and supply of certain agricultural produce. Revisions of regulated rates, taxes, excises or raw material prices in global markets may have an effect on producer costs and prices of their products. The impact of one-off factors on annual inflation is usually exhausted within a year. In such cases monetary policy measures are unreasonable given that they will take effect after inflation returns to around 4%.

However, if changes in consumer price growth triggered by short-term factors affect inflation expectations, inflation's deviation from the target may prove to be more persistent and long-lived. In such cases we speak of the adaptive nature of inflation expectations and secondary effects of temporary factors. To tackle them, the central bank has to apply monetary policy measures. This is currently typical of Russia, where households and businesses still remember considerable and unpredictable inflation fluctuations they faced more than once in recent Russian history. Economic agents factor elevated inflation into their business and production plans and stay alert even to the slightest price surges. This increases risks of steady inflation acceleration driven by temporary factors. In this environment, the Bank of Russia has to closely monitor secondary effects and, if they are revealed, carry out tighter monetary policy than in their absence.

Furthermore, changes of inflation expectations have yet to gain symmetry. Households and businesses are tending to believe now that inflation is accelerating rather than slowing, and expect prices to rise on the back of ruble appreciation than to fall as the national currency appreciates (a so-called asymmetric exchange rate pass-through to prices). This results in a more pronounced change in prices under proinflationary factors than in the opposite case. As long as the asymmetric response remains, the Bank of Russia will put a greater focus on proinflationary risks than those of inflation's downward deviation from 4%. That is to say that should inflation deviate upwards from the target on the back of the said asymmetric response of expectations the Bank of Russia will have to change its key rate more pronouncedly than in case of a comparable downward deviation from 4%.

Albeit annual inflation has been close to 4% since early 2017, it may take another several years to bring down inflation expectations in Russia. Moreover, it is important that inflation expectations are not only brought to 4% (they may be higher due to individual and psychological specifics), but also remain largely invariable. As the Bank of Russia consistently sustains price stability, households and businesses will become more confident that inflation will stay low and the central bank will not allow it to change considerably. Growing confidence in the implemented monetary policy will not only reduce inflation expectations, but, on the one hand, make them less sensitive to proinflationary factors and exchange rate fluctuations, and, on the other hand, more responsive to the Bank of Russia's moves and statements. As households' and businesses' expectations stabilise at a low level, the scale of secondary effects of proinflationary factors will shrink. This shift in inflation expectations will help the Bank of Russia keep inflation at around 4%.

Higher transparency and predictability of the monetary policy helps economic agents better understand the central bank's moves and increases the role of its communications. They will enhance the impact of key rate decisions on interest rates, economic activity, inflation and expectations of their future movements, thus increasing the effect of monetary policy.

The Bank of Russia will continue to explain goals, measures and outcomes of the monetary policy, as well as release its estimates of the state of the economy and forecasts. Along with issuing a wide range of official publications and regular commentaries, the Bank of Russia pays a great deal of attention to meet-

ings and discussions with business, financial, expert and academic community, as well as representatives of public authorities. The central bank also intends to expand this cooperation into Russian regions.

If inflation deviates from the target under the influence of certain factors, the Bank of Russia will disclose in detail the reasons behind the deviation, its duration and persistence, and impact on inflation expectations. Also, the central bank will explain when the key rate movement will bring inflation back to the target. This will increase transparency of the implemented monetary policy, lower uncertainty and set benchmarks for economic agents.

Another important element of the Bank of Russia's monetary policy is anchoring interest rates in the economy at the level that makes deposits and other ruble-denominated saving assets attractive enough. Under this approach, consistently low inflation will ensure Russians' welfare. The incentives to save in rubles trigger moderate demand that fails to outpace production capabilities, thus, preventing inflation risks and imbalances in the real and financial sector. As inflation is anchored at around 4% and inflation expectations are down, the Bank of Russia sees room for a further key rate cut within the said approach.

Monetary policy and other national economic policies

Like any other economic policy, monetary policy is carried out under Russia's economic development strategy. Most macroeconomic policies cannot be isolated and influence both the environment and the outcomes of the applied measures. Therefore, overall successful economic policy and prospective overcoming of structural constraints largely depend on coordinated efforts of public authorities of all levels, including the Bank of Russia and the Russian Government.

The Bank of Russia is responsible for several economic policies, including price and financial stability, as well as stability and development of the financial sector and the payment system. It ensures their mutual coherence, using the available instruments and taking into account their interconnection. In particular, with its large-scale impact, the key rate is used to deliver on the inflation target in the first place. A balanced monetary policy aimed at stabilisation also helps support financial and overall macroeconomic stability. However, price stability itself cannot prevent accumulation of systemic financial risks. To ensure the financial sector's stability, the Bank of Russia applies regulation instruments, including macroprudential measures. Macroprudential measures include, among other things, a countercyclical buffer to capital adequacy requirements for credit institutions, which allows forming a capital buffer if systemic risks build up. Withdrawals of unscrupulous actors from the market and measures to increase effectiveness of bank resolution are also aimed at mitigating financial stability risks, enhancing the banking sector's stability and its reliable functioning. The Bank of Russia has instruments for targeted impact on individual market segments if they are overheated. These include the application of elevated risk weights to certain assets to calculate the capital adequacy ratio (e.g., on FX loans and unsecured consumer loans). These measures should bring banks supplementary capital buffers on such assets. The application of increased risk ratios on loans and bonds denominated in foreign currency is also aimed at limiting risks of accumulation of FX liabilities by companies with foreign exchange revenues insufficient to service external debt in a timely manner. That said, being primarily an instrument for sustaining price stability, in exceptional cases the key rate may be used to shore up financial stability. In case of shocks which may bring a considerable threat to financial stability and a need for a prompt and large-scale impact on the economy aimed at taking on such threat, the Bank of Russia may enhance its macroprudential mea-

sures with a key rate revision, if it finds macroprudential measures insufficient to influence the situation in the appropriate scale and rapidly enough. Furthermore, if there are financial stability-threatening external shocks, where relevant, the Bank or Russia will consider the use of FX refinancing instruments the debt on which was redeemed by credit institutions in 2017. The Bank of Russia regularly monitors the financial sector, including banks, and releases the results in its Financial Stability Review and Financial Market Risk Review.

Certainly, regulatory measures influence monetary conditions, and the Bank of Russia takes this into account when it elaborates its macroeconomic forecast and sets the key rate. For example, the adjustment of required ratios may shape a more balanced approach in banks to certain operations. This may translate into the dynamics of monetary aggregates.

Under its regulation and supervision function, the Bank of Russia ensures stability of financial institutions which is essential for normal functioning of the monetary policy transmission mechanism. How fast and clearly the signal is transmitted from the key rate to the real sector and inflation largely depends on the development of the financial sector and its role in shaping savings and credit. The Bank of Russia continues to improve quality of financial mediation. It takes measures aimed at expanding the range of financial services and financial inclusion, as well as protection of financial consumers, introduction of new technologies and increasing financial literacy of financial market participants[2]. Russia maintains strong potential in this area. These measures not only improve the effectiveness of the transmission mechanism, but also enhance the contribution of financial institutions in favourable environment for the economic activity and investment.

Some measures of the national economic policy directly contribute to price stability and promote Russians' welfare. In particular, the indexation of administered prices and retail utility rates by 4% lowered inflationary pressure, given a considerable share of these services in the consumer basket (5.9%). The entrenchment of this practice at both the federal and regional level coupled with consistent monetary policy will lower inflation expectations and anchor inflation near 4%. Moreover, given that most of these services enjoy mass demand as essential services, a predictable and moderate rise in their prices will prevent social strain.

The Government's efforts aimed at developing infrastructure for transportation and storage of agricultural produce and the expansion of processing capacities also create conditions for price stability. These measures will ensure both more stable food price dynamics and import substitution in the food market. Food makes about 40% of the consumer basket, including mostly fast moving consumer goods. Prices of these particular goods are most volatile due to, among other things, weather conditions, harvest prospects and price movements in the global market. This issue is especially sensitive for households. Addressing this challenge will not only improve households' welfare and stabilise inflation at around 4%, but also enhance the country's food security.

The Russian Government's efforts to address structural challenges coupled with economic development mechanisms and stimuli, will also improve effectiveness of the Bank of Russia's measures in future. In particular, lower monopolisation in many economic sectors will increase flexibility of the commodity market, supply and prices. This will increase their sensitivity to changes in consumer activity caused, among other things, by the key rate. Higher territorial and professional mobility of the labour force, lower administrative and institutional barriers for starting a new business, and the development of transport and logistic infrastructure are needed to both increase flexibility of goods and services supply and its territorial diversification, and increase the economic capacity. When the problem of high-

[2] *Guidelines for the Development of the Russian Financial Market in 2016-2018.*

ly uneven distribution of income and wealth in the society is solved, grounds will be laid for a balanced development, savings accumulation and social stability. At the same time, it expands the central bank's influence on prices through effective demand. This is because medium-income households are sensitive to changes in interest rates and prices and adjust their consumption and savings accordingly. When these issues are gradually solved, the response of the monetary policy will have to be less pronounced than now if inflation deviates from the target driven by certain factors.

The budget rule, effective since the beginning of 2017, will reduce the dependence of the Russian economy and public finance on global oil market cycles in the medium run. Coupled with the inflation targeting regime, this will limit the impact of external conditions on real exchange rate and competitiveness of Russian goods and services. A conservative approach to public finance under the budget rule and a weighted monetary policy are key factors of general economic stability. Also, the Bank of Russia will look into resuming foreign currency purchases in the FX market to replenish the international reserves to 500 billion US dollars. Foreign currency reserves in excess of the standard reserve requirements are advisable for sustainable functioning of the Russian economy amid volatile external economic conditions, and limiting risks to financial stability if external shocks materialise. The Bank of Russia will carry out these operations in such a manner to avoid considerable influence on the domestic financial market and deliver on the price stability objective. These operations are consistent with the floating exchange rate regime the Bank of Russia adheres to, given that they are not aimed at maintaining certain exchange rate or changing its pace. By contrast, the parameters of operations aimed at replenishing reserves are set in such a manner to avoid considerable influence on exchange rate dynamics.

Meanwhile, Russia's economy needs diversification and a departure from commodity focus and import-dependency in order to develop in a balanced and independent manner, and be less sensitive to external shocks. This is especially important amid an unfavourable and changeable global markets and sanctions on Russia. At the peak of the crisis, the Russian economy (the financial and real sector) showed high adaptability to external shocks and sanction-related restrictions, given that anti-recessionary measures were applied in time. Having said that, a long-term stability and lower sensitivity of economic indicators (including the exchange rate, inflation, households' and businesses' sentiment and expectations, and living standards) to changes in external conditions will become a reality only with time as structural challenges are overcome and the internal stability of the Russian economy (including its financial institutions) is enhanced. The Bank of Russia strengthens and develops the financial sector, including the banking sector and the national payment system, by enhancing their internal stability. The central bank enables them to service the economic activity and foster its development, and act as intermediaries in shaping savings and investment irrespective of changes in the external environment.

In the pursuit of its monetary policy, the Bank of Russia keeps an eye on the structural specifics of the Russian economy, as well as external and internal challenges and restrictions. Also, it acts in line with the Russian Government's policy designed to address structural problems under the agreed-upon system of the public strategic and operational planning. Meanwhile, the mechanisms uniting public and business efforts in addressing complex challenges should gain in importance. This should refer, among other things, to the partnership between the public and private sector in implementation of projects and programmes essential for the economic development. At the same time, the economy needs to

be kept stable. Imbalances in the financial and real sector, in particular excessive increase in bank lending and debt burden (already high in some sectors) should be prevented. Therefore, attention should be given to market mechanisms and fiscal, budgetary and regulatory instruments to create stimuli for reallocation of the available monetary resources and savings between segments, and make their use more effective. This will be facilitated by the Bank of Russia's gradual reduction of the key rate as inflation stabilises at around 4%, and predictability of financial conditions in the economy. In this environment, different economic sectors will gain equal access to lending, while the demand for special-purpose refinancing instruments and the debt on them will gradually decline. In September 2017, the Bank of Russia approved a strategy for a phased abandoning of special-purpose refinancing instruments. It is designed to gradually replace concessional lending with market mechanisms. One of the strategy's key principles is to preserve conditions on previously issued loans. The strategy will be implemented piecemeal during several years. The pace at which the Bank of Russia will curtail its indirect support will depend on the economic conditions, including higher availability of market financing. The respective terms for abandoning special-purpose instruments will be determined and, if necessary, updated based on the medium-term economic development scenarios elaborated by the Bank of Russia. As this process is implemented, we will see a growing role of fiscal stimulus and mechanisms which are already used, among other things, to support lending to agricultural producers, exporters, and small and medium-sized businesses[3].

Given the specifics of the issues addressed and instruments used, no line of the Bank of Russia's policy can remove main structural constraints or drive economic growth, though creating a necessary environment for it. Price and financial stability are an integral part of the overall macroeconomic stability. Without it, neither structural nor any other economic policy can be implemented successfully. A consistent and transparent monetary policy, aimed at keeping price stability and fostering financial stability, facilitates social welfare and increases economic certainty. The latter is important for the development and implementation of the economic strategy at both the public and private level.

[3] *The mechanism provides for subsidising interest rates through the issue of subsidies to credit institutions from the federal budget.*

2. USE OF MONETARY POLICY INSTRUMENTS IN 2017 AND 2018-2020 AND THE EFFECT OF THE TRANSMISSION MECHANISM

The monetary policy transmission mechanism and its particularities in Russia at present

In pursuing monetary policy, the Bank of Russia takes into account that a number of factors have an impact on inflation. First, price trends depend on the ratio of supply and demand in the domestic goods and services market. The ability to ensure a certain level of production of goods and services is determined primarily by the availability of material, labour and administrative resources in the economy, which is outside the area of influence of the central bank's instruments. The size of demand depends both on individual consumption preferences and on the readiness of households to make savings or take out loans. Inclination to saving and borrowing, in turn, is caused in response to interest rates on deposits and loans, which are influenced by the central bank when it determines the level of the key rate. Thus, the central bank has an impact on inflation, managing internal demand through interest rates.

Another factor that has an impact on inflation is the exchange rate dynamics. This is related to the fact that the consumer basket includes both domestic and imported goods, the prices of which depend on both the cost of goods abroad and the fluctuations of the exchange rate of the national currency. International prices may be beyond the central bank's scope of influence, but it can influence the exchange rate dynamics. In the context of a floating exchange rate, the central bank does not directly regulate the exchange rate, but must take into account the impact on its movements of interest rates in the economy. For instance, if interest rates inside the country are higher than rates in international markets, this raises the relative attractiveness of domestic assets in comparison with international assets and creates the conditions for capital inflow and appreciation of the national currency, which translates to reduced inflation pressure. Thus, by changing the key rate, the central bank must take these effects into consideration.

Another important factor of price dynamics is the inflation expectations of households and businesses. The future changes in inflation expected by participants inform their current decisions on consumption, savings, investments, wage agreements, contract prices for the supply of goods and other kinds of agreements. Accordingly, the lower inflation expectations are, the lower price growth rates will be integrated into price and wage contracts, which will be reflected by a lower level of inflation. That's why central banks attach great importance to the formation of low inflation expectations. This is facilitated by a consistent monetary policy aimed at keeping inflation close to the target level.

Monetary policy affects inflation by changing the key rate, primarily impacting processes in the financial sector, which are subsequently reflected in the real sector and consumer price trends. At the same time, the effectiveness of the central bank depends on the precision and breadth of the transfer of the signal from the key rate to the financial sector and its influence on the activity of businesses and households, that is, from the effectiveness of the so-called monetary policy transmission mechanism (hereinafter, MPTM). The work of MPTM in Russia, as in other countries, has its particularities and is largely determined by the level of development of certain segments of the financial market, as well as prevailing business practices.

In Russia, changes in the key rate by the Bank of Russia are almost instantaneously reflected in overnight money market rates, being the starting point for MPTM action. Due to the short-term nature of operations, one-day money market rates include the lowest financial risk premium (interest rate and credit risks, liquidity risks) and their level can be as close as possible to the key rate. The Bank of Russia creates conditions for this purpose, regulating the level of bank liquidity through operations with credit institutions[1]. Of all money market sectors, the Bank of Russia pays the most attention to the interbank loan segment (IBL), as rates in mixed segments of the money market (currency swaps and repo markets) can fluctuate under the influence of changes in demand for foreign currency or securities.

As multiple short-term operations in the money market are an alternative to long-term operations for banks, expectations regarding future developments in the money market rate affect rates of medium- and long-term operations. Changes in these expectations during the increase or reduction of the key rate over several weeks lead to rate changes on the interbank loan, interest rate derivatives and securities markets, i.e. segments of the market that are characterised by high turnover. If market participants expect a change in the key rate, rates on medium- and long-term operations can adjust somewhat before the key rate change and react more weakly to its direct increase or reduction. In cases when prevailing market expectations anticipate a further change in the key rate in the same direction, the subsequent reaction of interest rates on financial sector operations may be more substantial.

Banks may use operations in the money and stock markets along with credit operations to place funds and along with deposit operations to raise funds. That is why when setting rates on credit and deposit operations, banks consider rates for corresponding terms prevailing in the money or stock market (interbank rates, interest rates swap quotes, OFZ yields) and adjust them based on the size of additional costs related to credit and deposit operations or the risks of these operations (see Appendix 7). As decisions regarding the modification of the conditions of standard credit and deposit products require time, and different banks make such decisions at varying times, interest rate changes in deposit and lending markets can take more time — up to three to six months.

Following key rate changes, an adjustment of the entire spectre of interest rates in the economy along the entire length of the yield curve occurs in response. Through interest rates, the central bank influences the choice of economic agents between savings and consumption, which translates to the movements of deposits and loans. The impact of interest rates on lending volumes is often called the credit channel. The shaping of inclinations towards savings and borrowings influences domestic demand and inflation. Changes in the key rate are fully reflected in consumer price trends for up to three to six quarters.

The interest rate channel and the credit channel are closely interconnected and work fairly well in Russia. There is still potential for their further enhancement with the increased role of deposit and credit operations in the formation of savings and borrowings in the economy. In particular, the ratio between Russian banks' claims to the national economy and Russia's GDP is two to four times lower than in OECD countries but differs negligibly from the values in other Eastern European countries comparable with Russia in terms of economic development. The enhanced operation of the interest rate and credit channels will be facilitated by further development of the financial market, its increase in credibility and Russian economic entities' expanded practice of using

[1] *The description of the system of instruments of the Bank of Russia monetary policy is available on the Bank of Russia website (www.cbr.ru), section Monetary Policy, material The System of Monetary Policy Instruments.*

financial services, under the influence of measures adopted by the Bank of Russia, among other things.

Interest rate changes are also reflected on the value of assets owned by companies and households and, consequently, on the evaluation of their personal financial situations, as well as on opportunities for asset-based borrowing. Assets, both financial (stocks, bonds) and non-financial (property), rise in price in periods of reduced interest rates and depreciate in periods of increased interest rates. This, in turn, affects the decisions of asset owners regarding consumption, savings and investments, which eventually translates into domestic demand trends. In Russia, this mechanism is still weak, as a much of the population is not a regular participant in the financial market and does not have investments in financial assets. In business practice in the real sector, operations are restricted to liquid pledges, the prices of which depend significantly on the interest rate level. The channel's role will gradually expand with the extension of the range and availability of financial products and services, development of financial market infrastructure, improvement of its participants' financial literacy, along with a rise in the level of prosperity of Russian citizens.

Domestically, interest rates influence the exchange rate through changes in the attractiveness of Russian relative to foreign assets. At the same time, along with interest rates, the exchange rate is affected by a broad set of factors, including the external environment. As noted above, exchange rate movements contribute to prices of imported goods in the consumer basket and thus to inflation. An indirect effect of changes in the exchange rate is linked to its influence on the price attractiveness of domestic relative to imported products, which leads to a change in demand and prices of these groups of goods. Given the substantial share of imported goods in the Russian consumer basket, the exchange rate is a significant factor in price dynamics. The effect of the transfer of exchange rate changes to prices is evaluated at 0.10-0.15%, that is, in the case of a change in the exchange rate of 1%, overall inflation changes 0.10-0.15 pp, occurring over several months. At the same time, the influence so far is asymmetrical: consumer prices react more to the depreciation of the ruble than to its appreciation. This is linked to the nature of inflation expectations, which still remain more sensitive to factors exerting upward pressure on prices than those with the opposite effect. As inflation expectations remain fixed at a low level and the credibility of the Bank of Russia's policy of maintaining price stability grows, the impact of exchange rate fluctuations on price dynamics will diminish, along with the degree of asymmetry of the transfer effect (when the prices of goods react more strongly to the depreciation of the ruble than to its appreciation). This will also be facilitated by the continued gradual reduction of the share of imported goods in consumption.

The actions of the central bank have an impact on inflation, and economic processes overall, through both interest rates and influence on the expectations of financial market participants, businesses and households regarding price movements and changes in financial conditions. This channel plays an important role particularly in consideration of the increased significance not only of changes in the key rate, but the forecasts of the central bank, as well as the comments and statements of its representatives. In Russia, the role of the central bank's information signals in forming expectations of interest rate changes in the financial market is growing, which makes it possible to have an additional impact on the yield curve. However, Bank of Russia policy, including published forecasts, still has a limited effect on the inflation expectations of participants in the economy, which primarily rely on past or current price dynamics. There remains a large potential for the channel's enhanced action,

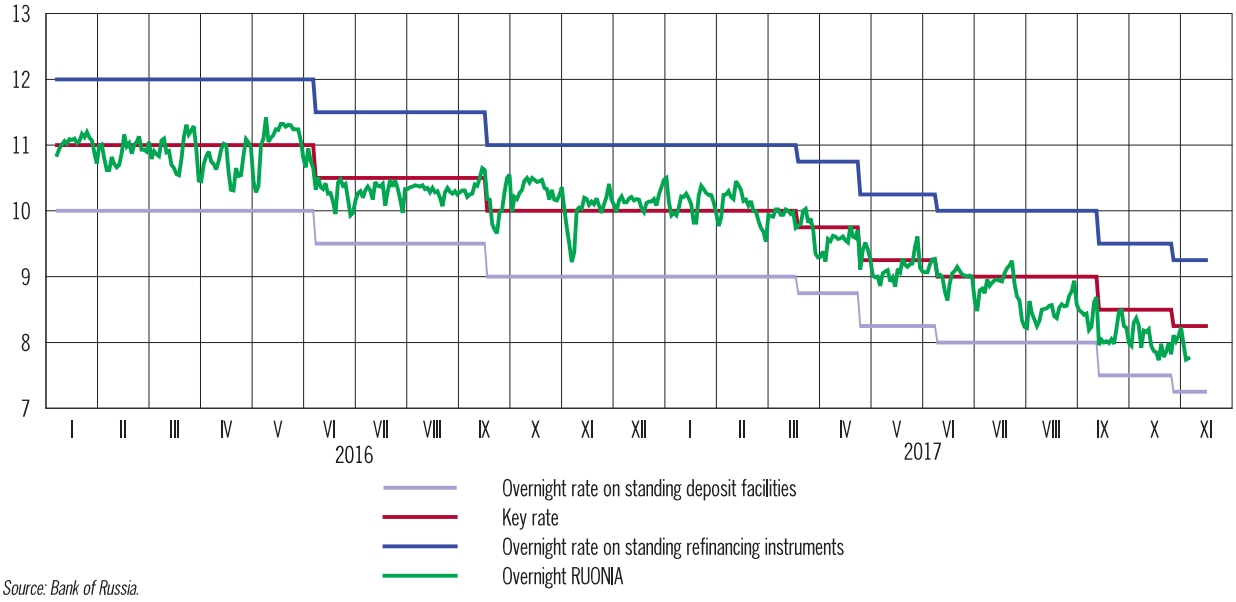
which will be facilitated by the Bank of Russia's consistent monetary policy of maintaining inflation close to the 4% target, accompanied by active communication and explanatory work.

The work of the first stage of the monetary policy transmission mechanism: the formation of money market rates near the key rate

A fairly precise signal transfer from the key rate to money market rates occurred in 2017, which is the operational objective of monetary policy. Overnight MIACR and RUONIA in the interbank lending market formed near the key rate: in January-October their average absolute deviation from it consisted of 0.23 pp and 0.26 pp respectively (0.19 pp and 0.22 pp in 2016). Meanwhile, a high level of activity persisted in operations between credit institutions in all segments of the money market. In January-October 2017, the turnover of the overnight interbank market segment stayed on average near the 450 billion ruble mark, while the turnover in mixed segments of one-day swaps and repos was approximately 1,650 billion rubles and 800 billion rubles respectively. Such a substantial volume of operations in the money market at rates near the key rate indicates, firstly, that this market plays a significant role in liquidity reallocation between banks and, secondly, that credit institutions have reason to consider the key rate as a starting point for the determination of interest rates for other financial operations, including for longer terms and for different categories of financial market participants (given that, as was noted above in this section, banks may conduct operations in different segments of the financial market). The persistence of high levels of bank activity in the money market reflects the normal work of the first part of the transmission mechanism. At the same time, as noted above, the Bank of Russia devises the operational objective of monetary policy specifically for the IBL market, taking into account that, along with key rate movements, other factors such as the fluctuation of demand for foreign currency and securities can significantly influence rates on operations in mixed segments of the money market.

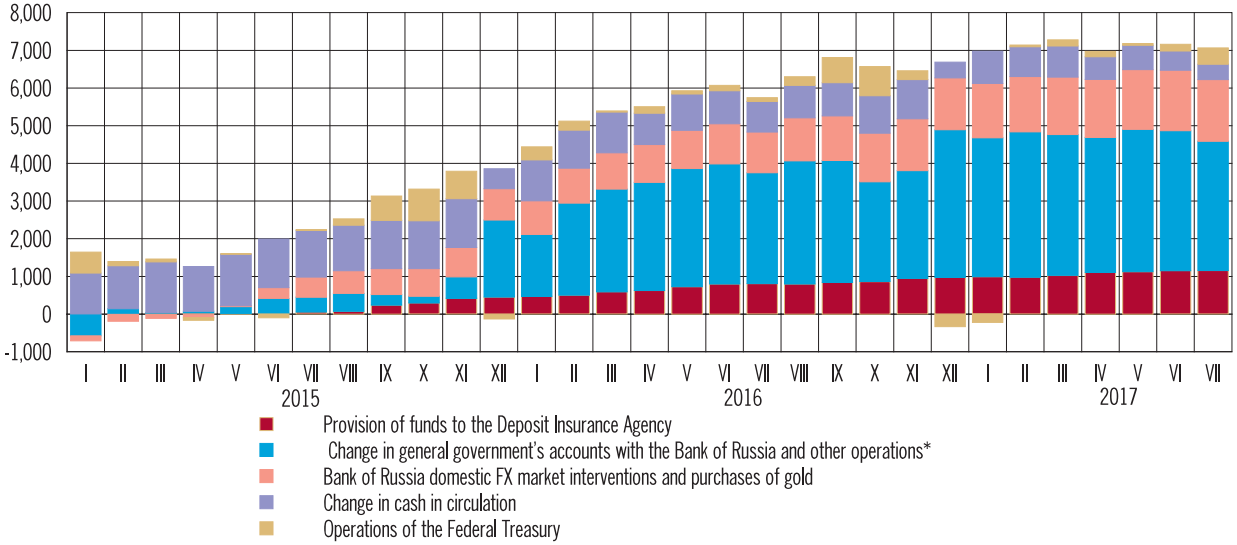
An important role in the creation of stimuli for the formation of short-term money market rates near the key rate is played by the Bank

Bank of Russia interest rate corridor and overnight RUONIA (% p.a.)



Source: Bank of Russia.

Factors of banking sector liquidity (accrued, billions of rubles)



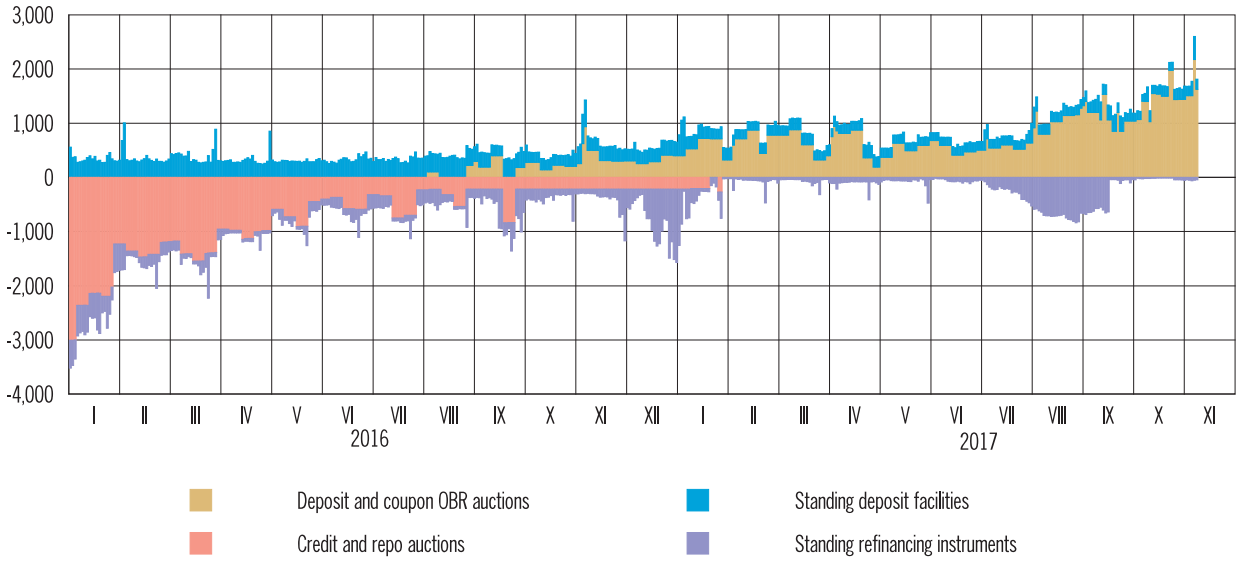
** Including foreign currency purchases (sales) by the Ministry of Finance of the Russian Federation in the domestic FX market.*
Source: Bank of Russia.

of Russia's system of instruments, and operations with credit institutions subject to it[2]. The course of the Bank of Russia's primary operations depends on the state of liquidity in the banking sector. In early 2017, a transition from a liquidity deficit to a surplus occurred in the banking sector, leading to a situation where the amount of accumulated funds in credit institutions' correspondent accounts with the Bank of Russia exceeds their needs in the fulfilment of the mandatory reserve requirements, as well as for making current payments and settlements. The conditions for this transition developed over the preceding two years under the influence of the lengthy and large-scale expenditure of previously accumulated resources from the Reserve Fund. A notable contribution to the formation of a liquidity surplus was made by bank rehabilitation measures, which involved the provision of funds through the Deposit Insurance Agency under a previous mechanism, as well as the provision of credit to the Deposit Insurance Agency for compensation payments to depositors in banks with revoked licences. Given that the influx of liquidity into the banking sector exerts downward pressure on money market interest rates, the Bank of Russia carries out absorbing operations of excess liquidity in order to maintain them near the key rate. However, these operations do not have an impact on the ability of banks to lend or perform other kinds of transactions as part of their regular activities (see Appendix 10).

Starting from 2016 Q4, the Bank of Russia proceeded to regularly conduct deposit auctions. In January-October 2017, the Bank of Russia absorbed, on average, around 700 billion rubles of excess funds weekly through these operations. The limits of deposit auctions, i.e. the maximum amount of funds the Bank of Russia intended to raise in deposits, were set with due account of the factors affecting banking sector liquidity, including budget flows and funds allocated for bank resolution. At the same time, the amount of the limit could change substantially from week to week due to the high volatility typical of the autonomous factors of liquidity formation: primarily changes in cash in circulation and budget flows. For example, during certain periods the outflow of funds from the banking sector reached 700-

[2] *The description of the system of instruments of the Bank of Russia monetary policy is available on the Bank of Russia website (www.cbr.ru), section Monetary Policy, material The System of Monetary Policy Instruments.*

Bank of Russia claims to credit institutions on refinancing operations / Bank of Russia liabilities to credit institutions on operations to absorb excess liquidity (as of start of business, billions of rubles)



Source: Bank of Russia.

800 billion rubles, requiring a corresponding adjustment to the limit of deposit auctions[3].

In order to soften the impact on banks' liquidity needs of the high volatility of the autonomous factors of its formation factors, a required reserves averaging mechanism is used. It allows credit institutions to maintain required reserves in correspondent accounts with the Bank of Russia according to the ratios on average over the period, consisting of four or five weeks[4], rather than every day. This gives credit institutions the opportunity to flexibly manage, within the established ratios, the amount of funds in correspondent accounts, lowering the level in periods of liquidity outflow and, conversely, raising it in periods of substantial liquidity inflow. The current required reserves ratios (when ensuring the possibility to maintain 80% of the required reserve ratio in correspondent accounts) are established at a level that provides the banking sector with a high degree of protection from the significant and unpredictable changes in the volume of banking sector liquidity. In 2017, the volume of funds that credit institutions were required to maintain in correspondent accounts, on average for the averaging period, consisted of 1.7-1.9 trillion rubles (banks had to keep a further 0.5 trillion rubles in special accounts to maintain the required reserves, funds not accessible to banks for current settlements). There were enough of them to allow the banking sector to carry out, as usual, payments linked to changes in cash in circulation and budget flows[5]. Fine-tuning auctions are another instrument to mitigate the unpredictable impact of the autonomous factors of liquidity formation. In the first half of 2017, the Bank of Russia carried out fine-tuning auctions sparingly and not in every averaging period. August saw an increased demand for these auctions as a result of liquidity inflow into the banking sector due to operations held by the Banking Sector Consolidation Fund.

[3] *Information on the limits on the Bank of Russia one week auction-based operations and the forecast of factors affecting banking sector liquidity is available on the Bank of Russia website (http://www.cbr.ru/statistics/?PrtID=pffl&pid=idkp_br&sid=itm_39 643), section Statistics, subsection Monetary Policy Instruments of the Bank of Russia and Banking Sector Liquidity Indicators, material Forecast of Factors Affecting Banking Sector Liquidity Used to Determine the Limit on the CBR 1 Week Auction-based Operations.*

[4] *The calendar for the required reserve averaging periods is published annually on the Bank of Russia website, section Monetary Policy, subsection The Calendar for the Required Reserve Averaging Periods.*

[5] *The Bank of Russia set low required reserve ratios for banks with a basic licence: 1% for ruble liabilities to individuals and other liabilities.*

A liquidity surplus in the banking sector will remain over the next three years. Its volume is expected to increase from 1.8-2.3 trillion rubles at the end of 2017 to 2-3 trillion rubles at the end of 2020. Actual trends will depend primarily on the amounts of budget deficit financing from sovereign funds. The change in the credit institution resolution mechanism, implying a transition to the Bank of Russia's direct participation in credit institutions' capital, will not lead to a substantial change in the nature of the influence of banking sector rehabilitation measures on the process of bank liquidity formation.

In the context of a liquidity surplus, the Bank of Russia continues to carry out deposit auctions on a regular basis, maintaining the IBL rate near the key rate. Along with deposit auctions, the Bank of Russia will absorb the most sustainable part of the excess liquidity using its own three-month coupon bonds (OBR), having conducted their first test release in August 2017. The placement amount totalled 150 billion rubles. As a result of placement of the second OBR issue as of early November the Bank of Russia absorbed about 220 billion rubles more. The amount of fund absorption will increase with the expansion of the structural liquidity surplus through OBR issue.

The Bank of Russia will continue the process initiated in 2017 of gradually narrowing the types of assets that can serve as collateral for refinancing operations. The decision's implementation will take place incrementally, starting from the reduction of adjustment ratios/the increase of discounts for certain types of assets. The Bank of Russia applies the so-called countercyclical approach to the list of assets eligible as collateral for operations. That means that this list extends during a growing liquidity deficit, when the majority of credit institutions turn to the refinancing operations of the central bank, and shrinks during liquidity surpluses, when refinancing operations are practically in no demand. The Bank of Russia uses this approach to limit, among other things, the indirect influence that the inclusion of assets in the collateral list of central bank operations exerts on market participants' evaluation of the quality of these assets.

When deciding on changes in the approaches to collateral for refinancing operations, the Bank of Russia evaluates changes in the volume of collateral not only in the banking sector as a whole but also in individual credit institutions. Given the structural liquidity surplus, banks' demand for collateral to raise funds is low, that is why the reduction of the Lombard List under the Bank of Russia's countercyclical approach to collateral for monetary policy operations does not pose any risk to the banking sector.

Continuing to work within a system of instruments formed in recent years, the Bank of Russia will take further steps in the organisation of banks' simple and convenient access to its instruments. This will be achieved by, among other things, the simplification of the procedure and increased speed of carrying out operations and the transition to an electronic workflow.

In particular, the increase in the accessibility of instruments in 2017 was enabled through changes in the time regulations of operations, especially the extension of the time for applications and contracts[6]. At the beginning of 2018, the Bank of Russia plans to simplify the procedures for conducting deposit and credit operations. Thus, any credit institution can participate in deposit operations (for a number of banks access to deposit operations was previously restricted). At the same time, instead of the previous procedure of application exchange, which required time, the bank will immediately send the funds to its deposit account

[6] *In February 2017, the time for concluding repo transactions was extended from 5:00 pm to 6:00 pm Moscow time. In May 2017, the time for submitting electronic applications for loans was extended from 5:00 pm to 7:00 pm Moscow time, and for paper applications – from 4:00 pm to 5:00 pm Moscow time for Moscow and from 4:00 pm to 7:00 pm local time for other regions.*

without waiting for reciprocal action from the Bank of Russia. The change of internal procedures in the Bank of Russia will result in the faster conclusion of deposit agreements and credit contracts with banks, while decisions on changes to them will be made more rapidly[7]. Work has already started at the Bank of Russia for the creation of accounts of credit institutions, Bank of Russia counterparties, which will form the basis for electronic workflow when conducting monetary policy operations.

Banks' capabilities to manage funds in correspondent accounts will expand substantially with the transition to a new payment system, which is scheduled for the middle of 2018. The creation of a single payment space will enable banks in any region to manage funds in correspondent accounts throughout the operation day, not only during the work hours of Bank of Russia regional branches or divisions where they or their affiliates have opened correspondent accounts. In addition, credit institutions will be able to participate in a separate final liquidity resolution session. Only banks will be permitted to make payments at the session. This will enable them, after carrying out all client payments, to manage their liquidity position formed following the operation day in the interbank lending market, as well as attract or place funds in the Bank of Russia. The new payment system will not only expand banks' capabilities to manage their funds, but will also contribute to the reinforcement of the money market's interest rate formation mechanisms near the key rate, that is, the achievement of the operation objective of monetary policy.

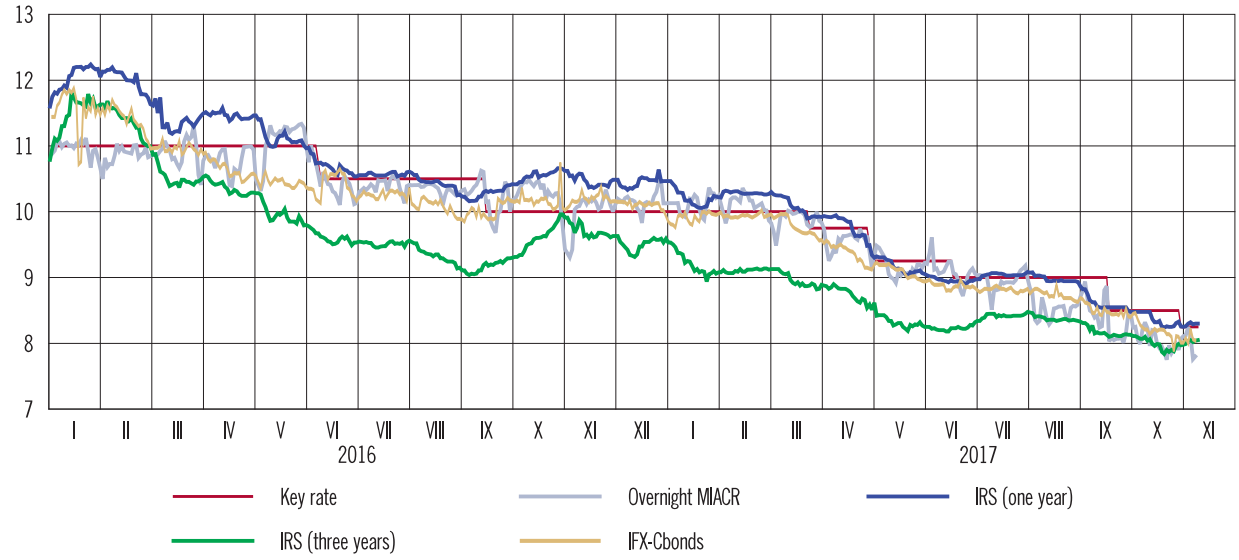
In order to ensure the uninterrupted work of the money market and the banking sector on the whole, and to foster trust among its participants, the Bank of Russia takes special measures to resolve possible temporary problems with credit institution liquidity. For this purpose, the Bank of Russia introduced a special instrument in 2017 called the emergency liquidity assistance mechanism (ELAM). This mechanism will be applied by the Bank of Russia in exceptional cases in order to support financially sustainable credit institutions facing temporary problems with liquidity. ELAM can be used only in cases when a bank lacks other sources of funding, including monetary policy instruments. Decisions on the provision of funds are made by the Bank of Russia on an individual basis. At the same time, the Bank of Russia does not take on any obligation to provide liquidity under this programme at the request of any credit institution. A mandatory condition for the provision of funds is a plan to address liquidity problems ('exit' strategies) within the deadline of the provision of funds and the Bank of Russia's positive assessment of the possibility of resolving these problems. The presence of this mechanism enables the Bank of Russia to provide support, if necessary, to financially stable banks and prevent the development of negative trends in the money and financial markets overall, ensuring the uninterrupted work of the monetary policy transmission mechanism.

Changes in the monetary policy transmission mechanism

Changes in the short-term interest rates of the money market, following the key rate at different speeds and by different degrees, are translated to interest rates on long-term operations in all segments of the financial market. However, their movements also depend largely on market participants' expectations regarding further movement of the key rate, which are shaped by the rhetoric of the central bank, among other things. The role of the Bank of Russia's information signals grew noticeably in 2017, and their impact on the interest rates of long-term operations intensified. In 2016 Q4 and in the first months of 2017, while the key rate remained unchanged, expectations arose of its reduction by virtue of relevant informa-

[7] *According to estimates, the maximum term for concluding deposit agreements with banks will be reduced from 15 to 10 days.*

Interest rate derivative prices and corporate bond yields
(% p.a.)



Sources: Bank of Russia, Bloomberg, Cbonds.

tion signals in press releases on the outcome of the Bank of Russia Board of Directors meeting. This was reflected in interest rate derivative quotes[8], which smoothly declined under the influence of the change in expectations. In the same vein, bond yield also adjusted, influencing the cost of attracting funds through corporate borrowers.

Together with the increased role of Bank of Russia informational signals in the formation of the yield curve in the financial market, in 2017 the Russian financial sector has seen definite trends affecting the formation mechanisms of borrowing costs for ultimate borrowers and deposit rates and, accordingly, monetary policy transmission.

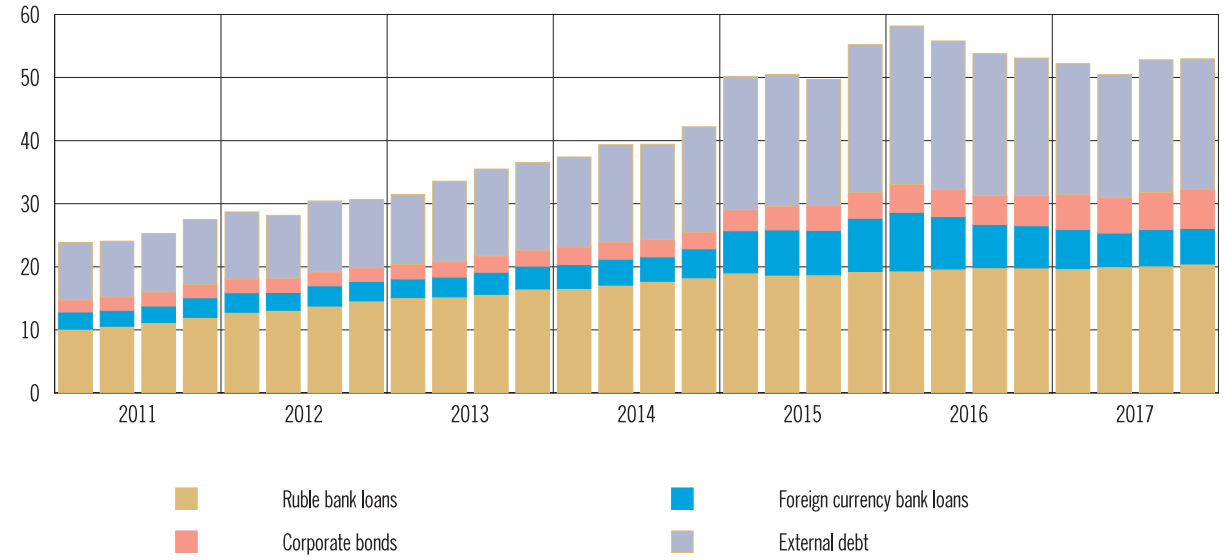
One of these trends is the increased role of bonds in the Russian financial market. In January-September 2017, Russian non-financial organisations accumulated 711 billion rubles in bond liabilities, which nearly twice exceeds the growth in banks' loan portfolio to this category of borrowers. Nevertheless, loans still made up the bulk of non-financial organisations' borrowings. As of the beginning of October 2017, the total volume of bank loans to non-financial organisations exceeded fivefold the market portfolio of bonds of non-financial issuers.

The new information is translated to bond quotes within several days, taking into account that they differ from loans in terms of their relatively high liquidity. This influences both investor incomes and the cost of attracting funds by issuing bonds. As a result, changes in monetary policy are reflected far faster in the bond market than in the lending market, where, due to the lengthy period of agreement of the conditions of each individual loan agreement, lending rates can react to changes in the key rate with a lag of several months. For that reason, the growing role of bonds in the Russian financial sector contributes to the accelerated transmission of monetary policy impulses to the interest rates on loans to ultimate borrowers.

The coming years will see a continued trend towards the replacement of loans with bonds. This will be facilitated by, on the one hand, businesses' improved financial policy and their more active use of the securities market as a source for borrowing, and, on the other hand, the increased engagement of the population in operations in this market, with bonds considered as an alternative to bank deposits. These

[8] *Interest rate derivative quotes reflect market participants' expectations with regard to future path of the key rate.*

Liabilities of the Russian corporate sector (trillions of rubles)



Souces: Bank of Russia, Cbonds.

