Bank of Russia

Monetary Policy Guidelines for 2022–2024

Moscow

Approved by the Bank of Russia Board of Directors on 9 November 2021.

The document was prepared based on statistics as of 21 October 2021.
The cut-off date for forecast calculations is 21 October 2021.

The electronic version of the document is available on the Bank of Russia website in the section Publications/Guidelines for the Single State Monetary Policy (http://www.cbr.ru/s/255f).

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INTRODUCTION

In the Monetary Policy Guidelines, the Bank of Russia each year describes the goals of monetary policy and approaches to its implementation and provides its view of the current situation in the economy and its medium-term development prospects.

The main goal of the Bank of Russia's monetary policy is to ensure price stability. Since 2015, the Bank of Russia has been implementing its monetary policy within the inflation targeting regime, seeking to maintain annual inflation close to 4% on a continuous basis. Within this regime, the Bank of Russia uses the key rate and the signal regarding its further decisions as the main instruments to influence monetary conditions, financial markets, and the economy. The Bank of Russia makes its decisions on the key rate level and signal based on the analysis of the existing economic trends and macroeconomic forecast. Moreover, the Bank of Russia seeks to promptly and amply communicate the information on its monetary policy stance, adhering to the principle of communication transparency.

The economic situation in 2021 and the Bank of Russia's estimates of its development prospects have altered as compared to 2020. Despite the spikes in coronavirus cases, the global economy continued to bounce back in late 2020–2021. Furthermore, demand expanded fast, although there were considerable supply-side constraints. They were largely associated with disruptions in global production and logistics chains caused by anti-pandemic restrictions, which also pushed up prices in global commodity markets. Consequently, inflationary pressure significantly intensified in the majority of countries.

The Russian economy demonstrated a similar trend. In 2020 Q3, Russia's economy started to bounce back, and already in 2021 Q2 it was among the first economies to return to the pre-crisis level. The economy was significantly supported by fiscal measures and a substantial easing of monetary policy in 2020. However, the recovery was uneven across industries, and the rise in demand in many of them exceeded their potential to ramp up supply already at the beginning of 2021. In these conditions, it was simpler for companies to pass their increased costs on to goods and services prices. As people changed their preferences, opting to purchase durable goods, this shift put additional pressure on prices. Households and businesses increased their inflation expectations. Elevated inflation expectations provoked the risks of a more considerable and longer-lasting deviation of inflation from the target due to secondary effects. In this context, the Bank of Russia toughened its signals regarding its future actions beginning from late 2020 and started to raise the key rate in March 2021. The Bank of Russia estimated the duration of factors impacting the economy and price movements, and the stability of the existing economic trends. Making its monetary policy decisions, the Bank of Russia also factored in that, with inflation expectations staying elevated and unanchored, monetary conditions may remain accommodative for a longer period. As a result, the key rate was increased by 3.25 pp to 7.50% p.a. by November 2021.

Further on, the Bank of Russia will make its monetary policy decisions depending on future developments in the Russian and world economies. In its baseline scenario, the Bank of Russia assumes that the coronavirus pandemic will be controllable, including owing to the progress of the vaccination programme, the growth of global demand will slow down

after the recovery period, and the current strengthening of inflationary pressure will decline gradually. In these conditions, oil prices will decline gradually, which will also be driven by the expansion of the output quotas under the OPEC+ agreement and an increase in oil supply. After the accelerated recovery growth in 2021, the Russian economy will grow at a pace close to its potential. Consumer activity will slow down amid expanding opportunities for foreign travel, decelerating retail lending growth, and fiscal policy normalisation. Investment activity will return to its long-term steady level amid the stabilising growth rates of the Russian and global economies and the adjustment of production and logistics capacities. Inflation is expected to return to its target by the end of 2022. To ensure such inflation changes, the Bank of Russia will maintain the key rate in the range of 7.3–8.3% p.a. on average in 2022. As inflation expectations lower and consumer price growth decelerates, the Bank of Russia will return the key rate to its long-term neutral range of 5–6% p.a.

In addition to the baseline scenario, the Bank of Russia also considers three alternatives. The key circumstances in these scenarios are the factors demonstrating the highest level of uncertainty in their dynamics. This is the pandemic situation in Russia and abroad (the emergence of new, more dangerous coronavirus strains and a more extensive reintroduction of restrictions), the recovery pace of global demand, including for Russian exports, and different scales of largest central banks' response to faster global inflation and its consequences for global financial markets. Depending on a particular scenario that might materialise, the Bank of Russia will need to adjust its monetary policy accordingly, in order to bring inflation back to the target in the medium term.

In addition to the medium-term factors, there are also factors that might affect the Russian economy in the long run, including climate change and demographic trends. In recent years, the global community has been actively discussing the impact of climate change on the world economy in general and the economies of individual countries. The uncertainty about future climate change is exacerbated by the uncertainty regarding what climate policy measures should be taken to ensure the transition to the green economy and how long it will take to implement them. In this document, the Bank of Russia for the first time considers the issue of a potential impact of the climate agenda on the conditions of monetary policy implementation and outlines the range of issues for further study.

Moreover, the current demographic changes, partly resulting from the influence of the pandemic, may also affect the economy in the long term. In particular, a reduction in the labour force and population ageing, later retirement, and the population increase due to the inflow of migrants might impact the potential of economic growth in Russia in the next few years and the functioning of the monetary policy transmission mechanism. The influence of these factors may be partially offset by demographic measures, but this will take a long time. A slowdown in the growth of aggregate demand caused by demographic shifts will put downward pressure on inflation, which will be factored in by the Bank of Russia when preparing the forecast and making key rate decisions.

While the goal of monetary policy and approaches to its implementation remain unchanged, the Bank of Russia continuously enhances individual elements of its monetary policy, improving its model-based approaches applied to analyse the economic situation and develop forecasts, expanding the range of published forecast indicators, developing monetary policy instruments, and taking efforts to improve the outreach of monetary policy and make communication clearer.

In 2021, the Bank of Russia announced the launch of a new project – the Monetary Policy Review, that is, a comprehensive analysis of the monetary policy pursued in Russia during the period of inflation targeting.[1] The objective of this review is to assess how effective the parameters of the selected monetary policy regime are and how well they conform to the changing environment. In 2022, the Bank of Russia will present the findings of the analysis by the Bank of Russia's research units and carry out meetings with representatives of companies, business associations, state authorities, the academic and expert community, and citizens. Based on the final results, the Bank of Russia will release a summary paper for public consultations. The Bank of Russia will take into account the findings and proposals of the summary paper and the results of their discussion with the public when preparing the Monetary Policy Guidelines for the next three-year period.

Under any scenario of future developments both in the Russian economy and abroad, the Bank of Russia will pursue its monetary policy taking into account its core function stipulated by the Constitution of the Russian Federation, which is protecting the ruble and ensuring its strength. In accordance with Federal Law No. 86-FZ, dated 10 July 2002, 'On the Central Bank of the Russian Federation (Bank of Russia)', this function shall be performed by maintaining price stability. Price stability is an essential condition for sustainable and well-balanced growth of the Russian economy.

These Guidelines have the following structure.

Section 1 describes the goals and principles of the Bank of Russia's monetary policy, as well as the interaction of monetary policy with other state policies. The section includes two boxes: on setting the 4% inflation target upon switching to the inflation targeting regime in 2015 and on the neutral interest rate.

Section 2 focuses on the baseline and alternative forecast scenarios of the Bank of Russia. The section contains boxes about fiscal policy and investments from the National Wealth Fund in 2021–2024. It also includes boxes on the factors associated with climate and demographic changes that might affect the economy and monetary policy after the end of the three-year period.

Section 3 offers a retrospective overview of the Bank of Russia's monetary policy from late 2020 until now. The boxes at the end of the section describe the impact of the coronavirus pandemic on structural shifts in the economy and the permanent inflation factors in 2021.

Section 4, as always, covers the operational procedure of the Bank of Russia's monetary policy: its operational objective and system of instruments, as well as the factors influencing the trends and forecast of banking sector liquidity. The box on the banking sector's structural liquidity surplus provides detailed information on its changes in late 2020–2021.

The document also contains **appendices and boxes** addressing both the theoretical aspects of monetary policy, given the Russian specifics, and the most relevant economic issues.

[1] *For details about the Monetary Policy Review refer to the Bank of Russia's Monetary Policy Review: planned analytical work and events subsection in the Monetary Policy section on the Bank of Russia website (http://www.cbr.ru/s/2560).*

1. MONETARY POLICY GOALS, PRINCIPLES AND INSTRUMENTS

MONETARY POLICY: ITS GOAL AND CONTRIBUTION TO ECONOMIC DEVELOPMENT

One of the key functions of the Bank of Russia in accordance with the Constitution of the Russian Federation[1] and Federal Law 'On the Central Bank of the Russian Federation (Bank of Russia)' is to protect the ruble and ensure its strength. The Bank of Russia ensures the strength of the ruble by maintaining price stability, including to create conditions for balanced and sustainable economic growth. Price stability is the main monetary policy goal, which implies steadily low inflation. It is an important element of an environment that is favourable for living and doing business.

Steadily low inflation ensures a stable purchasing power of the national currency – the ruble. Stability protects wages, pensions and other earnings, as well as ruble-denominated savings of households and companies against a significant unpredictable devaluation. This enables households, among other things, to maintain their living standards and plan their spending, including long-term expenses, with greater confidence.

Price stability is essential to support social stability. Low and stable inflation is particularly important to protect low-income households. Such households have the opportunity to choose inexpensive staple goods and cannot switch to their cheaper substitutes if prices rise considerably. High inflation forces them to reduce consumption, which decreases their quality of life. All else being equal, high inflation aggravates social inequality since it largely affects incomes in socially vulnerable groups of the population.[2]

Low and steady inflation is favourable for businesses. It contributes to higher affordability of debt and equity financing for companies. High and volatile inflation is a source of risks for economic agents, including banks and their clients. Banks include an increased inflation premium in interest rates. To the contrary, low and stable inflation reduces banks' risks. All else being equal, lower risks decrease interest rates on loans. Not only Russian banks, but also domestic investors (both individuals and companies), as well as foreign investors are more inclined to provide financing in a country with a predictable economic environment an integral part of which is steadily low inflation.

Price stability simplifies financial and investment planning for businesses and households. Steadily low inflation lays the groundwork for a long-term increase in savings and investment and, consequently, for sustainable and well-balanced economic growth. Thereby, monetary policy helps achieve the common goal of economic policy, that is, an acceleration of economic growth, while maintaining macroeconomic stability. In turn, this will contribute to a more sustainable increase in social welfare.

Promoting confidence in the national currency, price stability creates favourable conditions for reducing the portion of foreign currency-denominated assets and liabilities

[1] *Part 2 of Article 75 of the Constitution of the Russian Federation. This constitutional principle is elaborated on in Federal Law No. 86-FZ, dated 10 July 2002, 'On the Central Bank of the Russian Federation (Bank of Russia)', including in Articles 3 and 34.1.*

[2] *For details regarding the effect of inflation on social inequality, refer to Appendix 3 of the Monetary Policy Guidelines for 2018–2020 (http://www.cbr.ru/s/2561).*

in the economy. This improves the robustness of the economy to changes in the external environment.

Ensuring the strength of the ruble by maintaining price stability, the **Bank of Russia pursues the free floating exchange rate regime**. This means that foreign exchange rates against the ruble are determined by market forces, and the Bank of Russia carries out no interventions in the domestic foreign exchange market to maintain any specific exchange rate or the pace of its movements in the normal environment. Nonetheless, the Bank of Russia may conduct foreign exchange operations in the domestic market to counter financial instability factors. A floating exchange rate acts as a 'built-in stabiliser' helping the economy adjust to shifts in external conditions and smoothing the impact of external factors on the economy.[3] Furthermore, a floating exchange rate enables the Bank of Russia to implement independent monetary policy, reducing its dependence on other countries' economic policies and the external economic environment in general.

Monetary policy lays the groundwork for economic development; however, it cannot secure a sustainable rise in the economic potential. In the long run, the main factors influencing the potential of economic growth are capital formation, changes in the labour force size, and a rise in labour and capital productivity, including as a result of using more efficient forms of labour and innovative technology implementation. Ensuring low and stable inflation, monetary policy favours the development of a predictable economic environment, which is an essential condition for an increase in companies' investment and further growth. However, monetary policy cannot directly drive the efficiency of production factors and technology deployment. In its efforts to maintain price stability, the central bank influences domestic demand trends and, consequently, the utilisation of production factors. Thereby, monetary policy helps support economic output close to its potential, rather than determines the economic potential of the country. This provides the basis for countercyclical monetary policy (refer to the subsection 'Main principles of monetary policy').

When the economy is close to or above its potential, any efforts to boost economic growth by cutting the monetary policy rate may result in long-term adverse consequences for price stability and financial stability. In the short run, the effects of such an unreasonable decrease in the key rate by the central bank may spur an accelerated growth of lending and a rise in domestic demand. However, if there are no internal capacities to meet demand when the economy is close to or above its potential, this will ultimately provoke higher inflation, which in turn will inevitably push up interest rates and slow down economic growth.

To enable a sustainable expansion of production capacities in the economy, it is necessary to implement other measures. In the first place, these are structural policy and fiscal policy measures (changes in the structure of budget expenditures to promote the modernisation of the economy and increase human capital) and institutional changes. Only such measures, provided they are implemented successfully, may boost potential economic growth rates.

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[3] *For details regarding the role of a floating exchange rate as a 'built-in stabiliser' of the economy, refer to Appendix 9 of the Monetary Policy Guidelines for 2018–2020. (http://www.cbr.ru/s/2561).*

KEY MONETARY POLICY PRINCIPLES

Implementing the inflation targeting strategy, the Bank of Russia pursues the following main principles in its monetary policy:

- setting a public quantitative inflation target;
- the use of the key rate and communication as the main monetary policy instruments;
- monetary policy decision-making based on the macroeconomic forecast; and
- communication transparency.

Setting a permanent public quantitative inflation target

The Bank of Russia sets a quantitative inflation target and announces it for households, businesses and financial market participants to take it into account in their planning and decision-making. The Bank of Russia pursues its monetary policy to deliver on the inflation target.

The monetary policy goal is to maintain annual inflation close to 4% on a continuous basis (refer to Box 1 'Why the Bank of Russia seeks to maintain inflation close to 4%'). The wording 'close to 4%' implies that inflation may slightly hover around 4%. Such fluctuations are natural as the economy involves a complex chain of interdependencies, prices are influenced by multiple factors, and monetary policy impacts price movements indirectly through demand with certain time lags.

The inflation target is set for the annual growth rate of consumer prices, that is, the change in prices for goods and services purchased by households over the last 12 months. The consumer price growth rate is determined based on the consumer price index (CPI) calculated for Russia by Rosstat. Concurrently, specific local factors may cause variations in price growth rates across individual product and service groups and various regions.

The Bank of Russia seeks to maintain inflation close to 4% on a continuous basis. If there are any factors over the forecast horizon that may cause inflation to deviate from the target, the Bank of Russia assesses the reasons behind them and the duration of their potential impact on inflation, in order to make appropriate decisions on monetary policy measures. In a situation where inflation deviates from the target, the Bank of Russia chooses the pace of inflation returning to the target taking into account the scale of the deviation and the influence of monetary policy measures on economic activity. Moreover, making these decisions, the Bank of Russia factors in risks to financial stability.

Key rate and communication as monetary policy instruments

Under the inflation targeting regime, **the key rate is the main instrument of the Bank of Russia's monetary policy**. The key rate is the interest rate on main operations carried out by the Bank of Russia to regulate the banking sector liquidity.[4] The Bank of Russia key rate impacts market interest rates which influence economic agents' propensity to consume or save. This factor determines domestic demand in the economy that influences price movements.

For the key rate to effectively influence market interest rates, it is necessary that overnight money market rates form close to the key rate at the first stage. This is the operational objective of the Bank of Russia's monetary policy. In order to achieve its

[4] *The rate corresponds to the minimum interest rate at the Bank of Russia's one-week repo auctions and to the maximum interest rate at the Bank of Russia's one-week deposit auctions (within the operational procedure of the Bank of Russia's monetary policy that also comprises a range of other operations).*

operational objective, the Bank of Russia employs liquidity management instruments and the interest rate corridor (refer to Section 4 'Monetary policy operational procedure in 2022–2024').

The Bank of Russia's Board of Directors makes its key rate decisions on a regular basis, specifically eight times a year, in accordance with the pre-approved and publicly available schedule (refer to Appendix 9 'Calendar of key rate decisions for 2022').

Given the time-lag effect of monetary policy measures on the economy, the **Bank of Russia relies on sustainable economic trends and long-term factors when making its decisions on the key rate**. The Bank of Russia revises the key rate if current trends evidence a long-lasting deviation of inflation from the target over the forecast horizon or there are long-acting factors that are highly probable to cause such a persistent deviation. Assessing how long these factors may last, the Bank of Russia relies on the macroeconomic forecast (refer to the section 'Monetary policy decision-making based on the macroeconomic forecast'). Where the existing deviation of inflation from its target results from the effect of temporary factors and inflation is expected to return to the target in the short run, it is unreasonable to employ monetary policy measures. A change in the key rate in response to short-term factors might pull inflation away from the target in the opposite direction, which does not conform to the task of maintaining inflation close to 4%.

Nonetheless, short-term factors, if they affect inflation expectations, may cause a longer-lasting deviation of inflation from the target. Inflation trends are largely driven by inflation expectations, as they guide economic agents in their decision-making regarding purchases, wage levels, and pricing. For instance, in response to a rise in inflation triggered by short-term factors, households may increase demand for goods, expecting that their prices may soon go up. This process may affect both the goods that have already become more expensive and other products, particularly staples. In this environment, manufacturers may decide to significantly raise prices for a wider range of goods and services. Inflationary pressure will amplify, and the deviation of inflation from the target will become more persistent. Such a situation may require monetary policy measures. In contrast, when inflation expectations are steady and anchored to the inflation target, consumers limit their purchases of goods in response to a price growth acceleration since they are confident that inflation is to slow down and return to the target. Therefore, when inflation expectations are anchored, an increase in prices is a factor limiting demand and thus containing a rise in inflation induced by temporary proinflationary factors.

Key rate decisions are aimed at smoothing the economic cycle (the countercyclical role of monetary policy). To deliver on the inflation target, the Bank of Russia influences demand trends. When the economy is in a long-term equilibrium, that is, when inflation and inflation expectations are close to the target and output is near its potential, monetary policy should be neither contractionary, nor expansionary for demand and the economy, i.e. the central bank should pursue neutral monetary policy. When the economy is in an equilibrium, the key rate is assumed to be at a neutral level. The latter is determined by multiple factors and may be estimated using various methods (refer to Box 2 'Neutral interest rate').

The notion of a neutral interest rate is also associated with the notion of a neutral yield curve. In an equilibrium, the yield curve should have a normal shape, i.e. it should be upward-sloping. This implies that long-term interest rates in the economy are higher than short-term ones, since market participants include additional term and risk premiums in

long-term interest rates. When the economy is close to its potential, inflation stays near its target, and the key rate is neutral, such slope of the yield curve suggests that real interest rates for various terms form at such levels that promote neutral monetary conditions in the economy.

In a situation where growth rates and aggregate demand start to exceed the economy's production capacity, the economy deviates from its potential upwards. In order to prevent its overheating and the resulting deviation of inflation and inflation expectations upwards from the target, the central bank needs to temporarily increase the key rate above its neutral level. Monetary policy tightening will help lower demand and drive the economy back to a balanced growth path and inflation to its target level. To the contrary, when aggregate demand decreases below the economy's production capacity, this entails the materialisation of the risks of the economy deviating downwards from its potential and of inflation – downwards from its target. This situation requires a temporary reduction in the key rate below its neutral level. Monetary policy easing will provide appropriate support to aggregate demand and bring inflation back to the target.[5]

Any key rate decision is accompanied by an explanation of its logic, and, generally, by a signal regarding possible further monetary policy decisions. By its signal, the Bank of Russia announces its intents, the implementation of which depends on the development of the economic situation in line with the Bank of Russia's baseline forecast. The signal is no less important than a key rate decision itself, since it impacts market participants' expectations regarding further moves of the central bank and influences yield curve trends and monetary conditions that are coherent with the Bank of Russia's forecast.

In addition to the signal, beginning from April 2021, the Bank of Russia also publishes the projected path of the key rate under the baseline scenario. The projected path is presented as ranges of the average key rate for every calendar year. However, during a year, the key rate may be both above or below its annual average. The ranges of the average key rate published by the Bank of Russia are not the limits of a change in the key rate over a year. In this document, the Bank of Russia presents the projected paths of the key rate for the alternative scenarios as well.

The Bank of Russia's explanation of its decisions and communication of its future intentions are an important instrument for managing inflation expectations and their anchoring to the inflation target. Inflation expectations impact both inflation trends and interest rates in the economy. The anchoring of inflation expectations of both households and businesses to the inflation target is crucial to ensure the efficiency of measures implemented by the central bank. Therefore, it is essential that economic agents are confident in monetary policy. To promote this confidence, the central bank should pursue consistent monetary policy and successfully achieve the inflation target and economic agents should comprehend the central bank's policy. In this regard, the Bank of Russia especially focuses on the development of its communication policy, and communication transparency is a core principle in the implementation of monetary policy (refer to the section 'Communication transparency' herein).

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[5] *For instance, such a situation was observed in 2020 when the slump in the global and Russian economies induced by the coronavirus pandemic entailed the risks of an inflation deviation downwards from the target over the forecast horizon. To support domestic demand and stabilise inflation close to the target over the forecast horizon, the Bank of Russia cut the key rate and implemented accommodative monetary policy.*

Monetary policy decision-making based on the macroeconomic forecast

The effect of monetary policy decisions on price dynamics is not immediate: it takes time and involves a long chain of interconnections known as the monetary policy transmission mechanism. According to the Bank of Russia's assessment, the key rate pass-through to demand and price dynamics takes from three to six quarters (refer to Appendix 1 'Monetary policy transmission mechanism in Russia'). Therefore, to prepare a key rate decision based on the current situation in the economy and its expected developments in the future, the Bank of Russia uses the macroeconomic forecast.

The Bank of Russia's forecast is based on advanced macroeconomic models. The core of the medium-term forecasting system is formed by comprehensive forecasting models covering key interdependencies in the economy at the macro level. They are the basis for identifying the key parameters for a medium-term macroeconomic forecast. These parameters encompass changes in inflation, economic growth, monetary indicators, and the balance of payments. These model-based techniques enable the calculation of the scenario path of key rate movements. In addition to statistics, the input parameters in medium-term forecasting models are based on the findings of short-term forecasts relying on econometric models and expert opinions. To check forecasts based on various models for consistency and analyse certain relevant issues, the Bank of Russia employs additional ('satellite') models. The Bank of Russia is continuously enhancing its model-based approaches considering recent scientific developments by Russian and foreign experts in macroeconomics and quantitative methods, as well as foreign central banks' best practices.[6]

The Bank of Russia conducts an in-depth analysis of a wide range of data when preparing its macroeconomic forecast. The Bank of Russia analyses, among other things, current statistics on the situation in the Russian economy and in global commodity and financial markets, information on economic policies in major foreign countries, and possible changes in fiscal, tax, social and other areas of Russia's economic policy. The Bank of Russia uses these data to formulate assumptions for its forecast scenarios – a complex of external and internal economic factors that may have a material effect on the Russian economy and inflation trends, as well as assesses inflation risks.

When developing its macroeconomic forecast, the Bank of Russia takes into account the fact that decisions on monetary policy are always made when there is no complete certainty. There can be various factors of uncertainty, including not only possible future economic developments and forecast assumptions, but also new information on the past and present situation in the economy. Uncertainty in the course of monetary policy decision-making may also be associated with the specifics of model-based techniques used to build a macroeconomic forecast. Therefore, the Bank of Russia places a high emphasis on the rationale of monetary policy decisions it makes in a changing economic environment. Specifically, this involves the use of a broad range of model-based techniques and forecasting of various scenarios of developments in the global and Russian economies. This approach enables the Bank of Russia to estimate the robustness of its macroeconomic forecast and monetary policy decisions made based on this forecast.

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[6] *For details about developing a macroeconomic forecast and model-based approaches applied by the Bank of Russia, refer to the Forecasting and Model-based Approaches subsection in the Monetary Policy section on the Bank of Russia website.*

Currently, the Bank of Russia continues to follow the conservative approach when assessing the balance of inflation risks over the forecast horizon, while focusing slightly more on proinflationary factors and risks. This is associated with the specifics of inflation expectations in Russia. Professional market participants' inflation expectations are anchored to the target, whereas households' and businesses' inflation expectations remain sensitive to the impact of short-term proinflationary factors. Moreover, inflation expectations respond to price movements asymmetrically: households and businesses are more responsive to an acceleration of price growth, rather than to its slowdown. In such a situation, underestimation of proinflationary factors and risks may entail persistent and long-lasting deviations of inflation upwards from the target. Therefore, when formulating assumptions for its forecast, the Bank of Russia especially focuses on those drivers of price movements that may push inflation and inflation expectations upwards. This is in line with the intent of the Bank of Russia to make prudent (robust) monetary policy decisions.

Measures pursued in other areas of domestic economic policy, as well as measures of economic policy in major foreign countries are important factors the Bank of Russia considers when building its macroeconomic forecast. They may have quite a significant effect on the Russian economy and price trends. Furthermore, representatives of the Bank of Russia take part in the work of dedicated committees and working groups for various state policy areas to achieve the correlation and consistency of measures, as well as provide expert opinions on economic issues (refer to the subsection 'Interaction of monetary policy with other state policies').

Communication transparency

The society's understanding of and confidence in the monetary policy pursued are crucial for its efficient implementation. When households and businesses are confident that the central bank is seeking and able to maintain price stability on an ongoing basis, there will be no considerable adjustments in their inflation expectations in response to short-term price fluctuations or the emergence of proinflationary or disinflationary factors. A better understanding of the central bank's decisions and its communication signals helps economic agents take them into account more quickly and correctly when forming their expectations regarding interest rates and making their decisions on borrowings, savings, wage indexation, and pricing. As a result, the impact of monetary policy on the economy and inflation enhances, and the scale and duration of an inflation deviation from the target decline.

To promote this understanding and confidence, the central bank should pursue consistent monetary policy, successfully achieve the inflation target, and extensively communicate information on inflation, the balance of risks to price stability, and monetary policy measures to target audiences.

The central bank's communication is especially important for forming expectations of households and the non-financial sector due to their generally lower motivation and opportunities for accessing and processing specialised economic information (in contrast to professional financial market participants). Thus, today the central bank's communication policy should take into account the specifics and needs of various target audiences.

The Bank of Russia seeks to promptly and amply communicate the information on the goals, principles, measures and results of its monetary policy, as well as on the assessment of the economic situation and its prospects. The main monetary policy goals and principles are communicated annually in the Monetary Policy Guidelines. On the day

the Bank of Russia's Board of Directors makes its key rate decision, the Bank of Russia issues a press release with the analysis of the factors behind the decision made and carries out the Bank of Russia Governor's live press conference.

Furthermore, the Bank of Russia publishes its medium-term macroeconomic forecast four times a year (in February, April, July, and October), along with its press release on the key rate. The Bank of Russia's Monetary Policy Report is also issued four times a year: it provides a detailed view of the Bank of Russia regarding current economic developments and its medium-term forecast that are the basis for the key rate decisions made.

The Bank of Russia issues its regular commentaries on inflation movements and inflation expectations, main macroeconomic trends, the situation in financial markets, and the state of the balance of payments.[7] In addition to economic materials based on recent data, the Bank of Russia also publishes findings of a range of economic research on its website and analytical articles in specialised economic journals.

The Bank of Russia takes efforts to improve the outreach of its monetary policy and make the communication more targeted, including at the regional level.

The Bank of Russia seeks to provide an extensive coverage of regional economic trends. The analysis of consumer price movements is released not only for the country in general, but also for the federal districts and individual regions in the form of information and analytical commentaries. Beginning from December 2020, the Bank of Russia releases its report Regional Economy: Commentaries by Bank of Russia Main Branches[8] before each meeting of the Board of Directors. This publication is prepared by the Bank of Russia's regional branches. It comprises statistics, findings of surveys, and analysis of the economic situation in Russian regions.

The Board of Directors considers this information when discussing its key rate decisions. In 2021, the Bank of Russia started to publish the regions' profiles[9] on its website. Each profile provides a general description of the region and the sectoral structure of its economy, as well as the main social and economic indicators of the region, including individual indicators on lending to the economy.

The Bank of Russia takes into account how knowledgeable a particular audience is about monetary policy issues and the economy in general, and thus selects the most appropriate communication channels and tools, the complexity of information, the extent and format of its disclosure. In view of the above, the Bank of Russia publishes a broad range of materials (from research papers to educational videos for various audiences, including schoolchildren), uses both in-person forms of communication (panel discussions, interviews to mass media) and remote ones (online conferences, blogs in social networks). In 2021, the Bank of Russia released materials on its model-based approaches[10] and started to publish the projected path of the key rate[11] and the results of the survey of the

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[7] *The commentaries are available in the Analytics subsection of the Monetary Policy section on the Bank of Russia website (http://http://www.cbr.ru/s/2567).*

[8] *The report is available in the Analytics subsection of the Monetary Policy section on the Bank of Russia website (http://www.cbr.ru/s/2567).*

[9] *Regions' profiles are published on webpages of the Bank of Russia regional branches.*

[10] *Refer to the Forecasting and Model-based Approaches subsection in the Monetary Policy section on the Bank of Russia website.*

[11] *The projected path of the key rate for the baseline scenario is published in the press release on the key rate as part of the medium-term forecast and in the Monetary Policy Report.*

leading Russian and foreign analysts about the key macroeconomic indicators.[12] Focusing on the general public, the Bank of Russia continued to expand its presence in social media, creating its account on Instagram. In 2021, the Bank of Russia launched a video blog by the Director of the Monetary Policy Department on its YouTube channel. The blog posts regular videos providing easy-to-understand information on the economic situation and explains the logic of monetary policy decisions.

The Bank of Russia will continue to enhance the efficiency of its communication on monetary policy issues, employing the entire range of instruments available and improving their usage with due regard for the specifics of audiences.

INTERACTION OF MONETARY POLICY WITH OTHER STATE POLICIES

In accordance with the legislation, the Bank of Russia is responsible for several areas of economic policy. Along with monetary policy, these areas comprise the development and ensuring the stable functioning of the banking sector, the financial market and the national payment system. The correlation and consistency of measures taken by the Bank of Russia in all areas are achieved through their discussion at the meetings of the Bank of Russia Board of Directors and through the participation of representatives of various areas of the Bank of Russia's activities in the work of dedicated committees and working groups within the Bank of Russia.

Monetary policy and financial sector stability policy

The Bank of Russia adheres to the principle of independent targets and instruments for monetary policy and financial sector stability policy. The Bank of Russia uses monetary policy and the key rate as its core mechanism to bring inflation to the target, while financial sector stability is secured through other policy measures. First of all, this is the regulation of credit and other financial institutions (microprudential regulation), supervision, and financial resolution measures aimed at ensuring the recovery of operations of the banks and financial institutions that lost their financial stability and at preserving depositors' and creditors' funds. Secondly, these are macroprudential policy measures supporting the stability of the financial system in general and helping prevent the accumulation of excessive risks in its individual segments and mitigate the probability of crisis events and their adverse economic consequences.

The sustainability of the financial sector is crucial for the efficient functioning of the monetary policy transmission mechanism. Only a stable financial sector is able to ensure smooth processing of payments and the transformation of savings into investment. By limiting the accumulation of systemic risks, it is possible to reduce the probability of financial crises and increase the degree of certainty for financial market participants. In the case of adverse developments in financial markets, including due to external factors, macroprudential policy easing enables the financial sector to perform its core functions stably and helps mitigate negative effects for the real economy. All this promotes confidence in the national financial sector, its attractiveness for all groups of participants, and, consequently, positively influences the level of risk premiums, the depth and liquidity of financial markets, and the financial sector expansion and development.

[12] *The survey results are available in the Statistics subsection of the Monetary Policy section on the Bank of Russia website (http://www.cbr.ru/s/2568).*

In most cases, changes in microprudential regulation influence long-term and structural aspects of financial institutions' operations; therefore, relevant decisions are made irrespective of medium-term monetary policy decisions. Furthermore, changes in microprudential regulation (in contrast to macroprudential regulation) are generally introduced on a continuous basis and do not depend on a particular stage of the financial and economic cycle. In view of the above, normally they do not have any effect on the monetary policy environment. Nonetheless, microprudential regulation measures may still have an impact. Specifically, the introduction of the Basel III requirements for banks' capital and liquidity has significantly influenced the parameters of individual operations carried out by financial institutions. The Bank of Russia takes into account such impact when making decisions on necessary adjustments to the operational procedure of monetary policy. The implementation of risk-based and proportionate banking regulation may help banks assess risks more accurately and improve banks' financial stability, on the one hand, and expand the banking sector's opportunities to provide lending to the economy, on the other hand. This will be taken into consideration in the course of the implementation of monetary policy.

Macroprudential policy decisions are largely associated with cyclical fluctuations in the economy and financial markets; therefore, macroprudential measures take into account the effect of monetary policy decisions on macroeconomic indicators. In turn, macroprudential policy measures can impact the monetary policy environment, including lending trends and interest rates in individual segments. Therefore, making its decisions both in the area of macroprudential policy to limit systemic risks and in the area of monetary policy, the Bank of Russia takes into account the mutual impact of these policies. At the same time, the Bank of Russia implements these two policies independently, without coordinating the stances of these policies.

The monetary policy environment may also be impacted by other measures aimed at ensuring stable operation of the financial sector. Thus, liquidity provision to credit institutions within financial resolution measures shifts the structural liquidity balance in the banking sector. The Bank of Russia takes these changes into account when setting limits on operations to absorb or provide liquidity, thereby mitigating their potential effect on the operational procedure of monetary policy and on monetary conditions.

The Bank of Russia normally changes the key rate only in response to macroeconomic developments affecting inflation. A situation where systemic risks ultimately materialise generally requires a closer coordination in the implementation of monetary policy and financial stability policy. In such cases, making its monetary policy decisions, the Bank of Russia may factor in the need to stabilise financial markets and maintain the sustainability of the financial sector as a whole. Furthermore, in a situation where macroeconomic risks materialise simultaneously with financial stability risks, macroprudential policy measures may amplify the efficiency of monetary policy measures.[13]

In addition, if there is any threat to financial stability, the Bank of Russia may carry out transactions in the domestic foreign exchange market. The Bank of Russia sees as a threat to financial stability such a situation which may cause a considerable shrinkage of liquidity in the domestic foreign exchange market, the emergence of persistent devaluation expectations coupled with elevated demand for foreign exchange, growth of the share of

[13] *For details regarding monetary policy and macroprudential policy measures implemented by the Bank of Russia in 2021 amid the coronavirus pandemic, refer to section 3 'Monetary policy environment and core measures in late 2020 and 2021'.*

foreign currency in the economy in general, and a short-term increase in risks to credit institutions' and businesses' sustainability.

Monetary policy and financial market development

The financial market development policy implemented by the Bank of Russia jointly with the Government of the Russian Federation promotes the availability of financing for a wide range of economic agents and creates conditions for investment activity growth and national economic development. The financial market is a key element to transmit the key rate signal into the economy. The larger the size and liquidity of the financial market are, the stronger and quicker the transmission of the key rate into the dynamics of economic indicators is.

Today, there are two trends observed in the Russian financial market which might strengthen the role of the capital market in the functioning of the transmission mechanism. First, this is a significant inflow of retail investors to the capital market (causing a steady increase in the number of opened brokerage accounts and trust management accounts, accompanied by growing investment in securities). Second, this is an expansion of the bond loan market.

As households ramp up their investment in securities, the two channels – the welfare channel and the balance sheet channel – will play an increasingly more important role in the transmission mechanism. Furthermore, given that bond yields respond to key rate changes more swiftly than bank deposit and loan rates, a more significant role of the bond market might intensify the sensitivity of interest rates in the financial market and of aggregate supply to key rate changes and, consequently, enhance the efficiency of the monetary policy transmission mechanism.

The policy measures aimed at the development of the financial market that are jointly implemented and planned by the Russian Government and the Bank of Russia are described in detail in the Guidelines for the Development of the Russian Financial Market in 2019–2021 and in the draft Guidelines for the Development of the Russian Financial Market in 2022–2024.[14] Policy measures aimed at developing the financial market generally have long-term effects. The Bank of Russia takes into consideration the actual effects of their implementation when making monetary policy decisions. Specifically, monetary policy might be influenced in the medium term by the following changes: the planned issue of a digital ruble and further advancement of the Faster Payments System.

The introduction of a digital ruble is aimed at making payments faster, more convenient and secure, enhancing financial inclusion, and reducing costs in the financial sector. In contrast to cryptocurrencies involving high risks for the users,[15] the stable functioning of a digital ruble is ensured by the state represented by the central bank. The extent of the influence of a digital ruble on the financial system, the economy in general, and monetary policy will depend on shifts in economic agents' demand for the existing forms of money (cash in circulation and banks' cashless money) towards a digital ruble. To help economic agents adjust to the issue of a digital ruble and to lower potential costs, the Bank of Russia will introduce a digital ruble stage by stage. As a digital ruble becomes widespread, the structural liquidity surplus is expected to decrease and might even reverse

[14] *The draft Guidelines for the Development of the Russian Financial Market in 2022–2024 were published on the Bank of Russia website on 28 July 2021 (http://www.cbr.ru/s/2569).*

[15] *Cryptocurrencies are not money. They are issued by various entities, are not protected by law, do not guarantee settlement finality, and are not a stable measure of value.*

to a structural liquidity deficit. The effective system of monetary policy instruments will help ensure the appropriate liquidity level that banks need, creating the conditions required for money market rates to form close to the key rate. When a digital ruble is introduced, credit institutions might face a temporary rise in the uncertainty about the flows of clients' funds and potential changes in the structure of their balance sheets. This might intensify volatility of money market rates for a short period. In addition, the introduction of a digital ruble might somewhat increase the funding cost for banks. These banks might include higher costs in interest rates on credit products in order to offset their increased interest expenses. The Bank of Russia will take into account the impact of these factors on monetary conditions when making its key rate decisions (refer to Appendix 6 'Impact of a digital ruble on monetary policy').

Monetary policy and fiscal policy

Fiscal policy has a significant effect on the conditions of the implementation of monetary policy, including the banking sector liquidity, the growth rate and the structure of the economy, product and service price trends, and the level of the country risk premium.

The fiscal rule is one of the key principles of Russia's fiscal policy. It works to smooth out the impact of changes in external economic conditions on the domestic environment, including the exchange rate of the ruble and demand in the economy. This reduces volatility of the exchange rate and prices, thus creating favourable conditions for the implementation of monetary policy. The fiscal rule also ensures the predictability of the Russian Government's approaches to expenditure budgeting and public debt management. In turn, this promotes long-term sustainability in the area of public finance, which is essential to support steady long-term interest rates in the economy and the efficiency of the monetary policy transmission mechanism, as well as to decrease the equilibrium country risk premium.[16]

The use of the fiscal rule, which includes operations carried out in the foreign exchange market, reduces fluctuations in the real exchange rate of the ruble caused by changes in the global oil market. This increases the competitiveness of Russian goods and helps create the conditions in the country favouring the development of manufacture in non-commodity sectors and, accordingly, gradual changes in the structure of the economy.

Under the fiscal rule, Russia's Ministry of Finance calculates the amount of additional oil and gas revenues of the federal budget to be used for purchasing foreign currency to subsequently replenish the National Wealth Fund (NWF), or the amount of foreign currency from the NWF to be sold for further transfer to the budget. Considering fiscal rule-based operations carried out by Russia's Ministry of Finance, the Bank of Russia conducts foreign exchange transactions in the domestic market uniformly so as to avoid any notable influence on exchange rate movements.[17] At the same time, the Bank of Russia reserves the right to suspend these operations if volatility in the domestic foreign exchange market increases, among other things, due to the materialisation of external risks or threats to financial stability.

[16] *In 2020–2021, in order to mitigate the adverse consequences of the coronavirus pandemic for the economy, the Government increased federal budget expenditures above the level provided for by the fiscal rule. However, the Government of the Russian Federation plans to completely return to the fiscal rule parameters beginning from 2022 (refer to Box 3 'Fiscal policy in 2021–2024').*

[17] *Information on the amounts and frequency of Bank of Russia transactions related to fiscal rule-based operations carried out by Russia's Ministry of Finance is available in the subsection Banking Sector Liquidity and Monetary Policy Instruments of the Statistics section on the Bank of Russia website (http://www.cbr.ru/s/2573).*

Fiscal policy parameters have a considerable effect on aggregate demand in the economy and, consequently, on inflation. A significant easing of fiscal policy may induce proinflationary pressure in the economy, while budget consolidation has a disinflationary effect. In this environment, a timely and proportionate response of monetary policy helps limit the risks of an inflation deviation from the target and mitigate the economy's deviation from the balanced-growth path. The nature and specifics of the impact of budget expenditures on economic activity and inflation depend not only on their structure and performance, but also on how they are distributed over time.

Price trends may be influenced by tax policy measures. A change in indirect taxes generally causes a one-off adjustment of prices and does not require any monetary policy response. Contrastingly, where inflation expectations fluctuate due to alterations in tax policy, a situation may require a monetary policy response in order to limit the risks of inflation deviating from the target.

Government expenditures, specifically investment in the development of a number of important industries, may drive structural changes in the economy, contributing to the expansion of the economy's production capacity. In this case, faster economic growth will not exert upward pressure on inflation. Contrastingly, when an increase in government expenditures causes a rise in domestic demand that exceeds the expansion of the production capacity, this may amplify proinflationary pressure in the economy.

Thus, long-term priorities, the strategy and specific measures of fiscal and structural policy have a material impact on the Bank of Russia's macroeconomic forecast and its assessment of the balance of risks to inflation. In turn, this has a significant effect on the selection of monetary policy measures.

Russia's Ministry of Finance and Ministry of Economic Development, in preparing a draft federal budget and a social and economic development forecast, also take into account the inflation target and the effect of monetary policy on the economy and price movements. The correlation and consistency of monetary policy and fiscal policy measures are achieved owing to the continuous communication between the Bank of Russia and Russia's Ministry of Finance and Ministry of Economic Development. Namely, they hold regular joint meetings to cross-check estimates and factors impacting key macroeconomic indicators and to discuss macroeconomic forecast assumptions and scenarios. Furthermore, consistent communications on related topics are also essential to enhance confidence in monetary policy and fiscal policy.

Monetary policy and other state policies

A range of measures implemented by other government authorities also help support price stability. First and foremost, these are measures taken by the Russian Government and regional state authorities to reduce the impact of non-monetary factors on price movements. Non-monetary factors are irregular changes in supply and demand brought about by one-off events. The impact of these factors on inflation abates over a short period (a poor harvest, disruptions in product supplies, phytosanitary restrictions on food imports, spikes in demand, etc.). Influenced by these factors, inflation might fluctuate considerably, affecting inflation expectations, and provoke secondary effects.[18] The Bank

[18] *For details about the impact of non-monetary factors on inflation, refer to the report Non-monetary Inflation Factors in 2017–2019, Appendix 4 'Non-monetary factors of inflation in 2020: the impact of pandemic-related restrictions' of the Monetary Policy Guidelines for 2021–2023 (http://www.cbr.ru/s/256a), and Appendix 4 'Non-monetary factors of inflation in 2021' hereto.*

of Russia cannot directly influence non-monetary factors, but it is engaged in efforts aimed at mitigating their impact, providing its expertise to analyse products and services markets and proposing ways to address problems. At the regional level, the Bank of Russia's regional branches also regularly communicate on these issues with public authorities.

The key measures of state policy aimed at decreasing the influence of non-monetary factors on price movements that are being currently taken comprise efforts to improve the infrastructure of the agricultural product and food market, promote competition, including in the motor fuel market, and establish administered prices and tariffs, including for utility services.

The implementation of agricultural policy measures will help reduce the negative effect on inflation caused by supply-side factors in agriculture and by shifts in the exchange rate and global commodity markets. This will help lower food price volatility which remains the highest among the key inflation components and hinders a decrease in inflation expectations.

Efforts to reduce the monopolisation of products and services markets will also decrease the adverse effect of non-monetary factors on prices. When competition is weak, businesses have fewer incentives to improve performance and cut costs, which entails higher prices. In a more competitive environment, striving to maintain their market shares, companies operating amid unfavourable circumstances will pass increased costs on to ultimate prices only partially, although reducing their profit. Concurrently, they will also do their best to enhance their performance and cut costs – otherwise, they will have to exit the market. Eventually, a more competitive environment in the market helps decrease the impact of adverse factors on price movements.

An important framework to reduce the effect of imperfect competition on pricing is the Standard for Promotion of Competition in the Constituent Territories of the Russian Federation (hereinafter, the Standard). The Bank of Russia's representatives participate in the work of collective bodies established in compliance with the requirements of the Standard. The Bank of Russia's regional branches communicate with state authorities, industry associations, and other stakeholders regarding the analysis of factors impacting prices in products and services markets and the elaboration of measures to address problems.

Prices may also be impacted by domestic institutional factors associated with the regulation in individual markets, including changes in required ratios, fees, and tariff setting approaches. Although they generally have only minor and non-recurrent effect on inflation within the overall CPI, it may turn out to be significant for individual markets and regions, as well as for households' and businesses' inflation expectations. Moreover, in the long run, direct administrative regulation of pricing might result in a contraction of the supply of goods subject to such regulation, a reduction in manufacturers' investment, and a worsening of consumer sentiment. Therefore, the Bank of Russia carefully monitors the actual and planned changes in this area and discusses their effects with businesses, the financial community, and government authorities.

Most of the above measures aimed at smoothing out the impact of non-monetary factors on inflation take time to deliver. The Bank of Russia will factor in consumer price changes caused by these measures when preparing its macroeconomic forecast and making its monetary policy decisions.

BOX 1. WHY THE BANK OF RUSSIA SEEKS TO MAINTAIN INFLATION CLOSE TO 4%

The efficiency of the inflation targeting regime largely depends on how consistent the central bank is in pursuing the inflation target established. The practice of inflation targeting worldwide over the recent more than 30 years shows that, when the inflation target is adjusted too often, this might intensify the uncertainty of economic conditions for households, businesses, and financial market participants and decrease confidence in the monetary policy implemented. Hence, central banks generally select inflation targets and their format very carefully.

Switching to the inflation targeting regime in 2015, the Bank of Russia set the goal of its monetary policy as lowering inflation to 4% in the medium term and keeping it close to this rate further on. The Bank of Russia set this inflation target with account of then existing pricing specifics and structure of Russia's economy. The inflation target of 'close to 4%' is slightly higher than in economies with mature market mechanisms, long-term experience of maintaining price stability, well-established confidence in monetary authorities, and low inflation expectations. Inflation targets in such economies generally range from 1% to 3%. The Bank of Russia estimated that it would be very hard to continuously maintain inflation close to this level in Russia due to the insufficient maturity of its market mechanisms and sectoral diversification of the economy.

In addition to the above factors, the 4% target was selected so as to mitigate the risks of deflationary trends in the markets of individual products. Given the specifics of the structure of the Russian economy, prices in various product groups may be changing unevenly and the consumer basket includes a rather large share of goods and services that may fluctuate in prices a lot. Therefore, the Bank of Russia assumed that when inflation is considerably below 4%, this may involve the risk of a long-lasting price decrease, i.e. deflation, in the markets of various product groups. If deflation occurs in a broad range of goods, its implications might be no less adverse than those resulting from high inflation as consumers, expecting prices to go down, will tend to postpone their purchases. Declining domestic demand will in turn exert additional downward pressure on prices, thereby exacerbating the deflationary spiral. Therefore, to avoid deflationary developments in the course of the adjustment of relative prices, the target growth rate of the overall consumer price index set by the Bank of Russia provides for a certain margin.

Within the Monetary Policy Review to be held in 2021–2022, the Bank of Russia again plans to assess whether the inflation target of 'close to 4%' conforms to the conditions of monetary policy implementation in Russia. The Bank of Russia will also analyse whether the Russian economy has formed the conditions allowing a lower inflation target. Based on the findings of the Monetary Policy Review, the Bank of Russia will make a justified decision regarding the format of the inflation target, staying committed to the price stability mandate.

BOX 2. NEUTRAL INTEREST RATE

The neutral rate means the interest rate (in particular, the central bank's key rate and overnight interbank interest rates forming close to the key rate) that sustainably supports this economy at full employment (the output is at its potential, and unemployment is at its 'natural' level), on the one hand, and maintains inflation steadily at the target level, on the other hand. The neutral rate is deemed to be a benchmark for assessing a monetary policy stance. It is also considered to be a benchmark for longer-run average interest rates in the economy.[1] The neutral rate has been a key term in the macroeconomic theory since it was invented by Knut Wicksell in 1898.[2]

The real neutral rate is determined by the economy's structure, the level of risks associated with investments in financial and non-financial assets, and economic agents' risk appetite. In particular, the following key factors may be highlighted:

1. Total production factor efficiency growth rate. The higher it is, the higher the neutral rate is, as, all other things being equal, businesses make larger investments and, accordingly, are willing to pay more for raising additional capital.

2. Demography. The structure of the population and changes in its size, both in general and of individual age groups, influence both economic growth rates (and, consequently, investment activity) and the saving ratio. Thus, as the proportion of middle age groups with a high saving ratio increases in the population structure, the neutral rate will go down.

3. Financial sector maturity and regulation. A higher maturity of the banking sector and capital markets contributes to the growth of the saving ratio in the economy and, accordingly, helps decrease the neutral rate. This effect is also facilitated when economic agents extend their planning horizon, thus making the future more important than the present, which encourages savings.

4. Neutral rate levels in other economies. The neutral rate in an open economy with free capital flows will be comparable with the neutral rate in the global financial market (the external interest rate), adjusted for a country risk premium and an inflation volatility premium. A country premium characterises the differences in economic agents' perception of sovereign credit risks and the predictability of economic conditions in a particular country as compared to the environment in the key economies determining the level of the global neutral rate.

In turn, the nominal neutral rate is the total of the real neutral rate and expected inflation. Where inflation expectations are anchored to the target, expected inflation coincides with the central bank's target (for the Bank of Russia, the annual target is 4%).

However, the central bank would be unable to keep inflation at its target level by simply preserving the key rate equal to the neutral interest rate. The economy is a complicated system continuously impacted by diverse and often poorly predictable (internal and external) factors, due to which both output and inflation may deviate from the potential and target, respectively.

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[1] *Economists distinguish between the longer-run neutral rate (or trend interest rate) and shorter-run neutral rate. In this case, we only refer to the longer-run neutral rate that depends on structural factors. The shorter-run neutral rate fluctuates around the longer-run neutral rate, being affected by cyclical factors (e.g. external environment, current business activity, and fiscal policy measures). The shorter-run neutral rate is also impacted by the extent of the anchoring of inflation expectations to the inflation target and other factors. This is the shorter-run neutral rate that should be referred to when discussing the current monetary policy stance. Quantification of the shorter-run neutral rate is quite complicated, even in economies with a much longer inflation targeting history than in Russia. Moreover, central banks do not announce the results of such quantifications (refer to, for instance, Brainard L. What Do We Mean by Neutral and What Role Does It Play in Monetary Policy?/Remarks delivered at the Detroit Economic Club. Detroit, Michigan. 2018). However, making monetary policy decisions, central banks do factor in the direction and extent of the current deviation of the shorter-run neutral rate from the longer-run rate and the future dynamics of the former.*

[2] *Wicksell, K. (1898): Interest and prices, translated by R.F. Kahn. Kelley: New York, 1965.*

If, being affected by certain factors, output in the economy is above (beneath) its potential at a given moment, this commonly causes an acceleration (deceleration) of inflation. Inflation may also deviate from the target for other reasons that are not associated with fluctuations in output (e.g. due to changes in the external environment and exchange rate). If there are grounds to believe that such changes may entail a significant and persistent upward (downward) deviation of inflation from the target, the central bank would have to set the key rate above (below) the neutral rate so as to bring inflation back to the target level.

The neutral rate is a value that cannot be measured directly, but can only be roughly approximated on the basis of other economic indicators and their dynamics. Moreover, the range of such estimates would be very broad.

The first group of methods is based on macroeconomic models[3] that rely on structural interconnections between key economic variables (output, inflation, the key rate, and exchange rates) and, depending on their past dynamics, generate a range of estimates for non-observable values, including for the neutral rate. Obtaining robust estimates using these methods requires extended (20–30 years) data series for the relevant economy. That said, if during the period which is used as the basis for generating a neutral rate estimate the economy was facing material structural shifts, including significant changes in a monetary policy regime, the variation of obtained model-based estimates for the neutral rate will be quite wide.

The other group of methods is based on the above interconnection between the neutral rate in an open economy and the neutral rate in the key economies. These methods, however, are rougher and assess financial investors' perception whether interest rates in a certain country are adequate (considering all risks) compared with interest rates in the key economies. Essentially, they measure the relative attractiveness of financial assets denominated in the national currency. These estimates cannot directly take into account the specifics of the economy in question. Therefore, they only allow an approximate estimate of the interconnection between interest rates, inflation and economic growth. Accordingly, when these methods are used, the final estimate largely depends on the assumptions regarding the nature and size of the country premium in relation to the global neutral rate. This is exacerbated by the uncertainty of neutral rate estimates for the key economies that are used as the basis for calculations. The advantage of estimates obtained through these methods is that they are within a relatively narrow range.

Hence, although the neutral rate is quite an important notion in macroeconomic analysis in general and monetary policy in particular, it is still an unobservable variable and in practice it can only be calculated very approximately. Moreover, this level is not constant, fluctuating as the economy's structure (including the above factors) changes and economic agents adjust to the inflation targeting regime.

Nonetheless, there are grounds to believe that it is reasonable to take into consideration the neutral interest rate when making monetary policy decisions. The longer-run neutral rate is mentioned in the Taylor rule[4] which central banks quite often use in a modified form in their modelling for the purposes of their monetary policies. According to the Taylor rule, the key interest rate should be adjusted when the expected inflation rate moves away from the target and output deviates from its potential level, while taking into account the value of the longer-run neutral rate.

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[3] Refer to, for instance, Holston K., Laubach T., Williams J. Measuring the Natural Rate of Interest: International Trends and Determinants / NBER Working Paper. No. 11. 2016.

[4] In its article released in 1993, American economist John Taylor (Taylor J. B., Discretion versus Policy Rules in Practice. Carnegie-Rochester Conference Series on Public Policy 39. 195–214. 1993) presented an empirically derived rule for making monetary policy decisions. Further on, central banks adhering to the inflation targeting regime started to use this rule widely. Since then, the name of the Taylor rule has become a generic term as banks actually employ a broad range of rules that are built according to the principle originally suggested in the Taylor rule but are not identical to it.

A large variation and instability of neutral rate estimates are among the reasons why critics dispute the use of the neutral interest rate to determine the extent of monetary policy tightness (softness). Indeed, the neutral rate is a convenient instrument to explain monetary policy decisions, including to the general public. However, the uncertainty over its estimates, even in advanced economies, entails a high cost of errors in such communication.

According to the most part of the research published over recent years, the quantitative estimates of the level of the longer-run real neutral rate for Russia range from 1% to 3% (the range of estimates). For example, Kreptsev et al. (2016):[5] 1.0–3.2% (various models); IMF (2019):[6] 1–3% (various models); Isakov (2019):[7] 1.5–2.5% (various parameters). Nonetheless, the above estimates are characterised by wide confidence intervals.

In 2017–2019, the Bank of Russia's estimate of the longer-run real neutral rate was in the upper half of the range of external estimates, i.e. in the range of 2–3%. In 2020, the Bank of Russia shifted its estimate of the longer-run neutral rate to the lower half of the range of external estimates.[8] In 2021, the Bank of Russia did not change its estimate of the longer-run neutral rate. According to the surveys by the FOMC,[9] the prevailing trend in the estimate of the longer-run real rate in June 2021 approximated 0.25–0.5%,[10] which is the same as in 2020. Furthermore, the rate included in real yields on five- and ten-year U.S. Treasury bonds averaged 0.1% over the period from the beginning of the year through June 2021 (-0.4% on average over 2020). According to the Bank of Russia's estimate, the equilibrium country risk premium is still in the range of 100–150 basis points. Therefore, as in 2020, the longer-run neutral interest rate is estimated within the range of 1–2% p.a. (which corresponds to the 5–6% neutral interest rate with the target of annual inflation equalling 4%).

