Bank of Russia

Q2 – Q3 2022

FINANCIAL STABILITY REVIEW

Information and analytical review

Moscow
2022

CONTENTS

Summary 2
Risk Map 7
1. Global economy and financial markets 8
Box 1. Contradictions between the goals of monetary policy, fiscal policy and financial stability 12
2. Materialisation channels for geopolitical risks and policy responses 15
2.1. Currency channel 15
Box 2. Risk reduction at the National Clearing Centre (NCC) related to 'toxic' currencies 17
Box 3. Foreign exchange operations of citizens 19
2.2. Stock market channel 20
2.3. Interest rate channel 25
Box 4. Decrease in opportunities for hedging interest rate risks. Progress in the reform of interest rate benchmarks 27
2.4. Income channel 28
Box 5. Housing market 32
2.5. Credit channel 33
2.5.1. Corporate lending market *34*
Box 6. Changing the approach to macroprudential regulation of foreign currency loans 36
2.5.2. Retail lending market *39*
2.5.3. Unsecured consumer lending *39*
Box 7. Overview of banking practices on the application of models for assessing borrower income and prospects for applying these models when calculating DSTI 42
2.5.4. Mortgage lending *45*
Box 8. Risks of mortgage programmes offered by developers and planned regulatory measures 47
2.6. Insurance channel 49
2.7. Technology channel 51
3. Assessment of financial sector stability 54
3.1. Banking sector 54
3.2. Non-bank financial institutions 56
Appendix 59
Appendix 1. Main sanction restrictions imposed against Russia in June – November 2022 59
Appendix 2. Cryptocurrency market trends 61
Glossary 64
Abbreviations 66
List of Charts 68
List of Tables 70

This material was prepared by the Bank of Russia Financial Stability Department.
This Review is released in electronic form in the Russian and English languages on the Bank of Russia's website.

Cover photo: Shutterstock/FOTODOM
12 Neglinnaya St, Moscow 107016
Bank of Russia website: www.cbr.ru

SUMMARY

Russia's economy and financial system are gradually adjusting to the sanctions imposed by unfriendly countries. Volatility in different segments of the financial market has subdued. However, there are still risks associated with new sanctions, including secondary ones. Besides, the effect of earlier restrictions may become more adverse.

The Bank of Russia regards it as a priority to maintain financial stability and the confidence of investors and depositors in the Russian financial system in all scenarios as only a strong financial system is capable to support the economy. The central objectives are to mitigate currency risks by gradually decreasing the use of 'toxic' currencies; to strategically reorient Russian infrastructure towards the markets of friendly countries; to timely phase out the regulatory easing; and to start building up buffers.

The current issue of the review takes the same approach to the assessment of financial stability risks as the previous one, which is to consider the global context and highlight the primary transmission channels of the sanctions' shock to the Russian financial sector. This issue also analyse the technology channel in addition to the six channels mentioned in the previous review, namely, the foreign currency channel, the stock market channel, the interest rate channel, the income channel, the credit channel, and the insurance channel. Furthermore, the review presents an integral stability assessment of the banking sector and non-bank financial institutions (NBFIs).

1. Global economy and financial markets

Global risks continue to have significant influence on Russia. However, the channels of influence have drastically changed in the new environment. The traditional channel of influence by means of financial account (capital flows from advanced economies) has become insignificant due to the sanctions. Contrastingly, the exposure to risks of emerging market economies (EMEs) has increased as a result of Russia's reorientation towards their markets and use of their currencies in settlements. Global trends continue to influence Russia through the current account channel as the Russian economy is still connected with other countries through foreign trade. In recent months, global recession risks have risen amid lower economic activity in key economies or a significant slowdown in growth, particularly in China. In this situation, Russia may face a decline in export demand from its trading partners. Should commodity prices fall sharply, export revenues (those of businesses and the budget) will decline, the Russian ruble will weaken, inflation will pick up steam, and credit quality will deteriorate.

The primary factor of global risks is an unprecedented acceleration of inflation, which has forced the central banks of advanced countries to aggressively tighten their monetary policies. Higher rates in advanced economies make debt and market risks rise. As a result, banks and other financial institutions may face a significant decline in the quality of their loan portfolios. At the same time, the rising cost of living and challenges in corporate sector may necessitate fiscal support measures, which can undermine both fiscal stability and market participants' confidence. Problems with debt financing, accumulated vulnerabilities, inconsistent regulatory policy, and unclear public communication of decisions could further exacerbate the situation. A striking illustration of this were the recent events in the UK, where the Bank of England was forced to make emergency purchases of government bonds to stabilise the market. Similarly, other central banks will have to find a trade-off between curbing inflation and financial stability risks.

2. Materialisation channels for geopolitical risk and policy responses

Currency channel

Dedollarisation of the Russian banking sector has sharply accelerated in anticipation of new sanctions. Both households and businesses converted their deposits held in 'toxic' currencies into rubles en masse, while banks minimised their funds placed in correspondent accounts held with banks based in unfriendly countries. In September–October 2022, the swap market of 'toxic' currencies faced a liquidity deficit ensued from the sharply accelerating dedollarisation and the extension of compliance procedures by counterparties from unfriendly countries. The higher cost of swap borrowings had little effect on the financial stability in general since there was a sufficient supply of US dollars and euros on the spot market. However, some banks (including those who were not sanctioned) have currency mismatches they should eliminate to avoid losses.

The Bank of Russia has developed a process for establishing the official exchange rate of 'toxic' currencies in the event of increased risks for exchange trading. In this scenario, the exchange rate will be calculated based on over-the-counter (OTC) transactions.

Currencies of friendly countries have gained importance as a result of the economic transformation and a shift away from using unfriendly countries' currencies in transactions. The share of trades in currency pairs with Chinese yuan (CNY, yuan) increased to 33% in November (up to 21 November). The priority is to assure a balanced transition to the currencies of friendly countries. Currently, banks are short of profitable CNY-denominated assets (in particular, the amount of loans is small though growing). It is also important to ensure a smooth transition to the yuan not only in exports, but also in imports and financial account payments (where 'toxic' currencies are primarily being used so far). Given the increasing share of assets in EMEs currencies, which are more volatile than reserve currencies, the banking sector should properly assess the risks related to these assets.

Settlements and payments channel is another transmission channel of the sanction crisis to the financial system, through which shocks are transmitted to the economy and then back to the financial system. A significant part of payments for exports and imports remains in US dollars and euros; the ability to make these payments is considerably hampered nowadays as a significant percentage of Russian banks is under sanctions and the banks are unable to carry out this type of transactions. Some banks were disconnected from SWIFT and face difficulties in making the transactions. The non-sanctioned banks have launched the process of curtailing correspondent accounts or the introduction of restrictions on their settlements. Arrangement of payments in alternative currencies has its own challenges related to infrastructure development (including the system of correspondent accounts, messaging networks, infrastructure for foreign exchange transactions — through the exchange or the interbank market, etc.). Such infrastructure is currently being built. In particular, payments in alternative currencies (other than US dollars and euros) already account for about 50% of payments, while at the beginning of the year this figure was 21%. The Bank of Russia is actively collaborating with other regulators, contributing to the development of a new settlement infrastructure, including through the application of new technologies.

Stock market channel

New sanctions imposed by unfriendly countries and the expectedly deteriorating situation at major companies pulled down Russian share prices in Q2 – Q3 2022. Amid rising geopolitical tension, the Moscow Exchange index (IMOEX) fell by 20% in late September (it lost 18% since the beginning of April and 42% from the beginning of the year). The yield curve of federal government bonds (OFZ) has changed minimally (on average, the curve increased by 69 bp from the beginning of the year) on the back of lower inflation expectations and the key rate cut by the Bank of Russia in Q2–Q3 2022.

In general, the impact of losses from the materialisation of market risks on the financial position of banks and non-bank financial institutions has been limited.

Yet, a significant decline in the value of Russian shares and unfavourable economic expectations may make private investors disappointed about the outlook of the Russian equity market. These are private investors who dominate the Russian equity market (with 73% in trading volume) in the absence of non-residents. Given these circumstances, it is important to take actions to safeguard investors and encourage investment both in the instruments of the Russian market and in those of friendly countries, provided that infrastructure risks are eliminated. The issue of unfreezing National Settlement Depository (NSD) assets that were frozen under EU sanctions has not yet been resolved.

Interest rate channel

Amid the decline in interest rates in Q2 – Q3 2022, losses from the materialisation of interest rate risks did not significantly affect the financial performance of banks. Meanwhile, banks' reliance on short-term funding has increased noticeably since the outbreak of the crisis: the share of customer funds with maturities of up to one year exceeds 80%. It would be reasonable for banks to offer their customers long-term deposits with a sizeable premium to the interest rate on short-term instruments in order to lower the interest rate risk. Additionally, in a bid to reduce the systemic interest rate risk, the Bank of Russia is examining ways to boost the development of a long-term funding market.

Income channel

The majority of Russian companies in export-oriented sectors had adequate financial strength as of mid-2022, which they accumulated during the period of economic recovery following COVID-19 pandemic and rising export product prices. In the medium term, however, companies run an increasing risk of a worsening financial position due to tougher sanctions (including entry into force of the embargo on the supply of crude oil and petroleum products to the EU), as well as declining demand and prices for key goods in the event of a global economic recession. The impact of technology sanctions may last longer than that of export restrictions. Reduced corporate earnings, shrinking markets, and the ban on the export of equipment and components to Russia could hamper investment, development of industrial sector, and, consequently, fiscal and households revenues.

The industries relying on domestic demand, such as automotive, aviation, and commercial real estate sectors, are struggling the most as they have taken the biggest hit from sanctions and the exodus of foreign businesses from the Russian Federation.

Credit channel

Corporate lending

At the macro level, an increase in ruble corporate lending has nearly offset a decrease in corporate obligations on foreign currency loans and external debt. This was largely driven by an accelerating lending in Q3 2022 (when the outstanding ruble loans grew by an average of 3% per month). Concurrently, the economic uncertainty brought on by the extension of sanctions and increased geopolitical tensions create risks of a lower lending activity. Under these conditions, the Bank of Russia is considering the implementation of regulatory stimulus measures aimed at boosting lending potential to transform the economy. The Bank specifically intends to implement risk-sensitive incentive-based banking regulation for projects promoting technological sovereignty and economic modernisation. The Bank of Russia and the Government of the Russian Federation are jointly developing the criteria (taxonomy) for such projects. The measures will be designed to support financing of the priority areas with no undue risks to the financial system.

Overall, the credit quality is still better than anticipated at the outbreak of the crisis, and the demand for restructuring has significantly decreased. In the next few years, the credit quality situation will be influenced by the outcomes of the economic transformation.

Retail lending

In Q3 2022, retail lending recorded a recovery growth in loan issue after a sharp decline in activity in the period from March to May. Amid low unemployment, relatively stable individual income dynamics, and conservative regulatory requirements, the quality of retail loan portfolio has not yet significantly declined. As of 1 October 2022, the percentage of restructured and non-performing loans is 1.6% for mortgage loans and 10.6% for unsecured loans which is significantly lower than the values observed during the 2008, 2014, and 2020 crises.

The demand for loans has temporarily decreased as a result of the partial mobilisation announced in September. This notwithstanding, the Bank of Russia has decided to introduce macroprudential limits starting from 1 January 2023 in a bid to ensure a balanced development of unsecured consumer lending that will not entail individual debt burden risks. The introduction of macroprudential limits will improve the lending structure without creating additional capital requirements for banks.

Mortgage segment has shown a trend towards greater than expected growth of housing prices (by 20% from the beginning of the year[1]), supported by an easing of financial conditions of mortgage lending rather than by an increase in borrower income. Concessional lending programmes are being scaled up, making the price gap between primary and secondary housing markets wider. In Q2 – Q3 2022, this trend was enhanced by the implementation of 'developer-subsidised mortgages'. Meanwhile, lending standards are deteriorating, as the percentage of loans with a down payment of less than 20% has increased from 37% to 48%. Should these trends persist, the Bank of Russia will impose stricter regulations: in terms of macroprudential measures, the regulator may require to increase add-ons for mortgage loans with high debt service-to-income (DSTI) ratios and low down payments; in terms of microprudential measures, stricter requirements may be imposed on mortgage loans' provisioning depending on the effective rate level.

Insurance channel

The reinsurance market has continued to suffer from sanctions, which increased the concentration of risks on Russian National Reinsurance Company (RNRC). Car insurers' loss ratio is growing as a result of rising maintenance costs (caused by increased prices and limited availability of spare parts). Sanction-related assets freezing of insurance companies puts pressure on their liquidity ratios.

Technology channel

The Russian financial sector sees a rise in technology risks prompted by sanctions, problems with imports of IT equipment, and the exit of foreign tech companies. Banks and NBFIs should pay special attention to the level of operational efficiency and cybersecurity, increasing resilience to technical failures. Financial institutions should make sure that this category of operational risks is duly managed, including related to outsourcing arrangements. The Bank of Russia is developing regulation of credit institutions' outsourcing relationships.

3. Assessment of financial sector stability

Temporary regulatory easing curbed the impact of financial market volatility on the operation of banks and NBFIs enabling them to continue lending to the economy in the crisis period. Lessons learnt from the pandemic proved that it is crucially important to timely phase out the easing. This approach allowed the Russian financial sector to face the 2022 sanction crisis in a relatively robust

[1] *Primary housing market price index by the Federal State Statistics Service (Rosstat).*

state. The Bank of Russia intends to keep phasing out gradually some of the support measures that were put in place for banks and NBFIs during the high uncertainty period. The Bank of Russia will not extend the moratorium on securities revaluation and exchange rate fixing to calculate required ratios. Meanwhile, the Bank of Russia extends easing of forming provisions for restructured loans amid high uncertainty regarding the credit quality of such loans.

Banking sector

The banking sector remains strong due to an accumulated capital reserve. After sizeable losses incurred in Q2 2022 due to the materialisation of currency and interest rate risks, and making loan loss provisions, the banking sector resumed making profit as early as in Q3 2022 amid decreased volatility and a recovery of interest margins.

The results of the Bank of Russia's stress testing of the banking sector over the period until the end of 2023 show that the banking sector will remain stable as a whole even if sanctions pressure on the Russian economy persists and borrower credit quality deteriorates.[2] In 2023, capital adequacy of banks may decline by a total of 2.6 pp, but the banking sector will generally retain a significant capital reserve and a sizeable lending potential (about 40.7 trillion rubles as of the end of 2023).[3] However, some banks may require additional capitalisation in the wake of materialised shocks: its total volume is estimated at up to 0.7 trillion rubles over the forecast horizon. Meanwhile, the need to infuse capital may be lagged in time or decline since banks are taking active measures to replenish their capital, collaborating with their owners regarding recapitalisation issues and mitigating the risks elevated during the time of crisis.

Non-bank financial institutions

NBFIs' financial position remains fairly stable in part due to the financial market support measures. Non-governmental pension funds (NPFs) are among those institutions that have been least impacted by geopolitical risks since a significant portion of their pension funds are invested in OFZ and high-security Russian bonds.

The freezing of life insurers' foreign assets has limited their capacity to pay out additional investment income. Meanwhile, companies continue to fulfil their guaranteed payment-related obligations consistently.

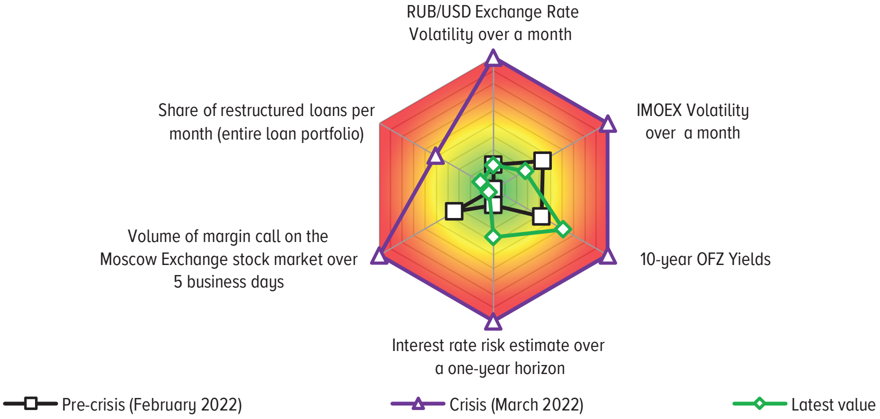
---

[2] *The scenario takes into accounts the impact from the cancellation of the regulatory easing influencing banks' capital adequacy.*

[3] *It is calculated based on capital adequacy compliance excluding buffers.*

RISK MAP

FINANCIAL STABILITY RISK MAP *Chart 1*



Note:

The scale from 0 to 100 units reflects the minimum and maximum values of the indicators over the period from the beginning of 2020 to 1 November 2022. A degradation of an indicator is shown from the centre to the edge.

The latest RUB/USD exchange rate volatility values over a month, 10-year OFZ yields, MOEX Index volatility over a month, margin call volume on the MOEX stock market over 5 business days, and the share of restructured loans over a month (in total loan portfolio) are given as of 1 November 2022; interest rate risk estimate for the period of up to 1 year is given as of July 1.

1. GLOBAL ECONOMY AND FINANCIAL MARKETS

Channels of influence of global risks on Russia have drastically changed. The traditional channel of influence by means of financial account (capital flows from advanced economies) has become insignificant due to the sanctions. Instead, as a result of Russia's reorientation toward friendly countries and use of their currencies in settlements, exposure to risks connected to these markets has increased. A potential deterioration in the markets and EMEs could trigger contagion effects for Russia.

As long as the Russian economy is still tied to other countries through foreign trade, global trends will continue to have a strong impact on Russia through the current account channel. The probability of a recession in the global economy has increased in recent times. Should commodity prices fall sharply, Russia will have to deal with a drop in export revenues (those of businesses and the budget), a weakening Russian ruble, increased inflation, and deteriorating credit quality.

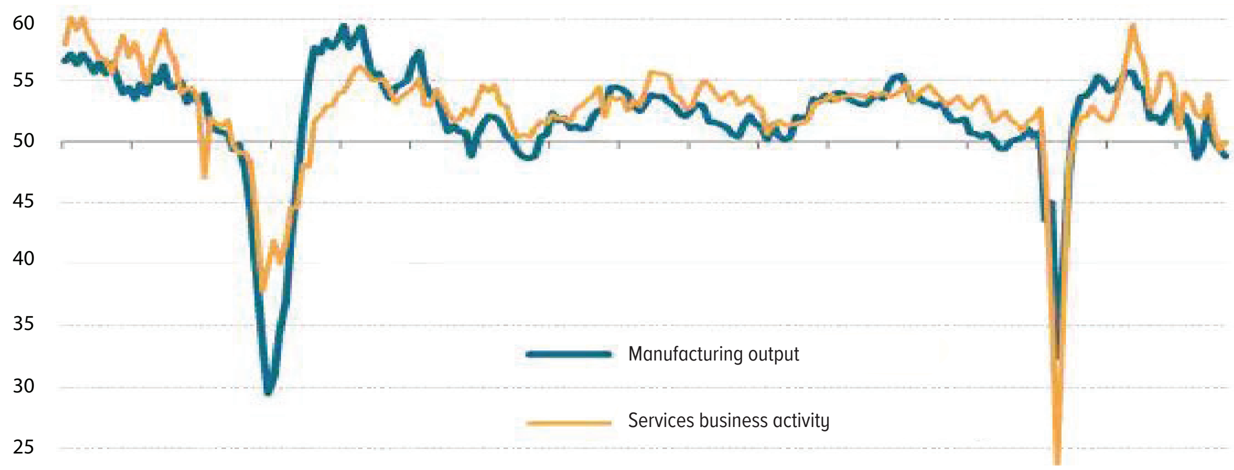
In the reporting period, there was a noticeable rise in uncertainty in relation to prospects for global growth. According to the October forecast issued by the International Monetary Fund (hereinafter 'IMF'), growth of global gross domestic product (hereinafter 'GDP') will slow down, dropping from 6% in 2021 to 3.2% in 2022 and 2.7% in 2023 (Table 1). This represents the weakest growth since 2001, with the exception of the global financial crisis and the acute phase of the pandemic. At the same time, the probability of a global recession has increased to levels observed during the global financial crisis and COVID restrictions. The dynamics of the global PMI index also indicates the deterioration of the situation in the global economy. In August-September 2022, this index fell below 50 points in both the manufacturing and service sectors, reflecting an overall decline in business activity (Chart 2). The manufacturing sector is negatively affected by rising prices, weakening demand, reduced trade volumes, and reduced stocks. In the service sector, companies

GDP GROWTH RATES (%), IMF FORECAST AS OF OCTOBER 2022 *Table 1*
(%)

	2021	October 2022 Forecast		Deviation from April 2022 Forecast (p.p.)	
		2022	2023	2022	2023
Global GDP growth rates	***6.0***	***3.2***	***2.7***	***-0.4***	***-0.9***
Advanced economies	***5.2***	***2.4***	***1.1***	***-0.9***	***-1.3***
United States	5.7	1.6	1.0	-2.1	-1.3
United Kingdom	7.4	3.6	0.3	-0.1	-0.9
Euro area	5.2	3.1	0.5	0.3	-1.8
Germany	2.6	1.5	-0.3	-0.6	-0.3
France	6.8	2.5	0.7	-0.4	-0.7
Italy	6.6	3.2	-0.2	0.9	-1.9
Spain	5.1	4.3	1.2	-0.5	-2.1
Japan	1.7	1.7	1.6	-0.7	-0.7
EMEs and developing economies	***6.6***	***3.7***	***3.7***	***-0.1***	***-0.7***
China	8.1	3.2	4.4	-1.2	-0.7
India	8.7	6.8	6.1	-1.4	-0.8
Russia	4.7	-3.4	-2.3	5.1	0.0
Brazil	4.6	2.8	1.0	2.0	-0.4
South Africa	4.9	2.1	1.1	0.2	-0.3
Mexico	4.8	2.1	1.2	0.1	-1.3

Source: IMF.

GLOBAL PMI INDEX IN THE MANUFACTURING AND SERVICES SECTORS *Chart 2*

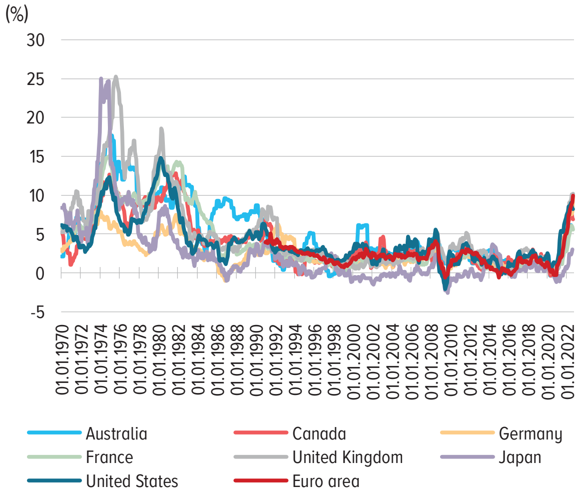


Source: S&P Global, JP Morgan.

are confronted with a decrease in demand due to the rising cost of living. The situation varies by country. The US labour market indicators remain strong. In Europe, the shutdown of production lines during an energy crisis is leading to poor expectations about future growth prospects (the IMF expects a recession in Germany and Italy in 2023).

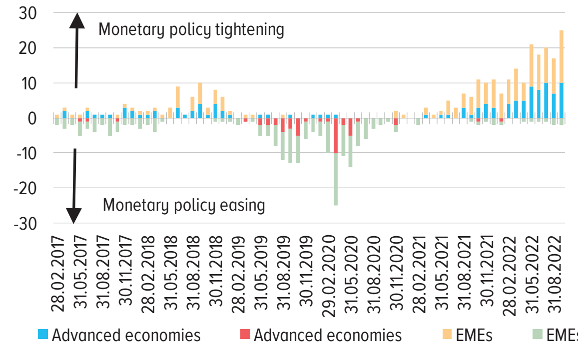
The main factor of the observed slowdown in global growth is increasing inflation, which has reached the highest levels since the 1970s-1980s in advanced economies (Chart 3). The increase in prices is due to factors on the side of both supply and demand. During the pandemic, large-scale support measures in major economies stimulated demand, helping to accelerate inflation and growth in financial markets, while central banks did not raise rates for a long time in 2021, expecting a surge in inflation to be temporary. In 2022, geopolitical tensions and sanctions restrictions exacerbated problems in supply chains. Inflationary pressure is becoming more sustained than expected and is spreading across a wider range of goods, beyond just commodity markets. In October, the annual growth in consumer price index (CPI) amounted to 7.7% in the US, 11.1% in the UK, and 10.6% in the euro area. In September, annual growth in the producer price index (PPI) reached 41.9% in the euro area and 16.3% in the UK. Energy prices show a high volatility. The price of Brent oil reached 98 US dollars per barrel at the start of November, (oil prices were supported by the OPEC+

ANNUAL INFLATION DYNAMICS IN ADVANCED ECONOMIES *Chart 3*



Source: BIS.

NUMBER OF CHANGES TO KEY RATES COMPARED TO PREVIOUS MONTH *Chart 4*



Note:
Advanced economies: USA, euro area, Australia, Canada, Switzerland, Czech Republic, Denmark, Great Britain, Israel, Iceland, Japan, Korea, Norway, New Zealand, Sweden.
«EMEs: Argentina, Brazil, Chile, China, Colombia, Hong Kong, Hungary, Indonesia, India, Mexico, Malaysia, Peru, Philippines, Poland, Russia, Saudi Arabia, Thailand, Turkey, South Africa.
Source: BIS.

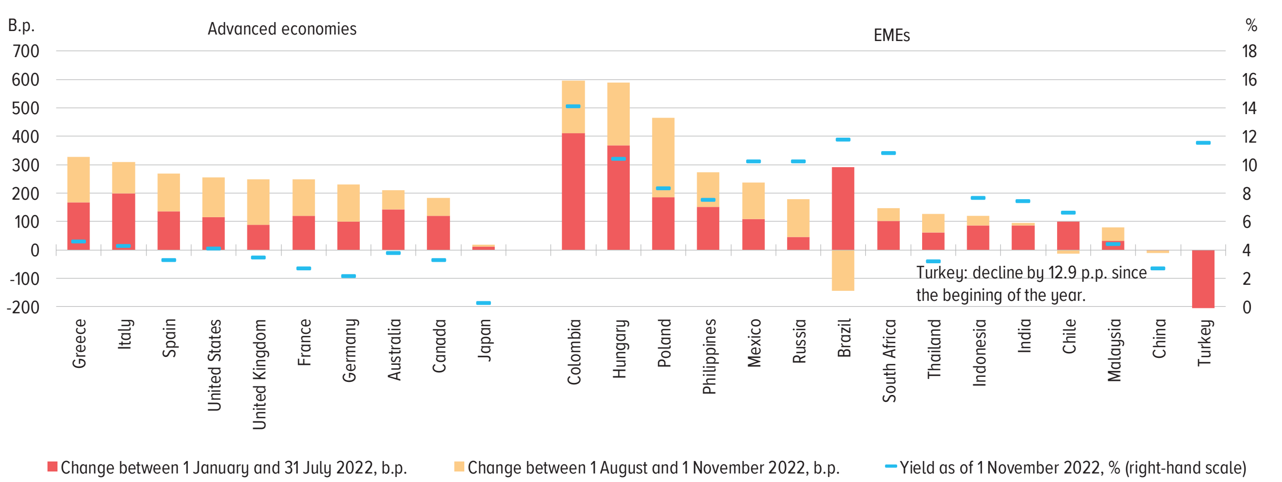
decision to cut oil production by 2 million barrels from November). However, by 24 November, the Brent price had dropped to 84 US dollars per barrel amid a rise in daily cases of COVID-19 infection in China to a record level. In August, gas prices in Europe reached their highest since March (3,600 US dollars per 1,000 cubic metres) due to a significant reduction in supply of Russian gas. Nonetheless, prices dropped again to 1,328 US dollars per 1,000 cubic metres by 24 November as a result of gas storage facilities being filled at high rates.

Under these conditions, we are seeing tightening of monetary policy on an international level in the most synchronised manner observed in the past five decades (Chart 4). The US Federal Reserve System (Fed) is the most actively raising the rate; this year, the range of the key rate was increased by 3.75 pp up to 3.75-4.00%. At the same time, the Fed claims to be committed to restoring price stability and declares its readiness to keep restrictive monetary policy in place for some time, until there can be more certainty that inflation is under control. In September, Fed executives significantly revised their rate forecast upwards; the rate is now expected to reach 4.6% by the end of 2023, and any reduction in rates is forecast as late as 2024 to 3.9%. The European Central Bank (ECB) began to tighten monetary policy in July, with the main refinancing rate increased by a total of 2 pp up to 2%.

Against the backdrop of more stringent monetary policy, financial conditions have become more restrictive in many countries. From the start of 2022 until 1 November, 10-year government bond yields increased by 255 bp to 4.07% in the US (the highest value since October 2008), by 249 bp to 3.46% in the UK, and by 231 bp to 2.13% in Germany. At the same time, the growth of government bond yields in advanced economies has accelerated since August 2022 (Chart 5). The leaders in terms of growth rates include Greece and Italy, which already faced a sovereign debt crisis in 2010-2012. In 14 major EMEs (excluding Turkey), the yields of 10-year government bonds have increased by an average of 224 bp since the beginning of 2022.

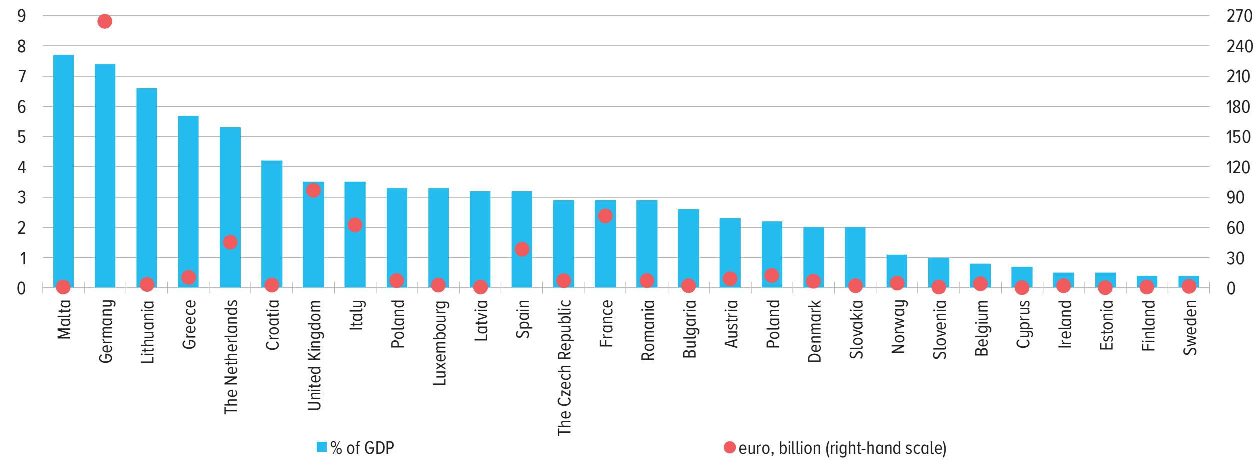
Growth in rates means that the cost of servicing accumulated debts (at floating rates) and attracting new loans is rising. This may lead to an increase in overdue payments and an increase in the number of defaults, primarily in the non-financial sector of many countries, which, as a result, may adversely affect the stability of banks and other financial institutions, despite the accumulated capital and liquidity buffers. In turn, the limited ability of banks to provide new loans, along with lower levels of investment and consumer spending, will negatively affect economic activity. The situation may be exacerbated by massive downgrading with regard to credit ratings. The current instability is already reflected in the rise in CDS among international banks such as Credit Suisse and Deutsche Bank, indicating increased risks of contagion. Moreover, financial market stress could

CHANGE IN 10-YEAR GOVERNMENT BOND YIELDS *Chart 5*



Source: Cbonds.