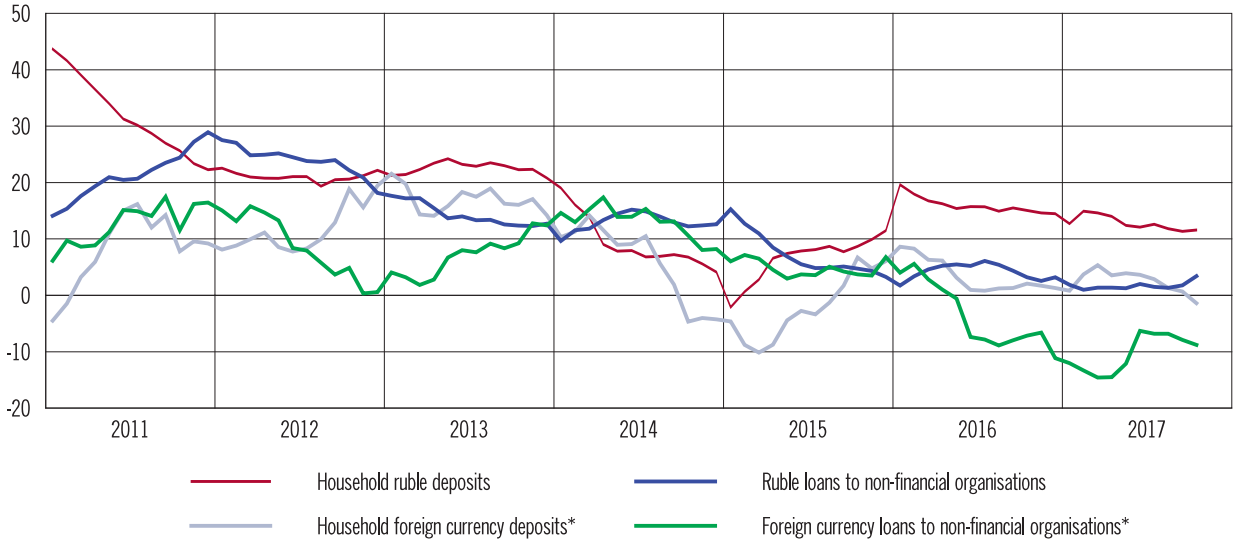
processes will be conducive to expanded financial literacy and financial inclusion of all market participants. Another important role will be played by the Bank of Russia's actions in the development of the bond market, the increase of its transparency and effectiveness, the expansion of opportunities in the issue of asset-backed securities. The bond market development will make financial resources more accessible to a wide range of borrowers raising the liquidity of claims on retails loans and loans to small and medium-sized businesses.

As the bond market expands, the influence of monetary policy on ultimate borrowers' transactions will continue to strengthen. This will also be facilitated by the development of financial instruments with floating interest rates linked to the Bank of Russia key rate. In particular, this approach is applied for prolonged periods by the Bank of Russia with respect to its own instruments, in order to ensure more rapid changes in interest rates when raising or lowering the key rate.

The growing role of non-bank financial institutions, whose intermediation was conducive to the stream of funds from banks to the economy, became another trend in MPTM development in the period under review. In January-September 2017, the portfolio of bank loans to financial institutions increased by more than 20%. The growing share of funds flowing from banks to the economy through the intermediary of non-bank financial institutions made financial resources more accessible to a wide range of borrowers. Financial institutions oriented towards the specific segments of the financial services market (such as leasing or factoring) may use specialised models of risk management. The growing importance of these institutions contributes to diversification of the financial market and the transmission channels of monetary policy signals to the cost of loans for final borrowers.

The de-dollarisation of bank assets and liabilities is another steady trend in the financial sector that has continued in 2017. The amounts of foreign currency-denominated operations in all core segments of the loan and deposit market went down. As a result, the dollarisation of household and corporate deposits steadily approached the local minimum of 2013. A decrease in dollarisation occurred primarily due to changes in operation amounts rather than foreign currency revaluation, considering that the ruble exchange rate in 2017 was lower than in 2013. The replacement of foreign currency deposits by ruble ones may be indicative of the growing confidence in the

Annual growth of certain bank assets and liabilities (%)



** In US dollar terms.*
Source: Bank of Russia.

national currency. Growth in the share of market participants' ruble-denominated assets and liabilities, the interest rates on which are determined by Bank of Russia monetary policy, has created the conditions for the eventual increase of its impact on the decisions of economic entities regarding consumption, savings, borrowing and, ultimately, on domestic demand and inflation.

Owing to the Bank of Russia's cautious approach to lowering the key rate, deposit interest rates dropped smoothly. Throughout 2016-2017, they surpassed the actual level of inflation, maintaining attractiveness for private investors. This restrained the population's shift from the savings behaviour model accompanying the recovery of economic activity. The annual growth rates of the total volume of household deposits gradually lowered, but did not fall below 8%, which has markedly outpaced the growth of the bank balances of organisations.

Another important factor defining the loan and deposit markets in 2017 is the diversity and instability of lowering inflation expectations and banks' related assessment of interest rate risk, which is reflected in interest rate trends for varying maturities. In the first half of 2017, banks actively lowered interest rates on short-term operations in the lending market and on long-term operations in the deposit market. These interest rate dynamics may be explained by banks' intention to avoid interest rate risk both in case of inflation anchoring close to 4% (in this case the interest rate risk is linked to long-term deposits attracted at high interest rates) and in case of inflation resuming its growth (in this case the interest rate risk is triggered by long-term loans issued at lower interest rates). As inflation stabilises at a sustainably low level, banks were active in reducing interest rates on long-term loans. As a result, the average interest rate on short-term ruble loans to non-financial organisations in June-August 2017 was 1.4 pp lower than in 2016 Q4. The interest rate on long-term loans to non-financial organisations dropped by 1.6 pp over the same period. The reduction in long-term interest rates in the deposit market also outpaced that in short-term interest rates (by 0.7 pp and 0.6 pp respectively). The leading drop in long-term rates reflects the banking sector's expectations of inflation's confident anchoring at a low level and consequently further reduction in short-term interest rates in the domestic financial market.

The prerequisites for a decline in long-term loan interest rates will also be established by the continued potential for the Bank of Russia to further reduce the key rate in the years ahead, from the current 8.25% to 6.00-7.00% p.a. According to the Bank of Russia's updated estimates, this key rate level corresponds to a real interest rate of 2-3%, equilibrium in the Russian context. Given that real interest rate, monetary policy will be neutral provided that inflation expectations do not substantially react to proinflationary factors. Although inflation expectations in Russia are gradually subsiding, this process is rather slow and unstable. Inflation expectations remain highly sensitive to temporary surges in prices for certain categories of goods even in the context of a significant drop in consumer price growth in 2017. Therefore, the real interest rate above 2-3% is required to reduce inflation and anchor it close to 4%. This is one of the reasons behind the Bank of Russia's moderately tight monetary policy. As inflation expectations become less responsive to temporary factors, the key rate will be gradually cut to the said levels and the moderately tight monetary policy will give way to neutral one. With the confidence of market participants regarding future inflation trends, this could create the prerequisites for the emergence of long-term loan interest rates lower than short-term interest rates in homogeneous market segments.

Another particularity of monetary conditions in 2017, as in 2016, is the prevailing conservative approach of financial market participants to risk assessments and, accordingly, the low risk appetite of creditors and borrowers. Banks have continued to carry out a rigorous selection of borrowers (softening non-price lending conditions fairly slowly). Borrowers, in turn, have avoided excessive build-up of their debt burden, the accumulated level of which has remained relatively high for both the economy overall and real sector companies (see Appendix 8). Households primarily followed the savings model, which was facilitated by positive real interest rates, while the increase in consumption starting in 2017 primarily occurred due to rising incomes. The factors listed, along with the moderately tight monetary policy, created the conditions for a restrained recovery of lending without leading to the emergence of risks in the real and financial sectors, or inflationary pressure. At the current stage, the conservatism of economic agents is largely justified and provides the prerequisites for a balanced recovery of the economy and the stabilisation of inflation near 4%.

Bank of Russia measures contributing to the enhanced performance of the monetary policy transmission mechanism

In the future, the increased precision and expanded breadth of the transfer of the impulse from the key rate to interest rates in the economy and the enhanced role of the Bank of Russia's information signals will be facilitated by the development and consolidation of financial market sustainability. The Bank of Russia undertakes measures aimed at increasing its liquidity, enlarging the range of participants and lowering the costs and credit risks of concluded transactions, and improves the legal framework of its management.

In 2017, in order to increase money market liquidity, the Bank of Russia supported the launch of a new segment of the Moscow Exchange money market, collateral for which will consist of clearing participation certificates (CPCs). The launch of transactions with CPCs will contribute to a decrease in market participant costs through the reduction of expenditures on work with secured transactions, taking into account that CPCs make it possible to unite property in an asset pool and lower the number of transactions with it. Since the start of 2017, the volume of transactions with CPCs has increased from 1-2 billion rubles to 50-

60 billion rubles. At the same time, CPCs are a relatively new instrument for financial market participants. As banks adapt to this market segment, its turnover will keep on growing. Additionally, it was decided to admit corporate participants[9] to the money market, which will create the conditions for more effective reallocation of funds in it, with the participation of non-bank financial institutions, among others.

Moreover, since June 2017 repo transactions with the Bank of Russia began to be concluded on the Moscow Exchange with a collateral management system through the National Settlement Depository. In this way, credit institutions gained the opportunity to work with a collateral basket here as well, that is, to make a single application for repo participation with the Bank of Russia instead of several applications for different kinds of securities and, when necessary, replace the securities used as collateral. Furthermore, given the structural liquidity surplus, banks appear to have little demand for refinancing. The Bank of Russia does not conduct regular repo auctions and a small number of banks apply for standing repo facilities, Lombard loans, and loans secured by non-marketable assets. Therefore, the volume of repo transactions with the Bank of Russia carried out on the Moscow Exchange with a securities basket is negligible.

The Bank of Russia is taking steps to develop the derivatives market. In 2017, the Bank of Russia continued to evaluate the quality of financial indicators and their administrators in the financial market, as their reliability is extremely important for the development of the derivatives market and the emergence of market risk hedging instruments using the indicators noted[10].

The Bank of Russia is also undertaking the reform of the OTC derivatives market[11], which is aimed at increasing the sustainability of this market sector and expanding the range of its participants. Among other things, this will be facilitated by the transfer of standardised OTC derivatives to centralised clearing, which will make it possible to minimise credit risks on transactions. At the same time, for OTC derivatives not subject to centralised clearing, there are plans for the introduction of margin requirements that entail the provision of collateral by market participants per position occupied. This reduces the market's sensitivity to the effects of negative external factors through a decrease in the number of unsecured open positions and possibilities to use collateral to cover transaction liabilities. The expansion of the range of participants and the mitigation of derivatives market risks will contribute to higher liquidity in the interest-rate derivative market, which reflects all market participants' average expectations of future interest rates, strengthening their credibility.

Along with Bank of Russia interest rates, expectations of their changes and macroeconomic, including inflation, risks, a wide range of other factors influences interest rates on banks' lending and deposit operations: the credit risks of specific borrowers, transaction costs and the level of competition in a certain

[9] *In January 2017, the Bank of Russia registered a corresponding wording of the rules for admission to trading on the Moscow Exchange.*

[10] *In 2016, the Bank of Russia adopted the decision to find the quality of the development of the MOEX USD/RUB FX FIXING financial indicator and the operational quality of its administrator, Moscow Exchange MICEX-RTS, to be satisfactory. In 2017, the quality of the development of the financial indicator MosPrime Rate and the quality of its administrator, SRO National Financial Association, were also found to be satisfactory. This indicator is widely used by market participants as a basis for interest rate derivatives.*

[11] *In accordance with the responsibilities Russia assumed in the G20.*

segment of the market (see Appendix 7). The Bank of Russia's actions to ensure the sustainability of the financial sector, increase financial inclusion and stimulate the technological development of the Russian financial system[12], among other things, reduce transaction costs and market participants' operational risks, and increase the effectiveness of their activity. The Bank of Russia's measures to promote competition in the financial sector, as well as optimise the regulatory burden in accordance with the scope of activities (particularly through the forthcoming implementation of a system of proportional bank regulation) pursue the same purpose. As a result, the lending and deposit markets will see an increase in pricing transparency, contributing to the precision of the signal transfer from the key rate to the financial sector and further to the economy.

[12] *Including the development of standardised approaches to the remote servicing of individuals and lending to SMEs, and the development of an electronic workflow (for details, see Section II.2, Bank of Russia Annual Report for 2016).*

3. CONDITIONS OF IMPLEMENTATION AND MAIN MEASURES OF MONETARY POLICY IN 2017

Bank of Russia monetary policy in 2017 – continuity of approach

In a period of powerful external shocks continuing up to 2016 Q1, the Bank of Russia first and foremost prioritised the task of ensuring financial stability, along with reducing inflation from its high levels, while, at the same time, avoiding excessive cooling of the Russian economy. As the situation stabilised, the economy adapted to the negative external conditions and recovery processes emerged in 2016, the Bank of Russia was able to focus primarily on the task of lowering inflation and anchoring it at the target level. The tasks of preserving financial stability and evaluating the risks of economic slowdown remained the focus of attention for the Bank of Russia, but their conditions were already not as critical as in the preceding two years.

At the same time, the Bank of Russia gradually created the prerequisites for a sustainable downward trend of consumer price growth rates, supporting moderately tight monetary conditions. Considering that key rate decisions are reflected in inflation developments for 12-18 months ahead, the observed decline of the growth rates of consumer prices to the target level of 4% in 2017 is also the result of monetary policy carried out in 2016.

In 2017, the Bank of Russia has conducted monetary policy following principles outlined earlier in the Monetary Policy Guidelines, and in consideration of prevailing economic trends.

The Bank of Russia continues to maintain a balanced approach to decision-making based on evaluation of the balance of risks. This means that, in ensuring the reduction and stabilisation of inflation at the target level, the Bank of Russia takes into account the effect of the key rate on the stability of the financial and real sectors of the economy, and seeks to contribute to the creation of conditions for sustainable economic growth unaccompanied by an accumulation of risks and imbalances.

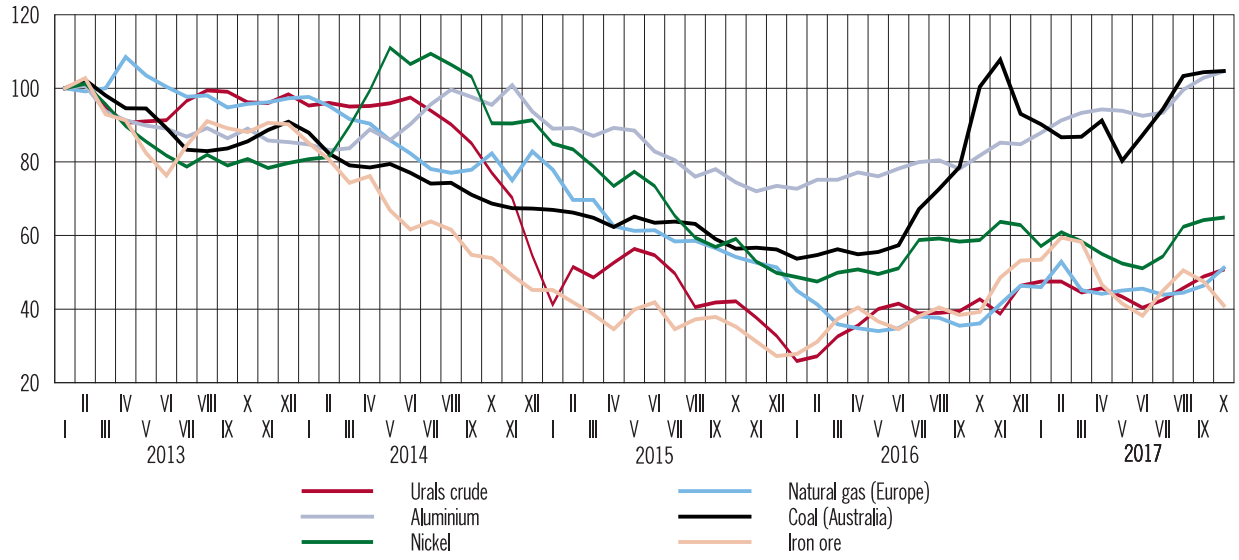
The decision-making focused on long-term trends and prolonged factors, rather than short-term events also serves as an element of the balanced approach. The effects of different factors are evaluated by the Bank of Russia in macroeconomic forecasts. At the same time, the Bank of Russia maintains a conservative view when adopting macroeconomic forecast assumptions, which prevents an underestimation of risks for both inflation and economic growth in decisions regarding the key rate.

In addition, the Bank of Russia also attaches great importance to the consistency and transparency of its actions, which contributes not only to price stability, but the predictability of changes in the financial environment and the promotion of trust in the central bank's policy.

Evaluation of external economic factors

Though the succession of large external shocks concluded at the beginning of 2016, global financial and commodity market conditions remained one of the primary sources of uncertainty in the larger context of external political events, among other things, such as the transition of the US Federal Reserve to a normalisation of its policies and accompanying changes in expectations, as well as ambiguous evaluations of the prospects of Chinese economic development. An important factor affecting global energy market trends was the agreement in December 2016 between oil exporting countries to limit its production, and its extension in May 2017. Fairly high compliance

World prices of principal Russian exports
(January 2013 = 100%)



Sources: World Bank, Thomson Reuters (Urals crude price).

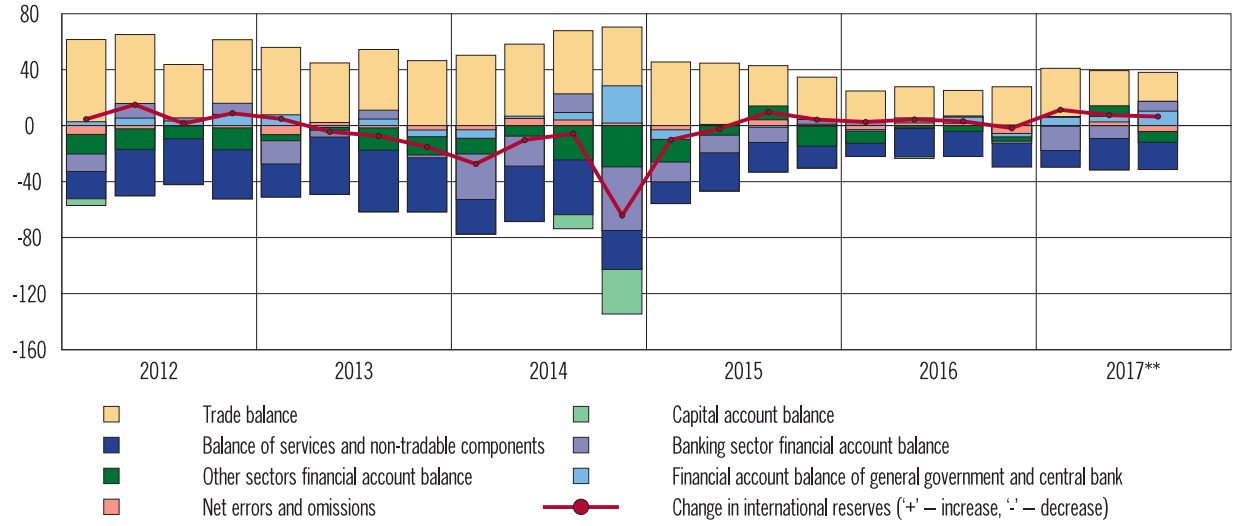
Change in risk premium in Russia and emerging markets*
(basis points)

** Average CDS spread for emerging markets is based on the data for Brazil, China, Turkey, Mexico, and Malaysia.*
Sources: Bloomberg, Bank of Russia calculations.

with the established limits by the parties supported oil prices throughout 2017. In January-August 2017, they stabilised at an average level of around $50 a barrel. Nevertheless, maintaining its conservative approach, the Bank of Russia continued to base its key-rate decisions on the baseline scenario with the price of oil at $40 a barrel[1], taking into account a number of factors that, in the long run, created the conditions for the establishment of an equilibrium on the oil market at substantially lower prices than the current prices. These include the rapid growth of production at US shale fields, the possible restoration of production from Libya and Nigeria, and risks of the Chinese economy's substantial slowdown. In addition, a point of uncertainty in the middle of the year were the prospects of the agreements themselves about production limitations, which

[1] *Starting from June 2017, the price of oil is considered in real terms, that is, in 2017 prices, subject to the inflation index in Russia's trading partners, starting from 2018.*

Major balance of payments components* (billions of US dollars)



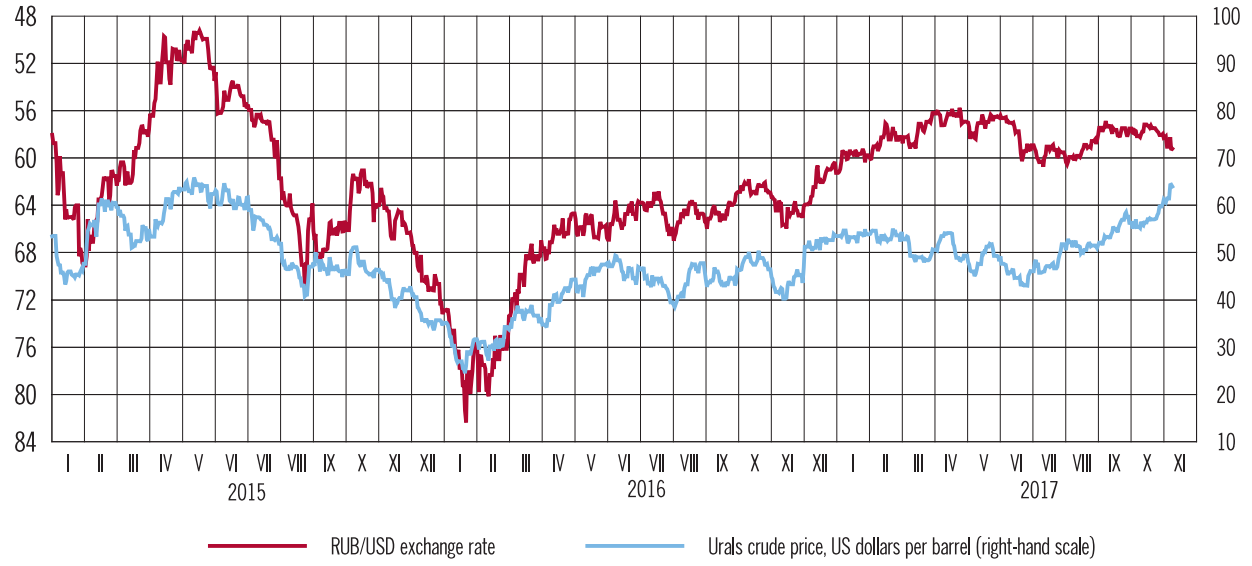
** According to BPM5.*
*** 2017 Q3 – Bank of Russia estimate.*
Source: Bank of Russia.

were initially in force until June (this point has now moved to March 2018). The high likelihood of oil price corrections created risks of increased exchange rate and inflation expectations, potentially leading to escalating inflation and declining attractiveness of savings in rubles, which required the Bank of Russia to adopt a cautious approach to reducing the key rate in 2017.

Another important factor that the Bank of Russia took into account was the substantial growth of foreign investors' interest in investments in the assets of emerging market economies, including Russia, continuing with minor local fluctuations throughout the year and contributing to a decline in the negative balance of the financial account of the balance of payments. On the one hand, this trend helped ease concerns of Chinese economic growth prospects and, to some extent, expectations of a substantial change in the macroeconomic and monetary policy of the United States after the presidential elections. On the other hand, the substantial inflow of portfolio investments in Russia was also linked to its rising attractiveness relative to other emerging markets in the context of consistent macroeconomic policy, earlier-than-predicted recovery processes and falling inflation, among other things. In certain periods of the year, the expansion of the capital inflow to Russia was facilitated by rising expectations of the Bank of Russia's reduction of the key rate and, accordingly, the growth of Russian stock markets. The Bank of Russia closely monitored the nature and volumes of capital inflows, evaluating their actual and expected reaction to changes in the key rate, as well as the possible risks of a capital flow reversal for price and financial stability. Overall, the observed trends did not create significant threats in light of the ruble's noticeably reduced volatility and its sensitivity to external factors, including oil prices. In 2017, the economy successfully serviced its external liabilities as sanctions remained in force. Credit institutions continued to reduce their demand for FX refinancing operations introduced by the Bank of Russia in 2014 to sustain financial stability amid external shocks. This autumn banks paid off outstanding liabilities on these operations in full.

The trend towards appreciation of the ruble, which prevailed in January-September 2017, was largely shaped by fundamental factors. These determine the demand for the national currency through the demand for the country's goods, services and financial assets. The ruble's appreciation in 2017 was mainly driven

Ruble exchange rate and Urals crude price



Source: Thomson Reuters.

by rising oil prices and the accompanying inflow of exporters' foreign exchange revenues, as well as the continuing considerable positive gap between domestic and foreign interest rates. Along with significant improvements in the Russian economy, this made Russia more attractive for investors. The internal conditions of the financial and real sectors were hardly affected by the short-term and modest deviation of the ruble's exchange rate from the fundamental value towards appreciation driven by the sentiment and expectations on the global markets and fluctuations in foreign currency sales by exporters over the year.

The trend towards the ruble's appreciation, which held over the year, made a notable contribution to the reduction of annual inflation. The estimated contribution of the ruble's appreciation in the reduction of annual inflation in October totalled roughly 1 pp.

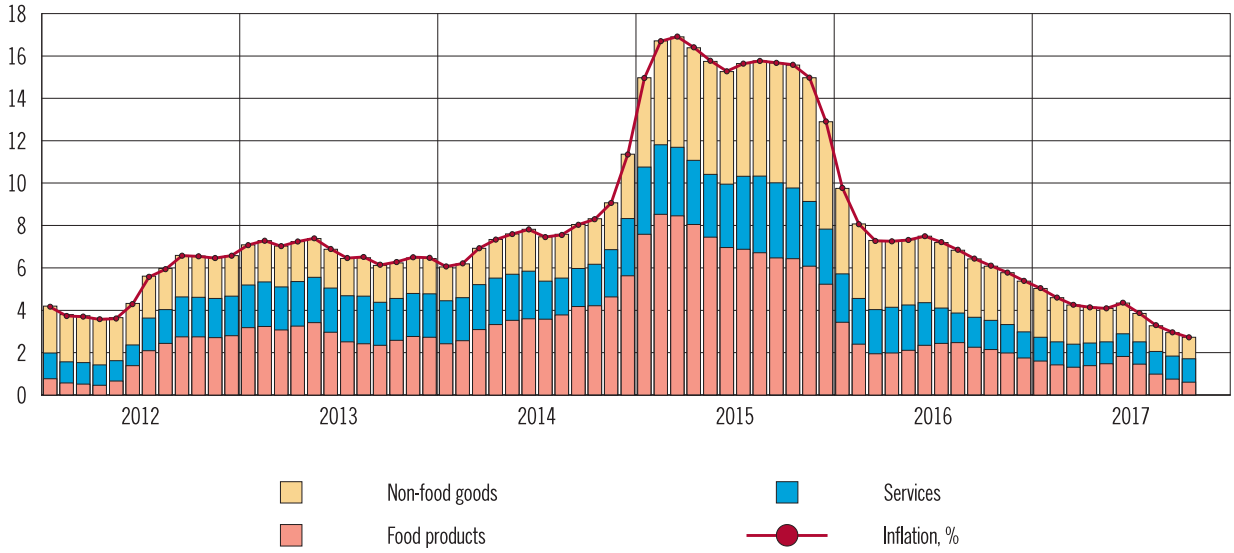
Also, the Bank of Russia took into account the indirect impact of energy prices manifested in producer price movements in the mining sector. This, in its turn, affects producer prices in manufacturing industries due to, among other things, changes in fuel, energy and raw material costs which are translated into consumer prices over time. Oil price growth resulting from the production cut agreement increased producer prices in the mining sector in early 2017. This led to a certain increase in the cost-push pressure on consumer prices; however, estimates suggest that in September 2017 it contributed less than 0.2 pp to annual inflation, considerably less than the ruble appreciation contributed to disinflation.

Evaluation of the effects of temporary factors

The Bank of Russia also adopted conservative prerequisites in its forecast for internal conditions, particularly in evaluating the influence of temporary factors. As a result of the good harvest of 2016, large stockpiles of agricultural products were amassed, leading to movements in prices of fruit and vegetables in the first months of 2017 atypical for that time of year. The Bank of Russia took this effect into account in its forecasts, but prices for this group of goods ultimately fell more substantially than expected.

This factor, as well as the marked appreciation of the ruble, hastened the approach of inflation to the 4% target level with respect to Bank of Russia forecasts. As early as March 2017, inflation stood at 4.3%, having fallen from 5.4% in December 2016. However, the Bank of

Inflation and its components
(on corresponding period of previous year, percentage points)



Sources: Rosstat, Bank of Russia calculations.

Russia took the temporary nature of these factors into account, in that the course of their actions might rapidly be reversed. For this reason, conservative prerequisites were adopted in the forecast regarding these factors. In particular, at the beginning of summer, the ruble's appreciation temporarily halted, nevertheless, the ruble was stronger than a year earlier. Stocks of domestically produced vegetables harvested in 2016 were exhausted, crop expectations deteriorated due to the unfavourable weather conditions during the spring planting season, leading to temporarily escalated growth of fruit and vegetable prices in May-June. The arrival of this year's harvest of fruit and vegetables in July-October, the quantity of which exceeded market expectations, led to a reduction in their prices. This year also brought record crops of cereals and beans. Given storage capacity shortages, this increased supply in the market and dragged down agricultural producer prices. This, in its turn, influenced food producer prices and consumer prices of food products. As a result, food inflation slowed considerably to 1.6% in October. The corresponding contribution to annual inflation is estimated at -0.3 pp. This was the main contributor to the downward deviation of annual core inflation, which stood at 2.7% in October, from the forecast. In its decision-making, the Bank of Russia considered that these trends were temporary allowing for food price fluctuations both upwards and downwards in the future; they will depend on the crop quality and condition.

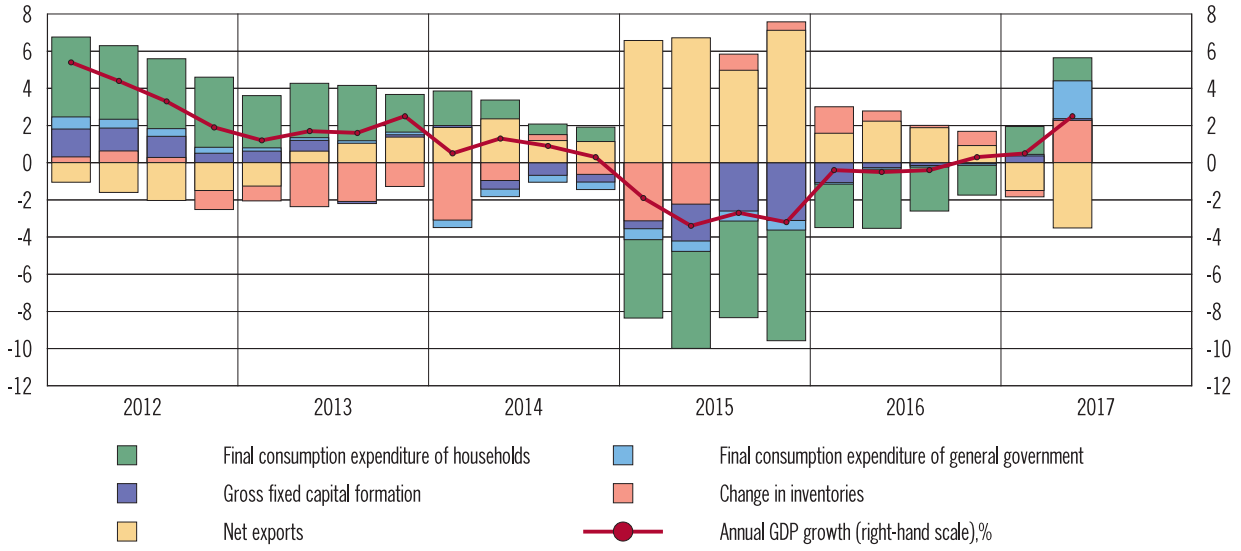
Evaluation of long-term factors

Long term-factors constitute a solid basis for the consistent slowdown of inflation and are considered by the Bank of Russia primarily in decisions regarding the key rate. They include the nature and speed of consumer demand recovery relative to production capabilities, as well as changes in the inflation expectations of households and businesses.

The main long-term factor that has made a notable contribution to the reduction of inflation to the target level is the restrained consumer demand dynamics that emerged under the influence of moderately tight monetary conditions. The recovery of consumer demand followed the expansion of production but did not outpace it, creating prerequisites for the slowdown of consumer price growth. This was reflected in the following trends.

The Russian production sector demonstrated resilience and a more pronounced capability to adapt to external shocks, which was re-

GDP growth structure by expenditure
(on corresponding quarter of previous year, percentage points)



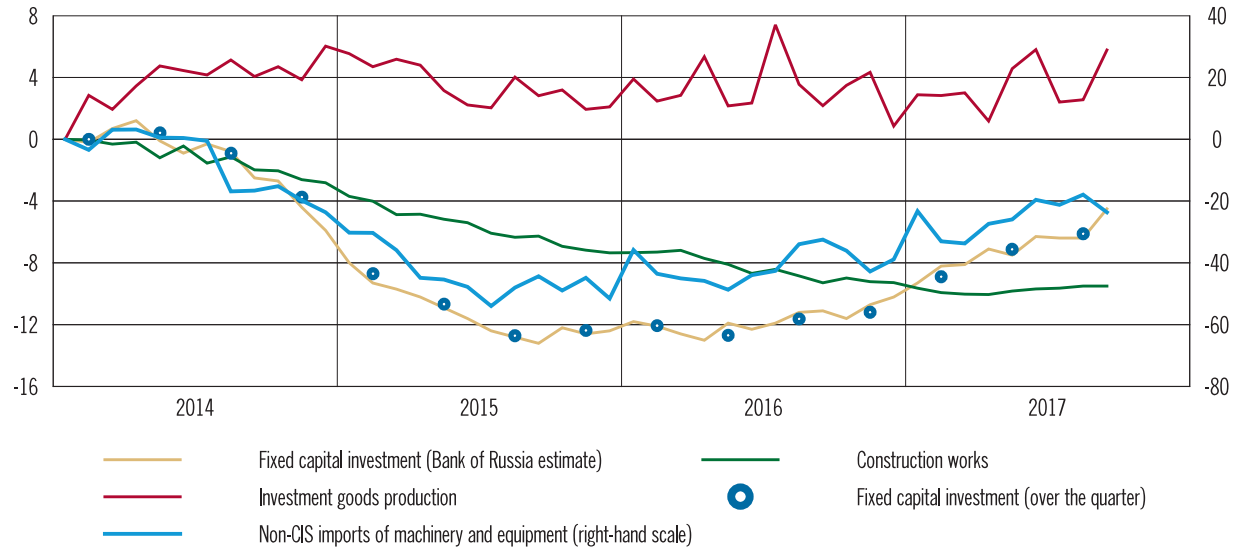
Sources: Rosstat, Bank of Russia calculations.

flected in a less profound slump and an earlier emergence of positive trends in the production of goods and services (since 2016 Q3), than was projected. This was the result of a combination of factors. The floating exchange rate played a shock-absorbing role in the acute stage of the crisis, supporting the economy's revenues, including the national budget, as well as facilitating import substitution processes by creating a price advantage for domestic producers (for details, see Appendix 9). Along with the exchange rate movements, support for agriculture and production in a number of sectors was provided by the imposition of restrictions on the import of food products from a number of countries in response to restrictive measures adopted against Russia. In addition, some sectors saw cost optimisation, a reduction of dependence on the purchase of imported raw materials or equipment as a result of their rising prices, among other things. Companies also lowered their debt burden, which, along with a rise in profits, contributed to the gradual improvement of their financial standing.

In 2017, the growth driver of industrial production changed: in the second half of 2016 industrial output increased largely on the back of growing mineral production, while in 2017 the main contribution came from manufacturing industries. In its turn, output growth in manufacturing industries accelerated in the finished-product sectors, whereas output growth in raw material processing slowed amid slack export dynamics. Engineering output is recovering (machinery and equipment, electrical equipment and vehicles). Sectors that increased their output through import substitution and exports include agricultural equipment production, transport engineering, glassware production, pharmaceuticals, and furniture production. Overall industrial output grew by 1.8% in the period between January and September compared with the corresponding period of 2016.

The crisis was mitigated and a faster recovery process was facilitated by consistent macroeconomic policy, which lowered uncertainty of doing business. The chosen strategy of budget consolidation with accumulated public funds limited the growth of the budget deficit and the level of public debt, important for sustained general macroeconomic stability. The measures of the Bank of Russia also supported financial stability, including the provision of foreign currency refinancing on a repayable

Investment activity indicators
(seasonally adjusted, per cent change on January 2014)



Sources: Rosstat, FCS of Russia, Bank of Russia calculations.

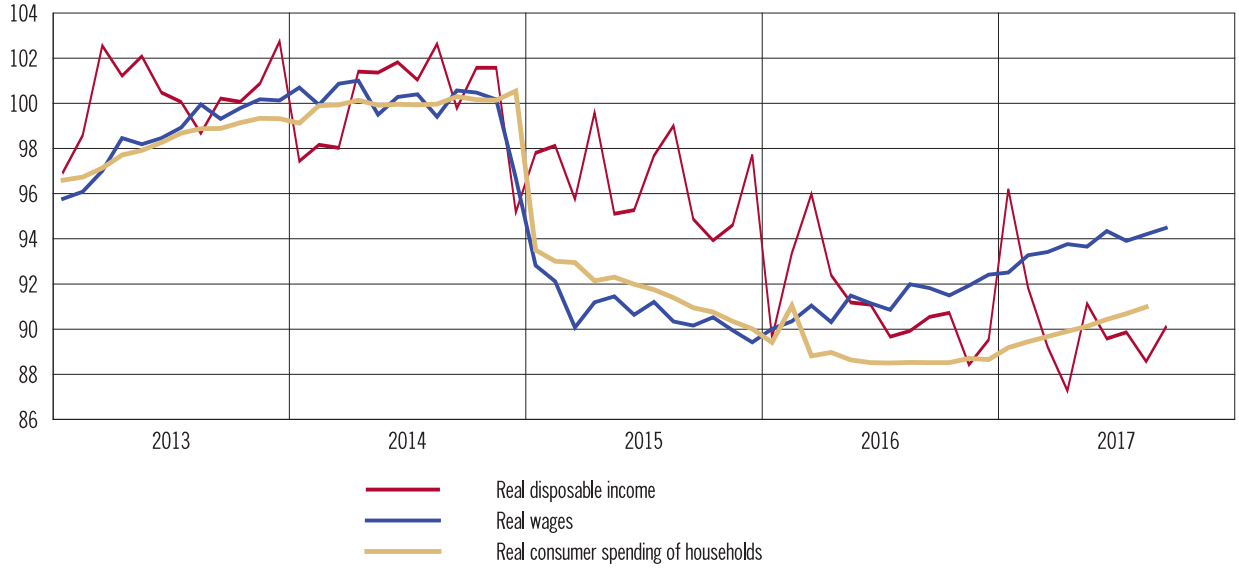
basis and temporary regulatory relaxation for the banking sector. Reduced uncertainty was also encouraged by consistent monetary policy, creating a predictable financial environment. The prerequisites for the emergence of recovery processes were also fostered by measures supporting individual sectors and segments (as their development could not be ensured by the market in difficult circumstances), including the Bank of Russia's use of refinancing instruments. The combination of government policy measures and the efforts of the private sector to optimise its expenses and financial situation, and to use the window of opportunity to expand production, contributed to an earlier and faster recovery of output, which is estimated to have started in the second half of 2016.

At the beginning of this year, the necessary prerequisites for a recovery of domestic demand in both investment and consumption emerged, supporting production growth. The launch of investment projects was facilitated by profit growth in the non-financial sector in the previous two years, constituting a major source of fixed capital formation, reduced general macroeconomic uncertainty and improved business sentiment, as well as the ruble's appreciation and expanding opportunities to buy imported machinery and equipment without domestic equivalents. Conditions for investment growth were also created by the predictability of changes in interest rates in the economy, loans included. Projects implemented by the state, including the Kerch Strait Bridge and the Power of Siberia natural gas pipeline, also contributed to investment growth.

The expansion of production and investment plans required the attraction of additional labour resources, which contributed to wage growth with low unemployment close to the natural level. At the same time, wage growth was facilitated by the substantial slowdown of inflation to low values. As these processes acquired a sustainable character, they became a driving force in the recovery of consumer demand, along with the emergence of households' confidence in economic improvement. Consumption revival underpinned the output of consumer goods, primarily durables, registered since early 2017.

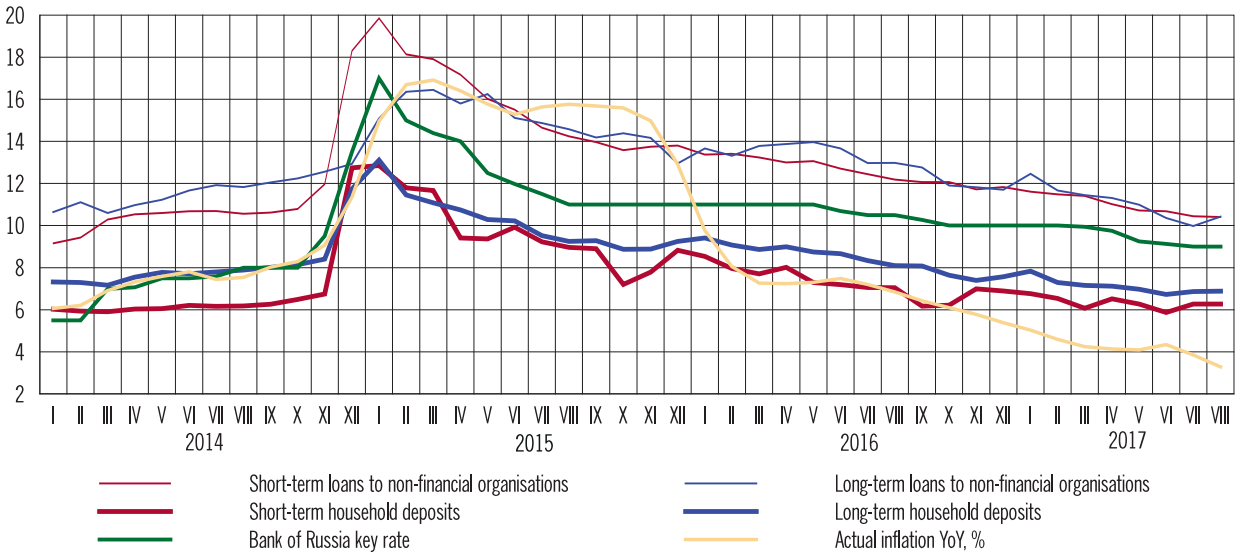
As a result, the increase in consumer and investment activity became the natural result of reduced uncertainty and improved production-sector dynamics. Though positive processes in the economy are still highly hetero-

Real wages, disposable income and consumer spending of households (seasonally adjusted, average for 2014 = 100%)



Sources: Rosstat, Bank of Russia calculations.

Interest rates on bank ruble operations and Bank of Russia key rate (% p.a.)

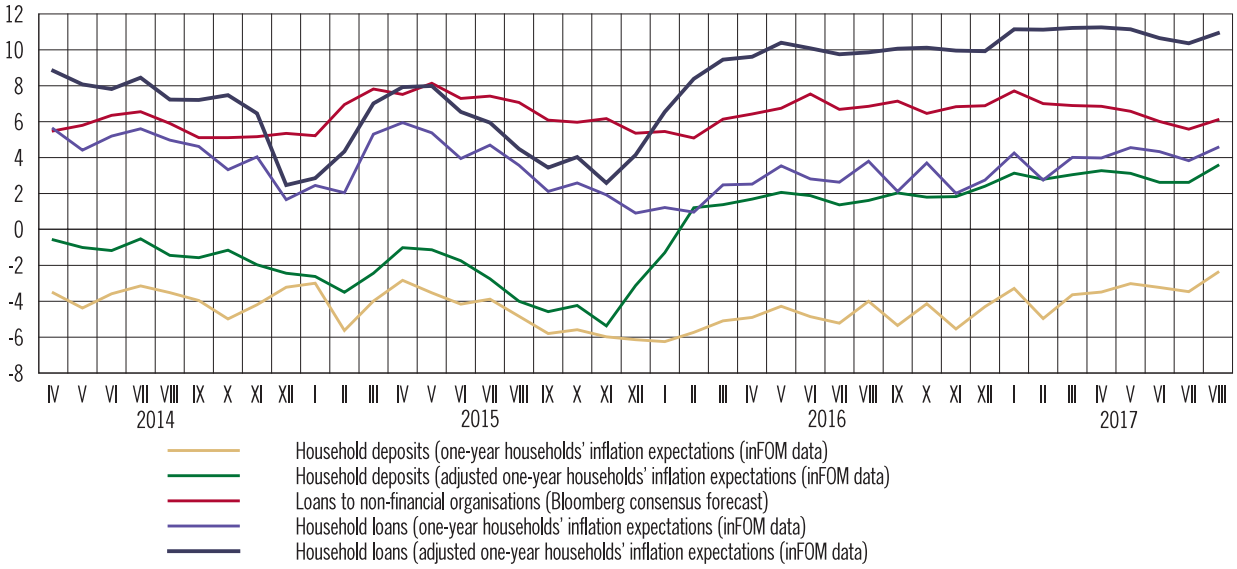


Source: Bank of Russia.

geneous across sectors and regions, 1.7-2.2% GDP growth is expected in 2017.

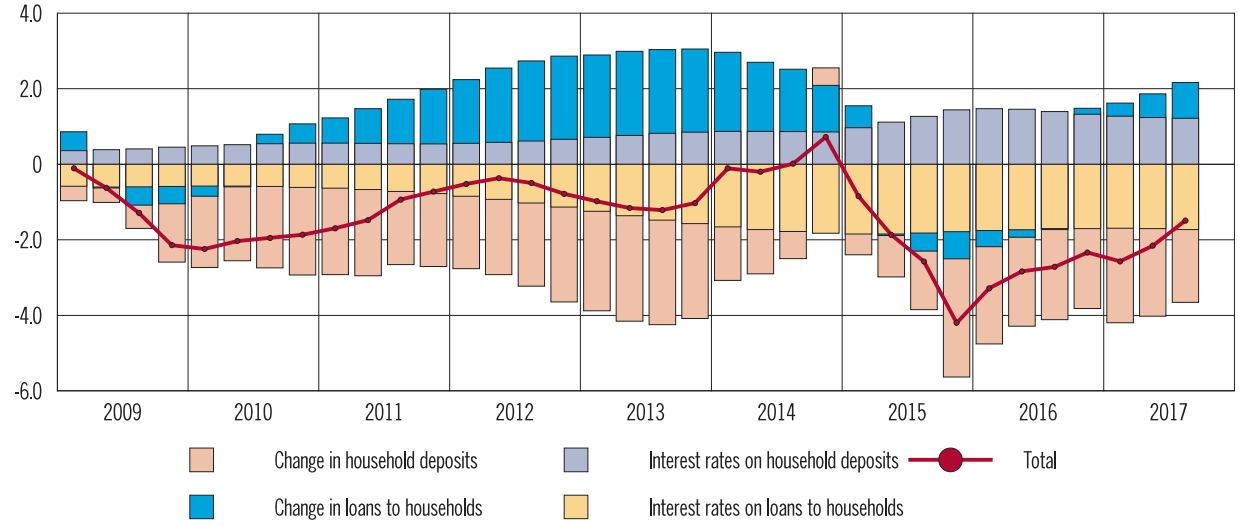
An important role in the creation of prerequisites for a balanced economic recovery that did not prevent the reduction of inflation was played by the moderately tight monetary conditions introduced by the Bank of Russia. In particular, in changing the key rate level, the Bank of Russia evaluated its consequences in the movements of real deposit interest rates. It was important that they remain attractive for households in light of the current level of inflation. Thus, the stimuli for savings in rubles and high household savings rate were sustained, ensuring a smooth transition from the savings model to a gradual increase in consumption. In this context the increase of consumer expenditures in 2017 was ensured primarily through wage growth rather than increased lending or reduced savings. Overall, the movement of

Real interest rates on long-term bank ruble operations calculated using different inflation expectation indicators (% p.a.)



Sources: inFOM, Bloomberg, Bank of Russia calculations.