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[5] *Kreptsev D., Porshakov A., Seleznev, S., Synyakov A. The Equilibrium Interest Rate: Estimates for Russia / the Bank of Russia. Working Paper Series. No. 13. 2016.*

[6] *International Monetary Fund. Russian Federation – Staff Report for the 2019 Article IV Consultation.*

[7] *Isakov A., Latypov R. The Ibsen Manoeuvre: Yet Another R* Estimate/VTB Capital Research Alert, (Very) Technical Brief series. 15 July 2019.*

[8] *See the Boxes 'Neutral interest rate' in the Monetary Policy Guidelines for 2020–2022 (http://www.cbr.ru/s/2537) and the Monetary Policy Guidelines for 2021–2023 (http://www.cbr.ru/s/256a).*

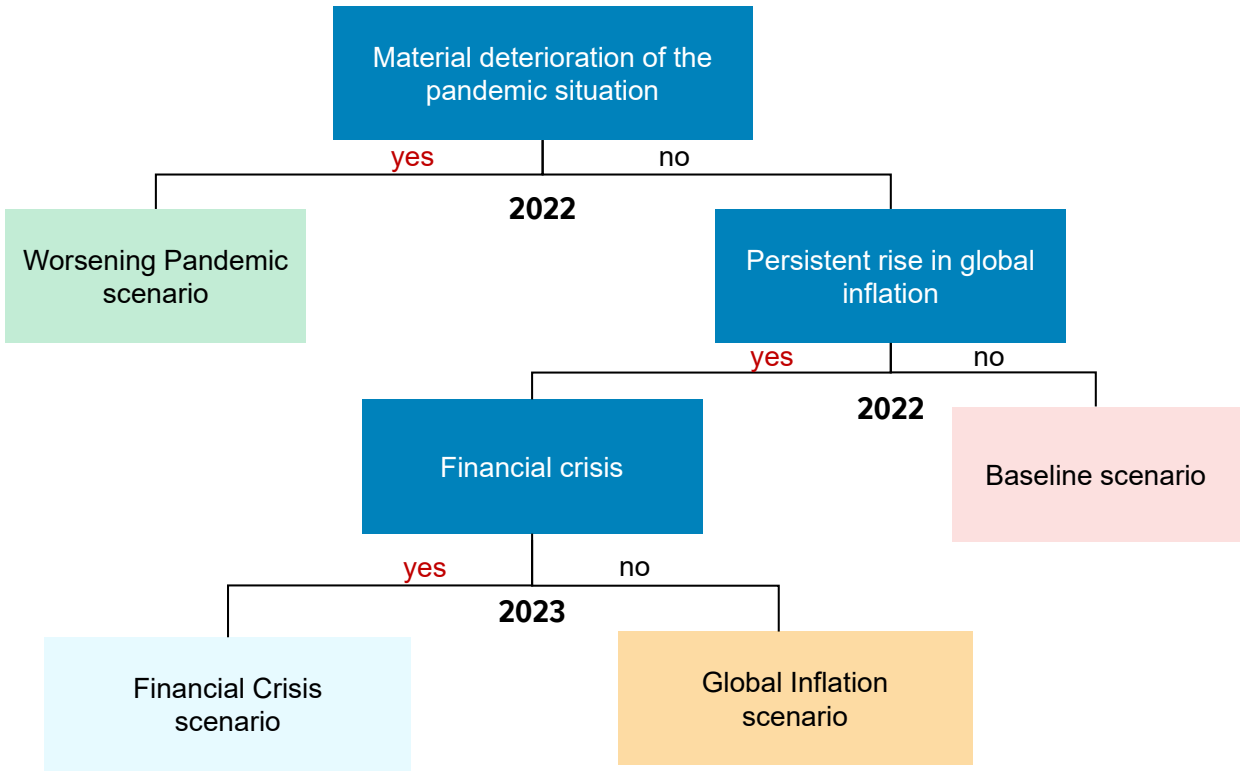
[9] *The Federal Open Market Committee of the US Federal Reserve System.*

[10] *With expected inflation (PCE) of 2% over a long-term horizon.*

2. MACROECONOMIC SCENARIOS AND MONETARY POLICY IN 2021–2024

For the second consecutive year, the global economy has been functioning in the pandemic regime announced by the WHO on 11 March 2020 amid the rapid proliferation of the coronavirus infection. When analysing scenarios in the Monetary Policy Guidelines for 2021–2022, the Bank of Russia relied on the assumption that the pandemic impacts the pace and stability of demand recovery, as well as the extent of a decline in potential output, taking into account, among other things, possible deferred effects caused by restrictions on economic activity. Further developments were generally close to the baseline scenario. Nonetheless, there were some deviations due to the emergence of certain unforeseeable factors (e.g. long-lasting significant disruptions in supply chains worldwide that could have hardly been predicted in advance). Governments worldwide implemented unprecedented fiscal measures and substantially eased their monetary policies, which enabled economies to promptly overcome the most acute phase of the crisis provoked by the coronavirus and anti-pandemic restrictions on economic activity and to shift to extensive recovery. The majority of large economies worldwide, including Russia, have already returned or will recover by late 2021 to their pre-pandemic levels, although certain industries will still continue to bounce back in the coming years. 2021 was marked by a surge in inflation across the globe.

DIAGRAM OF SCENARIOS ASSUMED IN THE BANK OF RUSSIA'S MACROECONOMIC FORECAST *Chart 2.1*



According to the Bank of Russia's **baseline scenario**, the Russian and global economies will expand in 2021, provided that the epidemic situation improves gradually as countries achieve their national vaccination targets and no new, more dangerous coronavirus strains emerge that could raise doubts about the efficiency of the existing vaccines. Inflationary pressure in the global economy will decline gradually over the forecast horizon. In 2022, the external output gap will be steadily positive, and advanced economies will shift towards monetary policy normalisation. After the active recovery growth in 2021 and 2022, the Russian economy will return to its potential growth rate and continue to expand at this pace until the end of the forecast horizon.

Nonetheless, there is still uncertainty about the further development of the pandemic. Moreover, the global economy has faced a number of additional risks, and their materialisation may significantly affect the prospects of further economic development, including for Russia. The Bank of Russia presents the baseline scenario of the development of the Russian economy and three alternatives depending on what circumstances materialise in the medium term.

First of all, the pandemic situation worldwide might worsen drastically, primarily if new vaccine-resistant coronavirus strains emerge. This alternative is considered within the Worsening Pandemic scenario.

MAIN EXTERNAL ASSUMPTIONS OF THE BANK OF RUSSIA'S SCENARIOS *Table 2.1*

	2021	2022	2023	2024
World GDP, % YoY				
Baseline	5.9	4.7	3.2	3.3
Worsening Pandemic	5.9	3.2	4.2	3.5
Global Inflation	5.9	4.8	3.0	2.8
Financial Crisis	5.9	4.8	1.2	3.7
Core inflation, USA, % YoY				
Baseline	3.7	2.4	2.3	2.2
Worsening Pandemic	3.7	2.0	2.2	2.2
Global Inflation	3.7	3.2	2.7	2.3
Financial Crisis	3.7	3.2	1.7	1.9
Core inflation, euro area, % YoY				
Baseline	1.5	1.4	1.5	1.6
Worsening Pandemic	1.5	1.0	1.3	1.5
Global Inflation	1.5	1.9	1.8	1.7
Financial Crisis	1.5	1.9	1.0	1.1
US Fed rate, upper bound, %, average over the year				
Baseline	0.25	0.32	0.77	1.26
Worsening Pandemic	0.25	0.25	0.25	0.25
Global Inflation	0.25	1.00	3.00	4.25
Financial Crisis	0.25	1.00	0.44	0.25
ECB rate (deposit facility), %, average over the year				
Baseline	-0.50	-0.50	-0.50	-0.50
Worsening Pandemic	-0.50	-0.50	-0.50	-0.50
Global Inflation	-0.50	-0.50	-0.43	-0.23
Financial Crisis	-0.50	-0.50	-0.50	-0.50
Urals crude price, USD/barrel, average for the period				
Baseline	70	65	55	50
Worsening Pandemic	70	50	50	50
Global Inflation	70	80	70	60
Financial Crisis	70	80	40	45

Source: Bank of Russia.

Secondly, even if the pandemic situation improves and the spread of the coronavirus decreases significantly, the problems accumulated over the pandemic period might deteriorate the economic situation considerably. Thus, if acceleration of global inflation becomes more persistent than estimated now and spurs inflation expectations further, advanced economies might start monetary policy normalisation earlier. An increase in advanced economies' policy rates earlier than assumed in the baseline scenario is considered within the Global Inflation scenario.

Thirdly, if active monetary policy normalisation by advanced economies is accompanied by unsteady dynamics in financial markets, with price asset bubbles formed by that moment due to the active recovery, a significant increase in policy rates might seriously affect investor sentiment and further exacerbate debt problems worldwide. Consequently, in 2023, the world economy might face a global financial crisis, the scale of which might be comparable with that of the 2008–2009 downturn. These circumstances are considered within the Financial Crisis scenario.

2.1. BASELINE SCENARIO[1]

The global economy continues to bounce back although the recovery in a number of advanced and emerging market economies slowed down in 2021 H2. The PMI Composite indices remain high, but they declined considerably in August–September compared to May–June. As coronavirus continues to spread, it will apparently take a long time to get over the pandemic. The main problems of the post-crisis period, such as disruptions in global production chains and rising prices for exchange-traded commodities, have remained topical in the second half of the year and even worsened. This is evidenced by indices (Baltic Dry Index, Shanghai Containerized Freight Index, PMI Suppliers' Delivery Times) that reflect tensions in the logistics services market. The absolute majority of manufacturers worldwide are facing supply problems.

The continuing expansion of aggregate demand is a key reason behind the current developments in the global economy. Aggregate demand is boosted by savings accumulated in 2020 and still expansionary macroeconomic policies pursued by key economies. Inflation stays elevated in key economies worldwide due to shifts in consumption from services towards products, coupled with bottlenecks in logistics chains. Seeking to be secured against disruptions in supplies, companies are forming stocks, which boosts demand for raw materials and components. This is a temporary, yet significant factor exacerbating inflationary pressure.

In its baseline scenario, the Bank of Russia assumes that inflationary pressure in the global economy will decline gradually over the forecast horizon. If vaccination rates worldwide continue to rise and the pandemic has a moderate impact on economic activity, the global economy will continue to bounce back. In 2022, the external output gap will be steadily positive, and advanced economies (first of all, the USA) will shift towards monetary policy normalisation.

Global economic growth coupled with unfavourable weather conditions aggravated the shortage of the main energy commodities, namely oil, gas, and coal, and, consequently, pushed up prices for them. In October, the average Urals crude price rose above 80 US dollars per barrel, exceeding 66 US dollars per barrel on average since the beginning of the

[1] *Refer to Monetary Policy Report No. 4, October 2021 (http://www.cbr.ru/s/256c).*

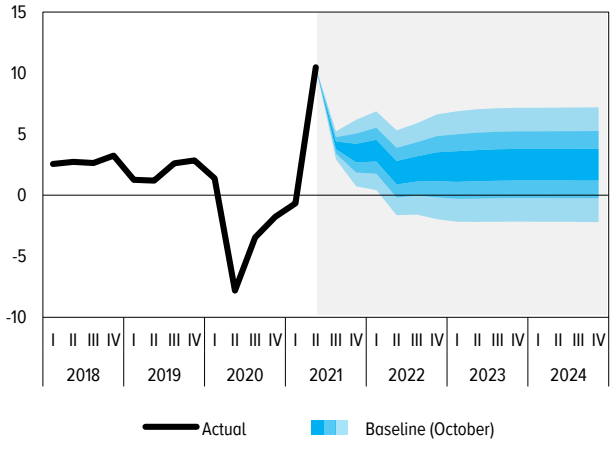
year. The Bank of Russia's baseline forecast assumes that the oil price will average 70 US dollars per barrel as of the end of 2021. Over the medium-term horizon, as demand growth decelerates, the output quotas under the OPEC+ agreement expand and the market shifts towards a surplus, including because non-OPEC+ countries increase their oil supply, the average oil price will decrease and return to 50 US dollars by the end of the forecast horizon.

External demand considerably supports economic growth in Russia in 2021. As of the end of the third quarter, the current account surplus hit a record high of 41 billion US dollar, and is expected to reach 121 billion US dollars in 2021 according to the Bank of Russia's baseline scenario. Over the forecast horizon, the current account surplus will contract gradually as commodity prices normalise and imports expand and will total 24 billion US dollars at the end of the forecast horizon.

In 2021 Q2, Russia's GDP, excluding the oil sector, returned to the pre-pandemic trend, after its recovery growth ended. In 2021 Q3, overall growth rates were adversely affected by low agricultural output on the back of delays in harvesting and a smaller harvest due to the unfavourable weather conditions, as well as the worsened epizootic situation. The demand for labour stays high, with unemployment returning to pre-crisis rates. The shortage of workers of certain occupations is becoming increasingly more noticeable and, coupled with supply problems in a range of production chains, it limits the potential growth rate. High-frequency indicators suggest a more moderate growth pace in the second half of the year. The recovery in services is hindered by the complicated pandemic situation.

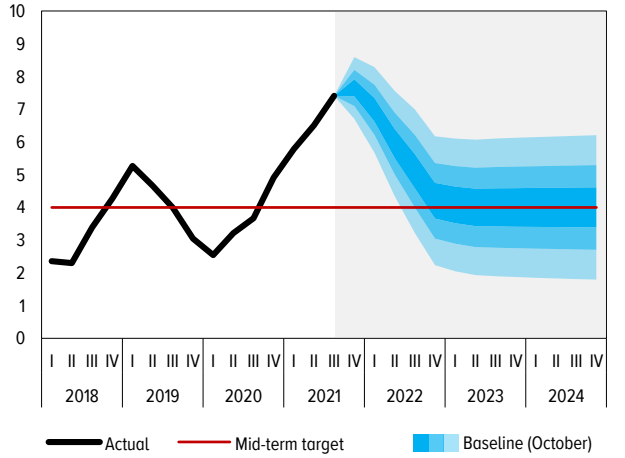
In 2021, the recovery growth was driven by domestic demand. As of the end of Q2, consumer spending exceeded the pre-pandemic level of 2019 Q2 by 0.3%. The increase in investment activity in 2021 Q2, as compared to 2019 Q2, was even more significant, equalling 5.2%.

GDP GROWTH PATH IN THE BASELINE SCENARIO *Chart 2.2*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different GDP growth values. Confidence intervals are symmetrical and are based on historical estimates of GDP growth uncertainty. If baseline scenario assumptions are implemented, the value of GDP growth rate will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, GDP growth rate will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, GDP growth rate may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

INFLATION PATH IN THE BASELINE SCENARIO *Chart 2.3*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different inflation values. Confidence intervals are symmetrical and are based on historical estimates of inflation uncertainty. If baseline scenario assumptions are implemented, the value of inflation path will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, inflation will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, inflation may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

THE BANK OF RUSSIA'S FORECAST UNDER THE BASELINE SCENARIO *Table 2.2*

	2020 (actual)	2021	2022	2023	2024
Core macroeconomic indicators (growth, % YoY, unless indicated otherwise)					
Inflation, % in December YoY	**4.9**	**7.4 – 7.9**	**4.0 – 4.5**	**4.0**	**4.0**
Inflation, yearly average, % YoY	3.4	6.5 – 6.6	5.2 – 6.0	4.0	4.0
Key rate, yearly average, % p.a.	**5.1**	**5.7 – 5.8***	**7.3 – 8.3**	**5.5 – 6.5**	**5.0 – 6.0**
Gross domestic product	**-3.0**	**4.0 – 4.5**	**2.0 – 3.0**	**2.0 – 3.0**	**2.0 – 3.0**
Final consumption expenditure	-5.2	6.9 – 7.9	1.0 – 2.0	1.6 – 2.6	1.7 – 2.7
– households	*-8.6*	*9.0–10.0*	*1.0–2.0*	*2.0–3.0*	*2.0–3.0*
Gross capital formation	-2.0	5.4 – 7.4	0.5 – 2.5	2.9 – 4.9	2.5 – 4.5
– gross fixed capital formation	*-4.3*	*5.4–7.4*	*0.4–2.4*	*2.6–4.6*	*2.0–4.0*
Exports	-4.3	2.6 – 4.6	5.0 – 7.0	1.2 – 3.2	1.2 – 3.2
Imports	-12.0	15.0 – 17.0	1.1 – 3.1	2.7 – 4.7	1.2 – 3.2
Monetary indicators (growth, % YoY, unless indicated otherwise)					
Money supply (national definition)	13.5	8 – 12	9 – 13	7 – 11	6 – 10
Banking system's claims on the economy in rubles and foreign currency,** including:	10.9	11 – 15	9 – 13	7 – 11	7 – 11
– on businesses	*10.2*	*8–12*	*7–11*	*6–10*	*7–11*
– on households, including:	*12.9*	*21–25*	*14–18*	*10–14*	*7–11*
*– housing mortgage loans****	*21.6*	*23–27*	*15–19*	*14–18*	*12–16*
Balance of payments indicators** (billion US dollars, unless indicated otherwise)					
Current account	**36**	**121**	**111**	**40**	**24**
Balance of trade	94	186	205	142	130
Exports	*333*	*490*	*511*	*451*	*444*
Imports	*240*	*304*	*307*	*309*	*314*
Balance of services	-17	-18	-34	-37	-40
Exports	*47*	*52*	*59*	*63*	*68*
Imports	*64*	*70*	*92*	*100*	*108*
Balance of primary and secondary income	-41	-47	-60	-64	-66
Current and capital account balance	**35**	**121**	**111**	**40**	**24**
Financial account (excluding reserve assets)	**53**	**60**	**58**	**23**	**16**
General government and the central bank	-1	-21	-7	-8	-10
Private sector	54	80	65	30	25
Net errors and omissions	**4**	**-3**	**0**	**0**	**0**
Change in foreign currency reserves ('+' is increase, '-' is decrease)	**-14**	**58**	**53**	**18**	**8**
Urals crude price, yearly average, USD/barrel	**42**	**70**	**65**	**55**	**50**

** 7.5–7.7 – the balance as of the end of the year (actually 5.3% over 01.01.2021 – 24.10.2021).*
*** The growth rate of claims is adjusted for foreign currency revaluation. For the purpose of the adjustment for foreign currency revaluation, the growth of claims in foreign currencies and precious metals is recalculated into rubles at the period average RUB/USD exchange rate.*
**** Net of claims on housing mortgage loans acquired by banks.*
***** On the basis of the methodology set out in the 6th edition of the Balance of Payments and International Investment Position Manual (BPM6). In the financial account, '+' denotes net lending and '–' denotes net borrowing. Note: final values may differ from the total of the respective values due to rounding.*
Source: Bank of Russia.

According to the Bank of Russia's baseline scenario, GDP will rise by 4.0–4.5% in 2021, stabilising on a balanced growth path at 2–3% beginning from 2022. Domestic consumer activity is expected to slow down over the mid-term horizon as opportunities for foreign travel expand gradually, fiscal policy normalises, and lending growth decelerates, including

owing to the monetary policy pursued. Given the high base of 2021, investment activity will be more moderate in the upcoming years and is expected to return to its long-term steady path by the end of the forecast horizon.

Fiscal policy, including the announced additional social and infrastructure support measures, promoted the restoration of domestic demand in 2021 H1 and supported it in 2021 Q3. In its baseline scenario, the Bank of Russia assumes that the Ministry of Finance of Russia will pursue the strategy for fiscal policy normalisation announced in the Guidelines for Fiscal, Tax and Customs and Tariff Policy for 2022 and the 2023–2024 Planning Period, which implies that the return to the fiscal rule will take place in 2022. The baseline scenario factors in the announced plans to invest the liquid part of the NWF in the amount of 0.9 trillion rubles in the Ust-Luga project and channel 1.6 trillion rubles in other projects.

By the middle of October, inflation sped up significantly, with the current stable indicators of price dynamics considerably exceeding 4% in annualised terms. This was predominantly driven by a short-term acceleration of the growth of prices for volatile consumer basket components. However, the rise in stable inflation indicators also surpassed expectations. The key reason for that was high and unanchored inflation expectations entailing a pass-through of the effect of one-off proinflationary factors to price growth across a wider range of products and services. The pressure of demand and supply gaps exacerbated, which was associated with the negative impact of the environment in global markets and bottlenecks in supply chains amid the still elevated level of demand.

The effect of the low harvest of 2021 might continue to influence food prices in 2022 H1 as well. This might also be the reason why inflation expectations might stay elevated longer, thus intensifying the inertia of inflation. Moreover, negative supply-side shocks this year had an especially strong impact on some components of the consumer price index, including both food and non-food products and even a range of services. As relative prices surged in 2021, their growth will probably decelerate significantly next year (and some of them might even decline). Higher oil prices and overall foreign trade conditions will also create additional proinflationary pressure.

Taking into account the nature of inflationary processes, the Bank of Russia's baseline forecast assumes that inflation will stay in the range of 7.4–7.9% as of the end of 2021. Given the monetary policy pursued, annual inflation will edge down to 4.0–4.5% in 2022 and will remain close to 4% further on. Annual inflation will return to the range of 4.0–4.5% by the end of 2022 with the key rate averaging 5.7–5.8% p.a. in 2021 and 7.3–8.3% p.a. in 2022. As inflation expectations lower and inflation edges down, the Bank of Russia will return the key rate to its long-term neutral range of 5–6% p.a., provided that inflation stays close to 4%.

2.2. ALTERNATIVE SCENARIOS

WORSENING PANDEMIC SCENARIO

Despite the progress in vaccination rates in advanced economies, some EMEs are still facing significant difficulties with the vaccination rollout. Nonetheless, anti-pandemic restrictions are being gradually eased worldwide, including social distancing, mandatory face masks, and the minimum number of participants in mass events, and people are resuming foreign travels. According to epidemiologists, when both vaccinated and unvaccinated

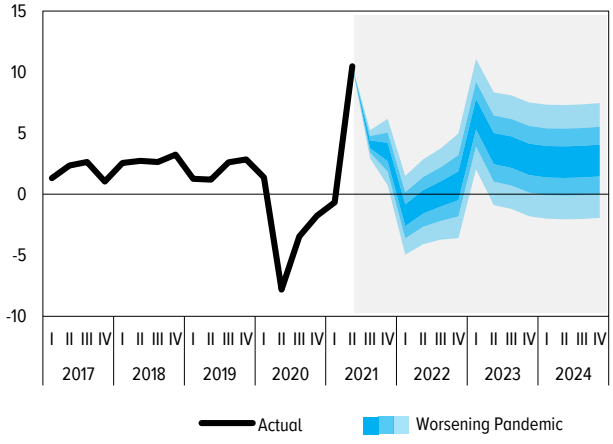
people simultaneously contact the virus in the absence of herd immunity, in the long run this creates a favourable environment for the emergence of new virus strains resistant to the existing vaccines. Therefore, there is still a risk that the situation of 2020 might repeat, that is, a rapid spread of the virus, the actual absence of vaccines, and tight anti-epidemic restrictions. The scenario assumes that the pandemic situation might deteriorate drastically as early as 2022 Q1.

Worldwide restrictions on economic activity will cause a slump in the oil price to 50 US dollars per barrel on average in 2022. Further on, price growth will be limited due to a weak rebound of demand and a gradual expansion of oil supply by market participants, including non-OPEC+ states. As a result, the price will stay at the level of 50 US dollars per barrel until the end of the forecast horizon.

The demand and prices for other Russian exports will also decline. As a result, the value of exports in 2022 will be considerably below the level expected in the baseline scenario. The value of imports in 2022 will also be lower than assumed in the baseline scenario, largely due to services imports. A gradual recovery of the global economy and an easing of anti-pandemic restrictions will help increase export and import values closer to the amounts expected in the baseline scenario. However, if the Worsening Pandemic scenario materialises, the values in the main items of the current account will be considerably lower than those under the baseline scenario even at the end of the forecast horizon.

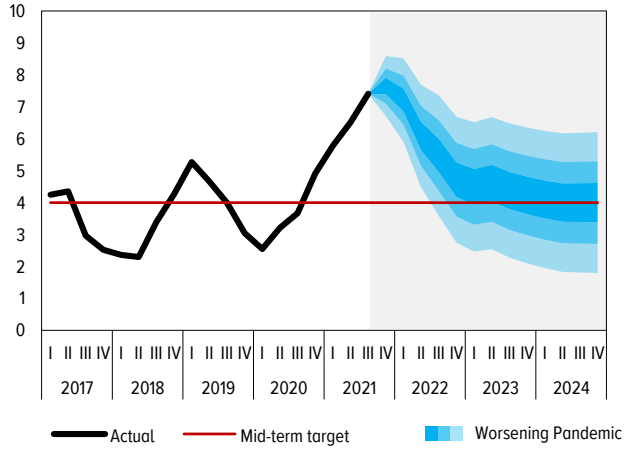
The Russian economy will decline slightly less than in 2020 as the healthcare system and the economy have already accumulated the experience of work in the conditions of the pandemic. The adjustment to a substantial tightening of anti-pandemic restrictions will be faster. Overall, the pace of economic recovery will be similar to that recorded in 2020, and the GDP growth rate will be close to zero as of the end of 2022. In 2023, active recovery processes will speed up GDP growth to 3.5–4.5%, but this rate will return close

GDP GROWTH PATH IN THE WORSENING PANDEMIC SCENARIO *Chart 2.4*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different GDP growth values. Confidence intervals are symmetrical and are based on historical estimates of GDP growth uncertainty. If scenario assumptions are implemented, the value of GDP growth rate will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, GDP growth rate will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, GDP growth rate may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

INFLATION PATH IN THE WORSENING PANDEMIC SCENARIO *Chart 2.5*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different inflation values. Confidence intervals are symmetrical and are based on historical estimates of inflation uncertainty. If scenario assumptions are implemented, the value of inflation path will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, inflation will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, inflation may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

to its potential by the end of the forecast horizon. Moreover, under this scenario, the economy will not reach the levels assumed in the baseline scenario until the end of the forecast horizon.

The implementation of additional anti-crisis measures implies fiscal policy easing. The expansion of the fiscal stimulus will support domestic demand and help neutralise the negative effects of the worsening pandemic.

Household consumption will plunge again amid the reintroduction of tough restrictions. However, this decline will be less significant and the recovery path of consumer activity will be smoother, as compared to 2020. In the first place, the effect of pent-up and redistributed demand will be less notable. In contrast to 2020, the factor of closed international borders will have a considerably weaker impact on consumer behaviour as households have redistributed their planned expenses over the pandemic period, and the amount of funds saved to be spent on foreign travel has decreased substantially. Conversely, the opportunities to use various online services have expanded, which will help preserve the most important items in consumption during the period of tighter restrictions and gradually increase consumption to the previous level further on. Secondly, the accumulated experience of telecommuting will help preserve income for many groups of employees who were furloughed or lost jobs in 2020. Furthermore, a smaller amount of fiscal stimulus will also have its effect. As a result of these factors, the saving ratio in 2022 will fluctuate much less during crisis and recovery periods and, accordingly, consumer activity will be more moderate.

As in 2020, investments will contract less than consumer expenses as investment plans are characterised by higher inertia, and their recovery rates will be close to those recorded in 2020. Hence, import quantities will bounce back more smoothly in 2022 because of the dynamics of consumer activity. The growth rate of export quantities in 2022 will be affected by the tightening of anti-pandemic restrictions worldwide, a reduction in global demand, and a more moderate recovery in the future.

An increase in overall uncertainly, a slowdown of global economic activity, and declining domestic demand during the period of the toughest anti-pandemic restrictions will cause a significant disinflationary impact.

Monetary policy will be eased in 2022 H1, in response to plummeting demand and decelerating price growth. In 2022 H2, the economy might start to recover. Another important factor will be inflation expectations, with their initial point being higher than before the crisis of 2020. Despite a slight decrease at first because of subdued demand amid tightened anti-pandemic restrictions, inflation expectations may then start to soar as restrictions are eased. Therefore, to maintain price growth rates close to the target and prevent the secondary effects of inflation expectations, the Bank of Russia might need to normalise monetary policy. Moreover, the average key rate in 2022 will be lower than in the baseline scenario due to an easing of monetary policy at the beginning of 2022.

Monetary conditions will thus be more accommodative in 2022 than assumed in the baseline scenario, which will help support a balanced growth in lending. Nonetheless, the easing will be less notable compared to 2020. A rise in uncertainty will reduce the demand for new loans, due to which growth rates in both corporate and retail lending in 2022 will be lower than those predicted in the baseline scenario.

Further on, amid monetary policy normalisation, annual inflation will return to 4%, the key rate – to the neutral range, and the growth rate of lending to the economy – on the path assumed in the baseline scenario.

GLOBAL INFLATION SCENARIO

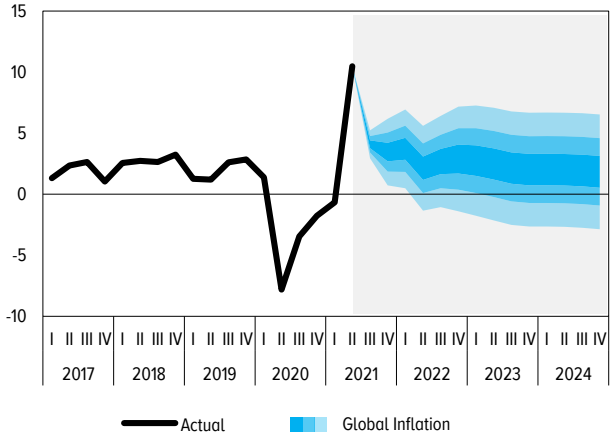
The drastic slowdown of economic activity during the coronavirus pandemic in 2020 and the subsequent swift recovery of economies amid the remaining cross-border restrictions and disturbances in supply chains caused an increase in demand which significantly exceeded the potential to ramp up supply in individual product groups. As a result, inflationary pressure soared worldwide. The factors fuelling faster price growth may turn out to be longer-lasting than estimated at the moment.

This scenario also assumes that the gaps forming in the markets for certain assets will disappear as the global economy returns to the pre-pandemic path.

Elevated inflationary pressure and a further rise in inflation expectations will force advanced economies' central banks to start monetary policy normalisation earlier than expected in the baseline scenario. In particular, the US Fed might begin to raise the federal funds rate as early as 2022 Q2. If the US Fed continues to steadily increase its policy rate in the second half of the forecast horizon, it will thus shift from monetary policy normalisation towards its tightening.

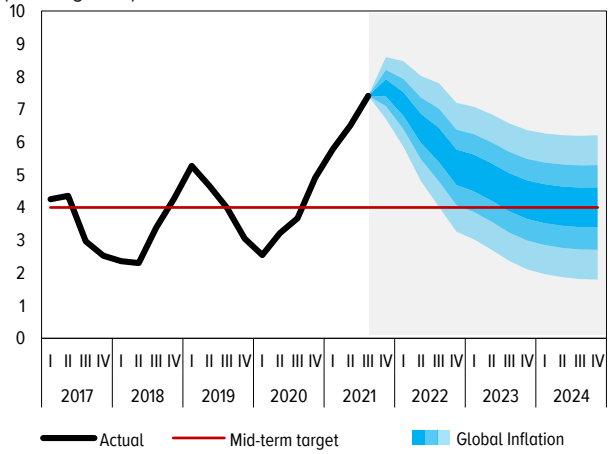
If prices in commodity markets continue to edge up, the oil price might reach 80 US dollars per barrel on average in 2022. Monetary policy normalisation in advanced economies will slow down growth rates in the global economy and decrease external demand. The oil price will start to edge down, while staying above the level of the baseline scenario over the entire forecast horizon.

GDP GROWTH PATH IN THE GLOBAL INFLATION SCENARIO *Chart 2.6*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different GDP growth values. Confidence intervals are symmetrical and are based on historical estimates of GDP growth uncertainty. If scenario assumptions are implemented, the value of GDP growth rate will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, GDP growth rate will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, GDP growth rate may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

INFLATION PATH IN THE GLOBAL INFLATION SCENARIO *Chart 2.7*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different inflation values. Confidence intervals are symmetrical and are based on historical estimates of inflation uncertainty. If scenario assumptions are implemented, the value of inflation path will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, inflation will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, inflation may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

The Russian economy will continue to expand fast in 2022, driven by growing demand for Russian exports. As of the end of the year, GDP growth will reach 2.4–3.4%. A further decline in external demand will decelerate the growth of Russia's GDP to 1.8–2.8% in 2023. GDP growth will return to its potential by the end of the forecast horizon. Moreover, the output of the Russian economy will be slightly higher than assumed in the baseline scenario in 2022–2023 and slightly lower – by the end of the forecast horizon.

Persistently rising prices for exchange-traded commodities will entail a surge in Russian companies' costs and increase their inflation expectations. As demand will expand faster than predicted in the baseline scenario, businesses will still have more opportunities to pass their higher costs on to ultimate prices. As a result, consumer prices will go up more quickly, with households significantly raising their inflation expectations. The Bank of Russia will have to tighten its monetary policy in 2022–2023, as compared to the baseline scenario, including because of tighter monetary policies in advanced economies. The key rate will return to its neutral range only in 2024 as inflation reverses to rates close to 4%.

Hence, the Global Inflation scenario assumes that monetary conditions will be tighter over the entire forecast horizon than expected in the baseline scenario. Retail lending growth as of the end of 2022 will exceed the rate provided for by the baseline scenario due to a considerable expansion of households' demand for durable goods amid the expectations of faster inflation in the future. Corporate lending growth will slow down as of the end of 2022 as compared to the baseline scenario because of higher uncertainty in the economy and companies' lower willingness to invest. In 2023–2024, retail lending growth will return to the rate assumed in the baseline scenario, whereas corporate lending will expand faster owing to lower uncertainty in financial markets and the economy in general, as well as a rise in nominal GDP.

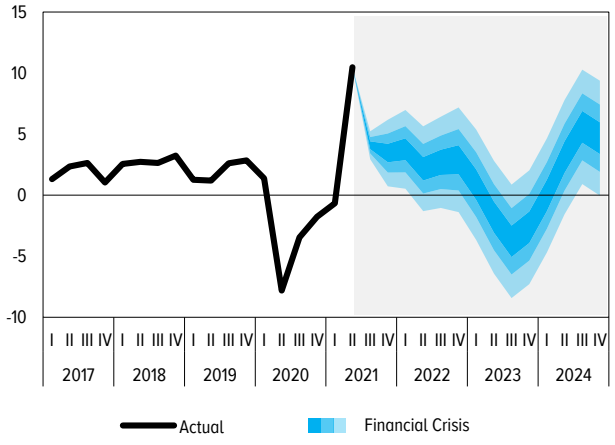
FINANCIAL CRISIS SCENARIO

The key difference of the Financial Crisis scenario from the Global Inflation scenario is that the gaps formed in the markets for certain assets will continue to grow rather than disappear amid the recovery of the global economy. Moreover, financial market participants will expect only a moderate normalisation of advanced economies' monetary policies, with every next increase in policy rates further aggravating investors' concerns. Therefore, economic processes in 2022 according to this scenario are identical to those assumed in the Global Inflation scenario, and a considerable difference between them arises only beginning from 2023 Q1.

During the period after the 2008–2009 crisis, the global economy has formed a significant number of gaps. A most notable one is debt accumulated by economies and companies with weak financial stability. In 2020, the global economy managed to avoid a financial crisis due to these problems, largely owing to the timely measures – the provision of US dollar liquidity by the US Fed (swap lines with EMEs' central banks, and others) and the aid granted by international organisations (IMF, World Bank, etc.). This became possible largely because the pandemic affected all countries, and the entire global community was seeking to prevent a further deterioration of the economic situation.

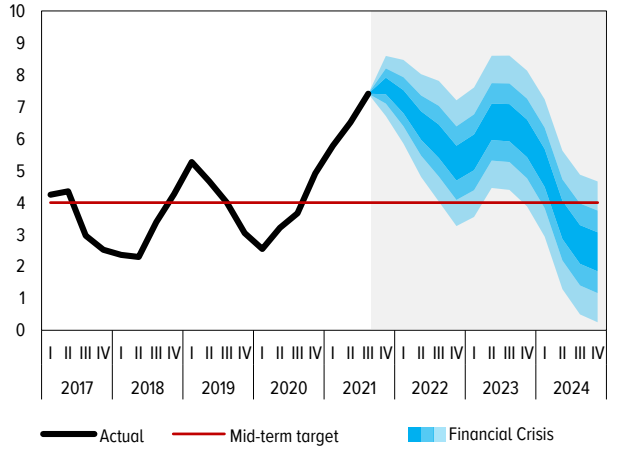
Nonetheless, statistics show that debt burden in the global economy soared in 2020. According to the Institute of International Finance, in 2020 global debt increased by 24 trillion US dollars, and the ratio of global debt to global GDP surged by 35 pp (to 335% of GDP), whereas in 2008 and 2009 the ratio of debt to GDP rose by as little as 10 pp and

GDP GROWTH PATH IN THE FINANCIAL CRISIS SCENARIO *Chart 2.8*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different GDP growth values. Confidence intervals are symmetrical and are based on historical estimates of GDP growth uncertainty. If scenario assumptions are implemented, the value of GDP growth rate will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, GDP growth rate will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, GDP growth rate may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

INFLATION PATH IN THE FINANCIAL CRISIS SCENARIO *Chart 2.9*
(% change YoY)



Note: shaded areas on the forecast horizon show the probability of different inflation values. Confidence intervals are symmetrical and are based on historical estimates of inflation uncertainty. If scenario assumptions are implemented, the value of inflation path will lie within the darkest central band on only 25 out of 100 occasions. Besides, on 25 out of 100 occasions, outturns will lie within each pair of less dark areas of the fan. As a result, inflation will have the values of the blue areas on 75 out of 100 occasions. And on the remaining 25 occasions, inflation may fall anywhere outside the blue areas of the fan. Over the forecast horizon, this has been depicted by the grey background.
Source: Bank of Russia calculations.

15 pp, respectively. Global public debt increased from 88% of GDP in 2019 to 105% of GDP in 2020. Non-financial corporations' debt edged up less notably, specifically by 8 pp, but reached 100% of GDP as well.

Amid the post-coronavirus recovery and still low interest rates, global debt continues to increase. Speculative-grade corporate debt rises rather noticeably. For instance, according to the Securities Industry and Financial Markets Association, the offerings of speculative-grade corporate debt securities soared by 22% over the ten months of 2021 year-on-year and doubled as compared to the same period of 2019. In the European and Asian financial markets, the offerings of speculative-grade corporate securities are also at elevated levels.

Hence, if sentiment in financial markets is rather volatile in 2022 and the processes observed in financial markets turn out to be bubbles, a fast and considerable tightening of monetary policy by the USA might strengthen investors' concerns about the prospects of return of their investments. As a result, the financial market might face mass sales of risky assets at the beginning of 2023, with debt problems rising in EMEs, especially in those that accumulated considerable debts in foreign currency. Moreover, countries will not have the aid from international counterparties they received in 2020. Consequently, EMEs' risk premiums will surge, and the states having the highest debt burden will experience debt servicing problems. In 2023 Q1, the global economy will face a large-scale financial crisis, comparable with the one in 2008–2009, with a long period of uncertainty and slow recovery.

A decline in economic activity amid a financial crisis will cause a decrease in the demand and price for oil to 40 US dollars per barrel on average in 2023. By 2024, the oil price will rise to 45 US dollars per barrel on average following the introduction of additional oil production cuts by the OPEC+ countries and a gradual recovery of demand.

In the case of a financial crisis, Russia's economy will decline by 1.4–2.4% in 2023. The recovery will take several quarters. However, already by 2024, the growth rate of the Russian economy will reach 3.0–4.0%. Nevertheless, the economy will bounce back to its 2022 level only by the end of the forecast horizon. Moreover, the deviation from the level of the baseline scenario will remain substantial and will be much larger than assumed in the Worsening Pandemic scenario.

In 2023, more accommodative fiscal policy is expected compared to the baseline scenario. Fiscal stimulus measures will support domestic demand. However, consumption and investment expenditures will plummet in 2023.

This scenario assumes that investment expenditures will decline much more than consumption expenditures due to the financial crisis, just as in 2008. A gradual restoration of incomes and lowering uncertainty will drive domestic demand. Nonetheless, even accelerated growth in 2024 will be insufficient for both consumption and investment to return on the path of the baseline scenario.

According to this scenario, the breakout of a financial crisis, followed by a weakening of the ruble, will not only cause elevated inflationary pressure, but will also drastically exacerbate risks to financial stability. To mitigate these risks, the Bank of Russia will have to tighten its monetary policy in the first half of the year more than assumed by the Global Inflation scenario. In 2023 H2, as price growth begins to slow down and inflation expectations start to decrease, the Bank of Russia will be able to shift towards monetary policy easing supporting the economy. Nevertheless, the overall tightening of monetary conditions as of the end of 2023, combined with reduced incomes and higher uncertainly, will drastically decelerate the growth of lending to the economy.

As compared to the path of monetary policy normalisation assumed by the Global Inflation scenario, normalisation under the Financial Crisis scenario will be faster and followed by a further shift towards accommodative monetary policy.

Despite record-low interest rates, a slow recovery of demand and a slight strengthening of the ruble according to this scenario will slow down inflation by 2024 to the level somewhat below the target.

Retail lending growth will speed up slightly, driven by monetary policy and fiscal policy measures, while still staying considerably below the growth rates predicted in the baseline scenario, even at the end of the forecast horizon. Corporate lending growth will remain moderate until the end of the forecast horizon due to a deeper decline in investment expenditures and a longer duration of banks' additional requirements for corporate borrowers introduced during the crisis.

Further on, yet already beyond the forecast horizon, owing to approved monetary policy decisions and economic recovery, inflation will slow down close to 4%, and the growth rate of lending to the economy will return on the path assumed in the baseline scenario.

THE BANK OF RUSSIA'S FORECAST UNDER THE WORSENING PANDEMIC SCENARIO *Table 2.3*

	2020 (actual)	2021	2022	2023	2024
Core macroeconomic indicators (growth, % YoY, unless indicated otherwise)					
Inflation, % in December YoY	**4.9**	**7.4 – 7.9**	**4.5 – 5.0**	**4.0 – 4.5**	**4.0**
Inflation, yearly average, % YoY	3.4	6.5 – 6.6	5.5 – 6.3	4.2 – 4.6	4.0
Key rate, yearly average, % p.a.	**5.1**	**5.7 – 5.8***	**6.3 – 7.3**	**5.8 – 6.8**	**5.0 – 6.0**
Gross domestic product	**-3.0**	**4.0 – 4.5**	**-(0.8) – 0.2**	**3.5 – 4.5**	**2.2 – 3.2**
Final consumption expenditure	-5.2	6.9 – 7.9	-(1.5 – 2.5)	3.6 – 4.6	2.1 – 3.1
– households	*-8.6*	*9.0–10.0*	*-(2.8–3.8)*	*4.7–5.7*	*2.6–3.6*
Gross capital formation	-2.0	5.4 – 7.4	-(2.2 – 4.2)	4.8 – 6.8	3.0 – 5.0
– gross fixed capital formation	*-4.3*	*5.4–7.4*	*-(1.6) – 0.4*	*3.1–5.1*	*2.5–4.5*
Exports	-4.3	2.6 – 4.6	0.2 – 2.2	3.1 – 5.1	2.1 – 4.1
Imports	-12.0	15.0 – 17.0	-(6.3 – 8.3)	6.8 – 8.8	3.4 – 5.4
Monetary indicators (growth, % YoY, unless indicated otherwise)					
Money supply (national definition)	13.5	8 – 12	9 – 13	7 – 11	6 – 10
Banking system's claims on the economy in rubles and foreign currency,** including:	10.9	11 – 15	8 – 12	7 – 11	7 – 11
– on businesses	*10.2*	*8–12*	*6–10*	*6–10*	*7–11*
– on households, including:	*12.9*	*21–25*	*13–17*	*10–14*	*7–11*
*– housing mortgage loans****	*21.6*	*23–27*	*15–19*	*14–18*	*12–16*
Balance of payments indicators** (billion US dollars, unless indicated otherwise)					
Current account	**36**	**121**	**89**	**34**	**21**
Balance of trade	94	186	153	113	113
Exports	*333*	*490*	*431*	*416*	*427*
Imports	*240*	*304*	*278*	*302*	*314*
Balance of services	-17	-18	-18	-18	-26
Exports	*47*	*52*	*50*	*58*	*66*
Imports	*64*	*70*	*68*	*76*	*92*
Balance of primary and secondary income	-41	-47	-46	-61	-66
Current and capital account balance	**35**	**121**	**89**	**34**	**21**
Financial account (excluding reserve assets)	**53**	**60**	**82**	**33**	**16**
General government and the central bank	-1	-21	-3	-7	-9
Private sector	54	80	85	40	25
Net errors and omissions	**4**	**-3**	**0**	**0**	**0**
Change in foreign currency reserves ('+' is increase, '-' is decrease)	**-14**	**58**	**7**	**1**	**5**
Urals crude price, yearly average, USD/barrel	**42**	**70**	**50**	**50**	**50**

** 7.5–7.7 – the balance as of the end of the year (actually 5.3% over 01.01.2021 – 24.10.2021).*

*** The growth rate of claims is adjusted for foreign currency revaluation. For the purpose of the adjustment for foreign currency revaluation, the growth of claims in foreign currencies and precious metals is recalculated into rubles at the period average RUB/USD exchange rate.*

**** Net of claims on housing mortgage loans acquired by banks.*

***** On the basis of the methodology set out in the 6th edition of the Balance of Payments and International Investment Position Manual (BPM6). In the financial account, '+' denotes net lending and '–' denotes net borrowing.*

Source: Bank of Russia.

THE BANK OF RUSSIA'S FORECAST UNDER THE GLOBAL INFLATION SCENARIO *Table 2.4*

	2020 (actual)	2021	2022	2023	2024
Core macroeconomic indicators (growth, % YoY, unless indicated otherwise)					
Inflation, % in December YoY	**4.9**	**7.4 – 7.9**	**5.0 – 5.5**	**4.0 – 4.5**	**4.0**
Inflation, yearly average, % YoY	3.4	6.5 – 6.6	5.8 – 6.6	4.4 – 4.9	4.0
Key rate, yearly average, % p.a.	**5.1**	**5.7 – 5.8***	**8.8 – 9.8**	**7.3 – 8.3**	**5.5 – 6.5**
Gross domestic product	**-3.0**	**4.0 – 4.5**	**2.4 – 3.4**	**1.8 – 2.8**	**1.5 – 2.5**
Final consumption expenditure	-5.2	6.9 – 7.9	1.1 – 2.1	1.5 – 2.5	1.3 – 2.3
– households	*-8.6*	*9.0–10.0*	*1.2–2.2*	*1.8–2.8*	*1.5–2.5*
Gross capital formation	-2.0	5.4 – 7.4	1.4 – 3.4	1.8 – 3.8	1.1 – 3.1
– gross fixed capital formation	*-4.3*	*5.4–7.4*	*0.7–2.7*	*1.7–3.7*	*0.7–2.7*
Exports	-4.3	2.6 – 4.6	5.4 – 7.4	1.4 – 3.4	0.5 – 2.5
Imports	-12.0	15.0 – 17.0	1.3 – 3.3	1.8 – 3.8	0.0 – 2.0
Monetary indicators (growth, % YoY, unless indicated otherwise)					
Money supply (national definition)	13.5	8 – 12	9 – 13	9 – 13	8 – 12
Banking system's claims on the economy in rubles and foreign currency,** including:	10.9	11 – 15	9 – 13	9 – 13	8 – 12
– on businesses	*10.2*	*8–12*	*6–10*	*8–12*	*8–12*
– on households, including:	*12.9*	*21–25*	*15–19*	*10–14*	*7–11*
*– housing mortgage loans****	*21.6*	*23–27*	*15–19*	*14–18*	*12–16*
Balance of payments indicators** (billion US dollars, unless indicated otherwise)					
Current account	**36**	**121**	**161**	**111**	**86**
Balance of trade	94	186	253	211	175
Exports	*333*	*490*	*569*	*526*	*483*
Imports	*240*	*304*	*316*	*315*	*308*
Balance of services	-17	-18	-30	-35	-26
Exports	*47*	*52*	*64*	*66*	*71*
Imports	*64*	*70*	*94*	*101*	*97*
Balance of primary and secondary income	-41	-47	-62	-65	-62
Current and capital account balance	**35**	**121**	**161**	**111**	**86**
Financial account (excluding reserve assets)	**53**	**60**	**84**	**60**	**54**
General government and the central bank	-1	-21	-6	-5	-6
Private sector	54	80	90	65	60
Net errors and omissions	**4**	**-3**	**0**	**0**	**0**
Change in foreign currency reserves ('+' is increase, '-' is decrease)	**-14**	**58**	**77**	**51**	**32**
Urals crude price, yearly average, USD/barrel	**42**	**70**	**80**	**70**	**60**

** 7.5–7.7 – the balance as of the end of the year (actually 5.3% over 01.01.2021 – 24.10.2021)..*

*** The growth rate of claims is adjusted for foreign currency revaluation. For the purpose of the adjustment for foreign currency revaluation, the growth of claims in foreign currencies and precious metals is recalculated into rubles at the period average RUB/USD exchange rate.*

**** Net of claims on housing mortgage loans acquired by banks.*

***** On the basis of the methodology set out in the 6th edition of the Balance of Payments and International Investment Position Manual (BPM6). In the financial account, '+' denotes net lending and '–' denotes net borrowing.*

Source: Bank of Russia.

THE BANK OF RUSSIA'S FORECAST UNDER THE FINANCIAL CRISIS SCENARIO *Table 2.5*

	2020 (actual)	2021	2022	2023	2024
Core macroeconomic indicators (growth, % YoY, unless indicated otherwise)					
Inflation, % in December YoY	**4.9**	**7.4 – 7.9**	**5.0 – 5.5**	**5.5 – 6.5**	**2.0 – 3.0**
Inflation, yearly average, % YoY	3.4	6.5 – 6.6	5.8 – 6.6	5.8 – 6.5	3.0 – 4.0
Key rate, yearly average, % p.a.	**5.1**	**5.7 – 5.8***	**8.8 – 9.8**	**8.8 – 9.8**	**4.3 – 5.3**
Gross domestic product	**-3.0**	**4.0 – 4.5**	**2.4 – 3.4**	**-(1.4 – 2.4)**	**3.0 – 4.0**
Final consumption expenditure	-5.2	6.9 – 7.9	1.1 – 2.1	-(1.5 – 2.5)	2.1 – 3.1
– households	*-8.6*	*9.0–10.0*	*1.2–2.2*	*-(2.6–3.6)*	*2.5–3.5*
Gross capital formation	-2.0	5.4 – 7.4	1.4 – 3.4	-(11.8 – 13.8)	13.6 – 15.6
– gross fixed capital formation	*-4.3*	*5.4–7.4*	*0.7–2.7*	*-(4.1–6.1)*	*4.1–6.1*
Exports	-4.3	2.6 – 4.6	5.4 – 7.4	-(4.5 – 6.5)	3.7 – 5.7
Imports	-12.0	15.0 – 17.0	1.1 – 3.1	2.7 – 4.7	1.2 – 3.2
Monetary indicators (growth, % YoY, unless indicated otherwise)					
Money supply (national definition)	13.5	8 – 12	9 – 13	5 – 9	5 – 9
Banking system's claims on the economy in rubles and foreign currency,** including:	10.9	11 – 15	9 – 13	3 – 7	4 – 8
– on businesses	*10.2*	*8–12*	*6–10*	*4–8*	*4–8*
– on households, including:	*12.9*	*21–25*	*15–19*	*2–6*	*5–9*
*– housing mortgage loans****	*21.6*	*23–27*	*15–19*	*6–10*	*7–11*
Balance of payments indicators** (billion US dollars, unless indicated otherwise)					
Current account	**36**	**121**	**161**	**59**	**50**
Balance of trade	94	186	253	125	139
Exports	*333*	*490*	*569*	*368*	*411*
Imports	*240*	*304*	*316*	*244*	*273*
Balance of services	-17	-18	-30	-18	-29
Exports	*47*	*52*	*64*	*50*	*58*
Imports	*64*	*70*	*94*	*68*	*87*
Balance of primary and secondary income	-41	-47	-62	-48	-60
Current and capital account balance	**35**	**121**	**161**	**59**	**50**
Financial account (excluding reserve assets)	**53**	**60**	**84**	**76**	**59**
General government and the central bank	-1	-21	-6	1	-1
Private sector	54	80	90	75	60
Net errors and omissions	**4**	**-3**	**0**	**0**	**0**
Change in foreign currency reserves ('+' is increase, '-' is decrease)	**-14**	**58**	**77**	**-17**	**-9**
Urals crude price, yearly average, USD/barrel	**42**	**70**	**80**	**40**	**45**

** 7.5–7.7 – the balance as of the end of the year (actually 5.3% over 01.01.2021 – 24.10.2021).*

*** The growth rate of claims is adjusted for foreign currency revaluation. For the purpose of the adjustment for foreign currency revaluation, the growth of claims in foreign currencies and precious metals is recalculated into rubles at the period average RUB/USD exchange rate.*

**** Net of claims on housing mortgage loans acquired by banks.*

***** On the basis of the methodology set out in the 6th edition of the Balance of Payments and International Investment Position Manual (BPM6). In the financial account, '+' denotes net lending and '–' denotes net borrowing.*

Source: Bank of Russia.

BOX 3.
FISCAL POLICY IN 2021–2024

As of the end of 2021 H1, a trend emerged towards a gradual reduction in budget expenditures and a sustainable rise in budget revenues (% of GDP), including both oil and gas revenues and non-oil and gas revenues. In this environment, the overall and non-oil and gas deficit of the budget system considerably decreases. These trends conform to **fiscal policy normalisation** and a gradual phasing-out of anti-crisis measures by the Russian Government.

Russia's Ministry of Finance continues the **fiscal policy normalisation strategy** over the 2021–2022 horizon, progressively returning to setting the maximum amount of expenditures pursuant to the fiscal rule beginning from 2022. This will have a restraining effect on output and inflation in 2022.

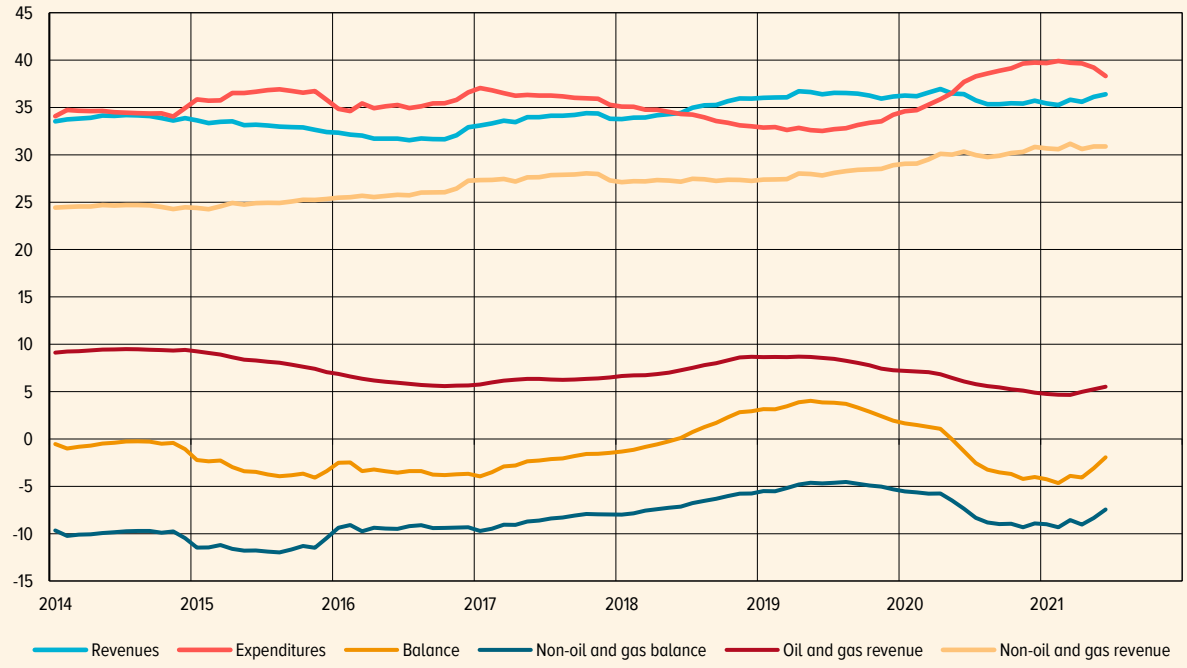
The parameters for setting the maximum amount of federal budget expenditures pursuant to the fiscal rule in 2019–2024 are determined according to the formula:

$$Expenditures_{max.} = Bas.\ OGR + NOGR + \%E + SD$$

where Bas. OGR – basic oil and gas revenues;
NOGR – non-oil and gas revenues;
%E – expenditures for public debt servicing;
SD – primary structural deficit (585 billion rubles in 2019–2021 (before the adoption of Federal Law No. 352, dated 15 October 2020), 0.5% of GDP in 2022–2024).

In 2020–2021, as part of its anti-crisis policy measures, the Russian Government additionally increased expenditures above the formula parameters. However, this additional amount in excess of the fiscal rule parameters is decreasing in 2021 compared to 2020, and budget expenditures will be gradually returned to the formula parameters in 2022. Specifically, in 2020, the deviation of the actual federal budget expenditures from the amount of the actually received basic oil

12-MONTH MOVING BUDGET SYSTEM INDICATORS IN 2014-2021 *Chart B-3-1*
(% of GDP)



Sources: Russia's Ministry of Finance, Federal Treasury, Rosstat, Bank of Russia calculations.

and gas revenues and non-oil and gas revenues and the expenditures for servicing public debt and the primary structural deficit totalled 2.4 trillion rubles, whereas the expenditures for the implementation of the anti-crisis and anti-pandemic measures exceeded 3 trillion rubles. In 2021, the deviation of maximum expenditures from the parameters determined by the formula for 2019–2021 (see above) will decrease to 875 billion rubles. In 2022, the maximum amount of expenditures will be set without exceeding the fiscal rule parameters (provided that the primary structural deficit of the federal budget is set at 0.5% of GDP in 2022–2024).