AMOUNT OF FINANCING FOR MEASURES TO SUPPORT THE POPULATION AND COMPANIES IN EUROPE (FROM SEPTEMBER 2021 TO 20 OCTOBER 2022) *Chart 6*



Source: Bruegel.

intensify if sovereign credit risks rise. European governments are implementing large-scale measures to support their citizens and businesses to compensate for rising prices of energy commodities. According to a study by the Bruegel Institute in Brussels, 668 billion euros were allocated for this purpose between September 2021 and 20 October 2022, (Chart 6), which provokes a decrease in the countries' fiscal sustainability.

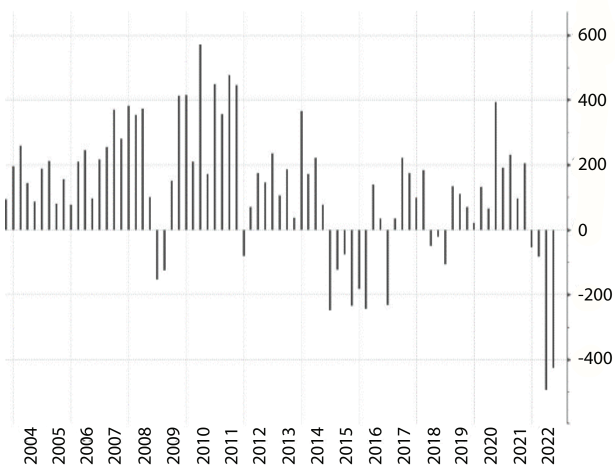
In the context of an accelerated increase in rates, there is also a correction in the stock markets, cryptocurrency markets (see Addendum 2) and real-estate markets. From the start of 2022 until 1 November, the value of US stocks (S&P 500 index) dropped by 19.1%, European stocks (STOXX Europe 600) by 15.0%, and EMEs (MSCI Emerging Market) by 29.6%. The cryptocurrency market was hit by a new wave of stress in early November, related to the outflow of investors due to fears about the bankruptcy of the FTX cryptocurrency exchange. As a result, the key cryptocurrencies, Bitcoin and Ether, fell in price by 8% in one day on 8 November, and the capitalisation of the cryptocurrency market fell below 0.9 trillion US dollars. There are growing signs that the housing boom provoked by the pandemic is cooling off. A number of leading countries, including the USA, Canada, and Great Britain, have seen a slowdown in growth of housing prices and a decline in house sales as mortgage rates go up.

The strengthening of the US dollar has serious macroeconomic consequences for many countries, given its significant role in international trade and finance. According to the IMF, the US dollar accounts for about 40% of global exports. With rapid tightening of the Fed's monetary policy, the US dollar index (DXY) reached its highest level since 2000 (Chart 7). This sudden strengthening of the US dollar complicates the fight against inflation and creates risks for financial stability for many countries. The pressure is particularly acute in countries that are highly dependent on imports or have high levels of debt, especially in foreign currencies, or are highly dependent on foreign investors. Under these conditions, the need to support national currencies, as well as the depreciation of assets in other currencies, led to a significant reduction in foreign exchange reserves in many countries. According to Bloomberg, global foreign exchange reserves have fallen by about 1 trillion US dollars this year (or 7.8%) to 12 trillion US dollars, which represents the biggest drop since Bloomberg began collecting data in 2003 (Chart 8). Foreign exchange reserves in India decreased between January and September 2022 by 96 billion of US dollars to 538 billion of US dollars, in Japan — by 158 billion of US dollars to 3,029 trillion of US dollars, in China — by 221 billion of US dollars to 3,029 trillion of US dollars. Sales of assets from foreign exchange interventions lead to additional growth in US treasury bonds.

DYNAMICS OF THE US DOLLAR INDEX (DXY) *Chart 7*

Source: finance.yahoo.com.

QUARTERLY CHANGE IN GLOBAL FOREIGN EXCHANGE RESERVES *Chart 8*
($, BILLION)



Source: Bloomberg.

Thus, rate hikes implemented by leading central banks to meet monetary policy targets are hindered by constraints in the form of increased fiscal and financial stability risks (see Box 1). If the extent of global monetary policy tightening measures now expected by markets is not enough to bring inflation down to the target indicators, further tightening could cause financial stress and lead to a global recession.

A possible deterioration in the situation in the markets and economies of EMEs could provoke contagion effects for other countries, including Russia. Russia's exposure to these risks has increased as a result of transitioning to settlements and holding funds in EME currencies. In general, the situation in EME financial markets is characterised by growing instability. With higher rates being imposed by leading central banks, emerging economies faced an outflow of capital. According to data from EPFR Global, investors withdrew a record 70 billion US dollars from EME bond funds between January and September 2022. The outflow of capital and the rising cost of financing in

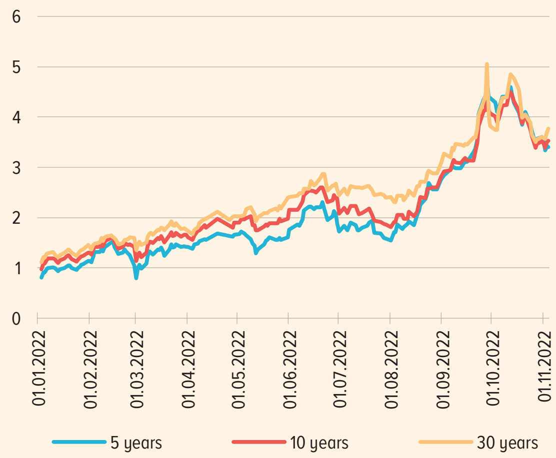
Box 1. Contradictions between the goals of monetary policy, fiscal policy and financial stability

At present, the global economy faces a whole range of problems whose solution inevitably leads to certain side effects. Central banks are forced to tighten policy in order to reduce inflation levels, but raising rates leads to heightened debt risks. At the same time, the rising cost of living requires fiscal support measures, which in turn can undermine fiscal sustainability, diminish trust among market participants, and lead to the materialisation of systemic risks. Against this background, decisions are not communicated clearly to the public and actions taken by regulators are inconsistent, which can further exacerbate the situation on the market.

The UK is a recent example of how central banks might be forced to act based on grounds of financial stability. At the end of September 2022, the Bank of England resorted to buying government bonds due to the sharp increase in yields. A surge in yields on government securities, as well as the weakening of the pound sterling against the US dollar, followed the announcement of an unrealistic action plan by the UK Government (a series of tax breaks [1]and an increase in budget spending to compensate for rising electricity bills) (Chart 9). Against this backdrop, UK pension funds faced margin calls on derivatives, with which they hedge liabilities, and the Bank of England had to intervene to support them. This situation is reminiscent of similar actions taken by EME central banks during COVID-19 (in particular, the Central Bank of Indonesia purchased government bonds in the spring and summer of 2020).

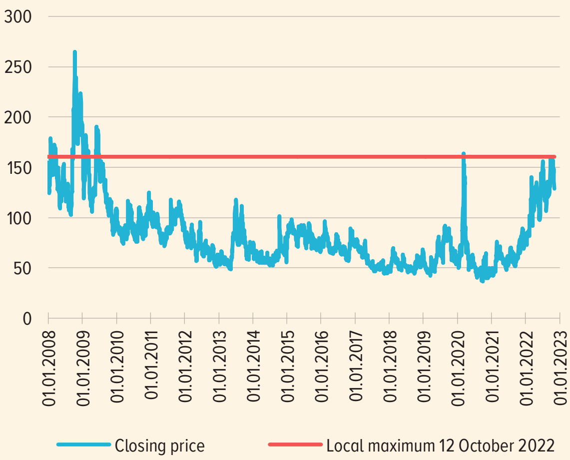
[1] *Some of the easing measures were subsequently cancelled, and the UK government included tax increases and spending cuts of 55 billion pounds sterling in the new budget plan.*

DYNAMICS OF UK GOVERNMENT BOND YIELDS *Chart 9*



Source: Cbonds.

MOVE INDEX (US TREASURIES YIELD VOLATILITY) *Chart 10*



Source: Cbonds.

Other leading central banks may also be forced to take unexpected decisions based on financial stability. Some analysts note that the deteriorating liquidity situation in the US may force the Fed to suspend the quantitative tightening programme and move to support the US Treasuries market. Volatility in the US Treasuries market has already risen to March 2020 levels (Chart 10) and could increase even more due to a number of factors:

1) the vulnerability of asset managers, hedge funds that have used a lot of borrowed funds and are facing rising margin requirements;

2) problems on the short-term financing market (overnight repo), where US Treasuries are used as a pledge;

3) an increase in sales of US Treasuries by other countries with the aim to protect their currencies, taking into account geopolitical risks.

We cannot rule out the aggravation of sovereign debt risks in the euro area. In 2010-2012, a vicious cycle of contagion effects between banking and sovereign risks (sovereign-bank nexus) was seen in the euro area. Problems arose in the banking sector after the global financial crisis (GFC) which warranted significant government support measures. Then, the rise in public debt and higher yields on government bonds in vulnerable countries exacerbated the problems for banks, which had significant investments in their government bonds. Extraordinary measures were required by the ECB, which began to buy bonds from troubled countries. In summer 2022, the ECB once again began to support the bond markets of periphery countries by launching the Transmission Protection Instrument, an anti-crisis mechanism.

The rise in exposure to financial stability risks is largely due to the accumulation of vulnerabilities amid extremely low rates since the 2008 crisis. As a result, even relatively low levels of the real interest rate can lead to financial instability. A recent study by analysts at the Federal Reserve Bank of New York presents the concept of a real interest rate, at which financial rigidity leads to financial instability. The authors conclude that a situation in which low real rates persist for a long period of time leads to an increase in leverage and a subsequent decrease in the benchmark rate level, which, when reached, results in financial instability. Thus, there is ever-decreasing room for manoeuvre in monetary policy.

EMEs result in increased debt risks, and the strengthening of the US dollar pushes up the cost of servicing dollar debt even further.

Economic growth in China is slowing down significantly more than expected. A further slowdown in China could affect global prices of energy commodities and opportunities for developing Russian exports. Decreased optimism about growth prospects is a result of the ongoing zero-tolerance policy towards the coronavirus pandemic, as well as problems in the construction sector that began last year. Low inflation allows the People's Bank of China to cut rates to stimulate the economy, but this leads to notable weakening of the yuan against the US dollar (by 12.7% YTD as of 1 November), which increases China's risks of capital outflow and volatility in Chinese asset prices. Since the start of 2022 until 1 November, the stock markets in China (Shanghai Composite) dropped by 18.4%.

In Turkey, meanwhile, inflation continues to rise (83.5% YoY as of September), while inflationary risks are intensifying as the Turkish lira weakens against the US dollar (by 28.9% YTD to 1 November). In turn, the weakening of the lira is facilitated by a cycle of rate cuts by the central bank, which began in autumn 2021 (by 10 pp to 9%). In addition, pressure is mounting on Turkey's balance of payments; a larger current account deficit, estimated by authorities to reach 5.9% of GDP in 2022, will increase the need for external financing at a time of tightening global financial conditions. Against this background, Turkey's sovereign 5-year CDS increased to 908 bp in July, but by 1 November had dropped to 654 bp.

Despite the increased global risks, there are several factors that contribute to maintaining the stability of the Russian economy. First of all, a significant trade balance can diminish the decline in export earnings. Secondly, Russia's public debt is still relatively low by global standards.

2. MATERIALISATION CHANNELS FOR GEOPOLITICAL RISKS AND POLICY RESPONSES

The introduction of additional sanctions restrictions by unfriendly countries led to market volatility, although on a significantly smaller scale than in February-March 2022.

A decline in oil, gas and metal exports may lead to decreased earnings for companies, lower levels of investment and increased credit risks. It is important to avoid a reduction in lending, for which reason the Bank of Russia will maintain stimulating regulatory requirements. Amid the 'search for yield' banks resumed ramping up unsecured consumer lending, and the Bank of Russia decided to introduce macroprudential limits from of 1 January 2023 in order to maintain a balanced lending structure. Risks in the interest rate channel were mitigated as a result of the rapid cut in key rate, but banks still remain exposed to interest rate risk.

The main risks of the insurance channel are materialised mostly in terms of reinsurance operations, both due to being unable to place risks abroad, and due to the uncertainty surrounding the payment of premiums to friendly countries due to fear of secondary sanctions (difficulties obtaining compensation for losses from foreign reinsurers also remain). As a result, there is a high concentration of reinsurance within the country.

In addition to the channels discussed in the previous review, we single out a new channel that has an impact on sanctions: technology. With foreign companies withdrawing from the Russian market and problems arising with imports of IT equipment, the operational risks faced by banks have noticeably increased.

2.1. Currency channel

Accelerated dedollarisation of the banking sector continued during the reporting period. Fears surrounding the extension of sanctions on the part of 'unfriendly' countries led to a desire among market participants to get rid of 'toxic' currencies and caused a temporary liquidity deficit in the dollar and euro swap market against the ruble. Amid a rapid reduction of liabilities in 'toxic' currencies, numerous banks are faced with the problem of complying with open foreign exchange position.

At the same time, rapid changes are taking place in the structure of foreign-exchange settlements. With this, the rising share of export earnings in yuan will further increase when the embargo on oil exports to the EU comes into force in December. The share of yuan instruments on the Russian foreign exchange market reached 33% in November. At the same time, the challenge for Russian banks is the limited opportunities for investing yuan that actually generate interest income. It is also important to ensure a balanced transition to the yuan, including both exports and imports, along with payments for capital transactions.

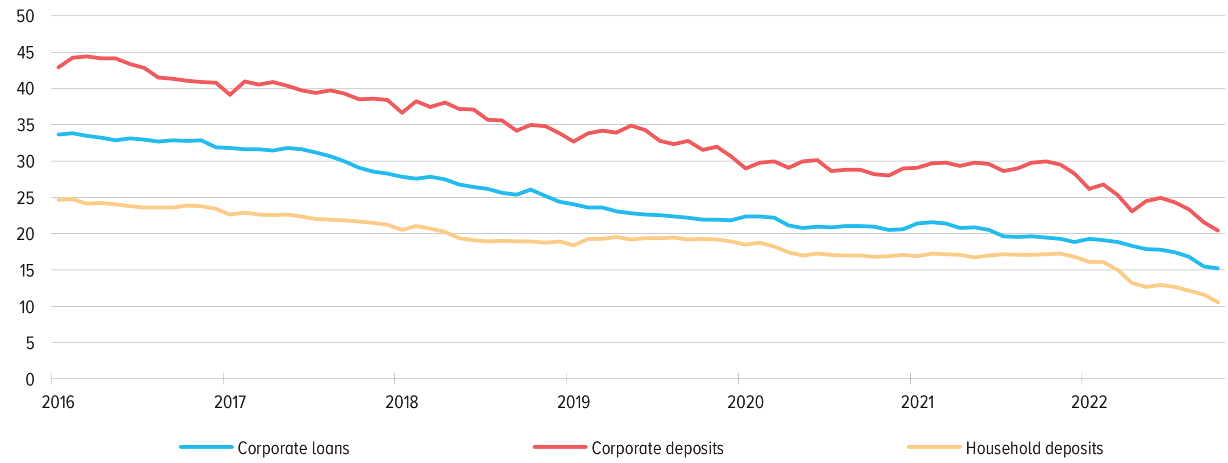
- ***The process of dedollarisation of the banking system continued, however, a number of banks faced an imbalance in their foreign exchange positions and losses as a result of revaluation.***

The level of foreign currency predominance in assets and liabilities of the banking sector following the results of Q3 2022 decreased to the lowest values in recent years: 15% as of 01 October 2022 (-3 pp[1] for the period from 01 April 2022 to 01 October 2022). The share of foreign currency loans in the corporate loan portfolio decreased over six months from 18% to 15% by 1 October 2022, the share of foreign currency liabilities to legal entities dropped from 23% to 20%, and to individuals from 13% to 11% (Chart 11).

[1] *Hereinafter, the level of foreign currency predominance is calculated with the exclusion of currency revaluation, at the exchange rate as of 30 September 2022.*

DOLLARISATION IN LOAN AND DEPOSIT PORTFOLIO OF THE BANKING SECTOR
(%, EXCHANGE RATE AS OF 1 OCTOBER 2022)

Chart 11



Source: Reporting form 0409101.

During the volatile period in spring of 2022, banks significantly increased their foreign currency liquid assets to compensate for the expected outflow of foreign exchange funds on the part of depositors, and it was not possible to hedge foreign exchange risk due to the collapse of the derivatives market. As a consequence, the majority of credit institutions formed a net long open foreign exchange position following the results of the analysed period (23.2 billion US dollars across the banking sector as a whole). In relation to this, the strengthening of the ruble provoked a negative financial situation for credit institutions associated with currency revaluation; net losses from operations with foreign currency, precious metals and FDs[2] amounted to about 1.1 trillion rubles in the first 9 months of 2022.

The Bank of Russia's planned cancellation of easing for fixing the exchange rate will not have a significant impact on the sector's capital adequacy the effect of the removal of measures may be significant only for a small number of banks (according to preliminary estimates, the standards for 7 credit institutions may be reduced by more than 0.5 pp).

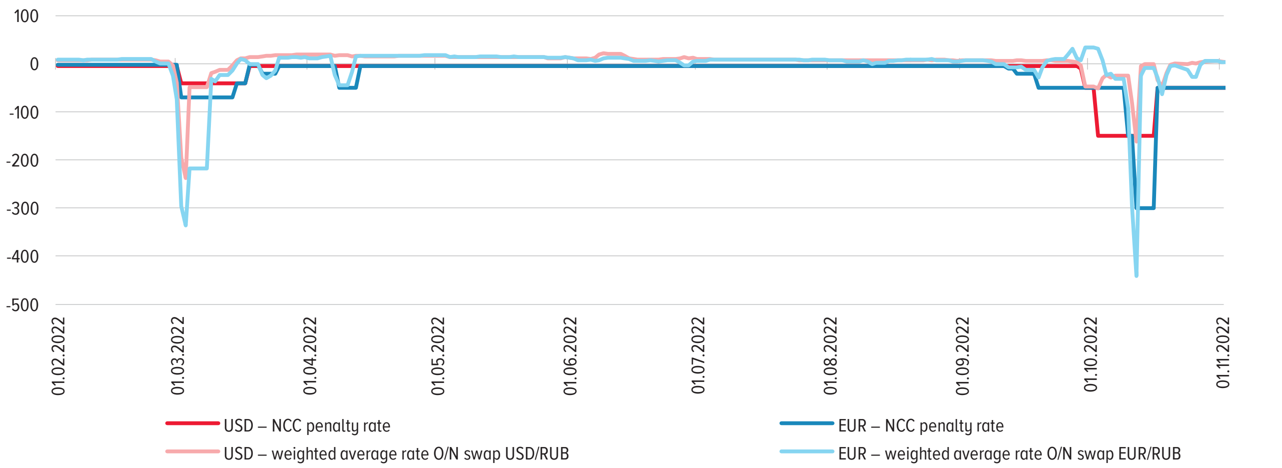
- ***The sharp dedollarisation of liabilities and the settlement of banks' foreign exchange positions led to a shortage of foreign exchange liquidity.***

With the accelerated reduction in liabilities in 'toxic' currencies seen in September-October, some banks faced difficulties in meeting open foreign exchange positions limits, including banks not subject to sanctions, and, as a result, they increased the demand for currency swaps. As a result, the O/N swap rates in the currency section of the MOEX went into negative territory in September-October 2022, which indicated a shortage of foreign currency. Clearing members that placed rubles were forced to pay for raising US dollars and euros. Previously, under 'normal conditions', such transactions would generate income due to the difference between the Bank of Russia's rates and those of foreign central banks. In the order-driven trading mode, the minimum rates reached 300% per annum for US dollars and 800% per annum for euro. The foreign exchange deficit was also associated with fears of a worsening geopolitical situation and tightening compliance procedures on the part of foreign correspondent banks, which led to huge delays in making payments. In response to the current situation, the NCC increased the penalty rates for the rollover of outstanding obligations from -4% to -150% per annum for US dollars and from -5% to -300% per annum for euros (Chart 12). This situation did not massively affect the spot currency market (including against the backdrop of a large supply of 'toxic' currency) or financial stability in general, however, it emphasises

[2] *Net income (expenses) from operations with foreign currency, including derivatives (with the underlying asset 'foreign currency and interest rates').*

PENALTY RATES
(% PER ANNUM)

Chart 12



Source: MOEX.

Box 2. Risk reduction at the National Clearing Centre (NCC) related to 'toxic' currencies

Preventive measures by the NCC

Traditionally, most of the collateral in the central counterparty on the MOEX was formed by many participants in foreign currencies. This collateral was often excessive in that it exceeded the volume required for transactions (which was beneficial, including taking into account regulatory incentives, i.e. a lower risk ratio related to requirements for a qualified CCP). In order to reduce possible risks, the NCC has been placing restrictions on accepting currencies from unfriendly countries as collateral since June 2022. By 1 September 2022, US dollars, euros, Swiss francs, and pounds sterling were completely excluded from the list of currencies accepted as collateral for transactions. After that, certain clearing members also set 'restrictive' tariffs in order to stop holding currency on accounts with the NCC.

Actions taken by the NCC in case of rise in potential risks

In the event of heightened risks, the NCC will act in accordance with its clearing rules[1], which involve (1) stopping the blocked currency from being credited to/debited from the clearing members' accounts, (2) replacing the currency for the settlement of claims/obligations on all markets of the MOEX, except for the derivatives market, and also (3) completely stopping trading in blocked currencies.

Change in the Bank of Russia's procedure for calculating the official exchange rate

In the event that the geopolitical situation worsens, it may become difficult to trade with the currencies of the respective countries on the MOEX. In this case, foreign exchange trading will become over-the-counter, which is generally more common in global practice. The Bank of Russia has developed alternative approaches for calculating the official exchange rate. If it is not possible to determine the official exchange rates based on the data on transactions concluded in the currency section of the MOEX, it is planned to make the reserve calculation of USD/RUB, EUR/RUB and CNY/RUB exchange rates on the basis of data from the OTC spot foreign exchange market[2] (based on the data of reporting form 0409701 'Report on Transactions in the Currency and Money Markets' and information on digital OTC trading platforms[3]).

[1] *Article 64 of the general part of the NCC Clearing Rules dated 16 September 2022*

[2] *The data are contained in reporting form 0409701 'Report on Transactions in the Currency and Money Markets'.*

[3] *Bank of Russia Ordinance No. 6290U, 'On the Central Bank of the Russian Federation's Procedure for Setting and Publishing the Official Exchange Rates of Foreign Currencies Against the Ruble' dated 3 October 2022.*

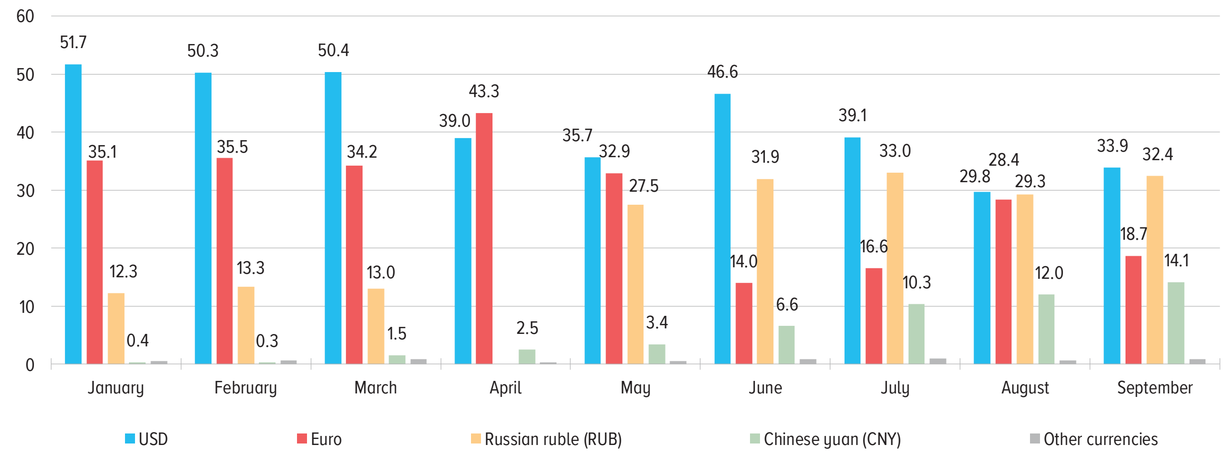
the importance of having a balanced open foreign exchange position for banks that have violated this standard.

- ***Dedollarisation is accompanied by a transition to alternative currencies, and this transition must be balanced.***

With unprecedented sanctions imposed by the US and the EU, the share of settlements in 'toxic' currencies on the Russian market decreased from 52% to 34% in US dollars in 9 months of 2022, and from 35% to 19% in euros. Due to trade flows being redirected towards Asia and the change in the currency used for settlements under existing contracts with companies from China and other countries, the share of settlements in Chinese yuan and Russian rubles has seen a massive increase, from 0.4% to 14% and 12.3% to 32.4% respectively (Chart 13).

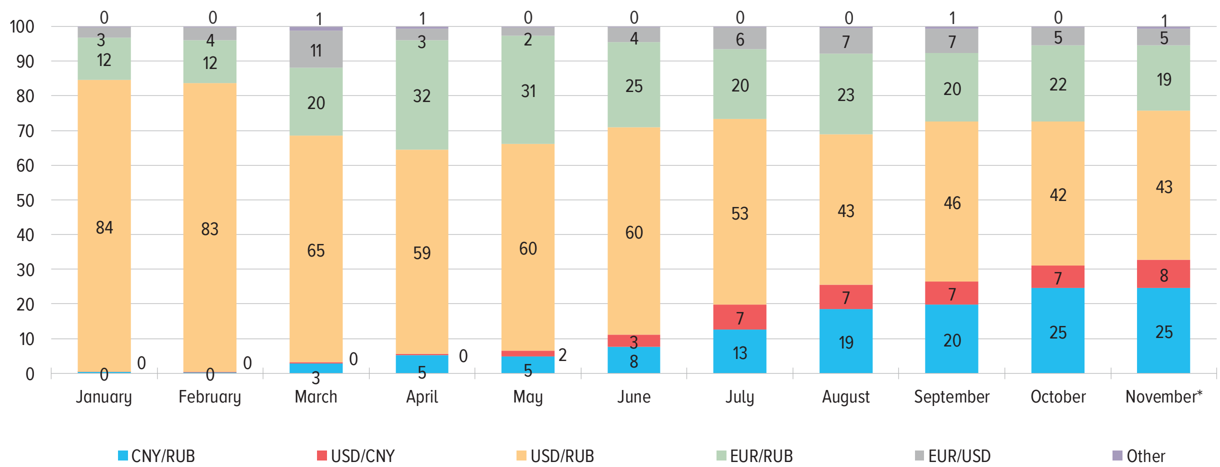
As a result, the share of instruments involving yuan in the volume of exchange trading rose from 3% in March to 33% in November (as of 21 November) (Chart 14). Market participants not only purchased yuan for rubles, but also exchanged some of their US and euro funds into this currency. In

SHARE OF DIFFERENT CURRENCIES IN EXPORT SETTLEMENTS IN 2022 *Chart 13*
(%)



Source: banking control statements.

SHARE OF CURRENCY PAIRS IN THE TRADING VOLUME OF THE FOREIGN EXCHANGE CURRENCY MARKET *Chart 14*
(%)



**Until 21 November 2022.*
Source: MOEX.

monthly terms, the volume of trading in the currencies of other friendly countries increased 6 times from 6.5 billion pounds sterling in March to 39.4 billion pounds sterling in September.[3] A similar trend is being observed in the OTC market.

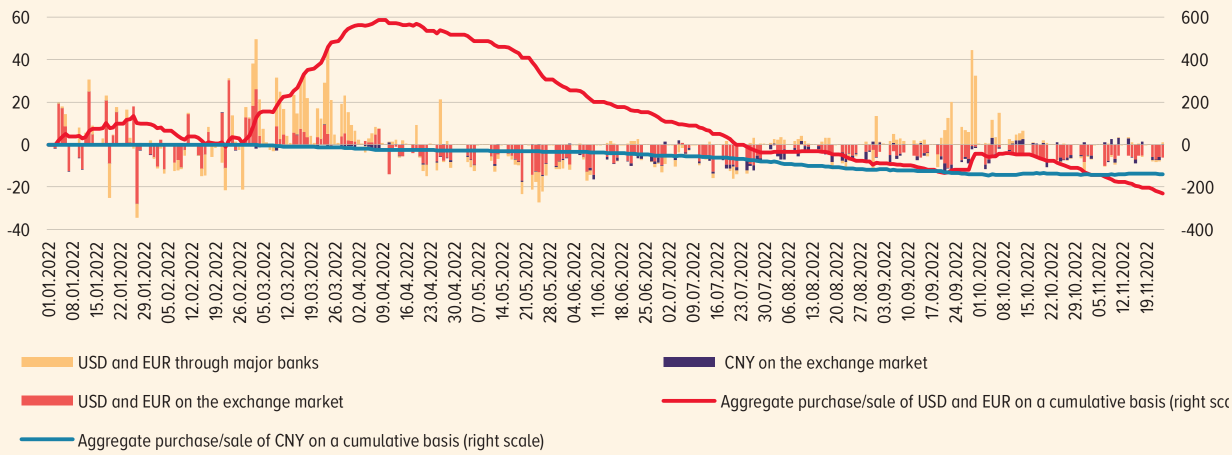
It is important to ensure a balanced transition to national currencies in general, including Chinese yuan, and that this transition is seen both in export transactions and in imports and payments of a financial nature (repayment of external debts, payment of shares in companies, etc.). Otherwise, imbalances may be seen in the 'toxic' currency segment. With limited arbitrage opportunities and weak interaction between the Russian market and the international market (it is problematic to exchange US dollars and euros for rubles, yuan or other currencies of friendly countries on foreign exchanges amid narrow markets and fear of secondary sanctions), such imbalances can lead to a discrepancy in foreign exchange rates on the Russian and international markets and, in general, increased volatility of the ruble exchange rate. This kind of exchange rate discrepancy increases from time to time, but is minimal on average.