Financial flows between banks and households* (over the quarter, trillions of rubles)



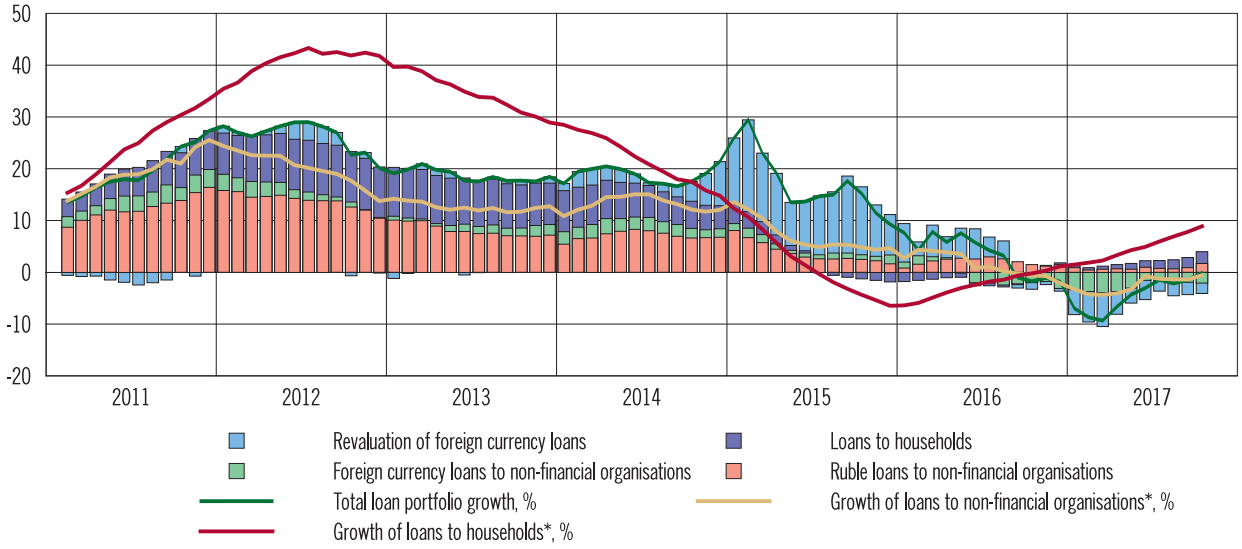
** Positive numbers reflect flows from banks to households, negative numbers reflect flows from households to banks. For example, negative 'Change in household deposits' shows growth in household deposits attracted by banks.*

Source: Bank of Russia calculations.

funds between the banking sector and households reflects a continuing net flow of funds to banks, also indicating the restraining nature of monetary conditions.

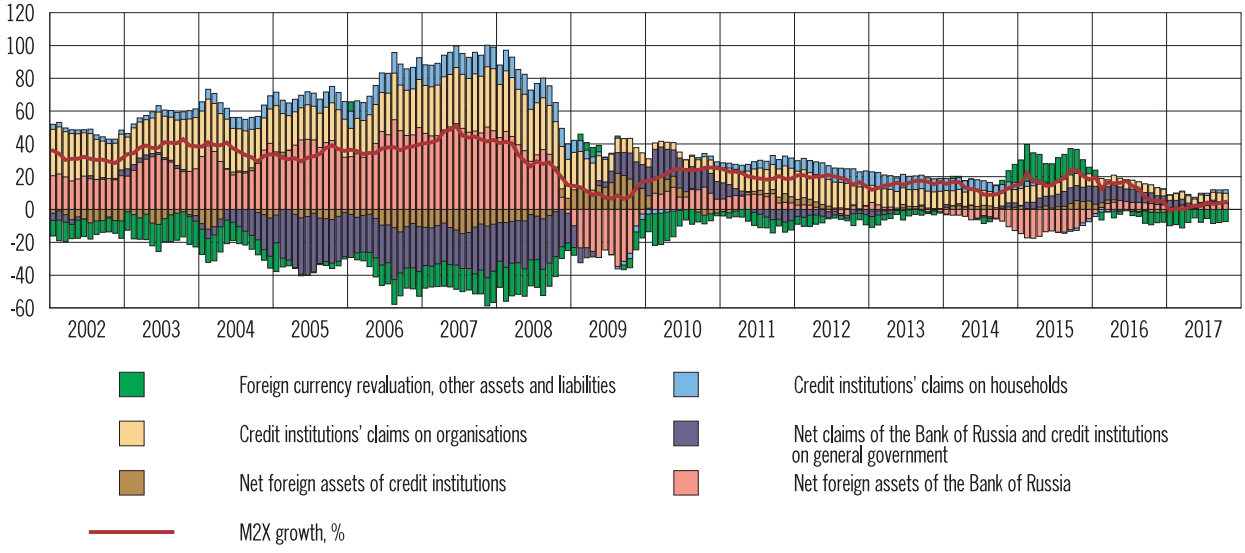
Monetary conditions helped restore demand for loans that did not outpace the improvements in the real and banking sectors. This was facilitated by banks' conservative approach to borrower selection, which limited the excessive growth of the debt burden and risks of a rise in overdue loans. Banks gradually returned to the lending market segments associated with elevated risks (lending to small and medium-sized enterprises and consumer lending) as borrowers' incomes and financial stability grew. Lending to non-financial organisations increased at moderate rates, while the gradual growth of household indebtedness occurred primarily due to mortgage lending.

Contribution of various components to annual growth rate of banks' loan portfolio (percentage points, unless indicated otherwise)



** Adjusted for foreign currency revaluation.*
Source: Bank of Russia.

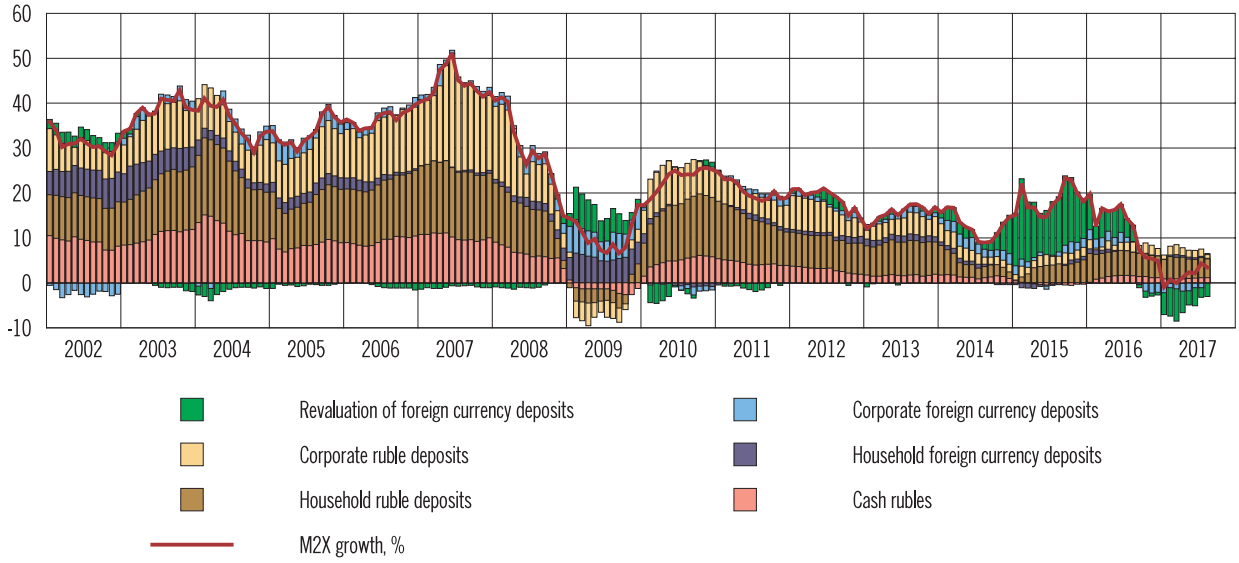
Sources of broad money (contribution to M2X annual growth, percentage points)



Source: Bank of Russia.

As the economy recovered and lending grew accordingly, the banking sector's claims on the non-financial sector became the key source of growing money supply. In 2015-2016, the economy's demand for money was largely covered with the accumulated savings of the Reserve Fund to finance budget deficit. This reduced the demand for loans amid the economic downturn. This factor remained a significant source of growing money supply along with banks' lending to the economy. Furthermore, money supply in 2017 was shaped by the increase in net foreign assets of the banking system. This came about as foreign exchange revenues were received amid relatively high oil prices, as well as funds from privatisation of Rosneft. At the same time, as the ruble appreciated considerably compared to last year readings, the FX revaluation made a negative contribution to broad money dynamics. This is largely a statistical effect.

Broad money (contribution of various components to M2X annual growth, percentage points)



Source: Bank of Russia.

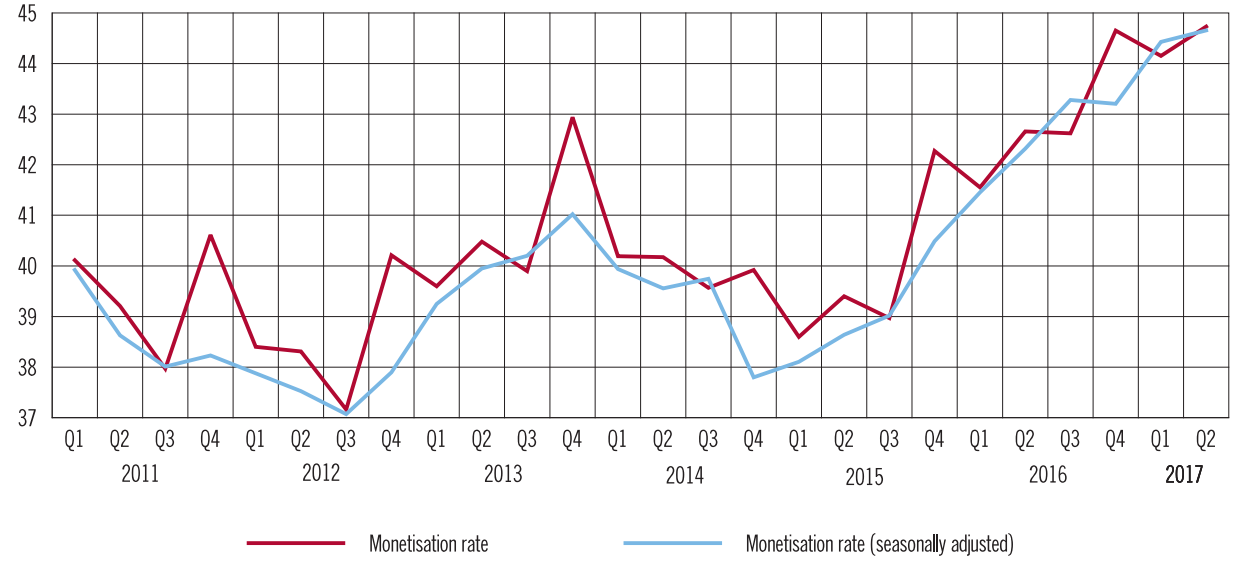
Lending and money supply increased piecemeal as the economy's demand for money expanded amid recovering production, investment and consumption. The money supply growth structure was dominated by household ruble deposits amid the above-mentioned incentives to save in rubles. The attractiveness of ruble deposits was also reflected in the reduction of FX deposits of non-financial organisations and considerably slower growth in household FX deposits. Given the above trends, the increase in money supply, on the one hand, limited inflation risks, and on the other hand, gradually increased monetisation of the Russian economy as GDP recovered and inflation declined.

The Bank of Russia describes the monetary policy stance in 2017 as moderately tight, given that, on the one hand, it created conditions for inflation reduction and anchoring close to 4% and, on the other hand, let the economy recover and the corresponding consumer demand, lending and monetisation grow.

Along with the key rate, an increasing role in the creation of monetary conditions necessary for the reduction of inflation is played by Bank of Russia signals to market participants about its future dynamics. These signals are used to influence market expectations regarding the key rate and inflation in the medium-term, which are very important in the formation of interest rates in the economy along the entire yield curve. Such signals were successfully applied by the Bank of Russia at the end of 2016 in order to adjust market expectations when they stabilised at a level lower than one necessary for the slowdown of inflation to the 4% target level by the end of 2017. Thus, information signals have essentially become an instrument complementing the primary instrument of monetary policy – the key rate.

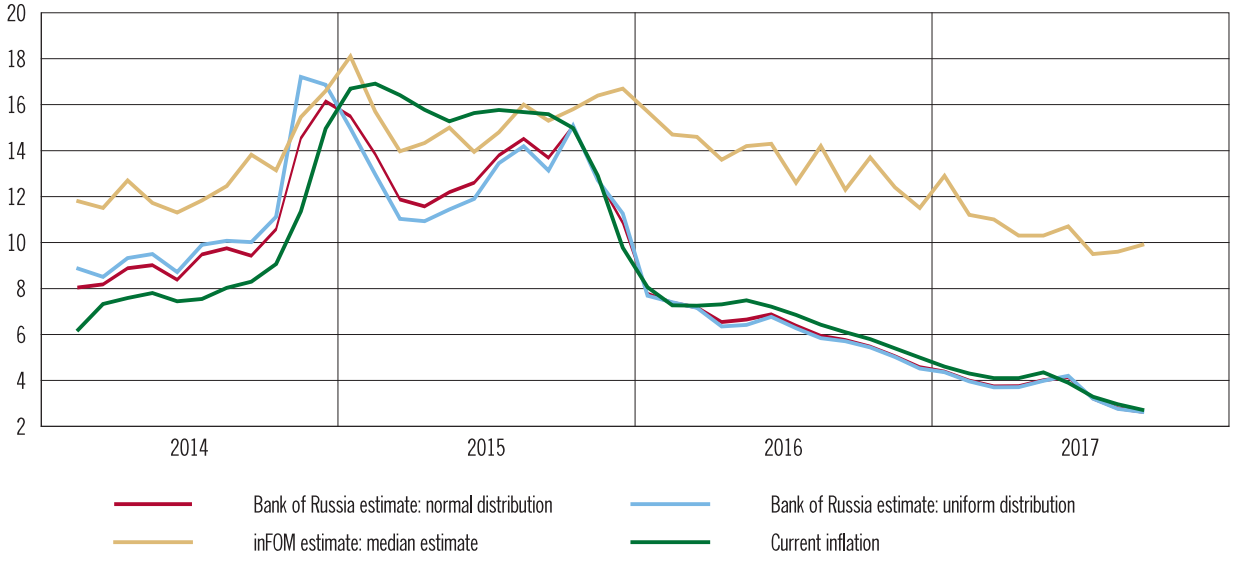
Another important long-term factor that also contributed to the slowdown of inflation was the inflation expectation trends of households and business. Since the end of 2016, a downward trend has formed, however, it has yet to gain stability and smoothness. However, expectations remain elevated and orientated on past price dynamics, and their sensitivity to price changes of individual groups of goods has persisted. In particular, a local price increase on fruit and vegetables in May-June was reflected in their expectations with predictable speed, though temporary. Additionally, in spite of the temporary fluctuations of inflation expectations, it is important that their adjustment pro-

Monetisation of the Russian economy (%)



Source: Bank of Russia calculations.

Estimates of households' inflation expectations for a year ahead (%)



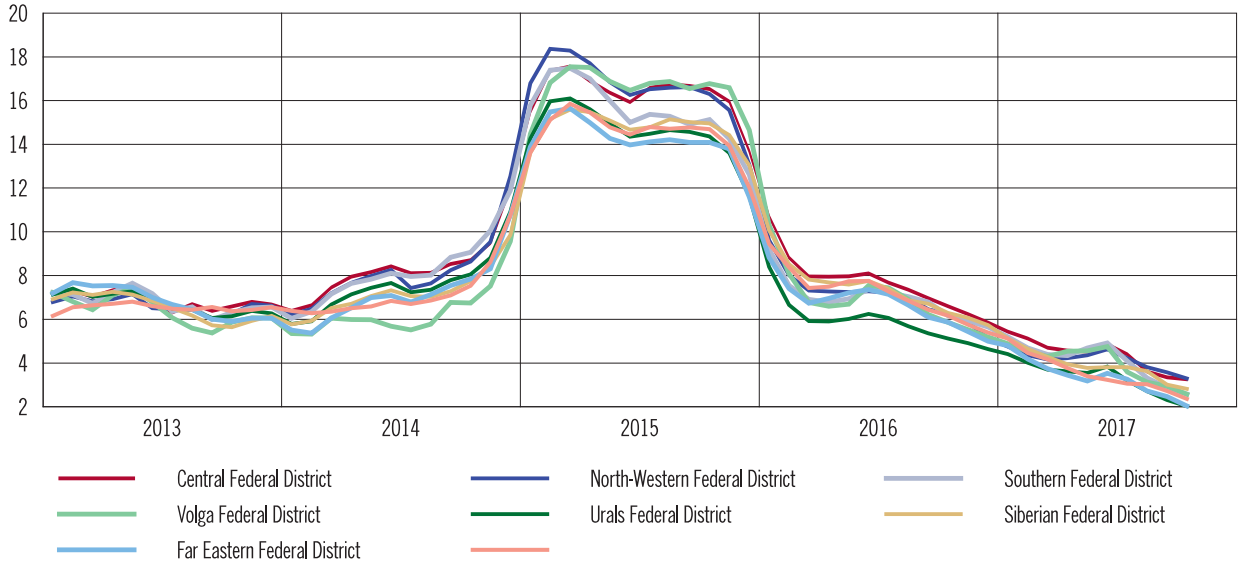
Sources: inFOM, Rosstat, Bank of Russia calculations.

cess to new conditions continues. Household inflation expectations have reached historical lows. Business expectations are also adjusting downwards. This is particularly important, given that businesses set wages and prices. Market participants' expectations in 2017 stayed at the 4% level. Though market experts do not have a direct impact on consumer price dynamics, their inflation forecasts at a 4% level are relevant, as economic entities can be guided by them.

Thus, the sustained slowdown of inflation to the 4% target level was ensured by the influence of long-term factors – the disinflationary influence of demand and the reduction of inflation expectations, and supported by local factors.

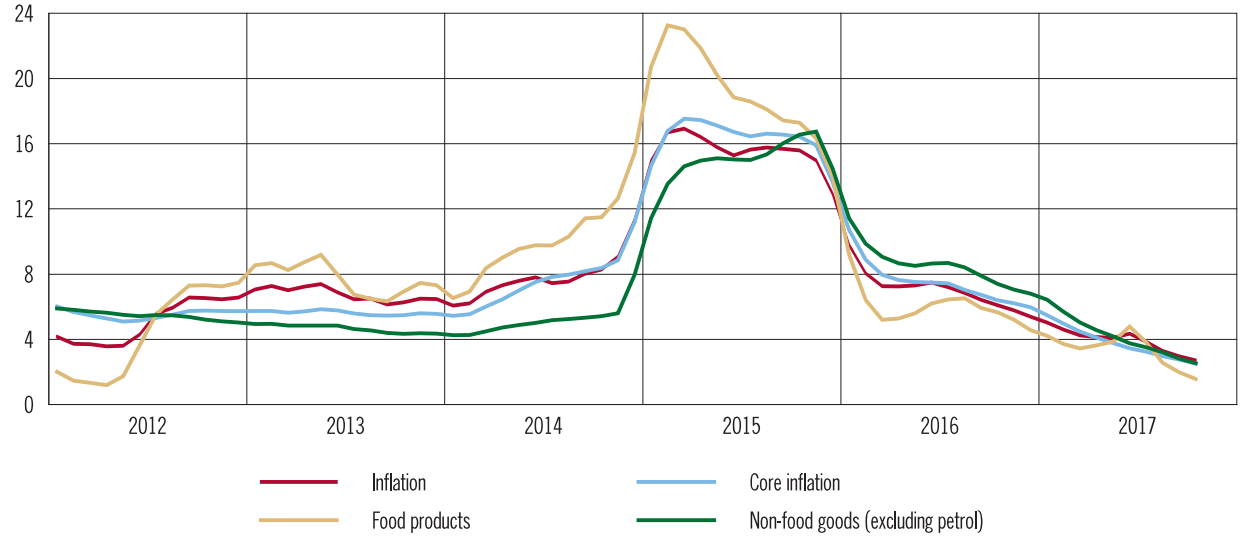
The sustainability of trends toward the reduction of inflationary pressure was reflected by the nature of the dynamics of consumer price growth rates. The inflation slowdown became increasingly homogeneous across

Price growth by federal district
(per cent change on corresponding period of previous year)



Sources: Rosstat, Bank of Russia calculations.

Prices of consumer goods and services
(per cent change on corresponding period of previous year)



Sources: Rosstat, Bank of Russia calculations.

product groups. Growth rates in the prices of non-food goods, the slow reduction of which became a matter of concern for the Bank of Russia in 2016, declined fairly quickly since the beginning of this year. Regulated prices and utility rates were indexed at the target level of inflation. The share of goods and services the prices of which grew by about 4% gradually increased in the consumer basket. By autumn 2017, these positions represented about half of the consumer basket. Increasing homogeneity in consumer price movements was also observed across regions. According to October data, the annual inflation in federal districts of the Russian Federation stood between 2.0% and 3.3%. The slowdown in consumer price growth rates and their approach to 4% occurred for the majority of households, including representatives of different income groups. Along with CPI, other price dynamics indicators also declined. In particular, core inflation, excluding the prices of the most vola-

tile and administered components of the consumer basket, slowed from 6.0% in December 2016 to 2.5% in October 2017. The location of annual inflation at a level close to 4% for most of the year facilitated the reduction of the annual average sliding inflation indicator from 7.1% in December 2016 to 4.2% in October 2017. The calculation method of this indicator assumes its slower change relative to annual and more short-term indicators (Appendix 5). At the current stage, it is important that it is drawing closer to 4%. Thus, inflation indicators broken down by time period, product group and region reflected the increasingly broad scope and homogeneity of disinflationary processes, establishing the prerequisites for the stabilisation of price growth rates near the 4% target rate.

Taking into account the sustainable nature of inflation reduction and attainment of the target level primarily under the influence of the above-mentioned long-term factors, the Bank of Russia lowered the key rate in March-June and September-October 2017 by 1.75 pp in total, to 8.25% p.a. In choosing the scale of the key rate change, the Bank of Russia also took into account that the monetary conditions necessary to maintain inflation close to 4% in the future, including 2018, emerged this year. While recognising the continuing potential to further reduce the key rate, the Bank of Russia monitored the gradual effect of decisions already taken on interest rate movements, lending, deposits and consumer demand. This was one of the reasons why the Bank of Russia suspended key rate cuts in July 2017.

Evaluation of risks

The scale of key rate reduction in 2017 was limited by inflation risks, which had both a short-term and long-term nature. The Bank of Russia is very attentive to the evaluation of risks for inflation dynamics and takes into account that proinflationary factors at the current stage are capable of having a greater impact on prices than disinflationary factors. In addition, the Bank of Russia seeks to avoid a scenario where the unnecessarily rapid reduction of the key rate requires its increase. This would be inconsistent with the task of creating predictable monetary conditions and building trust in the central bank.

Several local factors of a temporary nature were a source of risk in 2017. First, uncertainty emerged in February regarding the reaction of exchange rate and inflation expectations to the planned start of the Russian Ministry of Finance's purchases of foreign currency on the FX market. The Bank of Russia was cautious in its evaluation of the potential impact of these purchases on expectations, but the risk of negative expectation dynamics did not become reality. Second, the risks of short-term rising prices on fruit and vegetables and uncertainty regarding the harvest prospects, linked to the unfavourable weather conditions in spring and the first half of summer, were taken into account. As uncertainty regarding the harvest evaluations declined and the improvement of weather conditions became apparent, the threat of the realisation of the proinflationary risks relative to food inflation trends and its influence on expectations retreated. Nevertheless, the Bank of Russia took into account that in the short run food price growth rates would be largely determined by the crop quality and condition, and might lead to both upward and downward fluctuations of inflation.

Medium-term risks are generally linked to structural problems that also limit Russian economic growth potential. With the ongoing dependency of the domestic environment on global market conditions, the changes of the latter can have an impact on exchange rate and inflation expectations. Even with active structural measures to reduce the Russian economy's raw material orientation, in the medium-term its structure will not undergo substantial changes requiring a longer period of time. In this situation, the potential substantial reduction of oil prices creates potential threats for the dynamics of economic activity and inflation, therefore

the Bank of Russia continues to address the risk scenario in the development of external events. The Bank of Russia also takes into account that an increase in oil prices above the forecast values may pose risks of inflation's downward deviation from the target. The legal implementation and realisation of budget rules will promote the reduction of these risks.

Domestic proinflationary risk factors include the deepening deficit in the labour market, where signs can already be seen of staffing shortages in individual segments. Given that the modernisation of production, the integration of new technologies and the accompanying rise in labour productivity demand a long period of time, it is conceivable that labour productivity dynamics will lag behind wage growth in conditions where unemployment is near the natural level. As a result, risks arise of increased consumption outpacing the capabilities of expanded production, which will exert upward pressure on consumer price growth rates. In addition, risks for inflation dynamics are caused by the above-mentioned sensitivity of inflation expectations to consumer price fluctuations, including those of a temporary nature.

Given these factors, in particular persistently elevated inflation expectations, the Bank of Russia is cautious in choosing the scale of key rate reduction, thus ensuring gradual transition from moderately tight to neutral monetary policy with the prospective real key rate close to 2-3%. This is very important at the current stage when inflation should be anchored near 4% and all economic agents should be convinced that price stability and predictability of interest rate movements will become integral parts of the internal environment.

4. MACROECONOMIC SCENARIOS AND MONETARY POLICY IN 2018–2020

Macroeconomic forecast as the basis for key rate decisions. Specifics of 2018–2020 forecast

The Bank of Russia takes monetary policy decisions based on the three-year medium-term macroeconomic forecast. While preparing the forecast, the Bank of Russia reviews significant external and domestic factors influencing the development of the Russian economy and inflation dynamics, including the declared macroeconomic policy measures. The forecast determines the key rate path required to maintain the medium-term inflation rate around 4%. The forecast allows taking into account the long-term nature of the impact of monetary policy measures on price movements through changes in financial conditions, which affect the situation in the real sector and inflation (Sections 2, 3). The analysis of alternative development scenarios, considered by the Bank of Russia along with the baseline scenario, allows it to assess potential consequences of occurrence of risk events and develop countermeasures. Based on the forecast, the Bank of Russia takes balanced decisions, considering primarily the long-term and stable economic trends and, to a lesser extent, reacting to short-term events. Besides, regular publications of the Bank of Russia forecast with extended comments set the monetary policy and inflation targets for the economy participants, which they can use for medium-term planning.

While preparing the three-year forecast, the Bank of Russia supposes that the factors affecting the situation in the Russian economy and the price dynamics as well as the nature of their influence will not change significantly. As before, due to Russia's significant involvement in the international trade with predominant exports of energy products, the country's economy will depend on fluctuations in their demand and prices in the global commodities and financial markets, including due to geopolitical factors. Taking into account that developing domestic production and import substitution of many product categories require a long time, imported goods will still account for a high rate of consumption and, consequently, external commodities market conditions and exchange rate will continue to affect the dynamics of internal consumer prices. At the same time, lower inflation expectations and higher trust in the central bank's policy will gradually lead to decreased sensitivity of inflation to non-recurrent events. The structure of the Russian economy will not change significantly, limiting its growth potential during the next few years. The effect of the potential structural policy measures will start to manifest itself over the forecast horizon gradually, with the most impact on GDP outside of the three-year period. The macroeconomic policy directed at maintaining financial and price stability and decreased uncertainty will still play a major role in creating the necessary conditions for economic development. These and other factors constitute the background of the Bank of Russia's macroeconomic forecast, i.e. the conditions, in which the macroeconomic policy will be conducted. They are reviewed in further detail below.

Domestic economic conditions over the forecast horizon

With regard to domestic conditions, the Bank of Russia, first of all, considers that the Russian economy will maintain its structural limitations. Its low diversification, predom-

inance of natural resources extracting and processing industries, and high share of their products in the country's exports lead to material influence of global commodities market conditions on output, income, consumption and price dynamics. This influence will be lowered by floating exchange rate, which balances the interests of different economy participants and ensures adjustment of Russia's balance of payments. The Bank of Russia will assess the nature of factors affecting the exchange rate and their impact on the inflation and inflation expectation dynamics.

The growth potential of the Russian economy is limited, on the one hand, by lack of opportunities for significant expansion of extraction of natural resources and their supply to the global market. The reasons for this include moderate dynamics of the external demand, oversupply and high inventories in the oil market, as well as high load of the available transport infrastructure for certain types of energy products, including natural gas. On the other hand, the economy's growth and modernisation will be limited by a large number of domestic factors. They include the demographic situation and the related low potential for growth of the economically active population; institutional characteristics, including the quality of management at all levels in the public and private sectors; limited development of the transport and logistics infrastructure; high monopolisation; and low investments into technology and fixed assets given their high wear rate. In these conditions, the Russian economy growth rate over the three-year horizon, as per the Bank of Russia's assessment, will be limited to 1.5-2%. Besides, the above-mentioned structural characteristics lower the sensitivity of production to the increase in demand, which can affect price dynamics. This, in turn, means that the potential scale of domestic demand expansion, which will not be accompanied by increased inflationary pressure and financial imbalances, is limited. The growth rate of consumption and investments can only be slightly greater than the GDP growth rate, considering that expenses are partially directed at buying imported goods. The Bank of Russia will assess the rate, nature and structure of domestic demand growth creating such monetary conditions that its dynamics will conform to the domestic production capabilities.

The economic growth structure will not see material changes. Over the forecast horizon, all scenarios agree that the consumer demand will expand faster than the investment demand. The investment growth will remain moderate due to the deficit of new competitive investment projects as well as due to remaining institutional issues that increase their cost and limit the planning horizon. As a result, in the absence of structural policy measures, the transition to the investment development model will not start and the issues of high wear rate of fixed assets and resource-based economy model will remain unresolved. At the same time, starting from 2017, the share of international trade in the economy growth will become negative after being positive in 2013 to 2016. It is related to limited export expansion capabilities along with increased imports and consumption.

The Bank of Russia also takes into account that structural specifics not only limit production growth capabilities; some of them exert sustained influence on price dynamics. Among such factors are the characteristics of the Russian labour market, high income differentiation, and commodity consumption structure.

In 2017, the unemployment rate is close to the natural level, i.e. the labour market is balanced. In these circumstances, further labour demand growth accompanied by increasing production may face a lack of supply while the economically active population size remains relatively stable. Personnel issues, which are already evident today with regard to certain occupations, create preconditions for faster salary growth as compared to the labour productivity growth, which, in turn, can lead to inflationary pressure. Thus, in order to limit inflation

risks and keep inflation close to 4%, the Bank of Russia will be required to conduct tighter monetary policy.

Another structural characteristic that affects the monetary policy and its transmission mechanism is strong income differentiation and relatively small share of the middle class in Russia. Medium-income households are usually the most sensitive with regard to changes in deposit and credit rates, including as a result of monetary policy, which leads to changes in their propensity to save and borrow and consumption dynamics. A small share of medium-income households in Russia may limit the effectiveness of the transmission mechanism, and the Bank of Russia will take that into account when assessing the impact of monetary policy measures on the dynamics of demand and inflation.

Low prosperity level of the population also leads to high share of food products in the consumer basket, which will not change during the next three years. This share is gradually decreasing but this process requires a long time. Food prices are the most susceptible to significant fluctuations due to one-off temporary factors, such as weather conditions and, consequently, the size, quality and preservation of harvest, as well as price fluctuations in the global food market. The significant share of food products in the consumer basket affects the general price index dynamics. Considering the sensitivity of inflation expectations to price surges with regard to this group of goods, the Bank of Russia will monitor their reaction to temporary price fluctuations when taking key rate decisions.

Implementation of a number of government measures aimed at supporting the country's agro-industrial complex will lead to decreased volatility of food prices and inflation in general. These measures concern primarily the development of agricultural goods transportation, processing and storage infrastructure, including the improvement of warehouse logistics by further development of the wholesale distribution centres network. The development of programmes to stimulate domestic production of fertilizers will reduce dependence on fluctuations in their import prices and, consequently, production costs and prices for final products.

Therefore, over the three-year horizon, the structural specifics of the Russian economy will both determine the dynamics of economic activity and influence the conditions for conducting the monetary policy. To increase the potential for economic growth, public policy measures aimed at changing the structure of the economy and overcoming the above-mentioned issues as well as consolidated efforts of all economic participants are required. It is important to increase the role of regulatory and tax mechanisms, public-private partnership programmes in creating incentives for investment in machinery and equipment, technology, human capital, and increasing labour productivity. Measures are necessary to develop a competitive environment and to increase the share of small and medium-sized enterprises in the production of goods and services. It is possible to enhance the flexibility of the labour market through activities aimed at increasing the mobility of labour resources, both territorial and professional, creating incentives for internal labour migration and attracting foreign highly skilled personnel. At the same time, the implementation of these measures takes a long time, their impact on the dynamics of economic activity will be manifested gradually, and their significant contribution to GDP growth will manifest itself mainly after the three-year forecast period. When calculating forecast parameters, the Bank of Russia takes into account only legally approved and clearly defined programmes aimed at overcoming structural problems. As additional concrete measures of the state structural policy affecting the economic dynamics receive legal approval, the Bank of Russia will calculate the corresponding development scenario. In this scenario, as the potential for growth in output of goods and services increases, the corresponding expansion

of domestic demand will not create inflation risks and will not require a reaction of monetary policy, given the increase in labour productivity and production efficiency.

The second important factor in the formation of domestic conditions will be the preservation of the fiscal consolidation strategy with the application of the budget rule[1]. The planned linking of federal budget expenditures to income parameters ensures a reduction in the budget deficit to a low level, which is about 2% of GDP in 2018, and less than 1% of GDP in the future. The proposed path of increasing public debt, which does not outstrip the nominal GDP growth, along with the application of the budget rule, will ensure the sustainability of public finances, which is important for maintaining the overall macroeconomic and financial stability necessary for production and economic activities. Accumulation of additional oil revenues while the actual oil price exceeds $40 per barrel[2] will allow forming a 'safety cushion' in case they fall below this level. The application of the budget rule with the Russian Ministry of Finance conducting operations in the foreign exchange market helps reduce the vulnerability of the Russian economy to fluctuations in the global oil market and to change the structure of the economy to reduce its dependence on raw materials. The budget rule mechanism, used along with the inflation targeting regime, will limit fluctuations of the ruble real exchange rate and its impact on the competitiveness of Russian goods.

The impact of budget operations on the banking sector liquidity will be reduced. This will happen as the budget deficit decreases and its funding from the sovereign funds is terminated as planned from 2019. Operations of the Russian Ministry of Finance in the foreign exchange market within the budget rule mechanism will not significantly affect the banking liquidity as well. This is due to the fact that the amount of such operations (e.g., related to the purchase of foreign currency in the foreign exchange market), ensuring the inflow of liquidity, is comparable with the operations for the sale of currency by exporters to effect tax payments (liquidity outflow) with the oil prices above $40 per barrel.

Taking into account the planned restrictions on public spending to reduce the budget deficit, the contribution of government consumption to GDP growth will be close to zero or a little negative. The dynamics of budget expenditures will not create additional inflationary pressures, including taking into account the expected indexation of salaries of civil servants by 4%. Even at slightly higher wage growth rates for employees falling under the 'May decrees' category, the overall increase in the budget system's wage expenditures will constitute on average no more than 2.5-3% annually in 2017-2020. The proposed measures to raise the minimum wage to the minimum subsistence level will contribute to social stability and overcoming the problem of poverty, without any significant inflation risks.

The third prerequisite in terms of domestic conditions is maintaining the practice of moderate rates of indexation of administered prices and tariffs throughout the forecast horizon in accordance with the drafts announced by the Government of the Russian Federation for 2018-2020. The dynamics of prices of natural monopolies affect the cost of any product and service in the consumer basket. Therefore, an increase in tariffs at a rate that does not exceed inflation will be an important condition for consolidating the growth rates of consumer prices near 4% in the medium term. This factor will also help reduce the inflation expectations of businesses and households. A more transparent mechanism for pricing natural monopoly services will also be promoted by measures to increase the efficiency of their activi-

[1] *When developing the forecast, the Bank of Russia takes into account the budget projections presented in the Draft Guidelines for the Fiscal, Tax and Customs Tariff Policy for 2018 and the Plan Period of 2019 and 2020.*

[2] *I.e. in 2017 prices with 2% annual indexation starting from 2018.*

ties, in particular, further demonopolisation of housing and utilities markets, linking the limits for tariff increases with the implementation of monopoly efficiency programmes, and further implementation of the Competition Standard in the Constituent Territories of the Russian Federation[3]. The Bank of Russia will continue to work with the Government of the Russian Federation on these issues to ensure consistency in the decisions made.

Another important factor that the Bank of Russia takes into account in forecasting and in determining the key rate path is the nature of the dynamics of inflation expectations of all economic entities. It is expected that inflation expectations of households and firms will continue to decline as inflation consolidates around 4% and as the confidence in monetary policy becomes stronger. At the same time, the asymmetry of their dynamics will persist, which manifests itself in a greater sensitivity to proinflationary factors than to those of the opposite nature: a stronger reaction to the weakening of the ruble than to its strengthening, and to a rise in food prices than to their decline. Besides, it takes a long time to build the confidence of economic relations participants that the central bank will do everything to bring inflation back to the target in case of any deviation. Therefore, inflation expectations will still react to short-term factors affecting the dynamics of prices. It creates the risk that the effect of temporary factors may become more persistent, which demands that the Bank of Russia should take a cautious approach to reducing the key rate and pursue a tighter monetary policy than in the absence of these effects on the part of inflation expectations.

It is important that, over time, inflation expectations of the business community were consolidated at the level close to 4%, given that it is companies that form wages and prices for final products, and it is financial sector participants that set interest rates. Inflation expectations of the population may remain somewhat above the target, which is due to the individual and psychological characteristics of the perception of price changes. This is typical even for countries with long-term experience in ensuring price stability. For inflation dynamics, the level of inflation expectations of the population as such is not as important as how much they change and the absence of sharp fluctuations. Both the consolidation of inflation near 4% and measures to increase the financial literacy of the population and information openness will facilitate the reduction of inflation expectations and their stabilisation at a low level. At the same time, the Bank of Russia will pay special attention to expanding interaction with economic entities at the regional level. By applying an individual approach to different groups (companies, population, analytical and expert community), the Bank of Russia will strive to increase the confidence in its policy, thereby weakening the binding of inflation expectations of economic entities to the dynamics of inflation in past years when it experienced significant and unpredictable fluctuations.

With regard to domestic financial conditions, all scenarios expect that they will gradually soften supporting balanced economic growth, which will be determined by a number of factors. As inflation consolidates near 4%, the Bank of Russia will continue lowering the key rate and gradually switching from moderately tight to neutral monetary policy. Over the medium-term horizon, the equilibrium level of the real interest rate for Russia is estimated at 2-3%, which implies the possibility of reducing the nominal key rate to 6.00-7.00% while maintaining inflation close to 4%. During the forecast period, the reduction of the key rate to the above-mentioned level will be gradual, following the decreasing inflation expectations, their weaker reaction to temporary factors, and taking into account changes in the propensity to save and borrow. The Bank of Russia will reduce the key rate so that, on the one hand,

[3] *Approved by Resolution of the Government of the Russian Federation No. 1738-r, dated 5 September 2015.*

to preserve the attractiveness of savings in rubles, and on the other hand, to promote credit growth corresponding to the overall economic dynamics, including the increase in revenues. This kind of approach is necessary to maintain incentives for savings among the population and to increase consumer activity without outstripping production expanding capabilities or creating inflationary pressures. Gradual reduction of the key rate is also intended to help borrowers form a balanced approach to taking loans, including with due consideration of relatively high level of debt burden in certain industries (Appendix 8).

The Bank of Russia also expects that banks and borrowers will remain moderately conservative with regard to loans over the forecast horizon, given the experience of recent years, when the relatively high debt accumulated during previous years became a source of risks to the financial stability of many, especially corporate, borrowers. The Bank of Russia expects that banks will strive to further improve the quality of loan portfolios and reduce overdue loans. This will be reflected in the fact that the softening of price and non-price bank lending conditions will occur gradually. As the key rate decreases, interest rates in the financial sector will also go down. However, long-term rates will continue to reflect the persistence of increased inflation expectations for quite some time as they take long to reduce.

Amid easing of monetary conditions due to, on the one hand, balanced decrease of the key rate by the Bank of Russia, and on the other hand, conservative banks' approach to selecting borrowers, the lending growth will occur gradually, without posing risks to the stability of the financial and real sectors and inflation risks. Lending increase will be the main source of money supply growth over the entire forecast horizon, whereas during the previous few years expenditures of sovereign funds to finance the budget deficit made a significant contribution to satisfy money demand. As the budget deficit diminishes, the role of this source of money supply will decline. The Bank of Russia will maintain the monetary environment where money demand growth corresponds to the economic situation and an increase in money supply will not pose any risk to inflation dynamics. A gradual monetisation of the economy will continue, including through the development and technological modernisation of the financial sector.

The Bank of Russia's main forecast scenarios do not envisage systemic risks threatening the financial stability. Nevertheless, the Bank of Russia provides for a set of regulatory (macroprudential) measures to curb these risks should they arise. The former include systemic measures aimed at increasing market participants' resilience to potential shocks as well as sectoral measures designed to mitigate risks in certain sectors of the economy or in certain instruments.

As part of systemic measures the Bank of Russia is authorised to set a national countercyclical buffer for the banking sector to accumulate capital buffer when systemic risks deepen. Decisions on the national countercyclical buffer are made quarterly taking into account the credit cycle dynamics and other indicators of the banking sector's systemic risks.

In case of a threat of overheating of certain segments of the financial market, the Bank of Russia will apply regulatory measures that, unlike the key rate which has a wide spectrum of influence, can have point effect on certain market segments or groups of its participants. For example, if there are signs of overheating of the unsecured consumer lending segment the Bank of Russia is prepared to raise the risk ratio for unsecured consumer loans to calculate the capital adequacy ratio.

In order to limit the accumulation of systemic risks caused by the high level of foreign-currency debt the Bank of Russia may raise the risk ratios on foreign-currency claims (on foreign-currency claims to individuals and/or on

claims to legal entities depending on the nature of emerging risks). At the same time, in case of a threat to financial stability from any external shocks, the Bank of Russia will consider the necessity to resume FX refinancing operations in order to mitigate such risks.

The Bank of Russia will also improve the practice of prompt decision-making in the sphere of macrorpudential policy. For this purpose it is planned, in particular, to include macroprudential regulation instruments in a special Bank of Russia regulation, which will allow the Board of Directors to make decisions without their official registration.

In all scenarios the Bank of Russia will ensure that inflation remains close to 4%, creating the necessary monetary conditions. In case of unforeseen shocks or risks leading to a deviation of inflation from the target, the Bank of Russia will take measures to return it to the level close to 4% taking into account the situation in the economy and its task to maintain financial stability.

In the absence of unforeseen shocks over the forecast horizon, the inflation will remain close to 4%. However, during certain periods, the growth rate of consumer prices could be above or below 4%. The high homogeneity observed today in the dynamics of consumer prices for commodity groups, components and regions will remain. It does not exclude, however, short-term episodes of volatility in food prices, which, as noted above, is related to their significant dependence on harvest and the situation in global commodity markets as well as to their generally short storage period and, therefore, a faster response to certain factors.

Regional differences in the inflation dynamics will be insignificant. At the same time, there could be some temporary acceleration of price increase in 2018 in the regions participating in the FIFA World Cup due to growing consumer demand. The Central and North-Western Federal Districts will probably see slightly higher rates of price growth than the country average due to a larger share in the consumption of imported goods, which are characterised by higher price volatility. However in general, inflation in the federal districts will be close to 4%.

External economic conditions over the forecast horizon

With regard to external conditions, the medium-term forecast is based on the premise that foreign economic factors will not provide significant support to the Russian economy, remaining a key source of uncertainty, including in view of the geopolitical background.

The Bank of Russia believes that the international financial sanctions will persist during the entire forecast period. Their restraining influence will continue to weaken, considering that the Russian real and financial sectors have already adapted to them. At the same time, in these conditions, internal sources of development should be of great importance, including strengthening of mechanisms for redistribution of existing long-term domestic resources by financial institutions. The Bank of Russia, in turn, will continue to pay great attention to improving the stability of the banking and financial sectors in general, the development of the national payment system, ensuring their ability to service economic relations under any changes in external conditions. In view of the statements of our international partners regarding the possibility of further tightening of financial sanctions against Russia, the Bank of Russia analyses stress scenarios to assess the potential impact and the ability of the financial sector to adapt, publishing results in special thematic documents. In particular, this information is included in the Financial Market Risk Review published by the Bank of Russia.

The Bank of Russia expects that investments in the assets of emerging markets, as well as in ruble assets, will continue to be attractive. According to the statements of the

Key parameters of the Bank of Russia's forecast
(growth as % of previous year, unless indicated otherwise)

	2016 (actual)	2017	2018		2019		2020	
			Baseline scenario	Alternative scenario	Baseline scenario	Alternative scenario	Baseline scenario	Alternative scenario
Urals price, average for the year, US dollars per barrel	42	50	44	56	42	59	42	60
Inflation, as % in December year-on-year	5.4	2.5-2.7	4.0	4.0	4.0	4.0	4.0	4.0
Inflation, average for the year, as % year-on-year	6.5	3.7	4.0	4.0	4.0	4.0	4.0	4.0
Gross domestic product	-0.2	1.7-2.2	1.0-1.5	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0
Final consumption expenditure	-3.5	2.5-3.0	1.0-1.5	2.0-2.5	1.5-2.0	2.5-3.0	2.5-3.0	2.5-3.0
– households	*-4.5*	*3.0-3.5*	*1.5-2.0*	*3.0-3.5*	*2.0-2.5*	*3.0-3.5*	*3.0-3.5*	*3.0-3.5*
Gross capital formation	1.5	6.0-7.0	1.0-2.0	4.5-5.5	2.0-3.0	2.5-3.5	1.5-2.5	2.5-3.5
– gross fixed capital formation	*-1.8*	*4.0-4.5*	*1.0-1.5*	*3.0-3.5*	*1.0-1.5*	*2.5-3.0*	*2.3-2.8*	*2.5-3.0*
Exports	3.1	3.5-4.0	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0
Imports	-3.8	13.0-13.5	2.0-2.5	7.5-8.0	3.0-3.5	5.5-6.0	4.0-4.5	5.5-6.0
Money supply in national definition	9.2	8-11	9-12	10-13	9-12	9-12	8-11	8-11
Lending to non-financial organisations and households in rubles and foreign currency	-0.6	3-5	5-7	7-10	7-10	8-11	7-10	8-11

Source: Bank of Russia.