A considerable reduction in the deviation of expected expenditures from the amount allowed by the fiscal rule parameters in 2021, compared to 2020, suggests a gradual tightening of fiscal policy.

As the planned expenditures of the federal budget are brought to levels conforming to the fiscal rule parameters in 2022, the non-oil and gas deficit of the budget will stabilise close to 6% of GDP.

Changes in fiscal policy in 2021

Beginning from 1 May 2021, the parameters of the damper component were adjusted, with a **reduction in the indexation coefficient for the basic indicative petrol and diesel prices**. All else being equal, this involves an increase in budget subsidies to oil refineries when global petrol and diesel prices are high and a decrease in their payments to the budget when prices are low. According to the Bank of Russia's estimates, if the Urals crude price remains at its current level in 2022–2024, annual additional oil and gas revenues might decline by an amount of **up to 0.2 trillion rubles**.

In 2021, the federal budget started to receive revenue from the payments of **PIT at an increased rate set for income exceeding 5 million rubles**.[1] According to Russia's Ministry of Finance, this revenue might reach nearly 0.08 trillion rubles in 2021 and up to 0.2 trillion rubles annually in 2022–2024.

From 2022, the federal budget will start to receive revenue from the payments of **PIT on interest accrued on deposits and bonds where investments exceed 1 million rubles**. This revenue might total more than 0.1 trillion rubles annually.

Following the **introduction of the export duties for metals**, the budget system is expected to receive additional non-oil and gas revenues in August–December 2021 (over 0.1 trillion rubles taking into account decreasing payments of profit tax from metallurgical enterprises). Furthermore, in 2021, the Government imposed export duties on certain food and non-food products (grain, sunflower oil, rape, timber, etc.) in order to contain the rise in domestic prices for these products amid a favourable external economic environment and contribute to an increase in the funds replenishing the budget. The Government provided for an increase in tax burden on metallurgical and coal enterprises and fertiliser producers in 2022–2024 (including the imposition of the excise duty on steel, the adjustment of the MET rates, etc.). In the next three years, this increase is expected to generate additional revenues to the budget in the amount of up to 0.6 trillion rubles.

Moreover, the budget system is expected to receive considerably **higher revenues from state companies' dividends** in 2022–2024 owing to a better fulfilment of dividend payout targets (50% of adjusted net profit under the IFRS) and higher financial performance in 2021–2022 than in 2020.[2]

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[1] *In accordance with Federal Law No. 372-FZ, dated 23 November 2020, 'On Amending Part 2 of the Tax Code of the Russian Federation Regarding the Tax Rate on Personal Income Exceeding Five Million Rubles over a Taxable Period'.*

[2] *Directive of the Government of the Russian Federation No. 1589-r, dated 11 June 2021.*

Annual revenues from dividends might grow from 0.5–0.6 trillion rubles in 2020–2021 to 1.0 trillion rubles in 2022–2024. Revenues to the budget might also increase owing to the adjustment of the excise rates for certain types of tobacco and petroleum products.

Overall, as compared to the projections presented in the Guidelines for Fiscal, Tax and Customs and Tariff Policy for 2021 and the 2022–2023 Planning Period, the budget system expects higher revenues in 2021–2023, which is associated with a more favourable external economic environment and a more active recovery of business activity and demand in Russia, as well as a further improvement in collection of payments. If non-oil and gas revenues grow in 2021–2023, budget expenditures might increase, which is associated with, among other things, the implementation of the measures in accordance with the Presidential Address to the Federal Assembly made on 21 April 2021, an expansion of the cost estimate of the national projects, a rise in wage indexation in the public sector, social transfers and pensions, additional allocations for anti-pandemic measures, and the extension and expansion of the subsidised mortgage lending programmes. Furthermore, higher oil and gas revenues in 2022 will enable a **shift towards budget execution with a surplus**.

Debt policy of Russia's Ministry of Finance

In April 2021, the USA imposed sanctions that bar certain categories of foreign investors from buying Russian government bonds in the primary market. In this regard, Russia's Ministry of Finance announced that it would **terminate offerings of the earlier government bond issues before 14 June 2021**. After 14 June 2021, it offered new OFZ-PD issues to investors. In addition, as the budget system had significant ruble balances in its accounts as of the end of 2020 and non-oil and gas revenues actively recovered in early 2021, Russia's Ministry of Finance announced that it would reduce the programme for borrowing through OFZ placements in 2021 by 0.9 trillion rubles (to 2.8 trillion rubles).[3] Further on, if the situation in the bond market deteriorates, Russia's Ministry of Finance might use the balances in the accounts to partially replace domestic borrowings as a source to finance the basic deficit of the budget.[4] The Ministry of Finance also announced **a decrease in the portion of OFZ-PK bonds in the public debt portfolio** (either through their reduction in the structure with no new offerings and a gradual increase in overall public debt, or through their buyback). This measure is aimed at mitigating the interest rate risk of Russia's Ministry of Finance as a borrower amid the gradual return of monetary policy towards the neutral stance. If public debt increases amid growing market interest rates, expenditures for public debt servicing are expected to rise considerably (from 0.9% of GDP in 2021 to 1.2% of GDP in 2024).

Impact of fiscal policy on output, inflation, and exchange rate movements

According to the normalisation parameters, fiscal policy will have a restraining effect on output and inflation in 2021–2022, as compared to the budget parameters of 2020. Contrastingly, possible **investments from the NWF within the Russian economy in the amount of up to 2.5 trillion rubles (taking into account the project for constructing the complex for processing ethane-containing gas in Ust-Luga) in 2021–2024** (owing to a favourable external economic environment, the NWF's liquid part may exceed the threshold level set at 7% of GDP

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[3] *The lost sources of financing will be replaced by using the balances in the federal budget's ruble accounts with the banking system formed as a result of the budget execution in 2020.*

[4] *The basic balance (basic deficit) is the indicator of the federal budget execution under the fiscal rule calculated as the difference between the total of basic oil and gas revenues and non-oil and gas revenues and federal budget expenditures (see the Glossary).*

in 2021–2022)[5] may become an additional driver and put proinflationary pressure. However, Russia's Ministry of Finance suggests legislative limits to be set on annual investment from the NWF within the Russian economy in the amount of 0.4 trillion rubles (excluding the said project in Ust-Luga). Such flows will not have a significant impact on monetary policy parameters and the stability of the budget system in the medium term.

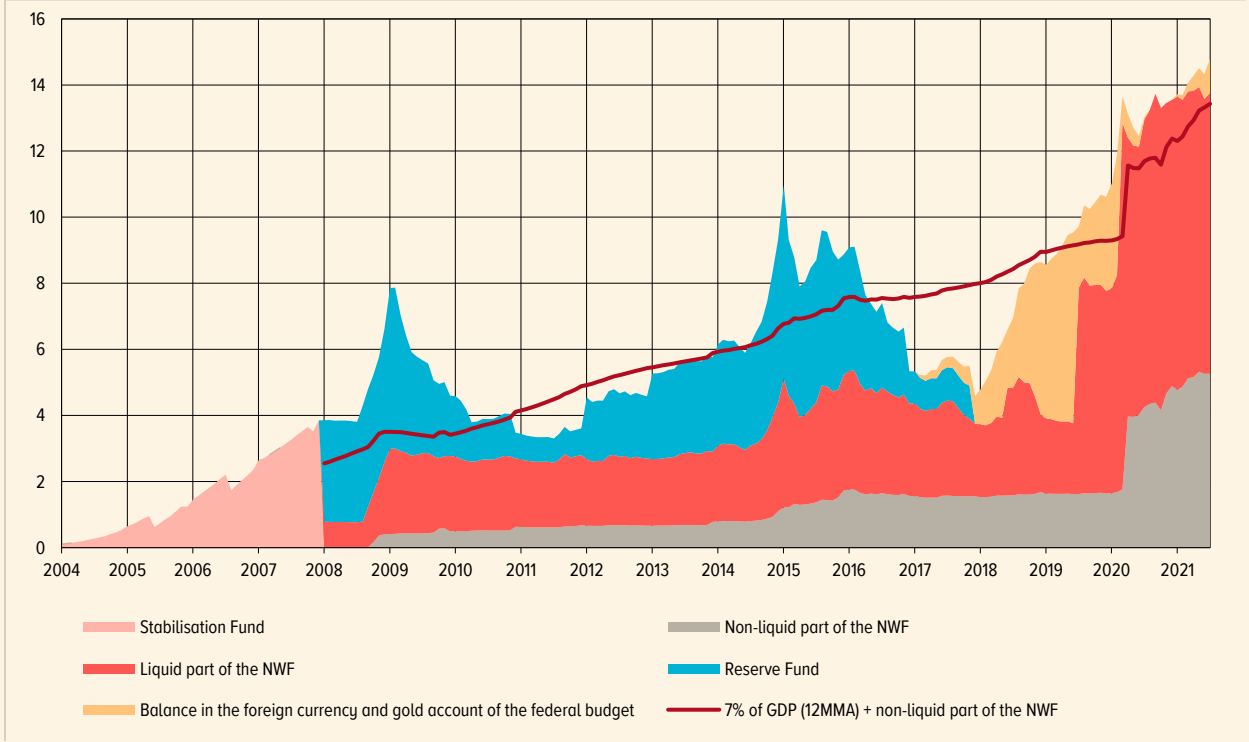
[5] *According to Clause 4.1 of Article 96.11 of the Budget Code of the Russian Federation, the Russian Government may make investments from the NWF within the Russian economy in self-sustaining infrastructure projects when the NWF's liquid part exceeds the threshold level set at 7% of GDP.*

BOX 4. INVESTMENTS FROM THE NATIONAL WEALTH FUND IN 2021–2024

The fast recovery in the external economic environment after the pandemic shock, accompanied by the surge in oil and gas prices, helped restore the NWF's liquid part[1] which exceeded its threshold level set at 7% of GDP in 2021. Pursuant to Clause 4 of Article 96.11 of the Budget Code of the Russian Federation, when the NWF's liquid part reaches 7% of GDP, the NWF's resources may be invested in Russian organisations' financial assets to finance self-sustaining infrastructure projects. Since the beginning of the year, the overall amount of the NWF's resources and the federal budget's special transit account in foreign currency and gold (hereinafter, the transit account)[2] increased from 13.5 trillion to 15.6 trillion rubles as of 1 October 2021 (from 11.7% to 13.0% of GDP), and the amount of **the NWF's liquid part and the transit account was up from 8.7 trillion to 10.0 trillion rubles (from 7.5% to 8.3% of GDP)**.

According to estimates by the Russia's Ministry of Finance, investments over 2021–2024 may total up to 2.5 trillion rubles (that is, nearly 0.5–0.6% of GDP annually, with the NWF's resources being used uniformly). Actually, investments from the NWF in projects within Russia's economy generate additional investment demand, which expands aggregate demand and, therefore, may be a proinflationary factor.

CHANGES IN THE NWF'S RESOURCES AND THE FEDERAL BUDGET'S TRANSIT ACCOUNT IN FOREIGN CURRENCY AND GOLD IN 2004 – 2021 *Chart B-4-1*
(trillion rubles)



Sources: Russia's Minfin, Rosstat, Bank of Russia calculations.

[1] *The NWF's liquid part is the NWF's resources in deposits and settlement accounts with the Bank of Russia, primarily in foreign currency and gold.*

[2] *The transit account temporarily accumulates the foreign currency purchased over a year under the fiscal rule in the amount of additional oil and gas revenues before the lump sum transfer to the NWF. This account is also used to sell foreign currency if oil and gas revenues decrease until the balance reaches zero, after which sales are made from the NWF's money.*

The Bank of Russia will describe the impact of investments from the NWF on the economy and inflation in its medium-term forecast after the Russian Government approves its final decisions on the list of projects, their implementation periods, and the structure of their financing.

The portion of the NWF's resources invested in eligible financial assets associated with the implementation of a particular project may not exceed 40% of the total amount of financing allocated for this project.

BOX 5. IMPACT OF CLIMATE CHANGE ON THE CONDITIONS OF MONETARY POLICY IMPLEMENTATION IN RUSSIA

In 1938, Guy Stewart Callendar, an English engineer, used data from 147 weather stations located worldwide to show an increase in the average temperature over the previous 50 years. Having compared these data against CO_2 concentration measurements, he suggested that the observed warming was caused by higher CO_2 atmospheric emissions. Guy Callendar was hardly the first scientist who tried to draw attention to the fact that CO_2 concentrations and the average air temperature are interconnected, but he became the first one to prove this fact based on measurements. At that time, the scientist's findings were neglected, just as his predecessors' insights.

Today, global warming is a matter of concern for the entire world community. Moreover, the sudden, fast, and massive spread of the coronavirus in 2020 has demonstrated that circumstances not directly connected with macroeconomic indicators might cause a significant economic crisis. This has given a stronger impetus to the discussion about the impact of climate change on the development and structure of both the world economy and the economies of individual countries.

Literature generally describes two types of risks associated with climate change that should be taken into consideration when elaborating economic policy.

First of all, these are **physical risks** involving financial damage in the case of extreme weather conditions. According to a recent report by the Intergovernmental Panel on Climate Change (IPCC), due to climate change, some regions have suffered more often extreme and fire dangerous weather, including heat and drought, whereas other regions have faced an increased number of large-scale floods, over the period since 1950. The Food and Agriculture Organisation of the United Nations (FAO) reports that the frequency of natural disasters has tripled since the 1970–1980s to date, which may also be associated with climate change.

Secondly, **transition risks** are no less significant as they stem from the required transformation of the global economy into a low-carbon one, that is, an economy reducing emissions of harmful substances to such an extent that global warming processes stop to notably affect the environment. Transition risks are caused by both the uncertainty about the time horizon and the content of climate policy measures and increasingly more evident shifts in consumers' and investors' preferences. The economy needs time to adjust to the new structure and find a new equilibrium.

Although monetary policy can be used only indirectly to address the climate agenda, it is becoming increasingly more reasonable to take into account climate change in the analysis and forecasting of economic trends for inflation targeting purposes, which is because climate change and the announcement of new climate policy measures alter the conditions of monetary policy implementation as well. At the qualitative level, the impact of physical and transition risks on macroeconomic variables may be described as follows.

- **Output**

Natural disasters cause a decrease in output in the short term. However, physical risks adversely influence output over a long-term horizon as well. The economy instantaneously loses not only a part of production capacity, including both capital and labour resources, but also long-established interconnections helping reduce transaction costs in the economy. In some cases, a part of capital is lost irreversibly, e.g. it can be hard to restore unique industrial facilities, and agricultural lands may become useless. Consequently, it may take not just several years, but even dozens of years to restore output. The more often destructive natural disasters occur, the

longer is the period when the economy works to recover rather than to develop, and the fewer are the opportunities to speed up potential growth in such an economy.

The transition to a low-carbon economy may also affect output in the short run as the redistribution of capital and labour resources between industries and the formation of a new structure of the economy take time, which may induce a long-lasting decline in output. The longer the uncertainty about possible new climate measures lasts both inside the country and at the global level, the more time the economy will need to adjust to a new structure.

- **Investment**

Physical risks rather have an adverse effect on investment trends and amounts. Although investments might increase immediately after a natural disaster, the overall accumulated amount of industrial investment may turn out to be lower than before the disaster, which is because investments are made to restore the previously functioning facilities, rather than to implement expansion and development projects. Moreover, regions suffering frequent natural disasters face a gradual reduction in investments over time.

Nonetheless, the transition to the green economy may generally turn out to be favourable for investment trends as new technologies need significant financial support. However, the period of uncertainty regarding further measures to be taken by the regulators of each country and its main trading partners might cause a prolonged slump in investment activity. The longer the uncertainty lasts, the more persistent and significant the decline in investment activity may become.

- **Consumption**

Physical risks can both increase and decrease consumption over a short-term horizon. If there is uncertainty about future incomes and possibly large financial losses, consumption will go down. Contrastingly, if households' and businesses' financial capacities remain close to the earlier level, consumption might expand amid a fast recovery after financial losses.

The impact of the transition process on consumption can also be mixed. In some groups of goods and services, consumption might decline as customer preferences shift increasingly more towards sharing and circular economy models, whereas consumption in other categories might grow, driven by higher interest in their environmentally neutral, green characteristics.

- **Performance**

Natural disasters deteriorate labour and capital productivity over a short- and medium-term horizons as people and businesses need time to adapt to losses and new conditions of life.

The gradual rise in atmospheric air temperature may also have a direct negative influence on capital and labour productivity. If ambient temperature considerably exceeds the normal level, this affects people's health. The demand for labour in the industries that are most sensitive to the impact of higher temperatures may surge. As a result, the labour market in such industries might experience considerable tension. For instance, this might be the case in construction and agriculture where works are largely carried out outdoors.

Equipment designed to operate in specific temperature conditions might fail more often. Consequently, higher air temperatures might increase the rate of capital depreciation and the frequency of capital replacement, which may entail a whole series of changes in the economy – from investment trends to prices for particular resources (e.g. chemicals improving the thermal resistance of materials).

Furthermore, the transition to the green economy may boost performance owing to the development of new efficient technologies. However, there may also be a period of a material decrease in capital productivity if authorities impose an official ban on the use of previous-generation equipment before new devices are commissioned (for instance, in the case of

replacement of a coal-fired power station for a gas-fired one). Similarly, labour productivity might decline for a short period as an accelerated energy transition might cause structural unemployment. Consequently, it will take time for employees undergoing retraining to acquire new efficient working skills.

- **Inflation and inflation expectations**

Changes in weather conditions and more frequent unfavourable natural phenomena may exacerbate inflation volatility, especially in such categories as food products, housing services, and energy commodities. In turn, price growth in the most sensitive product groups may increase inflation expectations. If the shocks pushing up prices turn out to be rather persistent, inflation expectations anchoring at the inflation target may be lost, bringing about secondary effects of price growth, which will amplify inflationary pressure over a medium-term horizon. Overall, less predictable and more intense shocks in the economy complicate the task of inflation forecasting for both the central bank and all other economic agents, with inflation expectations anchoring becoming dependent on the frequency and magnitude of shocks induced by non-economic phenomena.

Low-carbon economy measures implemented to accelerate the energy transition might push up prices for both the goods subject to these measures (since companies will have to include pollution tax in prices) and alternative green goods and resources (due to higher demand). This in turn may result in higher inflation expectations and wages (especially in the industries facing elevated demand) and aggravate inflationary pressure even more. Furthermore, most probably, the initial complex of measures will be followed by other measures, and the announced carbon tax rate will be raised in the future in real terms, which will further fuel price growth and inflation expectations. Nonetheless, the energy transition might somewhat weaken inflationary pressure owing to both the deployment of more efficient technologies improving performance and shifts in consumer preferences towards green products and services.

Due to the regional specifics of Russia, its sectoral structure and role in international trade, both physical and transition risks are essential for designing economic policy. Today, it is rather difficult to make an accurate and unambiguous quantitative assessment of the impact of climate change and climate policy measures on the country's macroeconomic conditions. Therefore, both the public and the expert community discuss multiple scenarios of long-term development prospects of the Russian economy.

Currently, Russia is not among the countries that are most vulnerable to natural disasters. However, the country's contemporary history does provide some examples where extreme weather conditions caused a reduction in output. Specifically, according to some estimates,[1] the economy lost nearly 500 billion rubles due to the abnormally hot summer and fires of 2010, which is 1.2% of GDP of that period.

As regards **physical risks**, one of the most significant ones for Russia is associated with potential permafrost thaw in the northern regions of the country. Moreover, according to assessments by the Federal Service for Hydrometeorology and Environmental Monitoring (Rosgidromet), **warming in Russia is nearly 2.8 times as intense as on average worldwide**. Over the period 1976–2016, the pace of global warming was 0.18°C in ten years, whereas the average temperature in Russia rose by 0.51°C.[2] **The impact of physical risks may become the strongest in the long term as the growth of overall temperature becomes increasingly more significant if no climate policy measures are implemented.**

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[1] *Порфирьев Б.Н. Климат и экономика. Вестник РАН. №3. 2011 (Porfiriev B.N. Climate and the Economy. Bulletin of the Russian Academy of Science. No. 3. 2011).*

[2] *Доклад об особенностях климата на территории Российской Федерации за 2020 год. Росгидромет. Москва. 2021 (Report on Climate Specifics in the Russian Federation for 2020. Rosgidromet. Moscow. 2021).*

In addition to social consequences resulting from flooding of cities beyond the Arctic Circle, melting glaciers may cause drastic economic losses as a considerable part of the country's mining infrastructure is located in the permafrost zone and is not designed to allow changes in the landscape. Specifically, Russia produces 90% of gas, 30% of oil, 100% of palladium, and 90% of diamonds in this region. According to some estimates, the bearing capacity of the foundation of some infrastructure facilities has decreased by 25–75% by now, as compared to 1965–1975 when most of these facilities were constructed. The transport infrastructure, including pipeline transport in the soil freezing zone, might also suffer considerable damage due to changes in the surrounding rock. As a result, both output and investment in these industries might plummet.

Moreover, higher air and water temperatures might cause a loss of some agricultural lands, water resources, and areas fit for human habitation, which might also affect output trends. A higher volatility of agricultural output, coupled with shifts in seasonal patterns, might complicate assessments of the steady components of inflation.

Speaking of **transition risks**, a key one for the Russian economy is a permanent decline in the demand and prices for conventional energy sources worldwide, including for coal, oil, and gas, collectively accounting for approximately a half of Russian export quantities. Already today, increasingly more international investors report that they will no longer invest in high carbon footprint companies, or, even more specifically, in oil and gas enterprises. **Therefore, the probability of transition risks in the medium term is becoming increasingly higher.**

A decline in the demand and prices for hydrocarbons may be partially offset by an increase in the demand and prices for other Russian exports becoming highly requested during the transition period (aluminium, copper, nickel, palladium, and others) and partially by the export of other types of resources that will be used to generate energy (for instance, a hydrogen energy system under development). Nevertheless, if the offsetting effects of other industries are insufficient, the decline in the demand and prices for hydrocarbons might weaken the macroeconomic stability of Russia.

The final result will depend on the state of the Russian economy in general and individual industries and will be largely influenced by the country's climate policy which is now being elaborated.

However, the energy transition involves not only long-term consequences. Some transition risks are becoming our everyday reality already now.

Specifically, in July 2021, the European Commission proposed the Carbon Border Adjustment Mechanism (CBAM) – an action plan to combat climate change, which will also impose cross-border carbon tax from 2026 on five groups of goods, including cement, iron and steel, aluminium, fertilisers, and electric power. In 2018–2020, according to the Federal Customs Service, the EU accounted for 27% of Russian exports of steel, 22% – of cast iron, and 33% – of aluminium. Some Russian producers subject to the possible regulation started preparations in advance. For instance, Evraz and RUSAL demerged their high-carbon assets into separate businesses, making their export enterprises as 'clean' as possible (moreover, RUSAL is one of the 'cleanest' aluminium producers worldwide as it uses hydropower). However, the persistent uncertainty and disagreements between countries regarding emission measurement methods and the absence of mutual recognition of emission allowances might considerably increase Russian companies' costs related to carbon regulation. This in turn may affect output, investment, and prices, depending on the balance of demand and supply over a short- and medium-term horizons.

Soaring prices for a range of metals and minerals observed in the market in 2021 is another evidence of the start of the energy transition, although it is less evident. Increasingly more estimates of trends observed in commodity markets explain price growth not only by disruptions in supply chains, but also by increasingly more active government measures encouraging the energy transition worldwide. Green inflation, or greenflation, is a consequence of the surge in the

demand for copper, aluminium, and lithium caused by extensive developments of solar and wind batteries, electric cars, and other goods that are based on alternative energy sources. On the one hand, higher demand and prices for exports, including green products, helped the Russian economy address the aftermath of the pandemic. On the other hand, the rise in prices in global commodity markets translated into manufacturers' costs, which in turn spurred inflation in the domestic market.

Overall, **physical and transition risks generally make it more difficult for the central bank to find correct answers to the following questions: at what stage of the cycle the economy is at a given moment, what the main reason for the shocks is and how persistent they are, and how these shocks have affected the level and rate of potential economic growth**. One of the most significant climate challenges to monetary policy is a higher frequency of simultaneously occurring demand- and supply-side shocks, combined with uncertainty about their persistence and the duration of their impact on the economy. In this regard, an important issue is the influence of climate change and transition policy on the estimate of the neutral rate. For instance, the neutral rate might go down if a part of workers exit the labour market due to high air temperatures and the remaining workers' performance worsens. The neutral rate might increase as well if new technologies enable companies to improve performance even in extreme weather conditions.

Demand- and supply-side shocks in the conditions of climate change might be stronger than those observed over the last 50–60 years and be accompanied by non-linear dynamics, bringing about irreversible effects and long-term consequences. It might become increasingly more difficult for central banks to measure the output gap, being a key variable in the course of making monetary policy decisions. The bounds of uncertainty about the most appropriate response of monetary policy to the situation in the economy might expand as climate shocks make it harder to choose between inflation stabilisation and output stabilisation. Whether the central bank should respond to faster inflation spurred by climate shocks, and, if so, how frequent, intense and fast this response should be – these are the questions for further research.

Furthermore, decarbonisation measures, the frequency of their introduction and their consistency (both inside the country and globally), the pace of development and implementation of carbon-neutral technological solutions, and the adaptation of people and businesses to them, as well as social and economic effects accompanying climate change and the transition process will have a considerable impact on inflation and output trends and, accordingly, on the stance and effectiveness of monetary policy over a long-term horizon.

The Bank of Russia is actively studying the issue of the impact of climate change on the financial sector and the country's economy.[3] For instance, in May 2020, the Bank of Russia released its consultation paper 'The Impact of Climate Risks and the Sustainable Development of the Russian Financial Sector'. The Financial Stability Review for 2020 Q2–Q3 describes the most probable channels of physical and transition risks in the Russian financial sector, and the Financial Stability Review for 2020 Q4–2021 Q1 provides the findings of the stress test among Russian companies carried out to assess the direct and indirect influence of the potential introduction of cross-border carbon tax in Europe and Asia. The Bank of Russia started to analyse the potential impact of climate change on Russia's monetary policy and to enhance its model-based approaches applied in macroeconomic forecasting. The integration of climate change in the model-based approaches will enable the Bank of Russia to mitigate the main challenges associated with assessing climate shocks and their influence on the country's economy and to form a set of analytical tools needed to make decisions helping maintain inflation close to the target in changing conditions.

[3] *In 2019, the Bank of Russia joined the Network of Central Banks and Supervisors for Greening the Financial System (NGFS).*

BOX 6. IMPACT OF LONG-TERM DEMOGRAPHIC TRENDS ON THE POTENTIAL OF RUSSIA'S ECONOMY

The demographic trends observed in Russia in recent decades are caused by both positive factors (such as an increase in longevity, which is typical of the majority of large economies) and negative factors, specifically a low birth rate, due to which younger generations cannot sufficiently replace older ones. Ultimately, this causes population decrease and ageing. Moreover, in 2020–2021, the coronavirus pandemic considerably altered not only demographic trends, but also social and economic aspects. Demographic trends, coupled with recent changes, impact the labour market, demand, financial markets, the budget system, and the potential of the Russian economy in general.

Impact of the demographic factor on potential output

According to Rosstat, the Russian population numbered 146.2 million as of early 2021, which is 2% less than at the beginning of the 2000s according to the comparable base. Within the medium variant of Rosstat's demographic forecast,[1] the total population will continue to decline, reaching 143 million by 2036, which is 2% lower than now. The decrease in the population will be caused by diverse demographic trends that will impact the labour force, the structure of the labour market, and, consequently, potential output. The main of these trends are considered below.

1. Population ageing and decreasing labour force. Due to the low birth rate in the 1990s–early 2000s, this small generation currently entering the labour market cannot sufficiently replace the large generation of retiring 60-year old people. This process has become most evident in recent years and will be observed in the next few years (a decline in labour force[2] by 0.4–0.6 million people annually due to population ageing). Decreasing labour supply, coupled with lower performance as a result of labour force ageing, might reduce economic growth rates and economic potential. As assessed by the Bank of Russia, the negative contribution of this effect to a slowdown in potential output growth will be the largest in the next 3–4 years, accounting for -(0.3–0.6) pp.[3] Further on, this impact will weaken to -0.1 pp.

2. A labour force increase owing to the pension reform. According to the Bank of Russia's estimates, later retirement will partially offset the reduction in labour force. As a result, the labour market will retain about 0.2–0.4 million people[4] annually. However, this group of people shows lower labour productivity, which weakens the positive effect of this factor on potential economic growth. As assessed by the Bank of Russia, this effect will not exceed +0.2 pp.

3. The trend towards a decline in young people's participation in labour force and a rise in the portion of those nearing retirement due to social and economic reasons. Since the beginning of the 2000s, increasingly more young people prefer to receive higher education. Accordingly, they enter the labour market later, and the rate of their participation in labour force declines. Specifically, it dropped by 5.4 pp over the 15 years, to reach 57.3% by 2020. Contrastingly, older people facing a decrease in real incomes tend to remain in the labour market longer. As assessed by the Bank of Russia, these trends will continue in the next 10 years, with their effects on the labour market and potential output offsetting each other.

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[1] *The Projected Size of the Russian Population until 2035*.

[2] *Labour productivity of people nearing retirement is lower than on average across the economy. Due to the increase in their percentage in labour force, average labour productivity might decline.*

[3] *The estimate was made based on the output elasticity of labour (0.6) using the production function model.*

[4] *Taking into account the retirement age benefits for mothers with many children, residents of the Far North and hard-to-reach areas, workers of certain occupations, etc.*

4. Impact of higher mortality caused by the coronavirus on the labour market and aggregate demand. According to the Bank of Russia's estimates, over the period from April 2020 to June 2021, the mortality rate reached nearly 0.5 million people.[5] This is not a final figure yet, and the impact of this factor still remains. This trend decreased aggregate demand and, to a certain extent, labour supply.[6] Furthermore, anti-pandemic measures caused a reduction in aggregate demand, shifts in consumer preferences, and readjustment of economic relationships. This in turn reduced potential output as well. It will be possible to assess the demographic effect separately some time after the pandemic ends and relevant statistics accumulate.

5. The migration gain in the next 15 years will not exceed the previous decade's averages at most (about 0.3 million people a year) and, as estimated by the Bank of Russia, will have no significant effect on potential output as the percentage of these workers in the labour force will be minor (2%). Moreover, migrants are generally low-qualified workers and take on low-paid jobs, which will not increase total factor productivity.

Therefore, **the overall influence of the demographic trends on potential output growth will mainly be observed in the next few years, accounting for -(0.2–0.5) pp**.

Impact of the demographic factor on demand and inflation

The main reason why central banks pursuing inflation targeting policy focus on the demographic aspect of economic development is its potential impact on aggregate demand and inflation. In particular, a decline in the working-age population and a larger number of elderly people might reduce aggregate demand, which will put downward pressure on inflation.[7] Furthermore, as the percentage of pensioners increases, this will provoke the risk of a reduction in total savings being a source of funds for investment and economic growth.

Besides, population ageing brings about the risk of a lower effectiveness of monetary policy as aggregate demand might be less sensitive to key rate changes. Elderly people respond to movements of interest rates in the economy more weakly as their debt burden is lower compared to that of younger people. As older cohorts expand, this problem is becoming even more acute. In this regard, the central bank will possibly need to react to changes in inflation risks more actively so as to be able to offset a weak response of aggregate demand to the policy pursued.[8] Nonetheless, the penetration of financial services will increase over time as older cohorts with lower penetration die out and households' financial literacy improves. This might intensify the sensitivity of aggregate demand to changes in interest rates and partially offset the negative effects of population ageing, which should be taken into consideration by the central bank.

Demographic support measures and long-term forecast of potential

In order to mitigate possible adverse consequences of population ageing, it is necessary to develop a system for advanced training and retraining of elderly people. This will help improve labour productivity and, ultimately, speed up economic growth.

Furthermore, aiming to smooth long-term negative demographic trends, the Government approved a complex of social and demographic measures to be implemented in 2018–2026, including within the Demography national project, allocating over 4 trillion rubles for 2019–2024, predominantly as transfers to households. These measures expand the maternity capital

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[5] *Calculated as the difference between the numbers of deaths over the period from April 2020 to June 2021 and over the same period of the previous three years.*

[6] *In addition, there was a loss of working hours due to temporary incapacity for work caused by the coronavirus infection.*

[7] *Anderson, Derek, Dennis Botman, and Ben Hunt (2014). Is Japan's Population Ageing Deflationary? IMF Working Paper 14/139.*

[8] *Wong, Arlene (2018). Population Aging and the Transmission of Monetary Policy to Consumption.*

programme and the subsidised mortgage lending programme, introduce various tax and administrative benefits and social benefits for families with children, provide targeted aid to pregnant women and multi-child families, etc.

The implementation of these measures is expected to gradually boost the birth rate, reduce mortality, and increase longevity. If the Demography project is implemented successfully, the birth rate in Russia is expected to grow from 1.5 children per woman in 2020 to 1.7 children by 2024 and remain at the level achieved further on. This is equivalent to a 0.2 million rise in the number of born people to 1.6 million a year. This in turn should drive households' aggregate demand over the forecast period. However, the effect of a higher birth rate on labour force expansion (+0.2 million people, or +0.3% a year) will become significant in 15–18 years, when this generation starts to enter the labour market. According to the Bank of Russia's estimate, considering the average sensitivity of potential and output to the number of employed people, the contribution of the demographic support measures to the annual growth of economic potential beginning from 2036–2040 might reach +0.2 pp.

3. MONETARY POLICY ENVIRONMENT AND CORE MEASURES IN LATE 2020 AND 2021

The coronavirus pandemic significantly affected the conditions of monetary policy implementation in 2020–2021. Moreover, its impact on inflation over this period reversed from disinflationary to proinflationary.

To mitigate disinflationary risks, in 2020 H1, the Bank of Russia not only accelerated the shift towards neutral monetary policy, but even moved to accommodative policy temporarily. In addition, the Bank of Russia implemented anti-crisis measures[1] aimed at maintaining sustainable lending to the real economy. Combined with the Russian Government's measures, accommodative monetary policy helped soften the disinflationary effect of domestic and external demand which had contracted after the outbreak of the pandemic.

In 2020 H2, the Bank of Russia continued to pursue accommodative monetary policy. Driven by support measures, demand in the economy started to bounce back. However, disinflationary risks still persisted. Therefore, the Bank of Russia's forecast scenarios assumed that disinflationary factors might intensify due to the worsening of the pandemic situation in autumn 2020.

In early 2021, it became clear that the autumn resurgence in coronavirus cases had not provoked such a drastic effect for the economy as the spring wave. To the contrary, as households, businesses, and authorities had largely adjusted to the situation, the economy continued to recover. However, certain markets started to face demand and supply gaps, which aggravated proinflationary risks. The situation was exacerbated by a rise in households' and businesses' inflation expectations that are still not anchored at the target.

In March 2021, the Bank of Russia started to move away from the accommodative stance of monetary policy. This happened earlier than forecast in the previous Monetary Policy Guidelines. From March to October 2021, the Bank of Russia raised the key rate by a total of 3.25 pp to 7.50% p.a. The Bank of Russia's efforts were intended to bring annual inflation back to the target. According to the forecast, the monetary policy pursued will enable it to reach the target by the end of 2022. By the middle of 2021, the Bank of Russia mostly cancelled the regulatory easing granted to the banking sector earlier due to the pandemic. Moreover, in order to constrain the expansion of unsecured consumer lending, macroprudential measures were introduced on 1 October. In addition, possible new measures were admitted.

[1] *Over the period from February to July 2020, the Bank of Russia moved to accommodative monetary policy, cutting the key rate by a total of 2 pp, from 6.25% to 4.25% p.a. Moreover, the Bank of Russia introduced a complex of measures aiming to protect households' interests, support corporate borrowers, maintain the financial sector's potential to provide lending to the economy, and reduce the regulatory and supervisory burden. For details, refer to the Monetary Policy Guidelines for 2021–2023 (http://www.cbr.ru/s/256a).*

THE KEY RATE WAS KEPT UNCHANGED IN DECEMBER 2020–FEBRUARY 2021

Over this period, the Bank of Russia kept the key rate unchanged at 4.25% p.a., gradually tightening the signal regarding its future decisions.

Annual inflation sped up above the Bank of Russia's expectations, reaching 4.9% in December 2020 and 5.2% in February 2021. The growth rates of consumer prices reflecting the steadiest price movements also increased over this period and were close to or slightly above 4% in annualised terms.

In February 2021, the Bank of Russia raised its inflation forecast for the end of 2021 by 0.2 pp to 3.7–4.2%, taking into account higher actual price growth rates in late 2020–early 2021 and the situation observed in the economy. Annual inflation was expected to pass its peak in February–March 2021, slowing down incrementally further on amid a gradual weakening of the impact of supply-side proinflationary factors.

The disinflationary impact of demand was waning gradually. This was largely because the worsening pandemic in autumn 2020 had a much less constraining effect on the economy than the outbreak of the pandemic in spring 2020. The high-frequency indicators for November 2020–January 2021 evidenced that the economy continued to recover. The GDP statistics released in February 2021 confirmed that the economic decline in 2020 was less deep[2] than it could have been expected.

A faster return of the economy to the pre-crisis level was driven by a number of reasons. First of all, the restrictions imposed during the second wave of the pandemic were not as tight as in spring 2020. Moreover, by that moment, both households and businesses had largely adjusted to the new conditions. Combined with the progress in vaccine development and the start of the vaccination programmes in Russia and abroad, this considerably improved the situation in financial markets. Secondly, consumer demand bounced back, including owing to the savings that had not been used for foreign travel since the outbreak of the pandemic and an increase in online purchases. Thirdly, the recovery of the global economy accelerated, driven by expectations about fiscal stimulus measures in certain advanced economies amid unprecedentedly accommodative monetary policies pursued by the largest economies' central banks. This boosted the demand for Russian exports. Finally, the Russian Government's fiscal policy substantially supported the real sector as well.

Demand-side disinflationary factors became weaker, while the impact of supply-side proinflationary factors strengthened.

First of all, prices in global product markets, primarily food markets, trended upwards, which also affected domestic prices. The administrative measures implemented in these conditions by the Russian Government[3] partially limited the magnitude of inflationary pressure caused by the situation in global food markets.

Secondly, producers' prices were still affected by the weakening of the ruble in 2020 when price revision was limited due to the slump in demand after the outbreak of the pandemic.

Monetary conditions remained accommodative and supported economic recovery. Nominal interest rates on loans and deposits gradually adjusted amid accommodative

[2] *In 2020, GDP growth was -3.0%.*

[3] *More information is available on the website of the Government of the Russian Federation.*

monetary policy of 2020, stabilising at their record lows by the beginning of 2021. Furthermore, as inflation and inflation expectations rose, price lending conditions softened. Some banks also eased non-price lending conditions. Credit to the economy expanded. Lending growth was also significantly driven by the programmes subsidised by the Russian Government and the regulatory easing granted to credit institutions by the Bank of Russia.

In December–February, the Bank of Russia assumed that higher inflation expectations and related secondary effects could exacerbate the impact of proinflationary factors over the forecast horizon. First of all, these factors included, among other things, an increase in companies' costs due to disturbances in production and logistics chains, as well as additional anti-coronavirus measures implemented to protect employees and consumers. Second, proinflationary risks stemmed from a further rise in domestic prices for individual food products driven by supply-side factors and the situation in respective global markets. Third, there was a risk of higher volatility in global markets. Fourth, it was assumed that advanced economies might start monetary policy normalisation earlier. This could become an additional source of higher volatility in global financial markets, which could affect exchange rate and inflation expectations. Finally, the Bank of Russia also factored in possible decisions to invest the liquid part of the National Wealth Fund in excess of the threshold level set at 7% of GDP as these decisions could also boost demand even more.

According to the Bank of Russia, a further easing of monetary policy could increase proinflationary risks. In December, the Bank of Russia estimated the potential for decreasing the key rate as close to zero, whereas in February the regulator confirmed that there was no need to further ease monetary policy. The Bank of Russia announced that it would determine the time frame and pace for returning to neutral monetary policy. Nonetheless, the Bank of Russia assumed that monetary policy should remain accommodative on average throughout 2021, supporting the recovery of the Russian economy and helping stabilise inflation at the target.

THE KEY RATE WAS RAISED IN MARCH–OCTOBER 2021

In March–October 2021, the Bank of Russia raised the key rate by a total of 3.25 pp, to 7.50% p.a. The main reason for this increase was gradually intensifying proinflationary pressure caused by a faster rise in demand amid a slower recovery of supply, as well as a significant prevalence of proinflationary factors and risks over the forecast horizon.

Inflation continued to accelerate, exceeding the rate forecast by the Bank of Russia. The annual growth of consumer prices edged up from 5.67% as of the end of February to 7.41% in September. This is considerably above the Bank of Russia's target and is close to five-year peaks. Beginning from March, the steady component of inflation notably exceeded 4% in annualised terms as well.

According to the Bank of Russia's opinion, accelerated inflation during this period was largely associated with the sustained recovery of domestic demand. This process was significantly faster than expected by the Bank of Russia. The recovery was driven by the restrictions on foreign travel, as the funds not spent by households on foreign travel were partially redistributed and used to consume products and services inside the country.

Moreover, the growth of demand at the stage of the economic rebound surpassed the expansion of supply. Companies needed time to make decisions on investment in new production capacities. Furthermore, the portion of services in the structure of consumer

demand contracted, whereas the portion of non-food goods increased, which also caused supply-side bottlenecks. For instance, as people worked and studied from home, the demand for telecommunication devices soared, which considerably increased the demand for microcircuits. However, it was impossible to meet this demand instantaneously. The surged demand was covered only partially, which made it possible for companies to raise prices. As the economic rebound completed, supply-side constraints were becoming stronger, translating into price movements.

The impact of demand-side factors was intensified by elevated pressure caused by companies' increased costs. First of all, commodity prices surged amid the active recovery of demand in the global economy coupled with the slower adjustment of supply. Second, as global trade recovered quickly, prices for international container and other shipments increased. Third, companies replenished their stocks of components, which had decreased during the pandemic, or even sought to expand them above the earlier level so as to be protected against possible supply disruptions and a further rise in prices. Fourth, as certain industries faced staff shortages, labour costs rose.

Considering the combination of all the factors, the Bank of Russia revised its inflation forecast for the end of 2021 upwards three times from April. In October, it was increased to 7.4–7.9%.

Russia's economy returned to its pre-crisis level as early as 2021 Q2. However, this process was uneven. The domestic consumer demand for products completely recovered already in spring, with retail turnover exceeding the pre-pandemic level in March–April. The rebound of demand was boosted by the restoration of consumer goods output and its further expansion above pre-pandemic levels. Coupled with a surge in corporate profits, this supported investment demand and, accordingly, the output of investment goods.

Contrastingly, the recovery in consumer services was not that fast. Specifically, passenger transportation and international travel in August still remained considerably below the pre-crisis levels. A slower rebound in services was due to remaining anti-pandemic restrictions, rather than weak demand. Furthermore, output did not recover completely, specifically oil output because of the effect of the OPEC+ oil productions cuts. The July agreement increasing the Russian oil production quotas contributes to a further rebound in the industry.

Excluding services and mining, the economy returned to its pre-pandemic growth path by August. Moreover, manufacturing and non-food consumption even exceeded this path. Economic growth slowed down in Q3, which means the completion of the recovery stage. The steady growth started to influence the labour market as well. By July–August, the unemployment rate returned to its record lows, with the number of vacant jobs at its peaks.

Domestic demand was also driven by fiscal policy normalisation in Russia, along with the additional social and infrastructural measures announced in April.

Despite the challenging epidemic situation worldwide, external demand continued to trend upwards, boosted by additional fiscal support measures in certain advanced economies, higher vaccination rates worldwide, and a gradual cancellation of anti-pandemic restrictions in major economies. According to the Bank of Russia's estimates, the global economy will complete its rebound in 2021.

Considering the actual developments in the Russian and world economies, as well as the OPEC+ decision, in July the Bank of Russia raised its GDP forecast for 2021 to 4.0–

4.5% from 3.0–4.0% expected in February and April and confirmed the revised forecast in October. As estimated by the Bank of Russia, the economy will develop more smoothly further on, in line with the balanced-growth path. A possible acceleration of economic growth rates in the future will depend on fundamental factors, including a rise in labour productivity, production capacities, and an increase in labour resources. Taking into account the structural measures implemented by the Government (including those within the national projects), these growth rates may be 2.0–3.0% annually.

Monetary conditions gradually adjusted to the higher key rate. Banks started to raise their deposit and credit rates in April and May, respectively. Before that, interest rates predominantly stayed close to their record lows. In July–October, the adjustment of monetary conditions accelerated. Banks' transfer pricing curves and yields on short- and medium-term OFZ bonds quickly responded to the key rate increase and changes in monetary policy prospects the Bank of Russia had been reporting since the beginning of 2021. Furthermore, yields on long-term OFZ bonds remained stable since early March, evidencing investors' confidence in the Bank of Russia's ability to bring inflation to the target. In October, yields on medium- and long-term OFZ bonds edged up slightly, driven by trends in global financial markets.

Nonetheless, higher market rates had a limited effect on lending expansion amid elevated inflation expectations. Corporate lending increased at paces close to the highest levels of recent years. Mortgage lending surged, including owing to the subsidised government programmes effective in March–September, although their impact decreased since August after their parameters were changed. The growth of consumer lending remained fast and continued to accelerate. In order to cool down this segment, the Bank of Russia raised the risk-based buffers on 1 October and admitted the possibility of additional macroprudential measures. Furthermore, as deposit rates increased, households' demand for deposits rose. Pursuing its monetary policy, the Bank of Russia factored in that most of the anti-crisis regulatory measures were to be terminated by the middle of 2021.

According to the Bank of Russia' assessment, the balance of risks significantly shifted towards proinflationary ones in March–October. Alongside the proinflationary risks that the Bank of Russia noted in late 2020–early 2021, there was also a rise in the risks associated with increased inflation expectations. By October, households' inflation expectations had been staying close to five-year highs for several months already. This considerably pushed up prices and provoked the risks of a significant and longer-lasting deviation of inflation upwards from the target. Furthermore, the Bank of Russia considered that proinflationary risks also stemmed from a possible considerable decline in households' propensity to save due to low interest rates and price growth. Proinflationary risks resulting from structural shifts in the labour market caused by the pandemic persisted. According to the Bank of Russia, the growth rate of labour productivity could be slower than that of wages due to an increase in the structural shortage of labour resources.

Nevertheless, some inflation risks previously noted by the Bank of Russia began to materialise. First, in September–October, prices in global commodity markets resumed their upward trend after a certain stabilisation in June–August. Second, due to unfavourable weather conditions in the country, the grain and vegetable harvest is expected to be below expectations. Third, inflationary pressure in the world economy is growing. If it intensifies further, major economies' central banks may start monetary policy normalisation earlier, which might become an additional source of higher volatility in global financial markets.

In order to counter the risks of a more significant and longer-lasting deviation of inflation upwards from the target due to higher inflationary pressure, the Bank of Russia raised the key rate six times in March–October to 7.50% p.a.

Furthermore, as proinflationary risks materialised and the inflation forecasts were adjusted, the Bank of Russia's signal regarding its future actions remained tough in March–October. Thus, in October, the Bank of Russia admitted the possibility of further key rate increases in order to bring inflation back to the target.

The projected path of the key rate, which is an integral part of the Bank of Russia's forecast, also factored in the possibility of further key rate increases. In April, the Bank of Russia first published the ranges of the average key rate for a calendar year over the forecast horizon. In October, the projected path of the key rate for 2021 and 2022 was 5.7–5.8% p.a. and 7.3–8.3% p.a., respectively. Implementing its monetary policy, the Bank of Russia seeks to reduce annual inflation to 4.0–4.5% in 2022 and maintain it close to 4% further on.

BOX 7.
IMPACT OF THE PANDEMIC ON STRUCTURAL SHIFTS IN THE ECONOMY

The outbreak of the coronavirus pandemic in 2020 and the related anti-pandemic measures were the reason for considerable shifts in the Russian economy. Some of these changes were transitory and temporarily increased the growth rates and volatility of prices for certain products and services (refer to Appendix 4 'Non-monetary inflation factors in 2021'). However, the pandemic has also induced a range of long-term consequences: many office employees still work from home, digitalisation has accelerated, multiple services are now provided online, and some of the earlier imposed anti-pandemic restrictions still remain in place. These shifts may have a longer-lasting influence on output, the labour market, consumer behaviour, and, ultimately, inflation.

Output

The impact of the coronavirus pandemic on economic activity in various industries was uneven, which altered the structure of the country's output. The oil and gas industry and services, including passenger transportation and tourism, were affected most significantly. Contrastingly, the pandemic situation boosted output in a range of sectors, specifically the manufacture of medical goods (pharmaceuticals and vaccines) and healthcare and courier services. In January–August 2021, the output of pharmaceuticals and medical products exceeded the level of January–August 2019 by 42%. The value of paid medical services provided in January–August 2021 rose by 14.8% compared to the same period of 2019, and the value of postal and courier services to households – by 16.5%, with the overall value of commercial services decreasing by 1.4%. The expansion of output in the pharmaceutical industry may turn out to be long-term if the coronavirus becomes a seasonal disease and requires annual revaccination of considerable part of the population and, accordingly, a larger output of vaccines compared to the pre-pandemic levels.

Labour market

As the need to expand output increased during the pandemic, pharmaceutical enterprises, healthcare institutions, and courier firms demonstrated higher demand for labour force. As a result, employment in the pharmaceutical industry was up, with nominal wages rising notably. A shortage of employees in healthcare also boosted wages, with the number of doctors increasing.

The opportunities to hire more couriers were limited due to the reduction in the number of labour migrants who entered Russia in 2020. According to the Ministry of Internal Affairs, it issued only 1.1 million work patents and 63,000 work permits[1] (vs 1.8 million patents and 127,00 permits in 2019). In 2021, the inflow of labour migrants increased: in January–September, they received 1.6 million patents and 63,000 permits for work in Russia. The shortage of labour migrants was most noticeable in construction, agriculture, and mining and quarrying.[2]

The deficit of workers of certain occupations increased companies' labour and recruitment costs. Specifically, this became one of the reasons behind the overall growth of costs in the pharmaceutical industry. As demand was elevated, enterprises passed higher costs on to ultimate

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[1] *Russia issues work permits to migrants from the countries with which Russia signed visa regime agreements. Work patents are issued to migrants from the countries for which Russia does not require visas (e.g. Ukraine, Uzbekistan, Azerbaijan, and Tajikistan). Migrants from the EAEU member states (Belarus, Kazakhstan, Armenia, and Kyrgyzstan) are allowed to work in Russia without any special permits.*

[2] *For details about the shortage of labour migrants, see Box 1 in the report Regional Economy: Commentaries by Bank of Russia Main Branches (No. 2, February 2021) (http://www.cbr.ru/s/256e).*

CHANGE IN THE NUMBER OF EMPLOYEES AND NOMINAL WAGES IN INDIVIDUAL INDUSTRIES IN 2020 VS 2019
(%)

Table B-7-1

	Number of employees[1]	Nominal wage
Total for the economy	-1.3	7.3
Manufacture of pharmaceuticals and medical products	4.3	15.4
Operation of hospitals	1.5	16.8
incl. work of doctors in healthcare	3.1	

[1] Excluding external part-time and non-payroll workers.
Sources: Rosstat, Bank of Russia calculations.

prices. Consequently, the growth rates of prices for a large number of medical goods were high in 2020–2021 H1.

Consumer behaviour

As a large number of office employees were transferred to work from home, **the demand for rental housing in cities decreased in spring–summer 2020**. As a result, rental rates in the housing market lowered. Over March–June 2020, the average rent for a one-bedroom flat across Russia declined by 0.6%. Further on, the easing of restrictions contributed to a partial recovery of demand.

Beginning from 2020, **the demand for renting and buying housing in the suburbs near large cities soared**. According to data from CIAN, August 2021 recorded a surge in the demand[3] for country houses, rising by 70–80% in the Moscow Region and by 130–140% in the Leningrad Region, as compared to the pre-pandemic level.

The housing market in general also recorded higher demand. This upward trend was driven by the subsidised mortgage lending programme for housing under construction launched in spring 2020 and a decrease in market mortgage rates in spring–summer 2020. Housing prices[4] soared due to higher demand, coupled with limited supply. Furthermore, the demand for home improvement goods, including furniture and construction materials, also increased. This growth, combined with higher global prices for metals and timber, accelerated the rise in consumer prices for these goods. Demand in the housing market rises faster than supply, encouraging developers to increase the volumes of construction. According to the information from наш.дом.рф, the area of apartment buildings under construction expanded from 91.7 to 98.9 million square metres over the period from February to October 2021. Higher construction volumes will increase the commissioning of residential real estate and stabilise housing prices in the next few years.

Moreover, as a considerable number of office workers were transferred to work from home in 2020, this also boosted the **demand for personal computers and notebooks** needed for telecommuting. In 2020, computer sales soared by 34% year-on-year, whereas overall retail turnover edged down by 3.2%. Higher demand and problems with supplies of certain electronic components, caused by disruptions in international logistics chains, sped up the growth of prices for personal computers in 2020 H2–early 2021. The annual growth of PC prices peaked in February 2021, reaching 5.5%. Contrastingly, before the pandemic, PC prices had been predominantly falling (from January 2016 to January 2020, they declined by 4.4%). Beginning

[3] The number of search queries for countryside housing. Source: www.cian.ru/analitika-nedvizhimosti-online, the data are given beginning from January 2020.

[4] Over the two years (2019 Q3–2021 Q2), price growth in the primary and secondary markets reached 32% and 21%, respectively.

PRICE GROWTH FOR INDIVIDUAL GROUPS OF GOODS AND SERVICES IN SEPTEMBER 2021 VS SEPTEMBER 2019
(%)

Table B-7-2

Group of goods or services	Price growth
Construction materials	31.5
– incl. metal tile	66.9
– sawn lumber	84.0
Hotels and other accommodation	18.5
Furniture	15.3
Overall inflation	11.3
Resort and health services	9.1
Cultural services	8.6
Public catering	7.9
Clothes and underwear	4.5
Leather, textile and combined footwear	3.3
Air fares	-6.1

Sources: Rosstat, Bank of Russia calculations.

from March 2021, computer price growth started to slow down, including because employees were returning from remote work to offices.

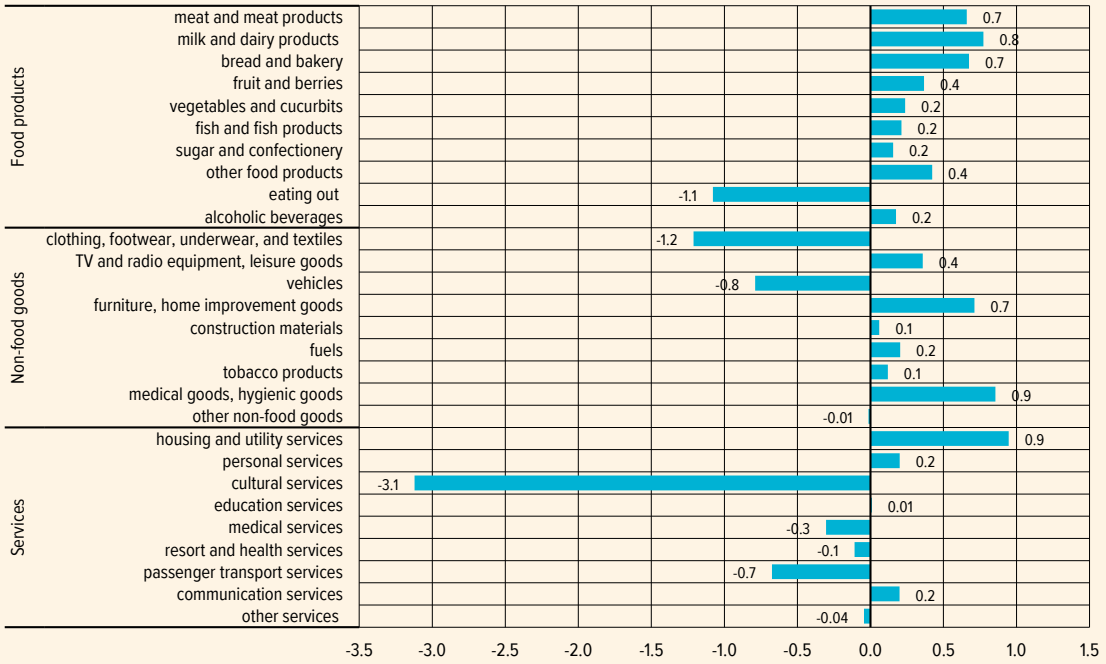
The **consumption of paid services decreased in 2020**, recovering in 2021 more slowly than the consumption of products. As of the end of the period from January through August 2021, the consumption of services remained below the pre-pandemic level. Rosstat's household survey shows that the portion of expenses for cultural institutions' services contracted most significantly in the structure of consumer expenses (from 5.5% in 2019 to 2.3% in 2020), which also impacted the growth rate of prices for these services, rising over the pandemic period less than overall inflation. Conversely, the demand for online cinemas' services increased in Russia. According to TMT Consulting's assessment based on data of the platforms providing access to video content, their total revenue in Russia surged by 66% over 2020, with the overall audience expanding by 17% to 63 million people. Online cinemas will probably remain popular after the pandemic as well. This may be driven by a higher number of users having permanent subscriptions: the portion of Russian households with such subscriptions rose to 15% in 2020 from 10% in 2019.