Settlements and payments channel is another transmission channel of the sanction crisis to the financial system, through which shocks are transmitted to the economy and then back to the financial system. A significant part of payments for exports and imports remains in US dollars and euros; the ability to make these payments is considerably hampered nowadays as a significant percentage of Russian banks is under sanctions and the banks are unable to carry out this type of transactions. Some banks were disconnected from SWIFT and face difficulties in making the transactions. The non-sanctioned banks have launched the process of curtailing correspondent accounts or the introduction of restrictions on their settlements. Arrangement of payments in alternative currencies has its own challenges related to infrastructure development (including the system of correspondent accounts, messaging networks, infrastructure for foreign exchange transactions — through the exchange or the interbank market, etc.). Such infrastructure is currently being built. In particular, payments in alternative currencies (other than US dollars and euros) already account for about 50% of payments, while at the beginning of the year this figure was 21%. The

Box 3. Foreign exchange operations of citizens

As before, the behaviour of citizens continues to have a countercyclical effect on the foreign exchange market, as they sell foreign currency when the ruble weakens and buy when it strengthens. Since the start of 2022, individuals have purchased US dollars and euros to the amount of 230.1 billion rubles on the exchange and OTC markets. During the period between 24 February and 10 April 2022, citizens carried out net foreign exchange sales worth 539.9 billion rubles. Similarly, at the end of September this year, amid a worsening geopolitical situation, the total volume of net foreign exchange sales made by households

NET CASH FX PURCHASES (-) / SALES (+) OF CURRENCY BY INDIVIDUALS ON THE EXCHANGE MARKET AND THROUGH MAJOR BANKS *Chart 15*
(₽ BILLION)



Source: MOEX, survey of major banks.

amounted to 65.0 billion rubles for the period between 20 September and 13 October 2022[1]. For Q2-Q3 2022 (as of 24 November, inclusive), net purchases of foreign currency by households on the exchange market amounted to 1.054 trillion in ruble terms. During the same period, they sold 147.4 billion rubles (Chart 15) in US dollars and euros in the OTC market (through the largest banks) (Chart 15).

The population's preferred choice of currency is gradually shifting towards Chinese yuan. In contrast to US dollars and euros, purchases of Chinese yuan by individuals followed a consistent trend, and overall purchases of yuan amounted to 139.6 billion rubles per annum.

---

[1] *Of these, net foreign exchange sales at major banks amounted to 178.7 billion rubles, and net purchases made on the MOEX amounted to 113.8 billion rubles.*

Bank of Russia is actively collaborating with other regulators, contributing to the development of a new settlement infrastructure, including through the application of new technologies.

2.2. Stock market channel

Increased geopolitical risks, partial mobilisation in Russia and the introduction of additional sanctions restrictions contributed to a significant decline in the MOEX index at the end of September (20%), which was nonetheless lower than the drop seen in February (27%).

The depreciation of shares of Russian issuers does not have a significant negative influence on the financial condition of banks and NBFIs due to the relatively small share of their investments in these financial instruments. The growth in spending to support the economy and citizens, as well as the reduction in non-oil and gas revenues, led to the formation of a federal budget deficit. It is planned to finance the deficit partly through the National Wealth Fund (hereinafter 'NWF') and additional oil and gas revenues, and partly through domestic net borrowing. Despite the increase in borrowing, the ratio of public debt to GDP will remain significantly lower than in other countries. On the whole, the yield curve of Russian bonds has seen an insignificant change since the beginning of the year (an increase of 69 bp). With this in mind, the financial stability of credit institutions and NBFIs should not be seriously adversely affected by the cancellation of the measure that allows them not to revalue investments in shares and bonds purchased before 18 February 2022, and to evaluate those purchased after this date at the acquisition price when calculating ratios.

However, a sharp fall in the stock market and negative forecasts for the development of the economic situation may lead to long-term disappointment for private investors, who have become the main participants in the Russian stock market as non-residents leave. Investments by citizens in financial instruments of friendly countries can increase the national and sectoral diversification of their portfolios and maintain a general interest in operating in the market, but it is important that infrastructural risks are nonetheless limited. Work to unfreeze assets that were frozen under sanctions against NCI JSC NSD continues.

The vast majority of citizens are unqualified investors (98%) who do not have great skills or experience in trading on the stock market. In this regard, the Bank of Russia puts significant emphasis on protecting and increasing financial literacy among unqualified investors.

➢ ***The Russian stock market remains highly volatile.***

The restriction imposed on non-residents from unfriendly countries with regard to trading on the Russian stock market and the measures taken by the Bank of Russia contributed to the overall stabilisation of the market after trading resumed at the end of March 2022. However, in the third ten days of September, amid increased geopolitical tensions, the MOEX index saw an accelerated decline, falling by 19.5% (Table 2). A more significant decline was avoided in September due to the lack of non-residents from unfriendly countries in the Russian market and the market's adaptation to sanctions risks, among other things. Overall, the MOEX index dropped by 18.4% since the start of Q2 2022 until 18 November 2022 (by 42% since the start of 2022). The fall in stock indices in 2022 is a direct reflection of the changes taking place in the Russian economy under sanctions

DYNAMICS OF RUSSIAN STOCK MARKET INDICATORS DURING EPISODES OF INCREASED VOLATILITY *Table 2*

Period	Stock market response indicators		
	Index decline, %	Largest one-day drop for the period, %	Net purchases (+)/sales (-) by non-residents and foreign subsidiaries in secondary exchange trading, ₽ billion
20–28 February 2020 (COVID-19 pandemic)	-10.60	-4.48	-29.6
2–19 March 2020 (COVID-19 pandemic and oil market shock)	-18.30	-8.28	-100.1
13–25 January 2022 (global security talks)	-14.90	-6.50	-107.5
21–25 February 2022 (outflow of non-residents)	-27.20	-33.28	-139.9
24 March – 25 April 2022 (anti-crisis measures)	-11.51	-4.89	-6.5
20–30 September 2022 (growth in geopolitical risks)	-19.47	-8.84	-0.3

Source: MOEX, Investing.

restrictions. The lack of non-residents from unfriendly countries on the market had certain negative consequences, such as a drop both in market liquidity and in trading volume, which amounted to 46 billion rubles per day in Q2 – Q3 2022 (207 billion rubles on average in January).

➤ ***The refusal to ease market risk will not lead to loss of financial stability for banks and NBFIs.***

The biggest portion in the securities portfolios of credit institutions (98%) and NFOs (89%) comes from government and corporate bonds, while the percentage of shares is predominantly small, which means that they are insignificantly exposed to fluctuations in the stock market.

For 2023, the Bank of Russia does not plan to extend the anti-crisis measure that gives banks and NBFIs which apply Bank of Russia accounting regulations the right to record equity and debt securities acquired before 18 February 2022 in accounting at their fair value as of 18 February 2022, and equity and debt securities acquired between 18 February and 31 December 2022 — at cost (moratorium on revaluation). The cumulative effect of easing measures in relation to fixing the value of securities on the capital adequacy of the banking sector is insignificant (less than 0.1 pp). In general, the banking sector has a sufficient margin of safety, and seeing the measure through will not have a significant impact on banks' ratios.

According to the results of modelling the effects of cancelling the measure for the 6 largest brokerage firms that made use of the moratorium on revaluation, the total value of their securities would decrease by 9% (or 18 billion rubles), and the aggregated capital adequacy ratio would decrease by 2 pp, but together remain above the threshold value[4].

The majority of the assets of insurance companies and NPFs (according to preliminary data, 44.0% of securities of life insurers, 84.7% of securities of 'non-life' insurers, 48.3% of pension savings (hereinafter 'PS') and 62.6% of pension reserves (hereinafter 'PR') as of 30 September 2022) is accounted for by the trading portfolio, subject to revaluation. Around half of insurers and about a quarter of NPFs did not take advantage of the opportunity to record equity and debt securities acquired before 18 February 2022 at fair value as of 18 February 2022 (until 31 December 2022) in their accounting. For other companies, the cancellation of this easing may have a negative impact on profitability and capital adequacy, but for most it will not be critical.

➤ ***The budget deficit will not have a significant negative impact on the OFZ market.***

This year, a growth in spending along with a fall in non-oil and gas revenues has led to an increase in the structural primary deficit of the federal budget (at the end of 2022, it is expected to be

[4] *According to a survey conducted by the Bank of Russia in relation to 176 brokerage firms, the removal of easing measures will not lead to large-scale non-compliance with capital adequacy ratio, liquidity coverage ration (LCR) and own funds (capital) standards.*

3.4% of GDP). The fiscal rule will balance the situation with the budget deficit, while fiscal policy will maintain a countercyclical focus in 2023 and 2024, which will mean temporarily exceeding the spending limit set by the [5]'fiscal rules' by 2.9 and 1.6 trillion rubles[6], respectively. Based on this, the Russian Ministry of Finance predicts a budget deficit in the amount of 2.9 and 2.2 trillion rubles in 2023 and 2024 respectively (Chart 16). It is planned to finance this deficit partly through the NWF and additional oil and gas revenues (in the amount of 2.0 and 0.6 trillion rubles), and partly through internal net borrowings (in the amount of 1.7 and 1.9 trillion rubles[7])

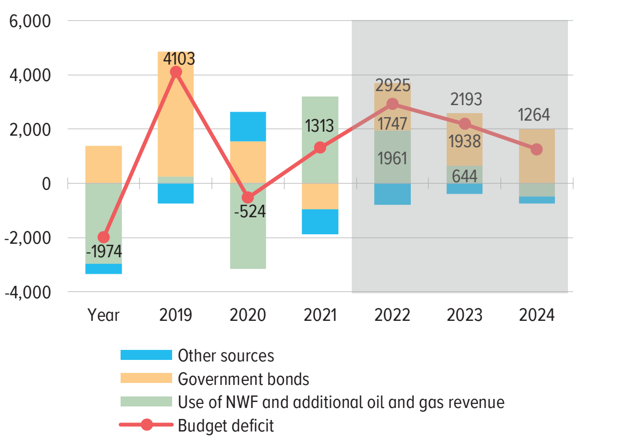
The indicated volumes of net borrowing do not entail an increase in risks for the budget, since the specified parameters of the debt policy do not imply a significant increase in the debt burden. The ratio of public debt to GDP is expected to increase from 16% in 2022 to 16.9% in 2023 and 17.3% in 2024, and will still be significantly lower than in other countries. Nevertheless, significant volumes of OFZ placements may lead to increased volatility in the money market. In relation to this, the Bank of Russia raised the limit for liquidity provisions at monthly REPO auctions to 1.5 trillion rubles.

Low debt risks of government borrowings are reflected in the dynamics and level of interest rates in the OFZ market. In Q2 – Q3 2022 (up to 18 November inclusive), with inflation expectations lowered and the Bank of Russia key rate reduced, OFZ yields decreased along the entire length of the curve by an average of 3.5 pp, and by 6.1 pp for terms up to 3 years (Chart 17), which indicates the absence of a significant increase in the sovereign risk premium.

➤ ***The fall in the stock market negatively affects the mood of private investors.***

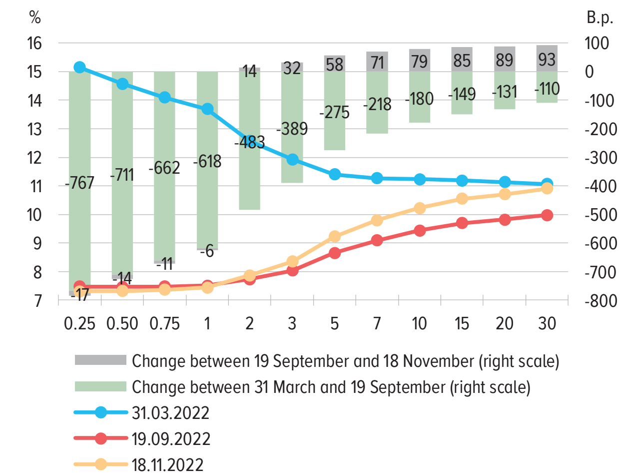
The decline in quotations of Russian shares due to the absence of non-residents has a negative impact, first and foremost, on portfolios of retail investors and their perception of the Russian market. In addition, a drop in the number of participants and in trading volumes negatively affect the liquidity of the stock market. At the same time, individuals continued to support the stock market in Q2 – Q3 2022. The share of household transactions in the total trading volume from February to October 2022 increased compared to 2021: by 34 pp to 73% in the stock market, and by 12 pp up to

BUDGET DEFICIT AND SOURCES OF FINANCING THE FEDERAL BUDGET DEFICIT (₽ BILLION) *Chart 16*



Source: Key Areas of the Fiscal, Tax, and Customs and Tariff Policy for 2023 and the 2024–2025 Planning Period.

OFZ YIELD CURVE AND CHANGE IN YIELDS OVER THE PERIOD *Chart 17*



Source: MOEX.

[5] The Ministry of Finance has modified the 'budget rules', with basic oil and gas revenues fixed at 8.0 trillion rubles, and a limit established for primary expenditures (based on non-oil and gas revenues, basic oil and gas revenues and the balance of budget and interstate loans).

[6] Fiscal policy is planned to be revised to meet the corresponding 'budget rules' by 2025.

[7] According to the Key Areas of the Fiscal, Tax, and Customs and Tariff Policy for 2023 and the 2024–2025 Planning Period.

19% in the OFZ market (Charts 18, 19). Since February, over 1.4 million new private investors have entered the market. However, net purchases of stocks and bonds by households were low. The cumulative increase in net investment by individuals in Russian equities (475 billion rubles) was partly driven by a decline in investment in foreign assets (166 billion rubles)[8].

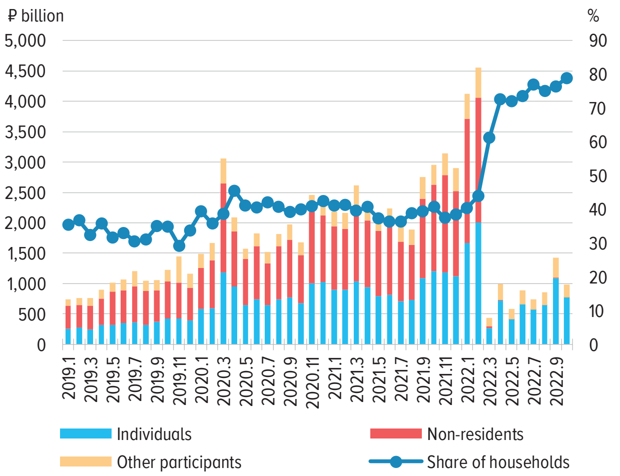
Given that most citizens are unqualified investors (98%[9]) who do not have sufficient trading experience or significant financial resources, and that they tend to follow similar strategies, an increase in the number of citizens trading and their influence on pricing may increase market volatility in the future. The Bank of Russia places particular emphasis on protecting and increasing financial literacy among unqualified investors and plans to upgrade the qualification requirements for investors.

Investor behaviour is negatively affected by non-residents leaving the Russian market, given that they have significant capital and are ready to support upward trends, as well as assets being blocked in the European depository and clearing infrastructure, and the lack of customer-oriented approach of numerous financial intermediaries. Additional measures are needed to restore confidence among retail investors in the domestic stock market and prevent them from leaving for other countries' stock markets.

The volume of funds transfers by citizens to non-resident brokers went up (for the period between January and August 2022, the net volume of transfers amounted to 1.24 billion US dollars[10] (Chart 20). Transfers were predominantly made to friendly countries. Although this is still small in absolute terms, in the long term there is a risk of a significant outflow of private investment in foreign financial infrastructure. An important tool for mitigating this risk is to increase liquidity and expand the list of financial instruments denominated in the currencies of friendly countries and available on the Russian market.

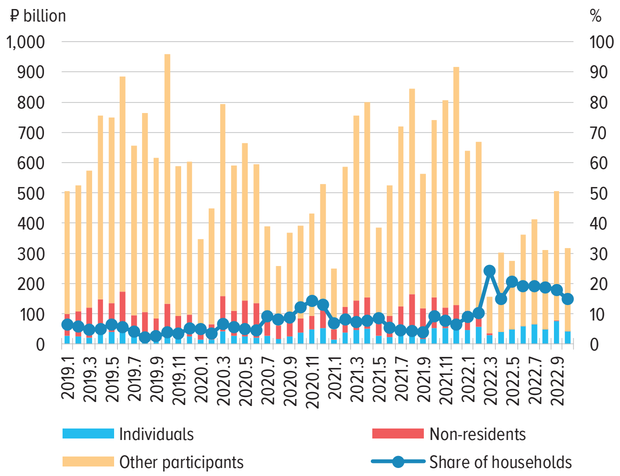
In August-September 2022, primary placements of bonds denominated in Chinese yuan were seen on the Russian market.[11] The Moscow Exchange (MOEX) does not rule out the appearance of Russian bonds denominated in Turkish liras and Armenian drams.

TRADING VOLUME ON THE STOCK MARKET BY PARTICIPANTS *Chart 18*



Source: MOEX.

TRADING VOLUME IN THE OFZ MARKET BY PARTICIPANTS *Chart 19*



Source: MOEX.

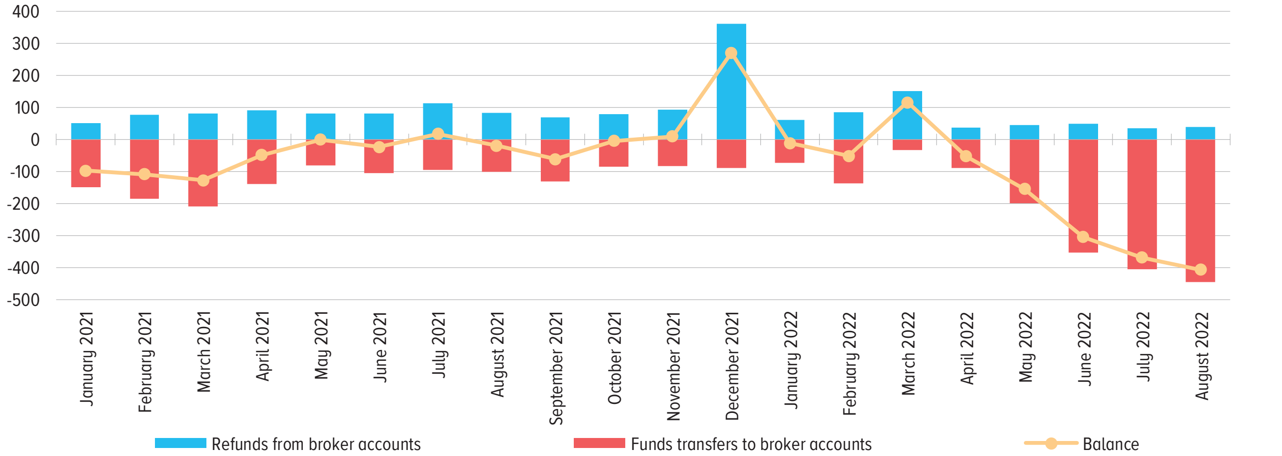
[8] *Inflows of funds from individuals for the period from March to September 2022.*

[9] *From all customers on brokerage service.*

[10] *For the whole of 2021, the volume of transfers amounted to 194 million US dollars, for January-August 2021 — 408 million US dollars.*

[11] *RUSAL, Polyus, Metalloinvest, Rosneft.*

VOLUMES OF TRANSFERS MADE BY INDIVIDUALS TO NON-RESIDENT BROKERS UNDER BROKERAGE SERVICE AGREEMENTS FOR 2021-2022 *Chart 20*
($ MILLION)



Source: Reporting form 0409405.

In June 2022, the SPB EXCHANGE launched trading in securities of Chinese issuers with a listing in Hong Kong. Since the launch, the volume of transactions in these securities has grown, the list of financial instruments available to investors has expanded, and the share of the settlement currency (Hong Kong dollar) in collateral for the central counterparty servicing these transactions (SPB Clearing). In case of connecting to the accounting and settlement infrastructure in friendly countries[12], increased interest in these securities can be expected from investors.

Materialised infrastructural risks and negative returns on units of mutual investment funds (hereinafter 'UIFs') had a negative impact on demand among private investors and confidence in the UIF market. The net cumulative outflow of funds from open-ended and exchange-traded unit investment funds (hereinafter 'OUIFs' and 'EUIFs') in Q2 2022 increased almost sevenfold compared to Q1 2022[13], reaching 22.6 billion rubles. Due to the restrictions imposed by European clearing houses, some management companies decided to liquidate their EUIFs, transactions with ETFs and a number of funds whose assets include foreign securities that are currently unaccessible[14]. The Bank of Russia has developed approaches for resuming operations with UIFs which have had a significant share of their assets blocked, and is working on making the necessary changes to legislation.

- ***To increase protection for investors, work on unlocking foreign assets and compensating for investors' corresponding losses continues.***

In order to defend the interests of investors amid the blocking restrictions imposed on NCI JSC NSD[15], Investor Protection Club was formed at the Moscow Exchange Group, whose members consisted of 38 financial market participants whose assets were blocked. NCI JSC NSD is working to unblock these assets in two ways: it filed a lawsuit with the Court of the European Union in Luxembourg in order to prove that adding NCI JSC NSD to the EU sanctions list was unlawful and unjustified, and it also sent requests to the Ministries of Finance in Belgium and Luxembourg to obtain general licences to unlock the assets of non-restricted investors placed with Euroclear/Clearstream.

[12] *Draft regulation 'On Securities and Financial Derivatives Intended for Qualified Investors' posted by the Bank of Russia on its official website on the Internet makes it possible for unqualified investors to purchase, in particular, securities of Chinese issuers, provided that payments on securities, as well as accounting rights to them will be exercised by financial institutions from friendly jurisdictions.*

[13] *The data is presented only for funds that did not make significant investments in blocked foreign securities (reporting of these funds was not provided in full)*

[14] *As a result, FinEx Tradable Russian Corporate Bonds UCITS ETF (ruble share class) were fully realised due to the need to cover losses related to currency swaps in the face of a significant devaluation of the ruble, but unit holders did not receive payments.*

[15] *Blocking restrictions on NCI JSC NSD were introduced by the EU on 03 June 2022. Switzerland acceded to these restrictions on 10 June 2022.*

2.3. Interest rate channel

With lower interest rates in Q2 – Q3 2022, losses from the materialisation of interest rate risk in 2022 did not have a significant negative impact on banks' financial results. At the same time, credit institutions remain highly dependent on short-term funding. To limit systemic interest rate risk, the Bank of Russia is considering the possibility of developing a market for long-term funding instruments. Moreover, in order to reduce their interest rate risk, the banks themselves can offer customers long-term savings instruments that give a fairly significant premium to the interest rate on short-term deposits.

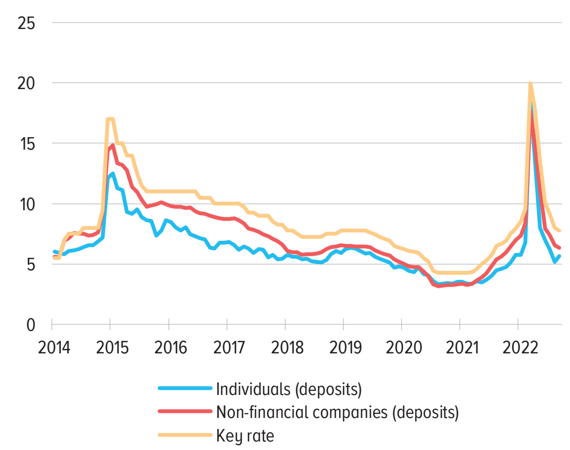
- ***Amid key rate cuts, banks' net interest income recovered in Q3***

In April-September, with the Bank of Russia key rate falling by 12.5 percentage points to 7.5%, banks lowered deposit rates[16] as follows (Chart 21): by 12.8 pp on household deposits and by 11.3 pp on deposits by corporate clients. This made it possible to reduce the banking sector's losses resulting from the materialisation of interest rate risk. Due to the outpacing decline in interest expenses on the retail portfolio, banks' net interest income (NII) in Q3 2022 recovered to the level of Q3 2021. As a result, according to the results of 9 months of 2022, the banking sector's NII[17] did not drop by more than 3%, despite a noticeable decline in the Q2 2022 (Chart 22). At the same time, the quarterly net interest margin of banks recovered in Q3 2022 from 2.9% to 4.3%,[18] which represents a return to the average value for the years 2019 – 2021.

- ***The share of short-term liabilities remains at a record high level, which is one of the key factors for banks being highly exposed to interest rate risk.***

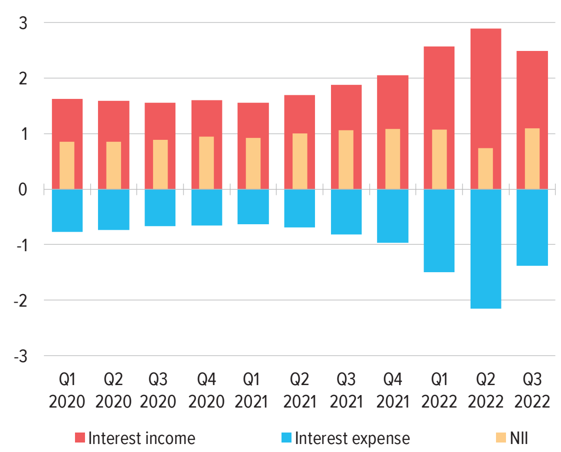
Despite the limited impact of interest rate risk on financial results in 2022, the exposure to interest rate risk remains high for banks. At present, the share of short-term liabilities of the banking sector is close to a record high. By 01 October 2022, funds raised by banks for terms of up to 1 year[19] made up around 83% of banks' liabilities to customers. Placing for mostly short periods in rubles is typical for both legal entities and individuals: as of 1 October 2022, less than 20% of funds are placed by individuals for terms of more than 1 year, and less than 10% by corporate clients (Chart 25). The imbalance of assets and liabilities in terms of maturity is the fundamental reason for the materialisation of interest rate risk.

DEPOSIT MARKET RATE DYNAMICS, (%) *Chart 21*



Source: Interest Rates on Loans and Deposits and Structure of Loans and Deposits by Maturity.

NII DYNAMICS* IN 2020-202 (₽ TRILLION) *Chart 22*



** For the banking sector, excluding the Non-core Asset Bank.*
Source: Reporting form 0409102.

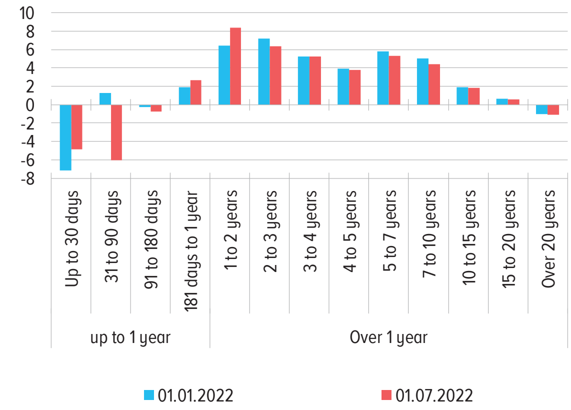
[16] *Rates on deposits received during the month.*

[17] *Except for the Non-core Asset Bank.*

[18] *For the banking sector, excluding NCIs and the Non-core Asset Bank.*

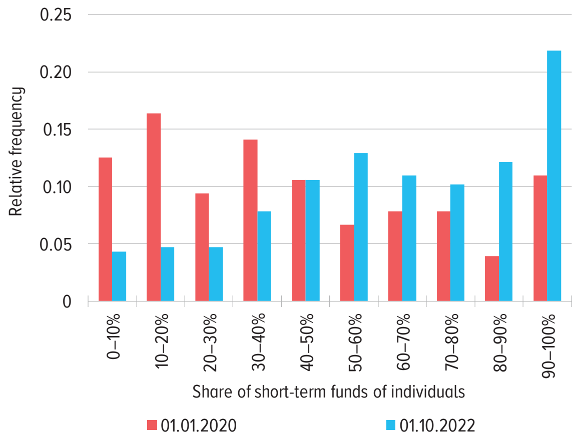
[19] *Client funds excluding funds on escrow accounts, according to reporting form 0409101.*

INTEREST RATE GAP IN THE BANKING SECTOR PORTFOLIO FOR RUB OPERATIONS (BASELINE ESTIMATE, WITHOUT BEHAVIOURAL AND OTHER ADJUSTMENTS) *Chart 23*
(₽ TRILLION)



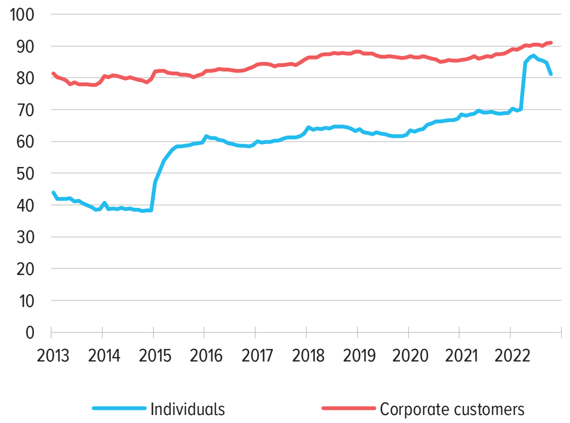
Source: Reporting form 0409127.

RELATIVE FREQUENCY OF DISTRIBUTION OF CREDIT INSTITUTIONS BY SHARE OF SHORT-TERM FUNDS OF INDIVIDUALS (UP TO 1 YEAR) *Chart 24*



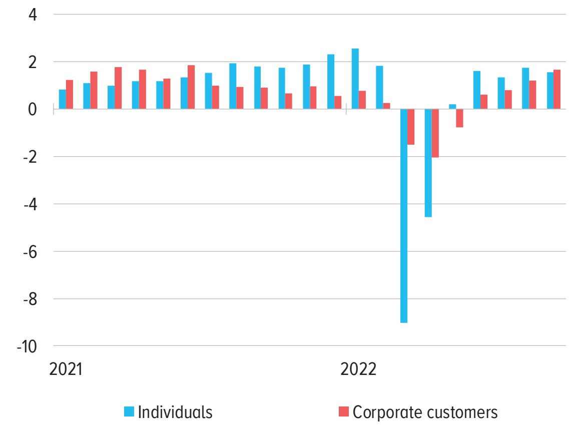
Source: Reporting form 0409101.

SHARE OF SHORT-TERM LIABILITIES (UP TO 1 YEAR, INCLUDING FUNDS ON ACCOUNTS) IN RUB TO INDIVIDUALS AND CORPORATE CUSTOMERS *Chart 25*
(%)



Source: Reporting form 0409101.

DIFFERENCE BETWEEN RATES ON NEWLY ATTRACTED LONG-TERM AND SHORT-TERM DEPOSITS IN RUB *Chart 26*
(P.P.)



Source: Interest Rates on Loans and Deposits and Structure of Loans and Deposits by Maturity.

Taking into account the larger share of banks' long-term assets, the negative interest gap[20] for a one-year perspective is about 9.7 trillion rubles (Chart 23)[21]. The estimated value of the banking sector's interest rate risk in rubles over a one-year horizon is 0.2 trillion rubles (in the event of a 200 bp rate hike), which is equivalent to 5% of the banking sector's NII over 12 months. If there continues to be a significant interest rate gap, the materialisation of interest rate risk in the future may have a significant impact on banks' financial stability.

In recent years, both the share of the banking sector's short-term liabilities to households on the whole and the share of banks attracting mainly short-term deposits has increased (Chart 24). During the period from 01 January 2020 to 01 October 2022, the share of banks whose short-term deposits exceeded 70% of their liabilities to households increased from 23% (47% of bank assets) to 44% (78% of bank assets). In this regard, in order to limit the systemic interest rate risk in the banking sector, the Bank of Russia is considering whether to stimulate the development of an institution

[20] *The interest gap is calculated as the difference between assets and liabilities that are sensitive to changes in interest rates with maturity up to 1 year.*

[21] *According to reporting form 0409127 as of 01 July 2022.*

for savings certificates and other long-term funding instruments. Banks should also aim to attract more deposits for longer periods by setting a premium for maturity relative to short-term deposits.