Russia's balance of payments indicators*
(billions of US dollars)

	2016 (actual)	2017	2018		2019		2020	
			Baseline scenario	Alternative scenario	Baseline scenario	Alternative scenario	Baseline scenario	Alternative scenario
Current account	**26**	**30**	**12**	**40**	**4**	**38**	**4**	**37**
Balance of trade	90	102	84	112	78	113	80	115
Exports	*282*	*330*	*315*	*348*	*313*	*363*	*322*	*374*
Imports	*-192*	*-228*	*-231*	*-236*	*-235*	*-250*	*-242*	*-259*
Balance of services	-24	-28	-28	-27	-28	-28	-29	-29
Exports	*51*	*55*	*58*	*61*	*60*	*63*	*63*	*65*
Imports	*-74*	*-84*	*-86*	*-88*	*-89*	*-91*	*-92*	*-94*
Balance of primary and secondary income	-41	-43	-44	-45	-45	-47	-47	-49
Capital account	-1	0	0	0	0	0	0	0
Current and capital account balance	**25**	**30**	**12**	**40**	**4**	**38**	**4**	**37**
Financial account (net of reserve assets)	**-17**	**-6**	**-2**	**-7**	**-4**	**2**	**-4**	**4**
General government and the central bank	3	12	7	8	6	7	6	7
Private sector (including net errors and omissions)	-20	-17	-10	-15	-10	-5	-10	-3
Change in FX reserves ('+' – decrease, '-' – increase)	**-8**	**-24**	**-9**	**-32**	**0**	**-39**	**0**	**-40**

** According to BPM5.*
Note: Final values may differ from the total of the respective values due to rounding.
Source: Bank of Russia.

largest central banks, in the absence of significant inflationary pressures and given moderate growth rates of the global economy, the normalisation of their monetary policy will occur gradually. In particular, the US Federal Reserve plans to slowly raise the interest rate and gradually reduce its balance sheet, ceasing to reinvest proceeds from redeemed securities. The ECB intends to announce the ways to curb non-standard measures in autumn 2017. It is expected that they will also have a gradual and prolonged nature. Given the above, the level of interest rates in global financial markets will remain relatively low, with a trend to a smooth increase. In these conditions and in the absence of unforeseen shocks, portfolio investment flows will be mainly directed to emerging markets, and risk premiums for their assets, including ruble assets, will be on average comparable to the level of 2017. There can be episodes of temporary volatility in the global financial markets and capital flows influenced by both economic and geopolitical factors. However, Russian assets will remain one of the most attractive targets for investments among emerging market countries, given low level of public debt, achieved stabilisation of the economic situation, including by way of macroeconomic policies, transition to positive economic growth, and inflation reduction. Taking a decision on the key rate, the Bank of Russia will continue to consider its impact on the ruble exchange rate, relative attractiveness of ruble assets, and intensity and direction of capital flows, including assessing them so that their movement does not create risks to financial stability in case of unforeseen factors.

Over the forecast horizon, the structure of Russian international trade relations will not change significantly. However, the dissimilarity of trends with regard to developed and emerging market countries will persist. Taking into account the recovery processes in the global economy, the growth rates of countries that are our trading partners are expected to be slightly above 2% and, accordingly, above the 2015-2017 values. This will lead to a slight support for the Russian economy from the external demand, as compared to the previous years. Given the restrained recovery of economic activity and the policy of central banks aimed at maintaining price stability, the dynamics of external inflation will not become a factor of additional inflationary pressure in Russia. As for the global food markets, the Bank of Russia, guided by the forecasts of international organisations, envisages a slight increase in their prices, which does not create threats of domestic inflation deviating from the 4% target. In case of local price surges in the above-mentioned markets, the Bank of Russia will take into account the scale of their impact on the dynamics of inflation and inflation expectations.

Scenario forking of the medium-term forecast

Regarding commodity market conditions, the Bank of Russia builds on the premise that, both over the three-year horizon and for the unlimited time beyond that period, the energy prices will remain on a stable low level. Regardless of the direction of their movement, commodity prices will remain substantially below the pre-crisis levels. A significant increase in oil prices will continue to be limited by the reduction in the costs of oil production, as well as low demand growth due to the expected dynamics of the global economy, in view of decreased energy intensity of production and development of technologies for producing energy from alternative sources.

Given that the domestic economy, income level, and balance of payments depend highly on production and sale of raw materials and, consequently, on the situation in global commodity markets, the Bank of Russia considers different scenarios based on the oil price behaviour during the forecast period.

The direction of oil price movements will depend on the correlation between supply and demand in the global market, which is deter-

mined by the world economy developments, the prospects for extending the agreement on reducing oil production by exporting countries, and the volume of its supply by major players that are not parties to the agreement.

Maintaining a conservative approach to the forecast prerequisites and relying on the most likely scenario, the Bank of Russia stipulates a gradual decline in the price of Urals crude to $40 per barrel by mid-2018[4] as **the baseline scenario**. It is expected that the average oil price in real terms will remain around this level over the entire forecast horizon[5]. The average nominal oil price is expected to be $44 per barrel in 2018 and around $42 per barrel in 2019-2020. These dynamics of oil prices will be supported, on the one hand, by low energy resources demand growth, considering the current forecasts of global economic growth, and, on the other hand, by a substantial and steady increase in their production at US shale deposits and by other suppliers. In view of the above, the incentives to extend the oil production reducing agreements by the oil-exporting countries in March 2018 may weaken, which will lead to lower oil prices. The Bank of Russia's baseline scenario is close by its parameters to the baseline forecast of the Russian Ministry of Economic Development. In **the alternative scenario**, the Bank of Russia considers a gradual increase in oil prices to an average of $60 per barrel in 2020, due to more rapid global economy and energy demand growth, including at the expense of China, and extension of oil production reducing agreements in 2018. As March 2018, when the current agreements are to terminate, draws nearer and if the OECD countries still have a significant excess of commercial oil stocks, surpassing their average level for the previous five years, the probability of the alternative scenario developments will increase at least for the period covering 2018.

In **the baseline scenario**, the decline in oil prices and export revenues during 2018 will lead to a temporary slowdown in the Russian economy growth rate for 2018 to 1.0-1.5% (as compared to the estimated 1.7-2.2% in 2017). The slowdown in revenue growth and, accordingly, local change in the mood of companies and households will lead to a weakening of investment and consumption dynamics. At the same time, there will be no significant deterioration in the economic situation, given that the Russian economy has already experienced a period of adaptation to low oil prices, which, in particular, amounted to $42 per barrel on average in 2016. In 2019-2020, the GDP growth rate will recover to 1.5-2% where the growth potential of the Russian economy is limited over the medium-term horizon due to structural factors.

Moderate recovery of credit and money supply (see the forecast parameters table) will be determined, on the one hand, by the level of economic activity, and, on the other hand, by a gradual easing of monetary conditions under the influence of a decrease in the key rate by the Bank of Russia as inflation consolidates around 4%. Changes in the banking system's net foreign assets will not make a significant contribution to money supply dynamics.

With the decline in oil prices and continued positive dynamics of imports amid rising domestic demand, the net balance of trade and the balance of current account will decrease as compared to the 2017 levels (see the forecast parameters table). In certain periods, a temporary decrease in the current account balance to negative values is not ruled out on the forecast horizon, which does not bear any risks to the Russian economy. Only persistent negative current account with the predominance of non-investment imports in its structure can adversely affect the economic situation and financial stability. In that case, the country would fund current consumption with increased external liabilities. If the negative current account is formed, among other reasons, due to a signif-

[4] *Here and below in this section, oil prices will mean the prices of Urals crude.*

[5] *Taking into account the external inflation of 2%.*

icant volume of imports of investment goods, equipment, and technologies, then in the long term such dynamics may even have a favourable impact on the economy. In particular, in 2017 investment imports have been outgrowing the consumer ones; their further dynamics will depend on the prospects of structural reforms.

Over the forecast horizon, the financial account balance will be significantly lower than during previous years. On the one hand, this will be related to the continued attractiveness of investments in ruble assets with higher interest rates within the country as compared to foreign markets and a relatively stable macroeconomic situation. On the other hand, decreased export revenues during the forthcoming period will limit the opportunities to build up foreign assets. As the oil prices decline to $40 per barrel, the Russian Ministry of Finance will stop buying foreign currency in the foreign exchange market in accordance with the budget rule parameters, which will lead to the absence of foreign currency reserves growth in 2019-2020.

Given the relatively unfavourable external trade conditions, the current commodity-oriented structure of the economy and low potential for its growth in the medium-term horizon, there are no prerequisites for the ruble to continue its fundamental appreciation which has been observed in 2017. In the absence of negative shocks and amid relatively high foreign investors' interest in investing in Russian assets along with a considerable positive interest rate differential, no significant and sustained unidirectional changes in the exchange rate and consequently their tangible contribution to inflation are expected over the forecast horizon.

In **the alternative scenario**, the gradual increase in the average annual oil price over the forecast horizon to $60 per barrel in 2020 will provide some support to revenues from foreign economic activity and the sentiment of households and businesses. Therefore, the growth rates of wages, investment and consumption in this scenario are assumed to be slightly higher than in the baseline scenario. Due to remaining structural constraints, a part of the increased domestic demand will be covered by more active import purchases. The annual GDP growth, similar to the baseline scenario, will not exceed 1.5-2%.

The lending and money supply growth rates in this scenario will be slightly higher than in the baseline one, due to the absence of an economic slowdown period in 2018. Given a more favourable external economic situation and an inflow of foreign currency earnings, changes in the banking system's net foreign assets will make a contribution to money supply sources.

With rising oil prices, the current account balance in this scenario will be higher than that in the baseline one. Foreign currency reserves will increase throughout the forecast horizon, given the operations to purchase foreign currency in the foreign exchange market in accordance with the budget rule by the Russian Ministry of Finance. In this case, the withdrawal of a part of the current account proceeds through the operations of the Russian Ministry of Finance will create prerequisites for lower private capital outflow. This will also be supported by a relative attractiveness of the Russian economy due to higher oil prices than in the baseline scenario. Under these conditions the ruble exchange rate will be somewhat higher than in the baseline scenario. However, considering the budget rule application by the Russian Ministry of Finance, the trend towards ruble appreciation in the medium term is not envisaged by the forecast.

In both the baseline and alternative scenarios, the Bank of Russia will gradually reduce the key rate, while ensuring that the annual inflation is consolidated around 4%. On the one hand, the easing of monetary conditions will support economic activity, but on the other hand, it will occur so that the dynamics of domestic demand do not create inflation risks, corresponding to the opportunities for expand-

ing production of goods and services. In the alternative scenario, with a relatively stronger ruble than in the baseline scenario, the key rate may be lowered somewhat faster.

Risks of medium-term forecast

The deviation of inflation from the target over the forecast horizon is possible in case of a significant change in domestic or external conditions as compared to the prerequisites and parameters of the forecast of the Bank of Russia set out above. The factors leading to the deviation of actual developments from the scenario can be of both sustained and short-term nature.

Temporary factors include unfavourable weather conditions that can occur in any of the agricultural seasons during the three-year forecast period. By themselves, these events lead to a short-term deviation of inflation from the target and do not require monetary policy response. At the same time, given high sensitivity of inflation expectations to price changes of these goods, their growth and preservation at a high level for a long time are possible. This may require a monetary policy response.

A sustained effect on inflation may be caused by changes in the behaviour of households or businesses while structural constraints are maintained. In particular, in case of more rapid changes in the propensity of households to save and borrow than assumed in the scenarios described above, the capabilities for production of goods and services will not be able to cover the increased demand, which will lead to increased inflationary pressure. The retrospective analysis shows that the population is not inclined to quickly change its behaviour pattern, but this scenario cannot be completely ruled out. Besides, inflation may be provoked by accelerated growth of wages relative to the dynamics of labour productivity while companies compete for skilled labour resources in limited demographic conditions. If the above factors materialise, the Bank of Russia will be forced to pursue a more stringent monetary policy to keep inflation close to 4%. A similar response may be required in case of sustained elevated inflation expectations.

Besides, a sharp change in external economic conditions, including a significant drop in energy prices (in its scenario calculations, the Bank of Russia considered the decrease to $25 per barrel), can also lead to a significant deviation of inflation and the economy growth rate from the parameters of the above scenarios. This is possible if the situation in the Chinese economy worsens against the forecasts and, as a consequence, leads to lower global economy growth. In this case, 2018 will see a significant reduction in revenues from foreign trade activities, worsening sentiment and GDP decline. The reassessment of growth prospects of the Russian economy will lead to increased capital outflow and ruble weakening, which will cause inflation to accelerate and inflation expectations to grow. In this case, the Bank of Russia will maintain a moderately tight monetary policy for a longer period of time to return inflation to the level close to 4%. The Bank of Russia will also be ready to take special measures in case of any threats to financial stability, including considering the necessity to use FX refinancing instruments. However, floating exchange rate will help somewhat soften the impact of worsening external conditions on the economy. Implementing a fiscal policy in accordance with the established rules will help maintain the sustainability of public finances. When developing and implementing measures in case the risk scenario materialises, the Bank of Russia will also take into account the experience of implementing the stabilisation policy during the recent years. If the oil price remains at a low level throughout the forecast horizon, the GDP growth rate will be positive, and inflation will return to the level close to 4% in 2019.

When making monetary policy decisions over the forecast horizon, the Bank of Russia will take into account the structural characteristics of the economy and the specifics of price

formation in Russia, consider the nature and sustainability of domestic and external factors affecting the economic situation and price dynamics, assess risks to inflation, economic growth and financial stability. To consolidate inflation close to 4%, it is important to create conditions for stabilising inflation expectations at a low level, reducing their sensitivity to temporary factors, and building confidence in the monetary policy. This will require maintaining a cautious, balanced approach to changing the key rate with a gradual implementation of the potential for its reduction, as well as clear and consistent communication. Only as the confidence in the policy pursued by the Bank of Russia grows stronger will it be possible to speak of a long-term sustainable result in ensuring price stability.

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The Bank of Russia, on a quarterly basis, updates forecast calculations as new data become available or upon occurrence of certain events. This allows taking decisions on monetary policy based on current and most complete information. Updated forecast parameters with detailed comments are regularly published in the Bank of Russia's Monetary Policy Report.

APPENDICES

Appendix 1

Bank of Russia Board of Directors' monetary policy meetings in 2018

In 2018, the Bank of Russia is to hold Board of Directors' monetary policy meetings on the following dates:

9 February;

23 March;

27 April;

15 June;

27 July;

14 September;

26 October;

14 December.

The Monetary Policy Report will be released and a press conference will be held in the follow-up to the Board of Directors' meetings on 23 March, 15 June, 14 September and 14 December.

Press releases on the Board of Directors' monetary policy decision are to be published at 13:30 Moscow time.

Appendix 2

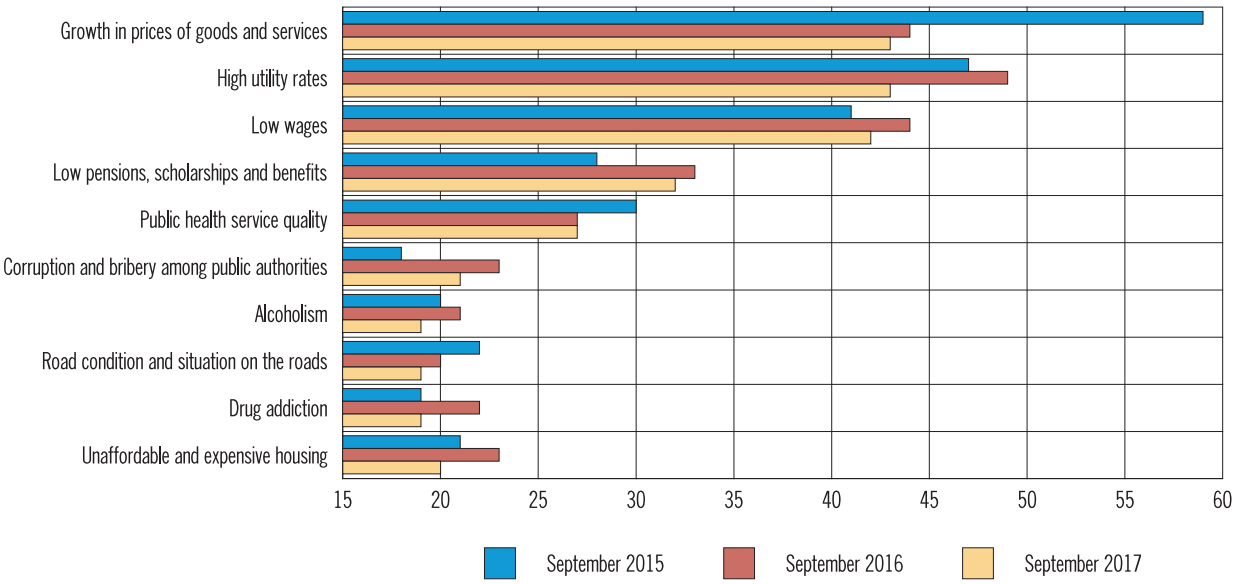
Public and business opinion surveys

According to polls, both the general public and business representatives constantly name inflation among the most important issues. At the same time, as inflation declines, the gravity of this problem diminishes:

- According to a poll by OOO inFOM, from 2015 to 2017, inflation remained at the top of the list of problems that the public was worried about, however, the percentage of respondents who named it fell from 57% to 43%.
- According to a poll by the Russian Public Opinion Research Centre (VCIOM), from 2015 to 2017, inflation moved from the first to the eighth place in the list of the main problems that the public was worried about.
- According to a poll by the Russian Union of Industrialists and Entrepreneurs (RSPP), the significance of inflation as a problem for Russian enterprises also decreased in 2016 as compared to 2015. The poll conducted during the World Economic Forum demonstrated that in 2016-2017 inflation moved from the first to the fourth place among factors that lowered the competitiveness and affected the business climate in Russia.

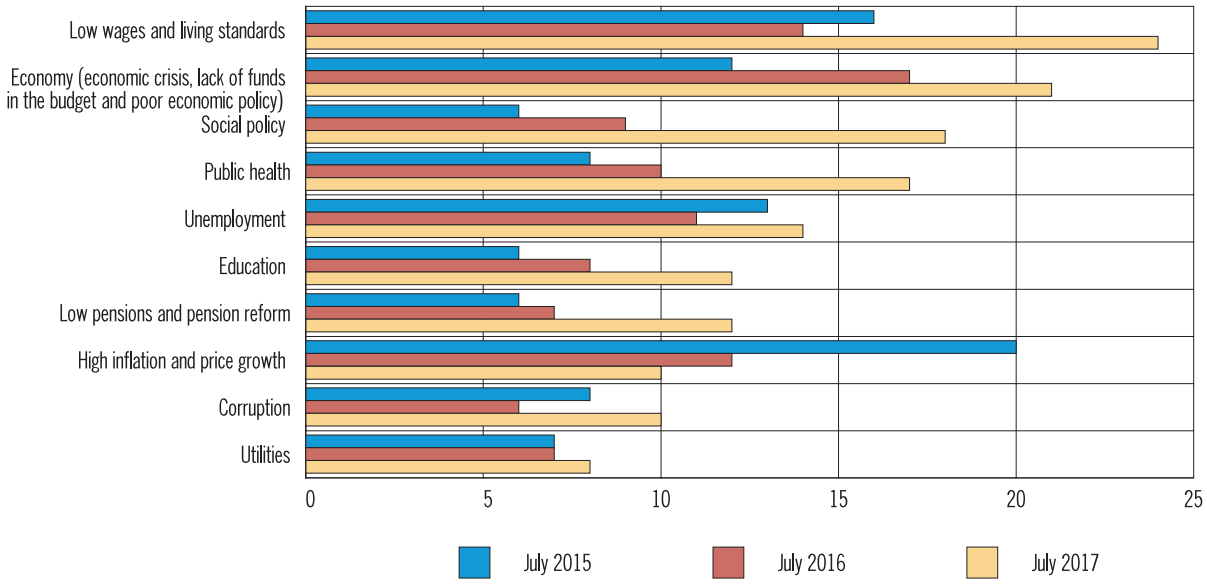
As a result of inflation growth in 2015 and 2016, the issues related to low wages, pensions and other incomes became aggravated. According to polls by VCIOM and OOO inFOM, in 2016 and 2017 this problem worsened. Consolidation of inflation around 4% will help mitigate this concern. Besides, if inflation remains low and stable, prices for housing and utility services will grow slowly, considering the fact that the Government of the Russian Federation follows the rule of indexing utility tariffs by an amount not exceeding the inflation. As a result, the issue of high prices for such services will not escalate.

Issues of concern for Russians (inFOM, %)



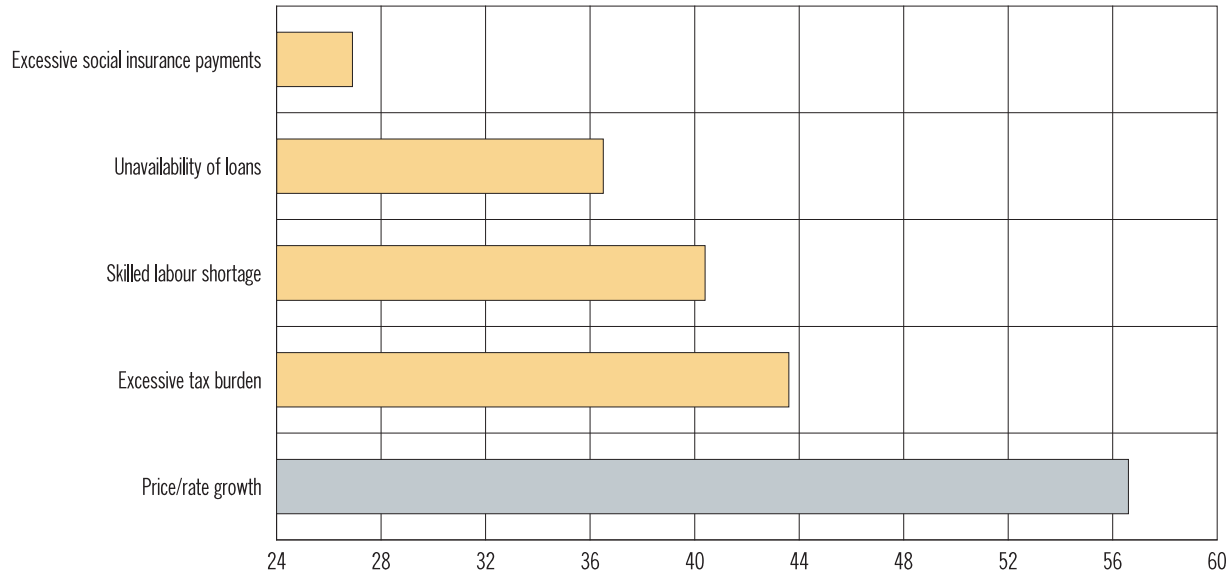
Source: inFOM surveys.

Issues of concern for Russians (VCIOM, %)

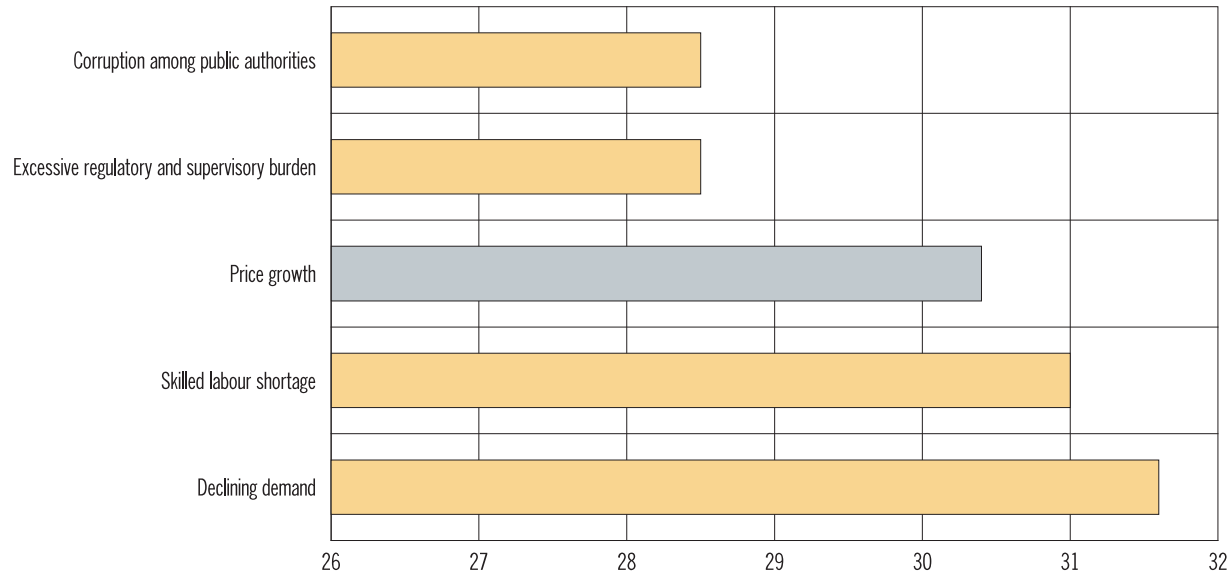


Source: VCIOM surveys.

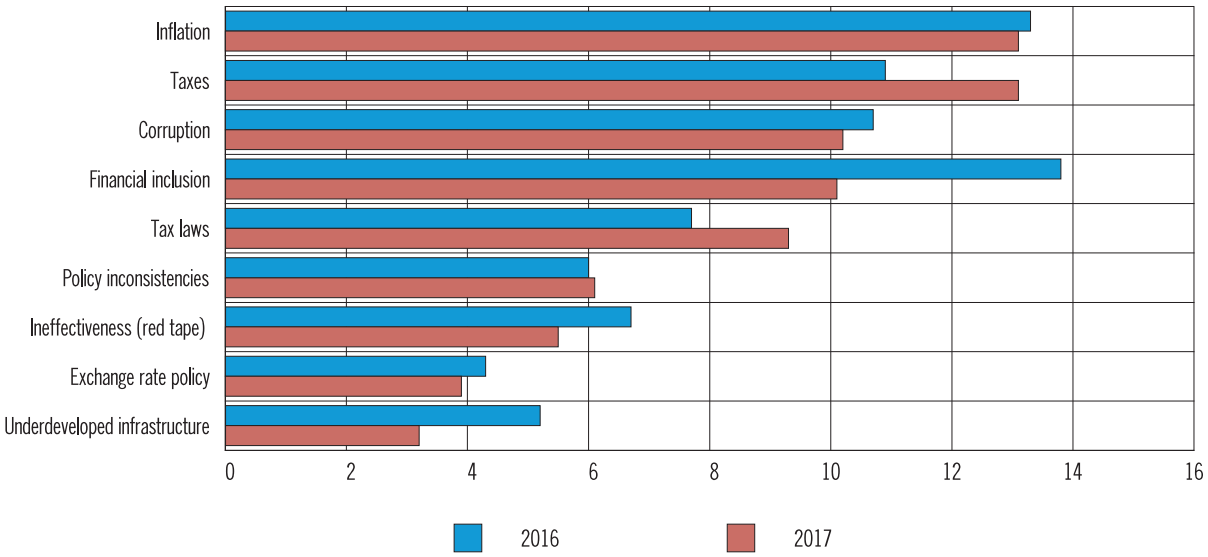
RSPP business climate report: issues of concern for Russian businesses (2015, %)



RSPP business climate report: issues of concern for Russian businesses (2016, %)



Foreign companies believe the role of inflation as a factor constraining Russia's competitiveness and impairing business climate diminished in 2016-2017



Source: World Economic Forum surveys.

Appendix 3

Impact of inflation on social inequality

Price stability is an integral element of the environment that is friendly for people's lives and business, for sustainable economic growth. It is necessary for investment planning and protecting savings from inflationary depreciation. Besides, low and sustainable inflation is an important condition for social stability.

High inflation, all else equal, leads to increased social inequality and higher income differentiation, since it has the most negative effect on the welfare of low-income people.

It is not accidental that Russian citizens name high inflation and low income among the most acute issues in the course of sociological surveys (see Appendix 2).

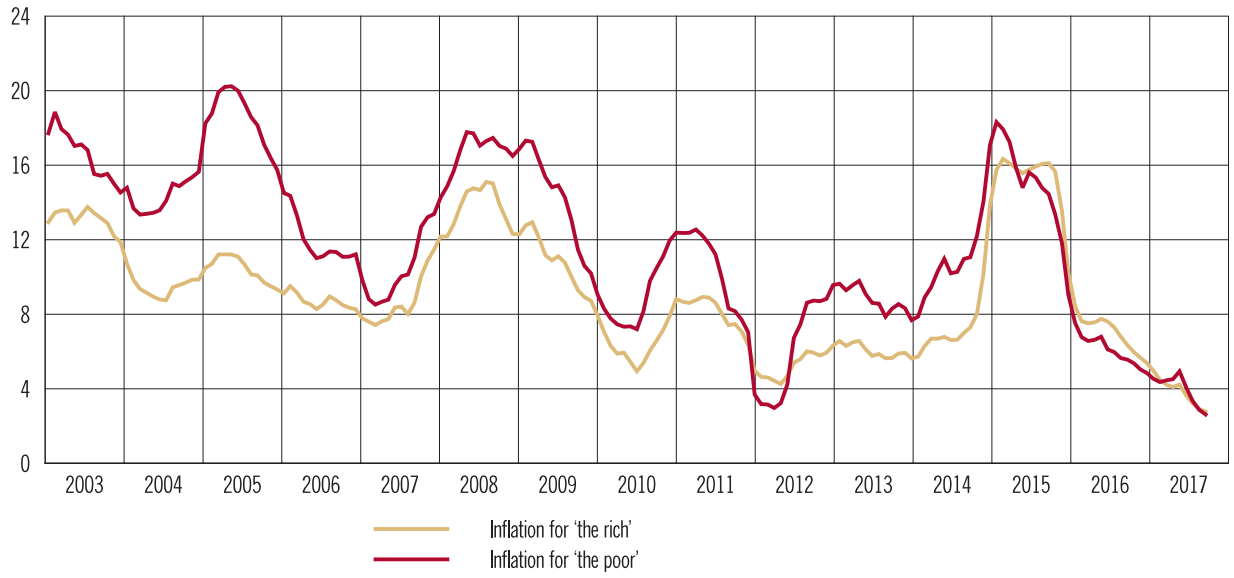
With high inflation, the expenses of 'the poor' grow faster...

First, people with low income are more vulnerable to inflation in general: high rates of price growth are more critical for 'the poor' than for 'the rich'. Essential goods constitute the major part of the consumption of low-income families, and their consumption volumes are close to the minimum necessary for living. Such families cannot reduce the consumption of most goods or switch to their cheaper analogues in response to rising prices because they are already consuming the cheapest goods and in the minimum amount.

As a result, the increase in the prices of essential goods leads to a reduction in the consumption of other goods by low-income people and to a sharp deterioration in the quality of life of the poorer part of the population.

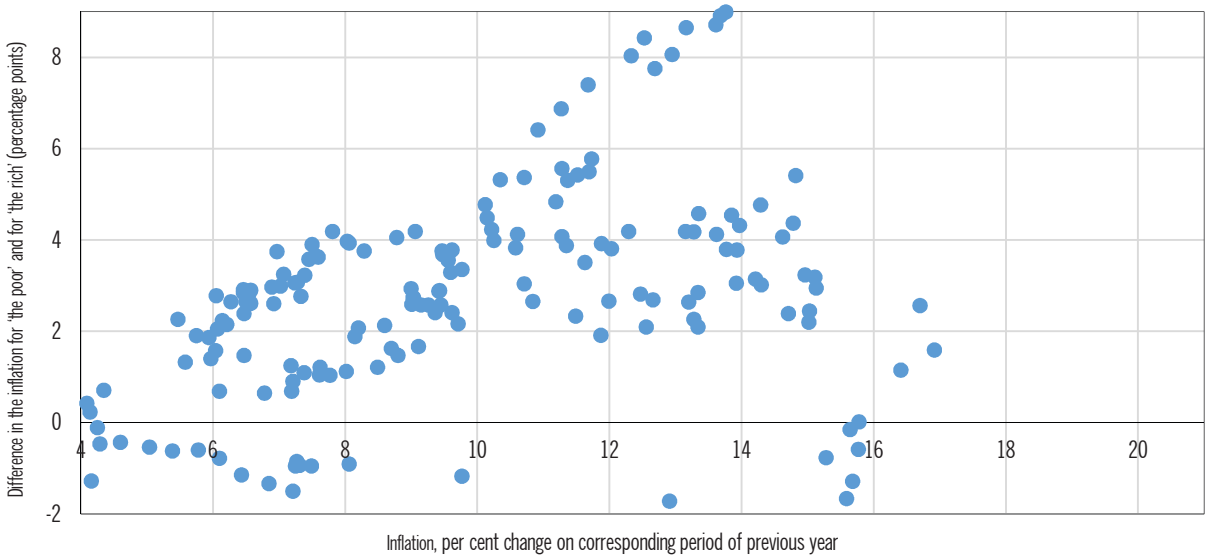
Second, as a rule, with high inflation, prices increase at different rates for 'the rich' and 'the poor', and for 'the poor' this rate is higher. The sets of goods and services consumed by people with low and high incomes vary significantly, and in periods of high inflation, the set for 'the poor' often rises in price faster.

Inflation for 'the rich' and 'the poor'



Sources: Rosstat, Bank of Russia calculations.

Correlation between headline inflation and the difference between the inflation for 'the poor' and for 'the rich'



Sources: Rosstat, Bank of Russia calculations.

This can be seen from the price dynamics of sample consumer baskets for 'the poor' and for 'the rich'[1] in Russia from 2003 to 2017. During periods of high inflation, the inflation for 'the poor' was higher than for 'the rich'. In 2005, the difference reached 9 percentage points. A significant contribution to the difference between inflation for 'the poor' and for 'the rich' was made by the rate of growth of prices for housing and utility services that outstripped the overall inflation rate in 2003-2013[2], given that their share in the consumer basket for 'the poor' is higher. Starting from 2016 Q1, when the inflation approached 7% and after that was steadily declining, the inflation rates for 'the poor' and for 'the rich' almost equalled.

According to estimates, there is a stable relationship between the rate of overall inflation and the differentiation of inflation rates for 'the rich' and for 'the poor': the higher the overall inflation rate, the higher this difference and, consequently, the greater the difference in the rate of decline in purchasing power for 'the poor' and for 'the rich'.

Therefore, lower inflation leads to lower difference in the growth of the cost of living for 'the poor' and for 'the rich'.

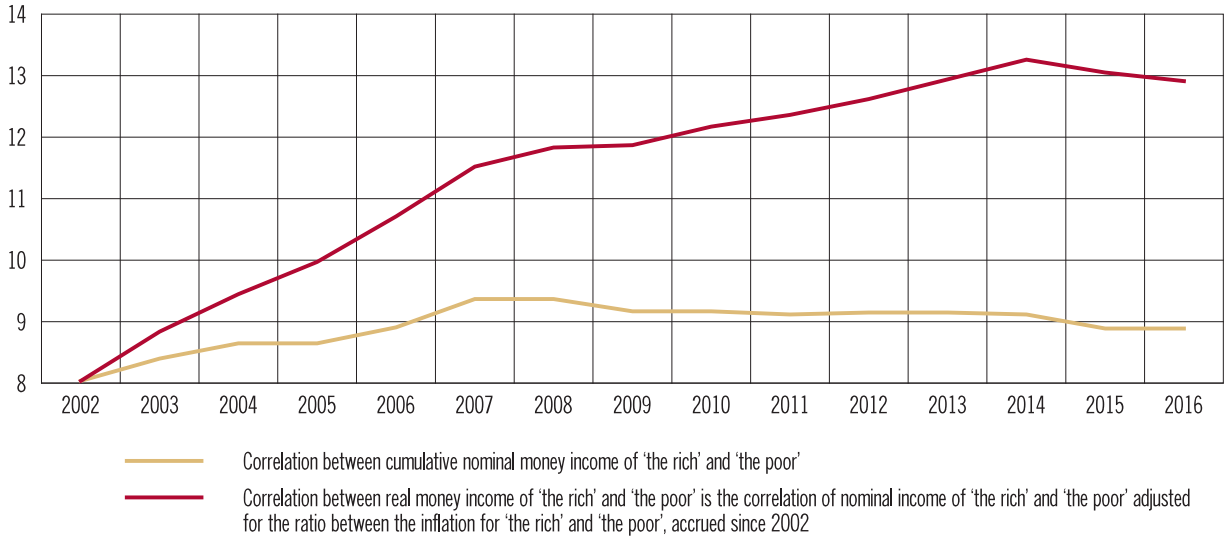
... and their income grows slower

Typically, nominal incomes of poor people are relatively stable and during periods of high inflation their real incomes tend to grow more slowly or decline faster than the incomes of the rich part of the population. This is indicated by the analysis of the ratio between 20% of the highest income people and 20% of the lowest income people. The difference in nominal incomes of the

[1] *The sample basket for 'the poor' includes bread, meat, dairy products, eggs, pasta, vegetables, tea, tobacco, alcohol, utility services, and public transport using the same weights, which are used for these components for calculation of the CPI basket by Rosstat, as well as clothing and footwear with twice smaller weights. Then the weights were normalised so that their sum would be equal to 100%.*
The sample basket for 'the rich' contains all the goods of the CPI basket, where the weights are adjusted so that the weights of goods included in the basket for 'the poor' would be 2.5 times smaller, and the weights of the remaining goods are proportionally increased so that the sum of the weights would be equal to 100%.

[2] *Excluding 2009 and 2011.*

Correlation between income of 'the rich' and 'the poor'*



** Money income of 'the rich' imply cumulative money income of the most well-off households (20% of total population). Money income of 'the poor' imply cumulative money income of the least well-off households (20% of total population).*

Sources: Rosstat, Bank of Russia calculations.

rich and poor Russians increased insignificantly from 2002 to 2016, while the gap in their real incomes grew much stronger.

Therefore, as inflation consolidates close to 4%, the impact of inflation as a factor of social inequality growth will significantly diminish.

Appendix 4

Justification of inflation target close to 4%

It is widely accepted that high and volatile inflation causes expenses for the economy. First of all, it makes implementation of long-term projects and investments more difficult. When financing investment projects, lenders are forced to price in high inflation, as they want to receive income from their investments. It is difficult for manufacturers to plan their activity and to assess whether their investments will be rewarded. Besides, a high rate of price growth requires a constant review of contract prices and wages, which is also associated with costs. High inflation without compensating wage increases leads to decreased real incomes of the population. If high price growth rates persist for a long time and the purchasing power of money constantly declines, social discontent and political instability may grow. Therefore, low and stable inflation is a necessary condition for sustained growth and development of the economy.

Meanwhile, the economic theory does not give an unambiguous answer regarding the optimal level of inflation in the economy. A number of studies provide assessments of the relationship between economic growth and inflation. In particular, they estimate the threshold level, after which inflation starts to have a negative impact on economic growth. The threshold level of inflation specified in these studies varies a lot. It is estimated to range from 9% to 17% for emerging market countries and from 1% to 3%[1], for developed countries. At the same time, the question of how countries are divided into groups in these studies and the homogeneity of countries within each group remains open. This is especially true for emerging markets, where the level of development of economies is highly heterogeneous. Also these studies analyse the data for quite a long period when structural changes in the economies of the countries could occur. In addition, the threshold level estimates do not take into account the issue of sustainability of economic growth and growth without accumulation of economic imbalances.

Given the complexity of assessing the optimal level of inflation, most central banks choose the target inflation level without a strictly econometric justification based on the specifics of the country's economy, inflation structure or the need for insurance against deflation.

The choice of the target inflation level for Russia is also determined by the specifics of the economy and the inflation structure. Among the main reasons are the following:

- Insurance against deflation. The inflation target should not be too low or close to zero, as this can create the risk of falling into a deflationary spiral. Deflation is defined as the decrease in the total price level during a long period of time. In deflation, the public tends to defer consumption in anticipation of lower prices, while manufacturers postpone investment and cut production. The economy does not develop, stops growing, and the well-being of the population decreases. There appears a threat of a protracted crisis. Fighting deflation is no less difficult than fighting inflation, especially in conditions when the central bank's key rate is close to zero and the level of interest rates in the country in general is very low. Many developed countries nowadays have faced this problem. According to Bank of Russia estimates, setting the inflation target close to 4% would provide a safe 'insurance' against deflation in the Russian conditions. The consumer basket of a Russian citizen contains a large share of goods and services characterised by high price volatility. The central bank cannot influence prices of individual goods. Therefore, if the inflation target is set too

[1] *See, for example, Ghosh, Phillips (1998), Barro (1997), Khan, Ssnhadji (2001), Sepehri, Moshiri (2004), López-Villavicencio, Mignon (2011), Kremer, Bick, Nautz (2013).*

low, when it is reached with regard to the basket in general, in the individual commodity markets deflation can occur, which will negatively affect their production. To prevent this, a conservative inflation target must be established.

- Nature of inflation expectations. Russia is characterised by a high level and persistence of inflation expectations. Russians are accustomed to live in high inflation conditions. Judging by their experience, they expect higher rates of price growth in the future. Reducing inflation expectations and changing their nature takes time. Given the increased inflation expectations and their contribution to inflation, decreasing the growth rates of consumer prices to a lower level, e.g. 2%, may cause the economy to bear additional costs (for details of the dynamics of inflation expectations, see Appendix 6).
- Influence of imported goods price growth. Imported goods also form part of the consumer basket of Russians, and the rate of their price growth affects the overall price level in the country. The average inflation rate of the countries that are trading partners of Russia (weighted by their share in the trade turnover) over the past 10 years has been about 3%. At the same time, in an open economy, the higher is the inflation target in Russia in comparison to its trading partners, the higher compensation of the exchange rate will be required. If the inflation of Russia's trading partners is significantly lower, then, after a while, buying imported goods becomes more attractive because their prices are growing more slowly. The demand for foreign currency to buy foreign goods increases, which leads to weakening of the ruble exchange rate. Steady ruble weakening due to persistent positive difference between the inflation in Russia and its trading partners can adversely affect the expectations and sentiment of economic agents.

Inflation in Russia's trading partners (% as of end of period)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	September 2017
Euro area	1.9	3.1	1.6	0.9	2.2	2.8	2.2	0.8	-0.2	0.2	1.1	1.5
China	2.8	6.5	1.2	1.9	4.6	4.1	2.5	2.5	1.5	1.6	2.1	1.6
Germany	1.4	3.0	1.1	1.0	1.7	2.3	2.0	1.4	0.0	0.2	1.7	1.8
USA	2.2	4.1	0.7	1.9	1.7	3.1	1.8	1.3	0.5	0.7	2.2	2.2
Japan	0.4	0.6	1.1	-2.0	-0.2	-0.3	-0.2	1.5	2.5	0.2	0.3	0.7
Italy	2.1	2.8	2.4	1.1	2.1	3.7	2.6	0.6	0.0	0.1	0.5	1.1
France	1.7	2.8	1.2	1.0	2.0	2.6	1.5	0.8	0.1	0.3	0.6	1.0
Belarus	6.6	12.1	13.3	10.1	9.9	108.7	21.8	16.5	16.2	12.0	10.6	4.9
South Korea	2.1	3.6	4.1	2.8	3.0	4.2	1.4	1.1	0.8	1.1	1.3	2.1
Poland	1.4	4.0	3.3	3.5	3.1	4.6	2.4	0.7	-1.0	-0.5	0.8	2.2
Kazakhstan	8.4	18.8	9.5	6.2	7.8	7.4	6.0	4.8	7.4	13.6	8.5	7.1
Turkey	9.7	8.4	10.1	6.5	6.4	10.4	6.2	7.4	8.2	8.8	8.5	11.2
Czech Republic	1.7	5.4	3.7	1.0	2.3	2.4	2.4	1.4	0.1	0.0	2.0	2.7
Spain	2.7	4.2	1.4	0.8	3.0	2.4	2.9	0.3	-1.0	0.0	1.6	1.8
Trading partners, total	**2.4**	**4.6**	**3.6**	**1.5**	**3.2**	**5.7**	**3.4**	**2.5**	**2.1**	**1.7**	**2.2**	**2.3**

- Insurance against movement into a high inflation zone. If the inflation target is set, for example, in the range of 6% to 8% then, when it is reached with regard to the general basket, the prices of individual consumer goods could grow at a rate of 10% to 12%, which is already significant and will reduce the quality of life of Russian citizens. Besides, higher rates of price growth in individual markets can affect inflation expectations of the population and business and eventually lead to accelerated price growth of a wider range of goods and services. Therefore, inflation of 6% to 8% is unstable, creating a threat of transition to higher rates of price growth.

Appendix 5

Inflation indicators used by the Bank of Russia to analyse the dynamics of consumer prices

The inflation target close to 4% is set for the consumer price index (CPI) of Rosstat calculated in relation to the corresponding month of the previous year. This indicator was chosen based on the following criteria:

- Representativeness (it characterises the change in the cost of a set of goods and services consumed by an average household);
- Sufficiently high frequency and promptness of calculation (it is calculated on a monthly basis and published at the beginning of the period following the reporting period);
- Open calculation methodology;
- Wide use by economic entities.

The consumer basket used by Rosstat to calculate the CPI includes more than 500 goods and services that account for the majority of consumer spending. Inflation is measured as a weighted average rate of price increase for all components of the consumer basket.

The Bank of Russia does not react to current acceleration or slowdown of inflation if the impact of the factors causing it is exhausted in the medium term and inflation reaches the level close to 4% without any additional measures. Such an approach to making a decision helps avoid undesirable volatility of economic indicators. At the same time, the Bank of Russia analyses the impact of these factors on the prices of a wider range of goods and services as well as inflation expectations. If the factors initially considered temporary are creating significant risks to reaching the inflation target in the medium term, the Bank of Russia takes these factors into account when deciding on the key rate level.

In order to distinguish between stable or general inflation trends and temporary deviations from the trend caused by factors in the markets of individual goods and services, the Bank of Russia calculates a number of additional inflation indicators that do not take into account changes caused by temporary factors. There are several methods to calculate these indicators.

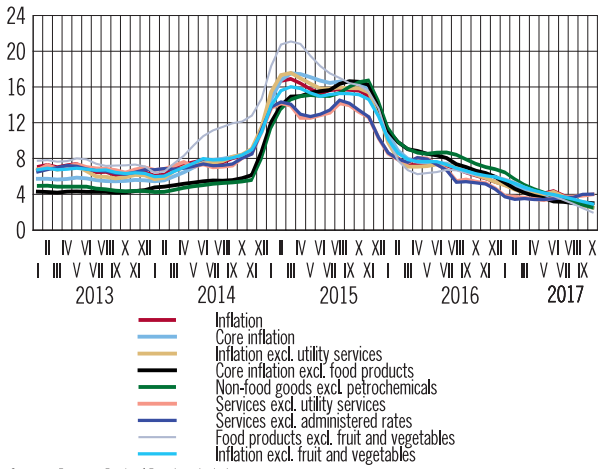
Indices with the exclusion of components by their economic meaning

The Bank of Russia uses a wide range of indices obtained by excluding various components that have specific economic properties from the CPI. For example, **core inflation** calculated by Rosstat is the CPI cleared of components, the prices for which change due to administrative or seasonal reasons or upon occurrence of certain events. Simpler indices excluding certain categories of goods or services with unusual or volatile price dynamics can also be useful in the analysis. They include:

- Inflation excluding housing and utility services;
- Inflation excluding fruit and vegetables;
- Inflation excluding administered prices and tariffs;
- Core inflation excluding food products;
- Non-food products excluding petrochemicals;
- Services excluding housing and utility services;
- Services excluding administered tariffs;
- Food products excluding fruit and vegetables, etc.

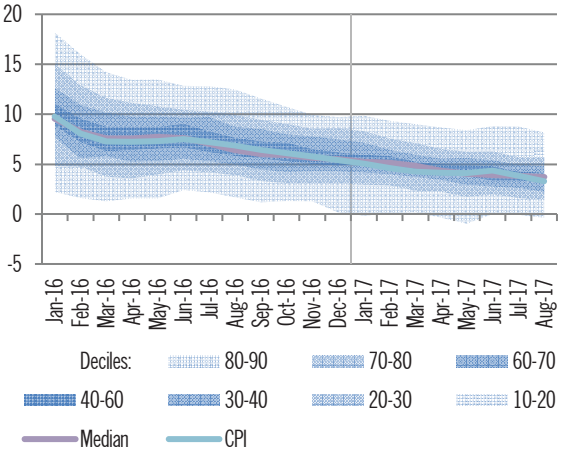
This range of indices makes it possible to analyse the dynamics of prices of a consumer basket excluding certain groups of goods and services. Most often, extremely volatile prices and tar-

Consumer price indices (per cent change on corresponding period of previous year)



Sources: Rosstat, Bank of Russia calculations.