Over 2020, **the shares of expenses for public catering services and clothing and footwear purchases** also declined considerably in the structure of consumer expenses. In 2021, the demand for these product categories bounced back partially. Clothing sales recovered in 2021 Q1 to the pre-pandemic level of 2019 Q1. Furthermore, the share of online sales in both clothing sales and retail in general increased significantly over the pandemic period. According to Rosstat, the portion of online sales in the overall retail turnover of large and medium-sized enterprises edged up to 6.9% in August 2021 (vs 3.9% in January 2020). Public catering did not bounce back to the pre-pandemic level in January–August 2021. Weak demand in these product groups also influenced prices which rose in 2020–2021 considerably less as compared to overall inflation.

As the restrictions on domestic travel were lifted, with the restrictions on foreign travel remaining, **the demand for domestic tourism services** and trips to open foreign destinations, as well as the demand for buying real estate in resort and coastal areas increased in 2020–

CHANGE IN THE SHARES OF GOODS AND SERVICES GROUPS IN THE STRUCTURE OF HOUSEHOLD CONSUMER SPENDING IN 2020
(pp)

Chart B-7-1



Source: Rosstat.

2021. This spurred price volatility in the tourism and air transportation markets and price growth in the real estate markets of resort cities. In the Krasnodar Territory, which is the main resort area of Russia, housing prices in the primary market surged by 64% over the two years (from 2019 Q3 through 2021 Q2). If the demand for holidays inside Russia remains high, it may boost investment in tourism infrastructure in Russian regions. This will increase the attractiveness of domestic and inbound tourism in Russia after the restrictions on foreign travel are cancelled and will contribute to the development of related industries (transport, public catering, and cultural institutions).

The coronavirus pandemic caused significant shifts in the structure of goods and services demand and supply and increased manufacturers' costs. As a result, price growth sped up drastically. As the supply structure adjusts to the changes in demand, anti-pandemic restrictions are eased further, and the measures approved by the Government are implemented, as well as given the monetary policy pursued by the Bank of Russia, inflation will slow down, stabilising close to 4%.

BOX 8.
PERMANENT FACTORS THAT INFLUENCED INFLATION IN 2021

when making monetary policy decisions, it is essential for the Bank of Russia to estimate the duration of factors influencing the economy and price movements, and the stability of existing economic trends. Inflation is impacted by a large number of factors, while only a part of them can be influenced by monetary policy. Specifically, if the impact of a particular factor abates in a few months, any response to such factor in a situation where price expectations are anchored would only exacerbate price volatility. Contrastingly, monetary policy measures may be used to influence medium-term factors involving a mismatch in demand trends and the potential to ramp up supply.

Hence, when analysing inflation, it is important to identify the effects of one-off factors on price dynamics and distinguish a steadier 'core' in the indicators of price movements, or underlying inflation, which provides an understanding of medium-term price trends and the risks of an inflation deviation from the Bank of Russia's target (close to 4%). Although the inflation target is set as an annual growth rate of consumer prices, current price movements are most often analysed using monthly growth rates (hereinafter, seasonally adjusted, or SA) and the three-month moving average (hereinafter, 3MMA) growth rate of the CPI. **Today, the acceleration of inflation is observed simultaneously across a wide range of products and services. This is associated with the recovery of demand surpassing the potential to expand supply and elevated inflation expectations, which are the steadiest factors.**

In order to identify underlying inflation, the Bank of Russia uses a broad set of indicators formed based on various approaches,[1] such as elimination of volatile and regulated components, the truncation method for products and services with the highest and lowest or the most volatile price growth rates, and econometric approaches for the model-based assessment of the monetary component. The annualised (SA) assessments of underlying inflation for January–September 2021 averaged 4.3–8.6%, whereas in 2020 this range was 2.1–5.1%. All assessments of underlying inflation in 2021 H1 were higher than in 2020 and exceeded 4%. This is evidence that price growth accelerated above the target in 2021 persistently and across a broad range of products and services. For instance, price growth sped up in September 2021 (both year-on-year and vs 3MMA) compared to September 2020 for nearly 75% of products and services. It should be emphasised that the existing inflation processes are uneven across all components. This implies the dominant influence of general factors, that is, demand-side factors relative to supply (i.e. an output gap, refer to Box 12 'Concept of economic equilibrium and deviations of key macroeconomic variables from such equilibrium (gaps)').

This is the steady increase in demand exceeding the potential to ramp up supply which is most often referred to as the main reason for the persistent acceleration of inflation. Where demand rises faster than supply, sales grow (demand inflation) along with prices. In 2021, the two-year moving growth rate of food retail sales turned positive, while that of non-food sales sped up to a record high. Moreover, as regards those durable goods for which prices started to increase considerably faster, including computers, cars, refrigerators, and washing machines, the two-year growth rate reached double digits in 2021 H1. Hence, the expansion of retail sales indirectly implies that higher demand is the prevailing factor influencing price trends.

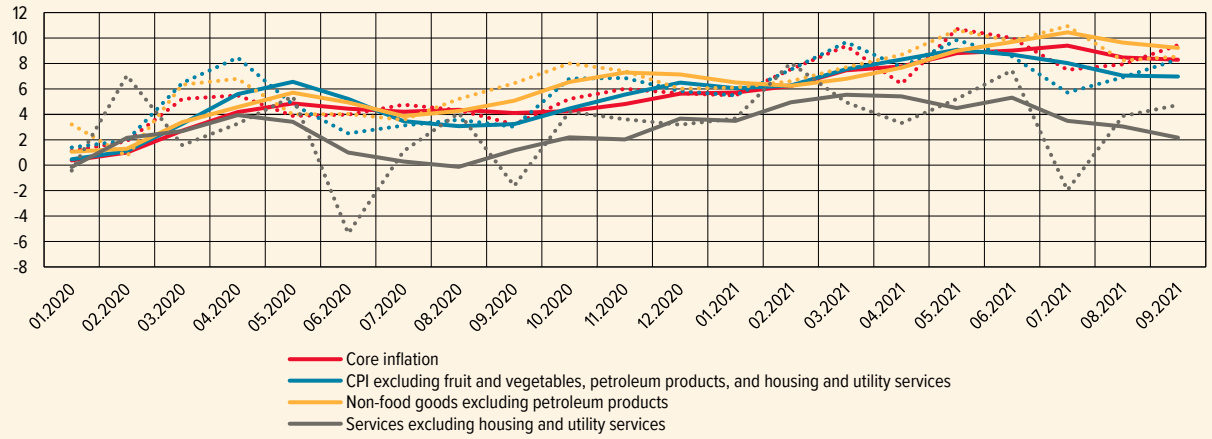
Pursuing its monetary policy, the Bank of Russia takes into account that, where inflation expectations are not anchored, one-off factors accelerating inflation may transform into steady ones. Elevated inflation expectations boost demand and increase the extent of the pass-through of higher costs to consumers. Consumers seek to spend their incomes and partially savings

[1] *Refer to Appendix 3 to the Monetary Policy Guidelines for 2021–2023 (http://www.cbr.ru/s/256a).*

mainly on durable goods. This pushes up prices, which in turn affects expectations. If they are not anchored at the target, this provokes the risk of a persistent rise in inflation, that is, an acceleration of the inflationary spiral, which the Bank of Russia seeks to prevent by implementing monetary policy measures. In 2021, households' inflation expectations rose, reaching their peak recorded in November 2016 (refer to Appendix 5 'Households' and businesses' perception of inflation: survey results'). Inflation expectations are strongly responsive: the main driver of the increase was spikes in prices for individual goods, most often food products. Thus, factors originating as transitory ones might have longer-lasting secondary effects. Moreover, when unanchored, households' responsive inflation expectations generate high proinflationary risks.

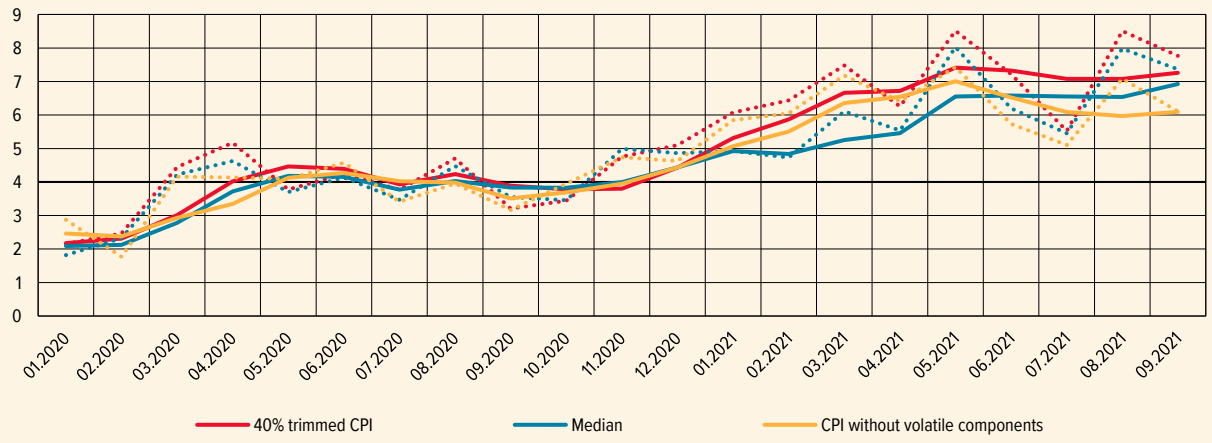
Overall, inflation sped up in 2021 across a wide range of products and services, predominantly driven by steady factors, including the recovery of demand outpacing the potential to expand supply and the growth of inflation expectations. Accommodative monetary conditions may bring about serious risks for medium-term price stability. The shift towards neutral monetary policy and its further tightening contribute to changes in households' economic behaviour, decrease inflation expectations, and slow down price growth.

ANNUALISED INFLATION EXCLUDING VOLATILE AND REGULATED COMPONENTS *Chart B-8-1*
(the solid line shows average price growth for three months, the dashed line – for one month)



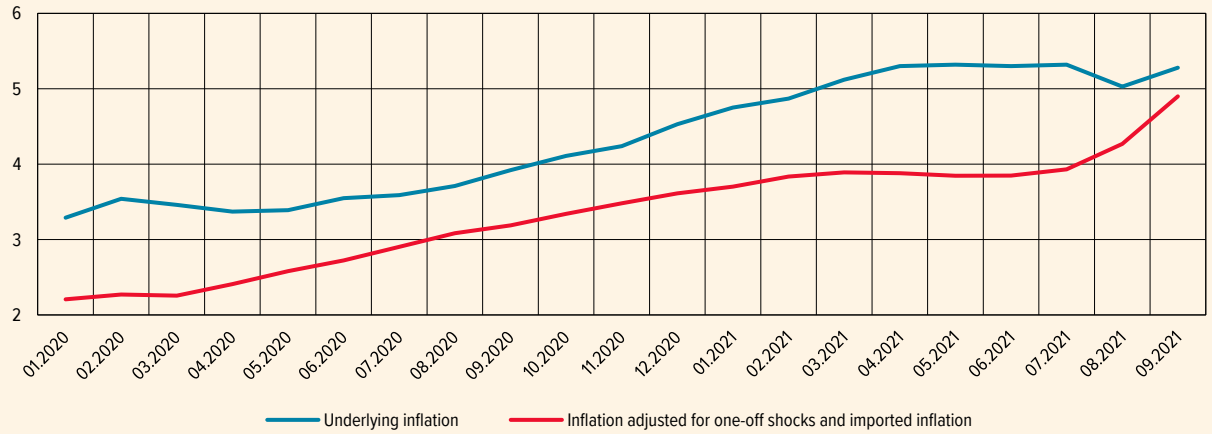
Source: Bank of Russia.

ANNAULISED TRIMMED MEASURES OF INFLATION *Chart B-8-2*
(the solid line shows average price growth for three months, the dashed line – for one month)



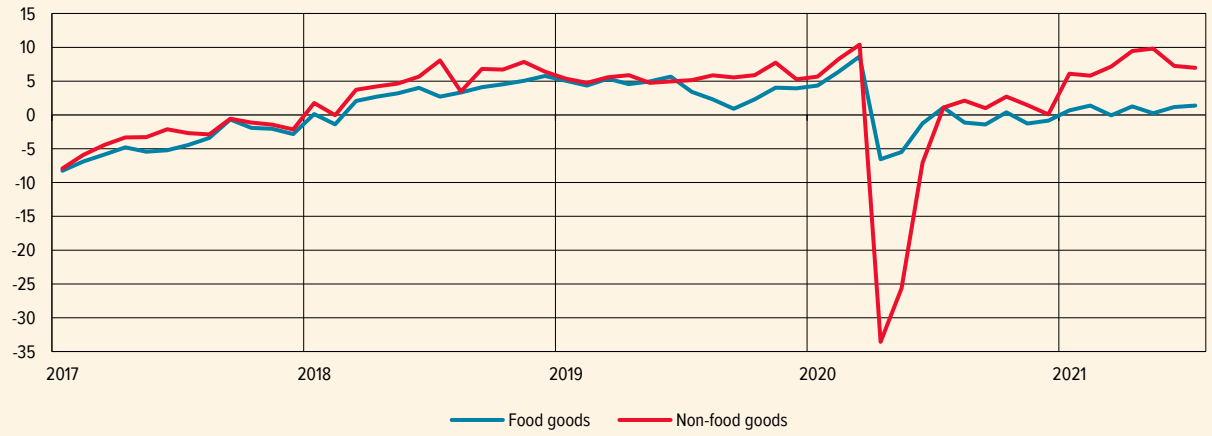
Source: Bank of Russia.

UNDERLYING INFLATION ESTIMATES USING ECONOMETRIC TOOLS *Chart B-8-3*
(% change on the same month of the previous year)



Source: Bank of Russia.

RETAIL TURNOVER *Chart B-8-4*
(growth rate over two years, %)



Source: Bank of Russia.

4. MONETARY POLICY OPERATIONAL PROCEDURE IN 2021–2024

OPERATIONAL OBJECTIVE AND INSTRUMENT SYSTEM OF MONETARY POLICY

Within the inflation targeting strategy, the Bank of Russia's monetary policy influences economic activity and inflation predominantly through the interest rate channel. Using the system of monetary policy instruments, the Bank of Russia translates its key rate decisions into interbank market rates and, then, other interest rates in the economy. Accordingly, the operational objective of the Bank of Russia's monetary policy is to keep overnight money market rates close to the key rate. The Bank of Russia considers RUONIA (Ruble Overnight Index Average), which is the weighted average interest rate on unsecured overnight interbank ruble loans (deposits), as the main indicator of the cost of borrowing in the overnight segment. This market segment is the target one because interest rates forming therein act as the benchmark for the majority of interest rates in the economy and because the Bank of Russia is able to almost directly impact their levels using its instruments.

In order to achieve its operational objective, the Bank of Russia employs standard liquidity management instruments and the interest rate corridor. According to the Bank of Russia's regulations, banks must maintain required reserves, i.e. certain balances of funds in their accounts, primarily correspondent accounts. Thereby, the Bank of Russia establishes a required end-of-day level of liquidity both for every particular bank and for the banking sector as a whole. If, as a result of changes in the amount of cash in circulation, budget operations or other factors, the balance in banks' correspondent accounts is forecast to be above or below the level that banks need to comply with the reserve requirements and process client payments, the Bank of Russia will, respectively, absorb or provide funds through its auctions.[1] The Bank of Russia thus creates the conditions promoting an equilibrium in the overnight segment of the money market and the efficient functioning of the interest rate corridor. The upper and lower bounds of the latter are determined by interest rates on overnight standing facilities, while the centre corresponds to the key rate. The interest rate corridor equalling 200 bp forms the maximum and minimal alternative cost of borrowing and depositing in the interbank market, thus limiting fluctuations in market rates and bringing them closer to the key rate.

Auctions and standing facilities to provide and absorb liquidity are among the standard instruments of monetary policy. Amid the currently existing structural liquidity surplus, the Bank of Russia regularly absorbs excess liquidity for a one-week period at its deposit auctions that are normally held on Tuesdays. If the situation alters causing a structural liquidity deficit, the Bank of Russia will launch its repo auctions to provide liquidity for a one-week period as well. The maximum (minimum) rate for credit institutions to place their excessive liquidity with the Bank of Russia (raise funds from the Bank of Russia) at the auctions equals the Bank of Russia key rate.

[1] *Banks have the right to average required reserves in their correspondent accounts, that is, to maintain the required amount of funds not every evening, but rather on average over the period of 4 to 5 weeks, which makes it possible to flexibly respond to significant changes in the liquidity level, helping stabilise market rates.*

Along with the main one-week auctions, the system of monetary policy instruments also comprises auctions to absorb and provide funds for longer periods. Currently, the Bank of Russia additionally absorbs the stablest portion of excess liquidity by issuing three-month coupon bonds. The Bank of Russia continues to carry out regular one-month and one-year repo auctions to provide liquidity so as to offset locally uneven liquidity distribution. Furthermore, in order to promptly respond to factors that may entail a material deviation of overnight interest rates from the key rate, the Bank of Russia conducts fine-tuning deposit and repo auctions and fine-tuning FX swap for periods from one to six days.

The Bank of Russia's monetary policy operational procedure enables the regulator to efficiently manage money market rates both when there is a surplus of liquidity, as now, and a deficit. The Bank of Russia continues to enhance the technical level and usability of its operations by credit institutions.

ACHIEVING THE OPERATIONAL OBJECTIVE OF MONETARY POLICY

In 2021, overnight interbank rates in the money market were mostly in the lower half of the Bank of Russia interest rate corridor. In January–the first half of October 2021, the average absolute deviation of RUONIA from the Bank of Russia key rate (spread) expanded by 1 bp against the previous year, to reach 18 bp (vs the average of 17 bp in 2020). The spread volatility increased to 21 bp over January–the first half of October 2021 (vs 18 bp in 2020).

In January–February 2021, due to the Federal Treasury's operations, the absolute value of the spread and its volatility edged up slightly. Specifically, the amount of funds offered by the Federal Treasury for depositing with banks declined in early 2021, which is the period of outflows through the budget channel. As a result, the demand for liquidity was up, with RUONIA rising above the Bank of Russia key rate. At the beginning of February, the Federal Treasury increased the amounts of its operations, following which the demand for liquidity in the market lowered and the spread between RUONIA and the Bank of Russia key rate returned to negative territory.

Over 2021, movements of market rates in the overnight segment were largely influenced by banks' expectations regarding an increase in the Bank of Russia key rate. In accordance with the decisions made by the Bank of Russia Board of Directors, the key rate was raised by a total of 3.25 pp in March–October, namely from 4.25% to 7.50% p.a. The Bank of Russia's communication helped market participants form their expectations regarding future changes in the key rate. These expectations impacted the interest rates on banks' transactions in the market. Specifically, the spread between RUONIA and the Bank of Russia key rate narrowed slightly at the beginning of the March and April required reserves averaging periods, while remaining negative, but then turned positive before the meetings of the Bank of Russia Board of Directors on 11 June, 23 July, 10 September, and 22 October. This influenced liquidity management strategies pursued by banks. During the required reserves averaging periods, when the Bank of Russia raised the key rate, banks were seeking to make their required reserves averaging slightly earlier in order to later on deposit more funds with the Bank of Russia or in the money market at higher interest rates. Therefore, at the beginning of the averaging periods, banks maintained high balances in their correspondent accounts and were reluctant to place funds in the money market

and with the Bank of Russia, whereas after the decisions made by the Bank of Russia Board of Directors and considering the earlier significant required reserves averaging, credit institutions expanded liquidity supply and market rates dropped temporarily.

The Bank of Russia's estimates suggest that if the liquidity surplus remains, the negative spread between market rates and the key rate will not exceed 25 bp.

LIQUIDITY FACTORS AND LIQUIDITY FORECAST

In 2020–2021, the banking sector predominantly had a structural liquidity surplus. This implies that funds in credit institutions' correspondent accounts exceeded the amount they needed to comply with the reserve requirements and process client payments. For this reason, the Bank of Russia continued to hold deposit auctions and offer coupon bonds. Over certain periods at the end of December 2020 and in the second half of January–early February 2021, the banking sector had a temporary liquidity deficit. During these periods, the amount of refinancing raised by credit institutions from the Bank of Russia, including through specialised refinancing facilities and long-term repo auctions, exceeded the amount of their deposits with the Bank of Russia and investments in coupon bonds. The inflow of funds into banks resumed at the beginning of February. As a result, the banking sector returned to a steady liquidity surplus by the middle of the month.

In 2020, the liquidity situation altered considerably due to diverse effects of changes in budget operations. The structural balance of liquidity across the required reserve averaging periods[2] reversed from a deficit of 0.02 trillion rubles to a surplus of 3.8 million rubles. As of the end of 2020, the surplus totalled 0.2 trillion rubles, which is beneath the Bank of Russia's forecast of 1.0–1.4 trillion rubles presented in the Monetary Policy Guidelines for 2021–2023. The main reasons behind this deviation were a smaller-than-expected liquidity inflow via the budget channel and a larger liquidity outflow in December.

In December 2020, the outflow of liquidity was mainly driven by the seasonal increase in the amount of cash in circulation. This outflow was comparable with the last year reading as economic agents did not return the earlier withdrawn cash to banks, while credit institutions were replenishing their cash offices and ATMs in amounts equivalent to those in December 2019. However, the Bank of Russia's forecast included the assumption that a rise in the demand for cash would be lower owing to the already existing holdings. Eventually, the outflow of liquidity due to cash as of the end of the year turned out to be larger than expected.

Furthermore, the inflow of liquidity due to a seasonally large amount of budget account operations turned out to be considerably smaller than expected. This was associated with higher tax revenues and reduced budget spending, the impact of which was not fully offset by a corresponding increase in operations carried out by the Federal Treasury and other budget process participants to place temporarily available funds with banks, as was assumed by the Bank of Russia.

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[2] *The analysis covers the averaging periods from 15 January 2020 to 12 January 2021. The average value of the balance of liquidity over a required reserves averaging period enables a more objective assessment (as compared to the analysis of the value as of a specific date) of how long-term factors (namely budget operations and changes in the amount of cash in circulation) influence the banking sector liquidity and reduces the effect of temporary strategies pursued by individual credit institutions to manage balances of funds in their correspondent accounts.*

The liquidity deficit in January and at the beginning of February 2021 formed predominantly due to one-off factors, namely changes in fiscal flows and banks' strategies for required reserves averaging. Due to seasonal factors, budget revenues exceed expenditures at the beginning of the year. However, in 2021, there was no offsetting rise in the Federal Treasury's placements of temporarily available budgetary funds. Beginning from February, the inflow of liquidity under the Federal Treasury's operations resumed. The amount of these operations significantly exceeded the outflow of funds caused by the seasonal excess of budget revenues over expenditures and the increased amount of OFZ placements in the domestic market by Russia's Ministry of Finance. Eventually, the structural liquidity surplus totalled 1.3 trillion rubles as of the beginning of October 2021.

Overall, in January–October 2021, tax payments to the budget continued to recover, surpassing the levels of both 2020 and 2019. Concurrently, budget expenditures were seasonally low. Their increase in certain months was driven by one-off factors, such as the indexation of social benefits, subsidies paid to banks under the Payroll Fund 2.03 programme,[3] and money transfers to banks to then make one-time payments. The outflow of liquidity from banks resulting from the excess of budget revenues over expenditures and OFZ placements was partially offset by the operations of Russia's Ministry of Finance to purchase foreign currency in the domestic market within the fiscal rule. However, the main driver of the inflow of liquidity through the fiscal channel in 2021 H1 was the operations of the Federal Treasury to place temporarily available budgetary funds. Beginning from 2021, a considerable portion of funds of the constituent budgets of the budget system is accumulated in the Treasury Single Account. As a result, the Federal Treasury may now place not only funds earlier held in the single account of the federal budget, but also funds held in other accounts with the Bank of Russia. Furthermore, in March, a part of the Bank of Russia's profit from the sale of the equity stake in Sberbank amounting to 0.2 trillion rubles was credited into the Treasury Single Account, which also expanded the Federal Treasury's opportunities to place additional funds with banks.

In January–October 2021, changes in the amount of cash in circulation generally returned to the pre-pandemic path. At the beginning of the year, after the New Year holidays, the amount of cash in circulation decreased, which is typical of this season. Nonetheless, the inflow of funds due to this factor was smaller than in previous years. The reduction in the amounts of cash withdrawals and deposits at the cash desks of the Bank of Russia and credit institutions could be associated with a higher portion of cashless payments. Moreover, cash holdings formed throughout 2020 are still used to make settlements.

Before the May holidays, the demand for cash edged up temporarily. As in the same periods of previous years, credit institutions were replenishing their cash offices and ATMs. However, due to the larger number of non-work days that were announced, the outflow of liquidity from banks exceeded the seasonal averages. Nonetheless, already in May, after the collection of retailers' earnings, these funds returned to banks in comparable amounts.

Banks somewhat increased the demand for liquidity due to the growth of required reserves to be maintained by banks with the Bank of Russia, which resulted from the expansion of the deposit base and the foreign currency revaluation of credit institutions' liabilities.

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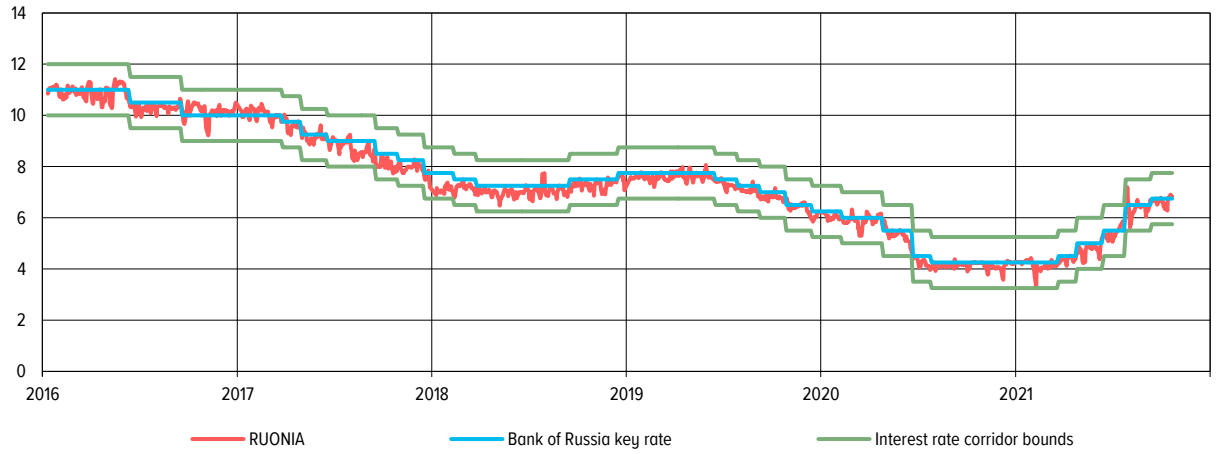
[3] *Payroll Fund 2.0 is a credit programme launched to maintain employment (loans at the interest rate of 2% p.a. for a borrower with writing-off, provided that it maintains employment).*

MONEY MARKET RATES
(% p.a.)

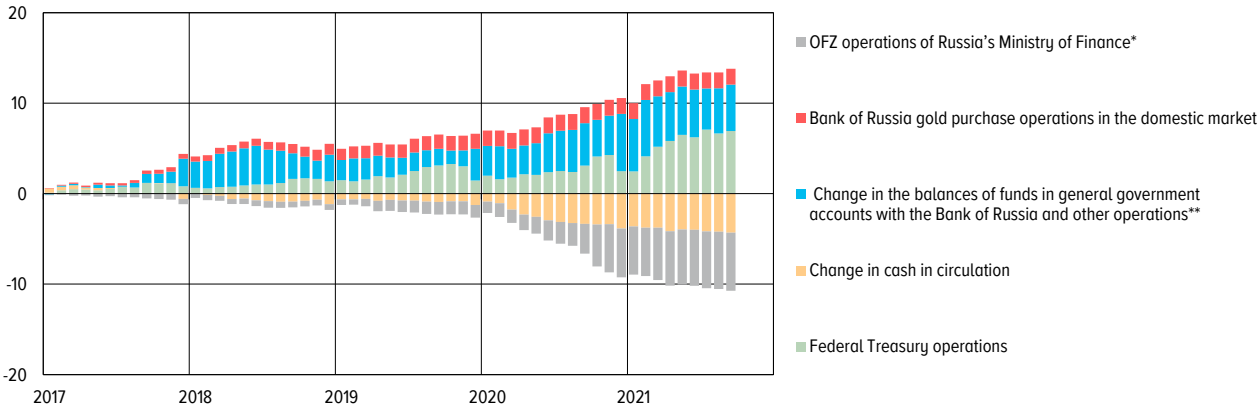
Chart 4.1



Source: Bank of Russia.

FACTORS OF BANKING SECTOR LIQUIDITY
(cumulative, trillion rubles)

Chart 4.2



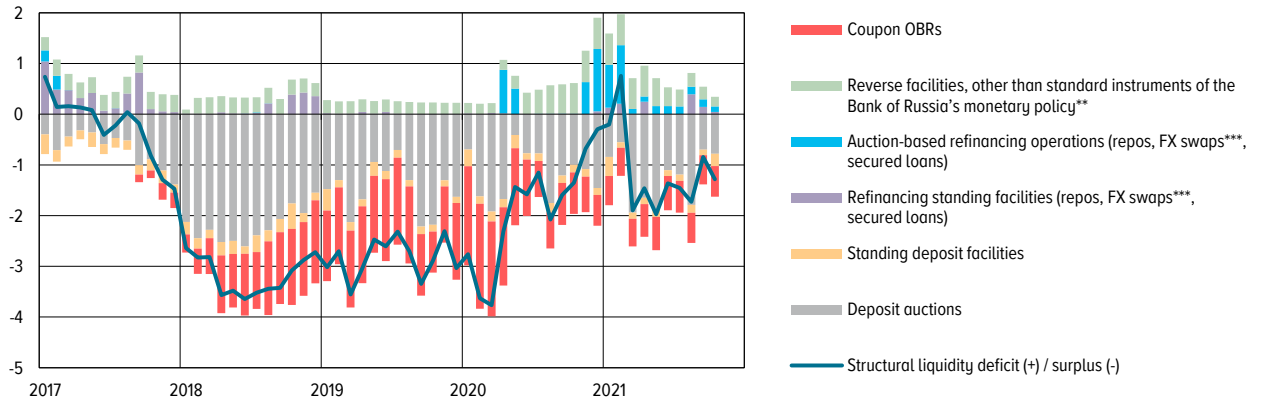
** Coupon payments factored in.*
*** Excluding Federal Treasury deposit, repo and swap operations, Federal Treasury operations to place funds in bank accounts with credit institutions, and OFZ operations of Russia's Ministry of Finance, including operations of Russia's Ministry of Finance to buy (sell) foreign currency in the domestic FX market, settlements on Bank of Russia USD/RUB sell/buy FX swaps, and other operations.*
Source: Bank of Russia.

According to the Bank of Russia's estimate, the liquidity surplus will reach 0.6–1.0 trillion rubles as of the end of 2021. As before, another assumption of the forecast implies a uniform averaging of required reserves by banks and an increase in the averaged part of required reserves proportionally to money supply growth (according to the national definition). Considering the above and assuming that the Federal Treasury's operations to manage temporarily available balances of budgetary funds and the implementation of the budget rule effectively reduce the net impact of budget operations on the level of banking sector liquidity, the structural surplus over the December averaging period will average 0.6–1.0 trillion rubles.

Cash is expected to gradually return to banks in 2022–2023, after the rise in the demand for cash during the pandemic period in 2020. The amount of cash in circulation will increase by 0.6–0.7 trillion rubles in 2021. In addition, the Federal Treasury is forecast to reduce the balances of budgetary funds in the Treasury Single Account with the Bank of Russia as of

STRUCTURE OF BANK OF RUSSIA OPERATIONS*
(trillion rubles)

Chart 4.3



** Bank of Russia claims on credit institutions under refinancing instruments /Bank of Russia liabilities to credit institutions on excess liquidity absorbing instruments as of start of business.*
*** Bank of Russia specialised refinancing instruments, Bank of Russia loans issued within irrevocable credit lines, and USD/RUB and EUR/RUB sell/buy FX swaps.*
**** Bank of Russia USD/RUB and EUR/RUB buy/sell FX swaps.*
Source: Bank of Russia.

the end of the year. As a result, the funds to be placed by the budget system with banks will exceed previous years' amounts. It is estimated that another 1.6–1.8 trillion rubles may be deposited with banks as of the end of the year. Furthermore, an inflow of liquidity in the amount of 0.2 trillion rubles will be ensured by budget expenditures to be financed using the profit received by the Bank of Russia from the sale of the equity stake in Sberbank in 2020.

Further on, the liquidity surplus may decline over the three-year horizon and even reverse to a deficit. Specifically, the Bank of Russia estimates in its baseline scenario that the liquidity surplus will approach zero as of the end of 2024. The Global Inflation and the Worsening Pandemic scenarios predict a possible liquidity deficit amounting to 0.2–0.3 trillion rubles. These estimates are based on the key parameters of the Bank of Russia's macroeconomic forecast and the budget projections of Russia's Ministry of Finance (refer to Section 2 'Macroeconomic scenarios and monetary policy in 2021–2024').

THE USE OF MONETARY POLICY INSTRUMENTS

In 2021, in the conditions of a structural liquidity surplus, the Bank of Russia, as before, used one-week deposit auctions as the main operations in order to achieve the operational objective of monetary policy. The Bank of Russia also continued to hold fine-tuning deposit auctions in order to bring overnight interest rates closer to the key rate at the end of required reserve averaging periods when the money market commonly experiences an excess supply of liquidity.

At the beginning of 2021, due to the outflow of liquidity through the budget channel, the Bank of Russia reduced supply at one-week deposit auctions. Over the January averaging period, the average amount deposited per day at one-week auctions approximated 0.8 trillion rubles. After the liquidity inflow resumed under the Federal Treasury's operations to place temporarily available budgetary funds with banks, the amount of funds at one-week deposit auctions increased, averaging 1.3 trillion per day, over the February–September

averaging periods. In 2021, the Bank of Russia continued to issue coupon bonds to absorb a steady excess of liquidity for longer periods. The amount of their offerings in January–September changed only slightly, ranging from 0.5 to 0.7 trillion rubles. This level ensured flexibility in managing liquidity through one-week deposit auctions. However, amid the decrease in the structural liquidity surplus at the end of the year, the Bank of Russia decided in September 2021 to suspend the placement of the 49th issue and not to place further issues of Bank of Russia coupon bonds in order to maintain flexibility in managing liquidity through one-week deposit auctions.

The Bank of Russia continued to carry out one-month repo auctions at a fixed interest rate and one-year repo auctions at a floating interest rate in order to enable, as before, individual credit institutions to offset temporarily uneven liquidity distribution. However, banks expectedly reduced their demand for liquidity in February due to the inflow of funds through the fiscal channel. Banks repaid their debt on these operations almost completely, and the demand for the one-month repo action in February amounted to 0.05 trillion rubles. In April, the Bank of Russia reduced the maximum amount of funding provided at its one-month repo auction from 1.5 to 0.1 trillion rubles. At the same time, banks slightly increased their demand for these operations, and debt remained at the level of 0.1 trillion rubles. In the future, where needed, the limits at one-month and one-year repo auctions may be revised depending on the liquidity situation in the banking sector.

In 2021, the demand for standing lending facilities secured by non-marketable assets increased in certain periods, which was generally because systemically important credit institutions must comply with the requirements for the liquidity coverage ratio. Banks' debt on specialised refinancing facilities gradually decreased. In 2020, in the conditions of the pandemic, the Bank of Russia launched temporary instruments with a total limit of 500 billion rubles to provide liquidity to banks on preferential terms. These instruments were intended to incentivise banks to extend loans to non-financial organisations for them to pay salaries and cover other urgent needs, as well as other loans to small and medium-sized enterprises. In 2021, amid recovering economic activity and the government programmes subsidising interest rates on bank loans for urgent needs and to maintain employment, the Bank of Russia's claims on credit institutions under these instruments decreased according to the schedule, totalling 0.01 trillion rubles as of 1 October. These loans will be fully repaid by the end of 2021. In November 2021, the Bank of Russia made the decision to allocate 60 billion rubles so that banks could issue subsidised loans to companies of the industries hardest hit by temporary anti-pandemic restrictions.[4]

Moreover, certain specialised refinancing facilities were revised in 2021. In particular, the lending facility backed by the surety of JSC Russian Small and Medium Business Corporation became more focused on small and medium regional banks. As expected, this will enable banks to compete with the participants of government programmes on more equal terms and develop actively.

According to the effective system of monetary policy instruments, in the conditions of a structural surplus, the Bank of Russia will manage liquidity predominantly using one-week deposit auctions, as before. Where required, a steady excess of liquidity will be absorbed through the issue of coupon bonds, with the amount of each issue to be established based on the liquidity forecast. Considering the current macroeconomic forecasts, a reverse to

[4] *The Bank of Russia's press release, dated 22 October 2021, on additional measures to support lending to small and medium-sized enterprises.*

a stable structural deficit in the next few years is highly unlikely, yet the Bank of Russia has readily available instruments to address such a situation, and the existing operational procedure stipulates how they should be employed.

According to the decisions made, beginning from 1 April 2022, credit institutions may be admitted to liquidity-providing operations of the Bank of Russia based on their credit ratings assigned by Russian rating agencies, rather than based on their classification groups. Moreover, Bank of Russia Regulation No. 753-P, dated 11 January 2021, 'On Credit Institutions' Required Reserves' clarifying the procedure for making required reserves averaging will become effective on 1 April 2022. As part of the monetary policy review scheduled for 2021–2022, the Bank of Russia will analyse the efficiency of the monetary policy operational procedure and, based on the findings, will consider whether it is necessary to revise this procedure.

BOX 9. CHANGES IN THE BANKING SECTOR'S STRUCTURAL LIQUIDITY SURPLUS IN 2021: WHAT THEY MEAN

A structural liquidity surplus (excess) is a situation when the banking sector needs to place funds with the central bank. This occurs when the inflow of funds into banks' correspondent accounts exceeds the amount of funds required to carry out client transactions and comply with the reserve requirements. Conversely, a structural liquidity deficit is a situation where credit institutions have to borrow funds from the central bank to sustain normal operations.

A structural liquidity surplus (deficit) is determined by autonomous liquidity factors, namely, the central bank's balance sheet items that are beyond the scope of monetary policy. Such autonomous liquidity factors include foreign exchange interventions in the domestic market, acquisition of other assets for purposes not related to the implementation of monetary policy, changes in the balances of general government accounts with the central bank, changes in the amount of cash in circulation, and other operations. The said operations influence the level of credit institutions' correspondent accounts with the central bank. The banking sector's demand for liquidity depends on the required reserve ratios and, hence, normally changes only slightly. Therefore, movements in liquidity caused by autonomous factors, under normal conditions, should be offset by the central bank's liquidity-providing or liquidity-absorbing operations.

STRUCTURAL LIQUIDITY SURPLUS ON THE BANK OF RUSSIA'S BALANCE SHEET
KEY SOURCE – NET FOREIGN ASSETS OF THE BANK OF RUSSIA

Chart B-9-1

<table>
<tr><th>Assets</th><th>Liabilities</th></tr>
<tr><td rowspan="5">Net foreign assets</td><td>Correspondent accounts of banks (banking sector liquidity)</td></tr>
<tr><td>Funds in the accounts of budget system authorities and other clients of the central bank, excl. banks</td></tr>
<tr><td>Cash in circulation</td></tr>
<tr><td>Other liabilities</td></tr>
<tr><td>Capital</td></tr>
<tr><td>Securities and other claims on the non-financial sector</td><td rowspan="3">Liabilities to banks under reverse liquidity absorbing operations (incl. issued bonds of the central bank)</td></tr>
<tr><td>Other assets</td></tr>
<tr><td>Claims on banks under reverse (fixed-term) liquidity providing operations</td></tr>
</table>

STRUCTURAL LIQUIDITY DEFICIT ON THE BANK OF RUSSIA'S BALANCE SHEET
KEY SOURCE – CASH IN CIRCULATION

Chart B-9-2

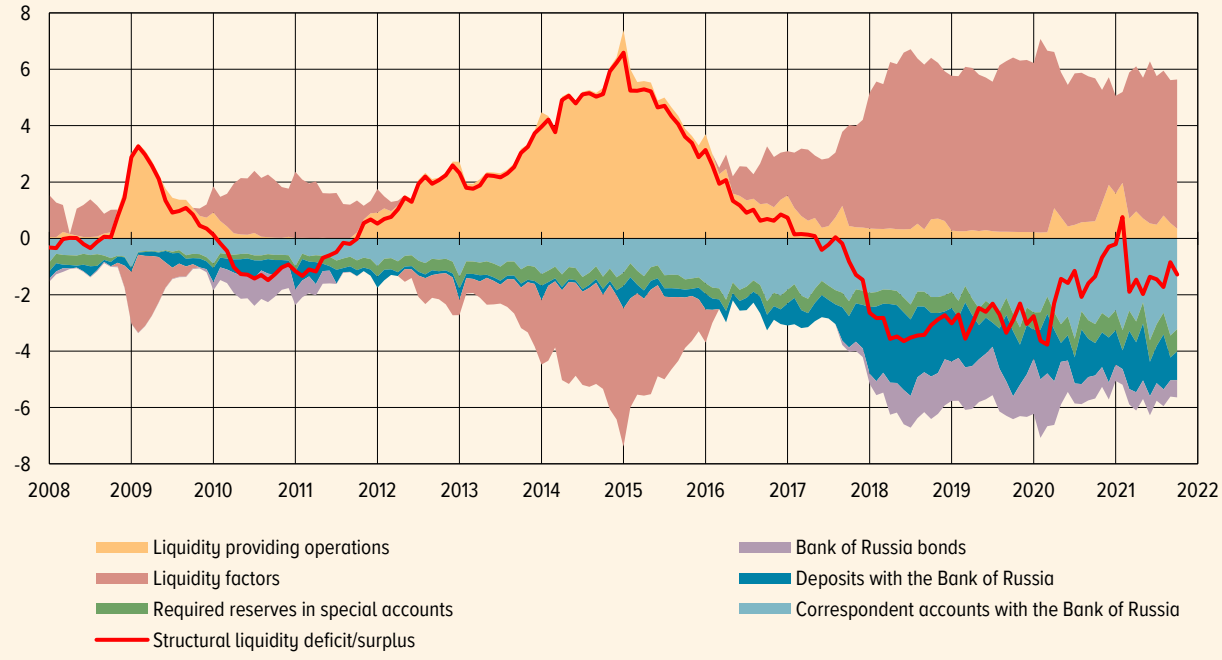
<table>
<tr><th>Assets</th><th>Liabilities</th></tr>
<tr><td>Net foreign assets</td><td>Correspondent accounts of banks (banking sector liquidity)</td></tr>
<tr><td>Securities and other claims on the non-financial sector</td><td>Funds in the accounts of budget system authorities and other clients of the central bank, excl. banks</td></tr>
<tr><td>Other assets</td><td rowspan="2">Cash in circulation</td></tr>
<tr><td rowspan="3">Claims on banks under reverse (fixed-term) liquidity providing operations</td></tr>
<tr><td>Other liabilities</td></tr>
<tr><td>Capital</td></tr>
<tr><td>Liabilities to banks under reverse liquidity absorbing operations (incl. issued bonds of the central bank)</td></tr>
</table>

A long-term cumulative effect of autonomous factors causes a surplus or a deficit of structural liquidity. For example, if the central bank has been buying foreign currency in the domestic market for a long period in order to build up international reserves, this is likely to result in a structural liquidity surplus in the banking sector. Moreover, a structural surplus might persist for quite a long time even after the central bank terminates such operations. On the other hand, the gradual growth of cash in circulation, which is observed in almost all economies worldwide, leads to an outflow of liquidity from the banking sector which may cause a structural liquidity deficit.

Since the beginning of 2017, the Russian banking sector has been operating with a sustained structural liquidity surplus formed by sovereign funds' spending and operations aimed at the financial resolution of credit institutions. However, over a short period in late 2020–early 2021, there were sharp changes in the liquidity situation. In December 2020, the Russian banking

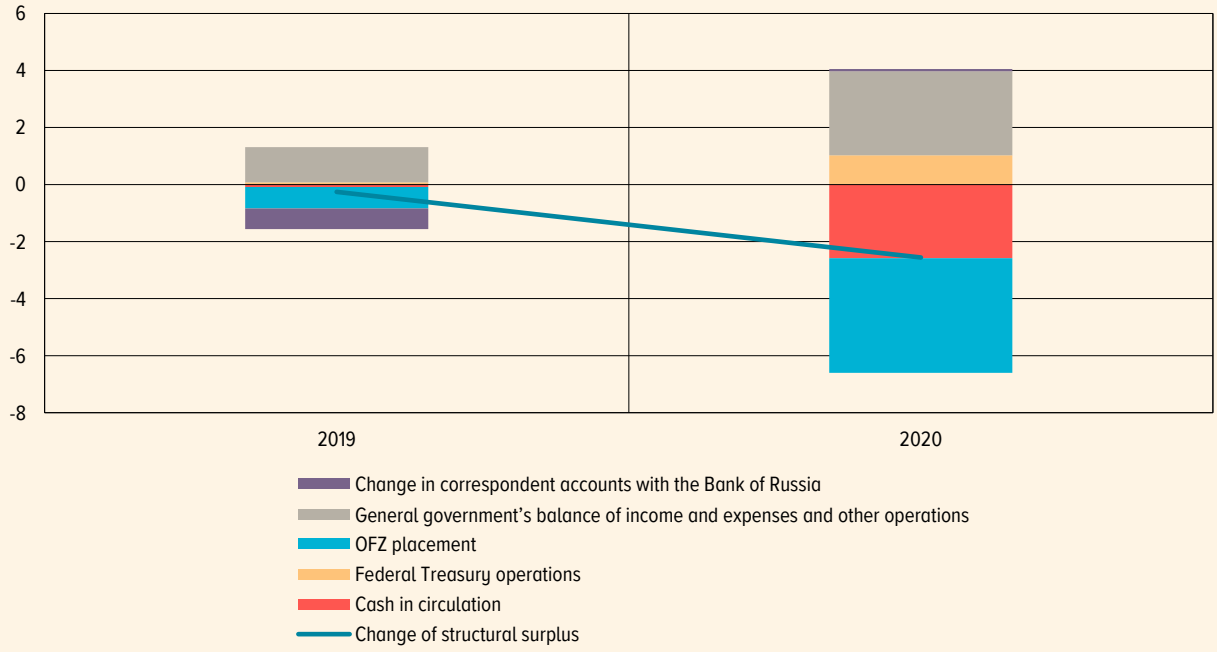
THE BANK OF RUSSIA'S BALANCE SHEET
(trillion rubles)

Chart B-9-3



Source: Bank of Russia.

FACTORS OF CHANGE IN STRUCTURAL SURPLUS IN 2019 AND 2020 *Chart B-9-4*
(trillion rubles)



Source: Bank of Russia.

sector experienced a structural liquidity deficit. For the first time in a long while, the amount of funds borrowed by banks from the Bank of Russia as part of refinancing operations exceeded those deposited with the Bank of Russia and invested in Bank of Russia bonds. In January 2021, the structural deficit continued to increase, reversing to a structural surplus in early February.

Such rapid changes are rather uncommon to the Russian banking sector. The reasons behind this phenomenon are as follows.

The rising demand on part of economic agents for cash in 2020 caused an outflow of bank liquidity. In order to replenish ATMs and cash offices, banks purchased cash from the Bank of Russia making payments from their correspondent accounts. To ensure required reserves averaging, banks should maintain certain balances in their correspondent accounts. Hence, they had to cut investments in deposits and Bank of Russia bonds. The liquidity outflow during 2020 amid the increased amount of cash in circulation induced a significant reduction in the structural liquidity surplus compared to this factor's moderate pace a year earlier.

Normally, operations in the budget system's accounts have a major impact on the banking sector liquidity. In 2020, the budget system's expenditures edged up amid the pandemic, while the revenues contracted. Therefore, budget expenditures were financed through, among other sources, placements of public debt and the reduction in budget balances in the banking sector. Furthermore, the Bank of Russia transferred a part of proceeds from the sale of Sberbank to the federal budget in 2020. These funds could enter the banking sector as budget expenditures or through the Federal Treasury's operations to place temporarily available budgetary funds. Thus, the banking sector could receive a significant amount of funds at the end of 2020.

However, the overall impact of the budget system's operations on the banking sector's liquidity was close to neutral in 2020. This is because budget revenues were higher than forecast before, and expenditures were not executed in full. Unlike in previous years, the Federal Treasury deposited with the banking sector only a part of the funds accumulated in the accounts with the Bank of Russia, and the budget system's balances in the accounts with the Bank of

Russia were up in 2020. **The impact of these liquidity factors, that is, changes in the amount of cash in circulation and in the balances held in the budget accounts with the Bank of Russia, caused a decrease in the structural liquidity surplus as of the end of 2020.**

Apart from the medium-term trends, the banking sector's liquidity is influenced by intra-annual and intra-month seasonality of autonomous factors. Thus, in autumn–winter 2020, Russia's Ministry of Finance increased OFZ placements in the domestic market. At the same time, the Federal Treasury reduced the balances of funds placed with banks to finance the planned budget expenditures. Nonetheless, the end of the calendar year traditionally saw a liquidity outflow due to the temporary rise in the amount of cash in circulation before the long holidays. As a result, the banking sector experienced a structural liquidity deficit on certain days in December. However, the financing of budget expenditures in late December resulted in a structural liquidity surplus in the banking sector as of the end of the year.

The outflow of liquidity remained in January 2021. At the beginning of a calendar year, the Federal Treasury usually increases its account balances with banks by depositing funds received from budget revenues and OFZ placements which were not used to finance expenditures. This helps offset the outflow of funds as budget revenues exceed budget expenditures. However, this was not the case in January 2021 as the Federal Treasury did not only increase, but even reduced the funds deposited with banks. Given the uncertainty over the next steps of the Federal Treasury, banks were taking loans from the Bank of Russia to make required reserves averaging. This was accompanied by a growing structural liquidity deficit.

Already in late January, the Federal Treasury ramped up the amount of funds placed with banks. This became possible as a result of transitioning to the Treasury Single Account, among other things. The funds previously held in numerous accounts with the Bank of Russia and not entering the banking sector became available to the Federal Treasury that can manage them in a more effective way, including through placements with the banking sector. As a result, the total balances of budgetary funds with the Bank of Russia declined, whereas the amount of funds deposited with banks was up. This enabled credit institutions to replace borrowings from the Bank of Russia with borrowed budgetary funds. Consequently, banks could make their required reserves averaging way ahead of schedule and accumulated a considerable amount of excess funds in their correspondent accounts. As banks made placements at a fine-tuning deposit auction, the structural surplus rose by 2.7 trillion rubles over the last two days of the averaging period. On the following day, which started a new averaging period, banks increased the amounts in their correspondent accounts, and the structural surplus decreased by 2.7 trillion rubles.

Another factor behind the elevated volatility of structural surplus in 2021 was banks' strategies aimed at averaging amid expectations regarding an increase in the key rate at certain averaging periods. During these periods, banks sought to maintain higher balances in their correspondent accounts at the beginning of the period, before the market rates were raised, with the purpose to place funds with the Bank of Russia and in the money market on more favourable terms at the end of the period. Hence, the structural surplus was lower at the start of the periods and soared by the end of the periods.

Therefore, a structural surplus (deficit) may fluctuate significantly over a month depending on the path of budget revenues and expenditures, as well as averaging strategies pursued by banks. Such fluctuations do not provide any information as to long-term trends of this indicator. With this in mind, when analysing the liquidity situation, the average structural surplus value for a period should be taken into consideration rather than its day-to-day values. Thus, over the averaging periods from February to September 2021, the average structural surplus remained almost unchanged within the range of 1.1–1.8 trillion rubles, fluctuating between 0.3 and 4.1 trillion rubles on some of the days.

The structural surplus varies over a year depending on intra-year trends in budget account operations and the amount of cash in circulation, as well as operational specifics of budget system authorities. The forecast presented by the Bank of Russia, including in the Monetary Policy Guidelines, assumes that credit institutions' correspondent accounts with the Bank of Russia will meet the levels required for averaging in respective periods, while the Federal Treasury and financial authorities of the constituent territories of the Russian Federation will offset the impact of budget revenues, expenditures and fund-raising operations on liquidity through their placement operations. It also assumes a uniform path of required reserves averaging by credit institutions. **The Bank of Russia's forecast factors in the long-term trends of autonomous liquidity factors** such as the return of cash money withdrawn in 2020 to the banking system, and the expanding opportunities for the Federal Treasury to deposit temporarily available budgetary funds after transitioning to the Treasury Single Account.

Changes in liquidity, including shifts from a structural surplus to a deficit and back, do not affect the banking sector and the current monetary policy. The term 'liquidity deficit', which tends to evoke negative associations, does not imply any crisis developments or signs of instability, being an absolutely healthy state of the banking sector, just as a surplus. Liquidity only determines the direction and volume of operations conducted by the Bank of Russia as part of banking sector liquidity management in order to achieve its operational objective, i.e. the convergence of interest rates in the interbank lending market with the key rate. The Bank of Russia monetary policy operational procedure is developed in such a way as to enable rates control irrespective of the current liquidity situation in the banking sector.

Nonetheless, **the liquidity situation in the banking sector influences money market rates in the interest rate corridor.** In the periods of a structural liquidity deficit, the RUONIA rate, being an operational benchmark of monetary policy, is formed with a minor positive spread to the key rate. With a structural surplus in the banking sector, the spread between RUONIA and the key rate tends to be negative. The Bank of Russia takes into account the presence and size of this spread when making its key rate decisions In particular, the Bank of Russia prepares a three-year liquidity forecast for this purpose.

The sources of a structural liquidity surplus are not relevant as such to banks' balance sheets and the transmission mechanism of monetary policy. For example, if the Federal Treasury's funds are used to finance budgetary expenditures, they will enter the banking sector as balances in individuals' and legal entities' accounts. Otherwise, the Federal Treasury may independently deposit the excess funds on accounts with credit institutions. If the Federal Treasury preferred to keep funds in accounts with the Bank of Russia, credit institutions would raise the required funding in the money market or from the Bank of Russia. Thus, bank assets will in any case be financed by bank liabilities the value of which will be determined on market terms, with due account of the interest rate level prevailing in the economy.

Through its operational procedure, the Bank of Russia maintains money market rates close to the key rate. The Federal Treasury also deposits funds at the rates nearing the key rate. Generally, no interest is accrued on current account balances of bank clients. However, recipients of budgetary funds seek to invest them in profitable instruments. Under these conditions, when the central bank successfully manages short-term money market rates and credit institutions compete with each other for deposits, **the amount of structural surplus and its sources will not affect the monetary environment in the economy**.

APPENDICES

APPENDIX 1. MONETARY POLICY TRANSMISSION MECHANISM IN RUSSIA

As indicated in Section 1, the key goal of the Bank of Russia's monetary policy is to ensure price stability, and the main instrument to achieve this goal is the Bank of Russia key rate. The impact of the key rate on price dynamics is underpinned by a variety of cause and effect relationships. The key rate impacts loan and deposit rates, securities quotations and the ruble exchange rate. Price parameters in various financial market segments further influence savings, consumption, investment, the volume and structure of foreign trade. This ultimately impacts aggregate demand in the economy and prices.

Cause and effect relationships that enable the key rate and other monetary policy decisions to influence demand and prices, are referred to as the monetary policy transmission mechanism. Analysing the functioning of the transmission mechanism, it is essential to consider its key features. First, the key rate is an important but not the only factor that influences pricing in the national economy. Alongside monetary policy, price dynamics are impacted by a wide range of structural, institutional, and market (the so-called non-monetary) factors – from the demographic situation to weather conditions or the global market environment (Diagram 1). Depending on their influence, inflation may rise or fall with the key rate unchanged.

Second, the transmission mechanism is part of the economy and hence its functioning is impacted by changes in the economy. Structural shifts in the economy (digitalisation, changes in the population's saving preferences, global climate changes) enhance the relevance of some elements of the transmission mechanism and bring down the relevance of others. Furthermore, shocks (epidemics, natural and man-made disasters) may change the functioning of the transmission mechanism, which exhausts itself after overcoming the consequences of a shock.

When making monetary policy decisions, the Bank of Russia always considers the current state of the key inflation factors and the specifics of the transmission mechanism functioning observed by the moment.[1] This appendix describes the common patterns of the transmission mechanism functioning that have prevailed in recent years.[2] However, it should be noted that the impact of each key rate decision made by the Bank of Russia on the Russian economy was determined not only by the common patterns described in this appendix, but also by specific circumstances of the relevant period.