The increase in the share of assets at a floating rate also made it possible to reduce banks' sensitivity to interest rate risk. As the Bank of Russia key rate increased in February 2022, the share of ruble loans with a floating rate decreased slightly from 42% as of 1 January to 39% as of 1 May 2022. To mitigate the risks of borrowers with floating rates, Federal Law No. 71FZ was adopted on 26 March 2022, which allowed major companies to apply to banks for a transitional period[22], while SMEs could use credit holidays for this purpose[23]. The rapid reduction of the key rate caused the share of loans with floating rates to return to the previous level for the first time since June (42% as of 1 October).

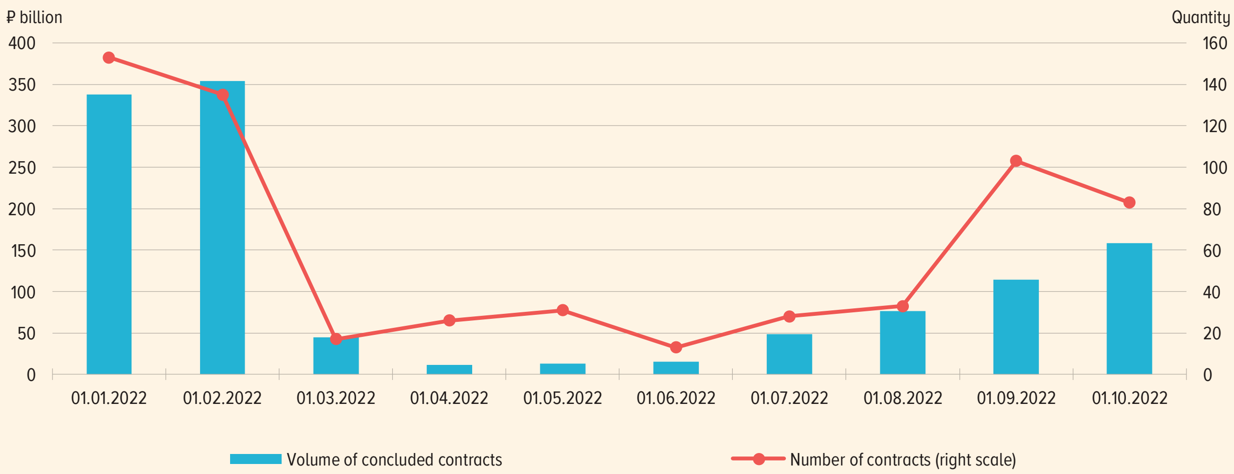
Box 4. Decrease in opportunities for hedging interest rate risks. Progress in the reform of interest rate benchmarks

The Russian market of interest rate financial derivatives, which are the main tool for hedging interest rate risk, is predominated by credit institutions at this stage, which typically hedge long-term assets (issued loans) with a fixed interest rate.

Previously, the main counterparties of credit institutions were non-residents, who paid a floating rate under the contract but received a fixed rate. After non-residents left, the interest rate derivatives market fell sharply from 354 billion rubles in February to 45 billion rubles in March, which significantly reduced the credit institutions' ability to hedge the interest rate risk. So far, the volume of the market for concluded transactions has recovered to 159 billion rubles (Chart 27), however, this figure is significantly lower than at the start of the year. Taking into account the current geopolitical conditions, the Russian interest rate derivatives market will develop predominantly through local participants.

The reform of interest rate indicators continues on the Russian interest rate derivatives market. In particular, the MosPrime Rate, which was the most popular rate in ruble interest rate swap contracts, will cease to be published and calculated as of 30 June 2023. The Bank of Russia recommends using RUONIA in financial products with a floating (variable) rate. According to the adopted changes in the RISDA documentation, RUONIA is a reserve indicator for when the MosPrime Rate ceases to exist.

RUBLE-DENOMINATED INTEREST RATE SWAP CONTRACTS, NOMINAL VOLUME AND QUANTITY *Chart 27*



Source: NCI JSC NSD.

[22] *Federal Law No. 71-FZ, 'On Amendments to Certain Legislative Acts of the Russian Federation', dated 26 March 2022, established a transitional period of three months during which the loan rate is increased to the value stipulated by the terms of the agreement, but should not exceed 12.5% per annum in the first month of the transition period, 13.5% in the second month, and 16.5% in the third month.*

[23] *The Bank of Russia programme, under which SMEs could take advantage of credit holidays for up to six months and fix rates at a maximum of 13.5% for medium-sized enterprises and 15% for small enterprises.*

2.4. Income channel

The strengthening of sanctions restrictions on the part of 'unfriendly' countries had a negative impact on Russian companies' income in Q2 – Q3 2022. Russian exporters of key commodities have been forced to redirect trade and financial flows to friendly countries, while continuing to face constraints in logistics and financial infrastructure. For industries focused on the domestic market, sanctions and the withdrawal of foreign business from Russia have a negative impact, first and foremost, on the automotive industry, the aviation industry and the commercial real estate sector.

The imposed ban on the supply of equipment, components and other goods necessary for production into Russia is a deterrent for investment projects. In the medium term, this process may adversely affect profitability for companies and, ultimately, income for citizens.

➢ ***Financial situation of major exporters***

Despite the tightening of sanctions against Russia, the majority of Russian companies in the non-financial sector from export-oriented industries had a sufficient margin of financial strength as of mid-2022. This was accumulated due to the economic recovery after the COVID-19 pandemic and due to high prices for export products in the first half of 2022.

Oil and gas. The Russian oil and gas sector has faced intensified sanctions pressure from 'unfriendly' countries. So, in addition to the existing logistical and financial restrictions, the EU decided in June 2022 to impose an embargo on Russian oil and oil products[24], and in October, a possible price cap on Russian oil and oil products transported to third countries.[25] An additional risk factor for Russian companies is the threat that cash flows from foreign assets located in the EU and other unfriendly countries might be stopped altogether or confiscated in favour of these jurisdictions.

Oil prices in Q2 – Q3 2022 showed significant fluctuations, with the price of Brent oil ranging between 83 and 124 US dollars per barrel, reaching 84 US dollars per barrel at the end of November[26]. In the short term, prices will be supported by the agreement of OPEC+ countries to reduce oil production by 2 million barrels per day to 41.856 million barrels per day until the end of 2023 (which is approximately the April 2022 level). At the same time, oil prices are expected to fall in the event of a global recession.

The prices of natural gas for Q2 – Q3 2022 fluctuated across a wider range, from 990 to 3,600 US dollars per thousand cubic metres[27], and at the end of November amounted to 1,328 US dollars per thousand cubic metres[28]. With a reduction in gas supplies from the Russian Federation to EU countries, estimated at 50 billion cubic metres according to the Government of the Russian Federation[29], Russian oil and gas companies are looking for alternative export routes, in particular, to markets in Asia. That said, the process of redirecting falling volumes is impeded by the lack of corresponding developed infrastructure in the east.

The efficiency of doing business and the financial stability of Russian oil and gas companies will largely depend on external restrictions, the speed at which measures to reorient trade flows to friendly markets are implemented, as well as the possibility of replacing Western equipment used in production activities and investment projects with Russian counterparts or goods from partner countries.

---

[24] *According to the sixth package of EU sanctions, a ban on the import/transportation of Russian oil by sea will come into effect as of 05 December 2022, and on oil products as of 05 February 2023.*

[25] *According to the eighth package of EU sanctions, a ban will be introduced on the transportation of Russian oil (from 05 December 2022) and oil products (from 05 February 2023) to third countries, subject to their purchase above the price level established by the European Union.*

[26] *As of 24 November 2022.*

[27] *Dutch TTF Gas Futures, December 2022.*

[28] *As of 24 November 2022.*

[29] *Information of the Deputy Chairman of the Government of the Russian Federation, A. Novak.*

Metallurgy. In Q2 – Q3 2022, the Russian metallurgy sector saw sanctions pressure from Western countries. Restrictions on the supply of a number of goods, combined with a downward price trend for metallurgical products, could have a negative impact on the financial condition of Russian companies.

Sanction restrictions on the export of finished products brought about the need to redirect supplies, including to the domestic market, which exacerbated the imbalance between supply and demand. This led to competition for reduced sales markets and, as a result, lower prices for raw materials and finished products. According to Rosstat, in Q3 2022, against the backdrop of export sanctions restrictions, average producer prices for finished ferrous metallurgy products in the domestic market[30] decreased by 20% QoQ, by 36% QoQ for iron ore, by 53% QoQ iron ore pellets, and by 55% QoQ for coking coal. Market prices for non-ferrous metals decreased by an average of 20% QoQ in Q3[31] (-19% QoQ for aluminium, -23% QoQ for nickey, -19% QoQ for copper). The price of gold fell by 7% QoQ amid tightening of the Fed's policy.

The price downturn in the Russian ferrous metallurgy market was also caused by reduced demand from industries with metal-intensive production due to uncertainty in the economy and a decrease in investment activity. The World Steel Association[32] predicts a 6% reduction in steel consumption in Russia to 41.3 million tonnes in 2022. In addition, a seasonal decrease is expected in the consumption of metal products in construction and several other industries in Q4 2022. An increase in energy prices (tariffs rose by an average of 4% as of 1 July 2022 and by 9% as of 1 December 2022) affects the growth of production costs, reducing the profitability of companies.

An increase in government spending on metal-intensive industries could partially reduce excess supply and stimulate manufacturing activity. Companies are looking for opportunities to redirect export flows to other markets (Asia-Pacific, India, Africa), but this may be hindered by increased transaction costs, logistics problems, low global prices, as well as strong price competition in the potential sales markets.

Therefore, the financial situation of major exporters remains acceptable at the moment, but the possibility that this will worsen cannot be ruled out for several reasons, including tightening of sanctions in the second half of 2022, the introduction of an embargo on supplying oil and petroleum products to the EU, and a possible decrease in demand and prices of key commodities in case of a global recession. This may have a negative impact on borrowers' credit quality (these risks are described in more detail in Section 2.5 Credit Channel). In addition, the expected growth in the tax burden will also affect companies' financial condition. Thus, the federal law[33] was adopted, which, among other things, provides for an increase in profit tax for exporters of liquefied natural gas (hereinafter 'LNG') up to 34%, an adjustment of the tax rate when calculating the mineral extraction tax (hereinafter 'MET') on natural gas, and an increase in the tax burden to oil companies.

➢ ***Situation in more affected sectors***

Air transportation. Sanctions imposed on Russian airlines by unfriendly countries continue to have a significant negative impact on the industry. The closure of airspace by a number of unfriendly countries[34] has reduced the highly profitable portion of the air transportation market. The situation was exacerbated by the forced closure of 11 airports in southern Russia. The passenger traffic

---

[30] Cold-rolled and hot-rolled steel.

[31] Based on Finam data.

[32] WSA (World Steel Association).

[33] Federal Law No. 443-FZ, 'On Amending Article 4, Part One and Part Two of the Tax Code of the Russian Federation and Certain Legislative Acts of the Russian Federation', dated 21 November 2022.

[34] EU countries, UK, USA and Canada.

caused by this is estimated to affect 19.1 million people in 2022[35], which is about 20% of the planned passenger traffic for the year.[36]

Several factors contribute to the shortage of aircrafts for Russian airlines, including the suspension of aircraft leasing agreements by Russian companies[37] and the subsequent seizure of some of the aircrafts[38], a ban on maintenance and aircraft insurance from international insurers and a ban on the supply of components. The aircraft shortage will be felt most acutely by major companies. as foreign-made aircrafts account for over 80% of their fleets, which in turn make up 97% of passenger traffic. As a support measure, it was decided to extend the validity term of airworthiness certificates of foreign-made civilian ships, which expire between 1 March 2022 and 31 December 2022 and also deal with insurance through Russian companies. In addition, the Government of the Russian Federation plans to subsidise the purchase of domestic aircraft with the help of the National Wealth Fund by offsetting the difference between the delivery price and the actual cost at the initial stage[39].

Companies are forced to raise air fares to counteract rising costs. In addition, tariffs are under pressure from rising fuel prices. Thus, in June 2022, prices for kerosene-type jet fuel increased to 43.4% in annual terms, which was mainly caused by a hike in oil prices. The result was a 21.9% increase in airfare per 1,000 km (partly counteracted by the damper mechanism consisting of an additional deduction from the final price of jet fuel) and a 12.9% increase in airfreight fares. According to the Russian Ministry of Transport, passenger traffic in the first half of 2022 decreased by 8.3% compared to the same period in 2021 to 40.4 million people, and commercial freight turnover decreased by 56.5% to 1.84 billion tonne-kilometres.

Amid external sanctions pressure, a set of measures is being implemented to support the aviation industry, consisting of four programmes with a total budget of over 125.5 billion rubles. The main support measures include subsidising Russian airlines for completed passenger traffic on domestic routes, compensating Russian airlines for lost revenues due to cancellation of international and domestic flights due to sanctions restrictions, subsidising cargo airlines and subsidising Russian airports in the south and central part of Russia.

Retail. After the demand frenzy in March-April 2022, consumer behaviour switched to savings mode. In addition, the market underwent a process of transformation and adaptation to new conditions in Q2 – Q3 2022, as foreign companies and suppliers gradually left, new supply chains were formed, new suppliers were found (mostly national, but also from China, Turkey and other friendly countries) and pricing policy changed due to rising costs. According to industry analysts, retail trade turnover may decline by 7 – 9% YoY in 2022, driven by both supply and demand factors. At the same time, we will see active import substitution and rapid growth of e-commerce on marketplaces.

Commercial real estate. The commercial real estate market, which had not still fully recovered since the pandemic, began to see negative dynamics once more. The retail real estate sector has been hit the hardest amid foreign companies suspending activities or leaving altogether. According

---

[35] According to the forecasts issued by the Russian Ministry of Transport.

[36] The Russian Ministry of Transport assumes that Russian airlines will be able to transport 100 million people in 2022, of which 90 million will be domestic flights, and 10 million international. According to Deputy Transport Minister I. Chalik, Russian airlines carried 80 million passengers in 10 months of 2022, of which 66 million were domestic travellers and 14 million were international.

[37] For more details on the issue of aircraft leasing, see subclause 2.5.1 'Corporate lending market' of clause 2.5 'Credit channel'.

[38] Due to the sanctions, foreign lessors are seizing aircraft owned by Russian airlines. According to Russian Minister of Transport V. Savelev, 78 aircraft were seized in foreign jurisdictions in March 2022, with just one returned.

[39] Plans to resolve this issue were announced at the 7th Eastern Economic Forum by D. Manturov, Deputy Prime Minister of the Russian Federation and Minister of Industry and Trade of the Russian Federation, where an agreement was signed between the United Aircraft Corporation and PJSC Aeroflot on the intention to purchase 339 Russian-made aircraft in the period 2023 – 2030.

to real estate analytical agencies[40], the vacancy rate in Moscow shopping centres reached 14.5% in the first 9 months of 2022, which represents an increase of 1.5 pp compared to the same period last year and is the highest percentage since 2010. This calculation does not yet account for the closure of foreign brands stores that have suspended their activities in Russia. Changes in consumer preferences associated with a reduction in income and the need to search for alternative products given that certain brands are no longer available also had a negative impact.

The office real estate segment was also negatively affected by reduced demand. According to real estate analytical agencies, the share of vacant space in class A business centres increased by 3.3 pp at the start of the year to 12.8% and by 1.3 pp to 6.9% for class B centres during 9 months of 2022[41]. In key business districts, office spaces in high-quality business centres which were traditionally occupied by foreign companies were now rapidly being vacated. For the first 9 months of 2022, just 209,400 square metres of office space was commissioned, which is a 58% decrease compared to the same period last year. Many developers have decided to suspend projects in 2022 until market conditions improve.

Automotive manufacturers. At present, the industry is stagnant due to restrictions on the supply of spare parts and components for car manufacturing, a ban on the import of cars costing over 50,000 euros, as well as the shutdown of car factories owned by foreign car manufacturers (Volkswagen, Peugeot, Skoda, Opel, Volvo, Mitsubishi). The Russian market is experiencing a drop in demand due to the high prices of the remaining foreign-made cars available for purchase and a decline in people's real incomes[42].

According to Autostat, 518 thousand new passenger cars were purchased in Russia over 10 months of 2022, which is a decrease of 59.4% YoY. In the mass segment, the only manufacturer to see a rise in sales volumes was Chinese company EXEED, with a 1.2-fold increase for 10 months of 2022, while Russian manufacturers LADA and UAZ saw a decline of 53.9% and 43.5% respectively. At the same time, prices of domestic passenger cars rose by 30.7% and of foreign cars by 44% between the start of the year and 31 October 2022, according to Rosstat.

SMEs. In contrast to the crisis it experienced during the pandemic, the small and medium-sized enterprise (hereinafter 'SME') sector remained fairly stable in 2022. That said, the imposed sanctions have disrupted supply chains for many small and medium-sized companies, payment schemes have become more complicated and demand has fallen due to a decrease in consumer solvency. Nonetheless, the SME sector showed favourable dynamics thanks to the support measures taken (credit holidays, lending at concessional rates, etc.). According to the RSBI index[43], July and August saw a recovery in business activity in the field of small and medium-sized businesses (the index in August – 53), with growing indicators of revenue, investment[44] and personnel efficiency, as well as indicators of credit availability. However, the index showed a slowdown in the growth of debt activity in September (index in September – 50.9); revenue indicators dropped sharply and the investment activity slowed down. In October, the downward trend continued, and the index fell to the indicators seen in spring (index in October – 48.5). According to Rosstat, the retail trade turnover of small businesses increased to 6.1 trillion rubles for 9 months of 2022, which is a 10.3% increase compared to the same period in 2021.

---

[40] According to data from NF Group (formerly Knight Frank).

[41] According to data from NF Group (formerly Knight Frank).

[42] Q3 2022 saw a record low level of consumer activity, with Russians spending just 78.2% of their income on goods and services (-3.6 pp YoY and -2.2 pp relative to COVID 2020), with an increase in the savings rate over this period to 7.6% (+3.6 pp YoY and +3.2 pp relative to COVID 2020). At the same time, the real incomes of the population fell by 2.4 pp YoY in Q3 2022, according to data from Rosstat.

[43] The SME business activity index, which is compiled by Promsvyazbank (PSB), OPORA RUSSIA business association and Magram Market Research agency.

[44] The investment attractiveness of SMEs has grown against the backdrop of a slowdown in investment in large businesses.

After the announcement of partial mobilisation, the situation for SMEs was further complicated by the threat of losing significant workers, who would be difficult to replace due to low unemployment levels and qualified personnel moving abroad. In addition, for example, in the catering sector, attendance is expected to decline.

➤ ***The impact of foreign companies leaving the Russian market***

Some foreign companies leaving the Russian market sell Russian assets. Local businesses of foreign companies being purchased by Russian residents makes it possible to save jobs and avoid corporate governance problems in the face of external sanctions restrictions. In addition, these deals are often made at a significant discount. However, the management of the acquired assets

Box 5. Housing market

In Q3 2022, there was a significant slowdown in the growth rates of prices in the primary and secondary residential real estate markets amid a low level of effective demand among the population and a rising level of supply (Table 3).

PRICE INDEX ON THE PRIMARY AND SECONDARY HOUSING MARKETS IN RUSSIA
(QOQ)

Table 3

	Housing market	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022
Russian Federation	Primary	103.7	103.7	106.0	107.0	105.1	105.7	108.0	106.5	104.3
	Secondary	103.2	104.4	103.6	104.4	103.4	104.7	106.5	102.0	101.4
Moscow	Primary	105.4	102.0	106.7	110.2	104.2	103.4	105.3	105.2	102.5
	Secondary	110.2	108.5	100.4	110.6	104.5	103.5	101.7	102.2	102.0

Source: Rosstat.

The dynamics varied greatly across regions; with general growth across Russia, in the primary market prices dropped in 10 regions, while in the secondary market they fell in 23 regions (in Q1 2022, positive dynamics were observed in all regions in both markets).

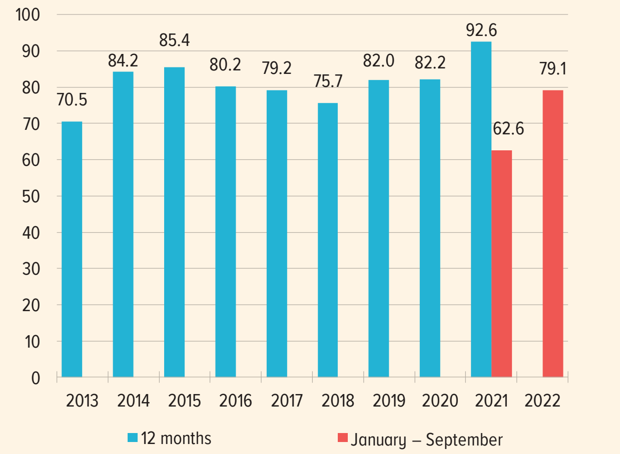
In the primary market, the most significant reduction in prices in Q3 2022 was seen in the Kaliningrad Region (-4% QoQ). A decrease of 2–3% was also seen in the Republic of Altai, the Chechen Republic, and the Republic of Kalmykia in the last quarter.

In the secondary market, a significant drop in prices was seen in Q3 2022 (-7% QoQ) in the Belgorod Region. Meanwhile, a decrease of between 3% and 7% was observed in the Republic of Adygea, the Republic of Ingushetia, the Altai Territory, the Sakhalin Region, the Kaliningrad Region and the Krasnodar Territory. In the Kursk Region, the decline was 1.8% QoQ.

The end of H1 2022 saw stagnation in the Russian residential real estate market; a relatively high level of housing prices, combined with a decrease in people's real incomes and fear of investing amid geopolitical instability caused demand for real estate to drop. There was some recovery in demand on the residential real estate market between June and mid-September thanks to low mortgage rates, which were partly possible through programmes offering concessional mortgages from developers. The number of registered co-investment agreements in Moscow over 9 months of 2022 was only 4% lower compared to the same indicator for the previous (record-breaking in terms of the number of transactions) year, and 23% higher compared to 9 months of 2020. However, after the announcement of partial mobilisation in Russia, the number of people wanting to buy houses has dropped sharply, while the number of those wishing to sell their homes has increased.

RESIDENTIAL REAL ESTATE COMMISSIONED IN RUSSIA
(MILLION SQ.M.)

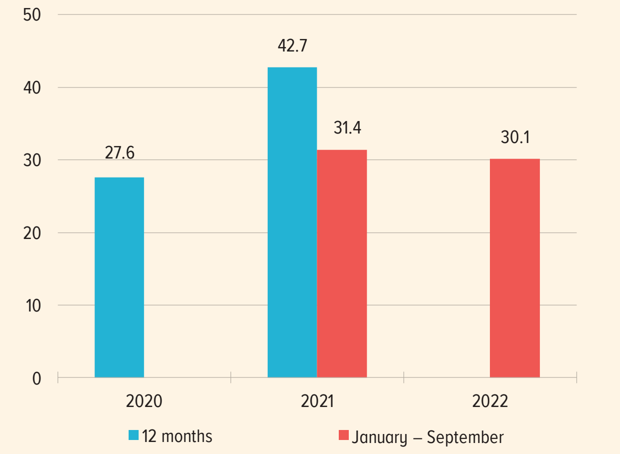
Chart 28



Source: Unified Information System for Housing Construction.

LAUNCH OF NEW CONSTRUCTION IN RUSSIA
(MILLION SQ.M.)

Chart 29



Source: analytical reports from DOM.RF.

Meanwhile, the level of supply continued to grow as developers completed construction projects that had begun under favourable market conditions. As a result, the volume of commissioned residential real estate for 9 months of 2022 increased by 27% YoY, and for multi-apartment buildings by 9% YoY. According to the Nash.Dom.rf system, a total of 30.1 million square metres of new construction projects were launched in 9 months, which is only 4% lower compared to the same period last year, becoming a record high amid a boom in the housing market. At the same time, supply dynamics may slow down in the near future due to the decision taken by developers to postpone new projects due to lower demand and difficult-to-predict economic conditions.

There was a surge in supply on the secondary real estate market in Moscow; agencies noted that the supply level reached a record high in August, and increased by a further 15 – 20% in September. The increase in supply put pressure on the average price in the secondary market, which decreased from May to September 2022 to 257,700 rubles per sq.m.[1] at the end of the period, which is 5.2% lower compared to the record high seen in April 2022, but up 9.3% compared to September 2021.

[1] *According to the portal of the analytical centre, 'Indicators of the real estate market' - IRN. RU.*

bears certain risks associated with the prospects for how the business will operate and develop in new conditions.

In some cases, Russian businesses owned by foreign companies were part of a global business model, meaning that economies of scale could be reduced and synergies lost. Problems could also arise due to the lack of licences for using the technologies and production equipment needed to maintain operations, as well as the inability to maintain this equipment in the future. In some cases, the gap in technological, production and logistics chains resulting from a change in ownership will require additional investment and the corresponding financing, including through bank loans, which could be associated with additional credit risk under the conditions mentioned.

2.5. Credit channel

The consequences of the sanctions crisis led to a reduction in lending to the economy in Q2 2022. That said, the gradual improvement of the macroeconomic situation, the implementation of government programmes to support lending, as well as a significant reduction in rates in the economy ensured a fairly rapid recovery in lending in Q3, which is typical for both retail and the corporate segment. In Q3 2022 growth in ruble lending to companies began to compensate for the decline in external borrowings and debt on foreign currency loans (although in annual terms, there was a slowdown in the growth of liabilities, comparable to the 2015 level).

2.5.1. Corporate lending market

The sanctions crisis was accompanied by a drastic slowdown in corporate lending activity in Q2 2022. The programmes to support lending to SMEs and backbone enterprises launched by the Government of the Russian Federation and the Bank of Russia made it possible to avoid a credit crunch and support companies' operating activities. As of 1 October 2022, lending growth reached 11.9% in annual terms with the exclusion of foreign currency revaluation (10.7% as of 1 October 2021[45]). These dynamics were ensured by an increase in loans provided in rubles, while the trend towards dedollarisation continued. The expansion of ruble lending was also aimed at replacing external debt, which has decreased by 20% since the beginning of the year[46]. In general, the volume of ruble loans issued in January – September 2022 is comparable to the decline in liabilities to non-residents and foreign currency loans, however, not all large borrowers managed to fully compensate for the decrease in foreign borrowings.

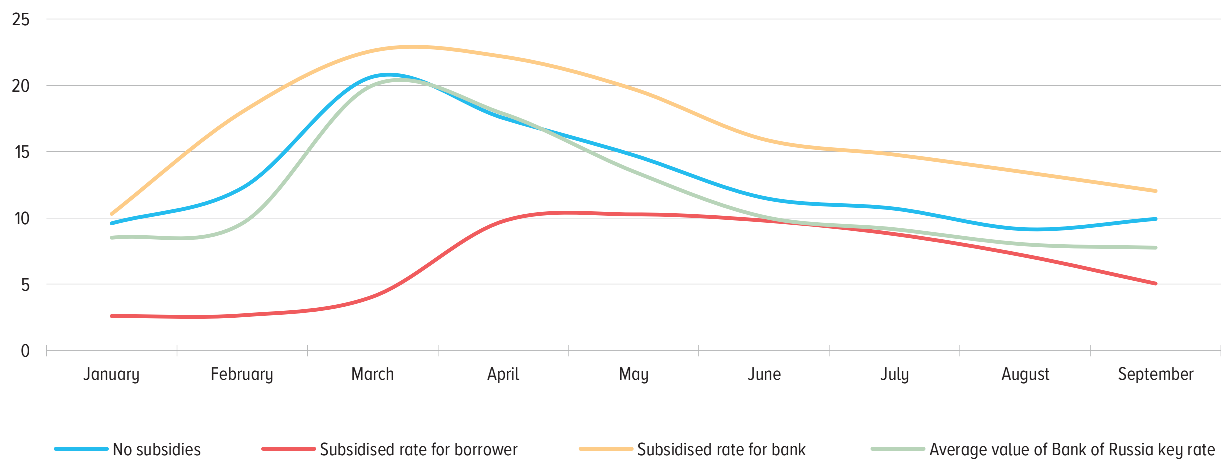
However, uncertainty about future sanctions and investment activity remains. In the short term, these factors may affect both the decline in demand for loans and the deterioration of the credit quality of the existing portfolio. To support the transformation of the economy, the Bank of Russia and the Government of the Russian Federation are collaborating to develop a taxonomy for technological sovereignty and economic modernisation projects. The Bank of Russia will be able to reduce the capital requirements for banks when lending to such projects, within a certain limit.

The quality of the loan portfolio has stabilised. About 23% of the corporate loan portfolio was restructured between March and October 2022, but about 60% of such loans had a floating rate and were restructured by operation of law. Since August, the volume of restructured debt has practically stopped growing. In order to give borrowers more time to recover their financial position, the Bank of Russia extended easing measures for banks on reserving loans restructured in 2022; until 1 July 2023 for loans to large companies, and until the end of 2023 for loans to SMEs and individuals.

Corporate lending dynamics

The risk of credit crunch is one of the key risks faced by the corporate sector during a financial crisis. It is accompanied by a forced reduction in the debt of companies, which leads to a significant

WEIGHTED AVERAGE INTEREST RATE ON RUBLE-DENOMINATED FIXED-RATE LOANS TO LARGE COMPANIES FOR UP TO 1 YEAR ISSUED IN 2022* *Chart 30*

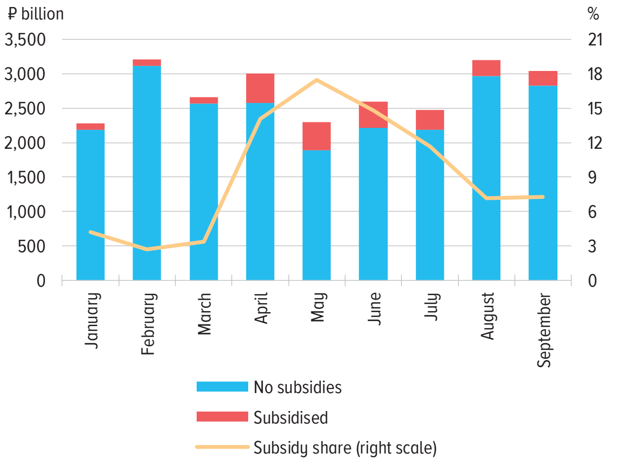


** According to reporting form 0409303 excluding VEB.RF, for loans granted to large non-financial resident borrowers, for a period of less than a year.*

[45] The annual growth rate from February 2021 takes into account acquired rights of claim.