Distribution of annual consumer price growth



Sources: Rosstat, Bank of Russia calculations.

iffs are excluded, the dynamics of which, even with a low weight in the consumer basket, can have a significant impact on inflation. Also it is possible to exclude categories of goods and services where the prices are formed under the influence of specific factors that are not relevant for other consumer basket components. Thus, these indices describe the dynamics of inflation without the 'noise' created by individual commodity groups.

For example, in May-June 2017, due to the depletion of reserves and the shift in the timing of harvesting, the growth of prices for fruit and vegetables accelerated. It lead to the fact that the inflation stopped decreasing in May and started to accelerate in June. However, the local nature of this factor is easily verified by analysing the dynamics of inflation excluding fruit and vegetables, which was steadily declining throughout that period, and crop forecasts that do not foreshadow negative developments.

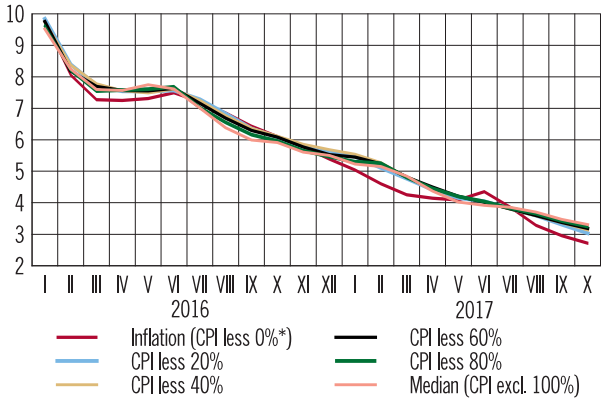
Indices with the exclusion of components with 'outstanding' price dynamics

A certain modernisation of the approach described above is to calculate the CPI that, instead of being cleared of certain components selected by the economist based on their price formation properties, is cleared of components whose price dynamics stand out according to a certain principle. For example, the Bank of Russia uses indices with the exclusion of the most volatile components as well as with the exclusion of a certain proportion of goods and services with the highest and lowest rates of price growth.

By excluding groups of goods and services with the most volatile components over the last three months, the CPI can be cleared of abrupt price changes in the markets of various goods and services. If, for some reason, the inflation dynamics of a component of the CPI change, it is excluded from the calculation. As a consequence, such an index takes into account only goods and services with relatively stable inflation, that is, reflects a general trend in prices without noticing abrupt temporary price changes.

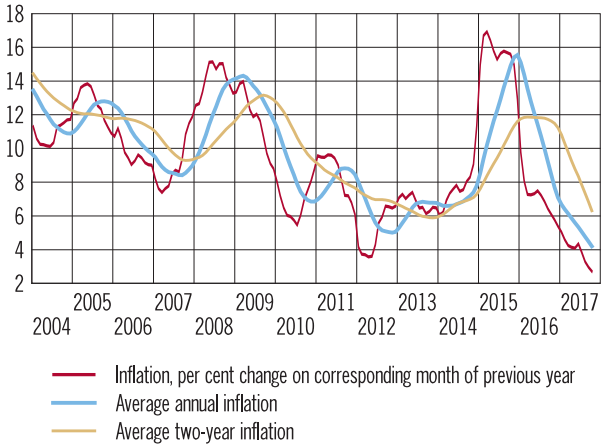
Calculating indices on the basis of an analysis of the distribution of price increases for individual goods and services has a similar meaning. The CPI published by Rosstat is a weighted average of indices of prices for different goods and services. As any average figure, it is sensitive to surges. Therefore, when analysing inflation dynamics, it is useful to consider distribution of price increases, median inflation and inflation with the exclusion of certain goods and services with the

Inflation excluding goods and services with the highest and the lowest price growth (per cent change on corresponding month of previous year)



** CPI less XX% of inflation excluding (XX/2)% of goods and services with the lowest price growth and (XX/2)% of goods and services with the highest price growth.*
Sources: Rosstat, Bank of Russia calculations.

Average inflation for a certain period (%)



Sources: Rosstat, Bank of Russia calculations.

lowest and highest increases in prices. For example, the analysis of distribution makes it possible to understand in which interval of price increases a certain share of the consumer basket lies, and, therefore, to consider the dynamics of prices for most goods and services with the exclusion of price surges. The distribution median is similar to the average, i.e. inflation, but it is insensitive to surges, which makes its dynamics less volatile. Also, a useful indicator can be obtained by excluding the goods with the highest and lowest rates of price growth from the CPI calculation. The dynamics of prices for these goods are usually dependent on the influence of temporary factors in the markets of individual goods, which distorts the inflation image of the consumer basket in general.

The need for such an approach is dictated by a very large number of goods and services included in the consumer basket. In each period, it is possible to observe a large number of temporary non-monetary factors affecting individual markets. It is difficult to identify each of them and introduces the possibility of error in the analysis of price dynamics. Automatic exclusion of components with 'outstanding' dynamics allows analysing the inflation of the part of the consumer basket where price movements occur under the influence of more global economic factors, which the central bank can affect.

For example, this kind of analysis makes it clear that a sharp slowdown in inflation in early 2017, followed by its stabilisation and growth, was due to the dynamics of prices for volatile groups of goods and services. By excluding 10% of the consumer basket with the highest and lowest price growth rates from the CPI calculation, one can see that the obtained indicator is stable throughout the entire 2017.

Moving average inflation

In order to analyse trends in price dynamics, in addition to the CPI with the exclusion of certain components, the average inflation for a certain period of time is also used. Such indicators are also 'cleared' of one-off factors, the impact of which is limited to the short term period (up to a year). However, their 'clearing' mechanism is based not on excluding volatile components but on averaging positive and negative significant price increases for different time periods.

Such indicators used by the Bank of Russia include the 'average annual inflation', which measures the average price level for the last 12 months in comparison with the average price level for

the previous 12 months, and the average two-year inflation. These indicators help estimate the average inflationary pressure for the past year. For most of 2017 the annual inflation has been close to 4%, while the average inflation over the past 12 months exceeds it. This situation indicates that the CPI came close to 4% only recently and before that it had exceeded that level. As inflation stabilises close to 4%, the average annual inflation estimate for the last 12 months will come closer to the annual inflation estimate.

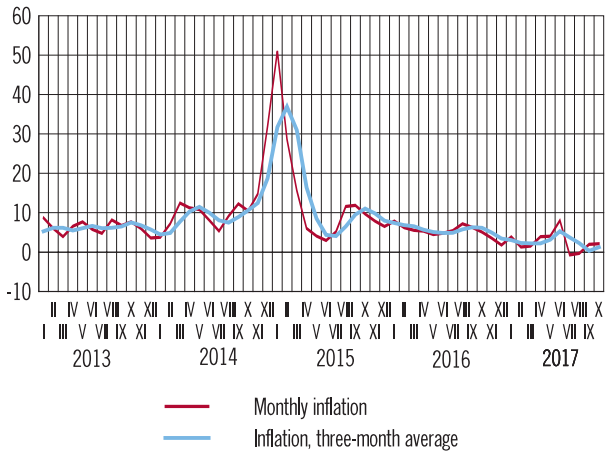
Seasonally adjusted inflation

All the above price indices are calculated over the corresponding month of the previous year and measure the level of annual inflation, however such indicators are subject to the base effect and include all abrupt price changes that have occurred during the last 12 months. Indicators of monthly inflation are free from this negative effect and show only the current price dynamics. However, price behaviour of many goods and services shows seasonal fluctuations. The use of annual indices in the previous indicators automatically smoothed their seasonal component. However the economists also apply a different method for analysing seasonal data, season adjustment. This method is built on analysing the dynamics of a series of data and finding a stable seasonal component that repeats each year. The data series less that seasonal component is called seasonally adjusted. This method allows analysing the dynamics of prices not only for the last year but also for the last month.

However, the monthly inflation rate, even after seasonal adjustment, is quite volatile, which makes it difficult to analyse its dynamics. This issue can be partially resolved by using the average inflation for the last three months. For the sake of convenience of comparing the annual, monthly and three-month average inflation indicators the last two can be calculated in annual terms.

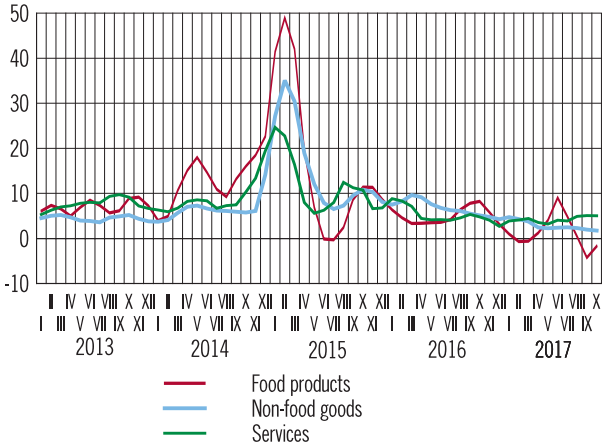
The approaches used by the Bank of Russia to calculate alternative CPIs are not limited to the ones described above. For a more efficient analysis of price dynamics, sometimes it is useful to combine a number of them. For example, not only the entire CPI can be seasonally adjusted but also indices that are cleared of various components. It is also possible to exclude goods and services with the minimum and maximum rates of price growth not only over a year but also over a month (with seasonal adjustment).

Monthly inflation, seasonally adjusted (in the annual terms, %)



Sources: Rosstat, Bank of Russia calculations.

Monthly inflation indicators, seasonally adjusted (three-month average, seasonally adjusted, %)



Sources: Rosstat, Bank of Russia calculations.

The wide range of indicators described above allows the Bank of Russia to better understand the nature of the inflation processes in the country's economy and to analyse the behaviour of prices in order to make justified and timely decisions with regard to the monetary policy.

Producer price indices

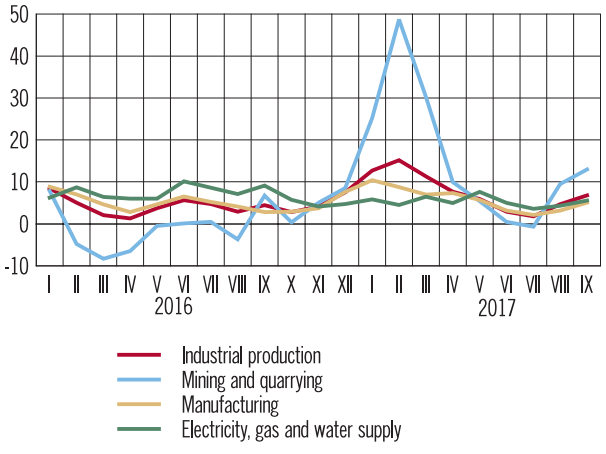
In order to identify potential cost-push inflationary pressure, the Bank of Russia also analyses the dynamics of producer price indices (first of all, of industrial goods, agricultural goods, and transport). The dynamics of consumer and domestic producer prices have complex interrelationship. On the one hand, higher costs make producers raise prices of their products, especially during periods of abrupt fluctuations due to exchange rate shocks or tax regulation changes. This can exert pressure on consumer prices. On the other hand, the extent of producer price growth can be limited by the necessity to maintain sales volumes or market share, i.e. by the final demand-led limitations.

The relationship between the producer prices and inflation in the consumer market is different for different sectors of the economy. The dynamics of domestic producer prices in the mining and quarrying are determined by the situation in the global markets. At the same time, considering a high level of production concentration in the fuel and energy complex, the feedback from the final demand has rather a weak effect on these dynamics. In this situation, fluctuations of fuel, energy, and raw material prices influence the dynamics of prices in the manufacturing sector and, with a certain lag, inflation in the consumer market. In early 2017, a price surge in the mining and quarrying caused an increased cost-push pressure on consumer prices dynamics. Its contribution to the annual inflation in September 2017 is estimated at 0.2 percentage points.

Changes in prices of goods and services of infrastructure companies (electricity, heat, gas and water supply, transport services) are also quite independent of the final demand. However, consumer prices and tariffs for utility services and socially important transport services are regulated by the government. In 2017, they are indexed by 4% ensuring that their price dynamics are neutral with respect to maintaining inflation around the target.

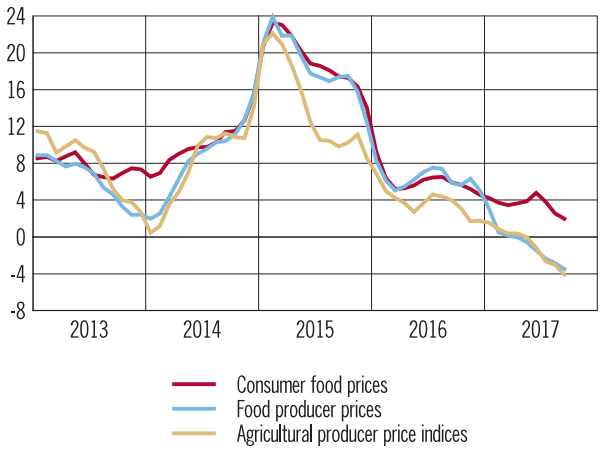
In plant cultivation, producer prices are dominated by supply-side factors (harvest volume and quality). In animal husbandry, prices are more sensitive to the final demand. In 2017, as a result of demand limitations, good harvest and animal husbandry support measures, the growth in pro-

Industrial producer price growth (as % of corresponding month of previous year)



Source: Bank of Russia.

Food producer price growth (as % of corresponding month of previous year)



Source: Bank of Russia.

ducer prices of agricultural products slowed down and then reversed. Cheaper agricultural raw materials, amid limited demand, lead to lower producer prices in the food industry and, in the end, to lower consumer prices of food products. As a whole, the contribution of producer prices of agricultural products to the annual inflation in September 2017 is estimated at -0.3 percentage points.

Appendix 6

Approaches to estimating inflation expectations

According to the economic theory, inflation expectations largely determine the dynamics of inflation, because it is based on their expectations that economic agents make decisions about purchases, set wages and prices. For this reason, the ability of monetary policy to maintain inflation near the target largely depends on how much inflation expectations are pegged to the inflation target. Understanding how the inflation expectations of various economic agents are formed helps better predict the dynamics of future inflation and take timely measures to prevent their growth and, as a result, the deviation of inflation from the target. Therefore, when implementing an inflation targeting policy, central banks pay special attention to analysing inflation expectations and assessing their impact on inflation.

Inflation expectations can affect inflation through several channels, depending on the types of economic agents.

- Companies set prices and wages, so their expectations are the most important in terms of impact on inflation.
- The public does not set prices but it can influence them through changes in consumption and salary requirements. For example, if the public expects price growth acceleration it may increase the consumption of a certain group of goods, which will lead to an increase in their prices and overall inflation. In countries with strong trade unions, workers can successfully demand an increase in wages to a certain level, which can affect the dynamics of inflation, both through consumption expansion and through the growth of companies' costs.
- Inflation expectations of professional analysts do not directly affect inflation but their influence can be indirect: through the impact on expectations of the public and companies that can use analysts' forecasts as information.
- Inflation expectations of government bodies are also important, as they regulate the prices of a number of goods and services. Moreover, the public and companies can use their expectations as a guide. For example, companies that do not have their own macroanalysts can use the government's forecast for financial planning.

The influence of inflation expectations of various groups on inflation depends on many factors. The most important are the structure of the economy and the distribution of market power between supply and demand. For example, if the market power is shifted toward enterprises then the expectations of the public are less significant compared to the expectations of enterprises.

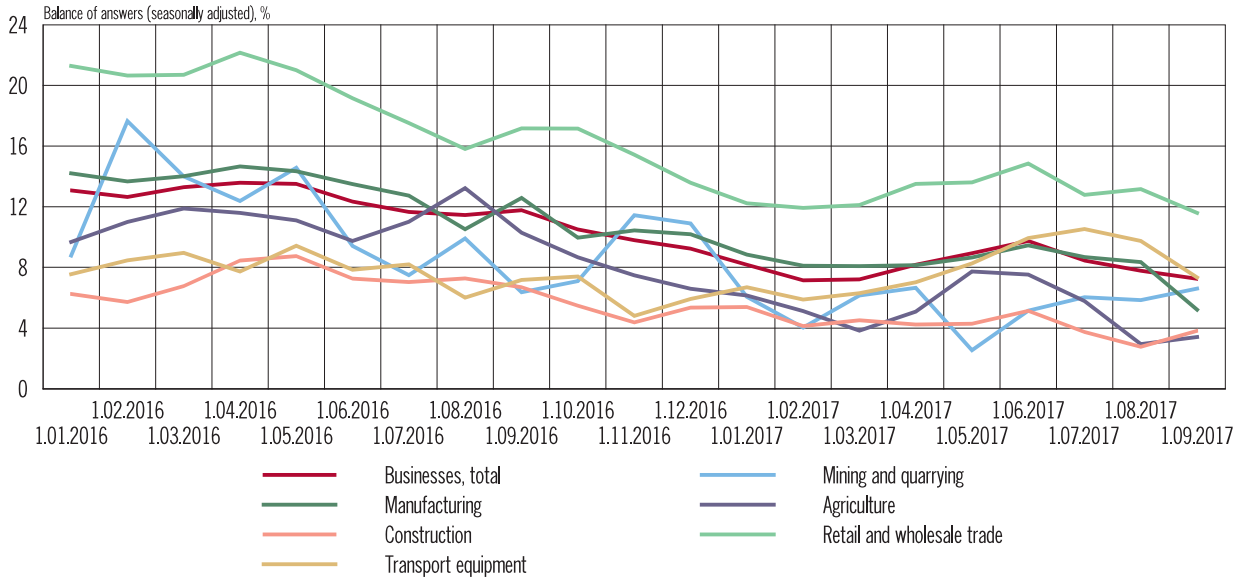
By nature of their formation, inflation expectations can be arbitrarily divided into two types. Expectations of the first type are adaptive, that is, economic agents mainly focus only on past inflation values when predicting future inflation dynamics. Expectations of the second type are rational, that is, economic agents forecasting the inflation not only rely on its past values but also take into account the factors affecting future inflation dynamics (monetary policy goals and effectiveness, the impact of other factors in the future). Obviously, the complexity of considering factors of future behaviour leads to a relatively smaller share of rational expectations, especially among the public. Assessments in many countries show that the expectations of the public are mostly adaptive. This is especially true for emerging markets, including Russia, with little experience of maintaining a steady low inflation and generally low financial literacy of the population.

Inflation expectations of enterprises

To monitor inflation expectations of Russian enterprises, the Bank of Russia conducts their monthly survey. This survey contains qualitative questions about expectations of changes in prices for finished products of enterprises during the next three months: whether the prices will increase, decrease or will not change. Based on the answers, the answer indices[1] are calculated broken down by the main branches of the economy. These indices reflect the predominance of positive (negative) assessments in the responses of enterprises and characterise the expected situation regarding prices for their finished products (slowing / acceleration of growth / reduction in prices). The accompanying questions of the questionnaire make it possible to determine the factors affecting the price expectations of enterprises (demand for products or production costs). Price expectations of enterprises according to the survey often coincide with the dynamics of the producer price index in the main sectors of the economy. Therefore, they can be used as a leading indicator of changes in producer prices, given that the Bank of Russia receives the information earlier than official statistics.

Enterprises participate in the Bank of Russia surveys on a voluntary basis, receiving in return analytical materials and reviews. Considering that surveys of enterprises have been held for a long time (since 2000), the composition of their participants is constantly changing, including due to refusal to participate, bankruptcy, reorganisation or liquidation. This can negatively affect the sample quality and the survey results. To raise the quality and increase the representativeness of the survey results, the Bank of Russia plans to improve this survey. First, it plans to expand the composition of survey participants by adding enterprises that are significant for the economy of regions that are oriented at the domestic market and form the consumer demand. Second, to maintain the interest of enterprises to participate in the Bank of Russia surveys, it is planned to modify questionnaires and update the forms of analytical materials received by enterprises.

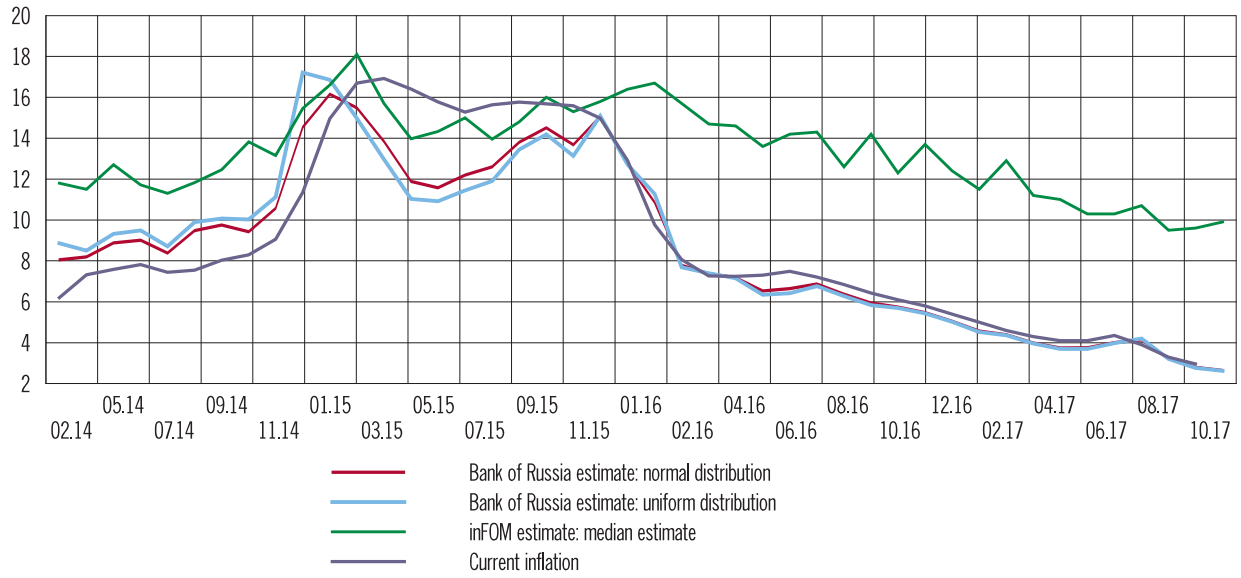
Businesses' answers to the question: 'How will finished product prices change (increase/decrease) in the next 3 months?'



Source: Bank of Russia.

[1] *The answer index is calculated as the difference between the shares of 'more' (increased) and 'less' (decreased) response types in percentage to the sum of the exact shares of answers ('more', 'less', 'unchanged').*

Estimates of households' inflation expectations for a year ahead (%)



Sources: inFOM, Rosstat, Bank of Russia calculations.

The system of interaction between the Bank of Russia regional branches and enterprises that has developed over many years of enterprise monitoring can be used on a regular basis for an open dialog between the Bank of Russia and the economic community, for creating conditions for a better understanding of the Bank of Russia's strategy by economic agents, and for effectively influencing inflation expectations of economic agents.

After 11 months of sustained decline, price expectations of enterprises temporarily rose in April-June 2017. The main reason for that were rising costs of enterprises due to the increase in fuel prices. However, according to the enterprises themselves, this factor has a temporary nature. In July-August 2017, inflation expectations of enterprises resumed their downward trend, most notably in trade, agriculture and construction.

Inflation expectations of population

To monitor inflation expectations of the population, the Bank of Russia uses a survey conducted by OOO inFOM at the request of the Bank of Russia. For the survey, OOO inFOM generates a random territorial three-stage stratified sample of households. This procedure involves selection of administrative regions of constituent territories of the Russian Federation (the first stage), selection of localities or electoral districts within the regions (the second stage), and random selection of households (the third stage). This kind of sample represents the Russian population aged 18 and older and allows, on average, obtaining unbiased results. Random stratified sampling is widely used all over the world and is considered an accepted polling method[2].

Together with the Bank of Russia, OOO inFOM continuously works on improving the polling instruments to increase their value for analysing inflation expectations and consumer sentiment. For this purpose, new questions are asked that can help better understand the mechanics of inflation expectations and promptly observe the changes in the consumption-based behavioural model of respondents. For example, modifications in the polling instruments primarily contain questions regarding the quantitative estimates of the current and anticipated inflation with the

[2] *For more information on the methodology used for studying inflation expectations, see the Bank of Russia website, section Monetary Policy, subsection Inflation and Inflation Expectations.*

answer options provided in the form of a scale. The provided intervals on the scale do not correspond to the current inflation levels and turn out to be insensitive to potential changes in the situation when the inflation is maintained around 4%. In order to find the optimal scale that would account for the limited 'competence' of respondents and have a precision required for the Bank of Russia's purposes, OOO inFOM intends to conduct a methodological research to study the mechanisms of perception of new inflation levels by the general public with the elements of cognitive testing of different scale variants.

The Bank of Russia uses both quantitative and qualitative answers of respondents to estimate inflation expectations of the population. Estimates based on quantitative responses (median, truncated, and others) are supplemented with qualitative answers.

Median estimates of inflation expectations of the population obtained by OOO inFOM have been declining throughout 2017 to reach the lowest level for the whole period of observation. However, their level is still much higher than 4%. Truncated estimates have also decreased but demonstrated a level that is closer to 4%. Estimates of inflation expectations based on qualitative answers are close to 4%.

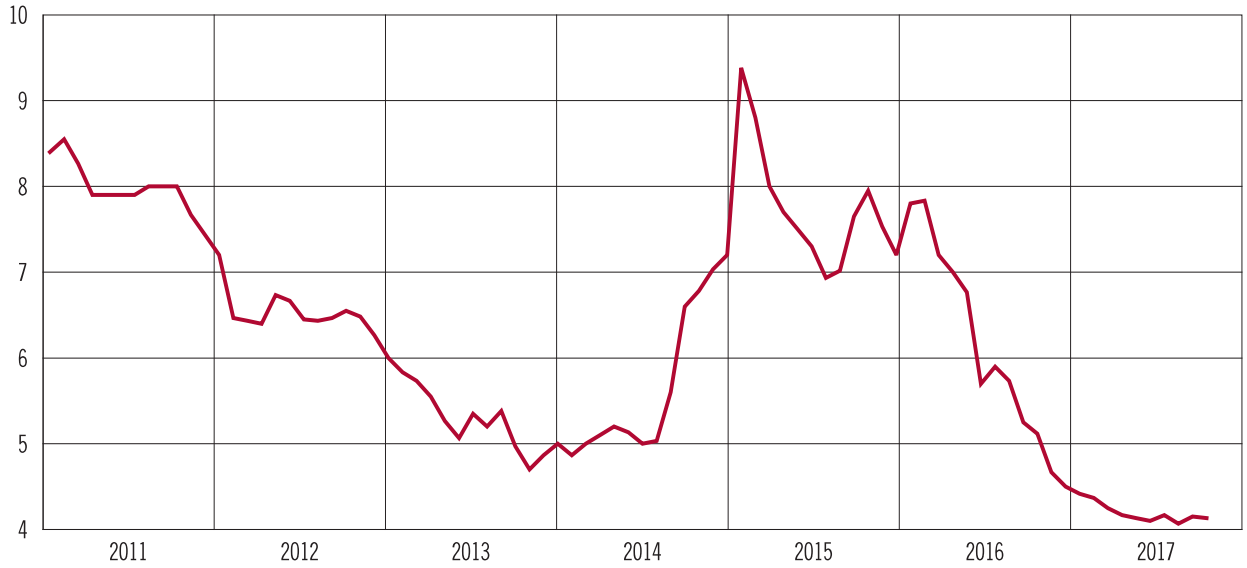
Given the high level of adaptability of inflation expectations of the Russian population, it is important to pay attention to their dynamics rather than to their level. All estimates show a downward trend, which is a positive factor and forms the prerequisites for fixing inflation around the target. At the same time, not enough time has passed since the inflation came down close to 4%. The public still has good memory of the recent period of high inflation. This determines the persistence of inflation risks from inflation expectations and the need to maintain a moderately tight monetary policy.

Inflation expectations of professional market participants

The Bank of Russia uses several assessments of inflation expectations of market participants.

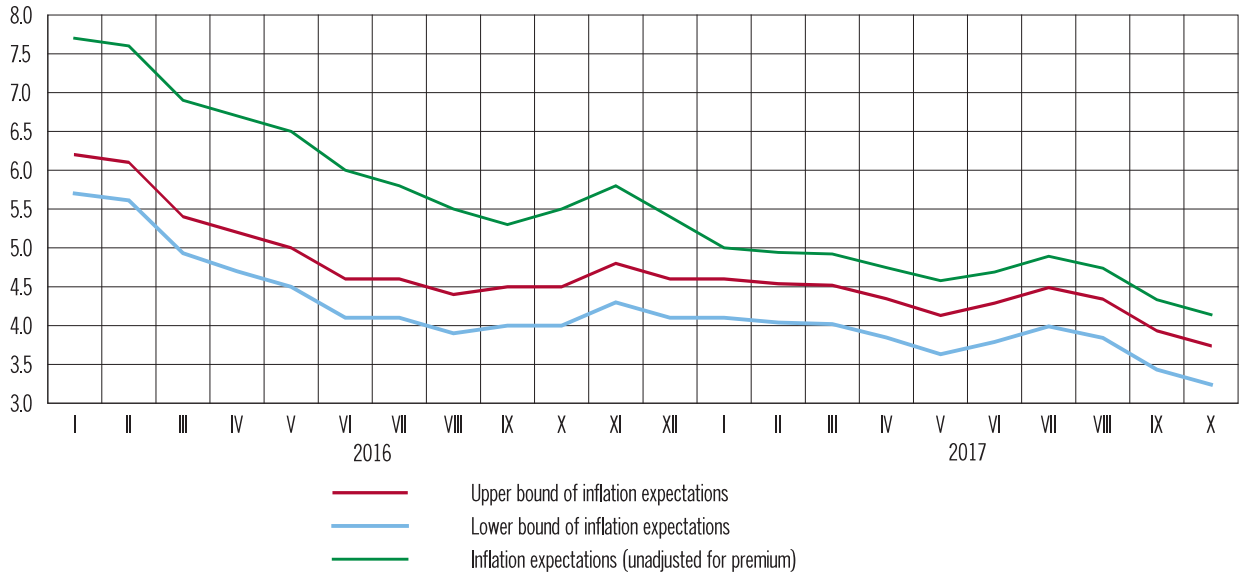
First, the consensus forecast (median) of independent experts whose activities are related to macroeconomic forecasting, calculated by agencies such as Bloomberg, Interfax and Thomson Reuters. Analysts' expectations continued to decline during 2017 and approached 4%.

Inflation expectations of analysts surveyed by Bloomberg, for a year ahead



Sources: Bloomberg, Bank of Russia calculations.

Inflation expectations calculated using government bonds' quotes (%)



Sources: Bloomberg, Bank of Russia calculations.

Second, the Bank of Russia receives inflation expectations from prices of government bonds. In July 2015, the Russian Ministry of Finance issued a new type of bonds, inflation-indexed federal loan bonds (OFZ-IN). The specific feature of these bonds is the indexation of their nominal value by the inflation rate, which to some extent protects the investor from rising prices. By purchasing OFZ-IN, investors price in a certain future inflation level or path and, based on their expectations, determine an acceptable purchase price. To extract these expectations, another issue of OFZ is used, the 'classic' fixed income OFZ (OFZ-PD) of the 26215 series. This issue has the same maturity and the coupon payments schedule as OFZ-IN. The only difference is the lack of protection against inflation, for which investors require a higher yield. Thus, the difference between the yields of the 'classic' OFZ-PD-26215 and OFZ-IN reflects the level of inflation expected by investors, for which they require compensation in the form of higher yield.

This method of estimating inflation expectations has several limitations. First, the obtained value of the expected inflation reflects investors' expectations for the whole period to maturity of the issues, that is, currently for about six years. Second, the obtained value slightly overstates the real expected value of inflation, since it includes a premium for the uncertainty of inflation expectations (investors cannot accurately predict future inflation and price in a higher value). According to the estimates of the Bank of Russia, the premium for the uncertainty of inflation expectations varies over time but on average it lies in the range of 0.5% to 1.5% p.a.

As of early November 2017, the OFZ-IN issue is quoted at a yield of 3.2-3.4% p.a. and the OFZ-PD-26215 issue at a yield of 7.3-7.5% p.a. Therefore, taking into account the adjustments, inflation expectations are within the range of 3.0-3.7% p.a.

Inflation forecasts of general government

The Bank of Russia constantly interacts with government authorities to coordinate work and achieve a consolidated view on the development of the macroeconomic situation, including the attainability of the inflation target over the forecast horizon. Besides, the Bank of Russia maintains a dialogue with the Government of the Russian Federation regarding the preservation of the approach of indexing administered tariffs by an amount not exceeding inflation.

In 2017, the Government of the Russian Federation approved the maximum utility tariffs growth at 4%. In July 2017, Rosstat registered the growth rate of utility tariffs at 4.4%. This kind of deviations is quite common and occurs due to a number of reasons, including the fact that certain utility services are provided to the population based on mutual agreements between the customer and the supplier and are not subject to regulation. The discrepancy between the planned indexation of tariffs and their actual growth in 2017 is insignificant and does not pose inflationary risks. According to the Draft Guidelines for the Fiscal, Tax and Customs Tariff Policy for 2018 and the Plan Period of 2019 and 2020, the indexation of utility tariffs is planned at 4%.

In general, in recent years, success has been achieved in reducing inflation expectations. The expectations of the professional community are around 4%. The expectations of the population and enterprises are decreasing.

Appendix 7

Lending interest rates structure

Russian bank loans market is closely connected both to the adjacent segments of the financial market and to the real sector of the economy. Therefore, calculating rates for bank loans is a complex process, which, along with the monetary policy of the Bank of Russia, is affected by banks' borrowing costs, the costs and risks they price in the spread between lending and borrowing rates, the competition for borrowers and depositors, and also the current level of inflation and inflation expectations. Key factors that influence the level of bank loan rates will be discussed in detail below. Also, based on the real-life data, a decomposition of the difference (spread) between the average interest rates on loans and deposits of Russian credit institutions will be presented. This simplified model describes the price-setting processes in the lending and deposit market at the level of the banking sector as a whole. Specific elements of bank product prices are not excluded from the analysis but reviewed as part of larger blocks that are common for all banks. In order to analyse the price-setting process of individual banks, a thorough analysis of their financial statements is required to identify the specific factors driving their loan and deposit rates. This issue is out of scope of the Monetary Policy Guidelines.

Since loans are the main asset of Russian banks[1], loan rates should cover their cost of raising funds (the rate of household deposits, which is the main type of interest obligations of Russian banks, will be used as an indicator) as well as other costs associated with attracting and placing funds.

The minimum spread between the loan and deposit rates includes five basic elements. First of all, operating expenses (expenses for building maintenance, staff salaries, etc.), without which banks cannot carry out their activities. Operating expenses are not very dependent on the term of the transaction, since the registration of six-month and six-year loans is associated with similar costs. At the same time, this type of costs in case of a long-term loan will allow the bank to receive income longer than in case of a short-term loan, and therefore, in a unit of time, it will 'cost' the bank less. In this regard, the contribution of operating costs to rates for short-term loans is higher than in case of long-term rates[2].

In addition to the costs of current activities, the bank also has specific expenses related to deposit operations. Within the current deposit insurance system in Russia, banks are obliged to pay quarterly contributions to the Deposit Insurance Fund (DIF) in the amount of 0.12% of the amount of attracted deposits (until July 2016, 0.10%). These contributions, which protect the interests of depositors in the event of a bank failure, constitute an additional expense (in the amount of 0.48% p.a.) for the bank and therefore expand the spread between the loan and deposit rates.

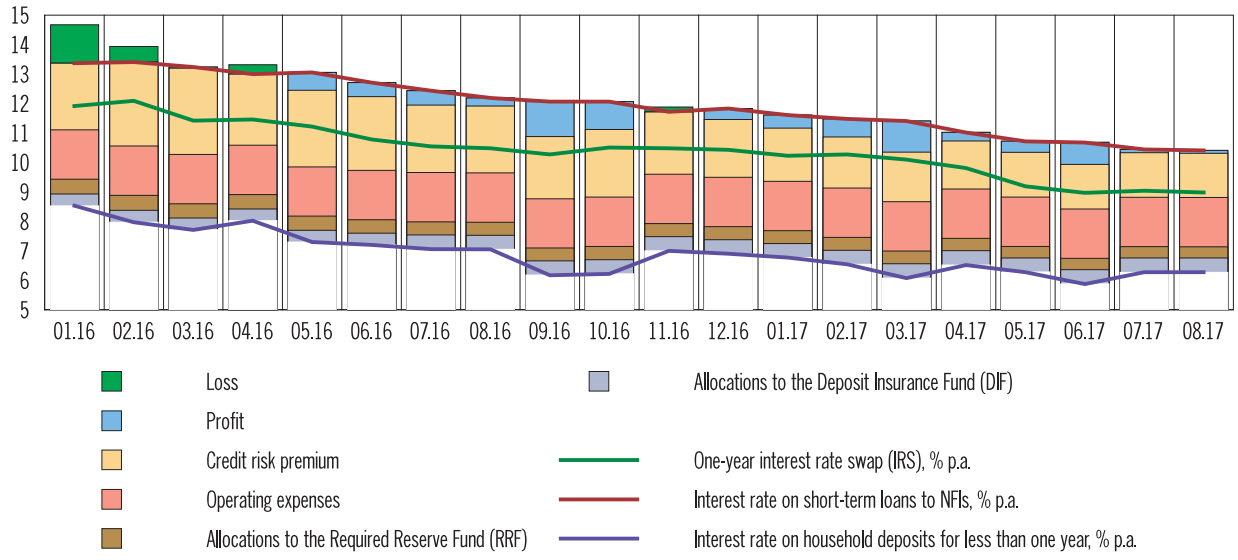
Besides, a bank that attracts deposits is required to place a part of the funds raised in the Required Reserve Fund[3] (RRF). As of mid-2017, the RRF rate for ruble deposits of households was 5%. This actually means that the bank is obliged to pay interest on 100% of the funds raised for deposits but it can receive income only from 95% of this amount as the remaining 5% are

[1] *More than a half as of mid-2017, of which almost 75% are loans to non-financial organisations.*

[2] *Operating costs are carried by the bank as a whole, and it is impossible to determine which part of them relates to a specific operation. For the purposes of decomposition of the spread between the loan and deposit rates, it is assumed that the average tenor of a short-term banking transaction is three quarters, and of a long-term transaction, three years. It is assumed that the absolute amount of costs for a short-term operation is 10% less than that for a long-term operation.*

[3] *See Section 2 for the purposes, objectives and functions of RRF.*

Decomposition of spread between short-term interest rates on bank loans and deposits (percentage points)



Source: Bank of Russia calculations.

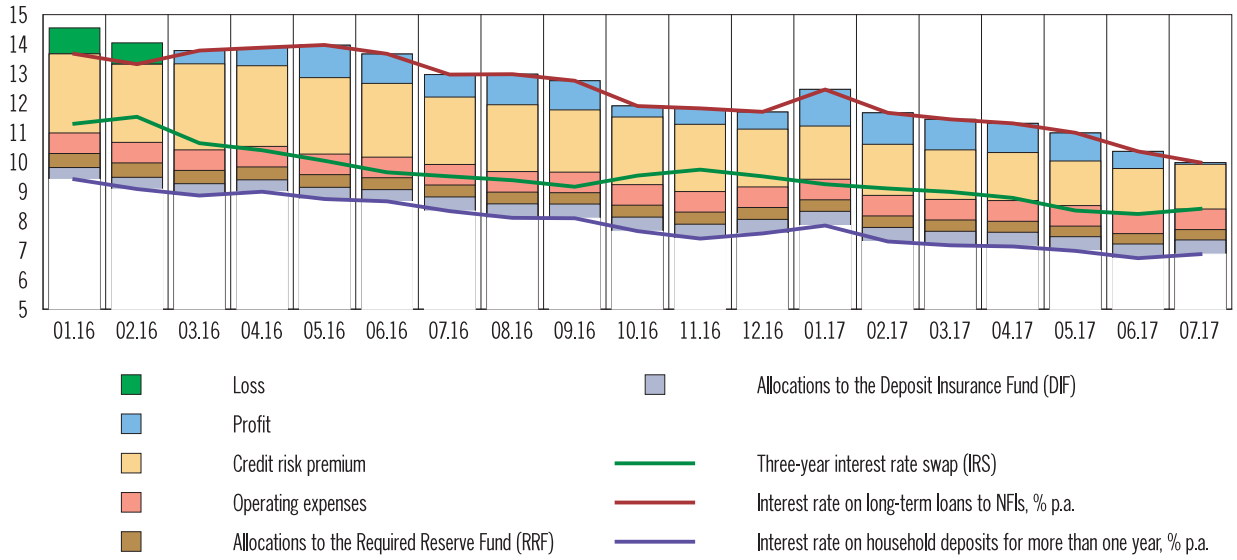
placed in RRF. Accordingly, the credit rate should cover the cost of attracting these 5% of funds as well, and therefore the costs of RRF deductions are priced by banks in the difference between loan and deposit rates.

The provision of loans is also inextricably linked with the bank's adoption of credit risk (that is, the risk that the borrower will not return the funds or will return them only partially). In order not to suffer losses, the bank, along with the above-mentioned costs, also includes a credit risk premium in the loan rates, so that premiums paid by creditworthy borrowers cover losses caused by non-performance by insolvent borrowers. Despite the fact that before granting a loan (especially to large corporate borrowers) banks carefully assess the creditworthiness of potential borrowers and, when granting a loan, also establish non-price lending conditions, it is not possible to completely avoid credit risk. A significant deterioration in the creditworthiness of the borrower can occur for reasons beyond its control, for example, because of its counterparty's bankruptcy. It is difficult to determine the exact amount of the average risk premium for the banking sector as each bank evaluates it in its own way. For the purposes of decomposition of the spread between loan and deposit rates, the quotes of the most liquid credit default swap (CDS) on Russia were used as the risk premium indicator, as the level of credit risk on loans to Russian non-financial organisations cannot be lower than the level of the Russian sovereign credit risk.

Finally, the last component of the spread between loan and deposit rates is the profit of banks. In order to expand lending, banks need to have a certain 'margin of safety' in the form of equity, replenished by banks at the expense of profits. To open new branches or introduce innovations, banks need investment resources, where the source is also profit.

The greater the spread between loan and deposit rates, the more profits a commercial bank will receive and, therefore, the more opportunities it will have for increasing lending. However, the spread cannot be as wide as possible. Demand for loans and deposits from the non-financial sector, as well as competition for borrowers and depositors, do not allow banks to set unjustifiably high lending rates or unreasonably low deposit rates, otherwise potential customers will prefer relatively cheaper borrowings or more profitable investments. As a consequence, over the past few years, the spread between loan and deposit rates has hardly deviated from the econom-

Decomposition of spread between long-term interest rates on bank loans and deposits (percentage points)



Source: Bank of Russia calculations.

ically justified minimum level that allowed banks to receive positive profits, and in the first half of 2016, when banks actively competed for the most reliable borrowers, it could even fall below this level[4].

If the factors described above determine the spread between the loan and deposit bank rates, their level is primarily affected by the monetary policy of the Bank of Russia. As part of the interest rate channel of the monetary transmission, the Bank of Russia, managing the level of money market rates, has the ability to influence rates on the most important banking operations.

The current level of the key rate and the expectations with regard to its change in the future are reflected in the yield of risk-free assets (primarily government bonds – OFZ in Russia) and in interest rate derivatives, in particular, interest rate swap (IRS) transactions. The bank that enters into an IRS deal gets the opportunity to fix the money market rate, and if the money market rates are higher than the IRS price, the buyer of the interest rate swap will receive the difference between the current rates and the IRS price or, in the opposite case, pay it. As a result, throughout the term of the contract, the buyer of the interest rate swap can raise funds in the money market, paying the same rate, regardless of the level of rates established in the market. The IRS seller, on the other hand, is able to fix the rate at which it places money in the money market.

For banks, money market operations where the rates can be fixed by means of interest rate derivatives as well as transactions with securities are an alternative to credit and deposit operations. If a bank can raise money in the money market cheaper than through household deposits, then, as a rule, it will use the cheaper source of financing its operations (or reduce deposit rates). Following the same logic, if a bank can place money in the money market or the OFZ market at a higher rate than in the lending market, it will increase operations in the money market and its securities portfolio or raise lending rates. The competition between banks for depositors and borrowers can slow down this process (in an effort to maintain market share, banks reduce depos-

[4] *It should be borne in mind that in early 2016 banks were still very cautious in selecting borrowers for fear of increasing risky lending. In this regard, the actual level of risk on loans granted to carefully selected borrowers could be even lower than the risk assessment for Russian assets that had developed among participants in the global CDS market.*

it and increase credit rates in a conservative manner), but in the long run, credit institutions will avoid unprofitable business models.

It should also be borne in mind that the execution of transactions in the money market or securities market entails substantially lower transaction costs than attracting deposits or placing loans. Borrowing funds from other banks does not require payment of DIF contributions and RRF reserves and short-term lending in the money market entails fewer credit risks than provision of loans. That is why credit rates are always much higher and deposit rates are much lower than the rates in the money market.

The ratio of money market rates and rates on banking transactions in recent years is fairly stable. Due to this fact, changes in the key rate or expectations regarding its future dynamics, reflected in the IRS quotes, are transmitted with minimal lagging to bank loan and deposit rates, which indicates the effectiveness of the monetary policy of the Bank of Russia.

In addition to changes in the key rate, the level of interest rates on loans and deposits is influenced by inflation and inflation expectations. In particular, current inflation and inflation expectations of the public limit the bottom level of deposit rates. Thus, if deposit rates fall below inflation, the attractiveness of deposit operations for depositors decreases, and further reduction of deposit rates becomes unjustified for banks. As a result, the impact of further lowering of money market rates on rates of banking operations is weakening, as it was in Russia in 2006-2007.

Besides, banks' preferences for the maturity structure of deposits and loans are related to inflation expectations, which also affect loan and deposit rates. In particular, long-term loans issued at current relatively low rates will become a source of interest risk to banks if future inflation turns out to be higher than now (banks will receive income at 'old' rates, while interest rates on deposits and, respectively, interest expenses of banks will grow). For this reason, banks are more interested in placing short-term loans. At the same time, with respect to deposits, the risk of high inflation acts in the opposite direction: the higher the inflation in the future, the smaller the amount in real terms the bank will pay to the depositor, therefore banks are interested in attracting long-term deposits. As a result, in the segment of short-term banking operations, the range of rates is shifted downwards, which contributes to the growth of short-term lending while reducing the attractiveness of short-term deposits for depositors. In the segment of long-term operations, this range, on the contrary, is shifted upwards, as a result of which the interest of depositors in placement of long-term deposits increases while the attractiveness of long-term loans for borrowers, on the contrary, decreases.

The policy of the Bank of Russia creates prerequisites for a gradual reduction in interest rates for loans and narrowing the spread between deposit and credit rates. In addition to gradual easing of the monetary policy, the lowering of interest rates for loans and deposits is facilitated by the reduction in inflation expectations in the conditions of inflation slowing down to the level close to 4%. Besides, the Bank of Russia constantly encourages the increase in the efficiency of credit institutions, in particular the introduction of digital technologies (leading to lower operating costs) and the improvement of risk management (leading to a reduction in risk premiums priced in lending rates). This creates conditions for further narrowing of the spread between loan and deposit rates. This narrowing will also be facilitated by the transition to proportional bank regulation. In the absence of significant macroeconomic shocks, the policy pursued by the Bank of Russia will lead to further decrease in the rates of the lending market.