Third, monetary policy makes it possible to steadily influence the inflation rate, rather than economic growth. In the short run, accommodative monetary policy might bring down market rates to below neutral (see Box 2 'Neutral interest rate') and speed up economic growth through mobilisation of underutilised production factors (eliminating the negative output gap, see Box 12 'Concept of economic equilibrium and deviations of

[1] *For details about the models used by the Bank of Russia when making monetary policy decisions, refer to the Forecasting and Model-based Approaches section on the Bank of Russia website.*

[2] *For details about the coronavirus-induced inflation factors, refer to Appendix 4 'Non-monetary inflation factors in 2021' and Box 7 'Impact of the pandemic on structural shifts in the economy'.*

key macroeconomic variables from such equilibrium (gaps)'). However, if monetary policy remains accommodative over a long period,[3] demand growth exceeds the capacity to build up output, which inevitably entails higher inflation. The uncertainty over future price dynamics brings down the attractiveness of long-term lending for banks and investors' readiness to purchase long-term bonds. The reduced availability of investment resources to businesses in a longer term undermines economic activity. Contrastingly, high interest rates might constrain current demand in the economy, but the anchoring of inflation at a low level and improved availability of investment resources help accelerate economic growth over time.

Hereinafter, where not explicitly stated otherwise, only the direct impact of monetary policy on aggregate demand is described. However, it should be noted that such an impact is effective when monetary policy helps the economy return to a long-term equilibrium (restore economic activity during a recession or cool down the economy when it is overheated). If the economy approaches a long-term equilibrium (the output gap is close to zero), monetary policy mainly affects the inflation rate, which, as described below, might impact potential output in the long run through changes in the accessibility of investment resources.

Impact of the Bank of Russia key rate on market rates in the economy

The monetary policy transmission mechanism leverages the influence of the Bank of Russia key rate on price parameters across all segments of the Russian financial market. This influence is materialised in several stages (Diagram 1).

In the first stage, a change in the key rate leads to almost instant changes in overnight money market rates, first and foremost, on interbank loans (IBL). The Bank of Russia manages banking sector liquidity by absorbing excess liquidity or covering a liquidity deficit (Section 4 'Monetary policy operational procedure in 2022–2024'). This consistently keeps money market rates close to the Bank of Russia key rate.

In the second stage, changes in overnight money market rates are translated into the movements of longer-term money market rates.[4] It is not only the current level of overnight money market rates, which depends on the key rate, that is an important driver of medium- and long-term market rates, but also expectations of its future changes, which are largely determined by statements and forecasts of the Bank of Russia, primarily by a signal of possible upcoming monetary policy decisions. If banks expect a rise in overnight rates, long-term IBL rates will climb before overnight rates rise (lenders may place funds in the overnight segment in anticipation of higher rates, and borrowers wishing to raise funds for a longer period have to accept higher rates).

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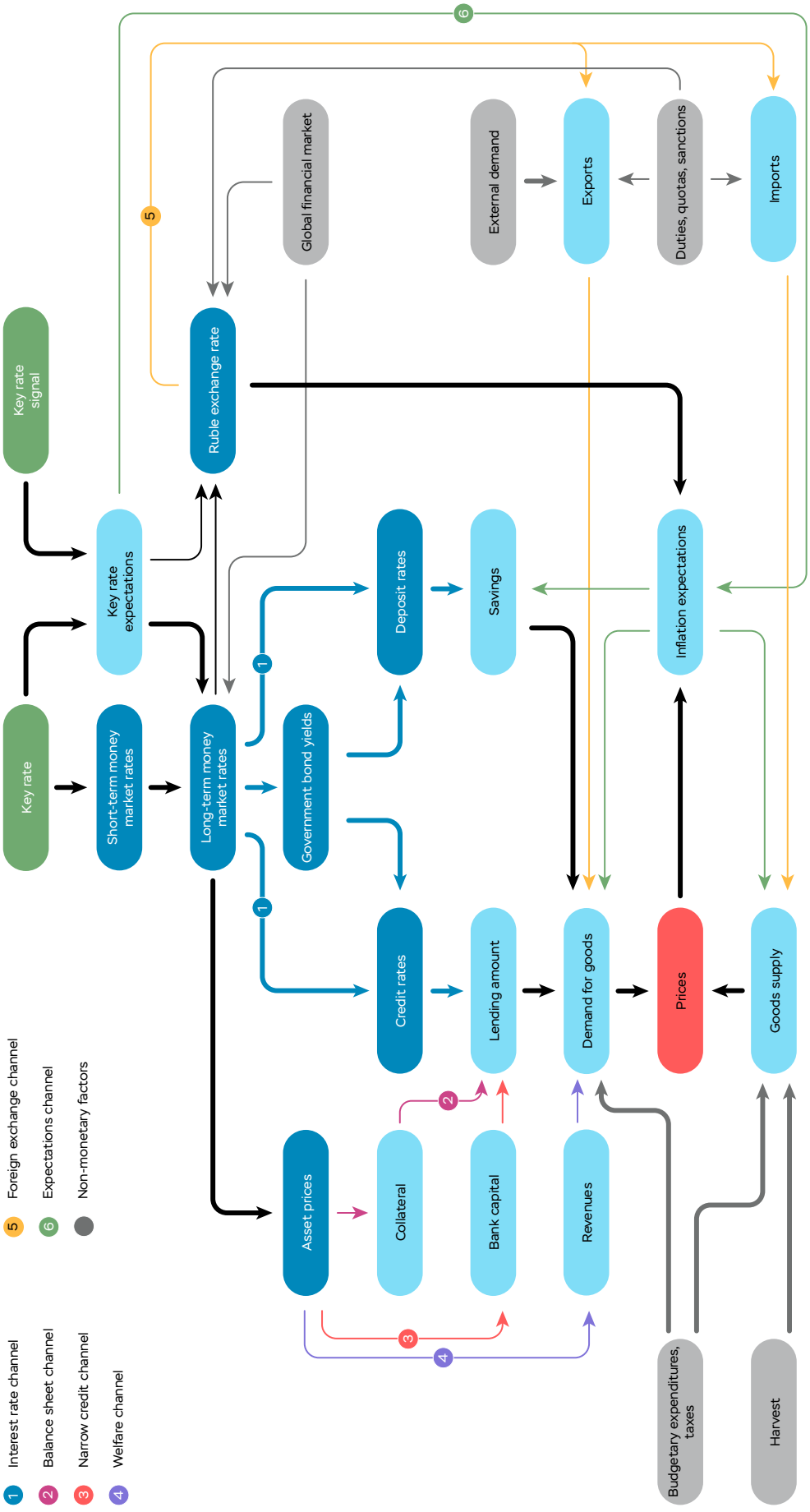
[3] Countries with longer price stability periods are more accustomed to low inflation rates. Hence, they have longer periods when accommodative monetary policy can drive the economy without negative inflationary effects. By 2020, the lower inflation rate and reduced volatility had laid groundwork for countercyclical monetary policy in Russia. Accommodative monetary policy pursued in 2020 helped mitigate a downturn in economic activity in a pandemic environment. However, inflation expectations in Russia are not yet sufficiently stable and the possibilities of using accommodative monetary policy are limited. This is another reason to seek for price stability anchoring. Long-term price stability enhances the ability of the central bank to effectively support the economy in times of crisis.

[4] The share of interbank lending transactions with maturities exceeding three months is insignificant. Fluctuations in average market rates on such transactions may be caused by shifts in the composition of market players or parameters of a single large transaction rather than changes in the market level of rates. Therefore, monetary policy transmission mechanism analysis tends to use the declared interbank lending rates or interest rate derivatives quotations.

Diagram 1

MONETARY POLICY TRANSMISSION MECHANISM

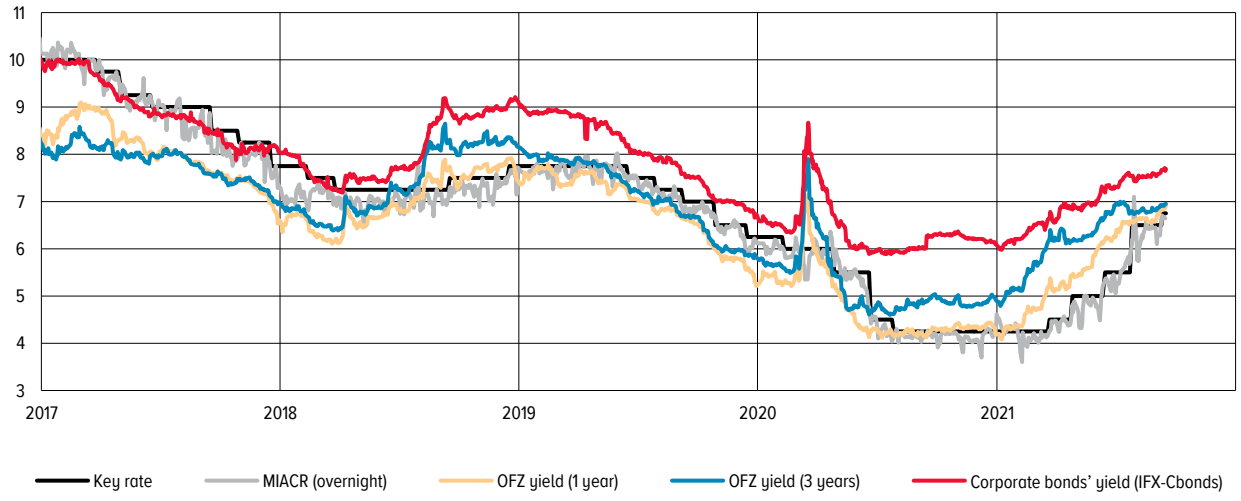


According to Bank of Russia's estimates, a 1 pp rise in the overnight IBL rate over the course of two weeks leads to a 0.75–1 pp increase in IBL rates for maturities of less than a year, to a 0.15–0.45 pp increase for maturities of one to three years,[5] and to a 0.1–0.35 pp increase for maturities of over three years.[6] The shorter is the maturity of transactions, the less sensitive their interest rates are to changes in the overnight rates on IBLs. A possible explanation is that market players, seeing an increase in the key rate, expect that it will help reduce inflation, and, consequently, interest rates in the future. The experience of recent years provides some evidence for this: over the course of five years, the key rate might go through several raise-and-cut cycles. As inflation expectations are anchored, the impact of short-term rates on long-term ones diminishes: market players are more confident that inflation (followed by short-term interest rates) will return to equilibrium levels. The anchoring of inflation expectations over recent years has become one of the reasons why estimates of the impact of short-term rates on long-term ones had decreased by 2021 compared to earlier periods.

Large banks and financial institutions operating in the money market are also active bond market players, especially in the government bond segment. These market players always have a choice between placing funds in the money market or in the securities market. Therefore, as a rule, changes in bond yields occur almost simultaneously with changes in long-term IBL rates. Bond yields, just as movements of money market rates, are

MONEY MARKET RATES AND BOND YIELDS
(% p.a.)

Chart A-1-1



Source: Bank of Russia calculations.

[5] *The previous Monetary Policy Guidelines provided assessments for periods of one to five years and over five years. In order to converge the assessments with the standard period grouping used in bank statistics, now the periods of one to three years and over three years are applied in assessments.*

[6] *Hereinafter, unless explicitly stated otherwise, it is assumed that the impact of certain economic factors on others is symmetrical. For example, if growth in the overnight rate increases interest rates on loans with a maturity of up to one year by 0.75 pp, then a 1 pp decrease in the overnight rate brings down interest rates on loans with a maturity of up to one year by the same 0.75 pp. Moreover, all estimates are given with all other conditions being equal, i.e. assuming that other factors that may influence the final indicator, including expectations regarding future monetary policy alterations, remain unchanged. If market players perceive a key rate change as the first step in a long cycle of an increase or decrease in interest rates, rates on long-term financial instruments may be more sensitive to a key rate change than rates on short-term ones (the beginning of the key rate rise cycle in 2018 or the key rate cut cycle in 2019).*

impacted by a wide range of other factors, in particular, large bond placements, entry/exit of major players to/from the market; as to corporate bonds – their yields are influenced by changes in risk assessments for the national economy.

Long-term money market rates and bond yields often change not after, but rather before a key rate change when market players have strong expectations of an upcoming key rate change. Examples for this are the decline in bond yields in early 2019 or the increase in early 2021, a few months before respective key rate changes.

At the third stage, bond yields and long-term money market rates influence bank loan and deposit rates. On the one hand, banks perceive loans, bonds and long-term money market transactions as 'substitute goods', and returns on these operations should be comparable. On the other hand, many large banks with a diversified product line use OFZ yields or long-term IBL rates as a benchmark for setting their transactions rates (see Box 11 'Transfer curve and the shaping of interest rates on bank operations').

The shaping of loan and deposit rates is the most complex stage in the transmission of key rate changes to interest rates on other financial instruments, which is exposed to numerous specific factors. First, loans and deposits are to some extent standard instruments. Changes in their interest rates require decisions on the bank's interest rate policy. Most banks make this decision with a certain lag after a change in bond yields, rather than immediately. Second, it can also take some time from the execution of a loan agreement till the moment when the funds are actually transferred. As a result, at least part of money market transactions are made at the rates that were in effect a month or two earlier. Third, a considerable portion of the loan portfolio of Russian banks is represented by credit facilities, for which new tranche rates are determined not only by the current market environment, but also by the terms and conditions of a credit facility.

Fourth, seeking to avoid materialisation of the interest rate risk (a situation when a bank would have to pay high interest on its liabilities with low interest accrued on its assets), banks respond asymmetrically to rates being raised or cut. In the case of rate cutting, banks lower their loan rates at a more moderate pace than their deposit rates; in the case rates are raised, they increase their loan rates at outrunning paces. As a result of the interaction of these factors, it may take several months between changes in OFZ yields and adjustments of loan and deposit rates. However, given that OFZ yields can anticipate changes in the key rate, the lag between changes in loan and deposit rates and changes in the key rate tends to remain moderate.

There are also a number of factors that are just as important with regard to credit and deposit market rates as monetary policy. One such factor is subsidised lending programmes, which can lead to a plunge in lending rates (e.g. subsidised mortgage lending programmes led to a sharp reduction in mortgage rates in spring 2020). Another factor is inflation, which prevents deposit rates from descending to a certain level, when deposits are no longer attractive to bank depositors.

Finally, the credit market is heterogeneous, and changes in the average market rate depend not only on the rates, but also on the market structure. For example, an increase in the share of loans to higher-risk borrowers might entail a rise in the average market rate, even if the rates for each individual borrower remain unchanged. This is one of the reasons for constant fluctuations of the average market rate in the corporate segment of the credit market, which has the most complex and unstable structure.

The above aspects slow down the impact of the key rate on loan and deposit rates, making it less steady in the short term. However, in a longer run, bond yields or money market rates impacted by the current and expected level of the key rate are the main pricing drivers in the credit and deposit markets. According to the Bank of Russia's estimates, more than half of changes in the long-term IBL or OFZ rates are transferred to average market rates on loans and deposits of comparable maturities over the course of a quarter. The impact on short-term lending rates is even more pronounced, with almost three quarters of changes in money market rates or bond yields of similar maturities transferred to lending rates within one quarter. However, certain banks may respond to changes with a longer lag, and it takes up to three–four quarters for the credit and deposit markets to fully adjust to a new environment.

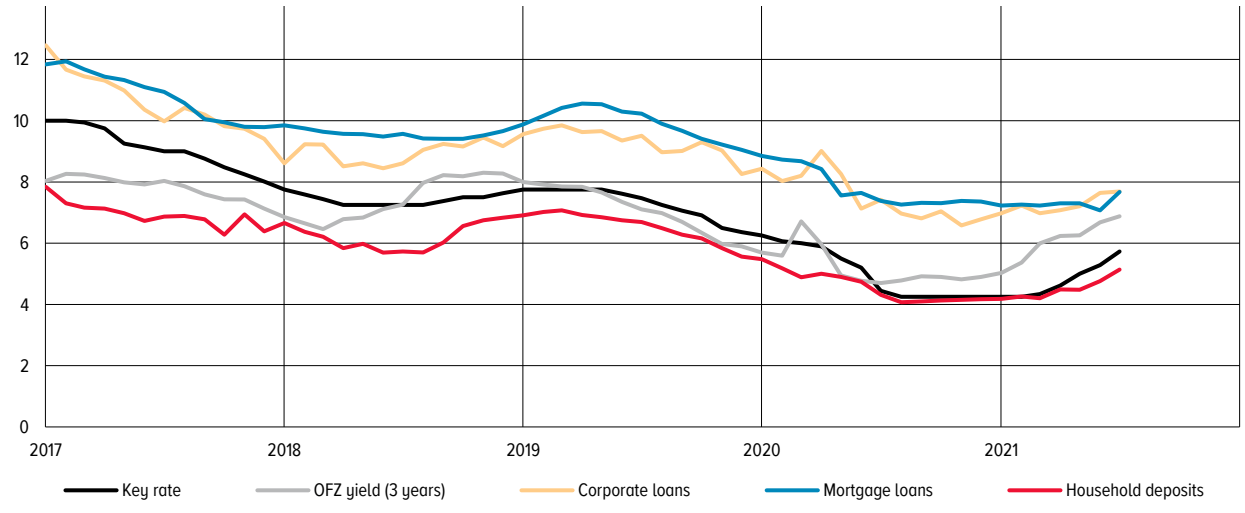
Money market rates, bond yields, loan and deposit rates, which are influenced by monetary policy, impact almost all decisions of economic agents in one way or another. Certain chains of cause and effect relationships that underlie this impact are referred to as transmission mechanism channels of monetary policy.

Interest rate channel of the transmission mechanism

The most significant transmission mechanism channel in the Russian economy is an interest rate channel, which is related to the influence of interest rates on consumption, investment and saving decisions, and, consequently, on demand in the economy and inflation.

On the one hand, lending rates and bond yields (for large companies that can raise funds in the stock market) affect the accessibility of loans for households and organisations. Cheaper borrowed funds prompt companies to take loans for investment goods and ignite households' interest in consumer loans. Additional demand fuelled by credit resources pushes up prices in the respective goods market, as well as inflation. A good illustration of how low interest rates impact price growth is a rise in residential property prices in Russia

AVERAGE MONTHLY INTEREST RATES ON BANKS' LONG-TERM RUBLE TRANSACTIONS *Chart A-1-2*
(% p.a.)



Source: Bank of Russia calculations.

in 2020 H2 and in 2021, which is partly attributed to lower mortgage lending rates, in particular, due to subsidised programmes, and higher household demand for apartments.[7]

On the other hand, the interest rate channel is related to the movements of deposit rates and savings alternatives. The higher the return rate on savings is, the more population is inclined to save for consumption. People expect to buy more goods or save for large future purchases using returns on savings.

In recent decades, the role of the financial sector in the national economy has been gradually expanding. Thus, in early 2021, household deposits exceeded 30% of GDP (one and a half times more than in early 2011), while loans to households accounted for more than 19% of GDP (which is twice as much as a decade earlier). Accordingly, the interest rate channel is becoming more significant for the national economy.

The Bank of Russia estimates that a change in lending and deposit rates leads to a co-directional adjustment of the savings ratio within one quarter. Over a year, this effect gradually amplifies since increasingly more people respond to a steady change in the interest rates while making their decisions to save or borrow funds.

The impact of the lending or deposit rate on the market players' behaviour spreads beyond the moment when a depositor places funds, reducing their current consumption, and when a borrower takes a loan to finance their additional expenses. Paying interest on the loan, a borrower can no longer use funds for consumption or investment purposes. Interest accrued on the deposit can serve as a source of financing additional expenses. Loans to Russian borrowers account for a large portion of assets held by Russian banks; and deposits from Russian depositors account for a large portion of bank liabilities. Therefore, when rates rise, cash flows are redistributed from new borrowers (paying higher interest rates) to new depositors (receiving higher income), and vice versa when rates decline. This redistribution, which affects the structure of cash flows and overall demand in the economy, is referred to as a cash flow channel.

The cash flow channel generally has a minor role compared to the interest rate channel. However, the use of financial instruments (primarily loans and bonds) with floating interest rates in the Russian economy has been expanding over recent years. By mid-2021, more than a third of total loans to corporate borrowers had been issued at floating interest rates. With floating rate financial instruments, the interest income (expenses) of all investors (borrowers) changes, not only of those who raise new loans or acquire new bonds. This increases the importance of the cash flow channel for the Russian economy.

Transmission mechanism channels related to interest rates' impact on asset prices

Interest rates driven by monetary policy also influence securities prices. In the bond market, this impact is measurable and predictable (bond yields are adjusted to the market level through changes in the market price: the lower the rates, the higher the bond prices). In the equity market, this impact is less notable, but a decrease in rates generally prompts growth in stock prices. On the one hand, lower interest rates increase the accessibility of loans and the volume of acquired securities through the use of borrowed funds. On the

[7] *In April 2020–June 2021 (the period when the subsidised 6.5% mortgage lending programme was in effect), the monthly average of issued mortgage loans totalled 422 billion rubles (including 116 billion rubles under the subsidised 6.5% mortgage lending programme) compared the monthly average of 260 billion rubles over the past 12 months. Thus, the subsidised mortgage lending programme accounted for almost three quarters in the mortgage lending market growth.*

other hand, expectations of demand growth in the economy and, respectively, of corporate profit growth, sustain interest in stocks.

Securities can serve as a collateral for bank loans. Rates on secured loans are generally lower than rates on unsecured loans. Apart from that, banks can issue a secured loan to a borrower who is not deemed eligible for an unsecured loan. Therefore, an increase in securities prices improves the accessibility of loans to holders of these securities and spurs lending growth. This impact of interest rates on lending volume is defined as a **balance sheet channel**.

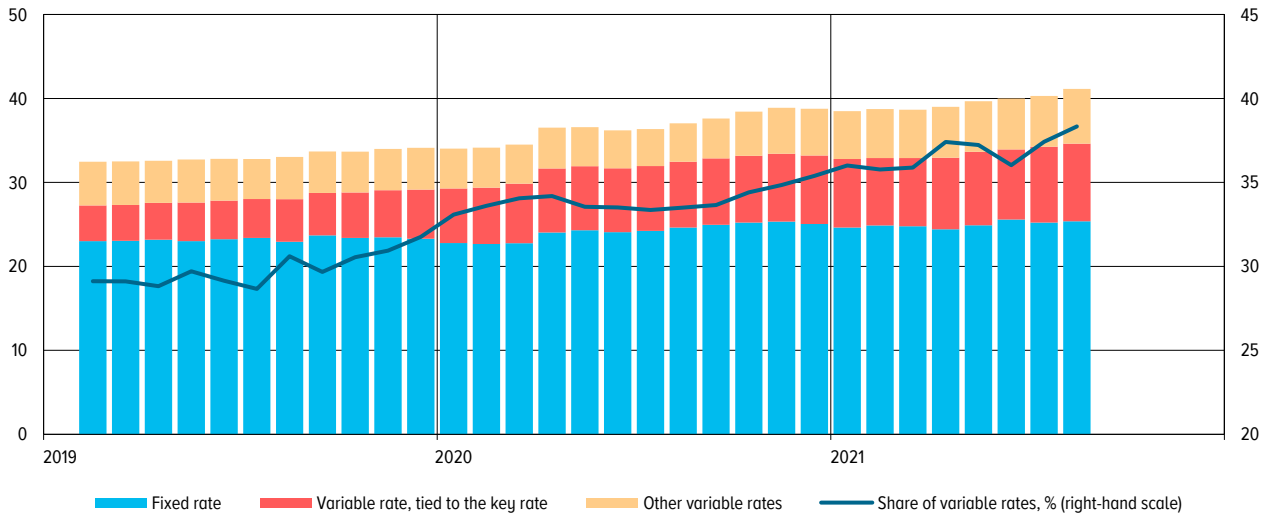
Securities are owned not only by banks' clients but by banks themselves. Profits from a growing value of securities owned by a bank is one of the sources of bank capital. An increase in bank capital allows banks to expand the range of potential borrowers. In Russia, the role of this channel that impacts lending volumes through interest rates (referred to as a **narrow lending channel**), is minor. Russian banks have substantial equity capital buffers. Thus, in mid-2021, the Russian banking sector's equity capital adequacy ratio was above 12%, exceeding the minimum required ratio by one and a half times.

It is not only through the credit market that securities prices influence the inflation rate. Economic literature also uses the term **welfare channel**, i.e. when owners of financial assets take into account the size of the financial cushion while planning expenditures. If securities prices and hence the wealth of their owners rise, the owners of these securities are more inclined to consume. At the same time, if the value of securities declines, owners have to save more to compensate for losses.

In 2020–2021, households' investments in securities soared (see Box 10 'Growth of households' activity in the securities market: implications for monetary policy'). By mid-2021, the value of listed securities held by households had approached 20% of household deposit balances. As population's investments in securities grow, the importance of the welfare channel for savings and consumption decision-making will enhance. Therefore, the Bank of Russia conducts regular monitoring of households' operations in the stock market.

The above transmission mechanism channels influence aggregate demand in the economy and thereby speed up or slow down economic activity. The current level of

STRUCTURE OF CORPORATE LOAN PORTFOLIO BY INTEREST RATE TYPE *Chart A-1-3*
(trillion rubles)



Source: Bank of Russia calculations.

economic activity being different from the potential one (when an output gap arises, see Box 12 'Concept of economic equilibrium and deviations of key macroeconomic variables from such equilibrium (gaps)') has an impact on the inflation rate.

According to the Bank of Russia's assessments, a 1% output gap entails a 0.3 pp change in annual inflation over a four-quarter horizon. Proinflationary (or disinflationary) influence is observed during the whole period when a positive (or negative) output gap persists, not only when it grows or shrinks.

Foreign exchange channel of the transmission mechanism

Changes in interest rates on ruble financial instruments not only influence saving and consumption preferences, but also a choice in favour of specific savings instruments, in particular, denominated in rubles or foreign currency. The higher the rates on ruble financial instruments are, the less attractive foreign currency investments become, which helps strengthen the ruble. According to Bank of Russia estimates, the real effective exchange rate of the ruble[8] all else equal, changes circa by 0.9% in response to a 1 pp change in the overnight IBL rate.

The exchange rate, in its turn, impacts price dynamics. The impact of monetary policy on inflation, caused by a change in the national currency exchange rate, is referred to as a foreign exchange channel of the transmission mechanism, or a currency channel. The exchange rate may have a direct impact on inflation, through prices for imported consumer goods as well as through prices for imported commodities and spare parts that affect the net cost of goods produced in Russia.

Moreover, the exchange rate impacts the cost of exports and imports thereby influencing the price competitiveness of domestic and foreign products. Thus, a weakening national currency will lead to a higher import cost and diminish its attractiveness to domestic consumers. This widens opportunities for import substitution and the potential for higher prices of substitute domestic goods. Growth in the ruble cost of exports in the case of national currency depreciation generates higher pressure on prices for goods that are simultaneously exported and supplied to the domestic market. A significant portion of commodities in Russia's exports generates overall price pressure due to growth in expenses.

The functioning of the foreign exchange channel is characterised by a distinct asymmetry: price growth followed by ruble weakening outstrips a decrease in prices amid the strengthening of the national currency. According to Bank of Russia estimates, in recent years, a 1% weakening in the ruble nominal exchange rate[9] over a six-month horizon is followed by a minor increase in inflation not exceeding 0.1 pp. A decline in inflation following ruble appreciation is smaller in scale. A gradual decrease in inflation expectations and financial stability lay the groundwork for further decline in price sensitivity to exchange rate fluctuations.

Inflation expectations channel of the transmission mechanism

An inflation expectations channel plays a special role in the transmission mechanism functioning, complementing other channels. When making consumption, saving and

[8] *The weighted average change in the real exchange rate of the ruble against the currencies of Russia's main trading partners.*

[9] *The weighted average change in the nominal exchange rate of the ruble against the currencies of Russia's main trading partners.*

investment decisions, setting prices for goods, loan and deposit rates, economic agents consider both the current inflation rate and expectations regarding its future movements.

One of the factors that impacts inflation expectations is Bank of Russia monetary policy. Following the raise in the Bank of Russia key rate, market players might expect a decline in inflation and hence factor in the upcoming inflation slowdown in their plans. For example, in anticipation of inflation decline, manufacturers may raise prices by a smaller degree in order to retain competitiveness, while households might not increase consumption in fear of their savings being depreciated by inflation. As a result, the inflation expectations channel accelerates the functioning of the transmission mechanism boosting its effectiveness.

To ensure the effectiveness of the inflation expectations channel, the Bank of Russia seeks to promptly and fully disclose information about monetary policy decision-making given the specifics of certain groups of economic agents, and monitors their inflation expectations.

The effectiveness of the monetary policy transmission mechanism

The effectiveness of the monetary policy transmission mechanism, i.e. the speed and ability of monetary policy to influence inflation, is determined by numerous factors. These include the state of the financial sector, preferences of households and businesses, competition in the financial and commodity markets, as well as circumstances that influence inflation trends and economic activity, including monetary policy.

Over 2020–2021, the coronavirus pandemic and its implications were the key factor affecting the situation in the Russian economy. In particular, the uncertainty associated with the pandemic, was bringing down the overall propensity of households to consume, which, coupled with structural supply and demand restrictions in certain segments of the goods and services market, limited the potential impact of accommodative monetary policy on the economy. Another important factor included large-scale subsidised lending programmes that were used as an anti-crisis instrument and contributed to the reduction in average market rates.

In the meantime, the shrinking share of banks' foreign currency loans and deposits persisted amid the pandemic. Ruble-denominated bank operations have seen a steady growth while the segment of foreign currency operations has contracted demonstrating a less notable growth. This further diminishes the influence of external factors on the domestic financial sector and enhances the role of domestic interest rates in decision-making by households and businesses. These changes have a positive impact on the effectiveness of the monetary policy transmission mechanism functioning.

The trend towards the transferring of household savings to the stock market showed signs as early as in 2019 to transform into a major structural shift in 2020–2021 (refer to Box 10 'Growth of households' activity in the securities market: implications for monetary policy'). Larger volumes of household investments in securities elevate the effectiveness of the transmission mechanism as yields in the bond market change faster than deposit rates. Furthermore, an increase in the value of securities held by households enhances the importance of the welfare channel and the balance sheet channel, which increases the impact of monetary policy on inflation, however, making this impact more complex and multifaceted.

The Russian economy has several preserving factors that impact the inflation trend and impede the effectiveness of the transmission mechanism. Among such factors are

underdeveloped logistic infrastructure, limited domestic supply of certain categories of commodities, consumer and investment goods, inadequate competition and shortage of qualified personnel. Mitigating the impact of these factors may reduce inflationary pressure and price volatility, which will contribute to a further decrease in inflation expectations and their sensitivity to one-off events. The impact of the above factors on inflation can be mitigated by efforts of government authorities aimed at boosting the effectiveness of the national economy (creating a competitive environment, improving the infrastructure and optimising regulatory burden), with the Bank of Russia's input.

BOX 10. GROWTH OF HOUSEHOLDS' ACTIVITY IN THE SECURITIES MARKET: IMPLICATIONS FOR MONETARY POLICY

One of the most notable trends in the Russian economy over the past one and a half years has been a significant **increase in household operations in the securities market**. It has not yet had any major impact on the transmission mechanism functioning, however, in the long-term perspective, this increase might affect the significance of some of transmission mechanism channels for the Russian economy.

The prerequisites for higher household activity in the market in 2020–2021 were created in the previous period. Government support measures (development of individual investment accounts), savings accumulation by households and a growing interest in their diversification, as well as demographic shifts (with a new generation ready to use a wide range of financial instruments entering the market) raised interest in alternative savings. The said development **increased the number of private investors and the volume of investments in securities in 2018–2019**. A surge in demand for brokerage services encouraged financial intermediaries, primarily banks, to develop a stock intermediation infrastructure such as online trading systems, and pursue more active marketing policy. The development of the stock infrastructure improved access to securities operations, encouraged new investors to enter the market, which resulted in a new round of stock market retail segment development. This development was both of qualitative and quantitative nature. Growth in the number of market players outpaced growth in securities investments, which is indicative of a gradual entry of new, less wealthy groups of investors, to the stock market.

Household entry to the stock market sped up notably in 2020–2021. In 2020, the Bank of Russia cut its key rate to support the economy amid the spread of the COVID-19 pandemic and to stabilise inflation at the target. This brought down deposit rates significantly. As a result, demand for more profitable savings instruments ramped up, and the infrastructure developed over previous years enabled a wide range of retail investors to meet this demand.

NUMBER OF INDIVIDUALS HOLDING ACCOUNTS ON MOSCOW EXCHAGE *Table B-10-1*
(million)

	01.01.2018	01.01.2019	01.01.2020	01.01.2021	01.10.2021
Number of unique clients	1.31	1.96	3.86	8.79	14.53
incl. active clients	0.11	0.19	0.39	1.42	2.27

Source: Moscow Exchange (https://www.moex.com/s3291).

HOUSEHOLD INVESTMENTS IN SECURITIES* *Table B-10-2*
(trillion rubles)

	01.01.2018	01.01.2019	01.01.2020	01.01.2021	01.07.2021
Bonds	1.11	1.68	2.27	2.86	3.33
Listed shares	2.07	2.36	3.21	4.55	5.11
Units and shares of investment funds	1.10	1.50	1.74	2.40	2.73
Total	4.29	5.54	7.22	9.81	11.16
Memo item: household deposits	*26.93*	*30.28*	*32.57*	*35.76*	*35.51*

** Including non-residents' securities.*
Source: Bank of Russia (http://www.cbr.ru/eng/statistics/macro_itm/households/).

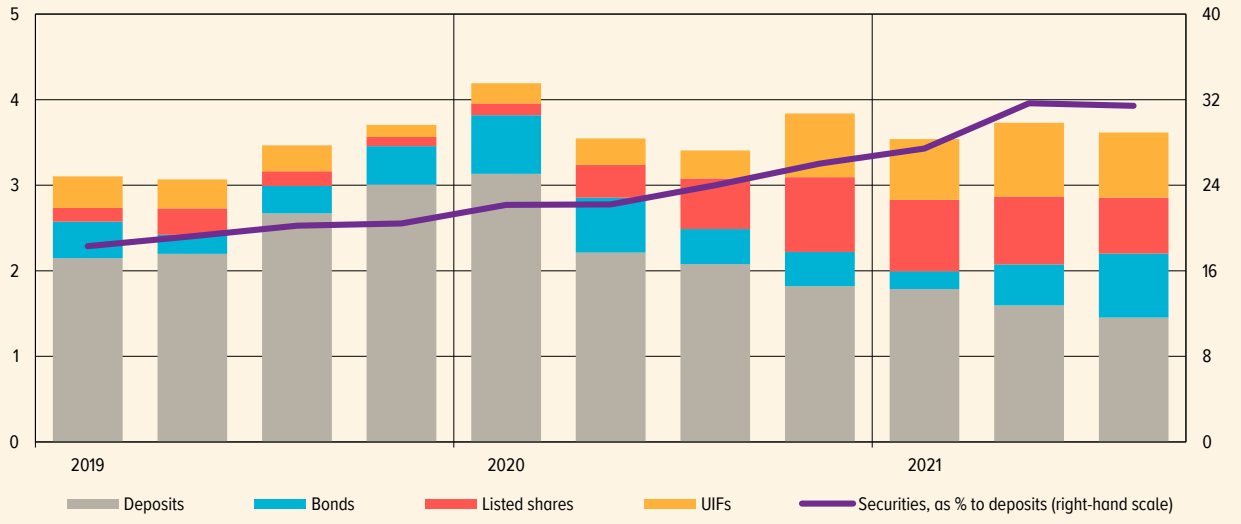
In 2020, almost 5 million people opened brokerage accounts with the Moscow Exchange, which exceeded the total of such accounts in the entire history of the Russian market.[1] Such an unprecedented inflow of new players was accompanied by a surge in their activity. In late 2019, only every tenth brokerage account holder was actively involved in securities transactions, while a year later the share of active players exceeded 16%. The trend observed over previous years continued: although the number of brokerage account holders increased 2.3 times over the year, the total value of securities held by households[2] rose by a little over than one-third. That is, the inflow of funds to the securities market was mainly due to minor investors. Nevertheless, in 2020, securities became a real rival to bank deposits for the first time: investments in securities increased through a reduction in the inflow of funds to deposits. As of the end of the year, the contributions of securities and deposits held by households were comparable (Chart B-9-1).

In 2021, the trends observed in 2020 persisted. Retail investors continued to actively enter the securities market: in January–July 2021, 4.4 million people opened new brokerage accounts, which is comparable with the entire previous year. At the start of 2021 Q2, the share of securities in the annual growth of household savings exceeded the share of deposits for the first time.

Implications for monetary policy

Changes in the structure of household savings influence all aspects of economic processes in one way or another, including the functioning of the monetary policy transmission mechanism. Increased growth in household investments strengthens the overall impact of the Bank of Russia key rate on aggregate demand and inflation in the economy. First, movements in the value of securities held by households are directly related to the functioning of the welfare channel and, to a certain extent, to the functioning of the transmission mechanism balance

ANNUAL INCREASE IN CERTAIN FINANCIAL ASSETS OF HOUSEHOLDS *Chart B-10-1*
(trillion rubles)



Source: Bank of Russia (http://www.cbr.ru/eng/statistics/macro_itm/households/).

[1] *The actual number of retail investors who invested in securities was significantly smaller. According to the survey conducted among brokers, about 60% of all brokerage accounts had zero balances.*

[2] *Hereinafter, only household investments in bonds, unit investment funds and listed shares are implied. Non-listed shares held by households (mainly business owners' shares in their companies) are not viewed as a savings instrument.*

sheet channel (Appendix 1 'Monetary policy transmission mechanism in Russia'). The higher the value of stock assets held by the population is, the more significant these channels become in achieving the goal of monetary policy. Second, bond yields tend to respond faster to key rate changes compared to deposit rates. This is why those investors who prefer bonds to deposits, with everything else equal, adjust their savings and consumption plans more quickly following a key rate change. The share of stocks in the savings of Russian households exceeds the share of bonds to a certain extent, therefore the first direction of increasing the effectiveness of the transmission mechanism is more relevant to monetary policy.

However, **certain structural particularities of households' investments in securities constrain the growth impact of such investments on the transmission mechanism**. Second, households' investments in securities demonstrated a high level of concentration. According to the Bank of Russia survey,[3] 4% of investors accounted for over 90% of all securities acquired. Given that more affluent segments of the population are characterised by lower consumption elasticity as regards market rates, this impedes the acceleration of the interest rate channel functioning.

Second, although retail investors are mainly represented by middle-aged people (30–40 years), the volume of their investments in securities is comparatively low.[4] Older age groups (40–60 years) that are quite consistent in their consumption and savings preferences accounted for more than a half of all securities purchased.

Third, the share of non-residents' instruments, mainly denominated in foreign currency, amounted to more than a third in the structure of households' investments in securities. Quotations of foreign securities do not depend on ruble rates, which are driven by Bank of Russia monetary policy. Hence, investments of population in these papers do not raise the effectiveness of transmission mechanism elements related to pricing in the domestic assets market. At the same time, the ruble value of foreign securities depends on the ruble exchange rate. Therefore, proinflationary impact of ruble depreciation or disinflationary impact of ruble appreciation is implemented not only through the foreign exchange channel of monetary policy, but through the welfare channel as well, which complicates the functioning of the monetary policy transmission mechanism.

Historically, household savings have been dominated by deposits, which is a more traditional and accessible financial instrument. **Recent years have seen a rise in the share of securities in household savings, which, however, remains insignificant.** At the start of 2021 Q2, household deposits exceeded household investments in securities thrice. Given the moderate share of securities in household savings and the structural specifics described above, **this is insufficient for a major shift in the functioning of the monetary policy transmission mechanism**. However, the ongoing outstripping growth in household investments in securities might result in shifts in the functioning of the monetary policy transmission mechanism. To maintain the effectiveness of its monetary policy, the Bank of Russia exercises regular monitoring of the stock market, including household operations with securities. Therefore, the Bank of Russia keeps streamlining the reporting of professional securities market participants, methods and procedures to analyse securities market functioning.

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[3] *The information and analytical material Review of Key Indicators of Professional Securities Market Participants for 2021 Q1.*

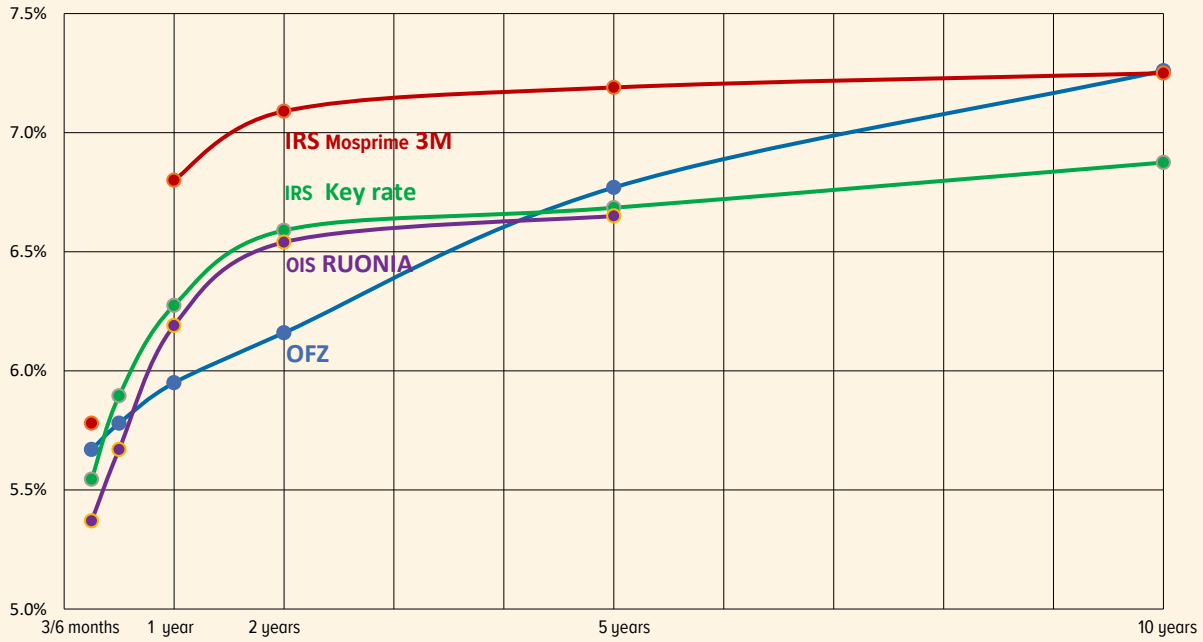
[4] *See https://cbr.ru/analytics/rcb/broker_market/.*

BOX 11. TRANSFER CURVE AND THE SHAPING OF INTEREST RATES ON BANK OPERATIONS

Transfer curve is a set of internal uniform transfer rates for operations of various terms set by a commercial bank. It is a foundation of the intrabank transfer pricing system, which enables a credit institution to apply approved pricing parameters to operations in various market segments and, where appropriate, change its balance sheet structure, choosing between various funding and placement sources. In order to determine terms and conditions for any transaction (whether a lending, deposit, or stock exchange transaction) for a particular term, a bank only needs to set the transfer rate for this term and assess costs and risks associated with this transaction. Furthermore, the use of transfer pricing as part of the liquidity and interest rate risk management mechanism enables banks to gain additional income from maturity management – raise funds for shorter terms and invest them in assets for longer terms.

There is no such thing as a uniform transfer curve for the entire banking sector. Each bank builds its individual curve based on low-risk market instrument yield curves, and prepares internal assessments where necessary. The basic curve, which is usually referred to as 'risk-free' in banks' internal documents, relies on yields of such instruments as OFZs and interest rate swaps. The use of a transfer curve is deemed more reasonable for large banks that simultaneously perform operations in numerous market segments. First, they need to ensure integrity and consistency of their pricing policy, second, they need to coordinate the interests of their business units. Small specialised banks, e.g. only operating in the credit and deposit markets, may simply establish two sets of rates, for asset- and liability-related transactions without resorting to transfer rates. Nonetheless, large banks using a transfer curve in their pricing help strengthen the interconnection between financial market segments since the impact of material events,

BASIC CURVES IN RUBLES AS OF 1 JUNE 2021 *Chart B-11-1*



Sources: Refinitiv, Bloomberg, Bank of Russia calculations.

including key rate changes, is simultaneously transmitted to all segments. Transfer curves of large banks are therefore an integral part of the interest rate and credit channels of the monetary policy transmission mechanism.

Transfer rates are only a starting point in bank product pricing. The rate on any type of asset-related transactions should be no less than the transfer rate for the respective term plus costs, risk premiums (general and specific to the type of transaction), lending costs, as well as the interest margin of the respective business unit. Conversely, the rate on any type of liability related transactions should not exceed the transfer rate less costs, a liquidity buffer fee (including a liquidity ratio compliance fee) and the interest margin of the responsible unit. Thus, irrespective of the structure of assets and liabilities, the spread between asset and liability related transactions allows banks to cover all costs, risks and generate profits for each of their business units.

Factoring in the costs and premiums of various operations might have a significant impact on banking sector pricing, distorting the response of deposit, loan and corporate bond rates to changes in the level and slope of the risk-free curve. Key costs and risks include operating costs, credit risks of individual segments and borrowers, payments to the deposit insurance system and contributions to required reserves.[1]

Thus, banks' cautious selection of borrowers in 2016–2017, which restricted market access to the highest-risk clients, coupled with the recovery of the Russian economy, brought down credit risk premiums embedded in loan rates and, accordingly, helped (alongside expectations about a further decrease in the key rate) accelerate the reduction of medium-term credit market rates compared to the key rate and money market rates.

Moreover, under certain conditions, the movement of transfer rates and those applied to ultimate borrowers might diverge. For example, a changing market structure became an important rate factor in the long-term household lending segment in 2014, with long-term consumer and car loans being replaced with less risky mortgage loans. As a result, contraction in the risk premium led to a decrease in long-term consumer lending rates, despite the growth in the key and IBL rates over the year. The reverse situation is also possible: a decline in the transfer rate following a decrease in the risk-free rate might trigger a rise in the loan rate backed by an outpacing growth of risk costs.

The final rate determined for a client may be also affected by the cost of options embedded in a banking product. That is, a client's right to unilaterally amend the main terms and conditions of the agreement (such as the maturity, rate, and currency). Apart from that, the final rate set for a borrower

MARKET INTEREST RATE PRICING FOR CLIENTS *Table B-11-1*

= Minimum credit rate
+ administrative and general expenses
+ businesses' lending margin
+ payment for capital
+ cost of credit risk
+ fee for embedded options
Standard transfer price
– fee for embedded options
– payment for liquidity buffer
– expenses for DIA
– expenses for required reserve fund
– administrative and general expenses
– businesses' capital raising margin
= Maximum deposit rate

[1] *For details about costs and risks, refer to Appendix 7 of the Monetary Policy Guidelines for 2018–2020 (http://www.cbr.ru/s/2561).*

on certain types of loans may be lower due to the implementation of government subsidised lending programmes. In this case, the difference between the preferential and market rates is compensated to the bank as a fiscal subsidy.

Financial market parameters may exert additional influence on interest rates in the real sector of the economy. Such parameters include the extent of market segmentation, competition for deposits or high-level borrowers, specifics of business models of certain market players and financial market regulation.

The Russian financial sector is dominated by large banks in the key market segments. This affects the functioning of the monetary policy transmission mechanism: large banks may be less responsive to various external and internal factors, including key rate changes, as they seek to retain their market positions and are more focused on interest rate risk and liquidity risk management. Concurrently, financially resilient large banks enhance the overall resilience of the banking system to negative developments in the external environment or the real sector, which improves the effectiveness of the transmission mechanism in the long run.

BOX 12.
CONCEPT OF ECONOMIC EQUILIBRIUM AND DEVIATIONS OF KEY MACROECONOMIC VARIABLES FROM SUCH EQUILIBRIUM (GAPS)

In the context of macroeconomic policy, the concept of a long-run equilibrium in the economy is widely applied. In a long-run equilibrium, all key economic indicators grow at a steady pace determined by fundamental factors. In other words, a long-run equilibrium does not imply any specific point, but rather a steady path of economic development. When the central bank implements its monetary policy under the inflation targeting regime in a long-run equilibrium, consumer prices rise at a pace conforming to the inflation target, and economic growth rates are equal to potential and determined by the growth rate of production factors' efficiency and the pace of technological advancement.

The economy can remain in a long-run equilibrium for an indefinite period of time, provided there are no shocks that may trigger short-term deviations of the economy from the equilibrium. A situation where such a deviation occurs is called a 'gap'. Such a gap may arise when economic growth rates, inflation, the exchange rate, unemployment, and other macroeconomic indicators deviate from their long-run equilibrium values. Economic publications refer to an output gap most often. Positive (proinflationary) or negative (deflationary) output gaps may entail a deviation of inflation away from the target.

In an open economy, temporary deviations from an equilibrium may be associated with changes in both domestic economic conditions and the external economic environment. The estimates of output gaps are among the factors considered by the Bank of Russia when developing its monetary policy. A response of macroeconomic policy, including monetary policy, to shocks helps mitigate their consequences for the economy and ensures its prompt return to a long-run equilibrium.

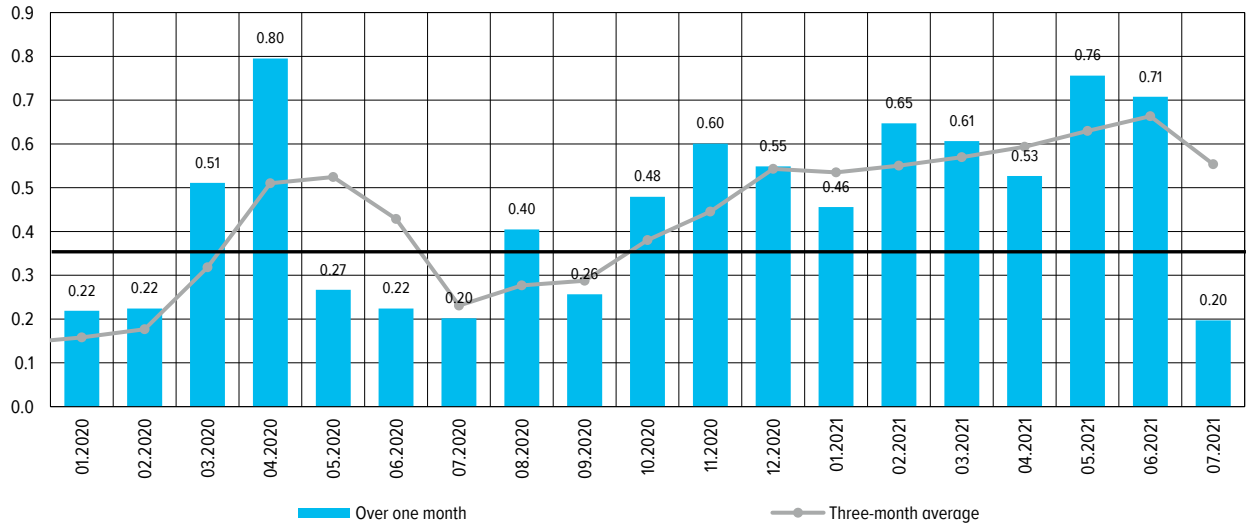
APPENDIX 2. INFLATION INDICATORS USED BY THE BANK OF RUSSIA[1]

The goal of monetary policy pursued by the Bank of Russia is to maintain the inflation rate close to 4%. The inflation rate is impacted by numerous factors, and monetary policy can only control some of these factors, i.e. those that are determined by demand and supply. These are **monetary factors** that are responsible for the steady component of price movements. The Bank of Russia influences these factors by raising or cutting the key rate thereby restraining or stimulating demand. This influence manifests itself with a certain lag. The second group of factors behind inflation are **non-monetary ones**. These are short-term and primarily supply-side factors. The Bank of Russia does not respond to inflation movements that are caused by non-monetary factors since in this case the application of monetary policy measures might have an adverse impact on the economy. Hence, in order to understand medium-term inflation trends and risks of deviation from the target, it is important to identify the steady component in overall price dynamics.

The key inflation indicator for which the Bank of Russia sets a target, is **annual growth in the Consumer Price Index (CPI)**. This indicator reflects the average annual price growth rate. It is not sensitive to seasonal price fluctuations and is easy to interpret. Prompt assessments of current price dynamics relies on the **monthly price growth rate**. This indicator is subject to considerable seasonal fluctuations and it would therefore be incorrect to simply compare neighbouring points. This is why the Bank of Russia uses seasonally adjusted monthly price growth data when carrying out the analysis. However, even with seasonal adjustments, monthly fluctuations of inflation might remain volatile. In order to assess current price dynamics, a **three-month moving average** (hereinafter, 3MMA)

SEASONALLY ADJUSTED CPI
(%)

Chart A-2-1

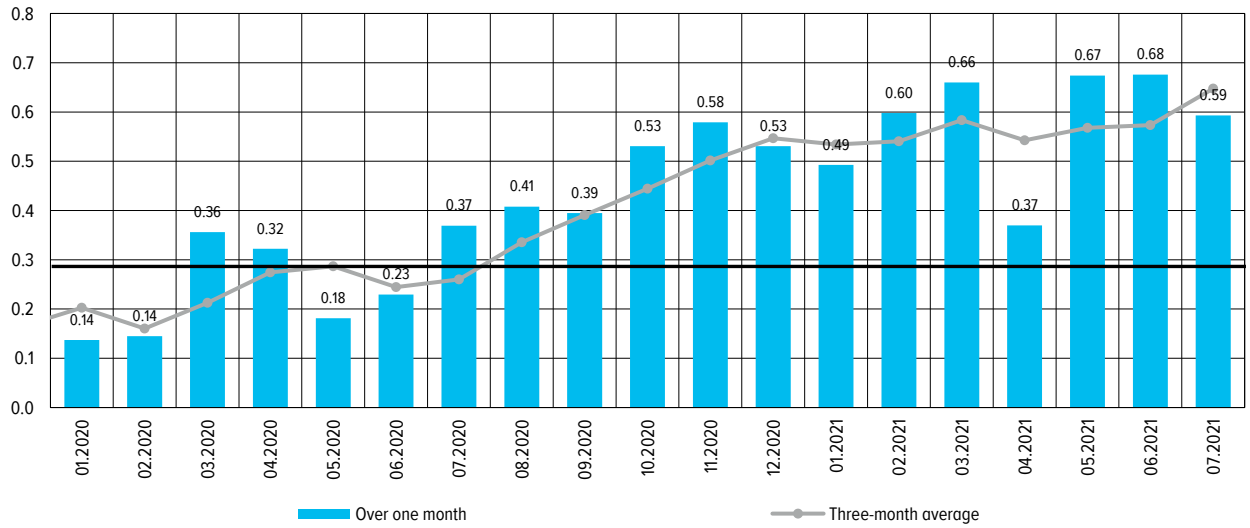


Note. The black line shows monthly price growth consistent with the annual growth of 4%.
Sources: Rosstat, Bank of Russia calculations.

[1] *As of 1 September 2021.*

SEASONALLY ADJUSTED CORE INFLATION
(%)

Chart A-2-2



Note. The black line shows monthly price growth consistent with the annual growth of 4%.
Sources: Rosstat, Bank of Russia calculations.

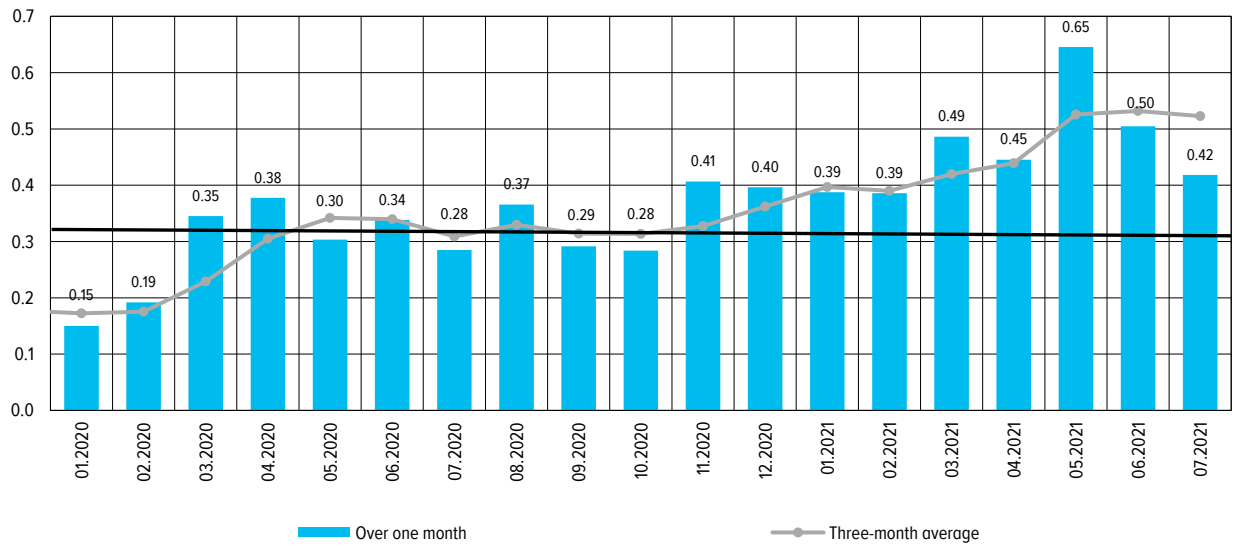
is used, which is seasonally adjusted. Over the last two years, there were two periods of a considerable acceleration in monthly price growth and 3MMA: in March–April 2020 triggered by anti-pandemic restrictions; and in October 2020–June 2021 when inflation sped up as the demand expansion surpassed the potential to ramp up supply and producer costs rose, fuelled by higher global prices.