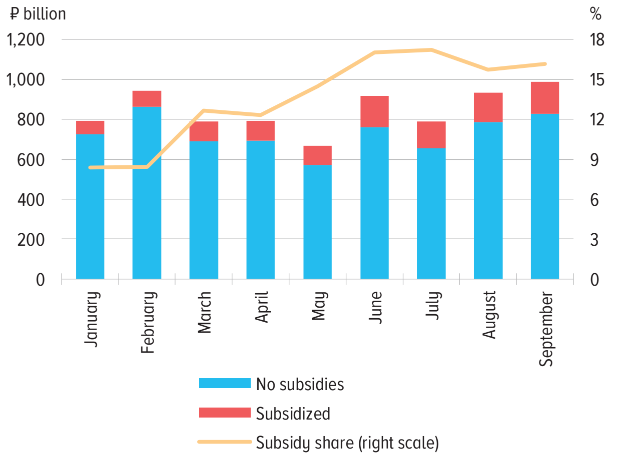
[46] In ruble terms, excluding foreign currency revaluation. The ruble part decreased by 13.7%, and the foreign currency part by 22.2%.

VOLUME OF RUBLE-DENOMINATED LOANS ISSUED TO MAJOR NON-FINANCIAL RESIDENT COMPANIES IN 2022 *Chart 31*



Sources: Reporting form 0409303, excluding VEB.RF.

VOLUME OF RUBLE-DENOMINATED LOANS ISSUED TO NON-FINANCIAL SMES IN 2022 *Chart 32*



Sources: according to form 0409303, excluding VEB.RF.

slowdown in economic activity. The materialization of his risk was successfully avoided in 2022. As of 1 October 2022, the total debt of companies (excluding foreign currency revaluation)[47] returned to the level seen at the start of the year after a drop in Q2 2022. Reduction in companies' external debt (-0.7 trillion rubles in the ruble part and -53.4 billion dollars in the foreign currency part) and the dedollarisation of banks' corporate loan portfolio (-21.3 billion US dollars) were offset by net placements of ruble-denominated corporate bonds (+0.3 trillion rubles) and growth in bank lending in rubles (+5.7 trillion rubles). However, the situation varies for different companies; some of them have reduced their total debt by repaying it in the first half of the year using existing savings, while others reduced investment costs.

The growth of ruble corporate lending in Q2 2022 was supported by state programmes that offered concessional loans to backbone enterprises, as well as programmes to support SMEs. In April – June 2022, more than 15% of loans granted to large companies had a concessional rate. The largest contribution to lending support was made by the Ministry of Industry and Trade programme[48], under which more than 1.1 trillion rubles were issued as of 1 October. In total[49], more than 1.5 trillion rubles were issued at the beginning of October under the new programmes to support backbone enterprises. In Q3 2022, lending to major companies was supported by a reduction in the Bank of Russia key rate.

Active support was provided for lending to SMEs, including within the framework of the Bank of Russia programmes. For loans granted to SMEs, the share of loans with subsidised interest rates increased from 10% in Q1 2022 to 16% in Q3 2022, due to the conditions of existing concessional programmes being modified, along with new programmes being launched. In this regard, lending to SMEs grew steadily; the portfolio[50] grew by 11% (+0.9 trillion rubles) between the beginning of March and October, despite almost 400,000 legal entities and sole traders (hereinafter 'ST') withdrawing from the annual update of the SME register, which led to the formal exclusion of loans in the amount of about 0.6 trillion rubles from SME debt. As part of the Bank of Russia's anti-

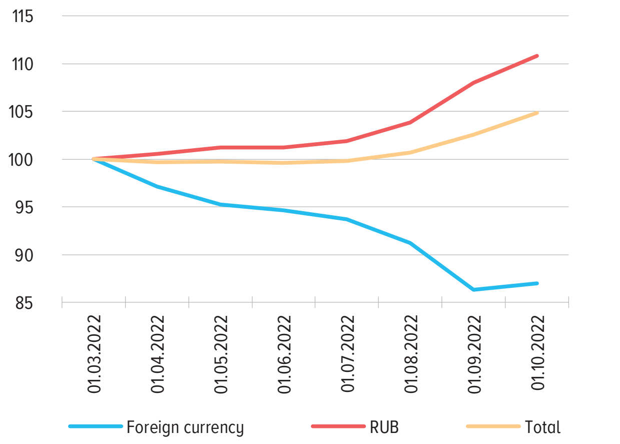
[47] *Ruble and foreign currency loans issued by Russian banks; bonds issued on the domestic bond market; external debt.*

[48] *Decree No. 393 of the Ministry of Industry and Trade of the Russian Federation dated 17 March 2022.*

[49] *With over 1.5 trillion rubles in concluded loan agreements.*

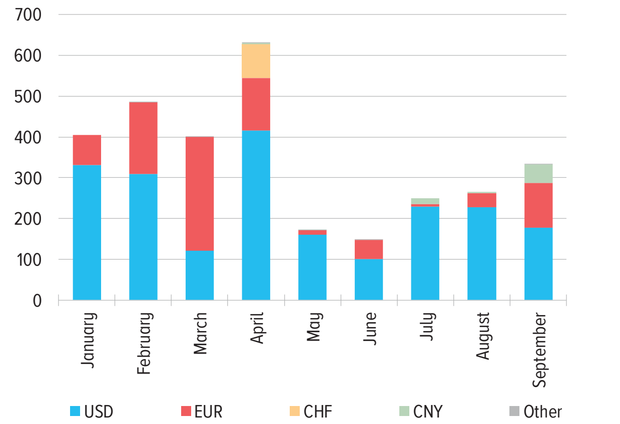
[50] *According to reporting form 0409303, loans and acquired rights of claim with the exclusion of currency revaluation (at the exchange rate as of 01 March 2022) in the banking sector, with the exception of VEB.RF*

CORPORATE LOAN PORTFOLIO GROWTH RATE FROM 1 MARCH 2022 *Chart 33*



Source: form 0409101.

THE ISSUANCE OF LOANS IN FOREIGN CURRENCY WITH A MATURITY EXCEEDING 31 DAYS TO NON-FINANCIAL COMPANIES BY CURRENCY IN 2022 *Chart 34*
(IN RUBLE EQUIVALENT, ₽ BILLION)



Source: data from reporting form 0409303 excluding VEB.RF.

Box 6. Changing the approach to macroprudential regulation of foreign currency loans

From 1 March 2022, the macroprudential capital buffer for corporate loans in foreign currency (equivalent to 158 billion rubles of capital) was dissolved, which allowed banks to cover part of the materialised risks. Since then, macroprudential add-ons have not been applied to new loans to legal entities in foreign currency.

The sanctions crisis has shown that foreign currency predominance generates not only currency risks, but also uncontrollable sanctions and operational risks. To take them into account, the macroprudential mechanism[1] is being fine-tuned; risk-weight capital add-ons can be set by the Board of Directors of the Bank of Russia as the financial sector recovers from regulatory easing, taking into account banks' ability to allocate capital to these assets if it becomes necessary to strengthen incentives for dedollarisation.

Add-ons may potentially be introduced[2], which will depend on the currency of the loan, the ability to fulfil obligations in a friendly currency or in rubles, as well as whether the borrower meets the foreign currency revenue criteria to fulfil obligations in the corresponding currency or whether the borrower has a guarantee from a company with sufficient export revenue.

CRITERIA FOR APPLYING RISK WEIGHT ADD-ONS *Table 4*

Asset code	Criteria*		
	friendly countries' currency	**borrower is an exporter or has a surety thereof**	**possibility to meet obligations in rubles or in a friendly currency**
6006	-	-	-
6007	-	-	+
6008	-	+	-
6009	-	+	+
6010	+	-	not applicable
6011	+	+	not applicable

** Criteria for asset code from Appendix 7 of Bank of Russia Ordinance N° 5782-U, dated 20 April 2021.*

[1] *For more details, see the information and analytical material of the Bank of Russia 'Macroprudential Policy of the Bank of Russia: Implementation and Planned Decisions'.*

[2] *These will not apply to exposures related to financing activities of strategic importance for the country, loans directly or indirectly secured by a government guarantee, or loans aimed at financing projects implemented under international agreements.*

crisis programmes, 192 billion rubles were[51] granted and 210 billion rubles in loans were refinanced between March and October 2022.

In terms of sectors, for the period from 1 March to 1 October 2022, the largest increase in debt with the exclusion of currency revaluation was seen in companies operating in the fields of construction (+16.2%), infrastructure design (+37.9%), specialised construction and mechanical engineering (+98.8%), as well as the electronics and IT industry (+56.8%). Some of these enterprises received concessional loans under government support programmes. The reduction in lending occurred among entities in the food industry (-11.1%), the forestry industry (-10.5%), and companies that provide social services and leisure activities (-6.7%).

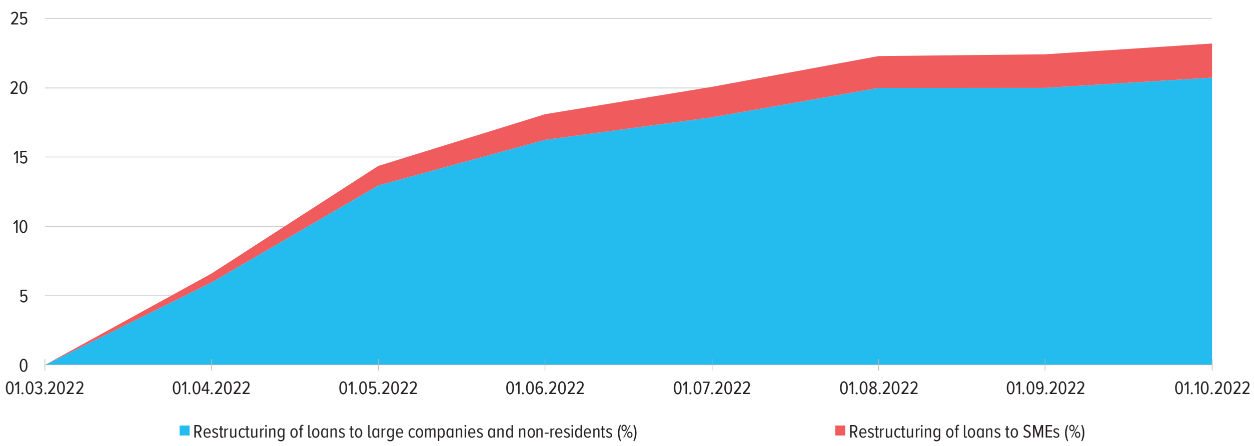
The dedollarisation of the corporate portfolio was initiated both due to debt amortisation and the conversion of foreign currency loans into ruble loans against the backdrop of some debt from non-residents linked to Russian companies being transferred to Russian residents. This caused the share of loans in foreign currency to drop by 3.4 pp to 15.2% between 01 March and 01 October 2022[52].

A credit crunch and a slowdown in investment activity could lead to a reduction in potential growth rates in the economy. To mitigate these risks, the Bank of Russia has provided for a number of anti-crisis measures, including a temporary reduction in add-ons to banks' capital adequacy ratio in order to increase lending capacity. In addition, the Government of the Russian Federation, together with the Bank of Russia, is developing a taxonomy (criteria) of projects aimed at technological sovereignty and economic modernisation. It is assumed that the relevant projects will receive priority support measures, including regulatory easing by the Bank of Russia.

Corporate loan quality

The banking sector also faced a deterioration in the quality of the loan portfolio. Banks have mitigated this risk by restructuring loans to companies whose financial condition has deteriorated. The Bank of Russia, for its part, provided banks with temporary easing on the formation of reserves for such loans. In this regard, the share of 'non-performing' loans (IV and V quality categories) even decreased slightly from 1 April to 1 October 2022 (by 0.2 pp to 7.1%) amid growth in the loan portfolio.

SHARE OF RESTRUCTURED LOANS IN THE CORPORATE LOAN PORTFOLIO* *Chart 35*

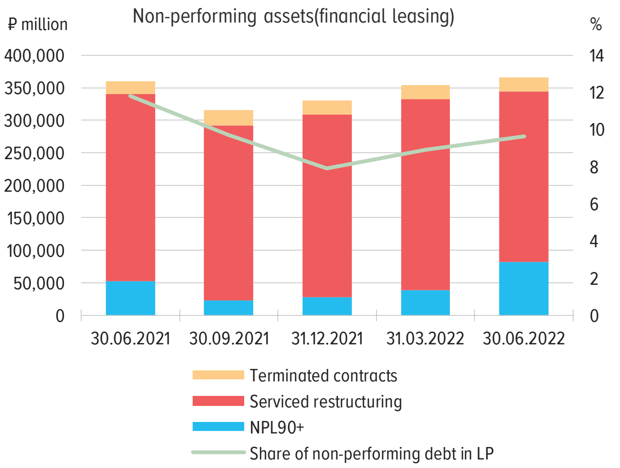


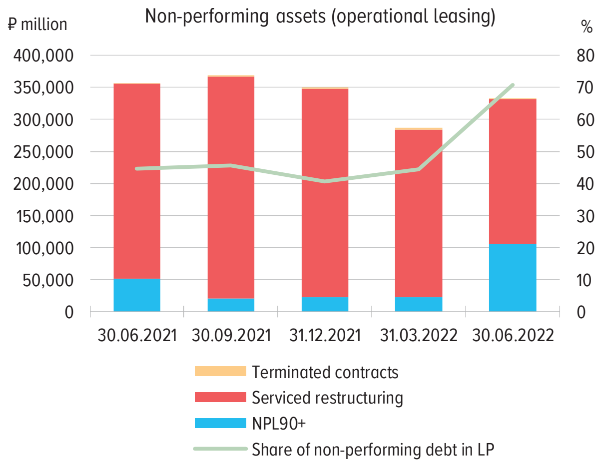
** The volume of the loan portfolio and restructured loans to large non-financial companies and non-residents - based on the data of reporting form 0409303, the volume of restructures loans to SMEs - according to the Bank of Russia survey of 36 credit institutions.*

[51] *As part of the joint SME incentive programme implemented by JSC RSMB Corporation and the Bank of Russia, 38.9 billion rubles was issued between 15 March 2022 and 1 October 2022, and 59.3 billion rubles in loans were restructured. From 15 March 2022 to 17 July 2022, 153.4 billion rubles were issued under the Bank of Russia revolving lending programme, and 150.2 billion rubles in loans were restructured.*

[52] *At the exchange rate as of 1 October 2022.*

DYNAMICS OF NON-PERFORMING ASSETS OF LEASING COMPANIES *Chart 36*





Source: Bank of Russia.

After active loan restructuring in March-April, the pace began to decline both in the segment of large business and among SME loans, and the portfolio of restructured loans stabilised. From 1 March 2022 to 1 October 2022, loans to large non-financial companies and non-residents were restructured by 8.7 trillion rubles and loans to SMEs for 1.0 trillion rubles, of which almost 210 billion rubles accounted for restructuring under the Bank of Russia programmes, and 455 billion rubles as part of credit holidays[53].

As a result, about 23% of the corporate loan portfolio was restructured as of 1 October 2022, while at least 9% was not associated with a deterioration in the financial position of borrowers. The largest volume of restructured loans with a fixed rate was implemented in the chemical and oil and gas industries, metallurgy, and among companies operating in real estate and companies providing leisure services. Due to partial mobilisation, some increase in restructured debt on SME loans is possible.

Q2 2022 saw a sharp increase in NPL90+ debt of leasing companies. At the same time, the portion of distressed assets[54] in the financial leasing portfolio (9.6%) was smaller than in the corporate portfolio of banks (19.1%). In connection with the increase in prices for leasing objects in the secondary market, lessees maintain payment discipline, thereby trying to keep the leasing object at their disposal.

In the operating lease segment, the share of distressed assets significantly exceeded bank indicators and amounted to 70.8%, which was a result of issues in the aviation leasing sector. The increase in the share of distressed assets is related to the reduced leasing portfolio due to a decline in new business, as well as due to an increase in the NPL90+ indicator. So, when the sanctions restrictions were introduced, the large aircraft fleet was mostly owned by foreign leasing companies, who are actually subsidiaries of Russian legal entities. It thus became necessary to establish a new procedure for fulfilling obligations in the aviation leasing segment. Decree No. 179 of the President of the Russian Federation was adopted on 1 April 2022[55], which allowed leasing payments to be made in favour of Russian parent undertakings of foreign lessors. Temporary interruptions in meeting leasing obligations in the aviation leasing sector were related to the need to develop the new payment mechanism described above.

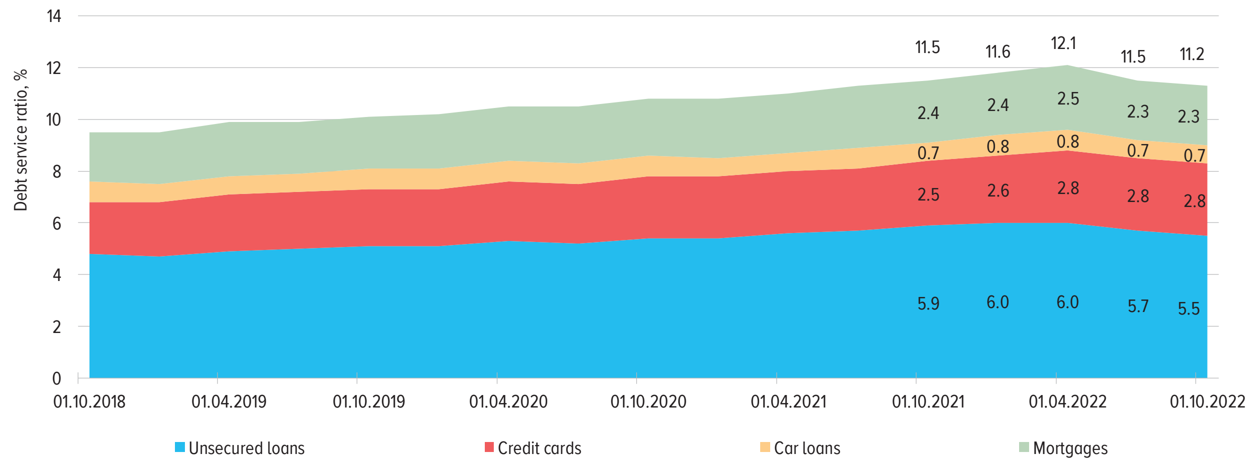
[53] *Federal Law No. 106FZ dated 03 April 2020.*

[54] *The share of distressed debt is the share of NPL90+, restructurings and terminated agreements in the leasing portfolio.*

[55] *'On the temporary procedure for fulfilling financial obligations in the field of transport to certain foreign creditors'*

DYNAMICS OF HOUSEHOLD DEBT BURDEN, THE AMOUNT OF PLANNED LOAN PAYMENTS IN % OF DISPOSABLE INCOME

Chart 37



Sources: Reporting forms 0409126, 0409115, aggregated data of CHBs.

2.5.2. Retail lending market

The sanctions crisis had a negative impact on retail lending, mostly affecting unsecured consumer loans, while large government programmes for subsidising interest rates stimulated demand for mortgages.

Retail lending activity began to recover in Q3 2022, supported by the stabilisation of the macroeconomic situation, which affected the risk appetite of banks and lower rates in the economy. Some slowdown in retail lending growth can be expected in the near future. Nevertheless, the Bank of Russia decided to establish macroprudential limits from the beginning of 2023 to limit the risks of an excessive increase in the debt burden of citizens.

Mortgage lending risks are increasing, as new risky practices are becoming widespread (including developer-subsidised mortgages, tranche mortgages, mortgages without a down payment) due to low demand for housing. Moreover, the share of loans with a low down payment is rising. To limit these risks, the Bank of Russia plans to increase provisions for mortgage loans, which have an effective interest rate significantly below the market level.

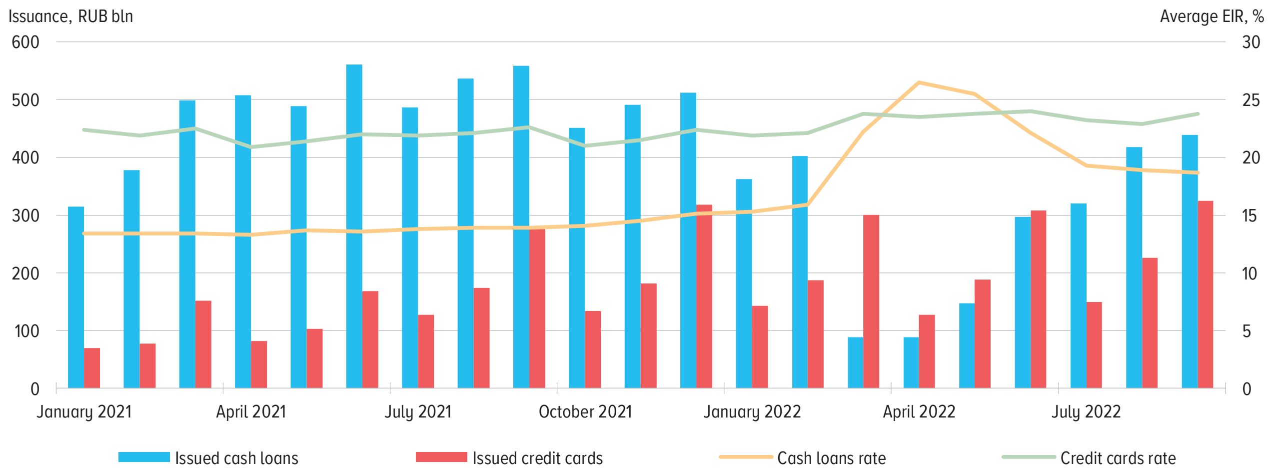
In the context of a slowdown in the growth of retail lending, the debt burden of the population at macro level decreased to 11.2% as of 01 October 2022. The decrease in the indicator was mainly due to a noticeable increase in household income in nominal terms (+12% in annual terms as of 1 October 2022) and a decrease in the debt service ratio for unsecured consumer loans (-0.2 pp in Q3 compared to Q2, up to 5.5%). In the segment of unsecured consumer loans, there was a decrease in the estimated value of the annuity payment due to an increase in the maturity of loans issued (although increasing the maturity makes it possible to formally reduce the DSTI ratio, artificially 'long-term' loans are characterised by increased risk, and therefore are limited within the framework of macroprudential measures). If the maturity of the unsecured consumer loan portfolio had remained at the Q2 level, the DSTI ratio in this segment would have been 0.4 pp higher.

2.5.3. Unsecured consumer lending

Consumer lending is recovering at a slower rate than during the pandemic, but the quality of loans (taking into account restructurings) is significantly higher. In Q2 2022, lending volumes dropped sharply as rates went up. In the largest market segment (cash loans[56]), the volume of new lending in April – May fell to 80-120 billion rubles in a month, which was 30% less than the level seen

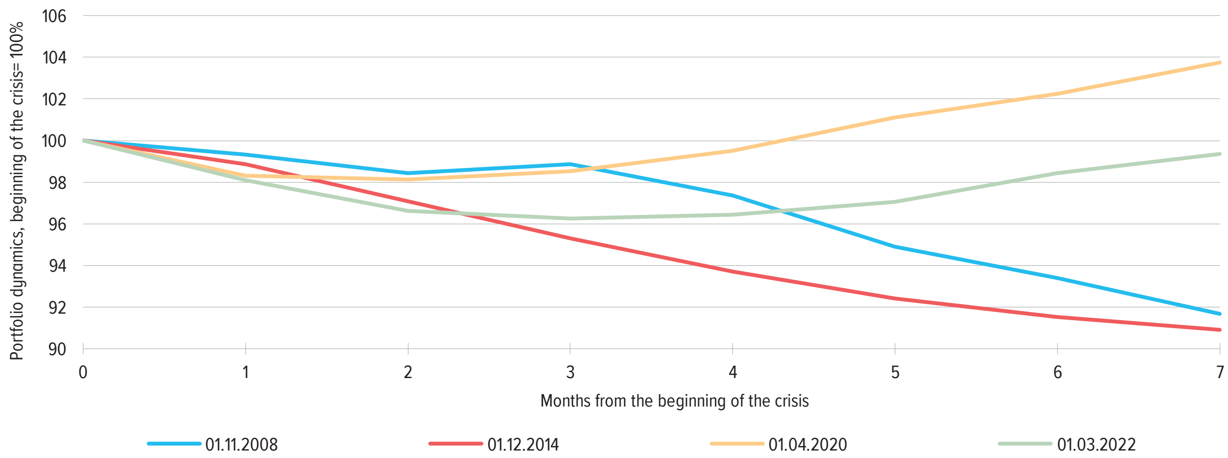
[56] *According to reporting form 0409704. A cash loan is a consumer loan whose individual conditions determine the amount of the loan but do not indicate the need for collateral.*

EFFECTIVE INTEREST RATE (EIR) AND THE VOLUME OF ISSUED CASH LOANS AND CREDIT CARDS *Chart 38*



Source: Reporting form 0409704.

DYNAMICS OF UNSECURED CONSUMER LOANS DURING CRISIS PERIODS *Chart 39*



Source: Reporting form 0409115.

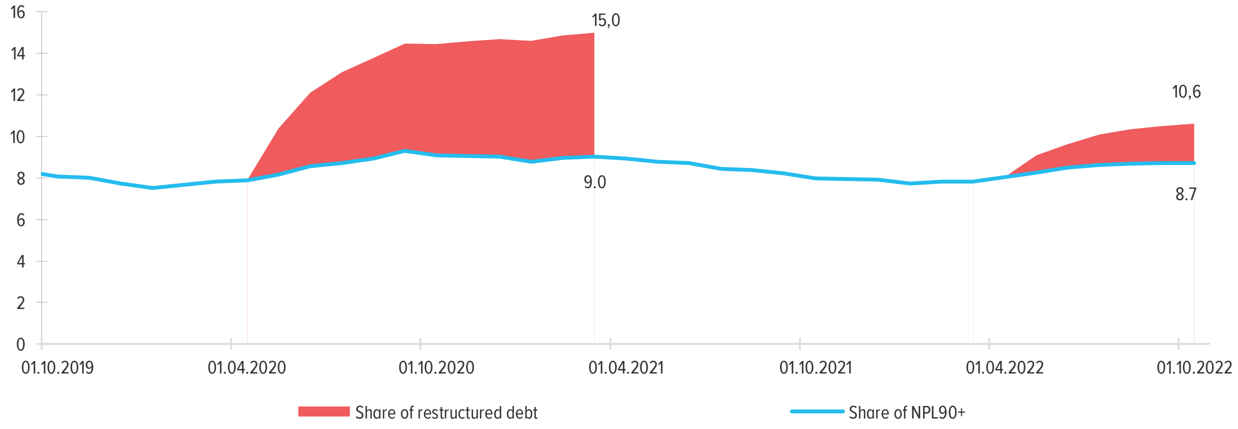
at the start of 2022. However, loan disbursements began to recover to pre-crisis levels as early as Q3 2022, and in September 2022, the volume of cash loans disbursed exceeded 400 billion rubles.

As disbursements recovered, the portfolio of unsecured consumer loans began to show positive growth rates, and by October 2022, the level of total debt was nearing pre-crisis levels. Thus, the portfolio recovery period lasted about 7 months, which is much shorter than after the crises of 2008 and 2014, when the market was slower to adapt. Due to the increased uncertainty caused by the introduction of partial mobilisation, in October 2022, the monthly growth rate of consumer lending slowed to 0.3%.

Amid low levels of unemployment and stable income dynamics among the general population, no significant deterioration in the quality of the retail loan portfolio has been seen so far. The share of overdue loans over 90 days on consumer loans reached 8.8% as of 1 October 2022, which is lower than during the pandemic. The level of consumer loan restructuring is also significantly lower. As of October 1, 2022, the volume of[57] restructured unsecured loans reached 221 billion rubles, which corresponds to about 1.9% of the portfolio.

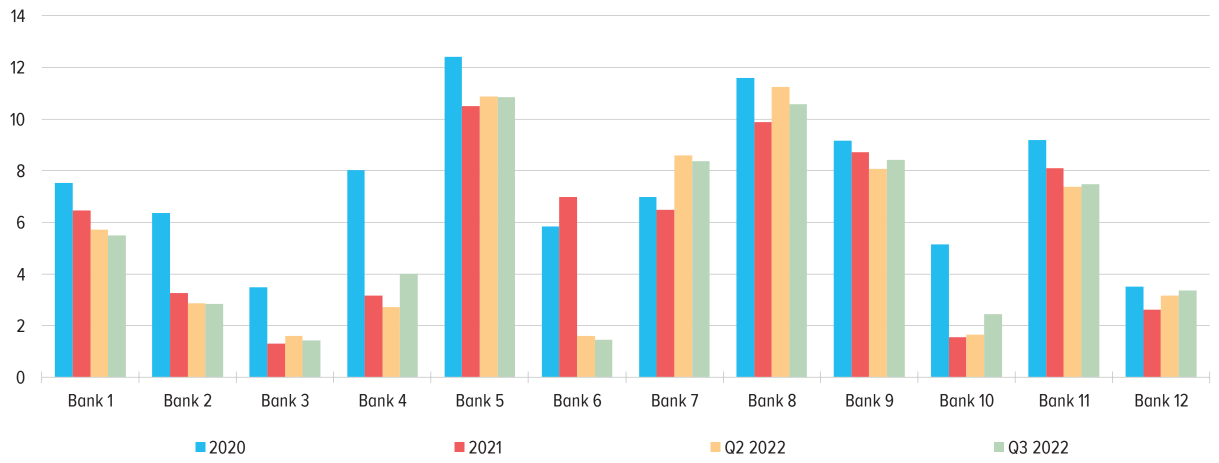
[57] *After the start of a special military operation.*

DYNAMICS OF RESTRUCTURED CASH LOANS *Chart 40*
(%)



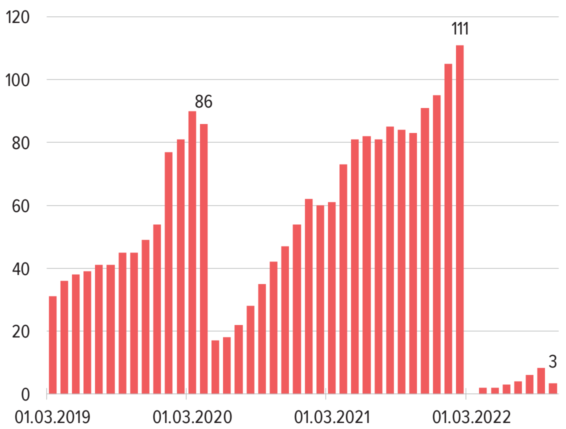
Source: Reporting form 0409115, the Bank of Russia survey.

DYNAMICS OF FIRST TIME OVERDUE LOAN COEFFICIENT FOR UNSECURED CONSUMER LOANS *Chart 41*
(%)



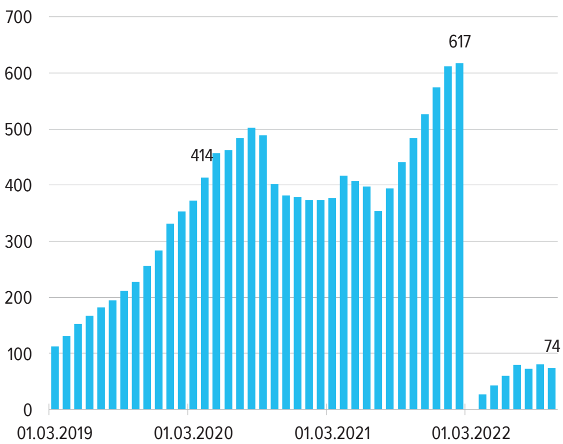
Source: Bank of Russia survey.