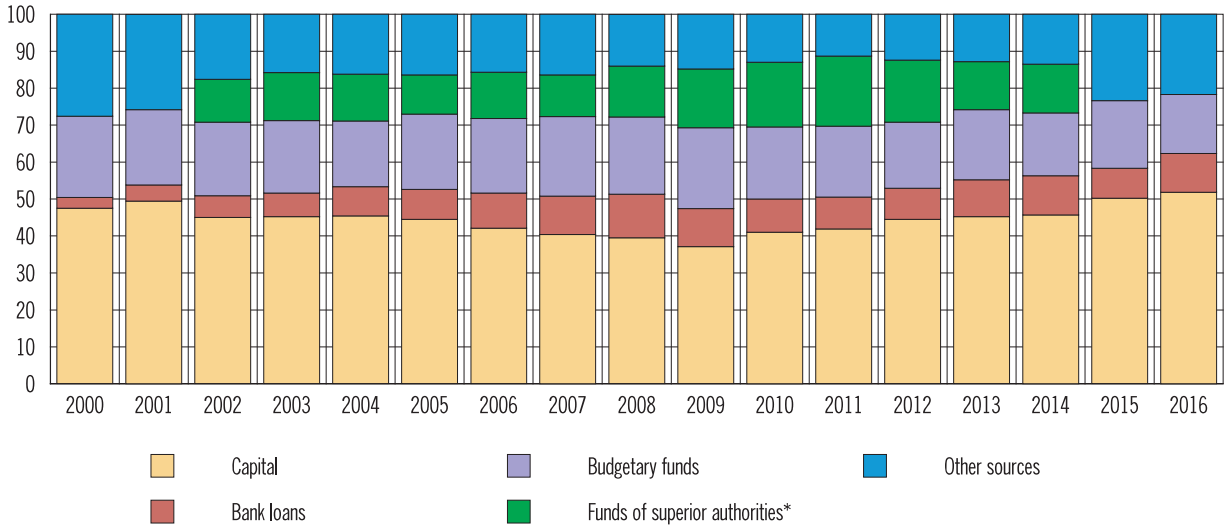
Appendix 8

Credit availability and debt burden in the Russian economy and its individual sectors

One of characteristic features of the modern economy is its high capital intensity. For this reason, one of the key factors ensuring the competitiveness of an enterprise is its access to financial resources. Companies have two main sources of funds for investments at their disposal: own or borrowed funds. The latter include resources obtained both on a market (loans, issued shares and bonds) and on a non-market basis (budget funds and investments of parent structures). In modern Russia, own funds and funds attracted on a non-market basis dominate among the sources of coverage of investment expenditures of enterprises. Credit resources provide an average of 8%, and taking into account borrowings in the capital market, only slightly more than 9% of investments in fixed assets.

Limited use of borrowed resources by Russian companies is due to a number of factors related to both the supply of loans and the demand for them. On the supply side, the main factor limiting lending is the risks of credit operations, which reduce the banks' willingness to increase their credit portfolios. The most important of them are credit risk (the risk of incomplete or untimely repayment of loan due to problems of a particular borrower or deterioration of the economic situation in general) and interest rate risk (the risk of growth of rates in the economy, so that a loan issued at 'old' low rates becomes unprofitable). It is natural that, in the long term, the uncertainty associated with the occurrence of these risks is higher, which, other things being equal, forces banks to raise interest rates for long-term loans. In addition to general economic reasons, a number of industry specific features also affect the willingness of banks to extend loans to enterprises: existing level of risks in the industry, scale of borrowers' activities, export orientation, capital turnover period, and availability and nature of state support. The main factors affecting the availability of credit will be described in more detail below.

Structure of fixed capital investment in the Russian Federation by source (as % of total)



** Included in other sources of fixed capital investment in calculations for 2000, 2001, 2015 and 2016.*
Sources: Rosstat, Bank of Russia calculations.

An important factor determining the availability of loans is the economic situation and the overall level of economic uncertainty. During periods of sustained growth of the Russian economy, banks' assessment of credit risks affects primarily loan interest rates, that is, price restrictions of the availability of borrowed funds. During periods of economic turbulence, the quality of bank assets deteriorates, and credit institutions, along with increasing interest rates, tighten the requirements for the financial position of borrowers, refusing to lend to companies whose reliability is not sufficiently certain. This leads to a slowdown in lending growth or even its reduction in certain sectors. In particular, in 2015-2016, there was a sharp reduction in the volume of lending to trade and construction companies (by 20% and 21% respectively, while corporate lending in general declined by only 0.3%)[1]. This was due to credit risk growth and tightening of requirements to selection of borrowers in these industries in the context of a drop in consumer demand amid a significant deterioration in the macroeconomic situation.

Another important factor limiting the use of borrowed funds by Russian companies is high inflation risks in the Russian economy. Since the early 1990s, inflation in Russia has not only been high but also characterised by unpredictable fluctuations. Since the tenor of bank liabilities is on average significantly lower than the tenor of their assets[2], fluctuations in inflation were a source of interest risks to credit institutions. In case of yet another surge of inflation (and, accordingly, of rates in the economy), the costs of bank liabilities would grow faster than the profitability of bank assets. This reduced the attractiveness of ruble loans (especially long-term loans) for Russian banks and, accordingly, the availability of borrowed funds for companies.

In an effort to reduce inflation risks, banks preferred to provide short-term loans. If the borrower needed to attract long-term funds, banks sought to issue loans in a foreign currency, as the inflation risks to assets in US dollars or euros were significantly lower than in rubles. As a result, in the first half of the 2000s more than a half of all loans to organisations with the tenor exceeding one year (including two-thirds of loans for over three years) were foreign currency transactions. At the same time, in the segment of short-term loans, the share of foreign currency loans did not exceed 25%. Starting from the second half of the 2000s, when inflationary pressure gradually began to weaken[3], banks were more willing to provide long-term ruble loans. Nevertheless, since banks are already accustomed to operating in the conditions of high inflation, they have not yet fully adapted their credit policy to the changed conditions. This continues to limit the availability of long-term ruble loans to the economy. As of the beginning of 2017, the share of foreign currency claims in the loan portfolio with the tenor of over three years was 41%, almost twice as high as for loans for up to one year. As inflation consolidates near 4% and inflation expectations are pegged to the inflation target, the negative impact of this factor on the availability of long money in the economy will gradually weaken.

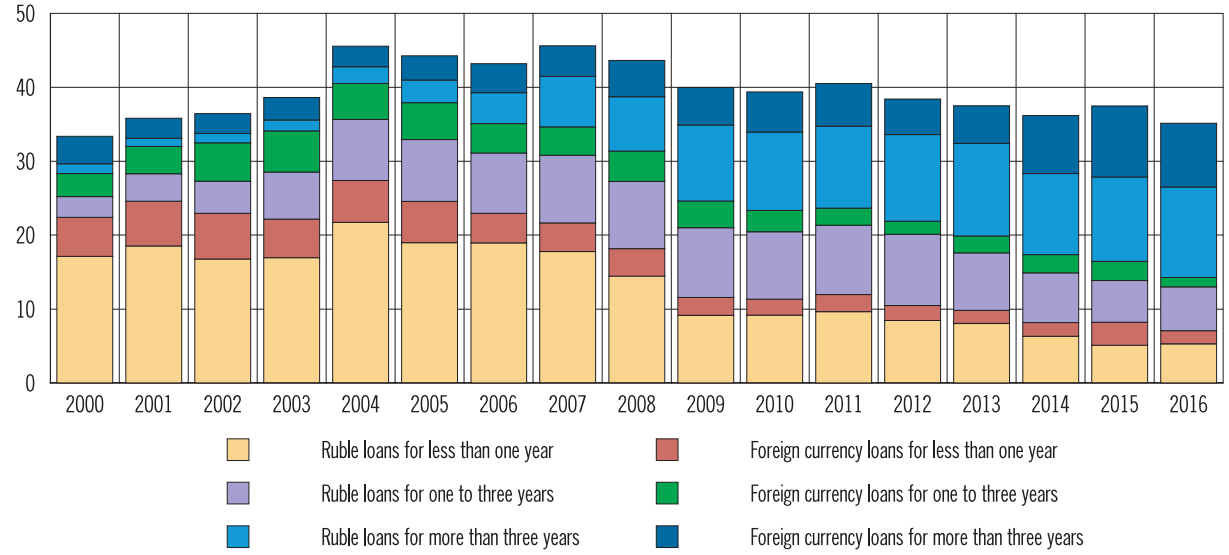
Availability of loans for each borrower, along with general economic conditions, is also affected by the industry specifics. In particular, the most important factor that determines the attractiveness of loans for banks and, accordingly, the availability of loans for borrowers of various industries is the level of corporate credit risk. In an effort to insure themselves against losses associated with non-fulfillment of obligations by borrowers, banks price these risks in loan rates. Therefore, a low level of lending rates in the Russian practice is typical mainly for industries with a low level of overdue debt (for example, large borrowers engaged in the food industry, petro-

[1] *Lending increases are shown free of currency revaluation effect.*

[2] *Especially considering the fact that depositors – private individuals can withdraw their deposits at any time losing only a part of the accrued interest.*

[3] *In 2006, inflation fell to single-digit values for the first time.*

Structure of corporate loan portfolio of the Russian banking sector by term and currency of the placed funds (as % of net assets)



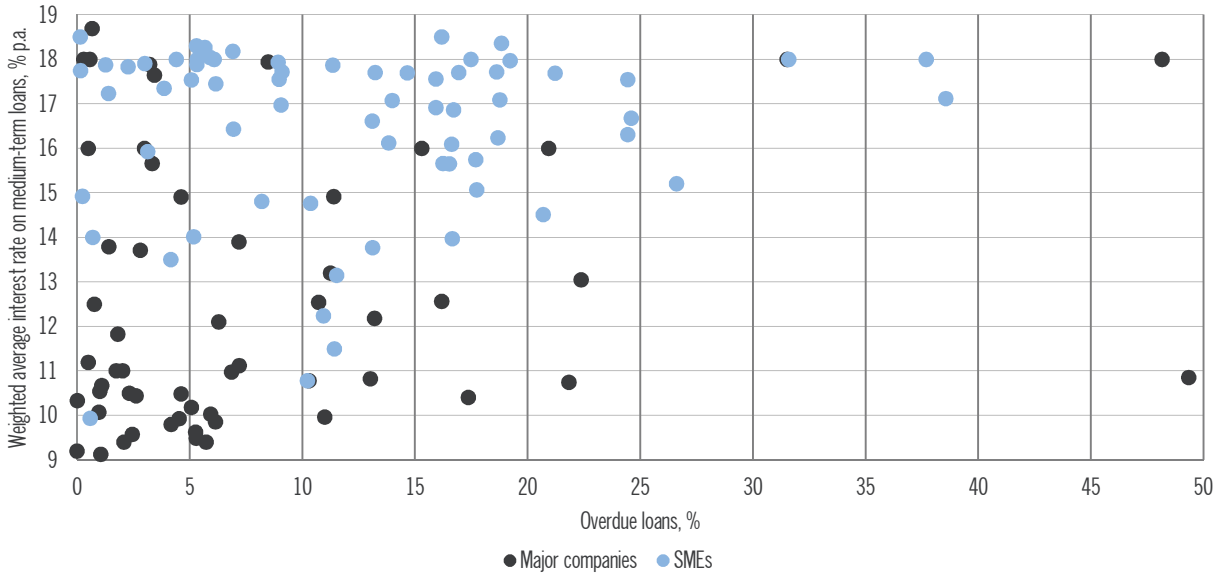
Source: Bank of Russia calculations based on bank reporting Form 0409101.

chemicals, and aircraft and shipbuilding). However, it should be taken into account that banks cannot have full information about the financial conditions of a potential client and are forced to evaluate it based on the information available to them. In such conditions, industry affiliation becomes one of the signs of borrower's reliability and even financially stable companies that belong to a sector with a high share of non-performing borrowers suffer in one way or another from lower credit availability.

The level of credit risks is not the only factor that influences the size of loan interest rates and, accordingly, the availability of borrowed funds. An important component of interest rates is banks' operating costs. The cost of processing a loan for 1 billion rubles is obviously less than that of a thousand of loans worth 1 million rubles each. Therefore, the smaller the size of a single loan, the higher the rate should be in order to cover operating expenses. For example, in 2017 H1, the credit rate for small and medium-sized enterprises exceeded the rate for large companies by 2.5 to 3.0 pp. Accordingly, the share of small and medium-sized enterprises in the industry is an additional significant factor affecting the level of loan interest rates. This explains why industries with a low concentration of production attract loans at high rates, even though the borrowers generally have good payment discipline (this is true, in particular, for fishing, repair and installation of machinery and equipment industries).

Differences in the availability of credit by industry can also be related to specific characteristics of certain types of economic activity. One of them is the industry's high export potential. For companies focused on the domestic market and receiving income in rubles, attracting foreign currency loans involves taking on foreign exchange risks. However, export-oriented companies (oil and gas complex, oil refining, metallurgy, chemical industry) receive a significant part of their revenues in foreign currency. Therefore, the propensity of Russian banks to provide long-term loans in foreign currency is not a factor limiting the availability of credit for companies in these industries. As a result, export-oriented industries are among the largest borrowers in the domestic market, and in the structure of their borrowings the share of medium- and long-term loans is significantly higher than the Russian average.

Interest rate to overdue loans ratio in loans to corporate borrowers by industry in June 2017*



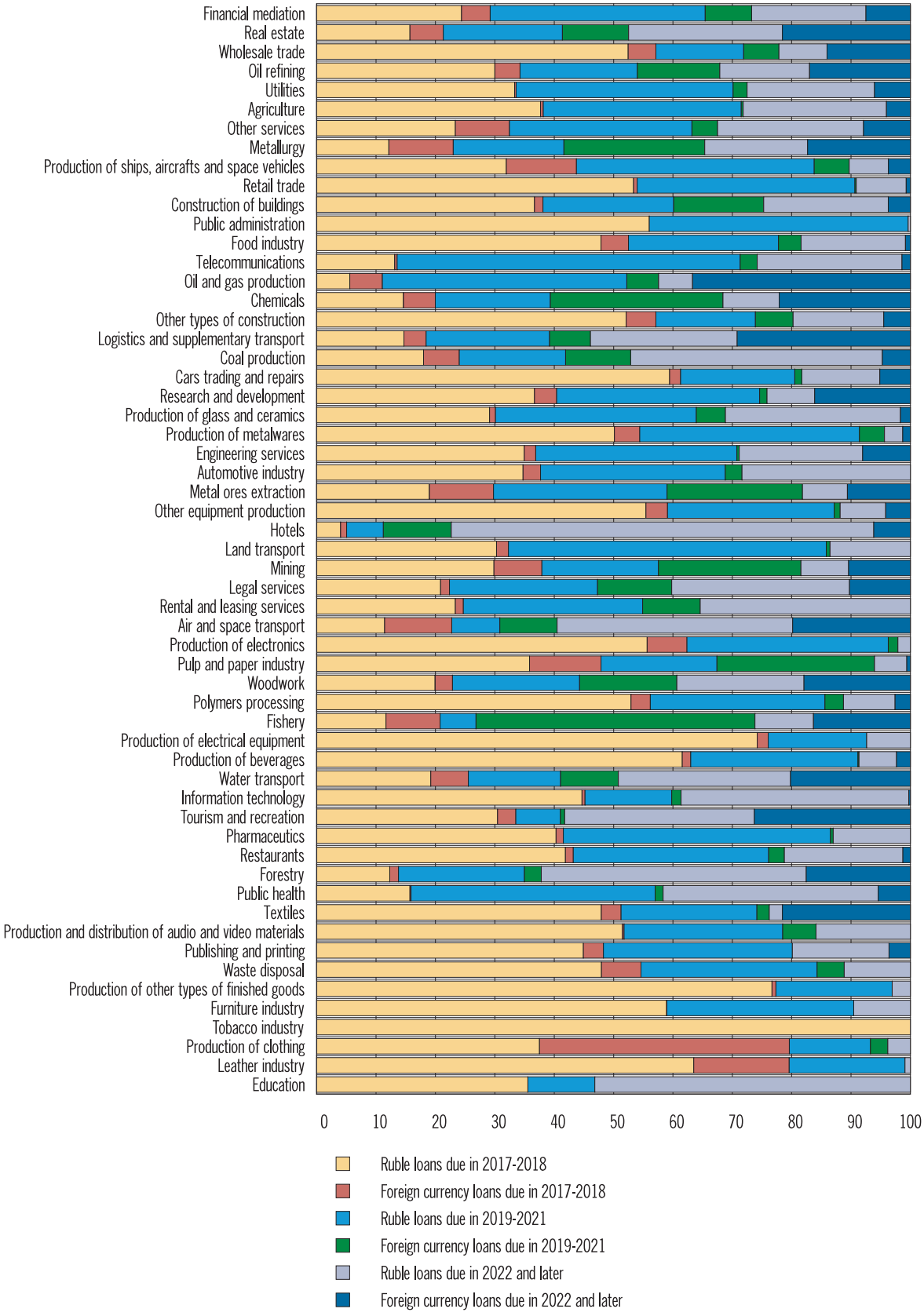
** Preliminary data.*
Source: Bank of Russia calculations based on bank reporting Form 0409303.

Another industry feature that affects the availability of credit is high capital turnover that is characteristic of certain types of economic activity (in particular, trade, repairs, or food industries). Enterprises of these industries are less dependent on long-term borrowings and can largely satisfy their need for capital by attracting short- and medium-term loans. Since short-term loans are less risky for banks (including inflation risks) and banks are more willing to provide them, the companies that belong to the above-mentioned industries are also less likely to face limited credit availability and are among the largest borrowers. The borrowings of these companies are dominated by short- and medium-term, mostly ruble-denominated, liabilities.

Finally, the last factor affecting credit availability is the state support for priority sectors of the economy. It helps lower the cost of borrowing for companies by reducing lending banks' risks (government guarantees for loans, confidence in the sale of products for government clients) or through direct subsidisation of credit interest rates for enterprises of certain industries. Such priority sectors include, in particular, agriculture, aircraft, spacecraft and shipbuilding. As the companies in these industries are oriented at the domestic market, ruble loans, naturally, prevail here. At the same time, despite a rather long payback period in some of these industries (in particular, in shipbuilding and aircraft building industries), the tenor of borrowing of companies there is close to the average Russian level. State support allows such enterprises to reduce the refinancing risk and use more affordable medium-term loans that do not pose significant inflation risks to banks.

The short period of economic turbulence in late 2014-2015 once again demonstrated how temporary destabilisation of external or domestic economic conditions is reflected in the deterioration of the quality of bank assets, forcing credit institutions to tighten requirements to the financial position of borrowers and leading to a reduction in bank credit availability. However, in 2017, credit availability for corporate borrowers has already recovered its growth. This is reflected both in the financial statistics data (a noticeable decrease in interest rates) and in the estimates of corporate and bank experts (survey results indicating a moderate easing of non-price lending conditions). As the situation in the Russian economy improves, corporate borrowers themselves are more positive about their ability to raise funds from credit institutions. This is evidenced, in partic-

Portfolio of bank loans to major corporate borrowers by industry, as of 1 July 2017 (preliminary data; industries are listed in descending order of their share in the total portfolio of loans to major corporate borrowers with the first twenty industries accounting for over 85% of the total volume of loans to major Russian companies, %)



Source: Bank of Russia calculations based on bank reporting Form 0409303.

ular, by the results of the IET's market surveys, according to which by the end of 2017 H1 the level of availability of bank lending in industry reached its maximum values since early 2015 and the ability of industrial enterprises to service loans has reached a historic record. Besides, according to a survey on the business activity of Russian organisations conducted regularly by Rosstat, the level of credit interest rates is not among the key factors limiting, in the opinion of business managers, the growth of production in the extractive and manufacturing industries.

Although 2017 has seen signs of recovery of credit availability, the claims to the economy are still growing slowly. First, credit growth is hampered by domestic companies' larger use of alternative sources of borrowed funds for financing their activities. For example, in February 2017, each 1 ruble of bank loans of large and medium-sized enterprises accounted for 30 kopecks of their liabilities in the form of issued bonds and 50 kopecks of other loans and borrowings (borrowings from non-bank institutions, issued promissory notes, etc.)[4]. Second, lending can be limited not only by supply side but also by demand side factors. The most important of them is the debt burden of the economy.

The growth of lending to the economy is inextricably linked to an increase in the level of debt burden in the real sector. A significant increase in the debt burden increases the risks to financial stability of companies. Attracting credit resources, the borrower (a company or an individual) is forced to pay the lender a certain price for temporary use of its funds (interest), that is, to bear the costs of debt servicing. In the event of an unstable financial position of the borrower or an unexpected deterioration of macroeconomic conditions, it may happen that a termination of or an abrupt reduction in the income stream in the absence of savings, on the one hand, and the existence of a significant amount of credit servicing obligations, on the other, will lead the borrower to losing solvency and to a bankruptcy procedure. Therefore, a material softening of credit conditions in order to maintain a high level of credit activity amid a significant preserved level of debt burden may lead to increased risks to financial stability and neutralise the positive effect of stimulating economic activity. This means that by attracting a loan today the borrower must be confident that tomorrow it will be able to incur the necessary amount of debt servicing costs even in the event of an unforeseen deterioration of macroeconomic conditions. Only then, the use of financial resources received in the form of a loan to finance the needs and new ideas of borrowers will have a real tangible economic effect. In conditions of high inflation that depreciates savings and unstable dynamics of macroeconomic indicators, mainly income, a high accumulated level of debt burden may not accelerate but, instead, slow down economic growth. In other words, as global experience shows, a high accumulated level of debt burden can create additional 'friction' in the functioning of the monetary policy transmission mechanism, weakening the effectiveness of the central bank's impact on the economy[5]. Therefore, a comprehensive analysis, involving both absolute credit values and debt burden indicators, of the credit sector is important.

Traditionally, debt burden at the macrolevel is estimated as the ratio of credit to GDP. This indicator is used due to relative ease of its calculation. Nevertheless, based on the above indicator, it is difficult to draw conclusions about the real situation with the debt burden since it does not take into account important information about the financial situation in the economy. Besides, it becomes difficult to perform intercountry debt burden comparison because, in order to characterise the dynamics of the debt burden as balanced or, on the contrary, causing concern from

[4] *Calculations of the Bank of Russia according to Rosstat form P-3 'Information on the financial condition of the organisation', the Bank of Russia's form of reporting of credit institutions 0409303 'Information on loans extended to legal entities', and data of Cbonds.ru news agency regarding the industry structure of corporate bond portfolio.*

[5] *See studies by Lo, Rogoff, 2015; Schäuble, 2015.*

the point of view of risks to financial stability, it is necessary to know the fundamentally justified, equilibrium levels of debt burden that may differ for different countries.

Another indicator of debt burden, an alternative to the credit-to-GDP ratio, is debt service ratio (DSR)[6]. This indicator is the ratio of accumulated debt payments flow (including interest as well as principal amount) to current income. Due to the lack of direct macrolevel data on actual payments, the calculation of DSR for Russia was made using the below formula with certain assumptions for the average loan period and the average level of interest rates[7]:

$$DSR_t = \frac{i_t \cdot D_t}{\left(1 - \left(1 + i_t\right)^{-s_t}\right) \cdot Y_t},$$

where DSR is debt service ratio;

D – total debt on loan;

i – average interest rate on extended loans;

s – average maturity;

Y – current income (GDP for Russia).

Unlike the credit-to-GDP ratio, DSR more closely reflects the current situation with the debt burden, since it explicitly includes the effect of interest rates and loan tenors on the debt burden value. In addition, due to its composition, the transition from the analysis of the credit-to-GDP ratio to DSR can facilitate intertemporal and intercountry comparison of debt burden levels. For example, developed countries have a long history of maintaining steadily low inflation and a high level of development of financial systems and, accordingly, a substantially lower level of nominal interest rates, as well as significant credit tenors. This makes it normal for them to maintain high credit-to-GDP levels, whereas their level of the current debt burden, measured with DSR, can generally be comparable to emerging market countries.

The level of credit-to-GDP ratio in Russia is significantly lower than in developed countries, however, as noted above, this cannot be viewed as the evidence of a favourable situation. As shown by DSR-based analysis, the debt burden in the Russian economy declined in late 2016 – early 2017 but its level in general remained rather high. As of early 2017 Q3, according to macrolevel estimates, the debt service ratio for the economy as a whole was 24% of GDP, and 24% for the internal debt. That said, according to intercountry studies, the value of debt burden when the economy may face financial stability risks is 20% to 25%[8].

In the debt structure broken down by type of loans, foreign currency loans account for about 15-20% while the rest (the largest part) is made up of domestic loans in rubles. Amid significant ruble strengthening in early 2017, foreign currency debt significantly declined and was a material factor of the overall debt burden reduction in the economy in 2017 H1.

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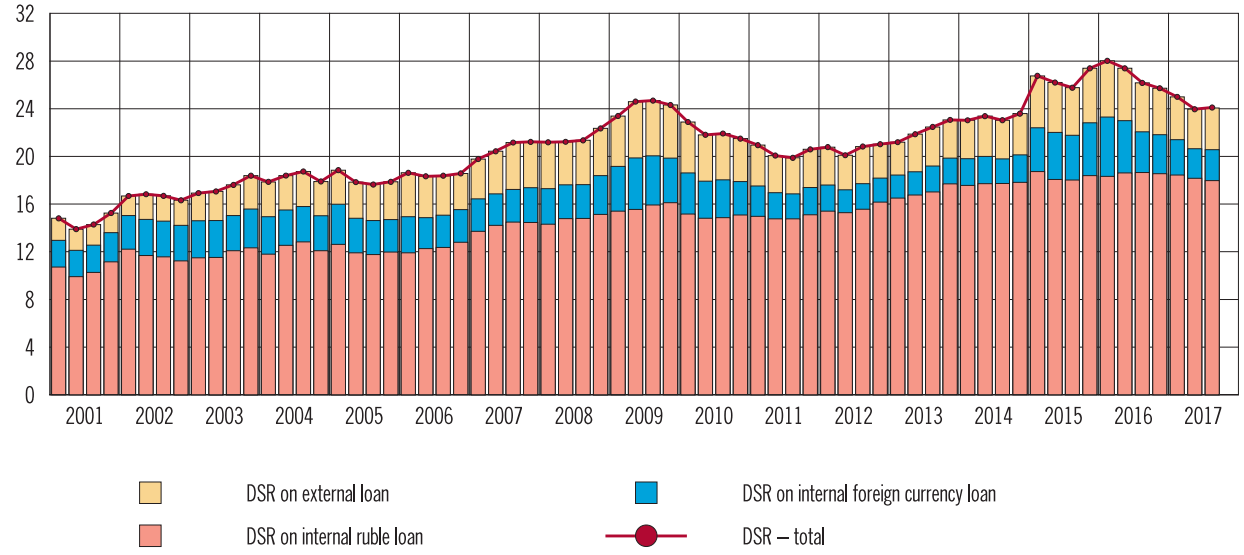
[6] *DSR calculation methodology was suggested in Drehmann, Juselius, 2015.*

[7] *The average loan period is estimated taking into account the lending volume data broken down by payment maturity ('up to 1 year', '1 to 3 years', 'more than 3 years') with the average loan period in the 'more than 3 years' interval assumed to be 5 years. For the purpose of calculation, the indicator was smoothed over eight quarters. The average term of external loans was assumed to be stable over the whole observation period at the level of 5 years (which corresponds to similar indicators of comparable emerging markets). As no statistical data about average interest rates on accumulated debt were available, the average interest rates on newly extended loans for the previous eight quarters were used, which generally corresponds to the average loan term over the observed period. The interest rates on the external debt were estimated based on the statistics of the balance of payments of the Russian Federation (with due regard to the information on the external debt and payments under debt obligations in the current account of the balance of payments).*

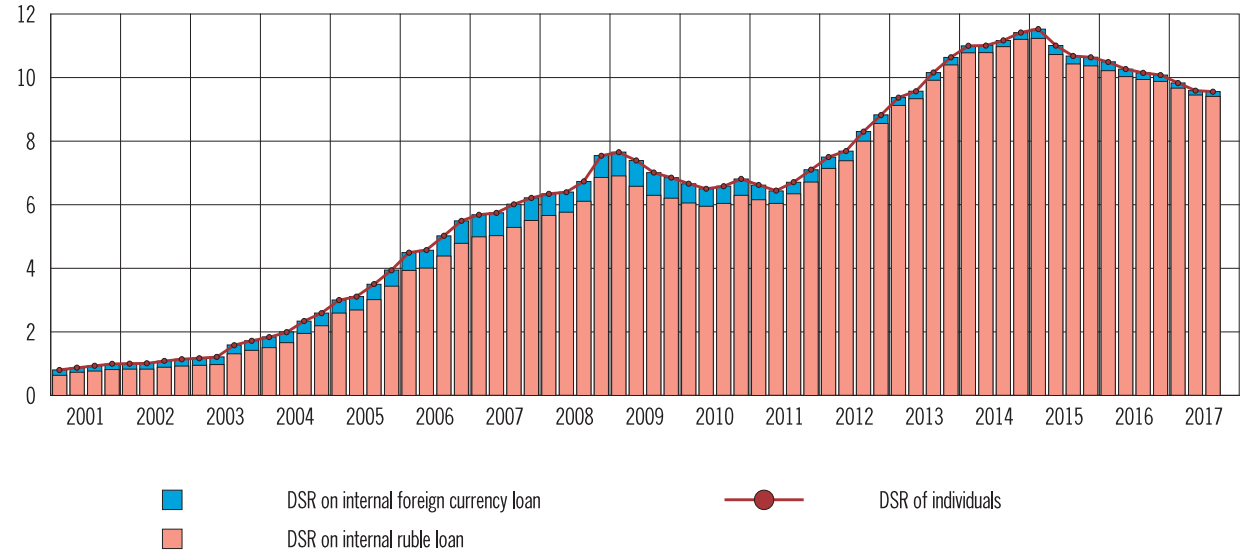
[8] *See Drehmann, Juselius, 2012.*

Debt service ratio (DSR) of the Russian economy by type of loans (%)



Sources: Rosstat, Bank of Russia calculations.

Debt service ratio (DSR) of individuals by type of loans (%)



Sources: Rosstat, Bank of Russia calculations.

Broken down by industry sectors, loans to households account for about 18% while the rest is the debt of the non-financial sector.

2017 Q3 saw a growth trend in the dynamics of the debt burden of the population amid gradual recovery of consumer activity. However, the overall debt level remains relatively insignificant and, combined with a smooth, slow and recent departure from the savings model of behaviour, does not pose inflation or other risks.

The macrolevel analysis of the debt burden of the population can be supplemented with the analysis of microdata. In particular, for this purpose, it is possible to use the results of household surveys within the framework of the Russian Monitoring of the Economic Situation and Health of the Population conducted by NRU HSE in 2013-2016.

Representative sample*

	Income group I	Income group II	Income group III
Criterion of group formation by income distribution per person	< 3rd decile group	from 3rd to 7th decile group	> 7th decile group
Income per person	less than ₽12 thousand	from ₽12 to ₽21 thousand	over ₽21 thousand
Number of persons	4,109	4,283	3,068
Household average income	₽27 thousand	₽40 thousand	₽73 thousand
Number of households	1,285	1,719	1,287

** As a part of the research the sample was broken down into groups by income per person. Groups were formed according to distribution of income within each year: households with the income less than 3rd decile formed income group I; with the income between 3 and 7 deciles formed income group II; the rest of the households formed income group III.*

Source: Bank of Russia calculations.

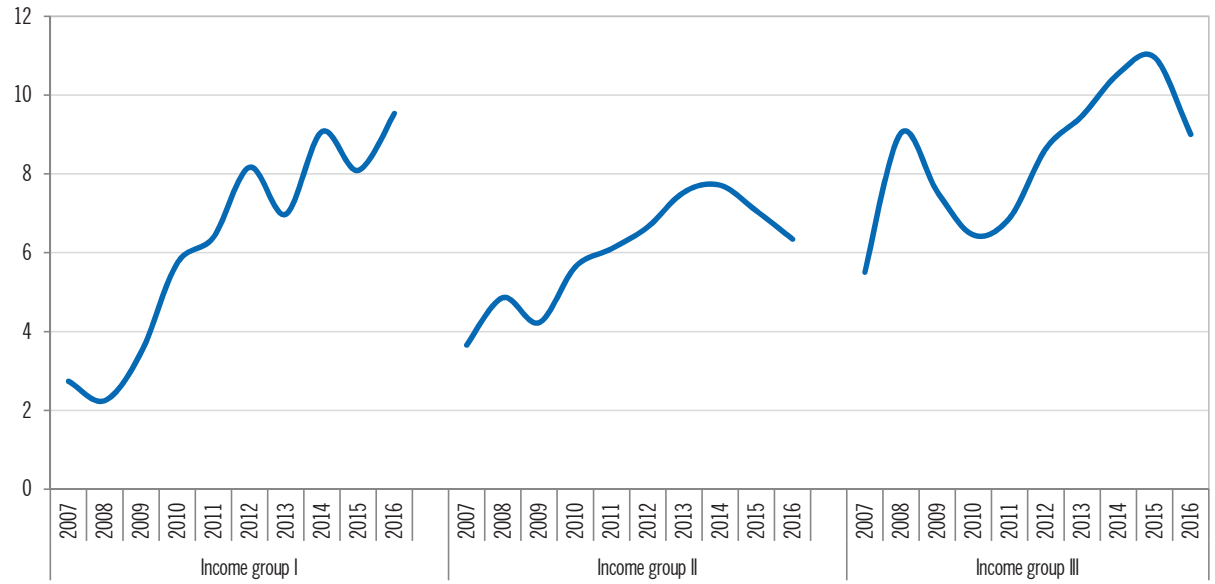
In general, the results of microdata analysis confirm the conclusions made in analysing the debt burden of the population at the macrolevel. The level of debt burden, estimated based on microdata, is quite close to the macrolevel DSR assessment and is around 10% for all income groups. The analysis did not reveal any significant differences in the debt burden of different income groups. However, the debt burden is somewhat higher for the third (high-income) group, which is a good signal, as more affluent households are more likely to repay their loans, which will contribute to the stability of the banking system. The debt burden for the second and third income groups reached its peak in 2014-2015, after which it began to decline. Dynamics of the debt load of the first income group in 2012-2016 was quite volatile but this could be more likely related to fluctuations in the sample coverage and not to fundamental changes in household behaviour.

Analysis of the debt burden of the corporate sector, just like that of the population, can be significantly expanded by microdata studies (at the company level) that take into account a number of effects that are not visible at the aggregate level. Microlevel assessment of the debt burden can be performed using quite a wide range of indicators: the ratio of the book value of liabilities to the market value of assets, the ratio of the current cash flow to the amount of interest payments, the ratio of the total debt to the company's capital, the ratio of the amount of borrowed funds to the company's assets. The choice of any particular indicator is largely determined by the availability of data and the specifics of the study.

Debt burden assessment at the microlevel can also be performed on the basis of DSR. When calculating DSR based on microdata, the ratio of debt payments during the year (including interest) to the company's revenue is used[9]. The assessment of debt burden using the reporting of about 2 million companies almost completely covers Rosstat's estimate for the economy's output and shows that there still is a fairly significant spread of debt burden levels both among companies within industries and among the industries themselves. In 2016, such industries as agricul-

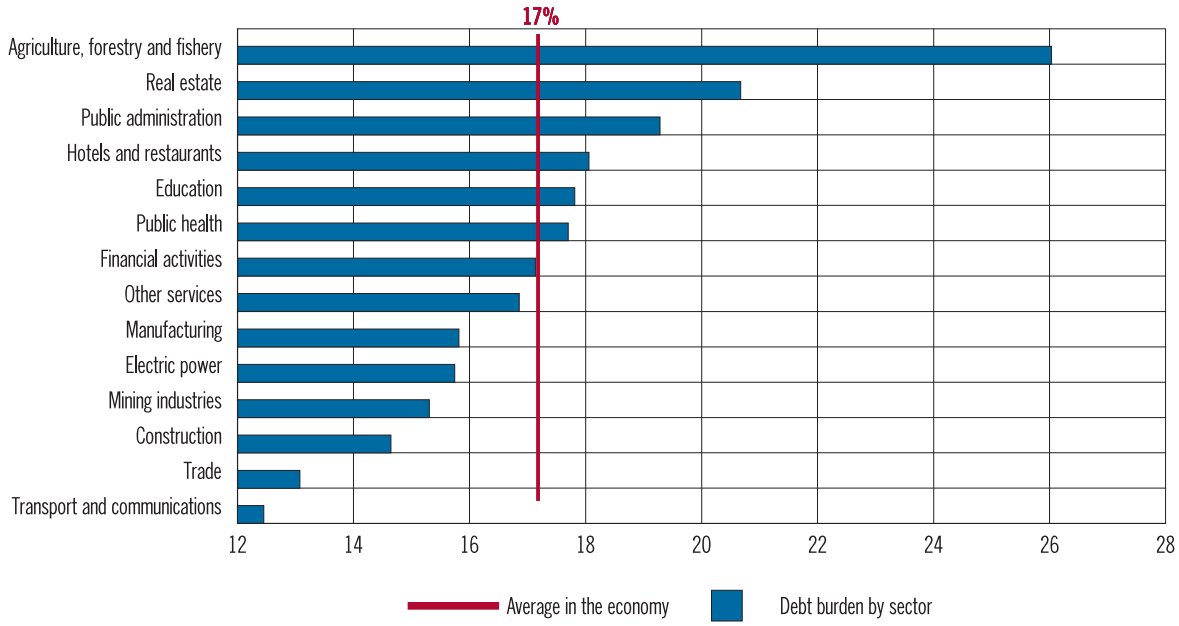
[9] *For the purpose of assessment, the data on borrowed funds of companies with a maturity of no longer than 12 months after the reporting date (line 1510, RAS Form 1) was used as the value of debt payments flow. This value includes not only the principal amount of the loan but also interest payments in accordance with the terms of contract, which corresponds to the DSR methodology. Profit before tax, net profit or revenue can also be used as an analogue of the income stream. Corporate net profit would provide the closest equivalent of the revenue stream for DSR calculated based on macrodata. However, when the analysis is performed at the company level, there arises a difficulty due to the fact that net profit is a fairly volatile indicator, which often does not reflect the real dynamics of the company's free cash flow and can take negative values. Considering also that net profit and pre-tax profit represent a financial result after debt payments, the ratio of debt payments during the year (including interest) to the company's revenue would be the most preferable indicator of its debt burden in the analysis based on microdata.*

Overdue loans to income by household income group



Source: Bank of Russia calculations.

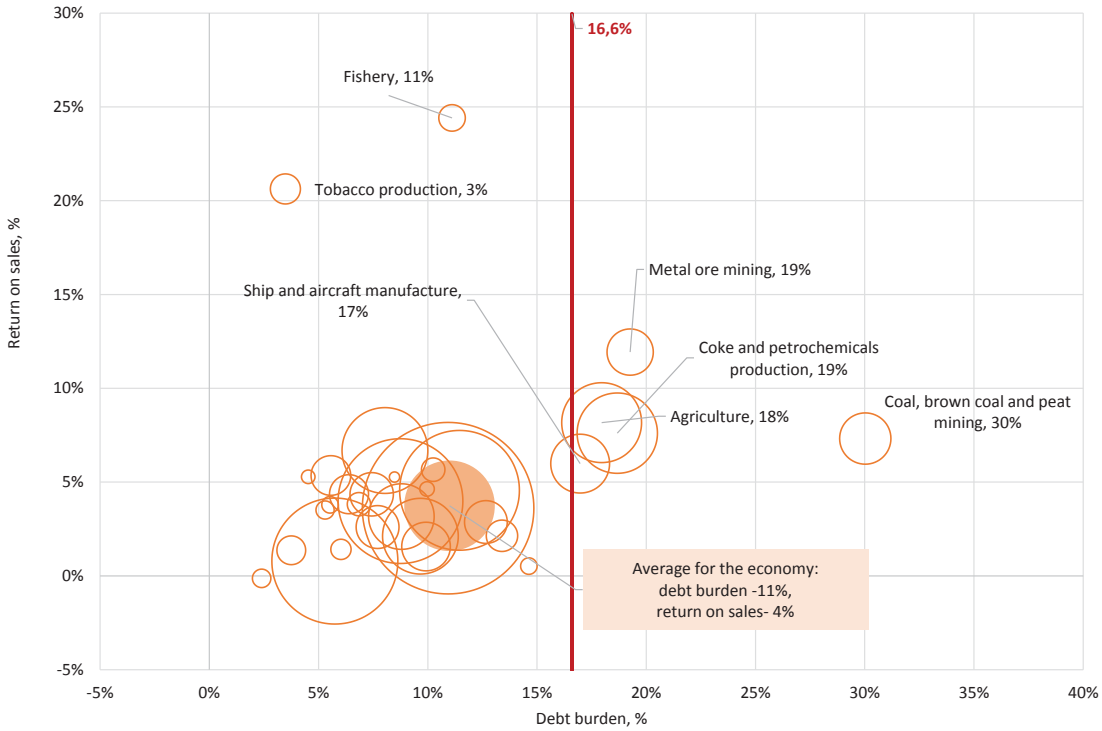
Weighted average debt burden in different sectors of the Russian economy in 2016 (%)



Source: Bank of Russia calculations.

ture, real estate operations, public administration and compulsory social security demonstrated the highest level of debt burden. In agriculture, the fact that the debt burden exceeds the average Russian level is persistent and is partly due to relatively low profitability of companies that are forced to resort to financing investments using borrowed funds and that have the opportunity to accumulate substantial amounts of loans in the context of government support programmes for the industry. In the real estate sector, high level of debt burden remains after the surge during the 2014-2015 crisis and is gradually decreasing as the situation in the Russian economy improves.

Median debt burden by industry in 2016*



** The point in the chart is scaled to the value of sales revenue of the industry.*

Source: Bank of Russia calculations.

Relatively high level of debt burden in the sectors with state participation (public administration, social security, health care, education) is largely due to the state's participation in the form of provision of budget loans and, in general, does not pose such significant risks to companies as private debt.

In manufacturing industries, the level of debt burden has significantly dropped after increasing during the crisis in view of economic recovery in 2016. However, in a number of industries there is still a fairly high level of accumulated debt, which, combined with relatively low profitability, can be a source of financial stability risk to companies.

High debt burden of companies can lead to a significant deterioration of their financial condition and, along with other factors (for example, a significant decline in the profitability of assets), serve as the reason for increased likelihood of their bankruptcy. This is evidenced by estimates based on the data of the accounting statements of industrial companies. At the same time, in order for the debt to be at a 'risk-free' level, the company must have a slightly negative or non-negative profit, and the debt should not exceed 16.6% of the company's revenue. This assessment of the critical level of debt, above which the probability of bankruptcy is significantly increased, is generally comparable with international estimates based on macrodata. If the debt burden of industrial companies exceeds the threshold level of 16.6% of revenue, it will lead to an increase in the probability of bankruptcy by 11.5%, with other factors fixed at their average levels.

A significant debt burden limiting the demand for loans is largely the reverse side of the restrictions on the availability of lending from the supply side. The natural desire of banks to avoid interest risks by limiting the amount of long-term lending, reinforced by the long history of high and volatile inflation in Russia and, accordingly, the uncertainty of inflation expectations, affects the structure of lending operations, and therefore, the level of debt burden of companies.

First of all, the tendency of banks to limit the amount of long-term loans reduces the average loan repayment time (s_t in the DSR calculation formula) and therefore the borrower's annual expenses with regard to servicing its obligations (the shorter the loan term, the greater the proportion of the loan amount the borrower must return within a year).

In periods of a favourable situation in the Russian economy, limited duration of lending is, to some extent, smoothed by the ability to refinance the obligations by attracting new loans. However, during periods of instability, increased credit risks force banks to tighten the criteria for selecting borrowers, as a result of which companies that have attracted short- and medium-term loans and expected to prolong or refinance them face difficulties due to the need to repay their obligations.

As it was demonstrated above, another consequence of interest risks associated with the uncertainty of inflation expectations is the notable degree of dollarisation of the corporate loan portfolio, especially of its long-term segment. Since during periods of instability in the Russian economy the ruble nominal exchange rate generally weakens, the debt burden of the economy, as a result, increases. Higher debt burden, combined with the materialised refinancing risk, can aggravate the instability in the economy and slow the subsequent economic recovery.

Finally, it is necessary to take into account that loan rates (i_t in the DSR calculation formula), especially long-term, include a premium not only for credit but also for interest rate risk (the main source of which is inflationary instability). Therefore, the debt burden of borrowers also increases.

This explains a seemingly paradoxical combination of complaints about the inaccessibility of credit in the Russian economy and, at the same time, its high debt burden. The same factors lead to the fact that, for some borrowers, attracting a loan involves substantial expenses for its servicing while for others loans are hardly accessible at all. At the same time, these factors have different effects on lending in various industries. With certain reservations, most branches of the Russian economy can be attributed to one of three groups.

The first group includes a significant part of the manufacturing industries (textile, furniture production, a number of machinery production industries). These enterprises face difficulties in attracting borrowed funds and, as a result, the debt burden in these industries is low. During periods of economic turbulence, these industries do not face significant additional difficulties with regard to servicing their obligations but the potential for their growth during periods of favourable conditions is limited.

The opposite situation is observed in many service sector industries (financial intermediation, leasing, and real estate transactions). Due to high capital turnover, these companies can raise funds through short- and medium-term loans but, as a result, they have a record level of debt burden. This is one of the reasons for the pronounced cyclicality of these industries' activities (rapid growth during periods of favourable conditions and sharp deterioration of the situation during periods of instability).

The third group lies between the above two groups of industries. It includes the sectors whose stable position in the Russian economy is ensured due to operations with the state sector of the economy (from controlling state participation in the capital of large industry companies to credit subsidisation programmes to industry borrowers), export potential or the potential for import substitution (in recent years). In some of these industries, two or all three of these factors are evident (agriculture, aircraft and shipbuilding, extracting and fuel industry). The availability of loans for enterprises in these industries is quite high, which leads to a significant level of debt burden. At the same time, due to the fact that these industries' sales are less influenced by the business cy-

cle phase, their incomes are more stable than those of service companies, and during periods of economic turbulence, the debt burden of the third group of industries does not become a source of significant additional shocks. However, the set of industries forming this group is rather narrow and has little potential for expansion.

Therefore, macroeconomic risks associated with the volatility of inflation expectations not only limit credit availability, increase the debt burden of Russian companies, and aggravate shocks associated with periods of economic instability, but also hamper the process of diversifying the Russian economy, preserving priority development of the extractive industry characteristic of the recent decades.

However, in the medium term, a gradual change in the situation can be expected. First, consistent implementation by the Bank of Russia of its inflation targeting policy aimed at achieving low and stable inflation creates conditions for reducing inflation risks and lowering inflation expectations, contributing to the increase in the availability of long-term credit resources for enterprises of all industries. Second, the Bank of Russia's actions aimed at development of financial infrastructure create prerequisites for more effective management of banks' risks. Thus, measures taken by the Bank of Russia to improve credit risk management (including the development of credit history bureaus, national rating agencies, etc.) weaken the influence of low payment discipline, characteristic of individual sectors of the economy, on the availability of credit for reliable borrowers engaged in that type of activity. Support for the development of financial indicators (Section 2) allows banks to reduce interest rates and more actively provide long-term lending in the form of loans with floating interest rates or by hedging interest rate risks through interest rate derivatives. Finally, the observed economic recovery has a beneficial effect on the financial position of companies, which in turn leads to improved quality of bank loan portfolios and reduced requirements for additional reserves. As a result, banks gradually become more willing to lend to a wider range of borrowers and industries.

In view of the foregoing, one can expect further expansion of opportunities to attract credit facilities by enterprises with certain weakening of the influence of specific nature of industries on maturity and currency structure of corporate lending and with diversification of the industry structure of Russian banks' credit portfolio.