The consumer price index factors in a wide range of services and goods consumed by households. As global practice shows, it sometimes includes imputed costs, such as imputed rental payments (an amount that a person would pay for leasing their own dwelling). Factoring in rental payments is associated with certain difficulties, this especially pertains to countries with underdeveloped lease markets. Factoring in or out the different components of consumer expenses leads to a different sensitivity of the resulting index to ongoing developments in the economy.

To single out a steady component in overall inflation dynamics, the Bank of Russia applies several indicators. The first one is **core inflation**. Unlike the conventional consumer price index, this indicator disregards administered components (e.g. utility tariffs) and the most volatile ones (e.g. fruit and vegetable products). Over 2020, monthly core inflation mostly stayed close to the levels corresponding to a 4% annual growth rate. However, since October–November 2020, it has steadily exceeded this figure. This indicates that the overall acceleration in price growth is not related to the volatile inflation components.

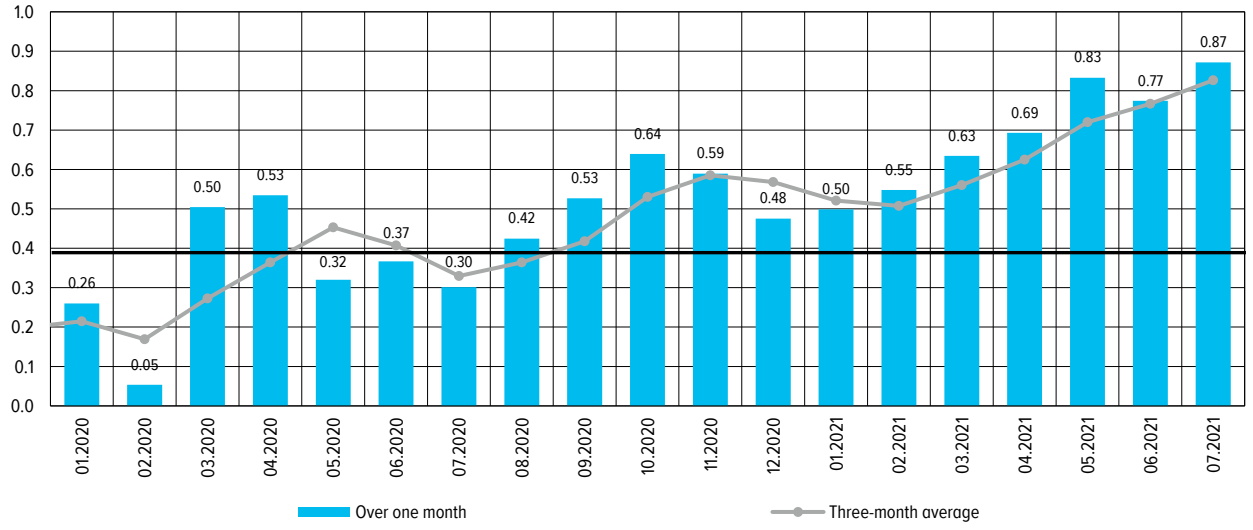
The median of monthly price growth rates is also used to assess steady inflation. It enables inflation assessment without taking into account those components that are the most or least subject to appreciation. This indicator was quite stable throughout 2020 to start accelerating rapidly in March 2021. Another indicator that provides information about the steady inflation component is **non-food price trends excluding petrol**. This index is most accurate in reflecting the impact of supply and demand balance on prices. In this case, petrol is disregarded because its prices are influenced by administrative measures. Non-food price growth rates started to accelerate in August 2020 and currently exceed the level corresponding to a 4% annual growth rate more than two times. Overall, changes

SEASONALLY ADJUSTED MEDIAN OF PRICE GROWTH *Chart A-2-3*
(%)



Note. The black line shows monthly price growth consistent with the annual growth of 4%.
Sources: Rosstat, Bank of Russia calculations.

SEASONALLY ADJUSTED GROWTH IN PRICES FOR NON-FOOD GOODS EXCLUDING PETROL *Chart A-2-4*
(%)



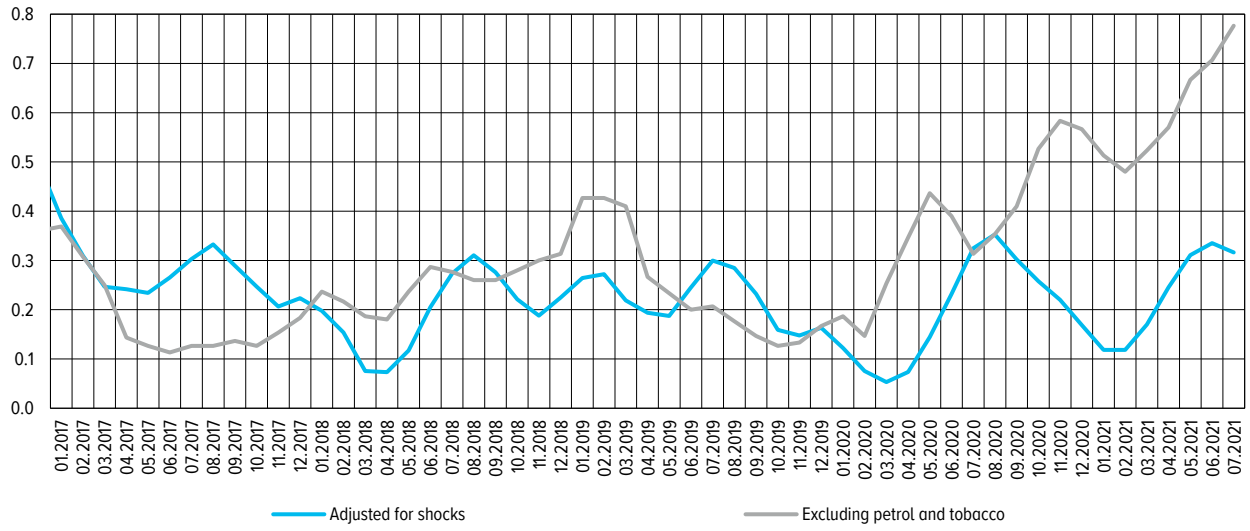
Note. The black line shows monthly price growth consistent with the annual growth of 4%.
Sources: Rosstat, Bank of Russia calculations.

in the indicators that reflect steady inflation are indicative of a stable nature of price growth acceleration in 2021. This is backed by an outpacing growth in demand compared to supply expansion capabilities.

In addition to removing the volatile component from the CPI, the Bank of Russia groups components with a common economic sense into subindices. For example, a group of non-food goods may include those whose markets experienced **no significant one-off shocks over the last year**: clothing, furs, footwear, household chemicals and perfumes. Over the last year, price movements in these groups of goods were the least dependent

GROWTH OF NON-FOOD PRICES
(3MMA)

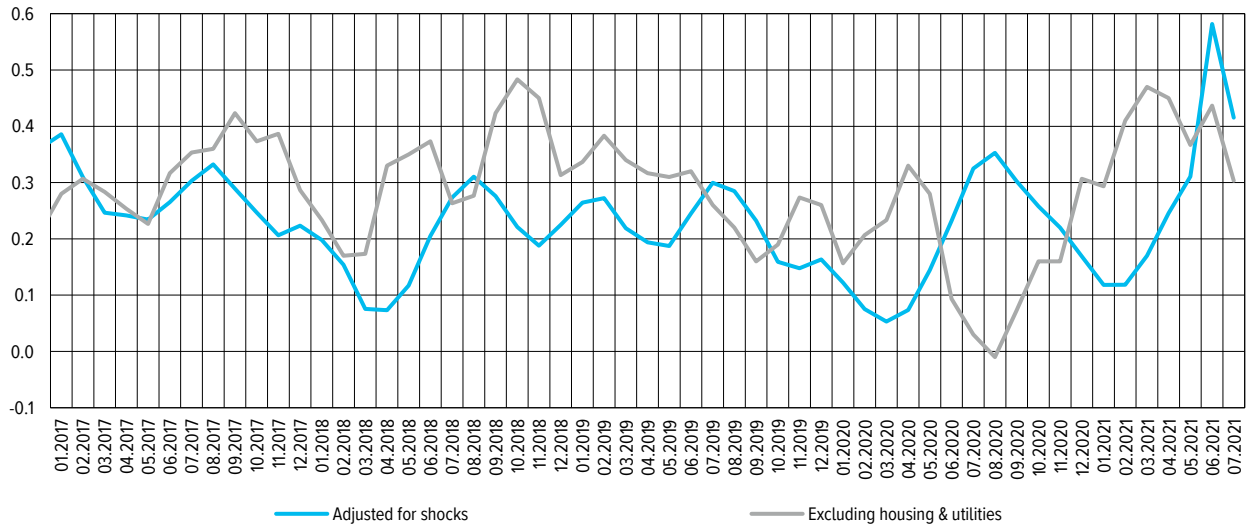
Chart A-2-5



Sources: Rosstat, Bank of Russia calculations.

GROWTH OF SERVICES PRICES
(3MMA)

Chart A-2-6

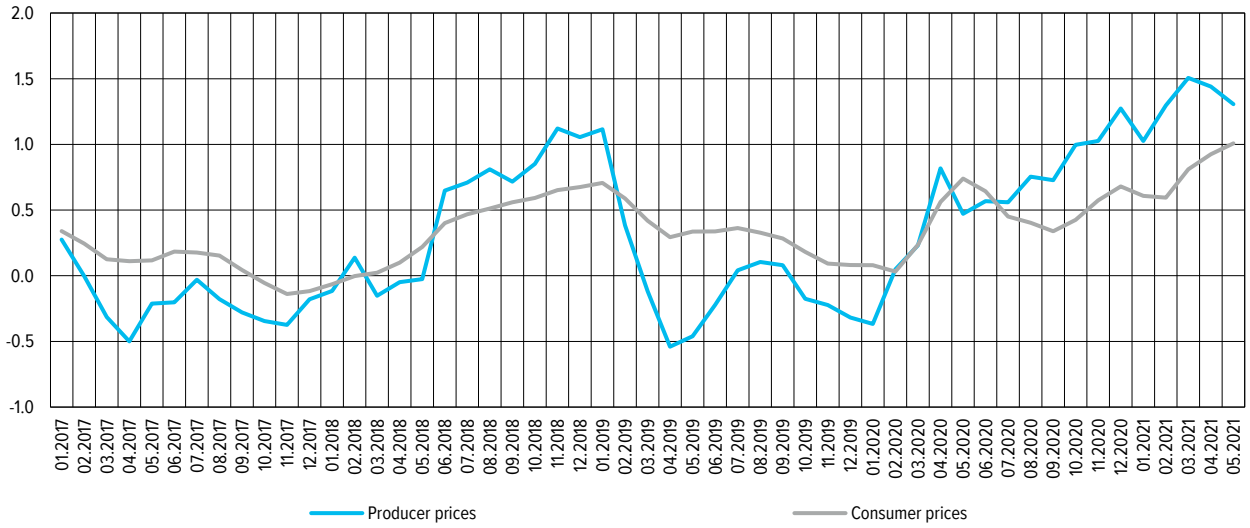


Sources: Rosstat, Bank of Russia calculations.

on one-off factors and thereby reflect the demand situation. Price growth in these groups slowed down in 2020 H2 despite the accelerated price dynamics in other non-food groups. The acceleration was attributed to growth of global prices in certain commodity markets, disruptions in supplies and a shortage of microcircuits. In 2021, price growth in the group of goods under review started accelerating without any influence of major external factors and approached its 2017 highs due to a faster recovery in demand than supply.

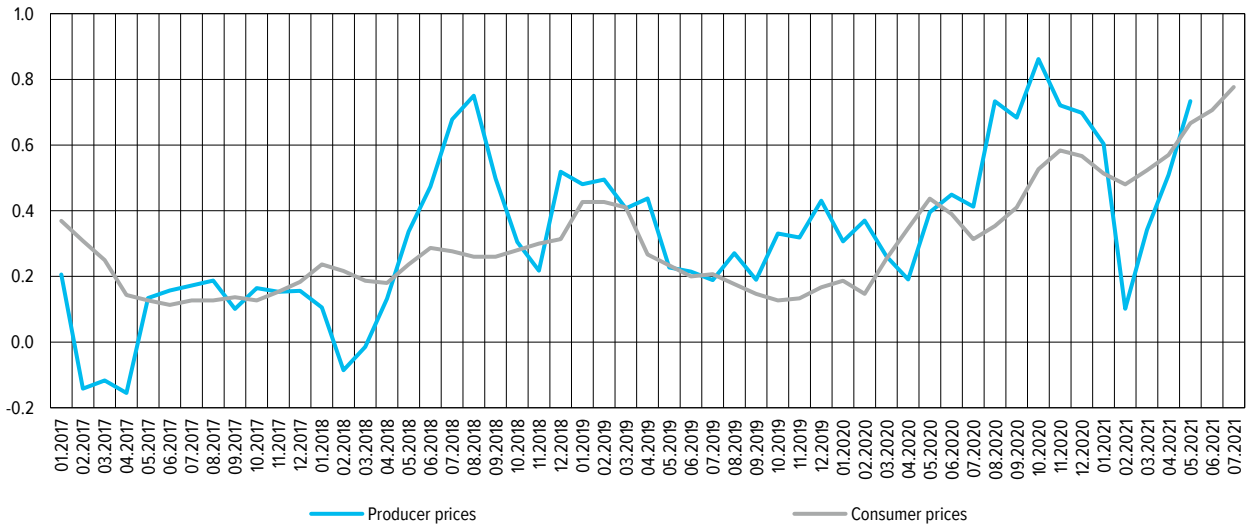
A similar subindex can be developed for services. Personal, legal, banking and insurance services, as well as physical training and sports services are those groups where **supply**

PRICES FOR FOOD EXCLUDING FRUIT AND VEGETABLES AND ALCOHOL (3MMA) *Chart A-2-7*



Sources: Rosstat, Bank of Russia calculations.

PRICES FOR NON-FOOD GOODS EXCLUDING PETROL AND TOBACCO (3MMA) *Chart A-2-8*



Sources: Rosstat, Bank of Russia calculations.

depends on wages of service providers and performers and hence is highly dependent on economic activity. Tariff growth in these groups of services remained quite stable in July 2020–March 2021 to speed up considerably afterwards.

The analysis also applies an underlying inflation indicator, which uses dynamic factor models. This approach makes it possible to identify general dynamics of a large number of economic indicators and specific shocks that are not typical of the majority of indicators. Underlying inflation is considerably less volatile compared with the CPI. In June 2021, it rose to 4.9%, which is also indicative of an elevated inflationary background in the economy.

In addition to a variety of consumer price indices, the Bank of Russia analyses the dynamics of **producer prices for industrial and agricultural goods**. Unlike consumer prices, producer prices do not include transportation costs, taxes, wholesale and retail mark-ups. Short-term dynamics of producer prices are generally more volatile compared to consumer prices. However, this difference is offset in the long-term perspective.

Producer prices cover the entire range of goods produced in the economy, which makes it significantly different from the CPI. In addition to consumer goods, it includes prices for minerals, intermediate and investment goods, including those produced for export. For purposes of analysis, the Bank of Russia only combines those producer price indices into a series that reflect consumer goods prices, with due account of the weights of these goods in household consumption.

Producer prices for food products are characterised by two-year cycles, which are related to cultivation cycles of major crops fields. Nonetheless, 2020–2021 demonstrated a much higher and steady price growth compared to 2018 H2, which is attributed to an increase in demand for food, including global demand.

In 2020 H2, producer price growth in the non-food segment sustained by the recovering economic activity worldwide, outpaced consumer price growth in this group of goods. Namely, over the six months (June–November 2020), consumer prices edged up by 2.8% SA, while producer prices rose by 4.4% SA. In 2021, producer price growth slowed down, however, a climbing demand enabled sellers to transfer increased production costs to prices: over the six months (December 2020–May 2021) consumer prices edged up by 3.5% SA, and producer prices were up by 2.5% SA.

The analysis of a wide range of various price dynamics indicators enables a better understanding of the factors behind the current price acceleration. It should be noted, that price growth acceleration in April–May is different in nature compared to that observed at the end of 2020, and more related to growth in demand outstripping over supply.

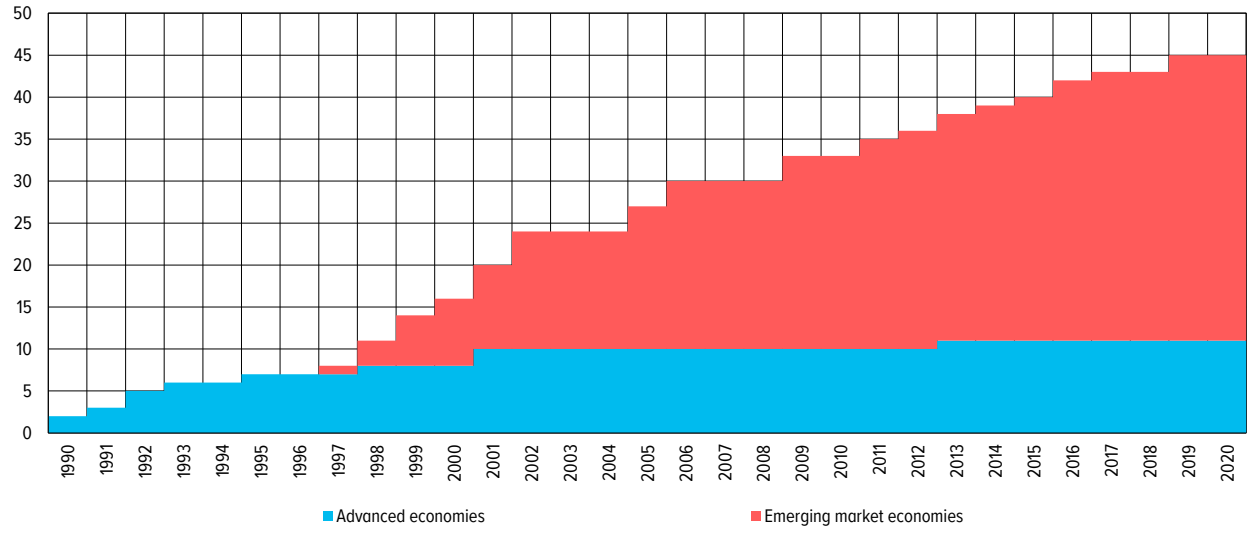
APPENDIX 3.
INFLATION AND MONETARY POLICY: CROSS-COUNTRY COMPARISONS

Inflation targeting countries in the global economy

According to the IMF,[1] 45 countries are currently conducting inflation targeting policy, whether de jure or de facto. According to estimates for 2020, these countries account for circa 70% of global GDP. New Zealand was the first country to embark on the inflation targeting regime in 1989. It was shortly followed by other countries that started transition to inflation targeting since their monetary policies were not sufficiently effective. Thus, regimes targeting other macroeconomic indicators than inflation (e.g. monetary aggregates or foreign exchange rates) prevented national economies from absorbing internal and external economic shocks as effectively, could not ensure the required predictability of macroeconomic conditions and limited overall monetary policy flexibility.[2] In 1997, the Czech Republic[3] was the first among emerging market economies (EMEs) to transit to inflation targeting. Russia shifted to inflation targeting in 2015. As of 2021, 34 EMEs are among inflation targeters.

INFLATION-TARGETING ECONOMIES
(number of countries)

Chart A-3-1



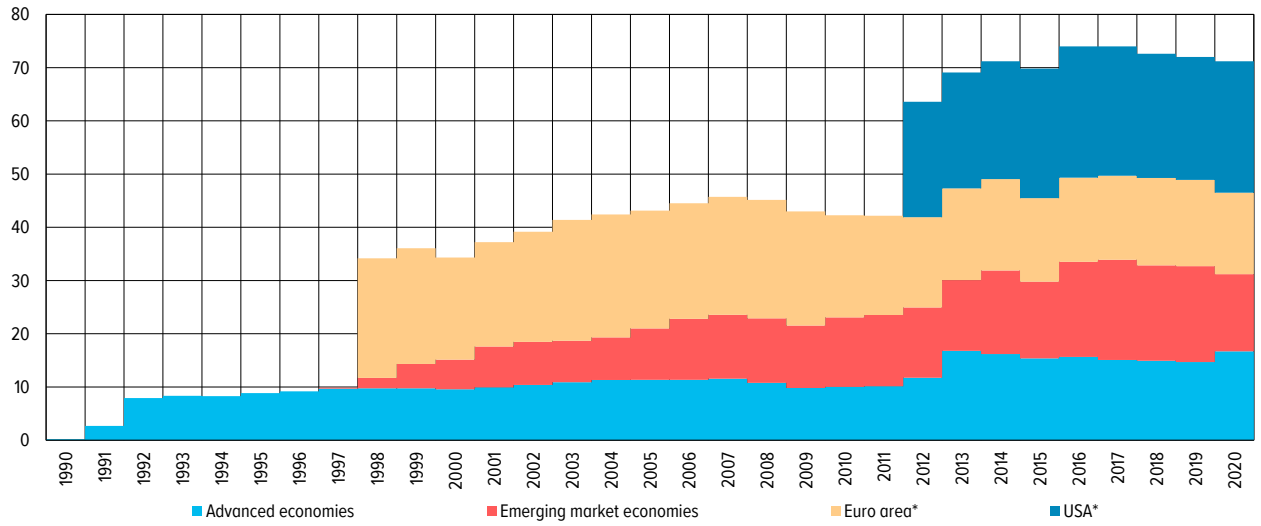
Source: IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER, 2020).

[1] *As stated in the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER, 2020).*

[2] *A greater flexibility of monetary policy in the inflation targeting environment is largely achieved through the anchoring of inflation expectations of the real economy and financial market participants at the central bank's inflation target. This allows central banks of inflation-targeting countries to pursue more focused and effective countercyclical policy to mitigate cyclical fluctuations in the economy and stabilise inflation at the target. This benefit is especially relevant to EMEs where central banks were often forced to tighten rather than ease monetary policy in times of crisis, which exacerbated the scale of economic downturns.*

[3] *The IMF has classified the Czech Republic as an advanced country since 2009 only (World Economic Outlook, October 2009).*

PORTION OF INFLATION-TARGETING COUNTRIES IN THE WORLD ECONOMY *Chart A-3-2*
(share in global GDP, %)



** The USA established its inflation target in 2012, and the euro area – after the introduction of the euro in 1999.*
Sources: World Bank, Bank of Russia calculations.

The US and euro area do not formally declare themselves as inflation targeters. However, they seek to achieve the selected inflation targets and prioritise sustained price stability in carrying out their monetary policy.

Selecting inflation targets and their achievement after the implementation of inflation targeting regime

Central banks of inflation targeting countries usually set the inflation target taking into account the structural and institutional specifics of the economy. Thus, advanced economies are more resilient, and their monetary authorities are more experienced in inflation targeting[4] pursuing highly trusted monetary policy. This keeps inflation expectations, interest rates in the economy and inflation itself at a lower level than observed in EMEs. Given this, inflation targets in advanced economies are generally set at 2% (except for Iceland and Australia). Emerging markets tend to be more volatile, which makes it more difficult to stabilise inflation at levels comparable to advanced countries. Therefore, EME inflation targets are usually higher than those in advanced countries, and are generally set within the range of 3–4%.

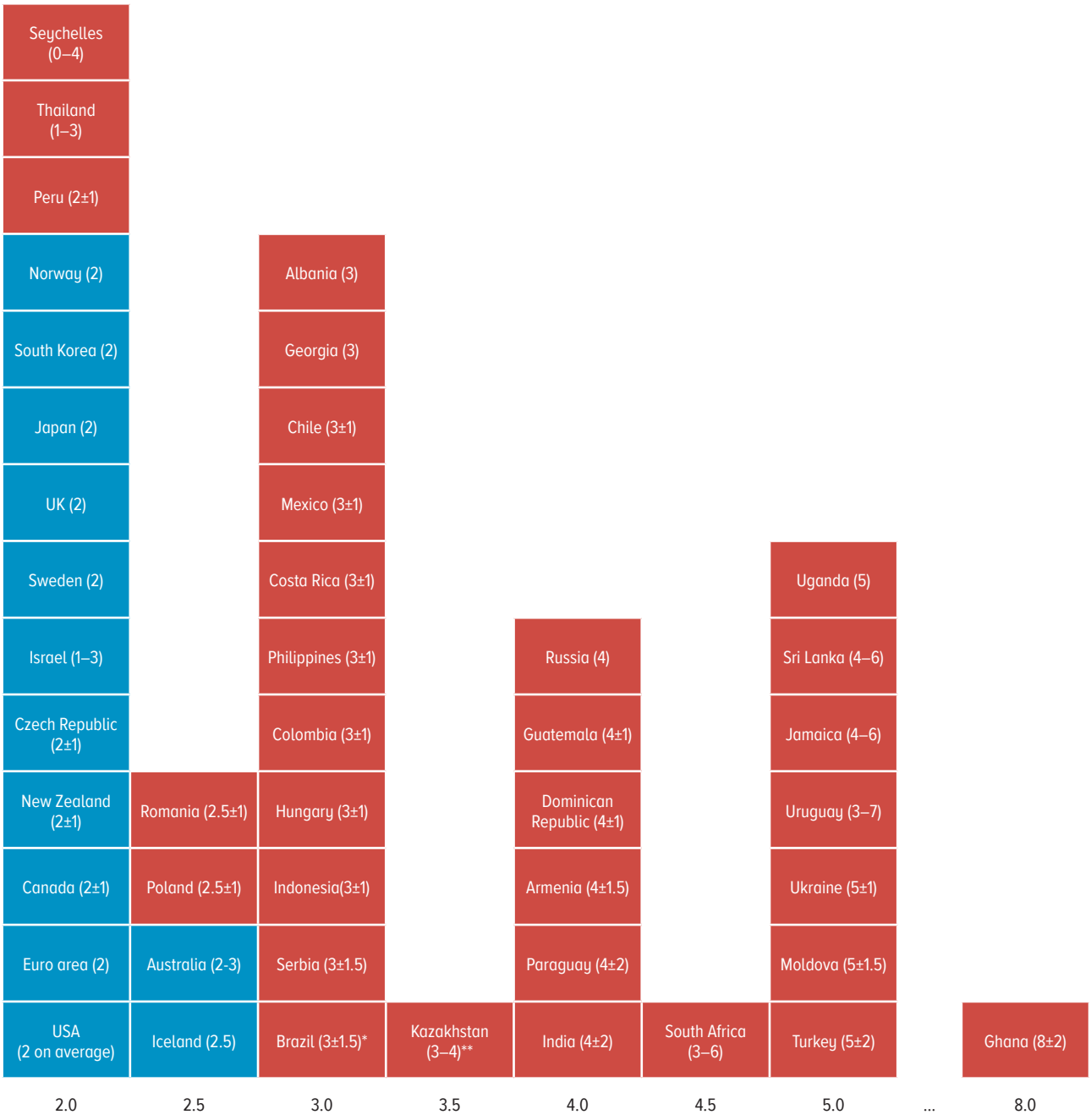
Global inflation targeting experience proves that bringing inflation down to the target might take several years. Therefore, some central banks set interim annual inflation targets at the initial stage. Although inflation targeting countries' policies may rely on common approaches, such aspects of the regime as the existence or absence of a range of permissible deviations and a particular time horizon for bringing inflation back to the target, and the specifics of the operational mechanism may differ depending on the maturity of financial markets and the overall specifics of a particular country.

Although in practice inflation might considerably deviate from the target at certain periods, most central banks that target inflation (both in advanced and emerging markets) ultimately succeed in keeping inflation close to the target. Thus, the average inflation deviation from the target (a single point or the middle of a range) in most advanced

[4] *The average inflation targeting period in advanced countries is 23 years against 14 years in EMEs.*

targeting economies does not exceed 2 pp, while this figure in most EMEs does not exceed 3 pp. Experience in inflation targeting is also relevant: in the vast majority of countries that have been targeting inflation for over 20 years, inflation keeps within the set targets on average. Countries that are less experienced in inflation targeting have a somewhat higher inflation spread.

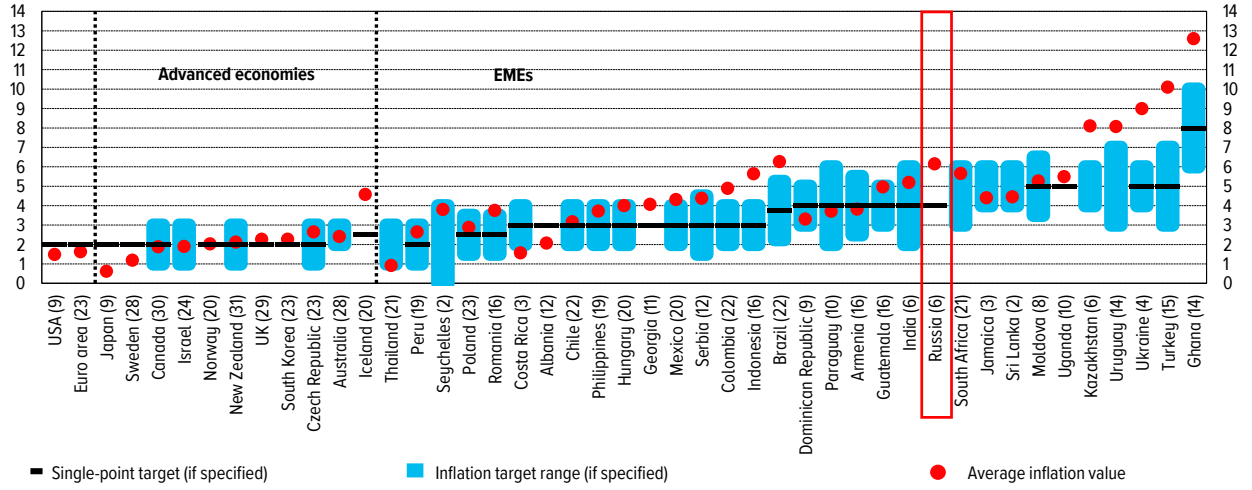
INFLATION TARGETS IN INFLATION-TARGETING ECONOMIES *Chart A-3-3*
(%)



** The Central Bank of Brazil's target for 2024 (its 2021 target is set at 3.75%±1.5).*
*** The National Bank of Kazakhstan's target beginning from 2025 (its 2021 target is set in the range of 4–6%).*
Note. EMEs are shown in red, and advanced economies – in blue.
Source: IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), 2020.

INFLATION TARGETING EFFICIENCY BY COUNTRY: TARGETS (%) AND AVERAGE INFLATION (% YoY)

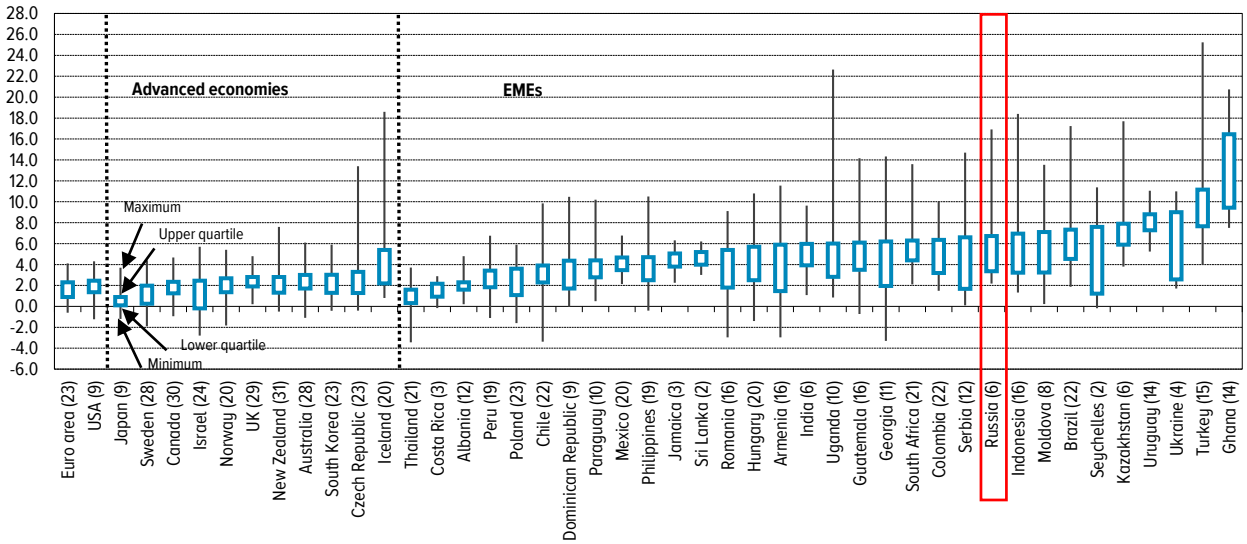
Chart A-3-4



Note: The average inflation rate for each country was calculated since its transition to the inflation targeting regime. For the USA, the headline PCE was used in the calculations. The brackets on the horizontal axis show the inflation targeting period in years. Countries in each group are sorted by the target inflation rate: the point of the middle of the target range (if the middle is not officially set, it is calculated based on the size of the specified range).
Sources: websites of statistical agencies, websites of central banks, Bank of Russia calculations.

INFLATION TARGETING EFFICIENCY BY COUNTRY: RANGE OF INFLATION FLUCTUATIONS AND CENTRAL TREND (% YoY)

Chart A-3-5



Note: Maximum/minimum means the maximum/minimum rate of annual inflation over the entire inflation targeting period. The upper/lower quartile means a value that has 75%/25% of values in the sample below or equalling it. Countries are sorted by the value of the upper quartile. The brackets on the horizontal axis show the inflation targeting period in years. For the USA, the headline PCE was used in the calculations.
Sources: websites of statistical agencies, websites of central banks, Bank of Russia calculations.

INFORMATION ON INFLATION-TARGETING ECONOMIES
(as of October 2021)

Table A-3-1

No.	Country	Date of transitioning to inflation targeting regime	Target type	Target level*	Target range, pp	Average annual inflation after the transition to IT, %**	Standard deviation of inflation from the target, %***
Advanced economies							
Europe							
1	United Kingdom	1992	Point	2%		2.3	0.8
2	Iceland	2001	Point	2.5%		4.6	3.9
3	Norway	2001	Point	2%		2.0	1.2
4	Czech Republic	1997	Point with permissible deviation limits	2% ± 1 pp		2.7	1.9
5	Sweden	1995	Point	2%		1.2	1.4
Asia							
6	South Korea	1998	Point	2%		2.3	1.2
7	Japan	2013	Point	2%		0.6	1.7
Australia and Oceania							
8	Australia	1993	Range	2–3%	1	2.4	1.3
9	New Zealand	1990	Point with permissible deviation limits	2% ± 1 pp		2.1	1.6
North America							
10	Canada	1991	Point with permissible deviation limits	2% ± 1 pp		1.9	0.9
Middle East							
11	Israel	1997	Range	1–3%	2	1.9	1.9
Emerging market economies							
Europe							
12	Albania	2009	Point	3%		2.1	1.3
13	Hungary	2001	Point with permissible deviation limits	3% ± 1 pp		4.0	2.3
14	Moldova	2013	Point with permissible deviation limits	5% ± 1.5 pp		5.3	2.8
15	Poland	1998	Point with permissible deviation limits	2.5% ± 1 pp		2.9	2.6
16	Russia	2014	Point	4%		6.2	4.6
17	Romania	2005	Point with permissible deviation limits	2.5% ± 1 pp		3.8	2.4
18	Serbia	2009	Point with permissible deviation limits	3% ± 1.5 pp		4.4	3.4
19	Turkey	2006	Point with permissible deviation limits	5% ± 2 pp		10.1	6.4
20	Ukraine	2017	Point with permissible deviation limits	5% ± 1 pp		9.0	4.7
Latin America and the Caribbean							
21	Brazil	1999	Point with permissible deviation limits	2021: 3.75%± 1.5 pp 2022: 3.50% ± 1.5 pp 2023: 3.25% ± 1.5 pp 2024: 3.0% ± 1.5 pp		6.3	3.3

22	Guatemala	2005	Point with permissible deviation limits	4% ± 1 pp		4.9	2.4
23	Dominican Republic	2012	Point with permissible deviation limits	4% ± 1 pp		3.3	2.2
24	Colombia	1999	Point with permissible deviation limits	3% ± 1 pp		4.9	1.7
25	Costa Rica	2018	Point with permissible deviation limits	3% ± 1 pp		1.6	1.6
26	Mexico	2001	Point with permissible deviation limits	3% ± 1 pp		4.3	1.5
27	Paraguay	2011	Point with permissible deviation limits	4% ± 2 pp		3.7	1.7
28	Peru	2002	Point with permissible deviation limits	2% ± 1 pp		2.7	1.6
29	Uruguay	2007	Range	3–7%	4	8.1	3.3
30	Chile	1999	Point with permissible deviation limits	3% ± 1 pp		3.2	1.9
31	Jamaica	2018	Range	4–6%	2	4.4	1.2
Asia							
32	India	2016	Point with permissible deviation limits	4% ± 2 pp		5.2	2.2
33	Indonesia	2005	Point with permissible deviation limits	3% ± 1 pp		5.6	3.0
34	Thailand	2000	Range	1–3%	2	0.9	1.6
35	Philippines	2002	Point with permissible deviation limits	3% ± 1 pp		3.7	1.9
36	Sri Lanka (2)	2019	Range	4–6%	2	4.5	1.0
Middle East and Central Asia							
37	Armenia	2006	Point with permissible deviation limits	4.0% ± 1.5 pp		3.8	3.3
38	Georgia	2009	Point	3%		4.1	4.2
39	Kazakhstan	2015	Range	2021–2022: 4–6% 2023–2024: 4–5% from 2025: 3-4%	2	8.1	3.8
Africa							
40	Ghana	2007	Point with permissible deviation limits	8% ± 2 pp		12.6	5.9
41	Uganda	2011	Point	5%		5.5	4.8
42	South Africa	2000	Range	3–6%	3	5.7	2.4
43	Seychelles	2019	Range	0–4%	4	3.8	4.3

** As of 2021, unless indicated otherwise. Inflation targets are usually set for the overall consumer price index. Countries may use its value in the current month against the corresponding month of the previous year, as of the end of the year, or its average over the year.*

*** Average annual inflation is calculated by month.*

**** Shows by how many pp annual inflation in the country deviated on average from the target over the entire inflation targeting period. For countries that have changed their target since the transition to inflation targeting, the targets that were in effect in corresponding periods are taken into account. The inflation target is either a single-point value, or the middle of a range with a point announced by a central bank. If the inflation target is set only as a range, then the estimated middle point of the pre-set range is used as the target.*

Sources: IMF, websites of central banks, websites of statistical agencies, Bank of Russia calculations.

APPENDIX 4. NON-MONETARY INFLATION FACTORS IN 2021

In 2021, non-monetary factors related to economic implications of the coronavirus pandemic, which started in 2020, continued to affect the inflation rate in Russia. The group of non-monetary factors includes non-systematic changes in supply and demand, which are determined by one-off events and whose impact on inflation is exhausted over a short-term horizon. These include, among other things, global price fluctuations, poor harvest, disruptions in supplies, panic-buying, one-off administrative regulation measures, etc. The central bank targeting inflation does not respond to price movements caused by these factors as they fade quickly and hence do not fall within the scope of monetary policy instruments. Applying monetary policy measures in response to such changes could entail volatility of output gap and prices in the medium term. Instruments that are used to mitigate the adverse impact of one-off non-monetary shocks include customs and tariff policy mechanisms and other short-term government regulation measures unrelated to the fundamentals of market pricing.

In 2021, **imbalances in global commodity markets exerted higher pressure on the inflation rate in Russia. Furthermore, changes in anti-pandemic regimes in Russia and worldwide contributed to a high volatility of prices**, primarily in services.

1. Proinflationary influence of non-monetary factors

In 2021, global markets were driven by a stable recovery of global demand stimulated by large-scale government support measures, and also by a shrinking supply capacity due to anti-pandemic restrictions. Thus, there were delays or drops in supply volumes of commodities, spare parts, ready products and a shortage of transportation capacities. The PMI Suppliers' Delivery Times index, which captures the observance of delivery terms for goods ordered in advanced countries, reached its 15-year lows. In EMEs, this index was higher. However, procurement managers who took part in the IHS Markit survey noted that the situation might remain challenging until the end of 2021.

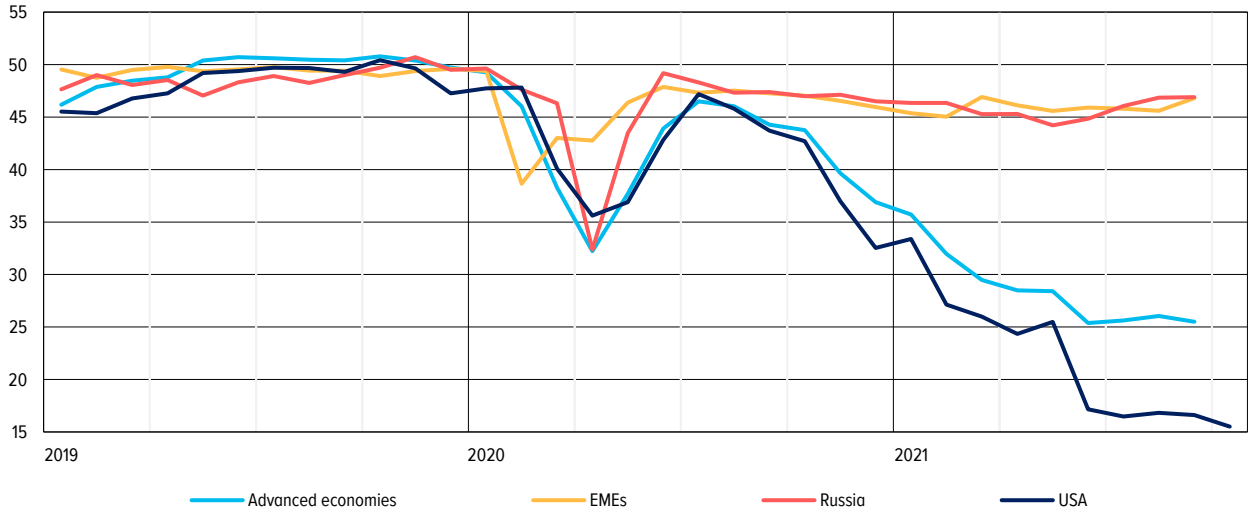
Disruptions in global supply and logistic chains affected many industries of the Russian economy.[1] Apart from causing deviations from the normal production schedule, supply disruptions encouraged Russian companies to create additional production inventories, search for new suppliers and sale channels. The said developments led to rising costs, which entailed limited output and exerted pressure on end product prices.

The lag in global supply expansion against global demand **accelerated price growth in global commodity markets**, causing a notable proinflationary pressure in Russia. Thus, early 2021 saw an increase in global oil and petroleum product prices, which overlapped the annual change in the parameters of the damper component of the reverse excise tax on petroleum products (with a 5% indexation of the indicative domestic market price). These developments sped up the growth in domestic **motor fuel prices** (petrol prices were up to 1.1% SA in March, and by circa 0.1% SA over the last months of 2020). The Government of the Russian Federation took steps to expand petroleum product supply in the domestic

[1] *Refer to the Box 'Supply-side constraints and their factors in individual product groups' in the report 'Regional Economy: Commentaries by Bank of Russia Main Branches'. No. 4, April 2021 (http://www.cbr.ru/s/256f).*

MOVEMENTS OF PMI SUPPLIERS' DELIVERY TIMES INDEX
(points)

Chart A-4-1



Source: Bloomberg.

market (including through exchange trade). In May, adjustments to the damper mechanism came into force, whereby indicative price calculation should rely on the actual growth rate of petrol retail prices (in 2021 – over the two previous years). This reduced the price pressure. According to estimates, petrol could have appreciated by another 4.4 pp with the previous parameters retained. In Q2, the average monthly growth rate of consumer prices for petroleum products slowed down to 0.5% SA (1.1% SA in Q1). However, in July–September, retail and wholesale prices for motor fuels sped up again, spurred by, among other factors, higher global prices.

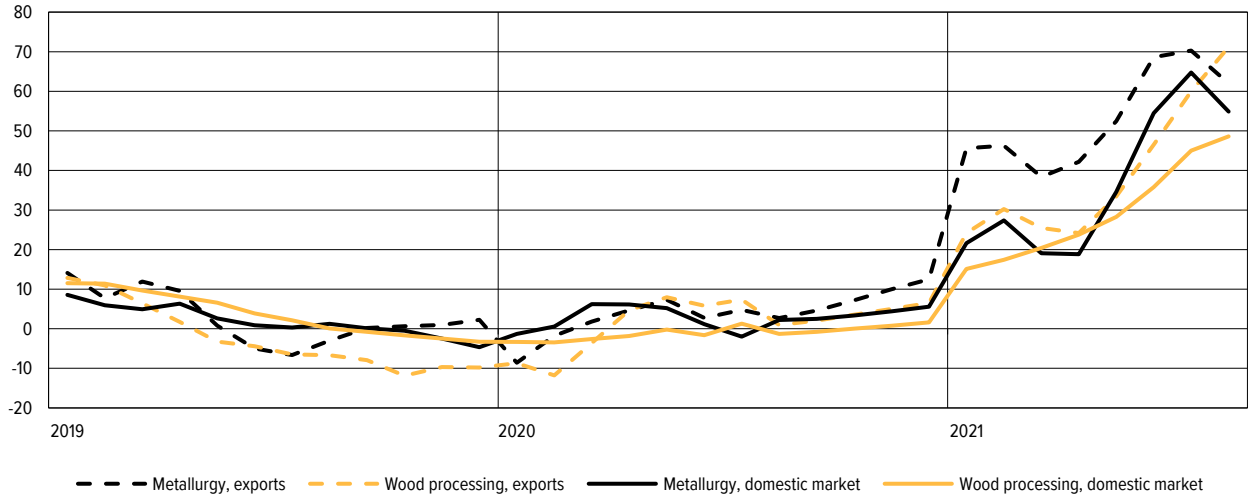
Given the global upward trend in energy commodity prices fuelled by the pandemic, indexation of **prices and tariffs for goods and services of infrastructure companies**, including payments for utility services to households and fares for second-class railway passenger sleeping cars, is an important mechanism to prevent the exacerbation of the cost-price spiral (according to the 'inflation minus' principle). In September 2021, the annual increase in administered utility services prices was 3.71%, in ticket prices for second-class sleeping cars it amounted to 4.1%.

The global industrial goods market experienced an especially steep growth in prices for **metals, metal products, timber and timber products**. Russia is one of the key suppliers of these products to the external market. Accelerated growth growth in export prices was accompanied by steep growth in producer prices in the domestic market.

These developments accelerated appreciation of numerous consumer goods. The most notable rise was observed in prices for construction materials whose production costs structure has an especially high share of metal and timber products. In 2021 H1, its average monthly value totalled 3.0% SA against 0.3% SA in the same period of 2019. In June, the monthly growth rate reached 6.75% SA, its maximum level since June 2016. Nonetheless, it started to decline in July, as a result of changes in global prices and the customs and tariffs regulation measures implemented by the Russian Government. In Q3, the monthly growth rate averaged 1.4% (SA). Rising metal prices became one of the main drivers of a rapid motor car appreciation. Spare part shortage was an additional factor that limited their

PRODUCER PRICES IN METALLURGY AND WOOD PROCESSING
(% change YoY)

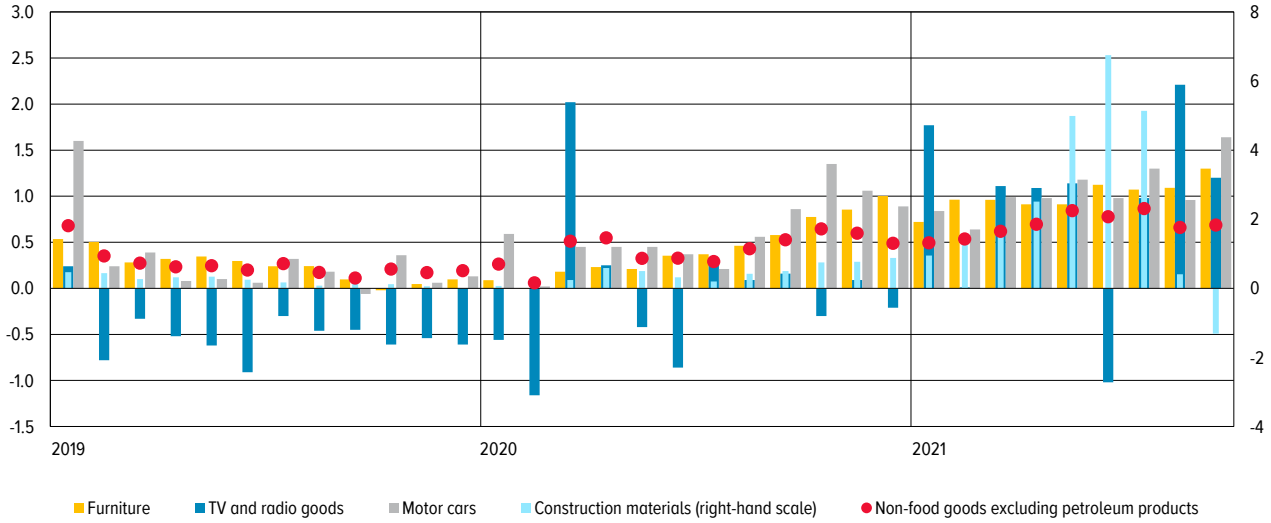
Chart A-4-2



Source: Rosstat.

NON-FOOD GOODS PRICES
(% change MoM, SA)

Chart A-4-3



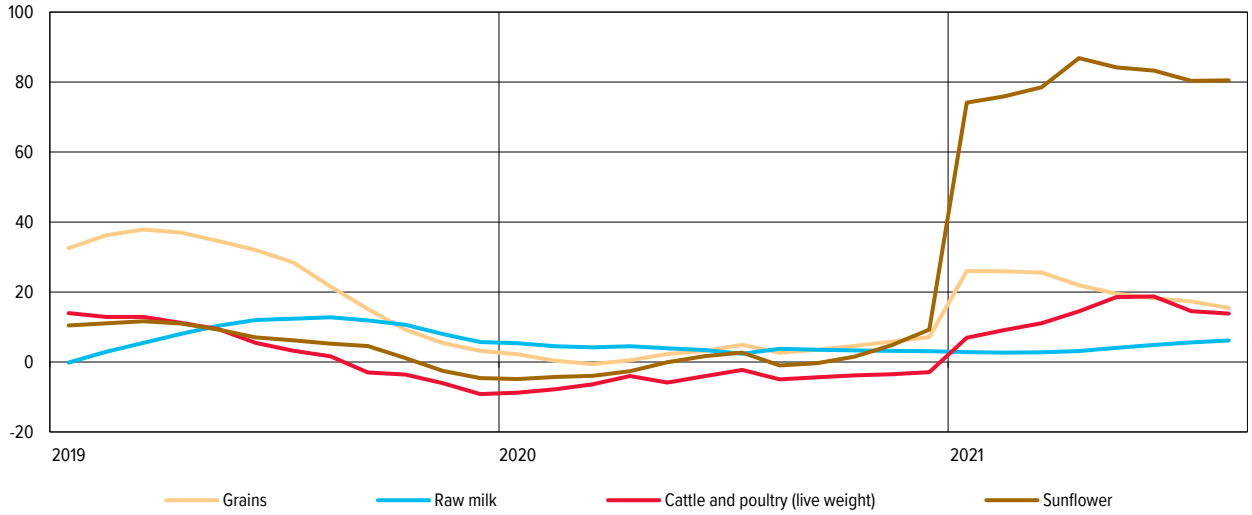
Sources: Rosstat, Bank of Russia calculations.

output and increased producer costs: the global market faced a deficit in semiconductor components, including microcircuits. As a result, average monthly growth of consumer prices for cars in January–September 2021 reached 1.1% SA (0.3% SA over the same period in 2019).

The transfer of costs to prices in these market segments prompted the expansion of demand, which was supported by government programmes. Accordingly, subsidised mortgage lending, having given an impetus to dwelling acquisition and housing construction, contributed indirectly to a rising demand for construction materials, furniture and household appliances. Demand for domestic motor cars was supported by government programmes. The shift in the costs structure towards durable goods was also driven by the 'closed

AGRICULTURAL PRODUCTS PRODUCER PRICES
(% change YoY)

Chart A-4-4



Source: Rosstat.

borders effect', which ignited households' purchasing demand for countryside real estate and thereby for household and repair goods, and motor cars. **Accelerated price growth for durable goods was the main contributor to the general rise in non-food prices.**

In order to offset the adverse implications of increased global prices for metals, the Government of the Russian Federation imposed export duties on ferrous and non-ferrous metals[2] shipped outside the EAEU, effective from 1 August to 31 December 2021. Upon expiry of this period, a permanent price stabilisation mechanism for metals and metal products will be launched. The new duties on timber product exports are in effect from 1 July to 31 December 2021. These measures will enable stabilisation of domestic prices for timber and metals and impede the growth in consumer prices for non-food goods.

The increase in global prices spurred growth in domestic **producer prices for agricultural commodities and food**. Higher prices for crop products, especially grain and oil crops, had delayed effects on costs and prices in livestock production. Non-monetary factors such as soaring prices for imported veterinary medicines, genetic material, deterioration of the epizootic environment in late 2020–the first months of 2021, exerted an additional impact. 2021 Q1 witnessed a surge in consumer prices for animal origin food products, while the appreciation of meat products had a major role in higher food inflation.

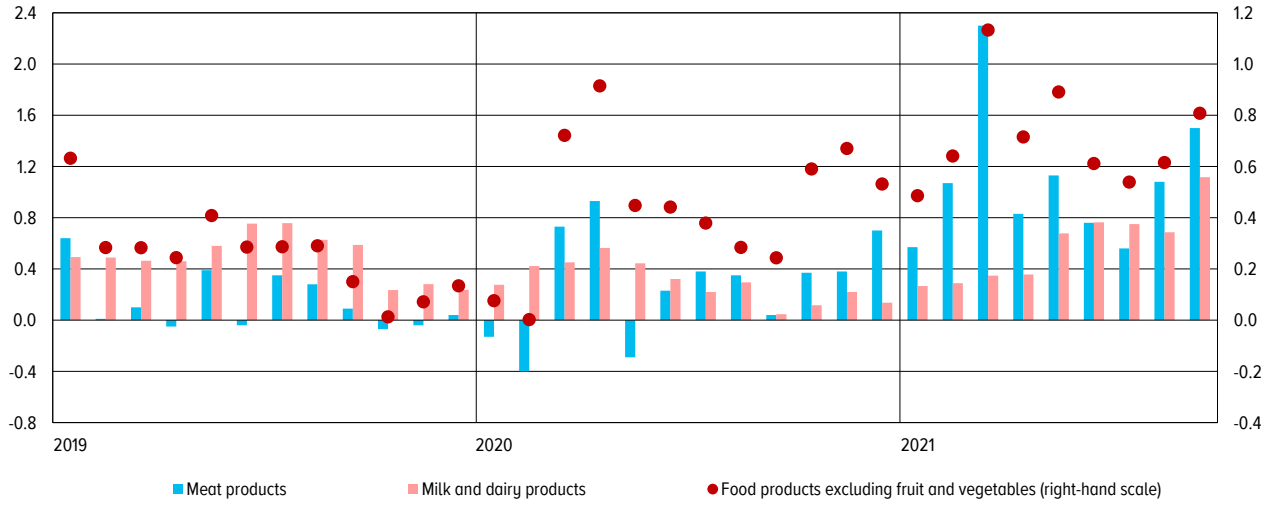
In order to limit the effect of external non-monetary shocks in the food market, the Government of the Russian Federation implemented countermeasures. On 15 February 2021, permanent export duties[3] were established in the **major grain crops market** (wheat, corn and barley); export quotas were in effect until 1 July. On 2 June, a permanent grain damper mechanism was launched (duties are levied when global prices exceed the

[2] *The duty is comprised of the base rate (15%) and a specific component. The value of the latter depends on the type of metal (for non-ferrous metals) or the degree of product processing (for ferrous metals) given the global price dynamics in the first five months of 2021.*

[3] *For wheat: before 1 March – 25 euro per ton, after 1 March – 50 euro; for corn – 25 euro; for barley – 10 euro.*

FOOD PRICES
(% change MoM, SA)

Chart A-4-5



Sources: Rosstat, Bank of Russia calculations.

established base rates).[4] These measures stabilised grain prices in the domestic market and diminished their dependence on global prices. Thus, the domestic wheat price per ton rose by less than 2% on average in July 2021 compared to July 2020. The export price for Russian wheat rose by more than 25% over this period.