DYNAMICS OF THE AMOUNT OF MACROPRUDENTIAL BUFFERS ON MORTGAGE LOANS *Chart 42*
(₽ BILLION)



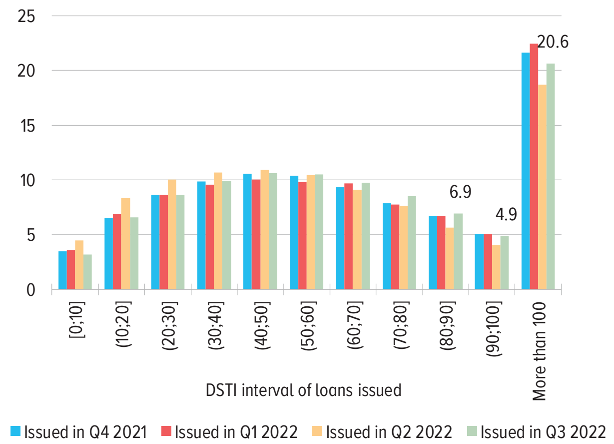
Source: Reporting form 0409135.

DYNAMICS OF THE AMOUNT OF MACROPRUDENTIAL BUFFERS ON CONSUMER LOANS *Chart 43*
(₽ BILLION)



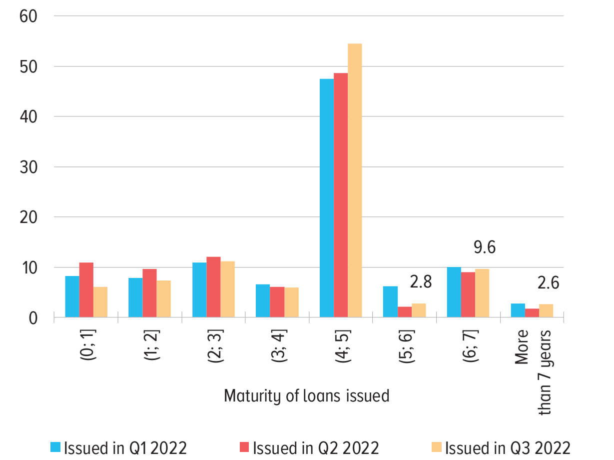
Source: Reporting form 0409135.

DISTRIBUTION OF ISSUED UNSECURED CONSUMER LOANS BY DSTI *Chart 44*
(%)



Source: Reporting form 0409704.

DISTRIBUTION OF ISSUED UNSECURED CONSUMER LOANS BY MATURITY *Chart 45*
(%)



Source: aggregated data of CHBs.

Box 7. Overview of banking practices on the application of models for assessing borrower income and prospects for applying these models when calculating DSTI

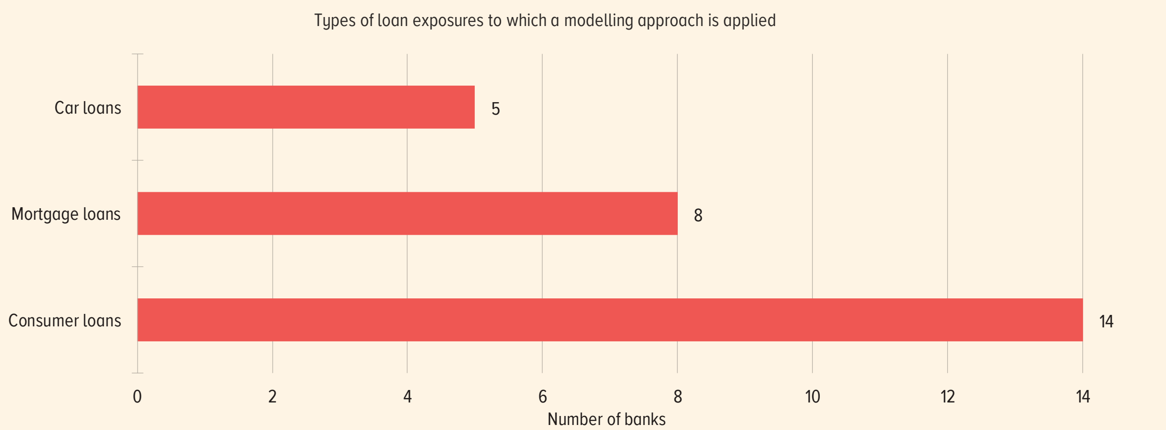
The Bank of Russia has decided to amend Ordinance 5782U[1], aimed at expanding banks' ability to apply the model approach when assessing a borrower's income for the purpose of calculating DSTI ratio. The aim is that banks will be able to calculate DSTI ratio on consumer loans using internal income assessment models once these models have been validated by the Bank of Russia.

To study the models credit institutions use in their internal processes to assess citizen income, the Bank of Russia conducted a survey of the 20 largest leading banks in the retail lending market.

The survey showed that the majority of banks (15 out of 20 respondents) already have experience in applying the model approach when making decisions on issuing loans, determining lending limits, formulating pre-approved offers, cross-selling, etc.

The diagrams below shows statistics for segments of exposures to which the models are applied, as well as the modelling methods and factors used.

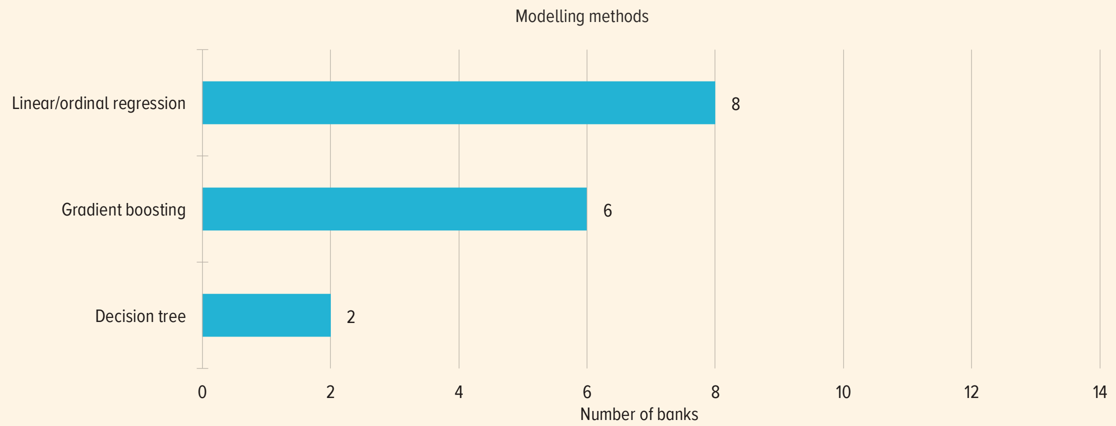
STATISTICS ON TYPES OF LOAN EXPOSURES TO WHICH A MODELLING APPROACH TO THE BORROWER'S INCOME ASSESSMENT IS APPLIED *Chart 46*



Source: Bank of Russia survey.

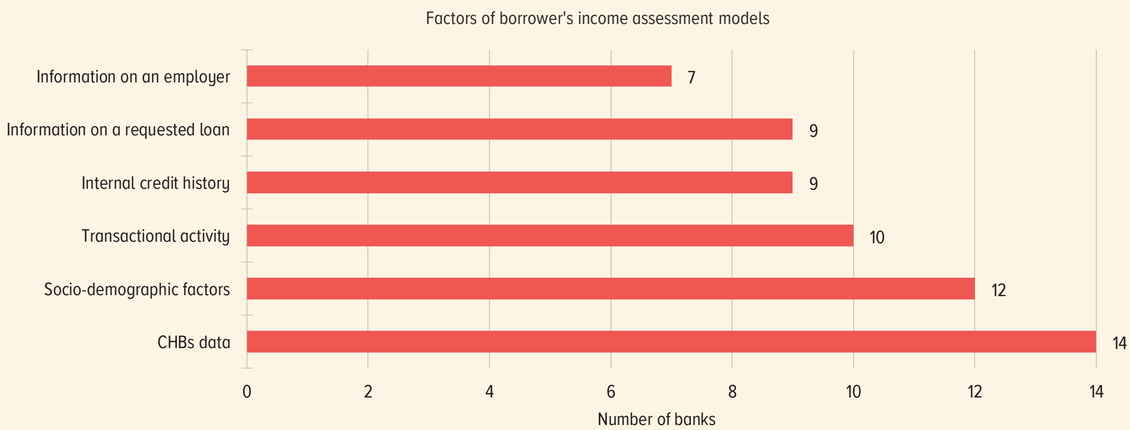
[1] *Bank of Russia Ordinance No. 5782U, 'On Types and Characteristics of Assets for Which Risk-weight Capital Add-ons are Set and on Applying Add-ons to the Said Types of Assets for Credit Institutions to Calculate Their Capital Adequacy Ratios' dated 20 April 2021*

STATISTICS ON THE APPLIED MODELLING METHODS *Chart 47*



Source: Bank of Russia survey.

THE MOST FREQUENTLY USED FACTORS IN THE MODELS OF A BORROWER'S INCOME ASSESSMENT APPLIED IN SURVEYED BANKS *Chart 48*



Source: Bank of Russia survey.

Taking into account the results obtained, the Bank of Russia preliminarily determined the permissible scope for applying the model approach and also compiled the main list of requirements for banks to obtain permission from the Bank of Russia to use the model approach for calculating DSTI ratio for regulatory purposes.

The modelling approach scope of application is determined by the following parameters:

1. Consumer loans (cash loans, credit cards, POS loans), including acquired loans.
2. The maximum amount of the model income when assessing the DSTI ratio is 10 times the average per capita income in the Russian Federation (≈ 400,000 rubles).
3. The maximum amount of a loan issued when assessing income according to the model is 25 times the monthly average per capita incomes in the Russian Federation (≈ 1 million rubles).

Main requirements for banks, including methods and models[2]:

1. The Bank must have at least 1 year of experience using borrower income assessment models in the lending process.
2. Income estimates obtained using the model approach must be more accurate than the two current simplified approaches: (a) the minimum of the average per capita income of the population by region and the declared income; (b) imputed income according to credit history bureau (CHB).

---

[2] For the purposes of this overview, the requirements are presented without specific criteria as they are currently in the development stage.

3. DSTI ratio values obtained using a borrower income assessment model must be better at ranking exposures by credit risk level compared to the simplified approaches.
4. The observations according to which the models were trained should not differ significantly from the observations to which the obtained models will be applied in terms of the distribution of forecast income values (representativeness criterion).
5. The income assessment results obtained by the banks can be independently reproduced by the Bank of Russia on the basis of documents containing a description of these models.

The draft regulatory document containing the corresponding amendments to Bank of Russia Ordinance No. 5782U was published on the Bank of Russia website on 15 November 2022[3] to assess the regulatory impact. After receiving feedback from the banking community, the requirements may be revised.

[3] *http://www.cbr.ru/press/event/?id=14314.*

Leading indicators of credit quality also indicate a moderate level of risk in the retail portfolio. For the largest market participants, the first overdue payment index shows lower values in Q2 and Q3 2022 than during the pandemic.

The release of the accumulated macroprudential capital buffer in March 2022 was accompanied by a drop in risk-weight capital add-ons to support all lending segments in the face of a sharp deterioration in the macroeconomic environment. In this regard, Q2-Q3 2022 saw a slow increase in capital buffers in both consumer and mortgage lending, which, as of 1 October 2022, amounted to 74 and 3 billion rubles respectively.

With relaxed capital requirements for new lending and a growing risk appetite, banks adjusted the lending structure and significantly increased the volume of lending to borrowers with a high DSTI ratio. Based on the results of Q3 2022, the share of the most risky lending segment of DSTI 80+ exceeded 32% (28% in Q2 2022), which is comparable to the pre-crisis level (33% in 2021 Q4). The deterioration in lending standards is also indicated by the PTI dynamics (an indicator of debt burden calculated by banks based on their own income assessment models): the share of loans with PTI over 50% increased by 14 pp in Q3, reaching 42%[58].

The rising share of consumer loans issued to borrowers with a high debt burden was accompanied by an increase in loan maturity; in Q3 2022, the share of long-term consumer loans over 5 years reached 15%, up from 13% in Q2 2022.

Despite a slight slowdown in consumer lending growth in September – October 2022, it remains necessary to limit risky practices in this segment. Otherwise, the household debt burden may increase excessively as the economy undergoes changes as a result of sanctions restrictions, and macroeconomic risks will be higher. Therefore, in order to limit the cyclical growth in household debt burden and maintain lending standards, macroprudential limits have been set for banks with a universal licence and microfinance organisations as of 1 January 2023. These limits will restrict the share of risky consumer loans and other loans provided, without requiring an increase in capital for such loans. For banks, the share of loans disbursed with DSTI ratio 80+ should not exceed 25%, and the share of loans issued with a maturity period over 5 years should not exceed 10%.

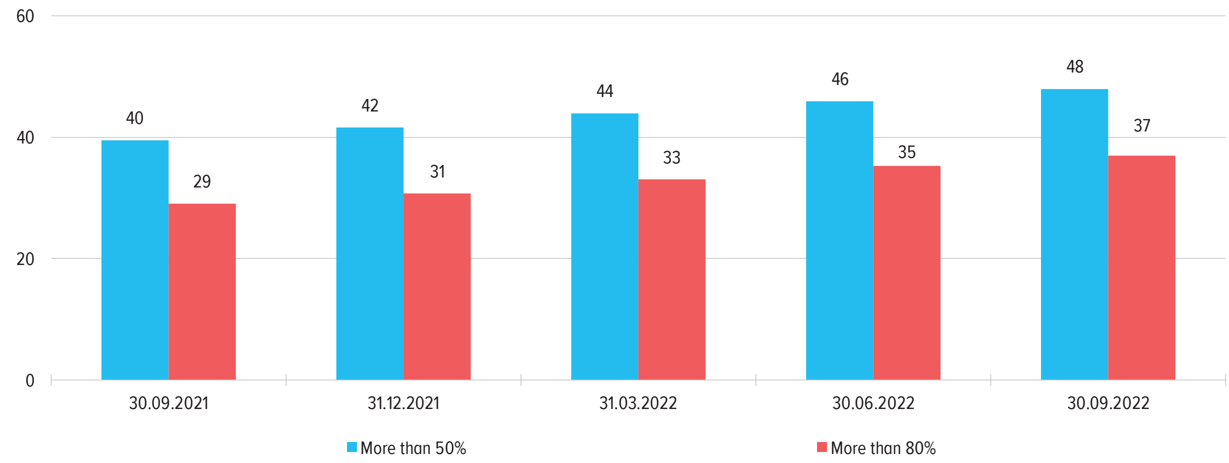
Consumer microfinancing

In Q3 2022, the consumer microfinance market saw a recovery in the volume of funds issued to borrowers (+31.7% QoQ) after a slight decrease in Q2 2022. The portfolio of consumer microloans grew by 6.1% QoQ, while its annual growth rate amounted to 22.5% (-17.1 pp per annum). At the same time, the cost of risk indicator[59] rose by 7 pp to 33%, which was mainly due to a significant

[58] *According to a bank survey.*

[59] *The ratio of changes in the volume of provisions created and volume of assignments and write-offs on the principal debt for the year to the average portfolio for the year.*

DYNAMICS OF TOTAL DEBT BROKEN DOWN INTO PRINCIPAL AND ACCRUED INTEREST WITH AN ELEVATED DSTI RATIO (MORE THAN 50%) *Chart 49*
(%)



Source: Bank of Russia (reporting forms 0420840, 0420846)

increase in debt on consumer loans with overdue payments of more than 90 days. The share of restructured consumer loan[60] agreements saw a minor increase over the year (+0.6 pp) to 7.8%.

The fall in the average income of borrowers who obtained loans from MFOs[61] has a negative effect on the level of debt burden in the consumer microfinance market (Chart 49). As of 30 September 2022, the share of debt with an increased DSTI ratio (over 50%) in the structure of the total loan portfolio of MFOs reached 48.0% (+8.4 pp per annum), and 37.0% with a DSTI ratio of more than 80% (+7.9 pp per annum). In part, this growth is also due to an increased share of total debt for which DSTI is calculated, from 62.6% to 69.3%. The growing debt burden can be explained by the rise in the number of borrowers who already have urgent or overdue[62] debt for other loans.

Regulatory requirements for loans with an increased DSTI ratio do not currently have a significant impact on MFOs when making decisions on whether to grant loans to borrowers with a high debt burden. Establishing macroprudential limits is expected to lead to a better and more balanced risk assessment process on the part of MFOs before taking decisions to issue loans to borrowers with a high debt burden. Despite the regulatory differences that exist between MFOs and credit institutions, a significant flow of lending activity from the banking sector to MFOs is not expected on the market. This is partly due to the low percentage of banking MFOs in the total portfolio of consumer loans of these banking groups, at just 7.1% (-0.3 pp for the previous year), as well as the different risk profile of borrowers.

2.5.4. Mortgage lending

The increase in the cost of lending amid a rise in the Bank of Russia key rate, as well as more stringent risk policies at banks, had a cooling effect on the mortgage lending market in Q2 2022; the number of mortgage loans issued in May dropped to 37,000, which is four times less than a year earlier. The volume of lending to secondary housing saw the biggest decline. However, mortgage lending has picked up pace since June 2022, which is associated primarily with a decrease in rates in the economy, as well as with the implementation of the 'developer-subsidised mortgage'

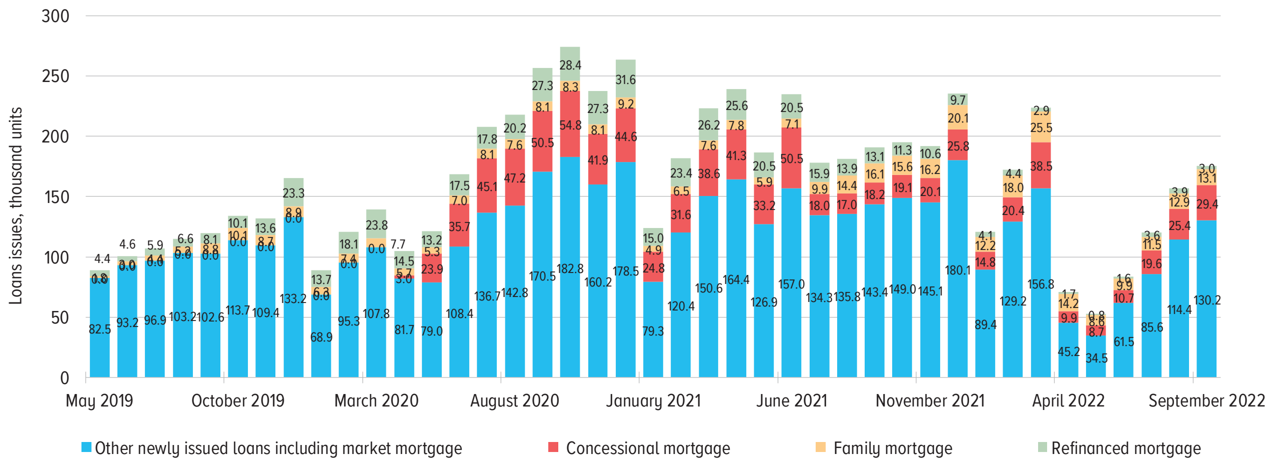
---

[60] *Restructured consumer loan agreements are estimated as the sum of restructured claims on short-term retail loans to individuals and other restructured claims (all other loans) in proportion to the share of consumer loan debt in the loan portfolio. At the same time, only the volume of restructured agreements without overdue payments and with overdue payments of less than 90 days was taken into account.*

[61] *According to the results of a quarterly survey of the largest MFOs conducted by the Bank of Russia, the share of loans provided to borrowers with an average income of up to 40,000 rubles grew by 7.2 pp for the year as of 30 June 2022 and amounted to 34.5% in the structure of loans issued by MFOs, for which DSTI is calculated.*

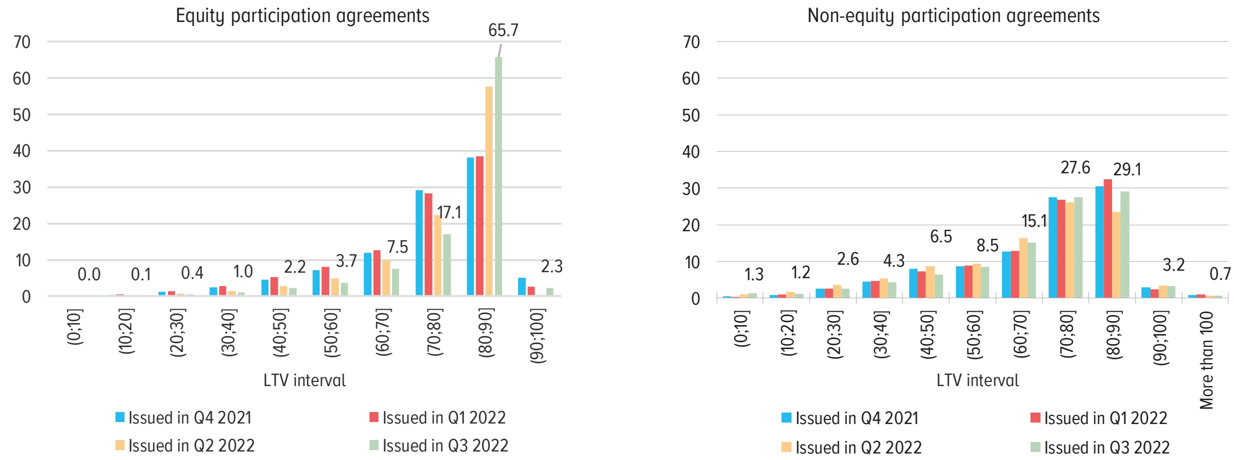
[62] *For urgent debt, the calculation of DSTI includes the volume of average monthly payments, and for overdue debt, this calculation includes the entire amount of accumulated overdue debt.*

THE NUMBER OF ISSUED MORTGAGE LOANS *Chart 50*



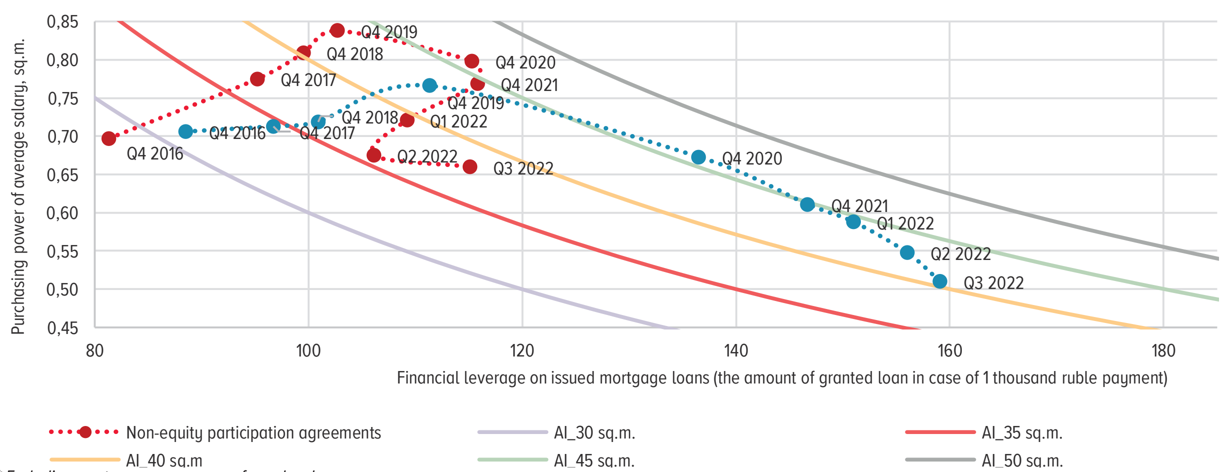
Source: DOM.RF.

THE DISTRIBUTION OF MORTGAGE LOANS ISSUED AFTER 1 OCTOBER 2021 BY LTV AT THE TIME OF ISSUANCE *Chart 51*
(%)



Source: reporting form 0409704.

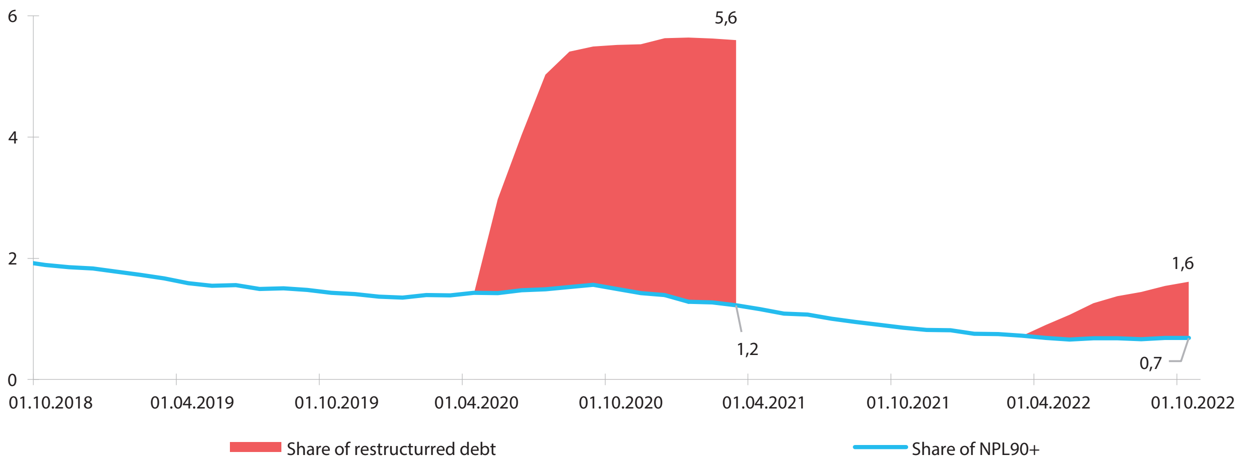
FACTOR DECOMPOSITION OF HOUSING AFFORDABLITY INDEX (AI) DYNAMICS IN 2016-22* *Chart 52*
(%)



* *Excluding mortgage programmes from developers.*
Source: Reporting form 0409704, Rosstat.

DYNAMICS OF RESTRUCTURED MORTGAGE LOANS
(%)

Chart 53



Source: Reporting form 0409115, the Bank of Russia survey.

programmes. In general, new loans issued after March 2022 are characterised by a consistent increase in the share of state concessional programmes. As of 1 October 2022, the mortgage profile growth rate amounted to 16.9% in annual terms.

In Q2–Q3 2022, the demand for loans with a minimum down payment of 15% increased, which led to an increase in the share of loans with an LTV ratio of 80–90%; by 20 pp to 58% in Q2, and another 8 pp up to 66% in Q3, of all issued mortgage loans for housing under construction. This growth is a result of the dominance of state concessional lending programmes in the primary market, which offer a down payment of 15%. In the segment of secondary real estate in Q3 2022, the share of loans in the most risky category (LTV 80+) also recovered to pre-crisis levels, up to 33%.

Box 8. Risks of mortgage programmes offered by developers and planned regulatory measures

Given the decline in demand for residential real estate, developers have created various marketing programmes to sell real estate based on mortgage lending. Since the beginning of summer, a concessional mortgage programme with subsidised interest rates offered by the developer has been gaining popularity. With this scheme, borrowers are invited to purchase real estate or enter into an equity construction agreements using borrowed funds at an extremely low interest rate, up to 0.01% per annum. These rates are achieved through:

(a) overpricing the apartment for the borrower by the commission amount (up to 20 – 30% of the market value), which is paid to the bank in a lump sum

(b) using a subsidised rate from the government (such products are usually combined with government programmes).

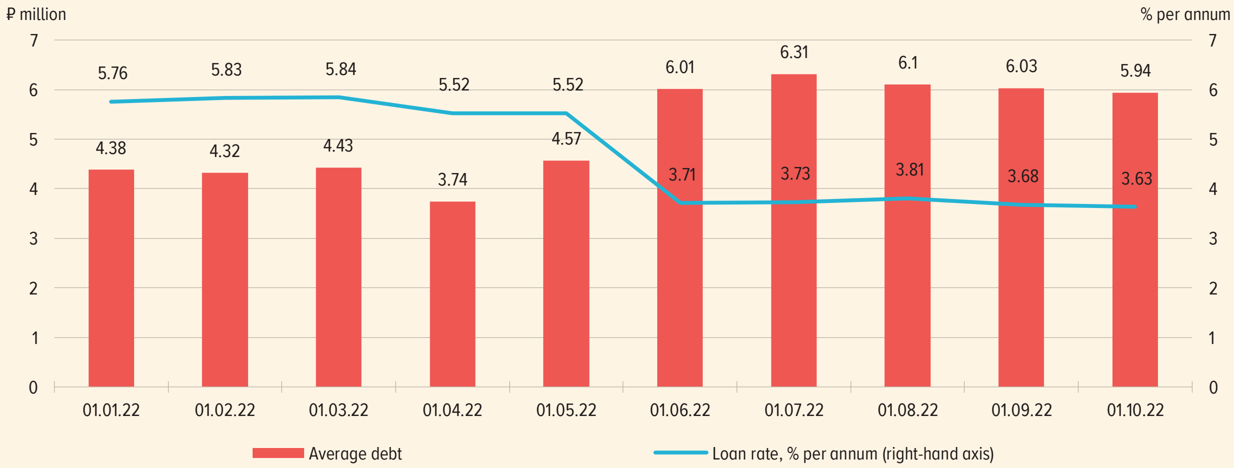
Chart 54 shows that the average amount of a mortgage loan under the equity participation agreement increased by about 30% starting from June 2022, while the average interest rate dropped significantly.

With the growing popularity of ‘developer-subsidised mortgages’, the weighted average rates on equity participation agreement loans have fallen to 1% at some banks. In addition, in order to reduce the amount of payment on loans, in recent years banks have increased the average loan maturity, which exceeded 25 years in Q3 2022.

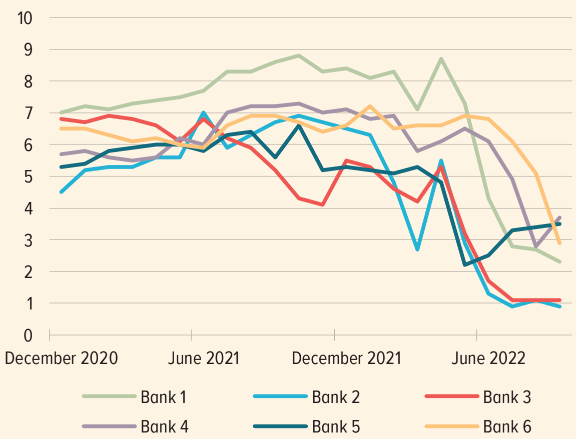
For the borrower, the benefit of obtaining a developer-subsidised mortgage compared to a market mortgage in nominal terms is achieved with an average loan servicing period of over 7 years (when the overpayment on interest payments begins to exceed the amount by which the apartment price is overpriced). Up to this point, the borrower assumes additional risks (Chart 57).

In order to reduce the risks of individual parties to the transaction, as well as the systemic risks that appear with the ‘developer-subsidised mortgage’, the Bank of Russia is developing additional regulatory measures. Specifically, it is considering introducing a requirement to create increased provisions for possible losses on mortgage loans, if their effective rate deviates from the market level.