Appendix 9

The role of floating exchange rate as a built-in stabiliser of the economy in 2014-2016

The floating exchange rate of the national currency acts as a 'built-in stabiliser' of the economy, which is its main advantage compared to the managed rate. It helps the economy adjust to changing external conditions, smoothing the impact of external factors.

This can be seen during the last two episodes of turbulence of the Russian economy, which were caused by deterioration of external conditions, including an abrupt decline in oil prices. With a floating ruble exchange rate, the economy has become more resistant to external shocks: during the 2008-2009 crisis, the GDP in general dropped by more than 10% while in 2015-2016 the decline was slightly more than 3% (amid a comparable decline in oil prices).

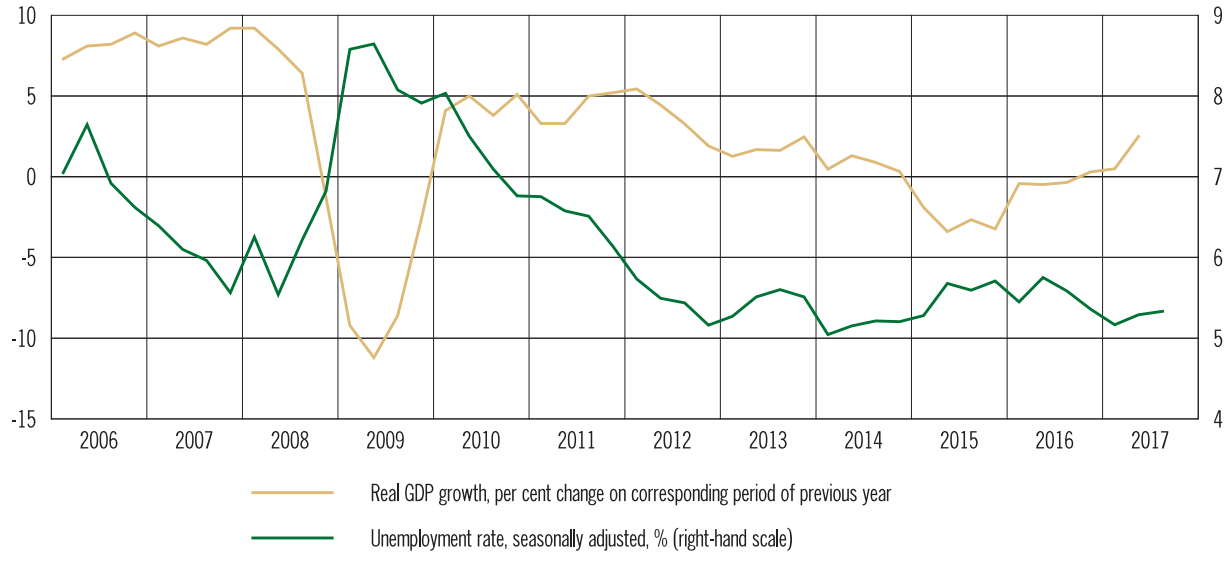
A higher level of business activity in 2015-2016 also became one of the factors (along with a decrease in real wages) that helped to save jobs and limit unemployment growth.

How does a 'built-in stabiliser' function? For example, when oil prices grow, the ruble is strengthening, which reduces the risks of 'overheating' of the economy; when oil prices fall, the ruble is weakening, which provides support for domestic producers by increasing price competitiveness of their products, potentially leading to increased exports, including non-resource exports, and stimulating import substitution.

These processes could be observed in certain sectors of the Russian industry after the ruble weakened in 2014-2015. Thus, import substitution was actively developing in the food industry (which, in addition to ruble weakening, was due to the introduction of a food embargo in August 2014). The greatest success was achieved in the production of dairy products, pork and beef, fish and fish products, which accounted for the main increase in the output of these industries.

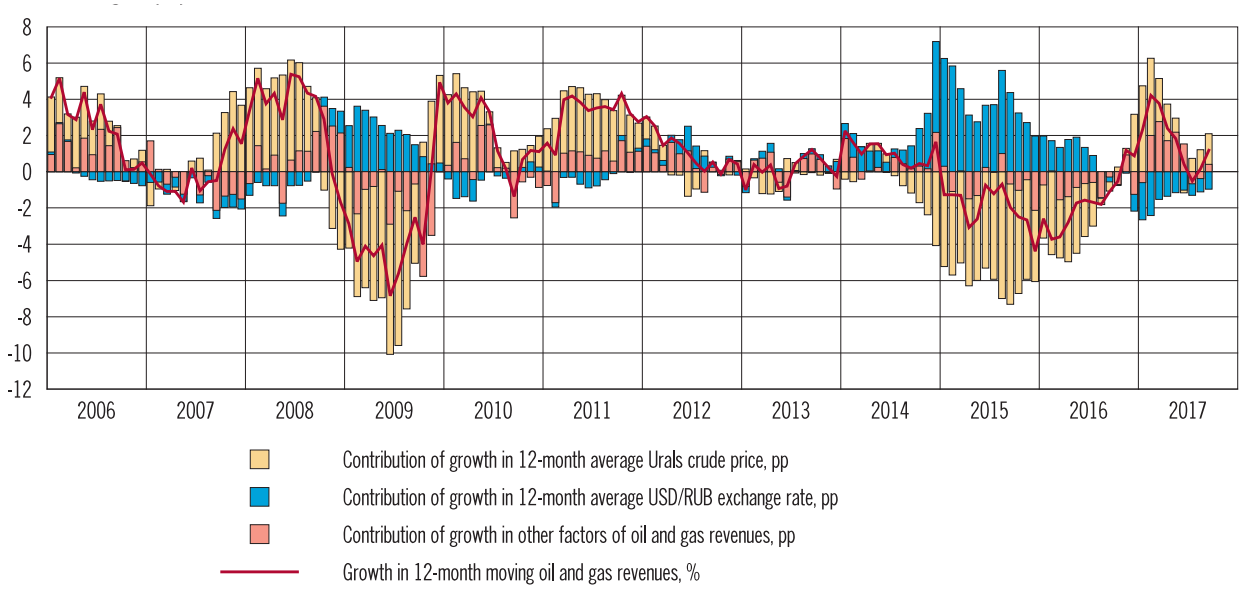
Among other industries that increased output as a result of ruble weakening in 2014-2015 are those that are focused on processing of raw materials. Due to exports, there was an increase in the output of wood processing, cellulose production, and metallurgy; due to import substitution

Unemployment rate and GDP growth



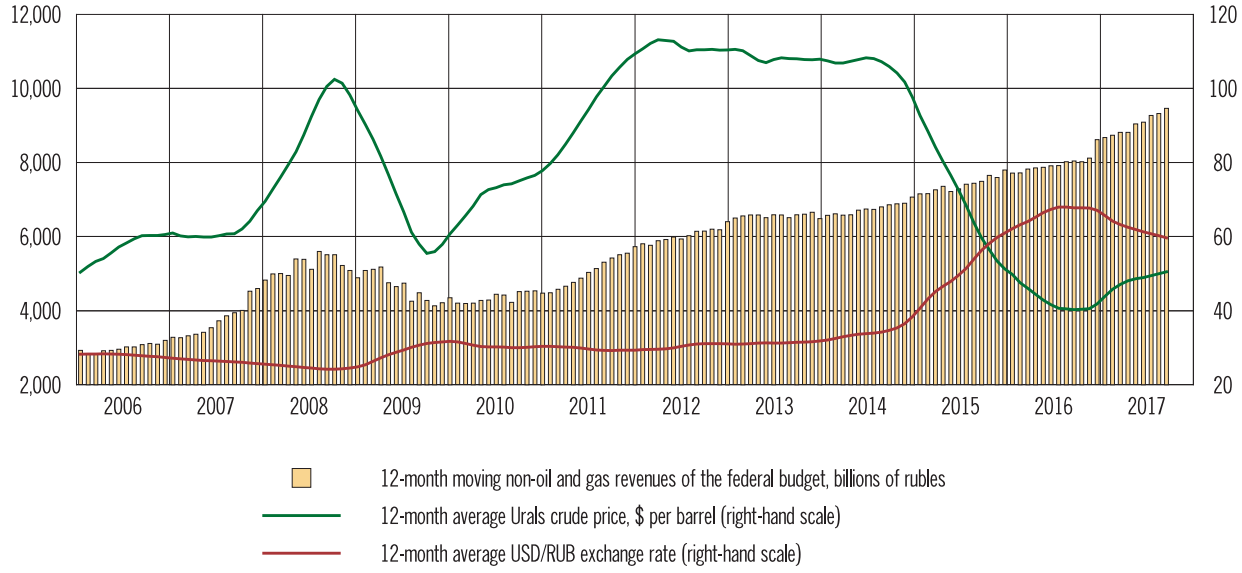
Source: Rosstat.

Contribution of various factors to growth in oil and gas revenues of the budget (%)



Sources: Federal Treasury, Bank of Russia calculations.

Non-oil and gas revenues and ruble exchange rate



Sources: Federal Treasury, Bank of Russia calculations, Reuters.

and exports, in the chemical industry (chemical fibers, soda), in the production of rubber (tires, pipes) and plastics (polymer plates).

The production of investment goods was less affected by increased competitiveness. However, import substitution contributed to the increased output in a number of industries: agricultural machinery and equipment (combines, tractors, milking plants); mechanical equipment (automobile engines, gas turbines); and vehicles (trucks, buses). Export has provided supports for the production of combines, freight cars, radar equipment.

As for non-food consumer goods, although import substitution did not lead to an increase in their output as a whole, it played an important role in supporting the production of pharmaceuticals, detergents, household appliances, as well as footwear and bags.

In case of deterioration of external conditions, exchange rate adjustment can also support the economy by providing tax revenues to the budget through ruble revenues from exports and other revenues in the face of a smaller scale of economic contraction.

During the economic downturn of 2008-2009, a significant drop in dollar oil prices was only partially offset by the positive contribution of the ruble's weakening to oil and gas revenue growth, while after the transition to the floating ruble exchange rate in 2014-2016 the decline in oil prices in the world market was almost entirely compensated by ruble weakening.

In nominal terms, non-oil and gas budget revenues decreased in 2008-2009, while in 2014-2016 they retained positive dynamics, in particular with regard to commodity taxes (VAT, excises and duties) as well as the income tax amid positive dynamics of the financial result (for example, of export sector companies).

Transition to floating exchange rate regime

The Bank of Russia adopted the floating exchange rate regime in November 2014. Its introduction was preceded by a long period of gradual increase in the flexibility of exchange rates, during which the Bank of Russia consistently reduced its presence in the domestic foreign exchange market. The transition to the floating exchange rate regime was gradual in order to soften the adaptation process of market participants to exchange rate fluctuations.

Such a long 'preparatory work' contributed to increased readiness of market participants and the economy as a whole to move to a floating rate. Thus, by the time of the transition, the Russian financial market was characterised by a very moderate level of dollarisation of household deposits (19.8% as of 1 October 2014, with a maximum of 38.5% in early 2003). In 2011-2013, all major segments of the credit and deposit markets were going through a gradual replacement of foreign currency-denominated loans and deposits with ruble-denominated ones: transactions in rubles were growing faster than in the foreign currency (the latter were even declining in certain segments).

This helped mitigate the severity of the effects of a sharp increase in exchange rate volatility in 2014-2015 for the Russian economy and to smooth the turbulence in the financial market during this period. After moving to a floating exchange rate, the episodes of dollarisation growth due to inflow of funds into foreign currency deposits were localised and lasted no more than one to two months. And in general, in 2014-2015, the dollarisation of household deposits was fuelled solely by dollar strengthening. On average, in 2014, ruble deposits of the population declined by 0.16% per month and foreign currency deposits (excluding revaluation), by 0.37%. In 2015, ruble deposits grew twice as fast as foreign currency deposits (1.5% and 0.7% per month respectively).

Appendix 10

Banking sector liquidity and monetary aggregates

The development and complication of the monetary sphere in recent decades have led to qualitative changes in its functioning mechanisms. Many of these mechanisms, important for understanding of the Monetary Policy Guidelines and other materials of the Bank of Russia, are not obvious and sometimes directly contradict the economic intuition. To facilitate the perception of the Bank of Russia materials, this appendix provides a brief description of the following patterns and mechanisms of the functioning of the monetary sphere:

1. The change in the amount of money in the economy (money supply) is achieved through three main mechanisms: bank operations in the lending market, budget operations, and foreign currency operations of the banking system with the real sector of the economy. In modern Russia, the bulk of emission is achieved through bank operations related to lending to the economy.

2. Changes in the banking sector liquidity are achieved using monetary policy instruments and independent factors that can be grouped as follows: fluctuations in demand for cash, expenditure and replenishment of budget accounts with the central bank, central bank operations in the domestic foreign exchange market, and other factors. Currently, budget operations provide for the largest contribution to changes in the banking sector liquidity (among the independent factors).

3. Banking sector liquidity (which characterises relations within the banking system), on the one hand, and money supply and lending (which characterise the relationship between the bank-

Box 1.
Money supply and banking sector liquidity statistics

For the purposes of statistical analysis, the economy is divided into four main sectors: the banking system consisting of the central bank and the banking sector (credit institutions); the government sector; the real sector of the national economy (companies and population)[1]; and the external sector (foreign countries, companies and banks). Each of these sectors has claims and liabilities to the others, based on which main indicators of monetary statistics are calculated.

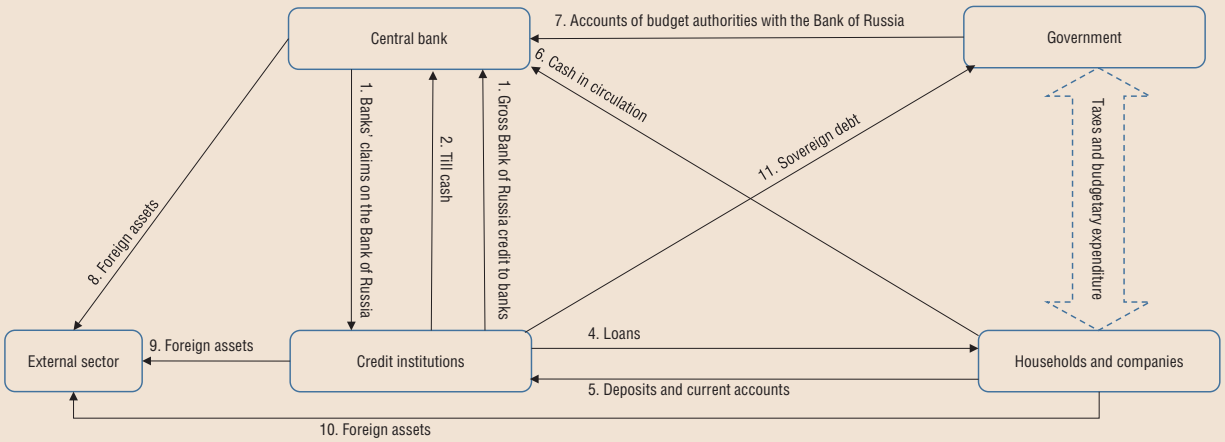
The most commonly used monetary statistics indicator is money supply (in the scheme, the total amount of liabilities[2] [5] and [6]), that is, the liquid liabilities of the banking system that the companies and the population can use to pay for goods and services, repay their debts and fulfill other obligations. The liabilities of the banking system to general government or non-residents are not included in money supply (except for cash rubles outside of the banking system, where it is impossible to determine in whose hands exactly they are). The structure of money supply changes over time: growing availability of banking services leads to the fact that cashless settlements gradually supplant cash payments. Since 2010, money supply growth at the expense of cash rubles was half as big as at the expense of accounts and deposits of organisations, and 4 times less than at the expense of deposits of the population. As a result, the share of cash in money supply went down from 21% to 16%.

If for enterprises and the population bank accounts are the main means of cashless payments, for banks themselves, it is accounts with the central bank (banking sector liquidity). If banks need to attract loans from the Bank of Russia to ensure the availability of required balance of the accounts, such a situation represents a structural liquidity deficit, and if the banking sector has excess funds and can partially place them as deposits with the Bank of Russia, there is a structural liquidity surplus. The total liquidity surplus of the banking sector is defined as the difference between

[1] This sector also includes non-bank financial companies (insurance, leasing, etc.), therefore, the designation 'non-financial sector' is not applicable.

[2] Hereinafter, the word 'liabilities' will be omitted, and any liabilities of the sectors of the economy to each other will be designated as numbers in square brackets.

Stylised structure of assets and liabilities in the national economy*



** Arrows in the chart point from the creditor to the debtor. Tax payments and budget expenditure are flows in the economy and not inventories, so they are presented in a different way than inventories (assets). The external debt and the public debt to the real sector that does not have material influence on the chart meaning is omitted in order to avoid excessive complexity.*

[1] (excluding balances of correspondent accounts of banks with the Bank of Russia) and [3], and the deficit is the difference between [3] and [1] (excluding balances of correspondent accounts of banks with the Bank of Russia)[3].

[3] *For the sake of simplicity, only liquidity surplus will be described further on. Liquidity deficit can be viewed as the negative value of liquidity surplus.*

ing system and the real sector), on the other, represent different aspects of banking activity. Factors that affect liquidity may fail to affect money supply, and vice versa. The impact of the bank's liquidity on its lending activity is limited.

Money supply and its sources

The most common indicator of monetary statistics is money supply (see Box 1 for its definition and the scheme of monetary relations within the national economy). Money supply growth (emission) in the modern economy has three sources: the credit channel, the fiscal channel (operations with sovereign funds and the public debt), and the foreign exchange channel (buying foreign currency from and selling it to the real sector). In the 2010s, the main source of money emission in Russia has been the credit channel, which is related to banks' lending to the real economy (the word 'credit' is used in a broad sense: the provision of funds can be carried out through loans, bonds, promissory notes, and other financial instruments). When a bank provides funds to an individual or an enterprise, it creates an account to which the loan amount is credited (that is, there is an increase of [4] and [5]), which simultaneously increases money supply and banks' claims to the economy. If the bank provides a loan in cash, part of the funds from the bank's tills goes into cash circulation (an increase of [6] against a decline of [2]), that is, money supply still increases.

Another source of money supply growth is the fiscal channel related to financing the budget deficit. This funding can be carried out at the expense of funds accumulated in general government accounts with the central bank. If tax revenues are insufficient to cover budget expenditures, general government instructs the Bank of Russia to transfer funds that they have accumulated in budget accounts with the central bank to budget recipients. The Bank of Russia reduces balances of budget accounts ([7]) and increases the balance of the correspondent account of the

bank where the account of the budget recipient is opened ([1]). The bank, in turn, having received funds from the Bank of Russia, increases the balance of the account of the budget recipient ([5]).

The flow of funds into the economy through the fiscal channel is most typical for periods of unfavourable economic situation, when tax revenues are reduced, forcing general government to spend the resources of sovereign funds. During periods of favourable economic conditions, the opposite situation is observed: budget revenues exceed expenditures, which allows accumulating funds in budget accounts or reducing public debt. It leads to an increase of [7] or a decrease of [11] and a simultaneous decrease of [5], that is, budget operations restrain money supply growth.

An alternative variant for the functioning of the fiscal channel is to fund budget spending by increasing the public debt (banks purchase government bonds, and these funds allow funding budget expenditures that are transferred to the accounts of budget recipients, that is, [11] and [5] are simultaneously increasing). If government bonds are purchased by enterprises or households instead of banks, then money supply does not increase (when investors purchase bonds, the balances of their accounts are reduced and the balances of accounts of budget recipients are increased by the same amount. In other words, the distribution of funds in the bank accounts of the real sector changes but [5] and the total money supply remain unchanged).

In the 2000s, a significant role in the formation of money supply was played by another source, the receipt of funds through the foreign exchange channel related to the operations of the banking system in the foreign exchange market. If the Bank of Russia acquires foreign currency in the foreign exchange market from a bank that represents exporters or Russian companies attracting foreign investment, the foreign assets of the Bank of Russia ([8]) increase and the foreign assets of the real sector ([10]) are reduced. In this case, the Bank of Russia transfers rubles to the bank where the account of the company that is the seller of the foreign currency is opened, and the bank increases the balance of the account of that company. As a result of the above operations, [1] and [5] increase. An alternative form of the foreign exchange channel is the purchase of foreign currency by banks from the population and real sector companies (decreasing [10] and increasing [9]). In this case, banks credit ruble funds to sellers' accounts (increasing [5]) or provide them with cash rubles (decreasing [2] and increasing [6]). As a result, money supply grows. The sale of foreign currency to the real sector by the central bank or credit institutions leads to exactly opposite results.

The three basic emission channels are closely interconnected. Due to the fact that the capacity of banks to increase lending is large enough and is determined primarily by money demand, it is credit institutions that balance the changes in other emission channels. If a significant amount of funds is channelled into the economy through a budget or foreign exchange channel, these funds partially satisfy the need for money and demand for loans is reduced. If budget operations or foreign exchange interventions reduce money supply, it is through loans that the increased money demand is met.

The Bank of Russia's departure from the policy of active intervention in the dynamics of the ruble exchange rate and the transition to the floating exchange rate of the national currency were the key factors that influenced the interrelation between the foreign exchange and budget channels of emission. Under these conditions, the Bank of Russia's operations in the foreign exchange market are mainly related to servicing the needs of the state budget. The Reserve Fund managed by the Bank of Russia is allocated primarily in foreign assets. Therefore, if budget revenues are consistently higher than budget expenditures, and general government is increasing the Reserve Fund (outflow of money through the fiscal channel), the Bank of Russia acquires for-

eign currency to replenish the Reserve Fund in the interests of the Russian Ministry of Finance (inflow of money through the foreign exchange channel). The negative budget emission and the positive foreign exchange emission related to the replenishment of the Reserve Fund, to some extent, compensate each other. As the Russian Ministry of Finance creates its own infrastructure to conduct these operations, the Bank of Russia will cease to participate in them. As a result, the impact of operations related to the replenishment or spending of the resources of sovereign funds on money supply will become completely neutral.

Banking sector liquidity and its sources

Recently, the interest in the dynamics of bank liquidity surplus (deficit) has been growing (see Box 1 for principal definitions). In the modern economy, banking sector liquidity has several sources: budget operations, foreign exchange operations, and changes in cash in circulation.

Budget operations related to increasing or using balances of budget accounts with the Bank of Russia have been exerting the greatest influence on the liquidity of Russian banks during recent years. For example, if an enterprise instructs a bank to transfer taxes to the budget, the bank reduces the balance of the company's account ([5]) and asks the Bank of Russia to transfer these funds to the budget, after which the Bank of Russia reduces the balance of the bank's account ([1]), which leads to decreased structural liquidity surplus and increased balance of the budget account ([7]). Spending funds from budget accounts, on the contrary, increases the structural liquidity surplus.

The dynamics of the banking sector liquidity are also influenced by foreign exchange operations of the Bank of Russia. If the Bank of Russia purchases foreign currency from a Russian bank, the Bank of Russia increases balances of banks' correspondent accounts ([1]) as a payment for the purchased currency (increasing [8] and decreasing [9]). If the Bank of Russia acquires foreign currency from a bank that is a representative of a Russian company (increasing [8] and decreasing [10]), the Bank of Russia credits funds to the account of the bank where the currency seller's account is opened and instructs the bank to credit these funds to the selling company's account (increasing [1] and [5]). Therefore, it does not matter whether the Bank of Russia buys foreign currency from a bank or from a bank that is a representative of a Russian company; in any case this leads to an increase in the structural liquidity surplus. Foreign currency sales by the Bank of Russia, on the contrary, contribute to a decrease in the liquidity surplus. During recent years, due to transition to a free floating ruble exchange rate, the significance of this factor for formation of the banking sector liquidity has diminished.

The demand for cash rubles from the real sector also influences the banking sector liquidity. In case of increased demand for cash from the public (for example, during the New Year holidays), depositors withdraw some funds from their deposits (increasing [6], decreasing [5] and [2]), and banks are forced to withdraw funds from their accounts with the Bank Russia, so that the lack of funds in their tills does not prevent the uninterrupted customer service (increasing [2], decreasing [1]). As a result, the structural liquidity surplus is reduced. And on the contrary, when companies bring cash received as payment for goods and services to banks, the structural liquidity surplus increases. As the Russian economy grows, the demand for cash funds grows as well. However, due to the general trend to replace cash payments with cashless settlements, the impact of demand for cash rubles on the formation of the banking sector liquidity is relatively insignificant.

The above-mentioned factors of banks' liquidity do not depend on decisions of the banking sector. Each individual bank can affect its own liquidity (for example, by purchasing bonds or foreign currency from another bank, extending cash loans or attracting deposits), but the liquidity of the banking sector as a whole remains unchanged. Funds debited from one bank's accounts

with the Bank of Russia are credited to the accounts of another bank, cash that leaves the tills of one bank is returned to the tills of other banks, and as a result, the total balance of accounts ([1]) remains unchanged.

Banking sector liquidity, money supply and lending

As the above description of emission mechanisms and autonomous liquidity factors demonstrates, along with economic processes affecting both money supply and liquidity (use of the Reserve Fund, purchase of foreign currency by the Bank of Russia), there are processes that affect only liquidity (conversion of funds of the real sector from cash into cashless form and back) or only money supply (financing budget expenditures at the expense of funds raised in the domestic government debt market).

Economic processes that do not affect the banking sector's structural liquidity surplus include most of banks' operations with the real sector. Thus, the purchase of foreign currency by banks from their customers (increasing [9] and decreasing [10], increasing [5]) does not require that they perform transactions with their correspondent accounts and does not lead to a change in liquidity. Similarly, if a bank decides to extend a loan to a borrower, the disbursed funds are credited to the borrower's current account with the bank (increasing [4] and [5]), and the bank's liquidity level remains unchanged. Therefore, bank operations to finance the economy do not lead to a reduction in the banking sector liquidity and can be performed in conditions of both the structural liquidity surplus and deficit.

In some cases, insufficient liquidity may constrain the bank's lending activity. While providing more credits to the economy, the bank may face the fact that borrowers will demand to transfer borrowed funds to accounts with other banks (as payment to suppliers and contractors). In that case, the bank will need to transfer funds from its correspondent account or borrow money from the market or from the Bank of Russia. If the bank is not capable to promptly attract additional liquidity in order to always serve its clients in a timely manner, the bank needs to maintain a certain liquidity buffer and increase lending only to the extent that the available liquidity buffer allows it. In order to prevent economically unjustified credit expansion, which creates risks to financial stability, central banks, including the Bank of Russia, set required ratios for banks (bank's short-term liabilities must be adequately covered by its liquid assets; bank's own funds must be sufficiently large to cover its losses in case of problems; and so on). Accordingly, the attractiveness of new loans may be reduced for the bank in case of its low liquidity and associated risks. High liquidity surplus, on the contrary, can stimulate the bank's credit expansion and softening of criteria for borrower selection, as the bank's risks associated with liquidity fluctuations are reduced. However, most Russian banks can borrow funds from the Bank of Russia or other banks (interbank loans). The Russian banking sector consistently exceeds the required ratios set by the Bank of Russia. Therefore, although for single Russian banks the level of liquidity may act as a factor affecting lending activity, for the banking sector as a whole, the effect of liquidity on lending remains insignificant.

The claims and liabilities of the banking sector to the Bank of Russia ([1] and [3]), on the one hand, and the claims and liabilities of banks to the real sector ([4] and [5]), on the other hand, are almost unrelated. It is difficult to change the former at the expense of the latter, and vice versa.

The mechanism of fuelling the money into the economy through the credit channel, the functioning of which almost does not depend on the bank's liquidity at the time of granting the loan, has already been described above. For this reason, deposits with the Bank of Russia are not an alternative to loans to the real sector. A bank that has funds in its correspondent account with the Bank of Russia can deposit these funds with the Bank of Russia and, at the same time, extend

a loan to an enterprise. A bank that does not have excess funds in its correspondent account cannot place them as a deposit with the Bank of Russia, but it does not prevent it from increasing lending. Accordingly, attracting loans from the Bank of Russia also does not affect the ability of the bank to extend loans to the real sector. Banks attract loans from the Bank of Russia when they do not have enough funds in their correspondent accounts to meet the required ratios and to effect current payments and settlements.

Similarly, the banking sector cannot attract deposits from individuals and enterprises and place borrowed funds as deposits with the Bank of Russia. Attracting cashless deposits does not affect the structural liquidity surplus. In order for cashless funds to be deposited at one bank, they must be debited from accounts with another. Therefore, the balance of one bank's accounts with the Bank of Russia will increase while the balance of another's accounts will decrease by the same amount. Attracting deposits in the cash form can, for some time, lead to an increase in the balances of the banks' tills (decreasing [6], increasing [5] and [2]). Banks can transfer cash from their tills to correspondent accounts with the Bank of Russia (decreasing [2], increasing [1]) and place a part of the funds from those accounts as deposits with the Bank of Russia. However, public demand for cash is quite stable. And if the amount of cash in circulation decreases, in order to replenish the available cash, people will withdraw funds from their current deposits in banks (not necessarily the same ones where they placed deposits), which will lead to a reduction in the structural liquidity surplus and force banks to close deposits with the Bank of Russia.

Thus, if there is an effective mechanism for managing the banking sector liquidity (a developed money market, an access to operations of the Bank of Russia), the effect of liquidity fluctuations (including the transition from structural liquidity deficit to structural surplus observed in 2017) on banking transactions is insignificant.

Appendix 11

Monetary programme

The main objective of monetary policy under the Bank of Russia's inflation targeting strategy is to keep inflation at around 4%, while its operational goal is to bring overnight money market rates closer to the Bank of Russia key rate. The inflation targeting strategy does not provide for setting and delivery on quantitative benchmarks for any economic indicators, including monetary ones. In addition to the banking sector liquidity forecast, the Bank of Russia calculates monetary programme indicators. They supplement the forecast indicators, which the Bank of Russia takes into account when elaborating and implementing its monetary policy.

Forecast of key indicators in monetary authorities' accounts (monetary programme indicators)*
(trillion rubles, unless indicated otherwise)

	1 January 2017 (actual)	1.01.2018		1.01.2019		1.01.2020		1.01.2021	
		baseline	alternative	baseline	alternative	baseline	alternative	baseline	alternative
1. MONETARY BASE (narrow definition)	9.1	9.5	9.6	9.8	10.0	10.1	10.4	10.4	10.8
1.1. Cash in circulation (outside the Bank of Russia)	8.8	9.2	9.3	9.5	9.7	9.8	10.1	10.1	10.5
1.2. Required reserves**	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2. NET INTERNATIONAL RESERVES	22.4	24.5	24.5	25.3	26.7	25.5	29.3	25.8	32.0
– in billions of US dollars***	370	403	404	417	440	421	483	425	527
3. NET DOMESTIC ASSETS	-13.3	-15.0	-14.9	-15.5	-16.7	-15.5	-18.9	-15.4	-21.2
3.1. Net credit to the general government	-6.3	-5.4	-5.4	-4.9	-6.2	-4.9	-8.6	-4.9	-11.1
3.2. Net credit to banks	-0.3	-3.7	-3.6	-4.9	-4.7	-5.0	-4.7	-5.2	-4.7
3.2.1. Gross credit to banks	2.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.2.1.1. Claims on refinancing operations****	1.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
3.2.2. Bank correspondent accounts with the Bank of Russia	-1.8	-2.2	-2.2	-2.3	-2.3	-2.4	-2.4	-2.5	-2.5
3.2.3. Bank deposits with the Bank of Russia and coupon OBR*****	-0.8	-2.5	-2.4	-3.6	-3.5	-3.7	-3.4	-3.7	-3.2
3.3. Other net non-classified assets******	-6.8	-5.9	-5.9	-5.7	-5.8	-5.5	-5.6	-5.3	-5.5

** Monetary programme indicators, calculated at a fixed exchange rate, are based on the official exchange rate of the ruble as of the beginning of 2017.*

*** Credit institutions' required reserves deposited with the Bank of Russia in ruble-denominated accounts (do not include funds in correspondent accounts of credit institutions with the Bank of Russia taken into account in the required reserve averaging procedure).*

**** Include operations with the use of funds of the state corporation Deposit Insurance Agency and the Banking Sector Consolidation Fund, the Bank of Russia's net interest expenses and FX revaluation of assets.*

***** Include claims on refinancing operations in rubles, including secured loans, repos and the Bank of Russia's USD/RUB and EUR/RUB buy/sell FX swaps.*

****** Include the Bank of Russia's USD/RUB and EUR/RUB buy/sell FX swaps.*

******* Include operations with the use of funds of the state corporation Deposit Insurance Agency and the Banking Sector Consolidation Fund, the Bank of Russia's net interest expenses and FX revaluation of assets.*

Source: Bank of Russia.

Entry 1 ‘Money supply (narrow definition)’ is supposed to grow in the forecast period. This will be facilitated by the increase in cash in circulation on the back of expected growth in economic activity. Meanwhile, a wider use of cashless payments will curb movements of this indicator.

Another component of this entry – required reserves on ruble liabilities held in special accounts with the Bank of Russia – will hardly change during the period under review. The calculation of this indicator assumes that the required reserve averaging ratio will remain at 0.8.

The implementation of fiscal policy has a considerable impact on monetary programme indicators. The estimates of sovereign funds’ usage and foreign currency purchases for replenishing the Reserve Fund are close to budgetary projections of the Russian Ministry of Finance.

Growth in entry 2 ‘Net international reserves’ will be facilitated by the Russian Ministry of Finance’s foreign currency purchases, and the redemption of banks’ liabilities on Bank of Russia FX refinancing instruments throughout 2017. Also, the increase in international reserves will be driven by the Bank of Russia’s purchases of monetary gold.

Entry 3.1 ‘Net credit to the general government’ factors in the recourse to sovereign funds to finance deficit of the federal budget, and OFZ sales from the Bank of Russia’s portfolio.

Entry 3.2 ‘Net credit to banks’ will remain negative during the period under review. In 2017, this entry was affected by a change in entry 3.3 ‘Other net non-classified assets’. It resulted, among other things, from the transfer of funds aimed at bank resolution and compensation payments to depositors of the banks, which had their licences revoked, by the Deposit Insurance Agency. Operations involving financial resources of the Banking Sector Consolidation Fund were another material factor. The above factors are not supposed to trigger any further changes in this entry in the forecast period.

Entry 3.2.1.1 ‘Bank of Russia claims on refinancing operations’ includes banks’ operations to raise funds for longer terms through the use of specialised refinancing instruments, among other things. Banks’ exposures under these operations are expected to remain unchanged in 2018-2020.

The average correspondent account balances of credit institutions with the Bank of Russia totalled roughly 1.9 trillion rubles in 2017. Having said that, entry 3.2.2 ‘Correspondent accounts of credit institutions with the Bank of Russia’ is supposed to see a seasonal increase to 2.2 trillion rubles by the year-end and a smooth growth in the forthcoming years.

Entry 3.2.3 ‘Bank deposits with the Bank of Russia and coupon OBR’ is a balancing component of the monetary programme in the context of liquidity surplus. Deposits and coupon OBR offering may grow to 3.2-3.7 trillion rubles by the end of 2020.

Monetary aggregates’ dynamics will answer the economy’s needs without posing considerable proinflationary risks in 2017-2020. A smooth growth in lending and moderate budget expenditures will foster money supply growth and monetisation of the economy.

Appendix 12

Inflation targeting: target type, indicator and horizon

In 2017, the period of disinflation has come to an end: the previously set monetary policy goal of inflation reduction to 4% was reached. This brought the need to update the inflation target. In its monetary policy goal-setting the Bank of Russia took into account behavioural specifics of the country's households and businesses, as well as the fact that Russia has never registered long periods of low inflation. The Bank of Russia also considered the international experience of inflation targeting: positive outcomes and challenges of using certain targets.

The main parameters of inflation targeting under consideration are as follows:

1. Target type:
- Point: 4%, near 4%; slightly less than 4%.
- Target range: 3-4% or 2-6%.
- Targets with tolerance bands: 4%±1 pp, 4%±2 pp.

2. Indicator:
- Headline consumer price index movements.
- Movements in the consumer price index excluding certain components (truncated inflation readings).
- Average annual inflation for the past 12 months.

3. Horizon:
- Regular.
- Medium-term.
- Date- or period-specific.

Target type

The Bank of Russia's main criterion for choosing the type of inflation target is the clearness of monetary policy goal signal. The importance of this criterion in the Russian environment is explained by the persistently elevated inflation expectations and their high sensitivity to fluctuations in prices of some goods driven by temporary factors. This may lead to persistent inflation deviations from the target (for details, see Section 1). Though all of the above target types allow the Bank of Russia to deliver a relatively clear message on its monetary policy goal, given the proper communication, the point inflation target has the highest clearness. Having said that, it is impossible to keep inflation at exactly 4% and slight inflation fluctuations near the target are natural. Prices are constantly affected by multiple factors and the economy knows a complicated chain of interconnections that is impossible to fine tune to deliver on the exact target (up to the decimal digit) through monetary policy measures. Therefore, the Bank of Russia has set its inflation target 'near 4%'. 'Near' allows of slight fluctuations of headline inflation, as well as inflation in the markets of certain goods and services and regional inflation.

Most central banks that pursue the inflation targeting regime choose targets with tolerance bands to emphasise that it is impossible to deliver on the target with a high precision, while other central banks prefer a target range. However, the downside of these target types is that once inflation goes beyond the tolerance band or target range, expectations that the central bank should definitely step in arise, while inflation within the range may be seen as no need for monetary policy measures. Meanwhile, inflation's deviation from the target beyond the range does not necessarily call for a key rate revision if it is caused by temporary factors and does not lead to an increase in inflation expectations and their anchoring at an elevated level. Poor crops of fruit and vegetables may cause prices of these products to increase rapidly for several months. Afterwards, the effect of this factor will gradually abate and price growth will slow. If inflation ex-

pectations are intact, inflation is posed to return to the target reading in about one year with no monetary policy measures applied. If the central bank responds to such short-term deviation in inflation with a key rate revision, this move will have a full effect only after inflation has returned to the target. In this case inflation may deviate from the target further downwards. More considerable upward and downward inflation fluctuations reduce price certainty in the economy and may have a negative effect on economic agents' expectations, decisions and conduct. In addition, the response to small temporary inflation deviations from the target increases volatility of the key rate and, consequently, uncertainty of financial conditions, negatively affecting interest rates in the economy. When inflation holds within the target range or tolerance band, the key rate may call for revision if inflation is expected to deviate from the target for a long period of time under the influence of some factors. For example, a planned tax increase may result in forecasts of rising inflation expectations and their anchoring at an elevated level for a long period of time. This will cause persistent deviation of inflation from the target and require preventive monetary policy measures.

Furthermore, both the target range and tolerance band bear the risk of the upper bound being seen as the central bank's alternative target in certain circumstances. This may hold inflation expectations at the upper bound and form them at an elevated level. This is especially typical of countries where confidence in monetary policy has yet to be shaped and a long-term experience of sustainable inflation anchoring at a low level is non-existent. Should inflation expectations hold at an elevated level, their contribution to inflation will be sustainably more considerable and may anchor it close to the upper bound.

Indicator

As the ultimate goal of any economic policy is households' welfare, it would be appropriate for the central bank to use a consumer price indicator that factors in movements in prices of all goods and services consumed by average households. The consumer price index meets this criterion. Therefore, the Bank of Russia initially set its inflation target for this indicator and decided to keep this parameter of target setting. Another advantage of the consumer price index is that it is officially calculated by Rosstat and therefore often referred to and used by economic agents. In addition, this indicator is known for its frequent calculation: it is calculated and released on a monthly basis. This allows the Bank of Russia to promptly monitor changes in the pace of consumer price growth and its components in order to make timely monetary policy decisions. Most central banks that target inflation set their inflation target for the consumer price index, too.

However, the calculation of the consumer price index factors in prices of goods and services the movements of which are considerably influenced by the events beyond the central bank's control. For example, the weather and harvest have a considerable effect on prices of fruit and vegetables. The central bank is clearly incapable to change the weather. If we remove the components, prices of which are susceptible to one-off fluctuations caused by temporary factors (including supply-side factors), from the calculation, we can obtain truncated inflation readings dependent on the central bank's key rate movements. Such inflation readings reflect the most stable processes in the price dynamics. Some central banks used to apply truncated inflation readings, in particular core inflation[1], as indicators for target setting. For example, the central bank of South Korea used core inflation as a target indicator in 2000-2006 and then switched to the headline consumer price index, given its advantages described above.

Some central banks refer to the average past-12-month inflation as a target indicator. For example, the central bank of Thailand. Though this indicator is useful for the analysis of price move-

[1] *That is inflation barring prices of goods and services susceptible to administrative and seasonal factors.*

ments, it is highly rigid. On the one hand, it provides a clear picture of inflation household had to face on average during the year. On the other hand, temporary factor-driven acceleration of price growth in certain periods holds in the calculation of this indicator for a relatively long period of time. This means that this indicator requires a longer-lasting response from monetary policy to the exhausted impact of unfavourable factors on prices in order to deliver on the inflation target. Furthermore, to bring the average past-12-month inflation to the target when annual inflation deviates considerably to one side, the central bank has to offset this deviation by bringing annual inflation down to the opposite side during the year. This is associated with certain side effects in the economy: considerable increase in price fluctuations, higher uncertainty in the economy and negative impact on economic growth.

Horizon

As the economy shifted from high inflation to low, that is during disinflation, the Bank of Russia set the inflation target for a certain period or a year. This approach is also typical of other central banks. Intermediate stages in the pursuit to the ultimate goal offer greater certainty as to inflation reduction to the target and add predictability to monetary policy measures. This approach is also typical of other central banks. After the process of disinflation is completed central banks usually set no intermediate annual targets.

Given that price stability means consistently low inflation, the Bank of Russia decided to abstain from setting specific dates or time periods for delivering on the inflation target. The Bank of Russia will seek to permanently keep inflation close to 4%. However, 'permanently' does not mean that in case of deviation from the target inflation will get back within months. First, it is impossible given that time is needed for the Bank of Russia decision to have effect on the economy and inflation. The pace of inflation return to the target will depend on the factor type and scale of inflation deviation from the target (for details of inflation factors and monetary policy measures, see Section 1). Second, the Bank of Russia chooses the pace of inflation reduction to the target allowing for the effect of key rate revisions on the economy and financial sector in order to avoid considerable deterioration in the economy and financial stability risks.

The effort to 'permanently' keep the inflation target reflects the central bank's determination to ensure price stability. This favours confidence in its monetary policy. At the same time, central banks in many countries set medium-term inflation targets to emphasise that monetary policy measures are incapable of affecting inflation in the short run. The banks' understanding of the medium term depends on the time needed for the key rate revision to have a full effect on economic indicators. In some countries this period takes 18 months to two years, in other countries it lasts two to three years. However, medium-term inflation targeting may be seen as something unachievable, uncertain and constantly delayed. This is especially typical of countries where a long-term experience of sustainably low inflation is non-existent. This may result in lower credibility of the central bank's policy preventing inflation expectations from anchoring at the level favourable to delivering on the inflation target.

Specifics of inflation targeting in key advanced and emerging economies (as of end of June 2017)

No.	Country	Target type and level	Indicator	Horizon
1	Albania	3%	Headline CPI, month on corresponding month of previous year	Medium-term, i.e. 1-3 years (duration of monetary policy transmission mechanism)
2	Armenia	4.0%±1.5 pp	Headline CPI, month on corresponding month of previous year	3 years. Interim target – projected inflation rate (assessment of deviations from the target level).
3	Brazil	4.5%±1.5 pp	Consumer price index (IPCA), month on corresponding month of previous year	The target should be achieved over the calendar year (January-December). The current target is set for 2017-2018. However, the horizon over which the Central Bank of Brazil should bring inflation back to the target in case of a shock-triggered deviation depends on the nature and duration of such shocks.
4	United Kingdom	2%	Headline CPI, month on corresponding month of previous year	At all times. If inflation deviates from the target by more than 1 pp (upwards or downwards), the Governor of the Bank of England shall issue an open letter describing the causes of such deviation and proposals for bringing it back to the target.
5	Hungary	3.0%±1 pp	Headline CPI, month on corresponding month of previous year	Medium-term
6	Ghana	8.0%±2 pp	Headline CPI, month on corresponding month of previous year	Medium-term. If inflation persistently remains above the target, the goal of the monetary policy is to manage interest rates in a way that brings inflation back to the target within a reasonable term and without creating excess instability in the economy.
7	ECB	less than 2.0%, but close to this figure	Harmonised consumer price index (HICP), month on corresponding month of previous year	Medium-term. 'Closeness to the upper bound' principle provides safety cushion against deflation risk.
8	Israel	1-3%	Headline CPI, month on corresponding month of previous year	No more than 2 years, on a permanent basis
9	Indonesia	4.0%±1 pp	Headline CPI, month on corresponding month of previous year	For the next 3 years
10	Iceland	2.50%	Headline CPI, month on corresponding month of previous year	On average as close to the target as possible. If inflation deviates from the target by more than 1.5 pp (upwards or downwards), the central bank shall provide a public report to the Government, describing why it failed to achieve the target and outlining the measures to bring inflation back to the target.
11	Kazakhstan	6-8%	Headline CPI, month on corresponding month of previous year	Target set for 2016-2017; target for 2020 is 3-4%. Inflation target is set to be achieved over the medium term. In case the target is not achieved, the factors of deviation shall be identified (including those outside of the National Bank's control).
12	Colombia	3.0%±1 pp	Headline CPI, month on corresponding month of previous year	Annual statutory target
13	Mexico	3.0%±1 pp	Headline CPI, month on corresponding month of previous year	Medium-term
14	Norway	2.50%	Headline CPI, month on corresponding month of previous year	Over time
15	Poland	2.5%±1 pp	Headline CPI, month on corresponding month of previous year	Medium-term. Deviations from the target are controlled monthly.
16	Romania	2.5%±1 pp	Headline CPI, month on corresponding month of previous year	Medium-term
17	Serbia	3.0%±1.5 pp	Headline CPI, month on corresponding month of previous year	For each month. It means that the progress towards the target is monitored constantly and not only in the end of the year. A short-term deviation from the target is acceptable if measures required to bring it back to the target will be detrimental to macroeconomic processes.
18	Thailand	2.5%±1.5 pp	Headline CPI, average annual inflation	In 2015, the Bank of Thailand switched from targeting average core inflation for the quarter (0.5-3%) to targeting average headline inflation for the year (2.5+1.5%).
19	Turkey	5.0%±2 pp	Headline CPI, month on corresponding month of previous year	As of the end of calendar year
20	Czech Republic	2.0%±1 pp	Headline CPI, month on corresponding month of previous year	12-18 months. Deviations from the target are acceptable if they are caused by heavy external shocks.
21	Chile	3.0%±1 pp	Headline CPI, month on corresponding month of previous year	About 2 years – deadline for bringing inflation back to the target under normal circumstances.
22	Sweden	2%	Headline CPI, month on corresponding month of previous year	2 years under normal circumstances, might be prolonged in exceptional cases.
23	South Africa	3-6%	Headline CPI (for all city areas), month on corresponding month of previous year	On a permanent basis
24	South Korea	2%	Headline CPI, month on corresponding month of previous year	Medium-term. If inflation deviates from the target by more than 0.5 pp (upwards or downwards) for 6 months in a row, the Bank of Korea shall explain the causes of such deviation and develop the strategy for bringing it back to the target. If inflation remains outside the confidence interval of ±0.5 pp for a longer period, the Bank of Korea shall provide commentary every 3 months.

Appendix 13

Estimate of real interest rates in the economy

In any country with above-zero price growth rates, it is real rather than nominal interest rates that determine economic agents' choice between consumption 'today' and savings and investment (that is consumption 'tomorrow'). Meanwhile, estimates of real interest rates factor in inflation expectations which may vary considerably across economic agents. Thus, one of the key points in real interest rate estimates is a choice of inflation expectations indicator.