At the end of 2020, temporary retail and wholesale price caps were introduced for sunflower oil (in effect until 1 October 2021). In 2021, export duties for sunflower seeds also rose (on 9 January[5] and on 1 July[6]). The floating export duty for sunflower oil was introduced on 1 September.[7]

Customs and tariff regulation instruments generally help mitigate the adverse impact of temporary non-monetary external shocks on the domestic markets provided that market pricing is retained. However, direct administrative interference in pricing carries the risks of local deficits, lower supply, terminated investments on part of producers and destabilisation of consumer sentiment. Monetary policy serves as the key mechanism to achieve and maintain price stability.

2. Effect of non-monetary factors on price volatility

In 2021, changes in anti-pandemic regimes in the country and abroad (their toughening or softening following the development of the pandemic situation) continued to dominate the travel and related services market (transportation, hotels, public catering). Switching of passenger flows between international and domestic destinations with newly imposed or lifted travel restrictions, changes in air transportation parameters caused **fluctuations in prices for these services at a large scale**. However, due to the diversity of services, they offset

[4] *The base price for wheat was set at 200 US dollars per ton. Where the price exceeds 200 US dollars per ton, the duty amounts to 70% of the difference between the base price and 200 US dollars. The base price for barley and corn was set at 185 US dollars per ton.*

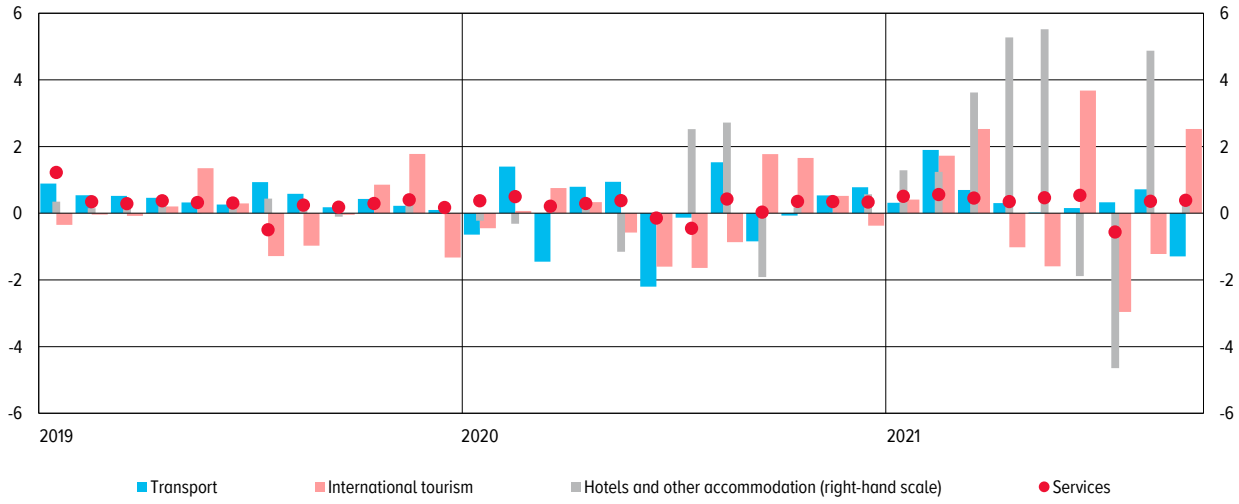
[5] *From 6.5% to 30%, but no less than 165 euros per ton.*

[6] *50%, but no less than 320 US dollars per ton.*

[7] *The export duty amounts to 70% and is paid as a difference between the base price (1,000 US dollars per ton) and the indicative price (average monthly market price) (50 US dollars per ton.*

SERVICES PRICES
(% change MoM, SA)

Chart A-4-6



Sources: Rosstat, Bank of Russia calculations.

each other and the average price growth rate for these services was actually stable. This evidences that a rapid switch in demand for various destinations and recreation activities was the main source of volatility. In this environment, the range of price fluctuations might be expected to decrease as the epidemiological situation stabilises.

After normalisation of the global epidemiological situation, the effect of temporary factors related to anti-pandemic measures will fade out gradually. Measures taken by the Government of the Russian Federation helped mitigate their adverse short-term effects. Nevertheless, the reviewed **non-monetary factors induced undesirable long-term secondary effects**. The accelerated price growth resulted in elevated inflation and price expectations of economic agents, and stimulated higher consumption. **Risks to the medium-term price stability arose, which demanded the use of monetary policy instruments.** Given the monetary policy stance, annual inflation will edge down to 4.0–4.5% in 2022 and will remain close to 4% further on.

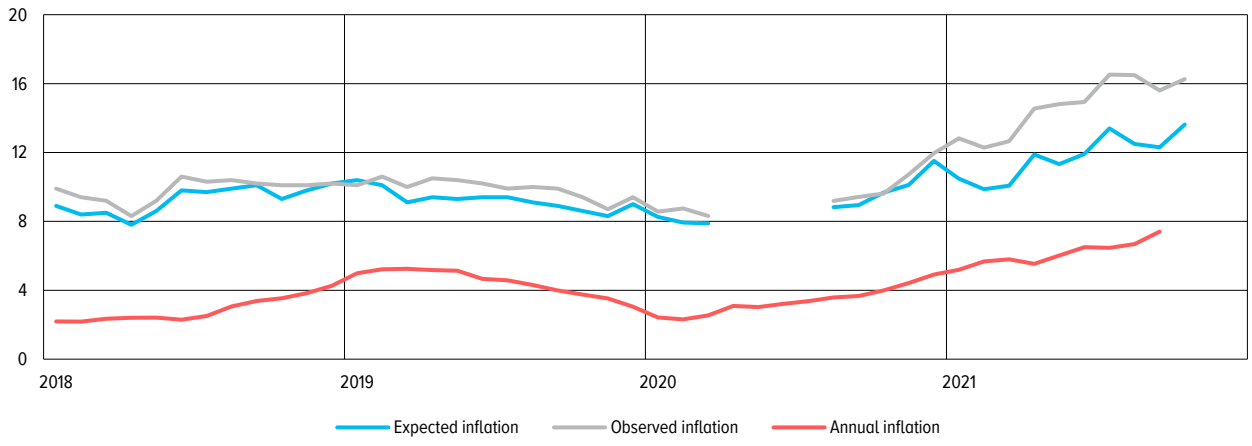
APPENDIX 5. HOUSEHOLDS' AND BUSINESSES' PERCEPTION OF INFLATION: SURVEY RESULTS

Perception of inflation by households and businesses and their inflation expectations are essential for the efficient implementation of monetary policy. When economic agents' inflation expectations are anchored at the inflation target, they do not change in response to arising one-off proinflationary or disinflationary factors. Such a situation requires no monetary policy response either. Conversely, when inflation expectations are not anchored and are sensitive to the impact of one-off factors, their growth might create secondary effects and the risk of a medium-term deviation of inflation from the target, thus requiring a monetary policy response. Hence, the Bank of Russia especially focuses on analysing economic agents' inflation expectations and their perception of current inflation.

When analysing households' and businesses' inflation expectations, the Bank of Russia first and foremost relies on InFOM's household surveys commissioned by the Bank of Russia, as well as on company monitoring performed by the Bank of Russia. Additional sources of data on inflation expectations of economic agents include inflation forecasts prepared by professional analysts and estimates of implied inflation for inflation-indexed federal government bonds (OFZ-IN).[1]

The period of 2020–2021 was largely marked by a rise in households' inflation expectations in response to one-off hikes in prices for certain goods and amid overall inflation acceleration. In January 2020–October 2021, respondents most often noted growth in prices for fruit and vegetables, meat and poultry, and eggs in response to events that triggered an increase in prices for these goods. By October 2021, inflation expectations had reached their highs since November 2016, and the median estimate of

INFLATION OBSERVED AND EXPECTED BY HOUSEHOLDS (MEDIAN ESTIMATE) *Chart A-5-1*
(%)

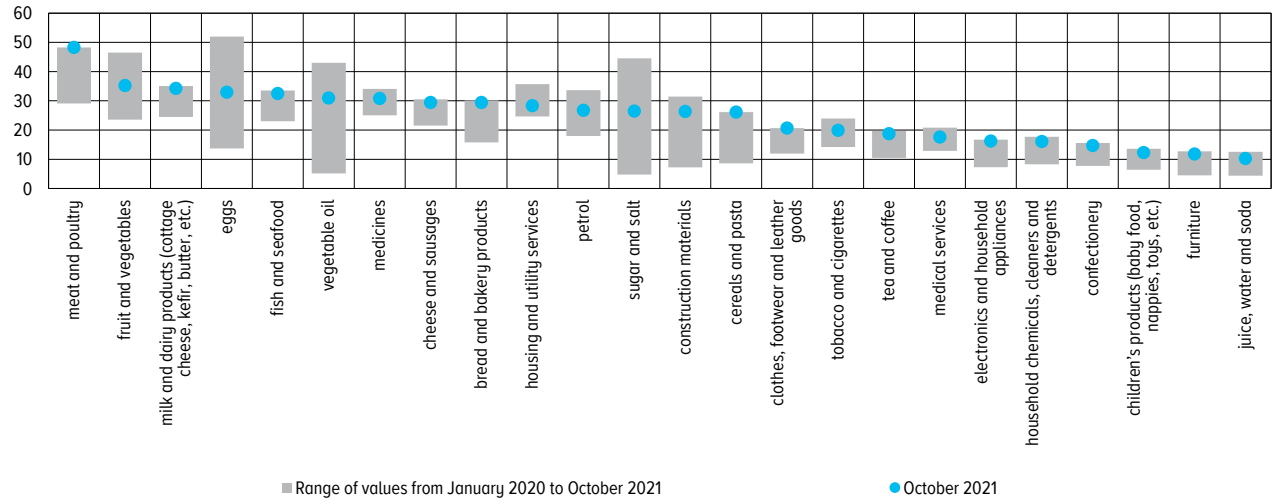


Sources: InFOM, Rosstat.

[1] *The analysis of current changes in economic agents' inflation expectations is presented in the Bank of Russia's information and analytical commentary Inflation Expectations and Consumer Sentiment (http://www.cbr.ru/s/2574).*

DISTRIBUTION OF RESPONDENTS' REPLIES TO THE QUESTION 'FOR WHAT MAIN PRODUCTS, GOODS AND SERVICES HAVE PRICES INCREASED CONSIDERABLY OVER THE PAST MONTH?'
(% of total respondents)

Chart A-5-2



Source: InFOM.

inflation expected in the next 12 month reached 13.6%. The rising inflation expectations elevated the estimates of inflation observed by households that reached 16.3% in October.

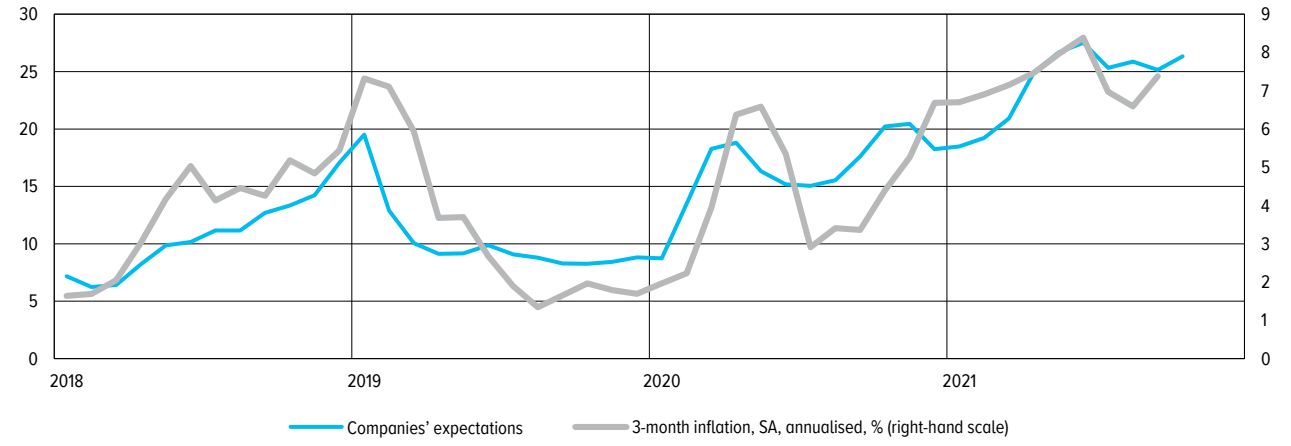
Such a notable rise in households' inflation expectations in response to the price pick-up indicates a low extent of their anchoring. The Bank of Russia considers a decline in volatility and sensitivity of inflation expectations to one-off and short-term price fluctuations for certain goods and services as the key criterion of inflation expectations anchoring. Given that inflation expectations remain sensitive to such fluctuations, changes in the current price dynamics exert a considerable impact on consumer behaviour. Thus, in late 2020–2021, Russians demonstrated a lower propensity to save against the backdrop of high inflation expectations. According to InFOM surveys, the share of respondents who preferred saving over expensive purchases had reached 50% by May 2021, being the lowest value since July 2015.[2] The decline compared to the pre-pandemic level (February 2020) was 6 pp. In October 2021, the share of such respondents edged up to 51%, remaining close to its multi-year lows. Such changes in consumer behaviour, which occurred despite the influence of one-off proinflationary factors, speed up price growth and might trigger an inflationary spiral and a long-term deviation from the target.

In 2020–2021, businesses' price expectations for the next three months also increased. Growth in price expectations was mainly driven by higher costs. In May–June 2021, the share of businesses to note this factor reached its 12-year highs. Companies noted growth in prices for commodities, materials and spare parts both in the domestic and in external markets. They transferred the increased costs to output prices, which was facilitated by the expansion of demand for their goods. In October 2021, the average price growth rate expected by businesses for the next three months was 4.0% in annualised terms, which was notably higher compared to the pre-pandemic level of 3.1% in January 2020. Broken down by industries, the highest price expectations were observed in trade. In October 2021, the average price growth rate expected by retailers for the next three months was 7.1% in annualised terms.

[2] *Refer to InFOM Brief Analytical Report (http://www.cbr.ru/s/2563).*

COMPANIES' PRICE EXPECTATIONS (BANK OF RUSSIA)
BALANCE OF REPLIES
(%)

Chart A-5-3



Sources: Bank of Russia, Rosstat.

Inflation expectations of economic agents in 2020–2021 ramped up to hit their multi-year highs in response to the accelerated price growth. An increase in the key rate followed by an inflation slowdown to 4% are expected to bring down inflation expectations of households and businesses. As inflation further remains close to the target, this will help anchor inflation expectations.

APPENDIX 6. IMPACT OF A DIGITAL RUBLE ON MONETARY POLICY

A digital ruble is a new, third form of money. The introduction of a digital ruble will inevitably impact economic agents' demand for other, pre-existing forms of money, namely, cash in circulation and cashless funds of banks (i.e. funds in ruble accounts). An outflow of a portion of funds from the cash and cashless forms to digital rubles is likely to occur. The speed and scale of such a replacement will depend on consumer properties of a digital ruble and its convenience for customers. Demand for a digital ruble will be also influenced by restrictions and limits (e.g. on transaction volumes or wallet balances) that the Bank of Russia might impose to ensure a smooth implementation of the new form of money; as well as by requirements to effect certain payments in digital rubles (such as budget payments to the population). The impact exerted by a digital ruble on monetary policy and financial stability will ultimately depend on changes in households' and businesses' demand for various types of money. To this end, the Bank of Russia will be gradually introducing a digital ruble into circulation and expand its application in stages. This measure will enable banks and other economic agents, including the Bank of Russia, to adapt to the new environment.

Introduction of a digital ruble and balance sheets of financial institutions, monetary aggregates[1]

As a digital ruble replaces cash in circulation, the share of issued cash money in the Bank of Russia's liabilities will decline with a growing share of issued digital rubles. This will not entail any changes to balance sheets of credit institutions.

Replacement of cashless funds with a digital ruble, all else being equal, might edge down balances in accounts of bank clients. Banks will be able to substitute these funds with other funding sources such as borrowings in the money market or from the Bank of Russia, their own bonds and time deposits. Unlike the case with digital rubles, demand for time deposits will be sustained due to accrued interest. Likewise, this demand will be supported by a long-term upward trend in households' propensity to save, which is backed by steadily low inflation. Apart from that, banks may adjust the size of their assets by placing funds in deposits and Bank of Russia bonds. As regards the Bank of Russia's balance sheet, an increase in the share of issued digital rubles will be commensurate with a reduction in liabilities to banks under deposits and obligations or toughening liquidity-providing operation requirements for credit institutions.

Digital rubles, just as cash in circulation, will become part of the monetary base and money supply. Since all the three forms of money, that is cash, cashless funds and digital rubles, are included in the monetary base, a new form of money in circulation will only change the portion of its various components. Furthermore, since a digital ruble is expected to circulate quicker than cash rubles, servicing the same number of transactions might require a smaller amount of digital rubles. Given that the creation and issuance of digital rubles may go at a quicker pace than the issuance of cash money, this might cut down the

[1] *The schemes showing the impact of a digital ruble on balance sheets of the Bank of Russia and credit institutions are presented in the consultation paper A Digital Ruble (http://www.cbr.ru/s/2570).*

need of the Bank of Russia and financial intermediaries to keep digital rubles in wallets. Businesses will be able to 'collect' digital rubles (that is, convert into non-cash funds) much faster compared to cash money thereby reducing the volume of funds held in vaults. This may somewhat lower money supply growth. However, this effect requires a rather high penetration of a digital ruble in settlements.

Meanwhile, the size of the monetary base may be influenced by diverse factors. Banks' liabilities being replaced with liabilities of the Bank of Russia in digital rubles should increase the monetary base. This increase will be restrained by a reducing volume of required reserves under ruble liabilities of credit institutions. At the same time, a decrease in the broad monetary base will be driven by a contraction in banks' investments in deposits and Bank of Russia bonds. However, provided that the banking sector maintains a structural liquidity surplus.

It should be noted that changes in the amount of cash in circulation and other monetary aggregates alone do not exert any impact on macroeconomic variables, the effectiveness of monetary policy, and financial stability. Money supply in the economy, which is often interpreted as money supply in the national definition, is determined by the impact of money supply sources, of which the key ones currently are banks' loans to households and businesses, as well as operations of government authorities. The size of loans extended by banks depends on demand for borrowed funds on part of economic agents at a given level of interest rates, which is determined by Bank of Russia monetary policy. Meanwhile, the amount of funds supplied by government authorities is determined by state fiscal policy. Hence, coordinated macroeconomic policy of the Bank of Russia and Russia's Ministry of Finance ensures money supply and demand balance in the economy, with the interest rate path keeping inflation close to the target. Therefore any changes in cash circulation, household demand for various payment instruments will be automatically noted by the Bank of Russia in its monetary policy and, accordingly, will not impact the economy and inflation.

Moreover, the ratio between different forms of money – cash, digital and cashless – will mainly depend on the convenience of their use, transaction costs and restrictions when converting from one form of money into another, as well as on the rates of bank deposits, which is the only form of money to generate income for its owner. If the volume of money in the economy meets its overall payment and saving needs, the ratio between these forms will not have an impact on macroeconomic variables.

Introduction of a digital ruble and banking sector liquidity, monetary policy operational procedure

The introduction of a digital ruble might influence banking sector trends and liquidity. Credit institutions may exchange funds from their own correspondent accounts for digital rubles. Therefore, changes in the amount of digital rubles in circulation will become another liquidity factor alongside cash in circulation.

The initial stage of digital ruble introduction might be marked by increased uncertainty of credit institutions and the Bank of Russia, which is attributed to movements in demand for digital rubles and, consequently, its liquidity impact. These circumstances may result in a temporary increase in money market rate volatility. As the banking sector adapts to the new market conditions, money market rates will stabilise. Moreover, cash money is characterised by weekly, intra-month and intra-year seasonality because banks need to

replenish vaults and ATMs before weekends and long holidays. In the case that cash money is replaced with digital rubles, banks will be able to speed up their collection processes and thereby bring down excess demand for these funds. This will smooth out liquidity movements in the banking sector. All else equal, this will diminish the volatility of money market rates in the long run.

As noted above, cashless money being replaced with digital rubles might reduce clients' balances in banks' liabilities. A potential liquidity outflow from the banking sector will reduce the structural surplus and might trigger a shift towards a structural deficit. This means that the Bank of Russia may become a net lender rather than a net borrower in the banking sector under monetary policy operations.

A structural liquidity deficit is a normal state of the banking sector. Banks tend to raise funds from the Bank of Russia rather than deposit, as observed over the recent years. When transitioning to a deficit, interbank money market rates may be in the upper half of the interest rate corridor. Conversely, in a structural surplus environment, they are slightly lower than the Bank of Russia key rate. Therefore, in the case of a switch to a structural deficit, the Bank of Russia will factor in this impact when defining the key rate path. The Bank of Russia will continue to ensure that credit institutions can raise the required volume of funds, whatever the liquidity situation is, by specifying collateral requirements for liquidity-providing operations, where necessary. The introduction of a digital ruble will therefore have no impact on achieving the operational objective of monetary policy.

Introduction of a digital ruble and banking sector profit

As no interest will be accrued on digital rubles, there are no reasons to assume that digital rubles will replace a substantial share of cashless funds. Bank deposits will stay in demand. A significant outflow of funds from current (settlement) accounts is deemed unlikely as banks already today offer a variety of additional services to clients: cashback, interest accrued on a permanent minimum balance, etc. Apparently, most banks will resort to these instruments in order to attract more clients' funds to their accounts.

In the case that 'freely available' client funds in accounts with banks are replaced with funds raised on market terms, there might be some increase in funding costs for banks. The Bank of Russia will take this factor into account in the key rate decision-making. Besides, banks will be able to transfer higher funding costs to rates on other operations and find other sources of income, including those involving digital ruble operations.

Introduction of a digital ruble and the monetary policy transmission mechanism

The impact of a digital ruble on Bank of Russia monetary policy is likely to be minor and protruded in time. After the introduction of a digital ruble such factors as banks' uncertainty over client flows and a possible change in their balance sheet structures, might obscure the transmission of the monetary policy signal to the economy. However, in the long run, the transmission effectiveness of the monetary policy signal to the economy might rise as a result of improved accessibility and coverage of financial services due to a massive circulation of a digital ruble.

Introduction of a digital ruble and financial stability

One of the risks associated with the introduction of a digital ruble is a 'flight to quality' in the case that economic agents develop concerns over banking sector stability. For example, against the backdrop of external economic factors that might adversely affect

the Russian economy and its financial sector. Such developments were recorded earlier and boosted households' demand for cash, gold and other safe assets. Since the conversion of cashless funds to digital rubles implies low transaction costs, materialisation of such risks might cause a surge in demand for a digital ruble. However, the likelihood of such an event appears to be very low: the banking sector is trusted by the population, and the safety of household deposits is guaranteed by the Deposit Insurance System. In the meantime, the Bank of Russia has a wide range of instruments (as part of standard refinancing mechanisms and support to individual credit institutions that encounter temporary difficulties) that will enable access to the required liquidity for banks in the case of shocks. The Bank of Russia also has regulatory instruments in its arsenal, macroprudential instruments and other mechanisms to support banks in a difficult situation.

Notably, the introduction of a digital ruble might strengthen financial stability. This step may also mitigate the risks associated with an increase in the share of foreign currency in the economy as competition from other countries' digital currencies is developing worldwide amid digitalisation of the financial sector. In addition, the creation of an additional payment infrastructure for a digital ruble will contribute to the stability, safety and smooth operation of the country's payment system and monetary settlements, which is also an important condition for overall financial stability.

APPENDIX 7. MONETARY PROGRAMME

The main goal of the Bank of Russia's monetary policy is to maintain inflation close to 4%, and its operational objective is to keep overnight interest rates in the unsecured segment of the interbank money market close to the key rate. This strategy does not provide for setting and delivery on quantitative benchmarks for any other economic indicators, including monetary ones. In addition to the banking sector liquidity forecast, the Bank of Russia calculates the monetary programme indicators. They supplement the forecast indicators which the Bank of Russia takes into account when elaborating and implementing its monetary policy.

Entry 1 'Monetary base (narrow definition)'

A change in the monetary base over the forecast horizon will be promoted by dynamics of the amount of cash in circulation. Cash is expected to gradually return to banks in 2022–2023, after the rise in the demand for cash during the pandemic period in 2020. The amount of cash in circulation will increase by 0.6–0.7 trillion rubles in 2021. As projected in the baseline scenario and the Global Inflation scenario, the amount of cash in circulation will decrease in 2022–2023. The amount of cash money is expected to gradually approach its

FORECAST OF KEY INDICATORS FOR MONETARY AUTHORITIES' ACCOUNTS (MONETARY PROGRAMME INDICATORS)*
(as of the beginning of period, trillion rubles, unless specified otherwise)

Table A-7-1

	2021 (actual)	Baseline scenario			
		2022	2023	2024	2025
1. Monetary base (narrow definition)	**13.8**	**14.5**	**13.9**	**13.7**	**14.1**
1. Cash in circulation (outside the Bank of Russia)	13.4	14.0	13.7	13.5	13.8
1.2 Required reserves**	0.4	0.5	0.2	0.2	0.3
2. Net international reserves	**43.2**	**46.3**	**50.2**	**51.5**	**52.1**
– billion US dollars***	585	627	680	697	705
3. Net domestic assets	**-29.4**	**-31.8**	**-36.3**	**-37.8**	**-38.0**
3.1. Net credit to general government	-11.8	-13.0	-16.9	-18.2	-18.8
3.2 Net credit to banks	-2.4	-3.6	-4.3	-4.5	-4.2
3.2.1. Gross credit to banks	1.9	0.7	0.5	0.5	0.5
3.2.1.1. Claims on refinancing operations****	1.6	0.3	0.2	0.2	0.2
3.2.2. Credit institutions' correspondent accounts with the Bank of Russia	-2.5	-3.2	-3.8	-4.2	-4.5
3.2.3. Credit institutions' deposits with the Bank of Russia and coupon OBRs	-1.8	-1.1	-1.0	-0.9	-0.2
3.3. Other net non-classified assets*****	-15.2	-15.3	-15.1	-15.1	-15.1

** Monetary programme indicators calculated at a fixed exchange rate are based on the official exchange rate of the ruble as of the beginning of 2021.*
*** Credit institutions' required reserves deposited with the Bank of Russia in ruble-denominated accounts (do not include funds in credit institutions' correspondent accounts with the Bank of Russia taken into account within the required reserve averaging procedure).*
**** The forecast change in net international reserves takes into account operations of Russia's Ministry of Finance to buy (sell) foreign currency in the domestic foreign exchange market, as well as the reduction in banks' liabilities on Bank of Russia refinancing operations in foreign currency, operations of the Bank of Russia to buy monetary gold, and settlements within USD/RUB sell/buy FX swaps.*
***** 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 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 foreign currency revaluation of assets.*
Source: Bank of Russia.

FORECAST OF KEY INDICATORS FOR MONETARY AUTHORITIES' ACCOUNTS (MONETARY PROGRAMME INDICATORS)*
(as of the beginning of period, trillion rubles, unless specified otherwise)

Table A-7-2

	2021 (actual)	Global Inflation				Financial Crisis				Worsening Pandemic			
		2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025
1. Monetary base (narrow definition)	**13.8**	**14.5**	**13.9**	**13.8**	**14.2**	**14.5**	**13.9**	**13.9**	**14.0**	**14.5**	**14.5**	**14.3**	**14.2**
1. Cash in circulation (outside the Bank of Russia)	13.4	14.0	13.7	13.5	13.9	14.0	13.7	13.7	13.7	14.0	14.3	14.1	13.9
1.2. Required reserves**	0.4	0.5	0.2	0.2	0.3	0.5	0.2	0.2	0.2	0.5	0.2	0.2	0.3
2. Net international reserves	**43.2**	**46.3**	**52.0**	**55.8**	**58.2**	**46.3**	**52.0**	**50.8**	**50.1**	**46.3**	**46.9**	**46.9**	**47.3**
– billions US dollars***	585	627	705	756	788	627	705	687	678	627	634	635	640
3. Net domestic assets	**-29.4**	**-31.8**	**-38.1**	**-42.1**	**-44.0**	**-31.8**	**-38.1**	**-36.8**	**-36.1**	**-31.8**	**-32.3**	**-32.6**	**-33.1**
3.1. Net credit to general government	-11.8	-13.0	-18.7	-22.5	-24.8	-13.0	-18.7	-17.4	-16.8	-13.0	-13.5	-13.6	-13.9
3.2 Net credit to banks	-2.4	-3.6	-4.3	-4.5	-4.0	-3.6	-4.3	-4.3	-4.3	-3.6	-3.7	-3.8	-4.0
3.2.1. Gross credit to banks	1.9	0.7	0.5	0.5	0.7	0.7	0.5	0.5	0.5	0.7	0.5	0.5	0.7
3.2.1.1. Claims on refinancing operations****	1.6	0.3	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3
3.2.2. Credit institutions' correspondent accounts with the Bank of Russia	-2.5	-3.2	-3.8	-4.3	-4.7	-3.2	-3.8	-4.1	-4.4	-3.2	-3.8	-4.2	-4.5
3.2.3. Credit institutions' deposits with the Bank of Russia and coupon OBRs	-1.8	-1.1	-1.0	-0.8	-0.1	-1.1	-1.0	-0.7	-0.4	-1.1	-0.4	-0.2	-0.1
3.3. Other net non-classified assets*****	-15.2	-15.3	-15.1	-15.1	-15.1	-15.3	-15.1	-15.1	-15.1	-15.3	-15.2	-15.2	-15.2

** Monetary programme indicators calculated at a fixed exchange rate are based on the official exchange rate of the ruble as of the beginning of 2021.*
*** Credit institutions' required reserves deposited with the Bank of Russia in ruble-denominated accounts (do not include funds in credit institutions' correspondent accounts with the Bank of Russia taken into account within the required reserve averaging procedure).*
**** The forecast change in net international reserves takes into account operations of Russia's Ministry of Finance to buy (sell) foreign currency in the domestic foreign exchange market, as well as the reduction in banks' liabilities on Bank of Russia refinancing operations in foreign currency, operations of the Bank of Russia to buy monetary gold, and settlements within USD/RUB sell/buy FX swaps.*
***** 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 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 foreign currency revaluation of assets.*
Source: Bank of Russia.

conventional path by 2024, and the amount of cash will expand following the movements in nominal GDP. The Financial Crisis scenario assumes that cash money will return to banks in 2022 and will have near-zero changes in the amount over 2023–2024. Conversely, the Worsening Pandemic scenario assumes a certain increase in the demand for cash in 2022 and a moderate decline in the amount of cash in circulation over 2023–2024. However, according to all scenarios, the dynamics of this indicator over the forecast horizon, as before, will be substantially restrained by a wider use of cashless payments.

The changed amount of required reserves under ruble liabilities, which are held in special accounts with the Bank of Russia, factors in a 0.8 to 0.9 rise in the required reserve averaging ratio for banks with a basic licence and banks with a universal licence. This will lead to a decline in balances in these accounts with the Bank of Russia in 2022. The reduction in required reserves under foreign currency liabilities, also held in special accounts, is reflected in Entry 3.3 'Other net non-classified assets'. A slight further increase in this indicator during the period under review is explained by the overall growth of money supply (in the national definition).

Entry 2 'Net international reserves'

The implementation of fiscal policy has a substantial impact on the monetary programme indicators. Changes in Entry 2 'Net international reserves' will be predominantly promoted by operations of Russia's Ministry of Finance as part of the fiscal rule implementation.

Allowing for various assumptions regarding oil prices in the Bank of Russia's scenarios, net international reserves may total 47–58 trillion rubles as of the end of 2024. The calculation of the monetary programme factors in the implementation of measures for investment from the NWF in 2022–2024.

Entry 3 'Net domestic assets'

Entry 3.1 'Net credit to general government'

Entry 3.1 'Net credit to general government' takes into account fiscal rule-based foreign currency operations, the transfer of a portion of proceeds received by the Bank of Russia from the sale of the equity stake in Sberbank in 2020, and the use of these funds to finance expenditures in 2021. In addition, the Federal Treasury is expected to reduce the balances of budgetary funds in the Treasury Single Account with the Bank of Russia. As a result, the funds to be placed by the budget system with banks will exceed previous years' amounts. It is estimated that another 1.6–1.8 trillion rubles may be deposited with banks as of the end of the year.

Entry 3.2 'Net credit to banks'

The value in Entry 3.2 'Net credit to banks' will remain negative throughout the period under review.

Entry 3.2.1.1 'Claims on refinancing operations' includes banks' operations to raise funds for longer terms, including through the use of specialised refinancing instruments. The calculation of the monetary programme for 2021 relies on the assumption that claims on loans granted to support small and medium-sized enterprises will be redeemed as scheduled.

In January–the first half of October 2021, average balances in credit institutions' correspondent accounts with the Bank of Russia totalled 3.1 trillion rubles. As before, the forecast for the value in Entry 3.2.2 'Credit institutions' correspondent accounts with the Bank of Russia' implies a uniform trajectory of required reserves averaging by credit institutions. In order to expand credit institutions' liquidity management capabilities, the Bank of Russia made a decision to raise the required reserve averaging ratio for banks with a basic licence and banks with a universal licence from 0.8 to 0.9. starting from April 2022. This will result in an increase of balances in banks' correspondent accounts. Moreover, this ratio is expected to further grow in the period under review, proportional to growth of money supply in the national definition.

Entry 3.2.3 'Credit institutions' deposits with the Bank of Russia and coupon OBRs' is a balancing component of the monetary programme in the context of the liquidity surplus. As a result of changes in other items of the monetary programme, the amount of deposits and coupon OBR placements may reach 0.1–0.6 trillion rubles by the end of 2024. Furthermore, according to the Global Inflation and Worsening Pandemic scenarios, the banking sector might shift to a structural liquidity deficit. The effect of the fiscal rule mechanism reduces the net impact of budget operations on the overall level of the banking sector liquidity. However, an outflow of funds due to the increased amount of cash in circulation and higher balances in banks' correspondent accounts leads to a gradual decline in the structural liquidity surplus.

Entry 3.3 'Other net non-classified assets'

Over the forecast horizon, changes in Entry 3.3 are mainly associated with the payment of interest by the Bank of Russia on standard liquidity-absorbing operations. These payments are partially offset by the repayment of funds provided by the Bank of Russia earlier for financial resolution of individual banks and the reduction in required reserves for foreign currency liabilities held in special accounts due to an increase in the required reserve averaging ratio.

APPENDIX 8. ON THE BANK OF RUSSIA'S MONITORING OF COMPANIES AND THE USE OF ITS FINDINGS FOR THE PURPOSES OF MONETARY POLICY

Central banks make their monetary policy decisions relying on a broad range of data, estimates, and opinions. Some of them describe existing economic trends, while a part of them become the basis for forecasts. Companies' surveys are an essential source of information on economic trends and expectations regarding the development of the real sector. They provide **important data supplementing official statistics**. For instance, companies' estimates of the current economic environment are the result of comprehensive analysis of the conditions of their operation that takes into account the entire range of internal and external factors. Moreover, official statistics could hardly provide a complete analogue of such an indicator. Besides, respondent companies can report information containing key indicators of their financial statements. Such a set of microdata on the real sector is of great value in itself as it enables identification of individual effects, invisible at the macro level, across a whole range of essential areas of analysis (production and investment activity, a financial situation in industries, and others). Survey indicators have an important advantage as they **generally have a higher frequency and are received faster than official statistics** requiring a considerable time for collection, processing and recalculation at the level of the entire economy. **Finally, companies' surveys often include questions about their expectations regarding the economic environment in the near future**, which produces a coherent understanding of economic development enabling a comparison between periods. These aspects are crucial in making monetary policy decisions. This is why central banks in both advanced and emerging market economies seek to carry out their own monitoring of non-financial companies.

International experience. Central banks in advanced economies have been conducting extensive surveys about the economic environment and expectations regarding its future changes beginning from the 1970–1980s. **Germany** has the longest and richest experience in such surveys as this country started to use this tool for analysis back in 1949. The first surveys about the economic environment carried out among German companies were developed by the Leibniz Institute for Economic Research (Ifo Institute, Munich) in close cooperation with the Bundesbank. Germany's experience in carrying out business surveys about the economic environment and using their findings was adopted by other countries. In most of them, this function is performed by central banks' departments. For instance, in the central banks of France, Italy, and Japan, such surveys are carried out by regional branches. Unlike Europe and Japan, central banks of the **Eurasian Economic Union, including the Bank of Russia**, do not have such a long history of these surveys – they have been carrying out regular monitoring of companies since the 2000s. However, it has already become an important instrument to support decision-making.

The Bank of Russia's methodology. When conducting business monitoring and processing and using its findings, the Bank of Russia relies on best international practices. Respondent companies primarily give a qualitative estimate of current and expected changes in key indicators. The only exception is the financial questionnaire where companies are requested to provide information from their statements. It is especially

important **to ensure the representativeness of a sample** when conducting surveys. The Bank of Russia's sample encompassing 14,000 respondents is one of the most extensive ones among business surveys carried out in Russia. The Bank of Russia takes continuous efforts to ensure the representativeness of its sample and maintain the required number of respondents. Conducting its monitoring, the Bank of Russia surveys companies in all key industries. Approximately 65% of respondents operate in the industrial sector, trade, and services.

The use of findings. An essential analytical indicator which is based on monitoring results,[1] is the **Business Climate Index (BCI)**. It comprises two components: the estimate of the current situation and expectations about its changes in the next three months. Each of these two components is a combination of the balances of responses about output and demand trends. BCI movements can provide insights into business activity in Russia in the next few months. Research by Andreev and Kobzev (2021) shows that the BCI correlates with future GDP. This is especially evident in crisis periods, due to which it may be interpreted not only as an alternative estimate of business activity, but also as a leading indicator during the periods of significant shifts in the economic situation. Furthermore, when the BCI is included into a GDP forecasting and/or nowcasting model, this enhances the quality of prediction. Moreover, the structure of the sample makes it possible to analyse business activity across different industries.

According to the BCI movements in August, business activity continues to bounce back, although certain economic sectors still experience constraints hindering the expansion of output. In August, companies improved their estimates of the business climate, with the BCI adding 0.8 points to reach 5.4%. The negative impact of demand-side constraints and the pandemic situation on business sentiment weakened somewhat.

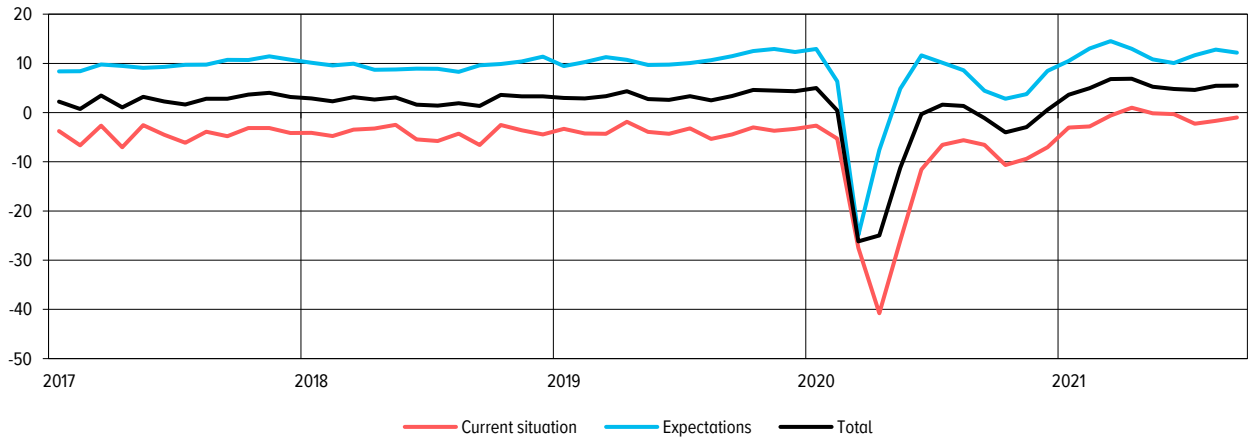
Alongside the analysis of changes in output and demand trends, **companies' price expectations** are another important indicator based on monitoring results. This indicator provides a better understanding of how inflation expectations form in the economy, the changes of which translate into actual inflation. Research by Andreev and Kobzev (2021) demonstrates that the indicator of companies' price expectations in retail and services, being the most relevant measure to approximate inflation, is a leading indicator for the BCI. Moreover, current price expectations correlate with inflation most strongly in the next month. Models that take into account price expectations ensure a higher quality of analysis and forecasts. Hence, the indicator of price expectations based on the findings of companies' monitoring provides important information on prices changes.

According to the data for August, companies' price expectations for the next three months remained almost unchanged, staying significantly above the local peaks of 2019–2020. The average price growth rate expected in the next three months equalled 3.8% in annualised terms (vs 1.9% in August 2020). A slower rise in costs and demand became the main factor limiting price expectations. Nonetheless, businesses remain optimistic about demand and output in the next three months. Companies also referred to more expensive motor fuel as a key reason for the planned increase in output prices. More details about companies' price expectations in August are available in the information and analytical commentary Inflation Expectations and Consumer Sentiment.

[1] *To interpret respondents' qualitative estimates, the analysis uses the 'balance of responses'. Its change vs the previous month shows the trends and the extent of observed processes. Before the original time series of companies' monitoring are used in the analysis and calculations, they should be seasonally adjusted.*

BUSINESS CLIMATE INDEX AND ITS SUBCOMPONENTS, BALANCE OF RESPONSES
(% SA)

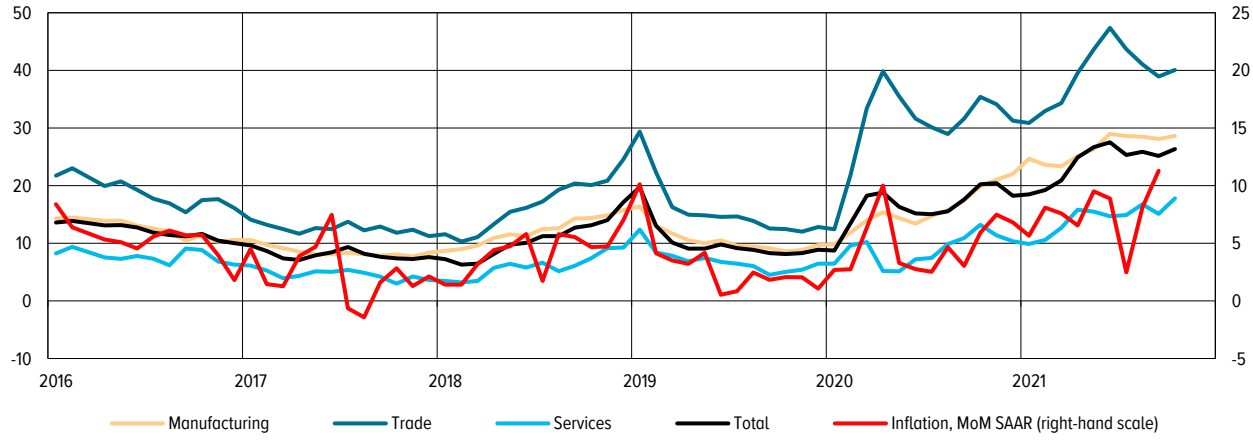
Chart A-8-1



Sources: Bank of Russia, companies' monitoring.

BUSINESSES' PRICE EXPECTATIONS, BALANCE OF RESPONSES
(% SA)

Chart A-8-2



Sources: Bank of Russia, companies' monitoring.

APPENDIX 9. CALENDAR OF KEY RATE DECISIONS FOR 2022

Date	Event
11 February 2022	Board of Directors' key rate meeting
	Press release on the key rate with the medium-term forecast
	Press conference by the Governor of the Bank of Russia
21 February 2022	Monetary Policy Report
18 March 2022	Board of Directors' key rate meeting
	Press release on the key rate
	Press conference by the Governor of the Bank of Russia
29 April 2022	Board of Directors' key rate meeting
	Press release on the key rate with the medium-term forecast
	Press conference by the Governor of the Bank of Russia
11 May 2022	Monetary Policy Report
10 June 2022	Board of Directors' key rate meeting
	Press release on the key rate
	Press conference by the Governor of the Bank of Russia
22 July 2022	Board of Directors' key rate meeting
	Press release on the key rate with the medium-term forecast
	Press conference by the Governor of the Bank of Russia
1 August 2022	Monetary Policy Report
September 16, 2022	Board of Directors' key rate meeting
	Press release on the key rate
	Press conference by the Governor of the Bank of Russia
28 October 2022	Board of Directors' key rate meeting
	Press release on the key rate with the medium-term forecast
	Press conference by the Governor of the Bank of Russia
8 November 2022	Monetary Policy Report
16 December 2022	Board of Directors' key rate meeting
	Press release on the key rate
	Press conference by the Governor of the Bank of Russia

APPENDIX 10. MACROECONOMIC AND BANKING STATISTICS

CONSUMER PRICES BY GROUP OF GOODS AND SERVICES
(YoY, %)

Table A-10-1

	Inflation	Core inflation	Growth of food prices	Growth of food prices[1]	Growth of fruit and vegetable prices	Growth of non-food prices	Growth of prices for non-food goods, excluding petrol	Growth of prices for commercial services
2017								
January	5.04	5.49	4.22	5.74	-7.56	6.33	6.44	4.35
February	4.60	4.97	3.72	5.38	-9.02	5.71	5.70	4.29
March	4.25	4.48	3.45	4.85	-7.57	5.09	5.04	4.23
April	4.14	4.11	3.63	4.45	-3.12	4.65	4.57	4.14
May	4.09	3.77	3.86	4.04	1.95	4.36	4.19	4.02
June	4.35	3.46	4.79	3.79	11.63	3.99	3.78	4.14
July	3.86	3.25	3.82	3.36	6.86	3.70	3.52	4.09
August	3.29	2.97	2.56	2.94	-0.85	3.41	3.22	4.13
September	2.96	2.76	1.98	2.45	-2.40	3.09	2.85	4.16
October	2.72	2.51	1.57	1.97	-2.19	2.84	2.55	4.22
November	2.49	2.27	1.05	1.42	-2.47	2.74	2.40	4.30
December	2.51	2.10	1.07	1.03	1.21	2.75	2.29	4.35
2018								
January	2.19	1.94	0.72	0.79	-0.11	2.58	2.14	3.90
February	2.18	1.88	0.87	0.67	2.37	2.51	2.13	3.74
March	2.35	1.84	1.26	0.62	6.39	2.44	2.12	3.86
April	2.40	1.94	1.09	0.66	4.21	2.65	2.29	4.03
May	2.41	2.04	0.44	0.82	-2.84	3.40	2.48	4.03
June	2.29	2.27	-0.19	1.13	-9.81	3.71	2.68	4.09
July	2.50	2.42	0.45	1.35	-6.68	3.75	2.78	3.78
August	3.06	2.63	1.89	1.72	3.34	3.84	2.93	3.68
September	3.38	2.79	2.54	2.46	3.42	3.96	3.09	3.81
October	3.54	3.09	2.71	3.08	-0.46	4.11	3.23	3.96
November	3.83	3.37	3.52	3.83	0.76	4.17	3.34	3.84
December	4.26	3.69	4.66	4.62	4.87	4.10	3.43	3.94
2019								
January	4.99	4.13	5.46	5.22	7.25	4.45	3.78	5.03
February	5.22	4.39	5.93	5.48	9.11	4.59	3.96	5.11
March	5.25	4.60	5.93	5.74	6.91	4.68	4.09	5.12
April	5.17	4.61	5.92	5.83	6.11	4.49	4.02	5.00
May	5.13	4.68	6.42	5.93	9.67	3.79	3.94	5.05
June	4.66	4.56	5.50	5.64	4.17	3.54	3.84	4.90
July	4.58	4.48	5.53	5.52	5.43	3.59	3.84	4.54
August	4.31	4.29	4.98	5.39	1.28	3.53	3.72	4.44
September	3.99	3.96	4.60	4.89	1.83	3.35	3.53	3.95
October	3.75	3.68	4.21	4.27	3.43	3.21	3.40	3.82
November	3.53	3.48	3.65	3.74	2.76	3.06	3.25	3.93
December	3.04	3.13	2.58	3.11	-2.05	2.95	3.11	3.75
2020								
January	2.42	2.66	1.99	2.54	-2.58	2.53	2.70	2.84
February	2.31	2.40	1.77	2.25	-2.23	2.31	2.41	3.01
March	2.54	2.61	2.20	2.70	-1.89	2.54	2.65	2.97
April	3.09	2.86	3.52	3.40	3.98	2.80	2.96	2.88
May	3.02	2.85	3.26	3.44	1.59	2.84	3.05	2.95
June	3.21	2.89	3.94	3.61	6.01	3.01	3.23	2.46
July	3.37	2.95	4.19	3.71	7.62	3.14	3.28	2.52
August	3.58	3.11	4.33	3.72	9.75	3.39	3.54	2.71
September	3.67	3.27	4.37	3.80	9.84	3.78	3.97	2.52
October	3.99	3.58	4.83	4.41	8.96	4.15	4.41	2.58
November	4.42	3.87	5.76	5.03	12.39	4.51	4.81	2.52
December	4.91	4.21	6.69	5.44	17.40	4.79	5.11	2.70
2021								
January	5.19	4.55	7.03	5.87	16.33	5.10	5.36	2.84
February	5.67	5.04	7.72	6.54	16.63	5.67	5.89	2.91
March	5.79	5.38	7.58	6.98	11.87	5.92	6.02	3.20
April	5.53	5.47	6.55	6.77	4.75	6.16	6.19	3.30
May	6.02	6.04	7.40	7.24	8.23	6.68	6.74	3.29
June	6.50	6.55	7.90	7.42	11.16	7.04	7.17	3.95
July	6.46	6.78	7.43	7.59	6.15	7.55	7.79	3.83
August	6.68	7.07	7.70	7.92	6.05	7.97	8.10	3.78
September	7.40	7.61	9.21	8.56	15.17	8.06	8.26	4.22

[1] *Excluding fruit and vegetables.*
Sources: Rosstat, Bank of Russia calculations.

CONSUMER PRICES BY GROUP OF GOODS AND SERVICES

Table A-10-2

(% change MoM, seasonally adjusted)

	Inflation	Core inflation	Growth of food prices	Growth of food prices1	Growth of fruit and vegetable prices	Growth of non-food prices	Growth of prices for non-food goods, excluding petrol	Growth of prices for commercial services
2017								
January	0.37	0.27	0.17	0.25	-0.49	0.50	0.47	0.49
February	0.12	0.19	-0.16	0.13	-2.82	0.22	0.19	0.39
March	0.10	0.10	-0.05	0.08	-1.14	0.19	0.15	0.21
April	0.32	0.13	0.46	0.14	3.08	0.18	0.14	0.30
May	0.38	0.18	0.60	0.16	3.90	0.19	0.14	0.32
June	0.60	0.21	1.12	0.25	7.59	0.21	0.11	0.37
July	-0.07	0.22	-0.48	0.14	-4.05	0.19	0.18	0.21
August	-0.12	0.18	-0.74	0.02	-5.26	0.14	0.14	0.45
September	0.14	0.21	-0.08	-0.06	-0.40	0.14	0.13	0.46
October	0.24	0.13	0.27	0.02	2.58	0.17	0.17	0.28
November	0.11	0.12	-0.20	-0.12	-0.78	0.25	0.23	0.38
December	0.18	0.16	-0.06	0.00	-0.37	0.34	0.23	0.31
2018								
January	0.12	0.13	-0.13	0.05	-1.67	0.33	0.32	0.19
February	0.12	0.12	-0.02	0.03	-0.48	0.15	0.17	0.26
March	0.26	0.08	0.34	0.03	2.74	0.14	0.15	0.30
April	0.36	0.20	0.26	0.16	0.81	0.38	0.30	0.47
May	0.39	0.30	-0.05	0.30	-2.95	0.92	0.32	0.30
June	0.47	0.40	0.50	0.56	0.06	0.50	0.30	0.38
July	0.13	0.39	0.22	0.40	-0.73	0.22	0.27	-0.13
August	0.48	0.36	0.81	0.41	4.71	0.22	0.28	0.34
September	0.46	0.39	0.53	0.63	-0.29	0.26	0.28	0.62
October	0.39	0.40	0.41	0.59	-1.17	0.33	0.32	0.41
November	0.39	0.40	0.56	0.60	0.39	0.32	0.34	0.26
December	0.57	0.48	0.99	0.75	3.56	0.27	0.32	0.37
2019								
January	0.81	0.54	0.63	0.63	0.63	0.67	0.66	1.22
February	0.34	0.40	0.40	0.28	1.14	0.28	0.34	0.34
March	0.29	0.24	0.35	0.28	0.77	0.23	0.27	0.29
April	0.27	0.23	0.23	0.24	-0.07	0.20	0.23	0.37
May	0.34	0.33	0.43	0.41	0.40	0.25	0.24	0.32
June	0.04	0.32	-0.33	0.29	-4.80	0.25	0.19	0.31
July	0.05	0.29	0.26	0.29	0.42	0.26	0.26	-0.50
August	0.21	0.20	0.25	0.29	0.48	0.17	0.17	0.24
September	0.16	0.09	0.20	0.15	0.29	0.10	0.11	0.18
October	0.17	0.14	0.06	0.01	0.42	0.20	0.21	0.29
November	0.17	0.19	0.00	0.07	-0.32	0.17	0.19	0.40
December	0.09	0.15	-0.05	0.13	-1.32	0.17	0.19	0.17
2020								
January	0.22	0.09	0.08	0.08	0.16	0.26	0.26	0.37
February	0.23	0.16	0.18	0.00	1.45	0.06	0.05	0.50
March	0.51	0.43	0.79	0.72	1.23	0.46	0.51	0.21
April	0.80	0.45	1.50	0.91	5.80	0.45	0.53	0.29
May	0.27	0.33	0.19	0.45	-1.85	0.28	0.32	0.37
June	0.23	0.33	0.32	0.44	-0.63	0.41	0.37	-0.15
July	0.18	0.36	0.48	0.38	1.88	0.37	0.30	-0.47
August	0.40	0.33	0.37	0.28	2.41	0.40	0.42	0.43
September	0.26	0.27	0.23	0.24	0.40	0.47	0.53	0.03
October	0.48	0.42	0.50	0.59	-0.34	0.58	0.64	0.35
November	0.61	0.49	0.88	0.67	2.76	0.53	0.59	0.35
December	0.55	0.46	0.81	0.53	3.00	0.44	0.48	0.33
2021								
January	0.46	0.45	0.35	0.49	-0.70	0.55	0.50	0.51
February	0.65	0.61	0.79	0.64	1.67	0.59	0.55	0.56
March	0.61	0.76	0.65	1.13	-2.78	0.69	0.64	0.46
April	0.53	0.53	0.52	0.72	-0.90	0.67	0.69	0.35
May	0.76	0.86	0.97	0.89	1.40	0.77	0.83	0.46
June	0.71	0.82	0.79	0.61	2.00	0.75	0.78	0.53
July	0.21	0.60	0.18	0.54	-1.84	0.85	0.88	-0.56
August	0.68	0.64	0.76	0.62	2.06	0.79	0.71	0.43
September	0.90	0.75	1.57	0.81	7.48	0.55	0.68	0.39

[1] Excluding fruit and vegetables.

Sources: Rosstat, Bank of Russia calculations.