CHANGE IN THE AVERAGE AMOUNT OF NEWLY ISSUED EQUITY PARTICIPATION AGREEMENTS LOANS (₽ BILLION) AND ANNUAL INTEREST RATE WEIGHTED BY 6 LARGEST BANKS *Chart 54*

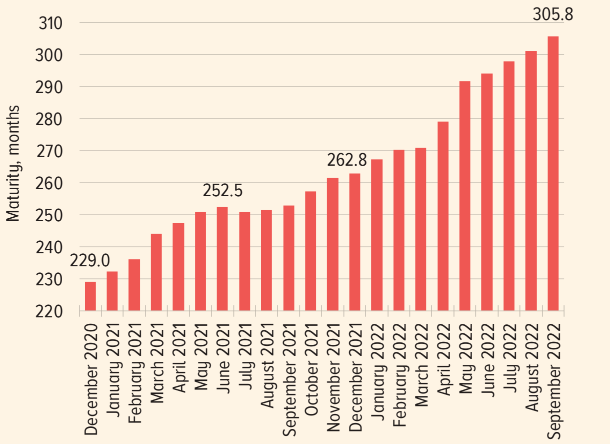


DYNAMICS OF INTEREST RATE ON MORTGAGES ISSUED ON THE SECURITY OF EQUITY PARTICIPATION AGREEMENTS FOR 7 LARGEST BANKS *Chart 55*
(%)



Source: Reporting form 0409316.

DYNAMICS OF THE AVERAGE MORTGAGE LOAN MATURITY *Chart 56*
(%)



Source: Reporting form 0409316.

In addition to proposals from developers to subsidise the interest rate, mortgage programmes have also appeared that offer no down payment or the option to pay the down payment in instalments. Since the down payment characterises the borrower's ability to accumulate funds and strongly correlates with the frequency of defaults, in order to limit such practices, the Bank of Russia established 'restrictive' risk-weight capital add-ons (200%) for loans with a down payment of no more than 10% from 1 December 2022.

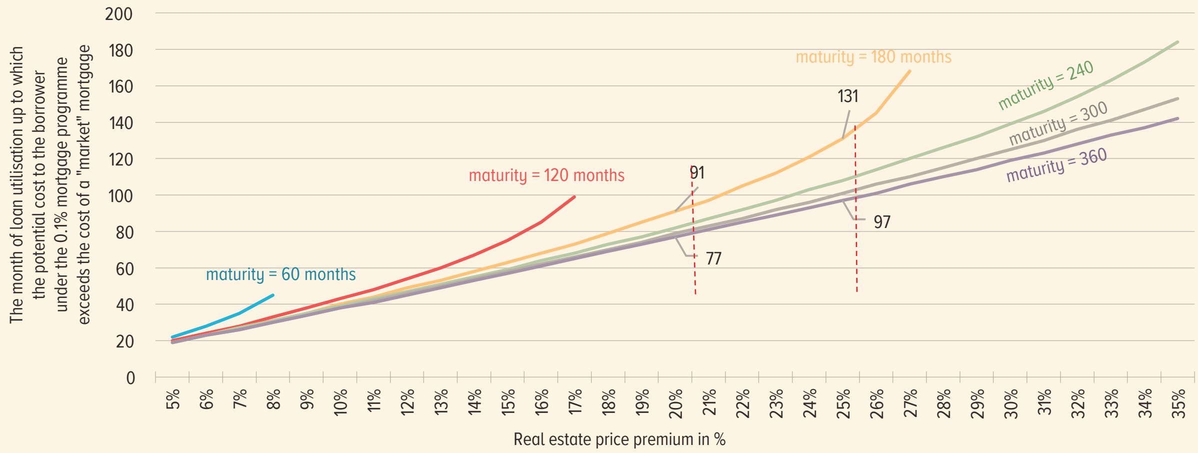
Another marketing campaign which has not yet become widespread in the market is the 'tranche mortgage'. In the terms of a tranche mortgage, the borrower is supposed to receive several tranches of the loan. The first tranche, as a rule, is a small amount to ensure the minimum loan payment (up to 1 ruble per month), and the second tranche is provided before the facility is put into operation and is equal to the value of the property minus the down payment and the first tranche.

Developers bear the main risk for 'tranche' mortgages. Given that the only deposits made to the escrow account will be the down payment and the symbolic first tranche, escrow accounts will fill up more slowly than with a conventional mortgage. This will increase the project financing loan rate for the developer. In the event of financial problems with the developer, banks will bear increased credit risks in the framework of project financing.

The symbolic amount of payments on the first tranche before the house is commissioned makes this kind of mortgage attractive for investment purposes. Based on rising housing prices, an investor can invest in real estate with just a down payment and then later resell the property. In the case of massive demand

THE IMPACT OF REAL ESTATE PRICE PREMIUM AND LOAN MATURITY ON THE NUMBER OF PAYMENT PERIOD, UP TO WHICH MORTGAGE LOAN AT 0.1% IS ASSOCIATED WITH HIGH RISKS FOR A BORROWER COMPARED TO 'MARKET' MORTGAGE

Chart 57



Source: Bank of Russia calculations.

for such a product among investors, housing prices may increase significantly (an 'investment overhang' will appear), which will reduce the affordability of housing for other buyers. The price differential between the primary and secondary residential real estate markets will grow even more.

In the current situation, when there are prerequisites for price correction in the real estate market, it seems unlikely that investment demand will grow. But taking into account the deteriorating mortgage lending standards, such marketing products may require tighter macroprudential regulation if they become widespread.

With a gradual reduction in mortgage rates and an increase in the lending period, the availability of housing[63] in the secondary market rose to 38 sq.m. in Q3 2022, but did not reach the level of Q1 2022 (40 sq.m.). Despite the improvement in financial conditions for lending, the primary market recorded a decrease in availability to 41 sq.m (compared to 45 sq.m in Q4 2021). Rising prices that outpace the growth of nominal income is the main factor that makes housing less affordable,

The lower availability of mortgages on the secondary market, along with a simultaneous increase in supply, which has been observed since the beginning of the year (see Box 5), resulted in the asking price exceeding the price of actually completed transactions by an average of 8% and an increase in the exposure period. A change in the balance of supply and demand could potentially lead to a decrease in real estate prices, and hence the adjustment of the LTV indicator for previously issued loans, which creates additional risks for banks.

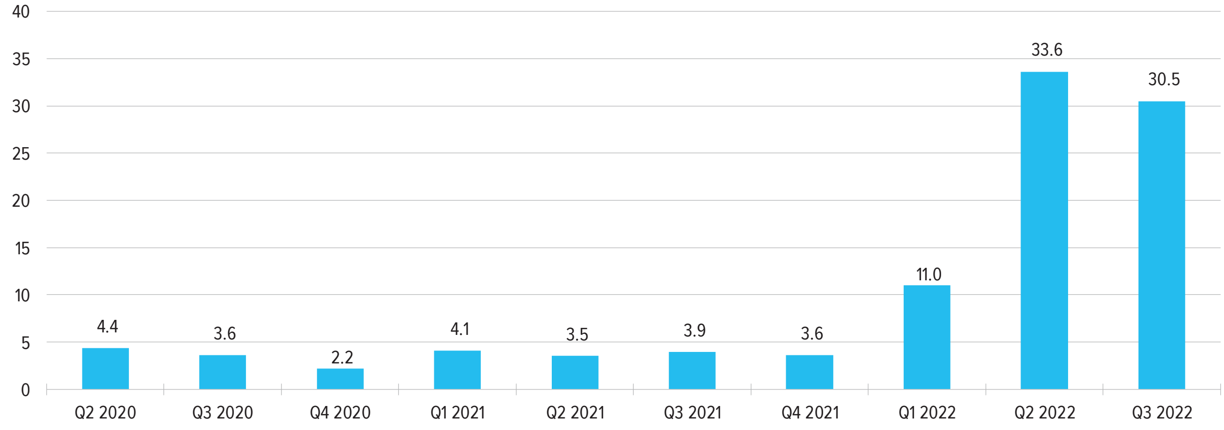
The quality of the loan portfolio still remains at a fairly high level, with the volume of loans overdue by more than 90 days is decreasing. As of 1 October, it made up just 0.7% of the entire mortgage portfolio. The share of restructurings remains below 2%, which is more than 2 times lower compared to the share of restructurings in the total portfolio in 2020.

2.6. Insurance channel

The main risks of the insurance channel are materialised through restrictions placed on insurance and reinsurance of Russian risks due to the sanctions imposed by unfriendly countries, as well as through structural changes in the operating conditions of the auto insurance and life insurance segments. The reconfiguration of the inward reinsurance system has led to a concentration of insurance risks for Russian National Reinsurance Company (RNRC).

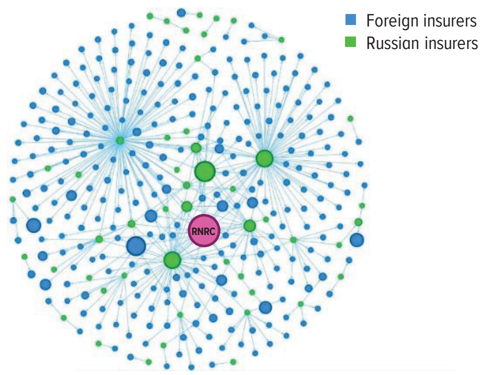
[63] *The real estate affordability index shows how many square metres an individual can buy with a mortgage loan (for more details, see the glossary).*

QUARTERLY PREMIUMS TRANSFERRED TO RNRC
(₽ BILLION)
Chart 58

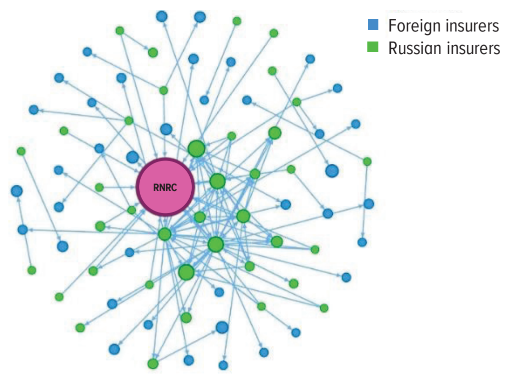


Source: Reporting form 0420157 section 2.

INTERCONNECTIONS ON OUTGOING REINSURANCE OF RUSSIAN INSURERS FOR 2021: THE NETWORK IS VERY BRANCHED, RNRC REPRESENTS ONE OF MANY NODE POINTS, FOREIGN REINSURERS PLAY A SIGNIFICANT ROLE
Chart 59

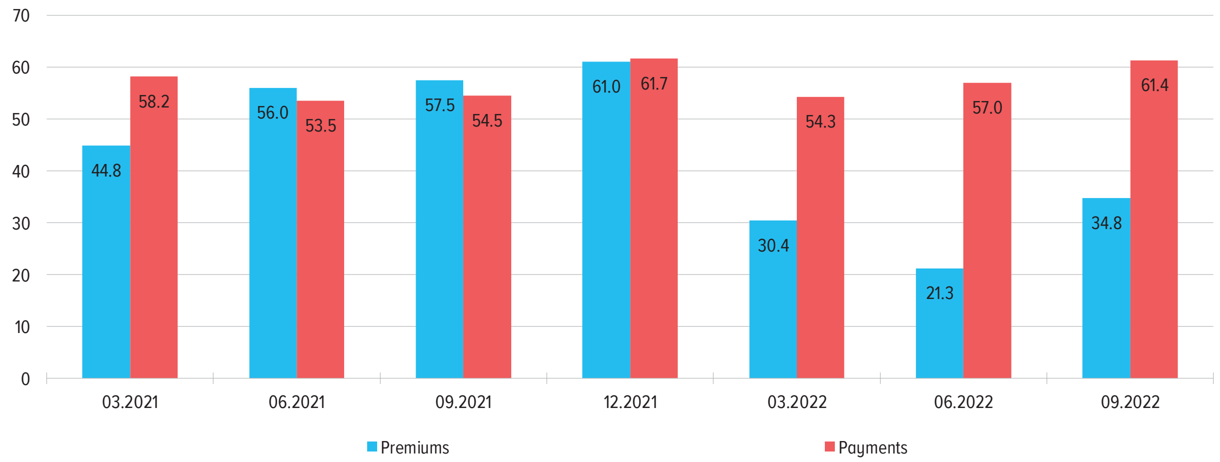


NETWORK OF INTERCONNECTIONS ON OUTGOING REINSURANCE OF RUSSIAN REINSURERS FOR 9 MONTHS OF 2022: THE NUMBER OF INTERCONNECTIONS HAS STEEPLY DECLINED, RNRC DOMINATES
Chart 60



** Interconnection network chart reflects operations on outgoing reinsurance exceeding ₽50 million.*
Source: reporting form 0420157 sections 1 and 2.

DYNAMICS OF PREMIUMS AND PAYMENTS UNDER ILI, ₽ BILLION
(₽ BILLION)
Chart 61



Source: reporting form 0420162 section 1.

The increase in the authorised capital[64] of RNRC and the measures[65] taken to reduce risks and ensure the continuity of their coverage through reinsurance made it possible to partly dampen the impact of sanctions restrictions and large insurance risks on Russian insurers. The reinsurance profile has changed in the insurance market; the volume of premiums transferred to unfriendly countries decreased by 57.8 pp compared to a year ago, down to 7%. At the same time, developing new reinsurance solutions with reinsurers from friendly countries is a complex task that requires a considerable amount of time. So far, friendly countries have not been able to replace the reinsurance volumes of unfriendly countries. As a result, the market share of RNRC increased by 34.9 pp up to 66.4% for 9 months of 2022[66], which significantly increased the company's systemic importance.

Another area of direct influence of geopolitical risks is the car insurance segment through the growth in the cost of vehicle overhaul. It will be possible to balance the system in the face of structural changes by expanding the base tariff corridor for the OSAGO (compulsory motor third party liability insurance) by 26% up and down from 13 September and releasing a new guide for calculating OSAGO insurance payments, taking into account the prices of substitutes of original spare parts from 19 October.

In the life insurance segment, there are ongoing problems with the payment of additional investment income, which was predominantly provided by investing in structured bonds issued by foreign investment banks or other foreign assets. As a result, the payment of additional investment income to clients is delayed, and insurers are working on mechanisms for obtaining blocked funds. In Q2 2022, life insurers felt pressure from liquidity risk due to an increase in terminations. It should be noted that insurance companies have coped with their current obligations and continue to promptly make guaranteed payments under agreements that are coming to an end.

2.7. Technology channel

In the context of foreign technology companies leaving the Russian market, sanctions restrictions and the corresponding problems with imports of IT equipment, the Russian financial sector is seeing a rise in technology risks. Financial institutions should pay special attention to the level of operational efficiency and cybersecurity, increasing resilience to technical failures. Financial institutions should make sure that this category of operational risks is duly managed, including related to outsourcing arrangements.

The COVID-19 pandemic has accelerated the process of digitalisation and the introduction of new IT solutions on the financial market against the backdrop of a consumer transition to online channels and a desire among financial institutions to reduce costs through process automation. Therefore, the use of remote banking services around the world rose by 23%, and mobile banking applications by 30%. The Russian financial sector also saw active digitalisation during the pandemic. Accelerated digitalisation, including through the active use of foreign technologies, has allowed Russia to become one of a global leader in this area, becoming the 4th country to transition to non-cash payments. The digitalisation of the financial sector makes financial services better and more accessible, and increases the efficiency of business activity. However, digitalisation creates new challenges for the financial system related to the growth of technological risk.

In 2022, the Russian economy faced a massive imposition of sanctions on the part of unfriendly countries[67], including against the IT sector. So, unfriendly countries have introduced restrictions against certain Russian manufacturers of IT hardware and software. The EU, Switzerland, the USA and Canada imposed a ban on exporting several categories of high-tech equipment and devices to Russia, and on the provision of technical assistance, intermediary and financial services related to

[64] *The Bank of Russia guaranteed an increase in JSC RNRC's capital to up to 750 billion rubles.*

[65] *JSC RNRC accepted risks from Russian companies for reinsurance under a simplified procedure and on terms close to those contained in the reinsurance agreements concluded with reinsurers from unfriendly countries.*

[66] *From the volume of premiums transferred by Russian insurers for reinsurance in the territory of the Russian Federation.*

[67] *In accordance with Decree No. 430r of the Government of the Russian Federation dated 5 March 2022*

these goods. Japan introduced a ban on exports of high-tech goods to Russia. Taiwan has restricted the export of high-tech products, including chips and microcircuits[68].

Many foreign technology companies have left the Russian market. The exit of Oracle (database management), Cisco (network equipment), IBM (servers, software), Intel and AMD (processors), SAP, Microsoft, and Adobe (software), Diebold Nixdorf and NCR (ATMs) and other companies represents a problem for the financial sector. Financial institutions that use foreign equipment and software in their operations have experienced difficulties. According to some data, more than half of Russian companies that used foreign software have lost technical support, and the banking sector is one of the most dependent on foreign software. Similar problems are being seen in relation to foreign equipment.

With foreign companies leaving the Russian market, sanctions restrictions and the corresponding problems with imports of IT equipment, **the Russian financial sector is experiencing an increase in technology risks**. Financial institutions are experiencing difficulties in acquiring modern foreign technologies, including software, database management systems and analytics tools, and equipment, and companies that are accustomed to using imported IT solutions may be confronted with a lack of spare parts and software updates important for full-fledged operation on the part of official suppliers.

The materialisation of technology risks could lead to the following consequences:

- **a decrease in the operational efficiency** of financial institutions due to the lack of foreign software and equipment available, as well as an increase in the costs of maintaining and developing IT solutions in the context of adapting to the current situation
- **a decrease in the level of cybersecurity** of the financial system, including related to the transition to new IT solutions
- **an increase in the probability of technical failures** due to a shortage of equipment and maintenance specialists
- **a slowdown in the digitalisation** of business processes amid technological limitations.

It should be noted that **outsourcing** – the involvement of third-party suppliers by financial market participants – is a widespread practice in the financial sector. A survey of financial market participants conducted by the Bank of Russia showed that the main areas of outsourcing in the Russian financial market are IT service providers and cloud services for data backup, processing and storage; development and maintenance of software; maintenance of software and hardware; maintenance of the network infrastructure.

Outsourcing IT solutions ***can potentially improve the efficiency*** of a financial institution, especially if it lacks the sufficient inhouse resources or competencies. In addition, as the global supply chain of IT equipment and software is disrupted, the costs of supporting IT infrastructure on their own increase significantly for financial institutions. Outsourcing IT solutions can help financial institutions to solve the shortage of technologies and equipment, as well as optimise costs. However, the practice among financial institutions of attracting foreign third-party providers of IT solutions (including from among unfriendly countries), as well as Russian third-party providers, who, in turn, outsource certain functions to non-residents or depend on foreign technological and software solutions, may also entail technological risks. If there is a ***high percentage of third-party providers that are non-residents or dependent on foreign companies*** in certain segments of the financial market, then the reluctance to work with Russian companies and/or interference in the operating activities of these third-party providers may lead to a ***concentration of systemic risks*** and adversely affect financial stability.

Financial institutions should make sure that this category of operational risks is duly managed, including related to outsourcing arrangements. It is necessary to have procedures for stress testing operational risk in case of failures on the part of suppliers, as well as for restoring operations

---

[68] *Export activity requires a special permit from the International Trade Bureau of the Ministry of Economy.*

after such events. It is also necessary to take into account the country-specific aspect of risk by diversifying foreign suppliers and making use of suppliers from Russia and friendly countries. Large financial institutions with the corresponding resources may want to consider the possibility of developing their own IT solutions that do not depend on external factors.

In turn, the Bank of Russia is working on its approaches to regulating outsourcing in credit institutions, in particular with regard to the functioning of outsourcing, the distribution of functions and responsibilities of departments.

The technology risks that have arisen amid restrictions on the import and maintenance of foreign equipment in Russia and the previously set trend for the digitalisation of the financial sector **are minimised** in part by the active expansion of Russian IT companies which occupy the niches of those leaving the market. According to some estimates, the largest Russian IT companies saw growth in their revenue by almost 60% in the first half of 2022 compared to the same period in 2021, and companies that provide IT services saw their revenue almost double. The problems arising with foreign equipment can also be partially resolved through parallel import programmes.

In order to ensure technological independence and security of the critical information infrastructure of the Russian Federation, **measures are being taken to switch to using predominantly Russian software and to prohibit the use of foreign software at significant critical information infrastructure facilities[69].** These initiatives are directly related to outsourcing IT functions in the financial market and will serve to transform current relationships with service providers.

In order to minimise technology risks, **it is important to provide support for the information technology industry**, and not just for market leaders, but also smaller players. In addition, it is necessary to provide tools to improve investment quality and concessional schemes for placement of securities for Russian companies that manufacture high-tech equipment and develop digital solutions. These instruments could include, for example, guarantees from the government and development institutions, support programmes for entering the stock market for companies that develop hardware and software, and income tax incentives for investors regarding these securities.

The banking system should also actively participate in the process of financing technological development. The banking sector should work on expanding both interest and opportunities with regard to long-term financing of high-tech production. To facilitate the technological transformation of the Russian economy, the Bank of Russia plans to introduce risk-based regulatory incentives for banks to participate in economic development projects, including in the IT sector.

[69] *Decree of the President of the Russian Federation No.166 'On Measures to Ensure Technological Independence and Security of Critical Information Infrastructure of the Russian Federation' dated 30 March 2022; draft federal law No. 164428-8 'On Amendments to the Federal Law 'On the Central Bank of the Russian Federation (Bank of Russia)'.'*

3. ASSESSMENT OF FINANCIAL SECTOR STABILITY

3.1. Banking sector

The banking sector remains strong due to an accumulated capital reserve. The Bank of Russia's temporary easing of regulations limited the extent to which financial market volatility affected the operations of credit institutions and made it possible to continue lending to the economy during the crisis period. After significant losses resulting from the materialisation of currency, interest rate and credit risks in Q2 2022, credit institutions already began to see their financial situation improve by Q3 2022.

The results of the Bank of Russia's stress testing of the banking sector[1] for the period until the end of 2023 show that the banking sector will remain stable as a whole even if sanctions pressure on the Russian economy persists and borrower credit quality declines. The capital adequacy of banks over the considered period may see an overall decrease of 2.6 pp, but in general the banking sector will retain a significant buffer of capital, as well as the potential for lending (around 40.7 trillion rubles[2] in 2023). However, some banks may require recapitalisation in the event of materialised risks, amounting to an estimated total of up to 0.7 trillion rubles over the forecast horizon. Meanwhile, the need to increase capital may be spread over time or decline since banks are taking active measures to replenish their capital, collaborating with their owners regarding recapitalisation issues and mitigating the risks elevated during the time of crisis.

In order to prevent the accumulation of systemic risks and maintain the stability of the banking sector in the future, it is important to cancel regulatory easing in a timely manner and move on to restoring capital buffers.

➢ ***The financial position of banks worsened in Q3 2022***

The banking sector's losses reduced more than three times[3] (from 1.5 trillion rubles as of 1 July 2022 to 0.4 trillion rubles as of 1 November 2022) due to increased net interest income, as well as a slowdown in the growth rate of additional provisions. In general, according to the results of 9 months of 2022, the main factors that led to a loss were provisions for the loan portfolio (1.7 trillion rubles, Chart 62) and expenses from currency revaluation against the backdrop of a long open foreign exchange position during the period of ruble strengthening (the net loss from operations with foreign currency, precious metals and derivatives amounted to 1.1 trillion rubles). Thanks to the regulatory easing, the sudden volatility in the financial market had a limited impact on the main ratios of credit institutions.

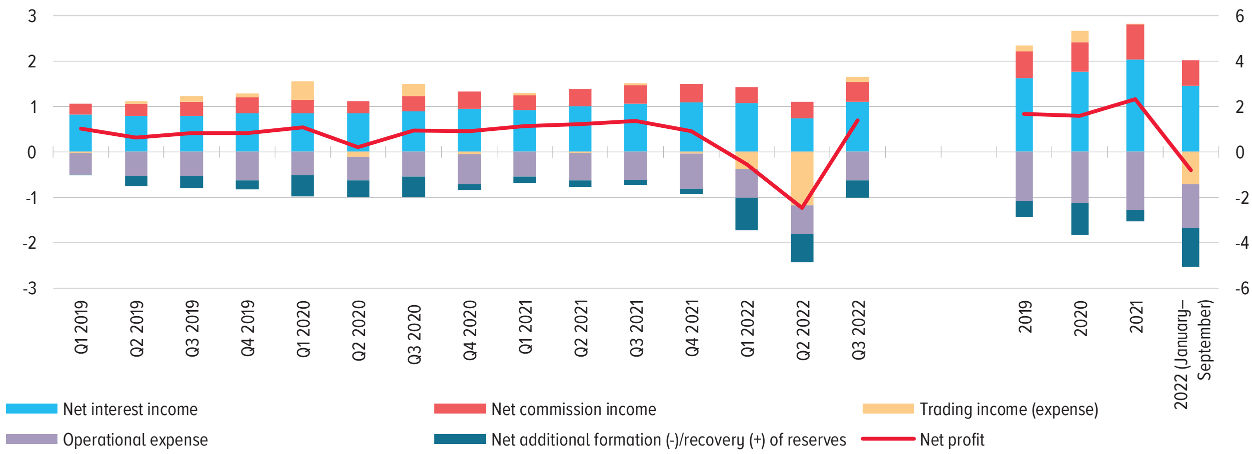
[1] The scenario takes into accounts the impact from the cancellation of the regulatory easing influencing banks' capital adequacy.

[2] It is calculated based on capital adequacy compliance excluding add-ons.

[3] For all credit institutions, except for the Non-core Asset Bank.

BANKING SECTOR INCOME STRUCTURE*
(₽ TRILLION)

Chart 62



** Among all credit institutions excluding the Non-core asset bank.*
Source: reporting form 0409102.

➤ *Results of stress testing of the banking sector*

The Bank of Russia conducted a stress test of the banking sector[4] over the period until the end of 2023 under a scenario that assumes ongoing sanctions pressure, deterioration in borrowers' credit quality and stagflation of the global economy. Calculation made according to data as of 01 July 2022.

For the corporate portfolio, credit risk was considered on the basis of both an individual analysis of the potential impairment of loans from the largest borrowers and a portfolio assessment taking into account the industry specifics of companies.

The scenario takes into accounts the impact from the cancellation of the regulatory easing influencing banks' capital adequacy. The risk of losses on blocked assets was assessed taking into account the planned ten-year schedule for provisioning of these instruments.

The main driver of losses are credit losses against the backdrop of a deteriorating financial position of major companies. The additional formation of provisions for the loan portfolio for the considered period as a whole could amount to 4.5 trillion rubles if the scenario develops as predicted. The average cost of risk over the considered stress period in the corporate portfolio is estimated at 3.5%, 1.2% for housing mortgage lending (hereinafter 'HML') and 4.9% for other loans to individuals.

On the whole, the reserve of capital accumulated in the banking sector in recent years allows most credit institutions to maintain stability in this scenario. Therefore, banks' capital adequacy for the period considered may decrease in total by 2.6 pp, but in general the banking sector will retain a significant buffer of capital, as well as the potential for lending (about 40.7 trillion rubles[5] at the end of 2023). However, some banks may require recapitalisation in the wake of materialised shocks: its total volume is estimated at up to 0.7 trillion rubles over the forecast horizon. Meanwhile, the need to infuse capital may be lagged in time or decline since banks are taking active measures to replenish their capital, collaborating with their owners regarding recapitalisation issues and mitigating the risks elevated during the time of crisis.

As the banking sector recovers, the Bank of Russia plans to cancel some of its regulatory easing measures at the start of 2023, including those related to the revaluation of securities and fixing exchange rates for the calculation of standards. At the same time, in the face of high uncertainty surrounding credit quality, the Bank of Russia is extending its easing measures in relation to the formation of reserves for loans to individuals and businesses. In order to avoid contraction of the loan portfolio in the face of the cancellation of certain regulatory easing, the Bank of Russia plans to temporarily abolish add-ons to capital adequacy requirements.

[4] *The scenario takes into accounts the impact from the cancellation of the regulatory easing influencing banks' capital adequacy.*

[5] *It is calculated based on capital adequacy compliance excluding add-ons.*

3.2. Non-bank financial institutions

The financial position of NBFIs remains relatively stable. NBFIs are gradually adjusting their business to the new conditions, and recovery dynamics were already noted in Q2 2022. However, the problems that arose in Q1 2022 are still relevant, primarily related to foreign assets being frozen.

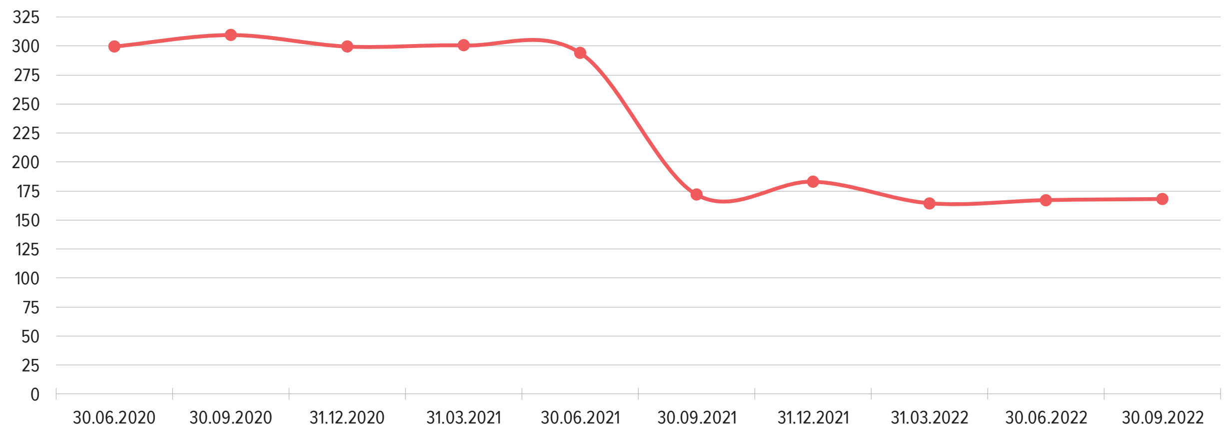
The situation on the insurance market is gradually stabilising. Insurance premiums for endowment life insurance (hereinafter 'ELI') have shown positive dynamics since the start of the year (as a result of insurers redirecting sales to accumulative products and after funds were released from a significant pool of high-yield three-month deposits, which was completed in June 2022), which continues to compensate for the reduced fees for individual life insurance (hereinafter 'ILI'). Despite signs of recovery, credit insurance premiums since the start of the year have been significantly lower than last year. Alongside this, car insurance and voluntary health insurance (hereinafter 'VHI') fees this year have ended up being higher than last year's, which is largely due to inflationary factors.

According to the results of 9 months of 2022[6], insurers' profits dropped by 31.4% compared to the same period last year, partly due to losses from investment activities. However, the decline was partially offset by interest income and income from the revaluation of insurance reserves. As a result, the profitability indicator fell (-3.3 pp for life insurers and -4.9 pp for non-life insurers to 36.1% and 14.4%, respectively). Nonetheless, it should be noted that insurers' capital reserve, taking into account the current support measures, is at an acceptable level (168.1%). For more information about the insurance channel for the materialisation of geopolitical risks, see Section 2.6, 'Insurance Channel'.