The simplest approach to calculating real interest rates is to use current inflation. This approach is based on the assumption that prices will change at the same pace in future as they do now. However, this is not always the case. It is more appropriate to adjust nominal interest rates for inflation expectations derived from surveys (for details of inflation expectations and their estimates, see Appendix 6).

Real interest rates on long-term household deposits and long-term loans to non-financial organisations (% p.a.)

Reporting month*	Real interest rate on long-term household deposits adjusted for				Real interest rate on long-term loans to non-financial organisations adjusted for			
	actual inflation	household inflation expectations for the following year according to inFOM survey data	household inflation expectations for the following year according to Bank of Russia estimate**	Bloomberg consensus forecast	actual inflation	household inflation expectations for the following year according to inFOM survey data	household inflation expectations for the following year according to Bank of Russia estimate**	Bloomberg consensus forecast
2014								
April	0.2	-3.5	-0.6	2.2	3.4	-0.5	2.6	5.5
May	0.2	-4.4	-1	2.5	3.4	-1.3	2.2	5.8
June	-0.1	-3.6	-1.2	2.6	3.6	0	2.4	6.4
July	0.3	-3.1	-0.5	2.6	4.2	0.6	3.3	6.6
August	0.3	-3.5	-1.4	2.2	4	0	2.1	5.9
September	0	-3.9	-1.6	1.3	3.7	-0.4	2.1	5.1
October	-0.1	-5	-1.2	1.3	3.6	-1.4	2.6	5.1
November	-0.6	-4.2	-2	1.3	3.2	-0.5	1.8	5.2
December	0.4	-3.2	-2.4	4.2	1.4	-2.2	-1.4	5.4
2015								
January	-1.6	-3	-2.6	3.4	0.1	-1.3	-0.9	5.2
February	-4.5	-5.6	-3.5	2.4	-0.3	-1.5	0.8	6.9
March	-5	-4	-2.4	2.9	-0.4	0.6	2.3	7.8
April	-4.9	-2.8	-1	2.8	-0.5	1.6	3.5	7.5
May	-4.7	-3.5	-1.1	2.6	0.4	1.7	4.2	8.1
June	-4.4	-4.2	-1.8	2.7	-0.1	0.1	2.6	7.3
July	-5.3	-3.9	-2.7	2.4	-0.7	0.8	2	7.4
August	-5.6	-4.8	-4	2.1	-1	-0.2	0.7	7.1
September	-5.5	-5.8	-4.6	1.5	-1.3	-1.6	-0.3	6.1
October	-5.8	-5.6	-4.2	0.9	-1	-0.8	0.6	6
November	-5.3	-6	-5.4	1.3	-0.7	-1.4	-0.8	6.2
December	-3.2	-6.1	-3.1	1.9	0	-3	0.2	5.4

Reporting month*	Real interest rate on long-term household deposits adjusted for				Real interest rate on long-term loans to non-financial organisations adjusted for			
	actual inflation	household inflation expectations for the following year according to inFOM survey data	household inflation expectations for the following year according to Bank of Russia estimate**	Bloomberg consensus forecast	actual inflation	household inflation expectations for the following year according to inFOM survey data	household inflation expectations for the following year according to Bank of Russia estimate**	Bloomberg consensus forecast
2016								
January	-0.3	-6.2	-1.3	1.5	3.6	-2.6	2.5	5.4
February	0.9	-5.7	1.2	1.1	4.9	-2.1	5.1	5.1
March	1.5	-5.1	1.4	1.5	6.1	-0.8	6	6.1
April	1.6	-4.9	1.7	1.9	6.2	-0.6	6.3	6.4
May	1.3	-4.3	2.1	1.8	6.2	0.3	7	6.7
June	1.1	-4.9	1.9	2.8	5.7	-0.5	6.6	7.5
July	1	-5.2	1.4	2.3	5.4	-1.2	5.7	6.7
August	1.2	-4	1.6	2.2	5.7	0.3	6.2	6.9
September	1.6	-5.4	2	2.7	5.9	-1.3	6.4	7.1
October	1.5	-4.1	1.8	2.4	5.5	-0.4	5.8	6.5
November	1.5	-5.5	1.8	2.6	5.7	-1.7	6	6.8
December	2.1	-4.3	2.4	2.9	6	-0.6	6.3	6.9
2017								
January	2.7	-3.3	3.1	3.3	7.1	0.9	7.5	7.7
February	2.6	-5	2.8	2.8	6.8	-1.1	7	7
March	2.8	-3.6	3.1	2.8	6.9	0.2	7.2	6.9
April	2.9	-3.5	3.3	2.8	6.9	0.3	7.3	6.9
May	2.8	-3	3.1	2.7	6.6	0.6	7	6.6
June	2.3	-3.2	2.6	2.5	5.8	0.1	6.1	6
July	2.9	-3.5	2.6	2.6	5.9	-0.7	5.6	5.6
August	3.5	-2.4	3.6	2.7	6.9	0.8	7	6.1

** InFOM calculates household inflation expectations on a monthly basis since April 2014.*
*** The estimate is based on the assumption of the normal distribution of responses in the inFOM survey.*

Sources: inFOM, Bloomberg, Bank of Russia calculations.

Appendix 14

Statistical tables

Table 1

GDP, inflation and interest rates in BRICS, USA and euro area[1]

	Key (target) interest rate of the central bank, % p.a.	Interest rate on bank loans to non-financial sector for up to 1 year/1 year, % p.a.	Inflation, per cent change on corresponding month of previous year	GDP growth rates, per cent change on corresponding quarter of previous year
Russia	8.25	10.40	2.7	2.5
Brazil	7.5	46.6	2.5	0.3
India	6	9.5	3.3	5.7
China	4.35	4.35	1.9	6.8
South Africa	6.75	10.25	5.1	1.1
USA	1.0-1.25	3.9	2.2	2.3
Euro area	0	2.7	1.2	2.5

[1] Data on key (target) interest rates are given as of 8 September 2017, on interest rates on bank loans: for 2017 Q2; on inflation rate: for July 2017; and on GDP growth rates: for 2017 Q2 (Brazil and South Africa - for 2017 Q1).

Sources: IMF, ECB, Bloomberg.

Table 2

Consumer prices by group of goods and services (per cent change on corresponding month of previous year)

	Inflation	Core inflation	Food price growth	Food price growth[1]	Vegetable and fruit price growth	Non-food price growth	Growth in non-food prices. excluding petrol[2]	Service price growth
2015								
January	15.0	14.7	20.7	18.4	40.7	11.2	11.4	12.3
February	16.7	16.8	23.3	20.8	43.5	13.0	13.5	12.8
March	16.9	17.5	23.0	21.1	38.0	13.9	14.6	12.6
April	16.4	17.5	21.9	20.8	30.0	14.2	15.0	11.8
May	15.8	17.1	20.2	19.5	25.7	14.3	15.1	11.6
June	15.3	16.7	18.8	18.4	22.8	14.2	15.0	11.7
July	15.6	16.5	18.6	17.5	27.9	14.3	15.0	13.4
August	15.8	16.6	18.1	17.0	29.1	14.6	15.3	14.1
September	15.7	16.6	17.4	16.4	27.7	15.2	16.0	13.8
October	15.6	16.4	17.3	16.2	27.9	15.6	16.6	13.1
November	15.0	15.9	16.3	15.5	24.3	15.7	16.7	11.9
December	12.9	13.7	14.0	13.6	17.4	13.7	14.5	10.2
2016								
January	9.8	10.7	9.2	10.2	2.0	10.9	11.4	9.0
February	8.1	8.9	6.4	7.8	-2.7	9.5	9.9	8.5
March	7.3	8.0	5.2	6.7	-5.1	8.8	9.1	8.2
April	7.3	7.6	5.3	6.3	-1.6	8.5	8.7	8.4
May	7.3	7.5	5.6	6.4	0.0	8.4	8.5	8.4
June	7.5	7.5	6.2	6.5	4.1	8.5	8.7	7.9
July	7.2	7.4	6.5	6.7	4.2	8.4	8.7	6.5
August	6.9	7.0	6.5	6.7	5.3	8.1	8.4	5.5
September	6.4	6.7	5.9	6.4	1.9	7.5	7.9	5.6
October	6.1	6.4	5.7	6.1	1.5	7.0	7.4	5.4
November	5.8	6.2	5.2	6.0	-1.5	6.7	7.0	5.3
December	5.4	6.0	4.6	6.0	-6.8	6.5	6.8	4.9
2017								
January	5.0	5.5	4.2	5.7	-7.6	6.3	6.4	4.4
February	4.6	5.0	3.7	5.4	-9.0	5.7	5.7	4.3
March	4.3	4.5	3.5	4.9	-7.6	5.1	5.0	4.2
April	4.1	4.1	3.6	4.5	-3.1	4.7	4.6	4.1
May	4.1	3.8	3.9	4.0	2.0	4.4	4.2	4.0
June	4.4	3.5	4.8	3.8	11.6	4.0	3.8	4.1
July	3.9	3.3	3.8	3.4	6.9	3.7	3.5	4.1
August	3.3	3.0	2.6	2.9	-0.8	3.4	3.2	4.1
September	3.0	2.8	2.0	2.5	-2.4	3.1	2.8	4.2
October	2.7	2.5	1.6	2.0	-2.2	2.8	2.5	4.2

[1] *Excluding vegetables and fruit.*
[2] *Bank of Russia estimate.*

Sources: Rosstat, Bank of Russia calculations.

Table 3

Macroeconomic indicators
(per cent change on corresponding period of previous year, unless indicated otherwise)

	GDP[1]	Key industry index[2]	Industrial production	Agriculture	Construc-tion	Freight turnover	Retail trade turnover	Wholesale trade turnover	Household real disposable money income	Real wages	Unemploy-ment rate (as % of economi-cally active population)
2014											
January		-0.4	1.1	2.1	-6.1	3.3	2.8	5.2	-0.5	5.2	5.6
February		1.3	3.0	2.3	-4.0	1.1	4.3	7.4	-0.6	4.6	5.6
March	0.5	0.3	-0.9	2.5	-3.4	0.4	4.5	3.5	-6.7	3.8	5.4
April		0.9	2.2	3.3	-2.7	-0.6	3.0	2.8	0.4	3.2	5.3
May		1.1	-0.8	3.3	-6.0	1.4	2.4	4.2	6.4	2.1	4.9
June	1.3	0.3	2.9	2.8	-0.1	2.9	1.1	3.1	-3.5	2.1	4.9
July		0.7	2.7	8.3	-2.9	0.1	1.6	4.1	2.9	1.4	4.9
August		-0.3	2.9	4.6	-1.1	-1.4	1.6	2.3	4.4	-1.2	4.8
September	0.9	2.3	4.2	16.3	-1.8	-1.6	1.8	3.2	0.4	1.5	4.9
October		0.2	5.4	-11.9	-1.5	-3.1	1.7	4.3	2.1	0.6	5.1
November		-0.6	1.5	0.5	-2.5	-0.4	1.9	2.8	-3.5	-1.2	5.2
December	0.3	2.3	5.3	4.0	-0.4	-3.0	5.1	4.7	-7.6	-4.0	5.3
2015											
January		-1.5	0.0	2.2	-5.1	-3.9	-4.4	-3.4	-1.5	-8.4	5.5
February		-3.9	-1.8	2.6	-5.1	-1.4	-7.5	-6.3	-2.3	-7.4	5.8
March	-1.9	-2.0	1.2	3.6	-5.5	0.6	-9.0	-6.9	-2.1	-10.6	5.9
April		-5.7	-1.8	2.7	-5.3	-1.2	-9.9	-8.5	-2.3	-9.6	5.8
May		-5.7	-2.4	2.1	-5.1	-3.9	-9.5	-10.3	-7.4	-7.4	5.6
June	-3.4	-5.4	-0.9	1.0	-5.1	-3.1	-9.7	-6.1	-3.6	-8.6	5.4
July		-4.9	-1.5	-2.6	-4.7	1.9	-9.6	-6.0	-3.2	-9.2	5.3
August		-4.5	0.2	1.9	-5.1	0.6	-9.5	-3.9	-5.0	-9.0	5.3
September	-2.7	-3.3	-0.3	3.1	-4.8	1.0	-10.7	-3.3	-4.7	-10.4	5.2
October		-3.4	-1.6	7.0	-4.9	4.5	-11.3	-4.5	-6.5	-10.5	5.5
November		-4.3	1.0	1.7	-4.3	3.4	-12.2	-6.7	-6.1	-10.4	5.8
December	-3.2	-4.2	-1.9	3.0	-3.9	3.7	-14.1	-1.0	5.0	-8.4	5.8
2016											
January		-2.9	-0.8	3.3	-7.2	1.0	-6.2	-3.7	-6.0	-3.6	5.8
February		1.3	3.8	3.8	-4.8	3.9	-3.7	7.2	-4.3	0.6	5.8
March	-0.4	0.3	0.3	3.6	-2.8	-0.2	-5.0	8.1	-0.9	1.5	6.0
April		0.4	1.0	3.5	-6.1	0.7	-4.3	6.6	-6.8	-1.1	5.9
May		0.4	1.5	3.4	-8.2	0.7	-5.3	7.3	-5.6	1.0	5.6
June	-0.5	0.4	2.0	2.9	-9.9	1.7	-5.0	4.1	-4.5	1.1	5.4
July		-0.1	1.4	7.4	-2.4	1.4	-4.3	0.8	-8.2	-1.3	5.3
August		1.5	1.5	5.7	-1.6	3.0	-4.2	5.5	-10.0	2.7	5.2
September	-0.4	0.0	0.1	4.7	-6.5	4.1	-3.1	1.1	-2.7	1.9	5.2
October		0.0	1.6	4.3	-0.6	-0.5	-4.3	-1.7	-6.0	0.4	5.4
November		2.2	3.4	6.8	1.5	2.7	-4.2	3.6	-6.2	2.1	5.4
December	0.3	0.4	0.2	3.4	-5.4	3.3	-5.2	-5.8	-6.8	2.8	5.3
2017											
January		2.1	2.3	0.6	-2.4	8.2	-2.1	6.8	8.2	3.1	5.6
February		-2.8	-2.7	0.2	-4.5	3.9	-2.6	-2.6	-3.7	1.0	5.6
March	0.5	1.3	0.8	1.1	-5.0	4.1	-0.2	8.3	-2.3	3.2	5.4
April		3.1	2.3	0.8	-0.4	9.5	0.4	6.7	-7.4	3.7	5.3
May		5.6	5.6	0.3	3.8	9.6	1.0	10.6	0.1	2.8	5.2
June	2.5	4.8	3.5	-1.3	5.3	9.0	1.5	11.8	0.2	3.9	5.1
July		1.8	1.1	-2.9	7.1	6.2	1.2	4.6	-1.0	3.1	5.1
August		2.8	1.5	5.1	0.6	7.9	1.9	3.1	-0.3	2.4	4.9
September		…	0.9	8.5	0.1	2.9	3.1	…	-0.3	2.6	5.0

[1] *Quarterly data.*
[2] *Output index of goods and services by key industry.*

Source: Rosstat.

Table 4

Monetary indicators[1]
(per cent change on corresponding date of previous year)

	M2	M2X[2]	Non-financial sector deposits in national currency		Non-financial sector deposits in foreign currency[3]		Banking system net foreign assets[3]	Credit to the economy[2]	Household loans[2]	Corporate loans[2]
			Households	Organisations	Households	Organisations				
2014										
1.01.2014	14.6	14.4	18.2	14.2	9.6	16.3	-2.6	16.2	28.1	11.9
1.02.2014	12.7	13.9	15.2	11.5	10.9	26.4	-2.1	16.3	27.3	12.3
1.03.2014	12.1	13.7	13.2	12.7	13.5	27.1	-2.0	15.8	26.6	11.8
1.04.2014	8.5	10.8	8.6	9.5	11.6	31.5	-4.7	15.5	25.6	11.8
1.05.2014	8.3	9.9	7.5	10.7	8.7	25.2	-6.5	15.6	24.2	12.4
1.06.2014	7.7	10.1	7.6	8.6	9.1	33.5	-6.0	16.1	22.5	13.7
1.07.2014	6.7	8.6	6.6	8.4	10.4	24.7	-2.3	14.9	20.9	12.6
1.08.2014	6.2	7.5	6.7	5.7	5.8	20.5	-4.0	14.0	19.5	11.9
1.09.2014	6.6	7.2	7.1	5.8	2.1	16.8	-7.2	13.0	18.0	11.1
1.10.2014	7.0	6.9	6.6	6.6	-4.6	15.4	-10.7	12.5	17.4	10.5
1.11.2014	6.0	6.8	5.4	5.8	-3.8	21.7	-14.2	12.0	15.7	10.6
1.12.2014	5.0	6.0	3.7	6.4	-4.2	21.7	-17.5	11.8	14.6	10.7
2015										
1.01.2015	2.2	3.7	-3.0	8.9	-3.8	19.6	-19.2	13.7	12.0	14.3
1.02.2015	4.4	4.3	-0.3	12.9	-8.3	12.3	-21.2	12.4	10.4	13.3
1.03.2015	4.1	3.6	1.8	10.0	-9.5	10.3	-23.8	12.3	8.1	14.0
1.04.2015	6.2	4.8	5.4	11.8	-8.9	6.4	-21.3	9.6	5.2	11.4
1.05.2015	6.4	5.8	6.2	12.7	-3.9	7.6	-17.8	8.3	2.6	10.6
1.06.2015	6.8	4.8	6.7	13.5	-2.4	-3.2	-18.9	6.7	1.0	9.0
1.07.2015	6.8	5.7	6.9	12.3	-2.9	3.4	-18.1	6.4	-0.8	9.3
1.08.2015	7.0	6.8	7.6	12.1	-0.7	8.5	-17.2	6.4	-2.2	10.0
1.09.2015	7.6	8.3	6.8	16.0	2.2	13.3	-12.2	6.2	-3.4	10.1
1.10.2015	7.5	9.7	7.7	14.6	7.3	18.8	-8.4	5.5	-4.5	9.5
1.11.2015	8.6	9.2	9.0	15.3	5.4	12.3	-4.8	5.2	-5.5	9.4
1.12.2015	8.8	9.7	10.8	13.4	6.6	13.8	-0.5	5.1	-6.5	9.6
2016										
1.01.2016	11.3	11.8	19.4	8.0	8.3	13.7	1.3	3.1	-6.4	6.3
1.02.2016	9.4	9.7	18.2	1.5	7.9	10.8	5.9	3.6	-5.7	6.7
1.03.2016	9.9	10.0	16.9	2.8	5.7	11.4	8.8	2.6	-4.8	5.0
1.04.2016	11.8	11.4	16.4	7.5	5.4	12.4	9.6	4.3	-3.7	7.0
1.05.2016	10.7	10.0	15.7	4.4	2.0	10.8	8.3	4.1	-2.8	6.4
1.06.2016	11.9	11.2	16.3	6.9	-0.2	14.7	7.7	4.4	-2.2	6.5
1.07.2016	12.2	10.1	16.2	7.8	0.0	6.9	5.3	4.6	-1.6	6.6
1.08.2016	12.3	9.2	15.4	9.1	0.4	0.9	4.9	5.0	-1.2	7.0
1.09.2016	11.7	7.9	16.1	7.0	0.5	-2.4	5.3	4.7	-0.8	6.4
1.10.2016	12.7	7.1	15.7	10.4	1.2	-10.6	3.1	4.5	-0.2	5.9
1.11.2016	12.1	6.0	15.6	9.6	0.8	-13.6	1.9	4.6	0.3	5.9
1.12.2016	11.2	5.5	15.8	7.0	0.4	-12.4	1.6	4.0	0.9	4.9
2017										
1.01.2017	9.2	4.0	14.2	4.0	0.4	-13.6	0.1	3.4	1.4	3.9
1.02.2017	11.9	7.1	16.3	8.9	3.2	-6.3	2.4	4.3	1.6	5.0
1.03.2017	12.1	7.2	16.2	10.2	5.0	-8.0	4.8	4.7	1.9	5.5
1.04.2017	11.1	6.0	15.7	7.6	3.4	-11.4	3.7	5.0	3.1	5.5
1.05.2017	10.1	5.5	14.0	6.9	3.8	-11.3	1.6	5.3	4.8	5.4
1.06.2017	10.0	6.1	13.5	7.0	3.6	-7.1	5.7	5.5	4.8	5.7
1.07.2017	10.5	6.5	14.1	7.1	2.6	-7.1	6.1	5.7	5.9	5.6
1.08.2017	9.0	6.5	13.3	3.6	1.0	1.7	8.3	6.0	6.4	5.9
1.09.2017	9.0	6.5	12.7	3.9	0.2	1.6	6.6	6.7	7.7	6.4
1.10.2017	9.5	6.8	13.0	4.5	-1.6	2.2	7.0	7.5	8.6	7.2

[1] Calculated using data from the Banking System Review (see Table 1.16 of the Bank of Russia Statistical Bulletin and the Statistics section of the Bank of Russia website). Data before and after 1 January 2016 are temporarily incompatible due to changes in calculation methodology of monetary indicators.
[2] Adjusted for foreign currency revaluation.
[3] Calculations based on data in billions of US dollars.

Source: Bank of Russia.

Table 5

Monetary indicators[1]
(billions of rubles, unless indicated otherwise)

	M2	M2X	Non-financial sector deposits in national currency		Non-financial sector deposits in foreign currency, USD billion		Banking system net foreign assets, billions of US dollars	Credit to the economy	Household loans	Corporate loans
			Households	Organisations	Households	Organisations				
2014										
1.01.2014	31,405	37,272	13,855	10,565	87.0	92.3	555.5	37,241	10,795	26,446
1.02.2014	30,136	36,979	13,273	10,200	89.3	104.9	563.6	37,818	10,821	26,997
1.03.2014	30,459	37,579	13,341	10,419	91.0	106.5	563.1	38,108	10,937	27,171
1.04.2014	29,800	37,010	13,056	10,136	91.4	110.6	548.5	38,524	11,097	27,427
1.05.2014	30,160	37,285	13,339	10,044	90.7	108.9	547.5	39,250	11,304	27,946
1.06.2014	30,246	37,366	13,359	10,123	90.6	114.4	549.4	39,740	11,426	28,314
1.07.2014	30,426	37,240	13,552	10,111	91.8	110.8	558.6	39,747	11,550	28,197
1.08.2014	30,525	37,463	13,640	10,013	89.9	104.3	544.6	40,445	11,733	28,711
1.09.2014	30,689	37,723	13,774	9 950	87.8	102.7	519.2	40,909	11,878	29,031
1.10.2014	30,645	38,154	13,723	9 962	84.1	106.5	507.8	41,692	12,011	29,681
1.11.2014	30,268	38,912	13,653	9 708	86.2	113.0	489.5	42,714	12,126	30,588
1.12.2014	30,626	40,223	13,583	10,123	84.5	110.0	463.1	44,007	12,246	31,761
2015										
1.01.2015	31,616	42,910	13,432	11,012	83.7	108.8	445.0	48,512	12,346	36,166
1.02.2015	31,034	45,155	13,228	11,105	81.9	115.9	438.6	50,357	12,264	38,094
1.03.2015	31,225	43,881	13,584	10,969	82.3	116.0	423.0	49,406	12,076	37,330
1.04.2015	31,029	43,204	13,758	10,730	83.3	115.8	426.8	48,448	11,914	36,535
1.05.2015	31,719	42,739	14,158	10,941	87.2	115.4	444.7	47,748	11,784	35,965
1.06.2015	31,842	42,863	14,246	11,019	88.4	109.1	438.9	47,854	11,717	36,136
1.07.2015	31,958	43,741	14,481	10,817	89.1	113.2	451.6	48,309	11,661	36,648
1.08.2015	32,094	44,494	14,675	10,660	89.3	111.7	445.5	48,869	11,698	37,171
1.09.2015	32,384	46,527	14,705	10,893	89.7	114.9	450.3	50,522	11,742	38,780
1.10.2015	32,074	46,880	14,785	10,544	90.2	125.1	459.6	50,627	11,710	38,917
1.11.2015	32,170	46,658	14,879	10,505	90.8	125.4	460.9	50,507	11,666	38,842
1.12.2015	32,754	47,508	15,046	10,921	90.1	123.8	456.1	51,110	11,634	39,476
2016										
1.01.2016	35,180	51,370	16,045	11,896	90.6	123.6	450.8	52,982	11,647	41,335
1.02.2016	33,966	50,832	15,641	11,270	88.4	128.4	464.6	53,297	11,594	41,702
1.03.2016	34,310	51,140	15,885	11,275	87.0	129.2	460.0	53,159	11,570	41,589
1.04.2016	34,689	50,051	16,013	11,534	87.8	130.2	467.7	52,216	11,518	40,698
1.05.2016	35,105	49,674	16,377	11,427	88.9	127.9	481.7	52,059	11,512	40,548
1.06.2016	35,643	50,343	16,562	11,785	88.3	125.1	472.9	52,374	11,524	40,850
1.07.2016	35,857	49,963	16,827	11,657	89.2	121.0	475.6	52,111	11,519	40,592
1.08.2016	36,032	50,192	16,942	11,628	89.7	112.7	467.2	52,743	11,592	41,151
1.09.2016	36,170	49,877	17,077	11,654	90.2	112.1	474.3	52,612	11,639	40,973
1.10.2016	36,149	49,544	17,100	11,636	91.3	111.8	473.7	52,361	11,670	40,690
1.11.2016	36,051	49,167	17,202	11,510	91.5	108.4	469.8	52,560	11,690	40,870
1.12.2016	36,433	49,854	17,427	11,688	90.5	108.4	463.4	52,935	11,738	41,197
2017										
1.01.2017	38,418	50,903	18,328	12,375	91.0	106.8	451.3	52,689	11,756	40,933
1.02.2017	38,017	51,223	18,195	12,278	91.2	120.2	475.8	52,995	11,716	41,278
1.03.2017	38,475	51,142	18,461	12,427	91.4	118.9	481.9	52,774	11,727	41,048
1.04.2017	38,555	50,672	18,529	12,415	90.8	115.4	485.2	52,914	11,836	41,078
1.05.2017	38,664	50,863	18,673	12,215	92.3	113.5	489.7	53,556	12,040	41,516
1.06.2017	39,223	51,420	18,800	12,610	91.4	116.1	500.0	53,612	12,037	41,576
1.07.2017	39,623	52,129	19,192	12,484	91.5	112.4	504.4	54,199	12,177	42,022
1.08.2017	39,276	51,937	19,193	12,048	90.6	114.6	506.2	54,661	12,312	42,349
1.09.2017	39,419	51,860	19,244	12,109	90.4	113.9	505.4	55,147	12,516	42,631
1.10.2017	39,571	51,853	19,317	12,165	89.8	114.2	506.7	55,469	12,657	42,811

[1] Calculated using data from the Banking System Review (see Table 1.16 of the Bank of Russia Statistical Bulletin and the Statistics section of the Bank of Russia website). Data before and after 1 January 2016 are temporarily incompatible due to changes in calculation methodology of monetary indicators.

Source: Bank of Russia.

Table 6

Required reserve ratios (%)

Liability type	Periods			
	From 1.01.16 to 31.03.16	From 1.04.16	From 1.07.16	From 1.08.16
To households in rubles	4.25	4.25	4.25	5.00
To non-resident legal entities in rubles				
Other liabilities in rubles				
To households in foreign currency			5.25	6.00
To non-resident legal entities in foreign currency		5.25	6.25	7.00
Other liabilities in foreign currency				

Source: Bank of Russia.

Table 7

Interest rates on Bank of Russia operations to provide and absorb ruble liquidity (% p.a.)

Purpose	Type of instrument	Instrument	Term	Frequency	As of 1.01.16	From 14.06.16	From 19.09.16	From 27.03.17	From 2.05.17	From 19.06.17	From 18.09.17	From 30.10.17
Liquidity provision	Standing facilities	Overnight loans; lombard loans; loans secured by non-marketable assets; FX swaps (ruble leg)[1]; repos	1 day	Daily	12.00	11.50	11.00	10.75	10.25	10.00	9.50	9.25
		Loans secured by gold[2,3]	From 2 to 549 days		12.50	12.00	11.50	11.25	10.75	10.50	10.00	9.75
		Loans secured by non-marketable assets[2]			12.75	12.25	11.75	11.50	11.00	10.75	10.25	10.00
	Open market operations (minimum interest rates)	Auctions to provide loans secured by non-marketable assets[2]	3 months	Monthly[4]	11.25	10.75	10.25	10.00	9.50	9.25	8.75	8.50
		Repo auctions	1 week	Weekly[5]	11.00 (key rate)	10.50 (key rate)	10.00 (key rate)	9.75 (key rate)	9.25 (key rate)	9.00 (key rate)	8.50 (key rate)	8.25 (key rate)
			From 1 to 6 days	Occasionally[6]								
		FX swap auctions (ruble leg)[1]	From 1 to 2 days									
Liquidity absorption	Open market operations (maximum interest rates)	Deposit auctions	From 1 to 6 days									
			1 week	Weekly[5]								
		Coupon OBR auctions[2]	3 months	Occasionally	-	-	-	-	-	9.00	8.50	8.25
	Standing facilities	Deposit operations	1 day, call	Daily	10.00	9.50	9.00	8.75	8.25	8.00	7.50	7.25

[1] From 23 December 2016, interest rates on the foreign currency leg equal overnight LIBOR on loans in US dollars and euros (depending on the currency of the transaction).
[2] Operations conducted at floating interest rate linked to the Bank of Russia key rate.
[3] Operations have been suspended since 1 April 2017 and abolished since 16 July 2017.
[4] Operations have been suspended since April 2016.
[5] Depending on the situation with liquidity, the Bank of Russia holds either a repo or a deposit auction.
[6] Fine-tuning operations.

Memo item: From 1 January 2016, the value of the Bank of Russia refinancing rate equals its key rate as of the respective date.

Source: Bank of Russia.

Table 8

Bank of Russia operations to provide and absorb ruble liquidity

Purpose	Type of instrument	Instrument	Term	Frequency	Bank of Russia claims on liquidity provision instruments and obligations on liquidity absorption instruments, billions of rubles						
					As of 1.01.16	As of 1.10.16	As of 1.01.17	As of 1.04.17	As of 1.07.17	As of 1.10.17	As of 1.11.17
Liquidity provision	Standing facilities	Overnight loans	1 day	Daily	0.0	2.6	0.0	0.0	4.2	0.0	0.0
		Lombard loans			2.9	1.2	0.6	0.0	0.0	0.0	0.0
		FX swaps			14.9	49.8	37.8	0.0	0.0	0.0	6.4
		Repos			264.9	408.7	593.9	59.1	103.2	43.9	10.7
		Loans secured by gold	From 1 to 549 days[1]		0.5	0.0	0.0	0.0	-	-	-
		Loans secured by non-marketable assets	From 1 to 549 days		234.8	331.7	410.7	259.8	8.8	57.8	40.4
	Open market operations	Auctions to provide loans secured by non-marketable assets	3 months	Monthly[3]	1,553.8	216.2	215.6	0.0	0.0	0.0	0.0
			18 months[2]	Occasionally							
		Repo auctions	1 week	Weekly[4]	1,448.5	0.0	0.0	0.0	0.0	0.0	0.0
			From 1 to 6 days	Occasionally[5]							
		FX swap auctions	From 1 to 2 days		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquidity absorption	Open market operations	Deposit auctions	From 1 to 6 days		0.0	180.0	397.0	320.0	470.0	886.1	1,110.0
			1 week	Weekly[4]							
		Coupon OBR auctions	3 months	Occasionally	-	-	-	-	-	151.3	328.3
	Standing facilities	Deposit operations	1 day, call	Daily	557.8	374.7	388.2	174.0	188.4	223.1	247.7

[1] *Operations have been suspended since 1 April 2017 and abolished since 16 July 2017.*
[2] *Operations have been suspended since 1 July 2016.*
[3] *Operations have been suspended since April 2016.*
[4] *Depending on the situation with liquidity, the Bank of Russia holds either a repo or a deposit auction.*
[5] *Fine-tuning operations.*

Source: Bank of Russia.

Table 9

Bank of Russia specialised refinancing facilities[1]

Purpose of indirect bank lending	Maturity	Collateral	Interest rate, % p.a.[2]								Bank of Russia claims on credit institutions, billions of rubles							Limit, billions of rubles		
			As of 1.01.16	From 14.06.16	From 19.09.16	From 27.03.17	From 2.05.17	From 19.06.17	From 18.09.17	From 30.10.17	As of 1.01.16	As of 1.10.16	As of 1.01.17	As of 1.04.17	As of 1.07.17	As of 1.10.17	As of 1.11.17	As of 1.01.16	As of 1.01.17	As of 1.11.17
Non-commodity exports	Up to 3 years	Credit claims under loan agreements secured by the insurance contracts of JSC EXIAR	9.00	9.00	9.00	8.75	6.50	6.50	6.50	6.50	39.66	49.62	43.38	30.77	33.47	44.75	44.85	50.00	75.00	75.00
Large-scale investment projects[3]	Up to 3 years	Credit claims under bank loans issued for the implementation of investment projects, whose performance is secured by the Russian Federation state guarantees	9.00	9.00	9.00	8.75	8.25	8.00	7.50	7.25	53.44	101.12	112.62	100.70	102.43	104.90	103.84	100.00	150.00	150.00
		Bonds placed to finance investment projects and included in the Bank of Russia Lombard List	9.00	9.00	9.00	8.75	8.25	8.00	7.50	7.25	2.85	0.83	0.59	0.00	0.00	0.00	0.00			
Small and medium-sized enterprises	Up to 3 years	Claims under loan agreements of JSC SME Bank[4]	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	40.10	44.01	43.12	38.68	31.83	24.52	21.94	50.00	125.00	175.00
		Guarantees of JSC Russian Small and Medium Business Corporation issued under the Programme for Encouraging Lending to Small and Medium-sized Enterprises									0.08	24.95	48.17	64.51	73.60	81.22	83.62			
Leasing	Up to 3 years	Claims on loans to leasing companies	9.00	9.00	9.00	8.75	8.25	8.00	7.50	7.25	0.00	0.00	0.00	0.18	0.20	0.20	0.20	10.00	10.00	10.00
Military mortgage	Up to 3 years	Mortgages issued under the Military Mortgage programme	10.75	10.50	10.00	9.75	9.25	9.00	8.50	8.25	21.01	29.31	29.31	29.31	29.31	29.31	29.31	30.00	30.00	30.00

[1] Refinancing facilities designed to encourage bank lending to certain segments of the economy where growth is constrained by structural factors. Through the said facilities the Bank of Russia provides funds to credit institutions at lower interest rates and for extended term, as compared to standard facilities. Specialised refinancing facilities are temporary, i.e. they will be in effect until financial market conditions allow for their replacement with market facilities. The volume of funds provided under such facilities is limited, because they should not interfere with the course of the monetary policy and hinder the achievement of its main goal – price stability.

[2] For more information on interest rates under specialised facilities refer to the Monetary Policy section of the Bank of Russia website.

[3] The projects shall be selected in line with the rules set out by RF Government Resolution No. 1016, dated 14 December 2010, 'On Approving the Rules to Select Investment Projects and Principals for the Provision of the Russian Federation State Guarantees on Loans or Bonded Loans Attracted to Carry out Investment Projects' or RF Government Resolution No. 1044, dated 11 October 2014, 'On Approving the Programme to Support Investment Projects Implemented in the Russian Federation on the Basis of Project Financing'.

[4] Claims under loans issued to banks and microfinance organisations partnering with JSC SME Bank under the Programme for Financial Support of Small and Medium-sized Enterprises Development for lending to SMEs and claims under loans issued to leasing companies partnering with JSC SME Bank for leasing property to SMEs.

Source: Bank of Russia.

Table 10

Bank of Russia operations to provide foreign currency

Instrument	Term	Frequency[1]	Minimum auction rate as spread to LIBOR[2], percentage points; fixed interest rate for FX swaps[3], % p.a.		Bank of Russia claims, millions of US dollars[4]						
			As of 1.01.16	From 23.12.16	As of 1.01.16	As of 1.10.16	As of 1.01.17	As of 1.04.17	As of 1.07.17	As of 1.10.17	As of 1.11.17
Repo auctions	1 week	Weekly	2.00	2.00	100.1	0.0	2,635.2	0.0	0.0	0.0	0.0
	28 days				5,016.7	9,913.4	8,719.9	4,810.8	2,305.5	598.9	294.4
	12 months		3.00	3.00	15,550.0	159.6	26.2	0.0	0.0	0.0	0.0
Loan auctions	28 days	Monthly	2.25	2.25	-	0.0	0.0	0.0	0.0	0.0	0.0
	365 days		3.25	3.25	1,494.7	0.0	0.0	0.0	0.0	0.0	0.0
USD/RUB sell/buy FX swaps	1 day	Daily	1.50	LIBOR[2]+1.50	0.0	0.0	1,000.0	54.9	0.0	0.0	0.0

[1] No loan auctions were held in 2016 and 2017; 12-month repo auctions have been suspended on 1 April 2016; regular one-week and 28-day repo auctions have been terminated from 11 September 2017.
[2] In respective currencies and for respective terms.
[3] For dollar leg; the rate for ruble leg is equal to the Bank of Russia key rate less 1 pp.
[4] For repos – claims on credit institutions under the second leg of repos.

Source: Bank of Russia.

GLOSSARY

Autonomous factors of banking sector liquidity

Banking sector liquidity factors not connected with Bank of Russia operations to manage liquidity and steer overnight money market rate. These include changes in the amount of cash in circulation, changes in balances of general government accounts with the Bank of Russia and other operations, required reserves regulation, and Bank of Russia operations in the domestic FX market.

Balance of payments of the Russian Federation

A statistical system reflecting all economic transactions between residents and non-residents of the Russian Federation, which occurred during the reporting period.

Bank of Russia key rate

The main monetary policy rate set by the Bank of Russia Board of Directors. Key rate changes influence lending and economic activities and allow for finally achieving the primary objective of the monetary policy. It corresponds to the minimum interest rate at the Bank of Russia 1-week repo auctions and the maximum interest rate at the Bank of Russia 1-week deposit auctions.

Bank of Russia Lombard List

A list of securities eligible as collateral for Bank of Russia loans and repo operations.

Banking sector liquidity

Credit institutions' funds held in correspondent accounts with the Bank of Russia in the currency of the Russian Federation to carry out payment transactions and to comply with the Bank of Russia's reserve requirements.

Broad money (M2X)

Total amount of cash in circulation and funds of the Russian Federation residents (non-financial and financial organisations (excluding credit institutions) and households) in settlement, current and other on-demand accounts (including accounts for bank card settlements), time deposits and other types of deposits in the banking system denominated in the currency of the Russian Federation or foreign currency, and interest accrued on them.

Budget rule

Budget rule is a principle of budget discipline enshrined in law and designed to: 1) ensure adjustment to external conditions through accumulation/use of sovereign funds under the Russian Ministry of Finance's operations to purchase/sell foreign currency in the amount equal to a certain proportion of cyclical revenues; 2) stabilise public finance by restricting expense to income ratio.

Cash in circulation

Includes banknotes and coins being in circulation and usually used to make settlements and payments. Money supply comprises all cash outside of the Bank of Russia, except for cash held in credit institutions' tills.

Core inflation

Inflation being measured as a core consumer price index (CCPI). The difference between the CCPI and the consumer price index (CPI) lies in the CCPI calculation method, which excludes a change in prices for individual goods and services subject to the influence of administrative and seasonal factors (fruit and vegetables, fuel, passenger transportation services, telecommunications services, and the majority of housing and public utility services).

Floating exchange rate regime

According to the IMF classification, under the floating exchange rate regime the central bank does not set targets, including operational ones, for the level of, or changes to, the exchange rate, allowing it to be shaped under the impact of market factors. However, the central bank reserves the right to purchase foreign currency to replenish international reserves or to sell it should threats to financial stability arise.

Funds in general government's accounts with the Bank of Russia

Funds in accounts with the Bank of Russia representing funds of the federal budget, the budgets of constituent territories of the Russian Federation, local budgets, government extra-budgetary funds and extra-budgetary funds of constituent territories of the Russian Federation and local authorities.

Inflation

A sustained increase in the general price level of goods and services in the economy. Price movements in the economy are communicated by various price indicators, e.g. producer price indices, gross domestic product deflator and consumer price index. Inflation is generally associated with the consumer price index (CPI), used to measure prices for a set of food products, non-food goods and services (i.e. the cost of a consumer basket) consumed by an average household over time. The reason why the CPI has been selected as a key inflation indicator is explained by its important ability to serve as the indicator of households' cost-of-living dynamics. Additionally, the CPI possesses a number of properties facilitating its wide-spread application (simple and clear construction methods, calculation on a monthly basis and publication in a timely manner).

Inflation targeting strategy

The strategy for implementing monetary policy is characterised by the following principles: the main objective of monetary policy is price stability, the inflation target is specified and declared, monetary policy influences the economy largely through interest rates under the floating exchange rate regime, monetary policy decisions are taken based on the analysis of a wide range of macroeconomic indicators and their forecast. The Bank of Russia seeks to set clear benchmarks for households and businesses, including through increased information transparency.

Interest rate corridor

The basis of Bank of Russia interest rate system. The centre of the corridor is set by the Bank of Russia key rate; the upper and lower bounds are rates on overnight standing facilities (refinancing facilities and deposit facilities) symmetric to the key rate.

International reserves of the Russian Federation

Highly liquid foreign assets held by the Bank of Russia and the Government of the Russian Federation.

Long-term real equilibrium interest rate

Real interest rate poised to set in the economy where output and employment are at their potential level and inflation is at the target level in the long run.

Mandatory reserve requirements

An instrument of the Bank of Russia's monetary policy. These are Bank of Russia requirements for credit institutions to maintain a certain amount of funds in accounts with the Bank of Russia. The standard value of required reserves is determined using required reserve ratios set as a percentage of reservable liabilities of credit institutions. Required reserves should be deposited in required reserve accounts and may be held in correspondent accounts of credit institutions with the Bank of Russia under the required reserve averaging mechanism. The right for required reserve averaging allows credit institutions to maintain a certain share of required reserves not exceeding the required reserve averaging ratio in correspondent accounts during the averaging period. The calendar for the required reserve averaging periods is established by the Bank of Russia Board of Directors.

MIACR (Moscow Interbank Actual Credit Rate)

A weighted average Moscow interbank actual rate on ruble loans issued by Moscow banks.

Monetary aggregate M1

Total amount of cash in circulation and funds of the Russian Federation residents (non-financial and financial organisations (excluding credit institutions) and households) in settlement, current and other on-demand accounts (including accounts for bank card settlements) opened in the banking system in the currency of the Russian Federation and interest accrued on them.

Monetary base

Total amount of certain cash components and credit institutions' funds in Bank of Russia accounts and bonds denominated in the currency of the Russian Federation. Monetary base in the narrow definition includes cash in circulation (outside of the Bank of Russia) and credit institutions' funds in accounts to record required reserves on funds raised by credit institutions in the currency of the Russian Federation. Broad monetary base includes cash in circulation (outside of the Bank of Russia) and the total funds of credit institutions in Bank of Russia accounts and bonds.

Monetary policy transmission mechanism

The process of transferring the impulse of monetary policy decisions to the economy as a whole and to price dynamics, in particular. The process of transmitting the central bank's signal on holding or changing the key rate and its future path from the financial market segments to the real

sector and as a result to inflation. The key rate changes are translated into the economy through the following major channels: interest rate, credit, foreign currency and asset price channels.

Money supply

Total amount of funds of the Russian Federation residents (excluding general government and credit institutions). For the purposes of economic analysis various monetary aggregates are calculated (see Monetary aggregate M1, Money supply in the national definition (M2), and Broad money (M2X)).

Money supply in the national definition (M2)

Total amount of cash in circulation and funds of the Russian Federation residents (non-financial and financial organisations (excluding credit institutions) and households) in settlement, current and other on-demand accounts (including accounts for bank card settlements), time deposits and other types of deposits in the banking system denominated in the currency of the Russian Federation and interest accrued on them.

Net capital inflow/outflow

The total balance of private sector operations involving foreign assets and liabilities recorded on the financial account of the balance of payments.

Non-price bank lending conditions

Bank lending conditions, which include loan maturity and amount, requirements for the financial standing of the borrower and collateral, additional fees, and the range of lending purposes. They are assessed on the basis of surveys of credit institutions by the Bank of Russia.

Open market operations

Bank of Russia operations to regulate banking sector liquidity. They include operations on a reverse basis other than standing facilities, which are carried out with the Bank of Russia making a specific offer (usually auction-based), as well as all operations to purchase/sell securities, foreign currency and gold.

Operations to absorb liquidity

Bank of Russia operations to raise liquidity from credit institutions on a reverse basis. These are operations either to raise deposits or place Bank of Russia bonds.

Refinancing operations

Bank of Russia operations to provide credit institutions with liquidity on a reverse basis. They may be in the form of loans, repos or FX swaps.

Required reserve averaging ratio

The ratio ranging from 0 to 1 is applied to the standard value of required reserves to calculate the average value of required reserves.

Required reserve ratios

Ratios ranging from 0% to 20% are applied to reservable liabilities of credit institutions to calculate the standard value of required reserves. They are set by the Bank of Russia Board of Directors.

Ruble nominal effective exchange rate index

The ruble nominal effective exchange rate index reflects changes in the exchange rate of the ruble against the currencies of Russia's main trading partners. It is calculated as the weighted average change in the nominal exchange rates of the ruble to the currencies of Russia's main trading partners. The weights are determined according to the foreign trade turnover share of Russia with each of these countries in the total foreign trade turnover of Russia with its main trading partners.

Ruble real effective exchange rate index

It is calculated as the weighted average change in the real exchange rate of the ruble to the currencies of Russia's main trading partners. The real exchange rate of the ruble to a foreign currency is calculated using the nominal exchange rate of the ruble to the same currency and the ratio of price levels in Russia to those in the corresponding country. When calculating the real effective exchange rate, weights are determined according to the foreign trade turnover share of Russia with each of these countries in the total foreign trade turnover of Russia with its main trading partners. The ruble real effective exchange rate index reflects changes in the competitiveness of Russian goods in comparison to those of Russia's main trading partners.

RUONIA (Ruble OverNight Index Average)

Reference weighted rate of overnight ruble deposits in the Russian interbank market. It reflects the cost of unsecured loans of banks with minimum credit risk. To calculate RUONIA, the Bank of Russia applies the method elaborated by the National Finance Association in cooperation with the Bank of Russia based on the information on deposit transactions made between member-banks. The list of RUONIA member-banks is compiled by the National Finance Association and approved by the Bank of Russia.

Standing facilities

Bank of Russia operations carried out daily to satisfy credit institutions' bids in full. The rates on overnight standing facilities shape the bounds of the interest rate corridor.

Structural liquidity deficit/surplus

Structural deficit is the state of the banking sector characterised by a stable demand by credit institutions for Bank of Russia liquidity provision operations. Structural surplus is characterised by a stable liquidity surplus in credit institutions and the Bank of Russia's need to conduct liquidity-absorbing operations. The level of structural liquidity deficit/surplus is a difference between the outstanding amount on refinancing operations and Bank of Russia liabilities on operations to absorb excess liquidity.

ABBREVIATIONS

CPI – consumer price index

DIF – Deposit Insurance Fund

DSR – debt service ratio

GDP – gross domestic product

IBL – interbank loans

IRS – Interest rate swap

MIACR – Moscow Interbank Actual Credit Rate

MPTM – monetary policy transmission mechanism

OBR – Bank of Russia bonds

OFZ – federal government bonds

RRF – Required Reserve Fund

RUONIA – Ruble OverNight Index Average

SME – small and medium-sized enterprises

US Fed – US Federal Reserve System