MACROECONOMIC INDICATORS

Table A-10-3

(% growth on the same period of the previous year, unless indicated otherwise)

	GDP[1]	KII[2]	Industrial production	Agriculture	Construction	Freight turnover	Retail turnover	Wholesale turnover	Real household disposable money income[1]	Real wages	Unemployment rate (% of labour force, SA)[3]
2017											
January		6.1	6.6	1.3	7.8	8.2	-2.0	2.8		1.0	5.4
February		0.4	1.6	0.9	-4.5	3.8	-2.8	-5.1		0.8	5.4
March	1.3	3.4	3.6	1.9	2.2	6.5	0.0	2.0	0.1	3.1	5.2
April		3.8	4.3	1.5	0.8	7.0	0.3	1.2		3.8	5.2
May		6.2	6.3	1.0	3.7	9.7	1.1	6.1		2.7	5.3
June	2.3	5.6	5.5	-0.6	2.1	9.1	1.4	8.7	-0.7	3.8	5.2
July		4.0	4.6	-2.0	-1.5	6.1	2.6	6.3		3.0	5.2
August		5.2	5.1	5.9	4.0	7.8	0.4	5.0		2.3	5.2
September	2.6	5.5	4.0	9.3	5.2	3.0	3.1	4.2	-1.0	4.3	5.2
October		2.5	2.3	-1.8	-4.4	4.8	3.4	8.4		5.4	5.0
November		1.2	1.1	1.9	-8.6	1.5	3.1	7.1		5.8	5.0
December	1.0	0.0	0.3	3.9	-9.0	0.3	3.3	5.2	-0.2	6.2	5.0
2018											
January		4.4	2.7	2.6	15.2	1.3	3.0	4.4		11.0	5.0
February		4.3	3.2	2.7	10.8	2.2	2.1	5.0		10.5	4.8
March	2.6	2.9	2.7	2.8	-2.5	4.4	3.0	4.9	1.3	8.7	4.9
April		4.8	3.2	2.6	10.2	4.9	3.2	8.3		7.6	4.8
May		4.8	3.5	2.5	8.5	3.0	2.9	8.7		7.6	4.8
June	2.7	2.4	2.1	1.3	3.9	2.0	3.4	3.2	0.5	7.2	4.8
July		4.0	3.5	2.1	9.3	4.1	2.8	3.5		7.5	4.8
August		1.9	2.8	-10.3	3.5	2.4	3.0	4.7		6.8	4.7
September	2.6	1.3	2.3	-4.2	3.9	1.7	2.3	3.8	0.3	4.9	4.6
October		4.6	5.3	12.2	5.5	1.4	2.2	1.5		5.2	4.7
November		2.3	4.4	-5.5	3.2	2.2	3.3	-1.6		4.2	4.7
December	3.2	5.5	6.4	0.5	9.2	3.1	2.7	1.2	-0.6	2.9	4.8
2019											
January		0.3	2.7	0.9	-8.9	2.4	2.2	-8.1		1.1	4.7
February		1.8	4.2	1.2	0.1	1.9	2.3	-5.8		0.0	4.7
March	1.3	0.5	2.7	1.7	3.4	2.5	2.4	-5.7	-2.1	2.3	4.6
April		2.6	5.2	1.6	2.2	2.6	2.0	-1.6		3.1	4.7
May		-0.8	1.0	1.2	2.9	1.1	1.9	-6.1		1.6	4.6
June	1.2	1.3	3.2	1.3	3.1	0.6	1.8	-1.8	0.7	2.9	4.5
July		2.9	4.3	6.4	3.6	-0.8	1.5	6.1		3.0	4.5
August		2.4	3.9	3.6	2.7	-0.2	1.1	3.5		2.4	4.4
September	2.6	4.0	5.0	5.8	5.3	0.6	0.9	6.1	2.5	3.1	4.6
October		4.0	4.4	5.4	6.7	0.3	1.9	10.1		3.8	4.6
November		1.7	1.5	6.0	-1.4	-1.2	2.6	8.6		2.7	4.5
December	2.9	2.1	2.6	5.8	0.2	-1.3	1.8	6.7	2.5	6.9	4.5
2020											
January		1.8	1.5	2.9	2.8	-3.9	2.8	7.4		6.5	4.5
February		4.7	4.9	3.1	3.5	-0.5	4.9	7.2		5.7	4.5
March	1.4	2.3	2.7	3.0	2.4	-6.8	6.9	6.6	1.9	5.9	4.6
April		-8.9	-4.4	3.1	-5.7	-5.9	-22.0	-13.2		-2.0	5.7
May		-9.2	-7.8	3.2	-4.2	-9.1	-17.5	-10.7		1.0	6.2
June	-7.8	-6.5	-6.7	3.0	-2.1	-9.4	-6.1	0.2	-7.1	0.6	6.3
July		-4.2	-5.7	4.2	-0.4	-7.8	-0.5	1.2		2.9	6.4
August		-2.9	-4.0	4.2	0.3	-4.4	-0.7	-0.8		0.1	6.6
September	-3.5	-1.8	-3.4	2.3	3.1	-3.3	-1.2	1.3	-4.7	2.2	6.5
October		-4.5	-5.0	-4.5	0.7	-3.5	-0.4	-2.5		0.5	6.2
November		-1.2	-1.0	-1.7	0.6	-1.7	-2.4	-0.1		0.2	6.0
December	-1.8	2.4	3.8	0.5	0.9	-1.3	-2.2	5.2	-1.2	4.6	5.8
2021											
January		-1.2	-2.2	0.7	0.1	-2.2	0.5	2.4		0.1	5.6
February	-0.7	-1.7	-3.6	0.6	0.0	-0.6	-1.2	3.8		2	5.5
March		3.5	1.6	0.1	0.4	4.1	-3.2	8.1	-3.7	1.8	5.3
April		13.8	7.2	-0.1	6.9	6.2	35.2	28.3		7.8	5.2
May		14.6	11.9	0.1	7.7	11.2	27.3	20.1		3.3	5.0
June	10.5	12.1	10.2	0.1	15.7	13.1	11.0	12.4	6.8	4.9	4.9
July		7.1	7.2	0.9	9.3	9.3	5.1	3.9		2.2	4.6
August		4.0	4.7	-10.1	6.2	5.9	5.3	9.1			4.6

[1] Quarterly data.
[2] Key Industry Index.
[3] Bank of Russia's assessment.
Source: Rosstat.

RUBLE INTEREST RATES ON CORE BANK DEPOSIT AND CREDIT OPERATIONS AND YIELDS ON CORE INSTRUMENTS OF THE GOVERNMENT SECURITIES MARKET

Table A-10-4

(% p.a.)

	Loans to non-financial organisations		Loans to households		Household deposits		Government bond yield		
	Maturing in less than one year	Maturing in more than one year	Maturing in less than one year	Maturing in more than one year	Maturing in less than one year[1]	Maturing in more than one year	One-year	Five-year	Ten-year
2017									
January	11.61	12.46	22.40	16.23	6.77	7.84	8.42	8.01	8.24
February	11.48	11.67	21.06	16.00	6.54	7.30	8.83	8.12	8.23
March	11.41	11.45	20.37	15.66	6.08	7.16	8.99	8.08	8.12
April	11.02	11.31	20.57	15.42	6.52	7.13	8.64	7.92	7.92
May	10.72	10.99	20.07	15.32	6.28	6.98	8.32	7.74	7.63
June	10.68	10.36	19.89	15.08	5.88	6.73	8.04	7.82	7.77
July	10.44	9.98	20.26	14.94	6.28	6.87	8.07	7.94	7.87
August	10.41	10.42	20.07	14.50	6.28	6.89	7.88	7.82	7.81
September	10.03	10.20	20.02	14.01	5.44	6.78	7.65	7.56	7.63
October	9.82	9.82	18.52	13.66	5.86	6.28	7.50	7.46	7.62
November	9.67	9.74	19.00	13.38	5.28	6.94	7.38	7.51	7.68
December	9.43	9.41	18.99	12.92	5.38	6.39	6.98	7.27	7.64
2018									
January	9.14	8.61	18.99	13.52	5.72	6.66	6.66	7.03	7.51
February	8.81	9.23	18.29	13.42	5.57	6.37	6.49	6.79	7.20
March	8.77	9.22	17.41	13.39	5.59	6.21	6.19	6.67	7.18
April	8.66	8.51	16.14	13.25	5.39	5.84	6.55	6.96	7.38
May	8.75	8.61	17.79	13.20	5.46	5.98	6.57	7.04	7.49
June	8.82	8.45	17.72	13.00	5.20	5.69	6.80	7.35	7.71
July	8.75	8.61	17.12	12.94	5.13	5.73	6.90	7.47	7.80
August	8.72	9.05	17.74	12.87	5.04	5.70	7.40	8.23	8.48
September	9.00	9.24	17.50	12.50	5.21	6.02	7.56	8.60	8.91
October	8.84	9.16	17.99	12.50	5.66	6.56	7.55	8.50	8.75
November	8.94	9.45	17.82	12.38	5.98	6.75	7.71	8.59	8.86
December	9.20	9.17	17.87	12.50	5.64	6.83	7.78	8.56	8.82
2019									
January	9.25	9.56	15.95	13.10	6.10	6.91	7.59	8.21	8.47
February	9.29	9.74	15.54	13.08	6.24	7.02	7.69	8.07	8.36
March	9.32	9.85	14.91	13.29	6.12	7.07	7.40	8.06	8.38
April	9.25	9.63	15.06	13.37	5.82	6.92	7.61	7.99	8.33
May	9.22	9.66	15.41	13.63	5.73	6.85	7.31	7.84	8.16
June	9.11	9.35	15.25	13.35	5.79	6.75	7.21	7.46	7.67
July	8.82	9.51	14.93	13.34	5.41	6.69	6.95	7.21	7.42
August	8.61	8.97	14.60	13.05	5.27	6.49	6.82	7.10	7.37
September	8.29	9.01	14.23	12.83	5.11	6.28	6.62	6.80	7.15
October	8.17	9.30	13.74	12.67	4.99	6.16	6.25	6.46	6.79
November	7.88	9.03	15.13	12.39	4.58	5.84	5.81	6.20	6.56
December	7.83	8.26	14.83	12.05	4.74	5.56	5.58	6.16	6.53
2020									
January	7.47	8.43	15.00	12.38	4.56	5.48	5.39	5.95	6.33
February	7.47	8.03	14.60	12.09	4.32	5.18	5.31	5.81	6.21
March	7.84	8.20	14.19	11.84	4.32	4.89	6.21	6.94	7.30
April	7.71	9.01	14.81	11.77	4.83	5.00	5.54	6.19	6.56
May	7.28	8.26	14.39	11.59	4.11	4.90	4.79	5.20	5.83
June	6.89	7.13	13.95	11.39	4.00	4.74	4.30	5.13	5.79
July	6.27	7.42	13.63	10.85	3.51	4.31	4.21	5.17	5.99
August	6.02	6.97	13.47	10.72	3.24	4.07	4.22	5.32	6.19
September	6.15	6.81	13.72	10.36	3.32	4.10	4.23	5.53	6.39
October	6.02	7.04	13.82	10.07	3.30	4.13	4.31	5.42	6.26
November	5.94	6.58	13.77	10.29	3.25	4.15	4.35	5.33	6.17
December	6.25	6.78	13.41	10.05	3.42	4.17	4.35	5.39	6.19
2021									
January	6.10	6.98	13.51	10.63	3.42	4.18	4.29	5.63	6.44
February	6.01	7.23	13.55	10.21	3.21	4.26	4.56	6.00	6.79
March	6.03	6.98	13.08	10.17	3.25	4.20	5.00	6.58	7.10
April	6.11	7.08	13.65	10.10	3.36	4.49	5.27	6.80	7.27
May	6.49	7.21	13.73	10.45	3.33	4.48	5.59	6.69	7.23
June	6.65	7.64	13.42	10.19	3.43	4.76	6.15	6.93	7.24
July	7.21	7.69	13.82	10.75	3.64	5.14	6.50	6.94	7.23
August	7.98	8.37	14.19	10.79	3.87	5.80	6.59	6.83	7.09

[1] *Excluding demand deposits.*

Source: Bank of Russia.

MONETARY INDICATORS[1]
(% growth YoY)

Table A-10-5

	Money supply (M2)	Broad money supply[2]	Deposits of the non-bank sector[3] in national currency		Deposits of the non-bank sector[3] in foreign currency[4]		Net foreign assets of the banking system[4]	Banking system's claims on the economy[2]	Banking system's claims on households[2]	Banking system's claims on organisations[2]
			Households	Organisations	Households	Organisations				
2017										
01.01.2017	9.2	4.0	14.2	4.0	0.4	-13.7	0.1	3.5	1.4	4.0
01.02.2017	11.9	7.1	16.3	8.9	3.2	-6.4	2.4	4.4	1.6	5.1
01.03.2017	12.1	7.1	16.2	10.1	5.0	-8.0	4.7	4.8	1.9	5.6
01.04.2017	11.1	6.0	15.7	7.6	3.4	-11.4	3.7	5.1	3.1	5.7
01.05.2017	10.1	5.5	14.0	6.9	3.8	-11.3	1.6	5.3	4.1	5.6
01.06.2017	10.0	6.1	13.5	7.0	3.6	-7.2	5.7	5.6	4.8	5.8
01.07.2017	10.5	6.5	14.1	7.1	2.6	-7.1	6.1	5.8	5.9	5.8
01.08.2017	9.0	6.5	13.3	3.6	1.0	1.7	8.4	6.1	6.4	6.0
01.09.2017	9.0	6.5	12.7	3.9	0.2	1.6	6.6	6.9	7.7	6.6
01.10.2017	9.5	6.8	13.0	4.5	-1.6	2.2	7.0	7.8	8.6	7.5
01.11.2017	10.0	7.5	12.7	6.1	-2.7	4.7	6.8	8.8	9.7	8.5
01.12.2017	10.1	8.2	12.5	6.3	-1.9	8.5	9.2	9.7	11.0	9.3
2018										
01.01.2018	10.5	8.6	12.6	7.9	-2.2	9.2	13.8	9.1	12.1	8.3
01.02.2018	9.4	7.4	11.3	7.4	-1.3	5.1	13.4	8.6	13.9	7.1
01.03.2018	9.3	6.6	11.8	5.6	-2.0	0.0	11.9	8.8	14.7	7.1
01.04.2018	9.9	7.6	12.6	5.3	-2.7	4.1	12.7	9.1	15.8	7.1
01.05.2018	11.5	8.5	14.0	7.5	-7.6	5.4	11.7	9.2	16.3	7.1
01.06.2018	10.3	7.7	13.2	4.7	-8.1	6.4	8.1	9.1	17.6	6.7
01.07.2018	11.4	8.3	12.8	8.4	-8.0	5.5	7.9	9.1	18.4	6.3
01.08.2018	11.8	8.1	13.3	8.8	-6.4	1.2	6.9	9.5	19.3	6.6
01.09.2018	12.6	8.2	13.0	11.3	-7.4	-1.6	7.1	9.0	19.9	5.9
01.10.2018	11.8	8.2	12.0	10.8	-7.4	2.3	8.1	9.0	20.8	5.5
01.11.2018	11.5	7.9	12.7	9.1	-7.1	2.6	9.0	9.0	21.4	5.3
01.12.2018	11.9	7.9	11.3	13.3	-5.7	-0.7	10.5	8.0	22.1	3.8
2019										
01.01.2019	11.0	7.9	10.9	11.5	-4.7	1.9	11.2	8.7	21.8	4.8
01.02.2019	9.9	6.5	10.1	9.6	-3.0	-2.3	9.0	10.7	23.9	6.6
01.03.2019	9.9	7.9	9.7	11.0	-0.6	6.2	11.2	10.7	24.1	6.6
01.04.2019	8.9	7.0	9.0	10.4	2.3	3.8	11.1	10.7	23.5	6.8
01.05.2019	7.7	6.6	9.6	6.7	6.7	4.7	11.4	10.5	23.9	6.3
01.06.2019	8.0	6.7	9.4	8.7	8.8	2.3	15.1	10.5	23.6	6.4
01.07.2019	7.3	6.4	8.9	7.7	10.4	2.5	20.1	10.8	23.1	6.9
01.08.2019	7.8	7.0	8.4	10.8	10.2	3.4	17.5	10.0	22.2	6.1
01.09.2019	7.2	7.3	9.4	7.0	10.6	8.3	18.6	10.0	21.7	6.2
01.10.2019	9.1	8.0	10.4	11.1	12.3	1.2	18.7	10.2	21.1	6.6
01.11.2019	8.7	7.9	9.6	10.9	12.6	2.1	20.6	9.4	20.1	5.9
01.12.2019	9.6	8.3	10.7	11.0	10.5	1.0	17.8	10.2	19.0	7.3
2020										
01.01.2020	9.7	7.6	10.4	12.4	10.6	-4.3	15.4	10.1	19.0	7.1
01.02.2020	10.7	8.0	11.0	13.6	6.9	-5.2	14.2	7.5	16.4	4.4
01.03.2020	11.0	7.9	10.8	13.9	3.0	-5.4	11.9	7.9	16.6	4.9
01.04.2020	13.4	9.1	10.2	18.0	-4.0	-4.8	10.8	9.1	16.8	6.3
01.05.2020	14.0	9.6	8.9	18.9	-5.7	-3.9	11.9	8.6	14.0	6.7
01.06.2020	13.6	9.3	8.6	15.5	-5.3	-3.3	10.2	8.2	12.6	6.7
01.07.2020	14.9	10.4	9.6	16.9	-6.3	-3.5	4.4	8.8	12.0	7.6
01.08.2020	15.5	11.1	10.1	16.4	-6.7	-1.2	10.3	9.0	12.4	7.7
01.09.2020	16.2	11.7	9.1	20.6	-6.4	-0.3	9.3	9.3	12.6	8.1
01.10.2020	16.1	11.8	8.9	19.9	-8.5	1.9	6.2	9.3	12.9	8.0
01.11.2020	16.2	11.8	7.6	21.5	-8.6	1.2	4.2	9.8	14.0	8.2
01.12.2020	14.1	11.6	6.2	17.2	-6.5	9.7	5.8	10.2	13.3	9.0
2021										
01.01.2021	13.5	12.6	7.0	14.1	-4.6	19.3	6.7	10.9	12.9	10.2
01.02.2021	13.8	12.7	5.7	16.0	-4.6	18.1	4.6	11.5	13.0	10.9
01.03.2021	13.4	12.6	4.7	17.0	-2.7	19.1	2.9	11.7	13.2	11.1
01.04.2021	11.3	11.0	4.8	14.1	1.5	16.6	1.3	10.2	13.5	8.9
01.05.2021	11.8	11.7	6.7	15.6	3.5	16.8	2.6	11.6	16.4	9.9
01.06.2021	11.5	11.6	5.2	19.7	3.1	17.6	4.1	13.2	18.6	11.2
01.07.2021	9.5	9.9	3.3	18.1	3.7	17.0	1.7	13.1	20.4	10.3
01.08.2021	8.6	9.1	3.3	16.1	3.3	16.6	0.4	13.5	20.7	10.8
01.09.2021	8.2	9.5	3.7	14.6	4.0	22.2	0.9	13.7	20.7	11.0

[1] Calculated using data from the Banking System Review (see Table 1.16 of the Bank of Russia Statistical Bulletin (http://www.cbr.ru/s/2532) and the Statistics section (http://www.cbr.ru/s/2571) on the Bank of Russia website).
[2] Adjusted for foreign currency revaluation.
[3] Resident individuals, resident non-financial and financial organisations (except bank institutions).
[4] Calculations based on data in billions of US dollars.
Source: Bank of Russia.

MONETARY INDICATORS[1]
(billion rubles, unless indicated otherwise)

Table A-10-6

	Money supply (M2)	Broad money supply	Deposits of the non-bank sector[2] in national currency		Deposits of the non-bank sector[2] in foreign currency, billion US dollars		Net foreign assets of the banking system, billion US dollars	Banking system's claims on the economy	Banking system's claims on households	Banking system's claims on organisations
			Households	Organisations	Households	Organisations				
2017										
01.01.2017	38,418	50,895	18,328	12,375	91.0	106.7	451.4	52,644	11,756	40,888
01.02.2017	38,017	51,216	18,195	12,278	91.2	120.1	475.7	52,949	11,716	41,233
01.03.2017	38,462	51,124	18,461	12,414	91.4	118.9	481.8	52,736	11,727	41,009
01.04.2017	38,555	50,668	18,529	12,415	90.8	115.4	485.2	52,868	11,836	41,032
01.05.2017	38,664	50,860	18,673	12,215	92.3	113.4	489.6	53,448	11,961	41,488
01.06.2017	39,223	51,417	18,800	12,610	91.4	116.1	500.0	53,585	12,037	41,548
01.07.2017	39,623	52,127	19,192	12,484	91.5	112.3	504.4	54,183	12,177	42,006
01.08.2017	39,276	51,937	19,193	12,048	90.6	114.6	506.2	54,640	12,312	42,329
01.09.2017	39,419	51,860	19,244	12,109	90.4	113.9	505.4	55,130	12,516	42,615
01.10.2017	39,571	51,853	19,317	12,165	89.8	114.2	506.7	55,525	12,658	42,867
01.11.2017	39,667	51,836	19,384	12,212	89.1	113.5	501.6	56,278	12,802	43,476
01.12.2017	40,114	52,586	19,612	12,428	88.7	117.6	505.9	56,917	13,011	43,906
2018										
01.01.2018	42,442	54,667	20,643	13,353	89.0	116.5	513.6	56,984	13,169	43,815
01.02.2018	41,597	54,171	20,252	13,182	90.0	126.3	539.4	56,907	13,330	43,578
01.03.2018	42,045	54,047	20,636	13,109	89.5	118.8	539.2	57,042	13,440	43,603
01.04.2018	42,377	54,727	20,857	13,077	88.3	120.1	546.7	57,803	13,708	44,095
01.05.2018	43,122	56,221	21,279	13,131	85.3	119.5	546.9	59,125	13,921	45,204
01.06.2018	43,257	56,646	21,288	13,198	84.0	123.5	540.5	59,403	14,173	45,230
01.07.2018	44,127	57,208	21,651	13,530	84.1	118.5	544.3	59,631	14,432	45,200
01.08.2018	43,910	56,823	21,751	13,106	84.8	115.9	541.3	60,303	14,693	45,609
01.09.2018	44,369	57,978	21,745	13,474	83.7	112.2	541.0	61,460	15,029	46,431
01.10.2018	44,255	57,613	21,642	13,474	83.2	116.8	547.7	61,582	15,314	46,268
01.11.2018	44,218	57,520	21,850	13,320	82.7	116.5	546.7	62,439	15,562	46,877
01.12.2018	44,892	58,430	21,835	14,076	83.7	116.9	559.0	62,628	15,905	46,723
2019										
01.01.2019	47,109	61,402	22,886	14,884	84.8	118.7	571.4	63,551	16,065	47,485
01.02.2019	45,721	59,779	22,290	14,441	87.3	123.4	588.0	64,307	16,537	47,770
01.03.2019	46,213	60,469	22,638	14,544	89.0	126.2	599.7	64,500	16,699	47,801
01.04.2019	46,141	60,147	22,726	14,435	90.4	124.7	607.5	65,022	16,943	48,078
01.05.2019	46,436	60,481	23,311	14,011	91.0	125.1	609.4	65,662	17,259	48,403
01.06.2019	46,735	60,959	23,284	14,341	91.4	126.3	622.4	65,967	17,523	48,444
01.07.2019	47,349	60,927	23,585	14,572	92.9	121.5	653.8	66,121	17,769	48,352
01.08.2019	47,351	60,924	23,573	14,523	93.4	119.9	636.1	66,424	17,962	48,463
01.09.2019	47,584	61,867	23,799	14,418	92.6	121.4	641.7	67,414	18,285	49,130
01.10.2019	48,267	61,955	23,889	14,966	93.4	118.3	650.1	67,689	18,538	49,151
01.11.2019	48,082	61,679	23,951	14,777	93.2	118.9	659.3	68,085	18,689	49,396
01.12.2019	49,195	62,732	24,182	15,619	92.4	118.1	658.3	68,724	18,923	49,801
2020										
01.01.2020	51,660	64,536	25,268	16,734	93.8	113.6	659.2	69,012	19,100	49,912
01.02.2020	50,623	63,918	24,734	16,400	93.4	117.0	671.2	68,764	19,247	49,517
01.03.2020	51,314	65,484	25,085	16,559	91.6	119.4	670.9	69,761	19,471	50,291
01.04.2020	52,327	68,323	25,047	17,039	86.8	118.6	673.1	72,522	19,811	52,711
01.05.2020	52,952	68,158	25,382	16,658	85.8	120.2	681.9	72,431	19,691	52,740
01.06.2020	53,068	67,856	25,292	16,566	86.5	122.1	685.7	72,095	19,740	52,356
01.07.2020	54,393	68,710	25,839	17,038	87.0	117.3	682.4	72,770	19,910	52,860
01.08.2020	54,687	69,795	25,960	16,910	87.1	118.5	701.4	73,624	20,217	53,407
01.09.2020	55,294	70,823	25,959	17,384	86.7	121.0	701.6	74,687	20,603	54,084
01.10.2020	56,024	72,458	26,012	17,939	85.5	120.5	690.2	75,864	20,957	54,907
01.11.2020	55,872	72,193	25,765	17,949	85.1	120.4	686.7	76,643	21,344	55,300
01.12.2020	56,123	72,528	25,688	18,300	86.5	129.5	696.2	77,169	21,465	55,704
2021										
01.01.2021	58,652	75,285	27,034	19,094	89.5	135.4	703.4	78,058	21,589	56,469
01.02.2021	57,598	74,938	26,152	19,017	89.1	138.1	702.4	78,294	21,775	56,519
01.03.2021	58,178	75,407	26,269	19,371	89.1	142.2	690.3	78,818	22,053	56,765
01.04.2021	58,262	75,406	26,248	19,444	88.1	138.3	681.9	79,641	22,488	57,153
01.05.2021	59,206	76,266	27,084	19,263	88.8	140.4	699.9	80,953	22,929	58,024
01.06.2021	59,194	76,333	26,612	19,829	89.1	143.7	713.9	81,972	23,413	58,559
01.07.2021	59,584	76,053	26,682	20,115	90.2	137.2	694.1	82,561	23,969	58,592
01.08.2021	59,380	76,079	26,811	19,630	90.0	138.2	704.5	83,533	24,399	59,134
01.09.2021	59,817	77,339	26,923	19,925	90.2	147.9	708.0	84,771	24,867	59,904

[1] Calculated using data from the Banking System Review (see Table 1.16 of the Bank of Russia Statistical Bulletin (http://www.cbr.ru/s/2532) and the Statistics section (http://www.cbr.ru/s/2571) on the Bank of Russia website).
[2] Resident individuals, resident non-financial and financial organisations (except bank institutions).
Source: Bank of Russia.

BALANCE OF PAYMENTS INDICATORS: CURRENT ACCOUNT

Table A-10-7

	Current account	Balance of trade	Goods exports	Goods imports	Balance of services	Services exports	Services imports	Balance of non-tradable components	Current account	Goods and services exports	Goods and services imports
	billion US dollars								% of GDP		
2016											
Q1	12.5	22.4	60.5	38.1	-4.9	10.4	15.3	-5.0			
Q2	1.8	22.3	67.8	45.5	-6.0	12.6	18.6	-14.5			
Q3	0.1	18.4	70.9	52.6	-7.2	13.9	21.0	-11.1			
Q4	10.0	27.1	82.5	55.4	-5.9	13.7	19.7	-11.2			
Year	24.5	90.2	281.7	191.5	-24.0	50.6	74.6	-41.8	1.9	26.0	20.8
2017											
Q1	21.1	34.5	82.6	48.1	-5.3	12.3	17.5	-8.1			
Q2	1.5	25.1	83.8	58.7	-7.7	14.7	22.4	-15.8			
Q3	-3.4	20.6	84.4	63.8	-9.9	15.2	25.1	-14.0			
Q4	12.9	34.4	102.1	67.7	-8.5	15.3	23.8	-13.1			
Year	32.2	114.6	352.9	238.4	-31.3	57.5	88.9	-51.1	2.0	26.1	20.8
2018											
Q1	30.2	44.0	101.6	57.5	-6.6	13.9	20.6	-7.2			
Q2	18.4	45.5	108.9	63.4	-7.7	16.6	24.4	-19.3			
Q3	28.1	47.8	110.6	62.7	-8.8	17.4	26.1	-11.0			
Q4	39.0	57.7	122.9	65.2	-6.9	16.7	23.6	-11.8			
Year	115.7	195.1	443.9	248.9	-30.1	64.6	94.7	-49.3	7.0	30.6	20.7
2019											
Q1	33.6	47.2	102.6	55.5	-6.1	13.7	19.8	-7.5			
Q2	10.3	39.7	101.6	61.9	-8.9	15.6	24.5	-20.5			
Q3	10.6	38.0	103.2	65.2	-11.7	16.6	28.4	-15.7			
Q4	11.0	41.0	112.4	71.4	-10.0	15.9	26.0	-20.0			
Year	65.4	165.8	419.7	253.9	-36.7	61.9	98.7	-63.7	3.9	28.5	20.9
2020											
Q1	23.5	33.3	89.3	56.0	-6.4	13.5	19.9	-3.5			
Q2	1.6	16.7	70.5	53.8	-1.9	10.0	11.9	-13.2			
Q3	3.9	18.8	79.0	60.2	-3.6	10.7	14.3	-11.2			
Q4	7.0	25.0	94.6	69.7	-5.2	12.8	18.0	-12.8			
Year	36.0	93.7	333.4	239.6	-17.0	47.0	64.1	-40.7	2.4	25.6	20.4
2021											
Q1	23.3	28.7	93.3	64.6	-2.7	11.2	13.9	-2.8			
Q2	18.2	39.0	115.1	76.2	-4.1	12.6	16.7	-16.7			
Q3[1]	40.8	56.8	134.9	78.1	-4.6	13.5	18.1	-11.4			

[1] *Estimate.*
Sources: Bank of Russia, Rosstat.

BALANCE OF PAYMENTS INDICATORS: FINANCIAL ACCOUNT[1]

Table A-10-8

	Financial account (excluding reserves)	Balance for the public sector	Balance for the private sector	Banks' liabilities	Other sectors' liabilities	Banks' assets	Other sectors' assets	Net errors and omissions	Change in reserves	Balance of financial transactions of the private sector
	billion US dollars									% of GDP
2016										
Q1	6.9	1.2	5.8	-7.6	-0.3	-9.9	7.8	-3.0	2.6	
Q2	-2.3	-3.6	1.3	-4.6	5.0	-4.4	6.2	1.6	4.4	
Q3	-2.0	-4.3	2.3	-7.7	-2.3	-8.3	0.7	1.0	3.1	
Q4	7.4	2.7	4.7	-7.3	14.4	-5.6	17.4	-5.0	-1.8	
Year	10.1	-4.0	14.1	-27.1	16.9	-28.3	32.1	-5.4	8.2	1.4
2017										
Q1	10.8	-5.9	16.7	-3.9	-3.6	13.6	-4.6	0.9	11.3	
Q2	-2.1	-3.9	1.8	-11.7	13.0	-2.5	5.5	4.1	7.5	
Q3	-10.7	-10.3	-0.4	-7.8	3.1	-16.3	11.1	-0.8	6.5	
Q4	13.9	6.7	7.2	-4.2	1.8	0.8	4.0	-1.7	-2.7	
Year	11.9	-13.3	25.2	-27.7	14.2	-4.4	16.1	2.6	22.6	1.5
2018										
Q1	12.7	-6.6	19.3	-2.5	1.0	0.3	17.5	2.1	19.3	
Q2	9.8	11.1	-1.3	-9.6	4.0	-5.7	-1.2	2.9	11.3	
Q3	24.9	2.9	22.0	-3.8	-8.4	8.6	1.2	1.8	5.0	
Q4	31.0	1.3	29.8	-9.2	-0.8	4.5	15.3	-4.7	2.6	
Year	78.5	8.7	69.8	-25.0	-4.3	7.6	32.9	2.1	38.2	3.9
2019										
Q1	12.5	-9.3	21.8	-3.2	5.7	9.2	15.1	-2.5	18.6	
Q2	-5.0	-6.2	1.2	-6.7	13.0	6.6	0.9	1.5	16.6	
Q3	-7.0	-3.6	-3.3	-7.9	5.5	-5.8	0.1	-1.5	15.9	
Q4	-3.5	-3.8	0.2	-2.1	1.0	-12.0	11.2	1.3	15.4	
Year	-2.9	-22.8	19.9	-19.8	25.2	-2.1	27.3	-1.2	66.5	1.3
2020										
Q1	19.3	0.4	19.0	-6.8	-6.6	2.5	3.0	0.9	5.0	
Q2	14.5	1.4	13.2	-9.2	6.3	-2.0	12.4	0.3	-12.9	
Q3	8.6	-2.6	11.1	-2.2	-13.0	-7.4	3.3	2.5	-2.3	
Q4	10.5	-0.4	10.9	-7.9	-3.1	2.4	-2.6	0.1	-3.6	
Year	53.0	-1.2	54.2	-26.2	-16.4	-4.5	16.1	3.7	-13.8	3.4
2021										
Q1	19.2	1.6	17.6	0.3	0.4	3.2	15.0	-0.6	3.7	
Q2	9.2	2.7	6.5	-4.3	7.1	-7.9	17.3	-0.2	8.5	
Q3[2]	8.9	-22.8	31.7	-1.2	-4.4	4.2	22.0	-2.2	29.6	

[1] Signs according to BPM6.
[2] Estimate.
Sources: Bank of Russia, Rosstat.

KEY ECONOMIC INDICATORS OF G20 COUNTRIES
(data as of 25 October 2021)

Table A-10-9

Countries	GDP growth, % change on the same quarter of the previous year[1]	Inflation, % change on the same month of the previous year	Policy (target) interest rate of the central bank, % p.a.[2]	Interest rate on loans to the non-financial sector for up to 1 year / 1 year, % p.a.[3]	Budgetary surplus/ deficit in 2021, % of GDP[4]
Argentina	17.9	48.1	38.00	35.83	-
Australia	9.6	3.8	0.10	4.80	-9.5
Brazil	12.4	10.3	6.25	29.00	-3.7
UK	4.8	3.1	0.10	0.50	-10.6
Germany	1.6	4.1	-0.50	1.93	-5.0
India	20.1	4.4	4.00	8.80	-4.5
Indonesia	7.1	1.6	3.50	9.03	-4.1
Italy	2.7	2.5	-0.50	2.09	-5.6
Canada	8.0	4.4	0.25	2.50	-7.0
China	4.9	0.7	3.85	4.35	-8.7
Mexico	19.7	6.0	4.75	4.50	0.2
Russia	10.5	7.4	7.50	6.05	-0.4
Saudi Arabia	1.8	0.5	1.00	-	-3.5
USA	12.2	5.4	0.25	3.25	-13.3
Turkey	21.7	19.6	18.00	22.00	-3.3
France	18.7	2.2	-0.50	1.02	-6.0
South Korea	6.0	2.5	0.75	2.74	-3.2
South Africa	19.3	5.0	3.50	7.00	-5.7
Japan	7.6	0.2	-0.1	1.00	-8.9
EU	13.2	3.6	-	-	-5.2

[1] GDP – data are provided for 2020 Q2; and for 2021 Q3 for China.
[2] Policy rate: the ECB's deposit rate (0.5%) is given for Germany, France, and Italy; and the deposit rate (-0.1%) – for Japan.
[3] Interest rate on loans to the non-financial sector: according to information from the IMF's International Financial Statistics, Bloomberg, CEIC.
[4] Budget surplus or deficit in 2021: according to the IMF's World Economic Outlook, April 2021.
Sources: Bloomberg, IMF, CEIC.

APPENDIX 11. STATISTICS ON THE USE OF MONETARY POLICY INSTRUMENTS

REQUIRED RESERVE RATIOS

Table A-11-1

(%)

Liability type	Validity dates				
	01.12.2017–31.07.2018	01.08.2018–31.03.2019	01.04.2019–30.06.2019	01.07.2019–31.03.20221	From 01.04.2022[2]
Banks with a universal licence and non-bank credit institutions					
To households in rubles	5.00	5.00	4.75	4.75	4.50
Other liabilities in rubles					
To non-resident legal entities in rubles					
To households in foreign currency	6.00	7.00	7.00	8.00	8.00
To non-resident legal entities in foreign currency	7.00	8.00	8.00	8.00	8.00
Other liabilities in foreign currency					
Banks with a basic licence					
To households in rubles	1.00	1.00	1.00	1.00	1.00
Other liabilities in rubles					
To non-resident legal entities in rubles	5.00	5.00	4.75	4.75	1.00
To households in foreign currency	6.00	7.00	7.00	8.00	8.00
To non-resident legal entities in foreign currency	7.00	8.00	8.00	8.00	8.00
Other liabilities in foreign currency					

[1] Bank of Russia Ordinance No. 5158-U, dated 31 May 2019, 'On Mandatory Reserve Requirements'. See press release, dated 31 May 2019, on the Bank of Russia website (http://www.cbr.ru/s/2572).
[2] Press releases published on the Bank of Russia website on 26 July and 24 September 2021.
Source: Bank of Russia.

REQUIRED RESERVE AVERAGING RATIO

Table A-11-2

Types of credit institutions	Validity dates	
	Until 31.03.2022	From 01.04.2022[1]
Banks with a universal licence, with a basic licence	0.8	0.9
Non-bank credit institutions	1.0	1.0

[1] See press releases published on the Bank of Russia website on 26 July and 24 September 2021.
Source: Bank of Russia.

INTEREST RATES ON MONETARY POLICY INSTRUMENTS
(% p.a.)

Table A-11-3

Purpose	Instrument type	Instrument	Maturity	Frequency	Interest rates as spreads to the key rate (pp)	As of 01.01.2020	As of 10.02.2020	As of 27.04.2020	As of 22.06.2020	As of 27.07.2020	As of 22.03.2021	As of 26.04.2021	As of 15.06.2021	As of 26.07.2021	From 13.09.2021	From 25.10.2021
Liquidity provision	Standing facilities	Overnight loans, lombard loans, loans secured by non-marketable assets, repos, FX swaps[1]	1 day	Daily	+1.00	7.25	7.00	6.50	5.50	5.25	5.50	6.00	6.50	7.50	7.75	8.50
		Loans secured by non-marketable assets	2 to 549 days[2]		+1.75	8.00	7.75	7.25	6.25	6.00	6.25	6.75	7.25	8.25	8.50	9.25
	Open market operations (minimum interest rates)	Auctions to provide loans secured by non-marketable assets	3 months[2]	Monthly[3]	+0.25	6.50	6.25	5.75	4.75	4.50	4.75	5.25	5.75	6.75	7.00	7.75
		Repo auctions	1 year[2]			-	-									
			1 month		+0.10	-	-	5.60	4.60	4.35	4.60	5.10	5.60	6.60	6.85	7.60
			1 week	Weekly[4]		6.25 (key rate)	6.00 (key rate)	5.50 (key rate)	4.50 (key rate)	4.25 (key rate)	4.50 (key rate)	5.00 (key rate)	5.50 (key rate)	6.50 (key rate)	6.75 (key rate)	7.50 (key rate)
			1 to 6 days	Occasionally[5]												
		FX swap auctions[1]	1 to 2 days													
Liquidity absorption	Open market operations (maximum interest rates)	Deposit auctions	1 to 6 days													
			1 week	Weekly[4]												
	Standing facilities	Deposit operations	1 day	Daily	-1.00	5.25	5.00	4.50	3.50	3.25	3.50	4.00	4.50	5.50	5.75	6.50

[1] The interest rate for the ruble part is specified; the interest rate for the foreign currency part equals LIBOR rates on overnight loans in US dollars or euros (depending on the currency of transactions).
[2] Loans and repos at a floating interest rate linked to the Bank of Russia key rate.
[3] Loan auctions were discontinued in April 2016; repo auctions were launched in May 2020.
[4] Either a repo or a deposit auction is held depending on the situation with liquidity.
[5] 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 relevant date.
Source: Bank of Russia.

BANK OF RUSSIA OPERATIONS TO PROVIDE AND ABSORB RUBLE LIQUIDITY
(billion rubles)

Table A-11-4

Purpose	Instrument type	Instrument	Maturity	Frequency	Bank of Russia claims under liquidity provision instruments and liabilities under liquidity absorption instruments							
					As of 01.01.2020	As of 01.04.2020	As of 01.07.2020	As of 01.10.2020	As of 01.01.2021	As of 01.04.2021	As of 01.07.2021	As of 01.10.2021
Liquidity provision	Standing facilities	Overnight loans	1 day	Daily	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0
		Lombard loans			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Repos			12.6	0.0	0.0	0.0	0.1	0.4	0.4	10.6
		FX swaps			0.0	16.7	0.0	0.3	118.4	0.0	0.0	0.0
		Loans secured by non-marketable assets	1 to 549 days		5.1	5.1	5.1	5.1	5.1	246.1	5.4	35.2
	Open market operations	Auctions to provide loans secured by non-marketable assets	3 months	Monthly[1]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Repo auctions	1 year		-	-	5.3	5.3	36.7	52.6	47.9	47.9
			1 month		-	-	0.0	0.0	810.2	50.2	100.4	60.3
			1 week	Weekly[2]	0.0	854.4	0.0	0.0	0.0	0.0	0.0	0.0
			1 to 6 days	Occasionally[3]								
		FX swap auctions	1 to 2 days		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquidity absorption	Open market operations	Deposit auctions	1 to 6 days		696.6	1,673.5	773.4	999.2	843.9	1,650.0	1,190.7	780.0
			1 week	Weekly[2]								
		Auctions for the placement of coupon OBRs	Up to 3 months	Weekly[4]	1,956.3	1,544.2	708.2	818.5	574.9	645.1	626.4	603.4
	Standing facilities	Deposit operations	1 day	Daily	329.7	160.5	151.3	149.1	376.7	122.1	123.5	243.1

[1] Loan auctions were discontinued in April 2016, and repo auctions were introduced in May 2020.
[2] Either a repo or a deposit auction is held depending on the situation with liquidity.
[3] Fine-tuning operations.
[4] Basically, a new OBR issue is offered once a month and subsequently – on a weekly basis. If the reporting date falls on a weekend or holiday, the indicated amount of outstanding Bank of Russia coupon OBRs includes the accrued coupon interest as of the first business day following the reporting date.
Source: Bank of Russia.

APPENDIX 12. BANK OF RUSSIA AUCTION SCHEDULE FOR 2022

One-week repo and deposit auctions

In the situation of a structural liquidity surplus, the Bank of Russia is planning to hold one-week auctions in the form of deposit auctions. Should a one-week repo auction be held instead of a deposit auction, the Bank of Russia will publish relevant information on its website on the business day preceding the auction.

1-WEEK REPO AND DEPOSIT AUCTIONS *Table A-12-1*

Auction date	Date of funds placement by credit institutions	Date of principal repayment and interest payment by the Bank of Russia
11.01.2022	12.01.2022	19.01.2022
18.01.2022	19.01.2022	26.01.2022
25.01.2022	26.01.2022	02.02.2022
01.02.2022	02.02.2022	09.02.2022
08.02.2022	09.02.2022	16.02.2022
15.02.2022	16.02.2022	24.02.2022
22.02.2022	24.02.2022	02.03.2022
01.03.2022	02.03.2022	09.03.2022
09.03.2022	09.03.2022	16.03.2022
15.03.2022	16.03.2022	23.03.2022
22.03.2022	23.03.2022	30.03.2022
29.03.2022	30.03.2022	06.04.2022
05.04.2022	06.04.2022	13.04.2022
12.04.2022	13.04.2022	20.04.2022
19.04.2022	20.04.2022	27.04.2022
26.04.2022	27.04.2022	04.05.2022
04.05.2022	04.05.2022	11.05.2022
11.05.2022	11.05.2022	18.05.2022
17.05.2022	18.05.2022	25.05.2022
24.05.2022	25.05.2022	01.06.2022
31.05.2022	01.06.2022	08.06.2022
07.06.2022	08.06.2022	15.06.2022
14.06.2022	15.06.2022	22.06.2022
21.06.2022	22.06.2022	29.06.2022
28.06.2022	29.06.2022	06.07.2022
05.07.2022	06.07.2022	13.07.2022
12.07.2022	13.07.2022	20.07.2022
19.07.2022	20.07.2022	27.07.2022
26.07.2022	27.07.2022	03.08.2022
02.08.2022	03.08.2022	10.08.2022
09.08.2022	10.08.2022	17.08.2022
16.08.2022	17.08.2022	24.08.2022
23.08.2022	24.08.2022	31.08.2022
30.08.2022	31.08.2022	07.09.2022
06.09.2022	07.09.2022	14.09.2022
13.09.2022	14.09.2022	21.09.2022
20.09.2022	21.09.2022	28.09.2022
27.09.2022	28.09.2022	05.10.2022
04.10.2022	05.10.2022	12.10.2022

Auction date	Date of funds placement by credit institutions	Date of principal repayment and interest payment by the Bank of Russia
11.10.2022	12.10.2022	19.10.2022
18.10.2022	19.10.2022	26.10.2022
25.10.2022	26.10.2022	02.11.2022
01.11.2022	02.11.2022	09.11.2022
08.11.2022	09.11.2022	16.11.2022
15.11.2022	16.11.2022	23.11.2022
22.11.2022	23.11.2022	30.11.2022
29.11.2022	30.11.2022	07.12.2022
06.12.2022	07.12.2022	14.12.2022
13.12.2022	14.12.2022	21.12.2022
20.12.2022	21.12.2022	28.12.2022

One-month and one-year repo auctions in rubles

One-month and one-year repo auctions in rubles are aiming to improve the balance of banks' assets and liabilities in terms of their maturities amid the shrinking structural surplus of liquidity and reducing maturities of banks' liabilities.

1-MONTH REPO AUCTIONS *Table A-12-2*

Auction date	Date of funds provision	Date of repayment
10.01.2022	12.01.2022	16.02.2022
14.02.2022	16.02.2022	23.03.2022
21.03.2022	23.03.2022	20.04.2022
18.04.2022	20.04.2022	18.05.2022
16.05.2022	18.05.2022	22.06.2022
20.06.2022	22.06.2022	20.07.2022
18.07.2022	20.07.2022	17.08.2022
15.08.2022	17.08.2022	14.09.2022
12.09.2022	14.09.2022	12.10.2022
10.10.2022	12.10.2022	09.11.2022
07.11.2022	09.11.2022	07.12.2022
05.12.2022	07.12.2022	11.01.2023

1-YEAR REPO AUCTIONS *Table A-12-3*

Auction date	Date of funds provision	Date of repayment
10.01.2022	12.01.2022	11.01.2023
14.02.2022	16.02.2022	15.02.2023
21.03.2022	23.03.2022	22.03.2023
18.04.2022	20.04.2022	19.04.2023
16.05.2022	18.05.2022	17.05.2023
20.06.2022	22.06.2022	21.06.2023
18.07.2022	20.07.2022	19.07.2023
15.08.2022	17.08.2022	16.08.2023
12.09.2022	14.09.2022	13.09.2023
10.10.2022	12.10.2022	11.10.2023
07.11.2022	09.11.2022	15.11.2023
05.12.2022	07.12.2022	13.12.2023

APPENDIX 13. REQUIRED RESERVES AVERAGING PERIODS IN 2022

Table A-13-1

Averaging period to calculate required reserves for a corresponding reporting period	Averaging period duration (days)	Memo item:	
		Reporting period	Required reserves regulation period
12.01.2022 – 08.02.2022	28	December 2021	21.01.2022 – 25.01.2022
09.02.2022 – 08.03.2022	28	January 2022	14.02.2022 – 16.02.2022
09.03.2022 – 12.04.2022	35	February 2022	15.03.2022 – 17.03.2022
13.04.2022 – 17.05.2022	35	March 2022	14.04.2022 – 18.04.2022
18.05.2022 – 14.06.2022	28	April 2022	23.05.2022 – 25.05.2022 (as recalculated)[1]
15.06.2022 – 12.07.2022	28	May 2022	17.06.2022 – 21.06.2022
13.07.2022 – 09.08.2022	28	June 2022	18.07.2022 – 20.07.2022
10.08.2022 – 13.09.2022	35	July 2022	16.08.2022 – 18.08.2022
14.09.2022 – 11.10.2022	28	August 2022	16.09.2022 – 20.09.2022
12.10.2022 – 15.11.2022	35	September 2022	18.10.2022 – 20.10.2022
16.11.2022 – 13.12.2022	28	October 2022	17.11.2022 – 21.11.2022
14.12.2022 – 17.01.2023	35	November 2022	16.12.2022 – 20.12.2022

[1] *Effective from April 2022, the required reserves regulation period established for credit institutions by Bank of Russia Regulation No. 753-P, dated 11 January 2021, 'On Credit Institutions' Required Reserves' falls on the 12th–14th business days of the month following the reporting month.*

The required reserves averaging period as recalculated in 2022

The required reserves averaging period in 2022 for the annual recalculation of required reserves deposited in the required reserves account: 23–25 May 2022.

GLOSSARY

Banking sector liquidity

Credit institutions' ruble-denominated funds held in correspondent accounts with the Bank of Russia primarily for making payments via the Bank of Russia's payment system and for fulfilling the reserve requirements.

Banking system's claims on the economy

The banking system's claims on non-financial and financial organisations and households in rubles, foreign currency, and precious metals, which include loans extended (including overdue loans), overdue interest on loans, credit institutions' investment in debt and equity securities and promissory notes, as well as other forms of participation in non-financial and financial organisations' equity, and other receivables under settlement operations with non-financial and financial organisations and households.

Bank of Russia key rate

The key rate is the main instrument of the Bank of Russia's monetary policy and is used to assess the stance and characteristics of monetary policy. Changes in the key rate influence credit and economic activity and, ultimately, help achieve the key goal of monetary policy. This is the interest rate on main operations carried out by the Bank of Russia to regulate the banking sector liquidity (it corresponds to the minimum interest rate at the Bank of Russia's one-week repo auctions and to the maximum interest rate at the Bank of Russia's one-week deposit auctions).

Bank of Russia's Business Climate Index (BCI)

An analytical measure calculated monthly based on the estimates of companies participating in the Bank of Russia's monitoring. This index is built similarly to the method of Germany's Ifo economic institute and shows both actual and expected changes in output and demand.

Basic balance (basic deficit)

The indicator of the federal budget execution under the fiscal rule calculated as the difference between the total of basic oil and gas revenues and non-oil and gas revenues and federal budget expenditures.

Basic oil and gas revenues

Oil and gas revenues earned with the Urals crude price of 40 US dollars per barrel in 2017 prices (with the subsequent annual indexation by 2%) and a predictable USD/RUB exchange rate.

Consumer price index (CPI)

The ratio of the value of a fixed set of goods and services in current-period prices to its value in previous (reference) period prices. This index is calculated by the Federal State Statistics Service (Rosstat). The CPI reflects changes over time in the overall level of prices for goods and services purchased by households for consumption. The CPI is calculated based on data on the actual structure of consumer spending and is, therefore, the principal indicator of the cost of living. In addition, the CPI has a range of characteristics making it

convenient for common use, namely a simple and clear method of construction, a monthly frequency of calculation, and timely publication.

Core inflation

An indicator of inflation characterising its steadiest part. Core inflation is measured based on the core consumer price index (CCPI). The difference between the CCPI and the consumer price index (CPI) is that the CCPI is calculated excluding changes in prices for certain products and services that are subject to the influence of administrative and seasonal factors (individual categories of fruit and vegetables, passenger transportation services, communication services, housing and utility services, motor fuel, etc.).

Credit default swap (CDS)

A financial instrument enabling a buyer to insure against a certain credit event (e.g. default) related to a third party's financial obligations in exchange for regular payments of premiums (CDS spread) to the CDS seller. The higher the premium paid, the more risky are the obligations that are the subject of the credit default swap.

Federal government bonds (OFZ)

Government debt securities.

Financial stability

A state of the financial system involving no systemic risks which, in the case of their materialisation, might adversely affect the transformation of savings into investment and the real economy. Financial stability improves the resilience of the economy to both internal and external shocks.

Floating exchange rate regime

An exchange rate regime where the central bank establishes no targets, including operational ones, whether for the level or movements of the exchange rate, with the latter forming under the influence of market factors. However, the central bank reserves the right to purchase foreign currency in order to replenish the country's international reserves or to sell foreign currency in the case of any threats to financial stability.

Inflation

A sustained rise in the overall level of goods and services prices in the economy. Inflation is generally associated with changes over time in the price of the consumer basket, that is, a set of food products, non-food goods, and services consumed by an average household (see also the 'Consumer Price Index (CPI)').

Inflation expectations

Economic agents' expectations regarding price growth in the future. Inflation expectations are formed by businesses, households, financial markets, and analysts. Economic agents make economic decisions and their plans for the future (including those related to consumption, saving, borrowing, investment, and loan and deposit rates) relying on their expectations. Inflation expectations impact inflation and are, therefore, a critical indicator for making monetary policy decisions.

Inflation targeting

A strategy of monetary policy based on the following principles: price stability is the key goal of monetary policy; the inflation target is clearly specified and announced; under a floating exchange rate regime, monetary policy influences the economy primarily

through interest rates; monetary policy decisions are made based on the analysis of a wide range of macroeconomic indicators and their forecasts; the central bank seeks to provide clear reference points for households and businesses, including through enhancing communication transparency.

Interest rate swap (IRS)

A financial contract between two parties who agree to regularly pay interest in a certain currency at specified periods on the notional principal amount being the subject of the swap. One of the parties pays interest at a fixed rate set when the transaction is concluded, and the other party pays interest at a floating rate (a market rate, which can be LIBOR or a floating-coupon bond rate).

Liquidity-absorbing operations

Reverse operations carried out by the Bank of Russia to absorb liquidity from credit institutions. These are operations either to raise deposits or place Bank of Russia bonds.

Monetary base

The total amount of the components of cash and credit institutions' funds in accounts and Bank of Russia bonds denominated in Russian rubles. In the narrow sense of the term, the monetary base comprises cash in circulation (outside the Bank of Russia) and credit institutions' funds in required reserve accounts for ruble-denominated funds raised by credit institutions. The broad monetary base includes cash in circulation (outside the Bank of Russia) and credit institutions' total funds in accounts and Bank of Russia bonds.

Money supply

The total amount of Russian residents' funds (excluding general government' and credit institutions' funds). For the purposes of economic analysis, various monetary aggregates are calculated (M0, M1, M2, and M2X).

Money supply in the national definition (M2 monetary aggregate)

The total amount of cash in circulation outside the banking system and of the balances of Russian residents (non-financial and financial (other than credit) institutions and individuals) in settlement, current and other demand accounts (including in bank card accounts), time deposits, and other raised term funds in the banking system denominated in Russian rubles, as well as interest accrued on them.

Neutral rate of interest

The interest rate (in particular, the central bank's key rate and overnight interbank interest rates forming close to the key rate) that sustainably supports the economy at full employment (the output is at its potential, and unemployment is at its 'natural' level) and maintains inflation steadily at the target level. When the key rate is neutral, monetary policy neither speeds up, nor slows down inflation.

Refinancing operations

Reverse operations conducted by the Bank of Russia to provide liquidity to credit institutions. They may be in the form of loans, repos, or FX swaps.

Required reserve ratios

Ratios that are applied to credit institutions' reservable liabilities to calculate the regulatory value of required reserves. In accordance with Federal Law No. 86-FZ, dated 10 July 2002,

'On the Central Bank of the Russian Federation (Bank of Russia)', their values may range from 0% to 20%. These ratios are established by the Bank of Russia Board of Directors.

RUONIA (Ruble OverNight Index Average)

The weighted average interest rate on overnight interbank ruble loans (deposits) reflecting the cost of unsecured overnight borrowing. The Bank of Russia is in charge of the RUONIA methodology, compilation of the list of the panel banks, data collection, the calculation and publication of this interest rate.

Russia's balance of payments

A statistical system reflecting all economic operations between residents and non-residents of the Russian Federation over the reporting period.

Share of foreign currency in bank deposits (loans)

The portion of foreign currency-denominated deposits (loans) in the banking sector's overall portfolio of deposits (loans).

Structural liquidity deficit/surplus of the banking sector

A structural deficit in the banking sector is a situation when credit institutions demonstrate sustainable demand for liquidity from the Bank of Russia. A structural surplus is when credit institutions have a stable excess of liquidity and the Bank of Russia needs to carry out liquidity-absorbing operations. The estimated level of a structural liquidity deficit/surplus is the difference between the outstanding amount on refinancing operations and the amount of liquidity-absorbing operations of the Bank of Russia.

Transmission mechanism

The mechanism through which monetary policy decisions influence the economy in general and price movements in particular. This is a complex of cause and effect relationships ensuring the influence of changes in the key rate and expectations regarding its future path on particular financial market segments, and – through the latter – on demand and supply in the economy, and ultimately – on inflation. The transmission mechanism includes several channels, which are the sequences of cause and effect relationships, ensuring the influence of monetary policy on the economy (interest rate channel, credit channel, foreign exchange channel, balance sheet channel, inflation expectations channel, and others).

Underlying inflation

The steady component of price dynamics reflecting medium-term inflation trends. Various methods can be applied to measure underlying inflation: factoring out the volatile and administered components, truncation in regard to goods and services with the most and least volatile price growth rates, econometric approaches to model-based estimates of the monetary inflation component, etc.

ABBREVIATIONS

3MMA – three-month moving average

AIT – additional income tax

bp – basis point (0.01 percentage points)

BPM6 – the 6th edition of the IMF's Balance of Payments and International Investment Position Manual

Coupon OBR – Bank of Russia coupon bonds

CPI – consumer price index

ECB – European Central Bank

EME – emerging market economy

GDP – gross domestic product

IBL – interbank lending

IFRS – International Financial Reporting Standards

IMF – International Monetary Fund

InFOM – Institute of the Public Opinion Foundation

IRS – interest rate swap

MET – mineral extraction tax

Ministry of Economic Development – Ministry of Economic Development of the Russian Federation

Ministry of Finance – Ministry of Finance of the Russian Federation

MPG 2018–2020 – Monetary Policy Guidelines for 2018–2020

MPG 2020–2022 – Monetary Policy Guidelines for 2020–2022

MPG 2021–2023 – Monetary Policy Guidelines for 2021–2023

NWF – National Wealth Fund

OFZ – federal government bonds

OFZ-PD – fixed-coupon federal government bonds

OFZ-PK – variable-coupon federal government bonds

OPEC – Organization of the Petroleum Exporting Countries

OPEC+ – Organization of the Petroleum Exporting Countries and 11 non-member countries which signed the agreement on oil production cuts

PIT – personal income tax

pp – percentage point

RUONIA – Ruble OverNight Index Average (weighted interest rate in the Russian interbank market)

SA – seasonally adjusted

SAAR – seasonally adjusted annualised rate

SME – small and medium-sized enterprise

US Fed – US Federal Reserve System

VAT – value added tax