NPFs remain the most stable segment among NBFIs. The impact of geopolitical risks on NPFs is assessed as insignificant due to their activities within the Russian Federation. Their share of investments in foreign assets amounted to 0.4% of the pension savings portfolio and 1.6% of the pension reserves portfolio as of 30 September 2022. There was a slight increase in the share of government securities in the pension savings and pension reserves portfolios (by 1.9 and 3.0 pp, respectively). At the same time, the share of assets with a rating of A+[7] and above is 87.3%.

According to the results of 9 months of 2022, despite the unfavourable stock market conditions, the weighted average return on investing in pension savings and placing pension reserve funds was positive, amounting to 4.6% and 3.6% per annum, respectively, according to the results of 9 months of 2022. Compared to the same period last year, this represents a change of -0.9 pp and +0.3 pp, respectively.

DYNAMICS OF CAPITAL ADEQUACY RATIO *Chart 63*
(%)

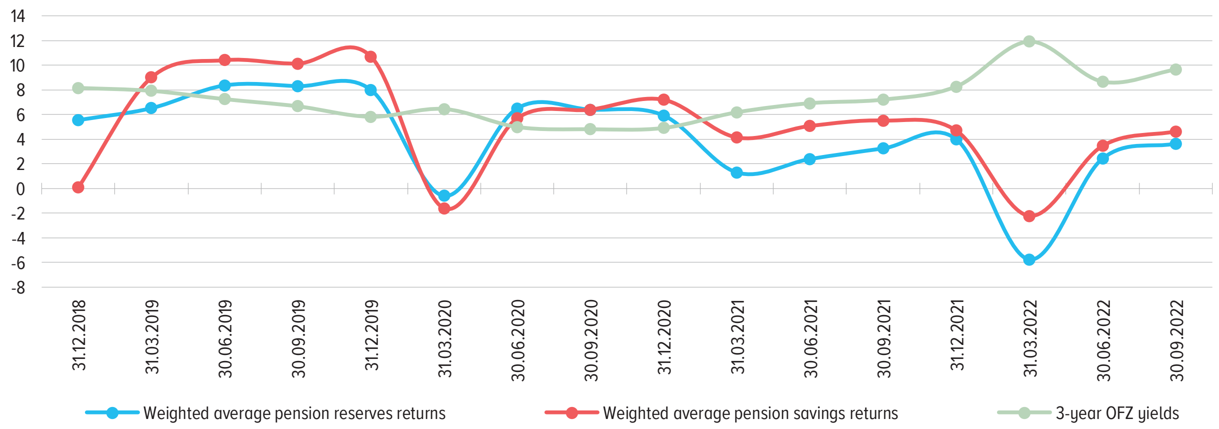


Source: Reporting form 0420156 section 1.

[6] *The calculation takes into account profit before tax.*

[7] *The analysis was conducted based on the scale of Russian credit rating agencies.*

RETURNS ON PENSION SAVINGS* AND PENSION RESERVES** *Chart 64*
(%)



**Weighted average pension reserves returns before payment of remuneration to the fund.*
****Weighted average pension savings returns before payment of remunerations to the asset management company and fund.*
Source: Reporting form 0420255 section 4, repoting form 0420254 section 7.

Net inflow in the **unit investment funds (UIF) market** in Q2-Q3 2022 amounted to 365.6 billion rubles, mainly because of several closed-end unit investment funds (hereinafter 'CUIF'), while OUIFs and EUIFs showed net outflows (7.4 and 7.3 billion rubles, respectively). In general, the funds coped with the outflows, and their biggest sales, which peaked in April 2022, did not have a significant negative impact on the market.

As of the end of Q3, no more than 70% of exchange-traded and open-end funds out of the total number of UIFs of the corresponding type carried out transactions with units (+28.3 pp compared to 01 April 2022). The key factors behind unblocking operations with UIFs were the resumption of trading in shares of Russian companies and easing of the Bank of Russia's requirements for calculating the unit value of EUIFs, as well as, in some cases, the sale of blocked assets from the balance sheets of UIFs.

Leasing companies currently find themselves outside the regulatory perimeter and have experienced a marked reduction in activity. Indicators of new business tanked[8] both in the financial leasing segment (-8.4% compared to Q1 2022) and in the operating lease segment (-31.4%). This was caused by a combination of factors, such as numerous foreign equipment manufacturers leaving the market, a shortage of leasing objects, sanctions in certain industries and rising interest rates.

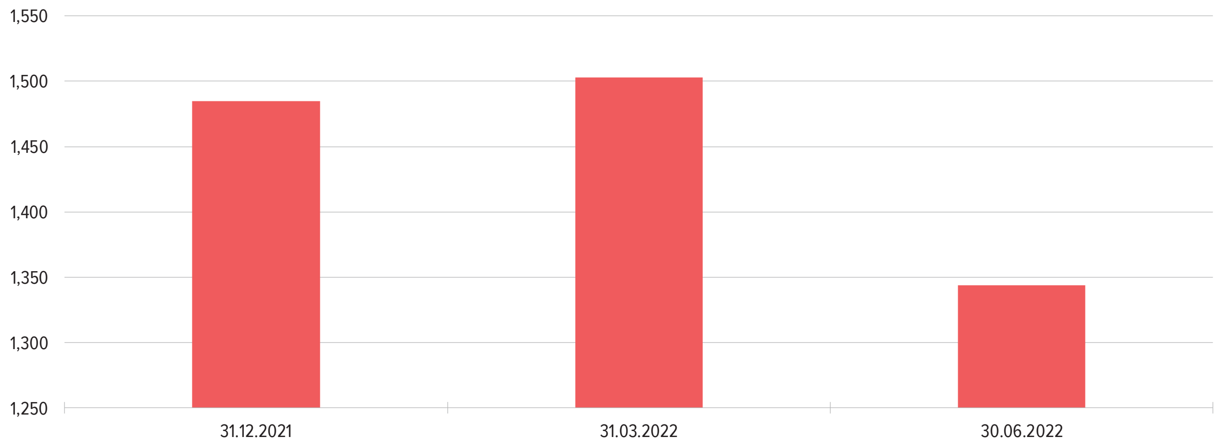
According to the results of H1 2022, the total loss for the sample of leasing companies that provided data to the Bank of Russia amounted to 60.1 billion rubles (56.1 billion rubles in Q1 2022), mainly due to companies that have set up provisions for distressed assets (for more details, see Section 2.5, 'Credit Channel'). So far, losses have mostly been seen among companies involved in financing sub-sanctioned market segments. The leasing business market segment was not hit as hard. At the same time, the search for sources of new business development becomes a common challenge for the market.

It should be noted that the approaches to creating provisions in the leasing industry are different to those in the banking sector. In a number of cases, the provisioning level both in the financial leasing segment and in the operating lease segment is significantly lower than in the banking corporate portfolio. This fact can be explained both by a simplified collection procedure and higher liquidity with regard to the leased asset, as well as by the lack of uniform regulation in the leasing industry. In order to ensure the financial stability of the leasing industry, there is an urgent need to introduce industry standards and requirements for reporting in accordance with International Financial Reporting Standards (hereinafter 'IFRS').

[8] *Based on data from companies that participated in the Bank of Russia survey.*

NEW BUSINESS DYNAMICS
(₽ BILLION)

Chart 65



Source: Bank of Russia.

APPENDIX

Appendix 1. Main sanction restrictions imposed against Russia in June – November 2022

Sanction pressure on the Russian economy and its individual economic agents continues. Some of the additional measures taken by the United States, the EU, the UK and other countries between June and November of this year include new blocking sanctions against a number of entities in various sectors of the economy, the majority of which are entities in the military-industrial complex, and individuals, including representatives of Russian business. Additional export restrictions have been introduced, as well as restrictions on imports of Russian goods, including an embargo on Russian oil and gold in some countries. Bans on a range of services to Russian individuals have been extended, including consulting, auditing, legal, engineering, advertising and information technology services.

Moreover, additional restrictions have been introduced against the Russian financial system; new blocking sanctions have been imposed against entities in the financial sector, including some banks and NCI JSC NSD, several other credit institutions have been denied international financial messaging (SWIFT) services, and pressure has been put on the Russian payment system. Measures have been taken to reduce financial flows from Russia, including restrictions on accepting deposits from Russian individuals in a number of countries, as well as on purchasing financial instruments in their interests. New sanctions have been introduced in the field of crypto assets, which, according to the proponents of these measures, can be used to circumvent sanctions.

In Western countries, sanctions policies place particular emphasis on restricting the technology sector of the Russian economy. In addition to introducing new blocking sanctions against Russian entities involved in high-tech development, as well as expanding technology-related export restrictions in a number of countries, the United States introduced sectoral sanctions in the field of quantum computing. Therefore, enterprises and scientific institutions operating in this field are included in the SDN list, and measures have been taken to restrict the corresponding equipment and technologies being supplied to Russia.

One of the planned restrictions to be implemented by countries that take unfriendly measures against Russia is a mechanism used to limit the price of Russian oil. This work is carried out within the framework of the G7, whose countries are trying to create a coalition and get other nations involved in these initiatives. The implementation of legal mechanisms that make it possible to set a price limit on Russian oil is part of the EU sanctions package that was adopted in early October this year. Despite the fact that such a measure may destabilise the global energy market, the value of the price limit remains under discussion in unfriendly countries, who have not yet been able to reach a consensus on this issue.

The sanction policies of unfriendly countries place a particular focus on increasing pressure on other countries in an attempt to force them to join anti-Russia sanctions. A number of tools are used to achieve this goal, with both diplomatic and economic channels involved. The United States uses mechanisms of so-called secondary sanctions, and the EU introduces their counterpart. The corresponding provisions of the next EU sanctions package provide for the possibility of imposing blocking sanctions against persons who assist in getting round European restrictions.

The search for Russian assets and the coordination of work in relation to anti-Russia sanctions are one of the main elements of the sanctions policy in the period under review. The United States is increasingly applying criminal sanctions against Russian individuals for violations of the sanctions regime, including through the seizure and confiscation of assets. The countries are implementing various measures to coordinate joint efforts, including the work of the EU to create a special body in this area. The EU has adopted legal provisions obliging sanctioned persons to report their assets in the territory of EU member states. Initiatives are also being implemented to include violations of sanctions on the list of crimes established by the EU in order to develop a unified approach in this area and create a legal basis for confiscating property from Russian individuals.

In general, the sanctions policies towards Russia in Western countries are largely shifting in focus, from the introduction of new restrictions designed to destabilise the Russian economy and financial system in the short term, to measures that have a long-term effect, including curbing the development of the technology sector, as well as measures to strengthen the control and coordination of actions in the implementation of already applied sanctions instruments and attempts to limit Russia's foreign economic relations.

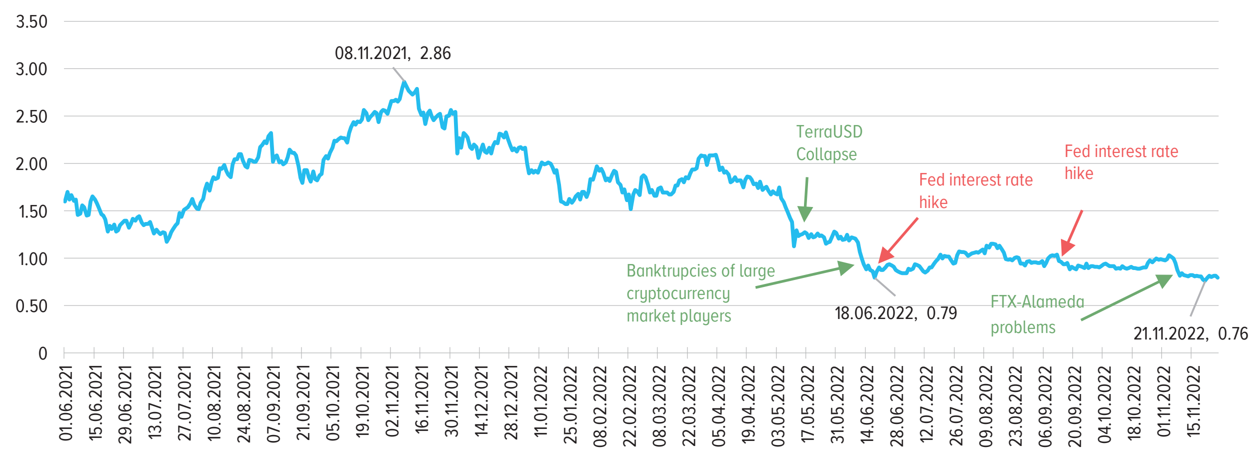
Appendix 2. Cryptocurrency market trends

The capitalisation of the cryptocurrency market has fallen from a peak value of about 3 trillion US dollars in Q4 2021 to 1 trillion US dollars in June of this year and remained at this level until mid-November (Chart 66). The price of Bitcoin, the main cryptocurrency in terms of market volume, fell from 68,000 US dollars in 2021 to 18,000 US dollars in June 2022. For a long time it fluctuated around 20,000 US dollars, but on 21 November fell to its lowest value in two years, 15,600 US dollars. The key reasons for these dynamics were a drop in investor confidence in the cryptocurrency market amid a series of negative events since the end of spring 2022, reduced demand for high-risk assets due to an increase in key rates in developed countries and the expectation of a recession in the future[1]. Thus, between January 2022 to mid-October 2022, the volume of investments in cryptocurrency products (including Ethereum, ETH) decreased by 30.5 billion US dollars to 25 billion US dollars[2].

A key negative event was when TerraUSD, an algorithmic stablecoin, lost its USD dollar peg in May 2022[3], followed by a massive sell-off of cryptocurrencies[4] and a fall in prices. Then, in mid-June of this year, key market players went bankrupt as a result of materialised liquidity risks[5], further aggravating the fall of the cryptocurrency market. On 9 November, a new wave of stress hit the cryptocurrency market, related to the outflow of investors due to fears about bankruptcy regarding

CRYPTOCURRENCY MARKET CAPITALIZATION
(USD)

Chart 66



Source: https://coin.dance/stats/marketcaphistorical.

[1] *An additional reason for the fall of the cryptocurrency market was the Ethereum Merge in September 2022, as a result of which the Ethereum blockchain network switched from the Proof-of-Work (PoW) consensus mechanism, which involves miners using powerful computers that consume a lot of energy, to a more environmentally-friendly Proof-of-Stake (PoS) mechanism. The PoS mechanism implies that blocks in the network will be registered by validators/holders of ether (ETH) tokens, who will be ready to block some of their coins in exchange for the right to register blocks. Investors were afraid of a fall in the price of ETH, so they withdrew some of the funds from ETH-related products a few days before the Ethereum Merge. In addition, there was uncertainty about the possible tightening of ETH circulation regulations after the transition to PoS on the part of the US Securities and Exchange Commission (SEC).*

[2] *According to analytical agency Coinshares.*

[3] *Due to fraudulent activities using the Anchor Protocol (lending and borrowing protocol) and Curve Finance (decentralised exchange protocol).*

[4] *The outflow of investors from the cryptocurrency ETF market amounted to 683.4 million US dollars in Q2 2022 (according to Bloomberg).*

[5] *The Celsius Network cryptocurrency lending platform went bankrupt (the company's loss amounted to 1.2 billion US dollars according to the Financial Times), along with the cryptocurrency hedge fund Three Arrows Capital (debt to creditors amounted to 3.57 billion US dollars), which negatively affected other market participants (Voyager Digital, BlockFi, Genesis etc.) and cryptocurrency investors.*

the FTX cryptocurrency exchange[6]. As a result, key cryptocurrencies Bitcoin and Ether fell in price by 8% in one day on 8 November, and the capitalisation of the cryptocurrency market fell below 0.9 trillion US dollars.

To date, stress in the cryptocurrency market has not led to the materialisation of systemic risks in the traditional financial system. However, despite the drop in demand for cryptocurrencies among retail investors, some sources state that there is still interest among institutional investors, which contributes to an increase in the level of interconnections between cryptocurrency companies and traditional financial institutions[7]. The **IMF** *notes* the high volatility of cryptocurrency markets against the background of a growing correlation with the stock market, as well as the *growing* risks of cryptocurrencies for financial stability in EMEs and developing countries due to the high volumes of crypto trading compared to trading on stock exchanges and the interbank market.

Recent trends confirm the following **key risks of the cryptocurrency market:**

- ***Stablecoin stabilisation mechanisms are ineffective and the structure of stablecoin reserve assets is not transparent.*** The materialisation of the risks of 'raids' on stablecoins[8], especially with insufficient liquidity of collateral assets, can destabilise stablecoin prices. However, algorithmic stablecoins are not the only ones that can have high price volatility. For example, mid-May saw one of the largest falls in the exchange rate of the stablecoin Tether, backed by real assets; its price reached a local minimum of 0.95 US dollars.[9]
- Due to the lack of proper regulation and supervision, ***crypto market participants are more likely to take on increased financial risks*** and have an excessive level of leverage. Many of them do not have proper asset management strategies and are also overly interconnected, so the risks of a domino effect spread quickly in the cryptocurrency ecosystem.

Cryptocurrency market regulation issues

On an international level, in terms of developing common approaches to the regulation of cryptocurrencies, the principle 'same activity and same risks = same regulation' prevails. According to the recommendations of the Financial Stability Board, the issuance and circulation of crypto assets that reflect the functions of banking products should be subject to banking standards. Therefore, crypto assets, which are equivalents of instruments in the capital market, should be subject to investor protection rules. ***International organisations*** (including the Basel Committee on Banking Supervision - BCBS and the International Organisation of Securities Commissions - IOSCO) are reviewing the standards for possible adjustments to cover the growing systemic risks of cryptocurrencies and the decentralised finance (DeFi) market. The Financial Stability Board (FSB) has also updated its recommendations in relation to global stablecoins.

National approaches to regulating the cryptocurrency market vary. Many EMEs and developing countries are taking a more conservative approach, highlighting that the 'cryptoisation' of the financial sector could negatively impact central bank monetary policy. For example, a ban on the circulation of cryptocurrencies has been introduced in China, Algeria, Egypt and Morocco, and pro-

[6] *In early November, against the backdrop of negative news about the cryptocurrency company Alameda Research and its relationship with the FTX exchange, investors began to withdraw cryptocurrency on a mass scale. Within 3 days, the exchange recorded an outflow of 6 billion dollars in funds, which became the main cause of the exchange's liquidity problems. On 8 November, the FTX exchange banned investors from withdrawing funds in cryptocurrency. Against the backdrop of current events, the largest cryptocurrency exchange, Binance, announced its desire to purchase FTX at first, but subsequently changed its mind after it was revealed that FTX used client funds to cover the losses of Alameda Research (according to CoinDesk and Thomson Reuters). On 11 November, FTX filed for bankruptcy. There are also bankruptcy concerns for other major participants in the cryptocurrency market, for example, the Genesis exchange. It is also worth noting that amid the collapse of the FTX exchange, Wrapped Bitcoin (WBTC) and stETH tokens (stablecoins pegged to the rates of Bitcoin and Ether) got rid of the rate of Bitcoin and Ether, respectively.*

[7] *So, for example, cryptocurrency exchange Coinbase began cooperating with investment company Blackrock, and cryptocreditor Nexo announced its purchase of shares in Summit National Bank in September.*

[8] *Mass requests for the redemption of stablecoins by investors.*

[9] *Which is the biggest price drop for Tether (USDT) in the last two years.*

posals have been prepared for a similar ban in India. In May 2022, Argentina introduced a ban on financial institutions from carrying out transactions with digital assets and providing customers with services related to cryptocurrencies.

Advanced economies (including the USA, Japan, the EU and Canada) point out the high risks that the cryptocurrency market poses for financial stability and are developing a large-scale regulatory system to minimise them.

In Russia, using cryptocurrencies as a means of payment is prohibited. Approaches to regulating the cryptocurrency market in terms of mining and the possibility of using cryptocurrencies in international settlements ***are currently being developed***[10]. At the same time, the Bank of Russia advocates a ban on cryptocurrencies being accepted in the regulated financial system, since the widespread use of cryptocurrencies is associated with significant threats to the well-being of citizens, money circulation and financial stability, as well as AML/CFT risks.

Also, the risks of cryptocurrencies for investors and the Russian economy are growing at the moment due to sanctions pressure from unfriendly countries. Back in April, the largest crypto exchange Binance, in accordance with the fifth package of EU sanctions, blocked the accounts of persons who fell under the sanctions and also limited the amount of cryptoassets that could be owned to 10,000 euros for all other citizens of Russia. By October, this restriction was tightened according to the eighth package of sanctions, resulting in a complete ban on the provision of services to Russian citizens. At the end of October, Singapore announced its decision to join the EU sanctions against Russian residents. The US Treasury Department and UK HM Treasury have also included transactions with crypto assets in anti-sanctions regulation; crypto exchanges and crypto wallet service providers must block and report all suspicious transactions that may be associated with sanctioned persons.

[10] *Draft Law No. 237585-8 'On Amendments to the Federal Law 'On Digital Financial Assets, Digital Currency and on Amendments to Certain Legislative Acts of the Russian Federation' was submitted to the State Duma on 17 November 2022.*

GLOSSARY

Algorithmic stablecoins mean stablecoins whose value can be supported by built-in mathematical algorithms without being tied to underlying assets.

Debt amortisation means the process of paying off debt on a loan through regular and early payments.

Basic balance (basic structural deficit) of the federal budget means an indicator of the federal budget execution under the fiscal rule calculated as the difference between the total of basic revenues (oil and gas revenues and non-oil and gas revenues) and federal budget expenditures.

Vacancy rate (in the commercial real estate market) means the ratio of free space/space currently available for rent within a property to its total leasable area.

External debt means the total volume of residents' debt obligations before non-residents.

Dedollarisation means the process of transferring foreign exchange assets and liabilities into the national currency.

Decentralised finance (DeFi) means a financial organisation model in which there is no intermediary, transactions are carried out automatically using smart contracts based on distributed ledger technology (DLT), and users exercise direct control over their assets.

Household debt burden (debt service ratio) means the ratio of the total amount of planned payments of the population on loans to household disposable income before deduction of payments on accrued interest on loans[1].

Housing affordability (housing affordability index) means an indicator that evaluates the area (sq.m) of residential real estate that can be bought with a mortgage loan (with an average market interest rate and an average loan maturity), spending half of the average nominal salary on servicing the loan.

First overdue payment index means the ratio of the number of borrowers who failed to make a payment in a specified reporting period to the total number of borrowers who were due to make a payment in a specified reporting period.

Crypto asset means an asset that exists in digital form or is a digital representation of another asset and is created using distributed ledger technology.

Cryptocurrency means crypto assets characterised by the absence of collateral, which cannot be redeemed from the issuer.

Liquid market means a market in which transactions are regularly made with a small difference between the prices of buy and sell orders.

Unfriendly countries mean foreign countries and territories that commit unfriendly actions towards the Russian Federation, Russian legal entities and individuals. The list of foreign countries and territories is determined by Order No. 430-r of the Government of the Russian Federation dated 05 March 2022.

Net placement of bonds means the difference between issued and redeemed bonds.

Oil embargo means a ban on imports of oil and petroleum products imposed by a single country or group of countries.

[1] *The methodology for calculating the indicator is posted on the Bank of Russia website*.

DSTI ratio (debt service-to-icome) means debt burden ratio; the ratio of the borrower's average monthly payments on all loans and borrowings, including a newly issued loan, to their average monthly income.

Lending potential means banks' ability to increase debt financing of the economy, taking into account the need to meet the requirements related to compliance with required ratios.

Distressed debt (leasing) means the amount of NPL90+ (overdue debt for a period of more than 90 days), restructurings and terminated agreements on the leasing portfolio.

Interest gap for a 1-year period means the difference between assets and liabilities that are sensitive to changes in interest rates with maturity up to 1 year.

Savings mode (with regard to consumer behaviour) means a behaviour model among economic agents that involves minimising costs and saving available funds.

Stablecoins mean cryptoassets which seek to maintain a stable value in relation to an asset or group of assets. Stablecoins can be pegged to various assets (fiat currency, precious metals and others) or a basket of various assets.

Project taxonomy means a systematic set of criteria for classifying projects. For example, the criteria for sustainable (including) 'green' development projects in the Russian Federation established by the Ministry of Economic Development of Russia[2].

Technology risk means an aspect of operational risk associated with the risk of direct and indirect losses of financial institutions due to unavailability, failures and shortcomings of technological systems (both hardware and software).

Distributed ledger technology means a type of technology that allows information to be distributed between all participants of the network.

'Toxic' currency means a foreign currency issued by the central bank of an unfriendly country.

Net interest margin means the ratio of net interest and similar income to the average value of interest-sensitive assets.

NCC penalty rate means the rate used when concluding swap transactions in order to settle outstanding obligations and the penalty for improper fulfilment of monetary obligations. In conditions of high market volatility, it becomes more profitable for participants to roll over the position to the next day than to fulfil their obligations to the National Clearing Centre (NCC) on time. An increase in the penalty rate allows the NCC to fulfil its settlement obligations to market participants in full and in a timely manner. Increasing the penalty rate serves as a marker of increased volatility.

LTV means Loan To Value (the ratio of principal loan debt to the fair value of the collateral).

NPL90+ means the amount of debt on loans with overdue payments for more than 90 days as of the reporting date.

SDN (Specially Designated Nationals) mean individual or legal entities which are under blocking sanctions imposed by the US Treasury Department. These individuals' assets are frozen and US citizens and companies are generally prohibited from doing any transactions with them.

[2] *Resolution No. 1587 of the Government of the Russian Federation ''On Approving the Criteria of Sustainable (Including Green) Development Projects in the Russian Federation and the Requirements for the System of Verification of Sustainable (Including Green) Development Projects in the Russian Federation' dated 21 September 2021.*

ABBREVIATIONS

BIS – Bank for International Settlements

CDS – Credit Default Swap

CPI – Consumer Price Index

CUIF – closed-end unit investment fund

DSTI – debt service-to-income ratio

ECB – European Central Bank

EME – emerging market economies

ETH – Ethereum cryptocurrency

EU – European Union

EUIF – exchange-traded unit investment fund

Fed – US Federal Reserve System

GDP – gross domestic product

GS – government securities

HML – housing mortgage lending

IFRS – International Financial Reporting Standards

ILI – investment life insurance

IMF – International Monetary Fund

IT – information technology

LNG – liquefied natural gas

LTV – loan-to-value ratio (the ratio of principal loan debt to the fair value of the collateral)

MET – mineral extraction tax

MFO – microfinance organisation

MP – monetary policy

NBFI – non-bank financial institution

NCC – National Clearing Centre

NCI – non-bank credit institution

NCI JSC NSD – Non-bank Credit Institution Joint-stock Company National Settlement Depository

NII – Net Interest Income

NPF – non-governmental pension fund

NWF – National Wealth Fund

OFZ – federal government bonds

OPEC – Organization of the Petroleum Exporting Countries

OUIF – open-end unit investment fund

PMI – Purchasing Managers» Index

POS loan – Point-of-sales loan (a household loan issued directly at retail outlets)

PPI – Producer Price Index

PR – pension reserves

PS – pension savings

SME – small and medium-sized enterprise

ST – sole trader

UIF – Unit Investment Fund

ULI – universal life insurance

VHI – voluntary health insurance

LIST OF CHARTS

Chart 1. Financial Stability Risk Map 7
Chart 2. Global PMI index in the manufacturing and services sectors 9
Chart 3. Annual inflation dynamics in advanced economies 9
Chart 4. Number of changes to key rates compared to previous month 9
Chart 5. Change in 10-year government bond yields 10
Chart 6. Amount of financing for measures to support the population and companies in Europe (from September 2021 to 20 October 2022) 11
Chart 7. Dynamics of the US Dollar Index (DXY) 12
Chart 8. Quarterly change in global foreign exchange reserves 12
Chart 9. Dynamics of UK government bond yields 13
Chart 10. MOVE Index (US Treasuries yield volatility) 13
Chart 11. Dollarisation in loan and deposit portfolio of the banking sector 16
Chart 12. Penalty rates 17
Chart 13. Share of different currencies in export settlements in 2022 18
Chart 14. Share of currency pairs in the trading volume of the foreign exchange currency market 18
Chart 15. Net cash FX purchases (-) / sales (+) of currency by individuals on the exchange market and through major banks 19
Chart 16. Budget deficit and sources of financing the federal budget deficit 22
Chart 17. OFZ yield curve and change in yields over the period 22
Chart 18. Trading volume on the stock market by participants 23
Chart 19. Trading volume in the OFZ market by participants 23
Chart 20. Volumes of transfers made by individuals to non-resident brokers under brokerage service agreements for 2021-2022 24
Chart 21. Deposit market rate dynamics, 25
Chart 22. NII dynamics in 2020-202 25
Chart 23. Interest rate gap in the banking sector portfolio for RUB operations (baseline estimate, without behavioural and other adjustments) 26
Chart 24. Relative frequency of distribution of credit institutions by share of short-term funds of individuals (up to 1 year) 26
Chart 25. Share of short-term liabilities (up to 1 year, including funds on accounts) in RUB to individuals and corporate customers 26
Chart 26. Difference between rates on newly attracted long-term and short-term deposits in RUB 26
Chart 27. Ruble-denominated interest rate swap contracts, nominal volume and quantity 27
Chart 28. Residential real estate commissioned in Russia 33
Chart 29. Launch of new construction in Russia 33
Chart 30. Weighted average interest rate on ruble-denominated fixed-rate loans to large companies for up to 1 year issued in 2022 34
Chart 31. Volume of ruble-denominated loans issued to major non-financial resident companies in 2022 35
Chart 32. Volume of ruble-denominated loans issued to non-financial SMEs in 2022 35
Chart 33. Corporate loan portfolio growth rate from 1 March 2022 36
Chart 34. The issuance of loans in foreign currency with a maturity exceeding 31 days to non-financial companies by currency in 2022 36
Chart 35. Share of restructured loans in the corporate loan portfolio 37

Chart 36. Dynamics of non-performing assets of leasing companies 38
Chart 37. Dynamics of household debt burden, the amount of planned loan payments in % of disposable income 39
Chart 38. Effective interest rate (EIR) and the volume of issued cash loans and credit cards 40
Chart 39. Dynamics of unsecured consumer loans during crisis periods 40
Chart 40. Dynamics of restructured cash loans 41
Chart 41. Dynamics of first time overdue loan coefficient for unsecured consumer loans 41
Chart 42. Dynamics of the amount of macroprudential buffers on mortgage loans 41
Chart 43. Dynamics of the amount of macroprudential buffers on consumer loans 41
Chart 44. Distribution of issued unsecured consumer loans by DSTI 42
Chart 45. Distribution of issued unsecured consumer loans by maturity 42
Chart 46. Statistics on types of loan exposures to which a modelling approach to the borrower's income assessment is applied 42
Chart 47. Statistics on the applied modelling methods 43
Chart 48. The most frequently used factors in the models of a borrower's income assessment applied in surveyed banks 43
Chart 49. Dynamics of total debt broken down into principal and accrued interest with an elevated DSTI ratio (more than 50%) 45
Chart 50. The number of issued mortgage loans 46
Chart 51. The distribution of mortgage loans issued after 1 October 2021 by LTV at the time of issuance 46
Chart 52. Factor decomposition of housing affordablity index (AI) dynamics in 2016-22 46
Chart 53. Dynamics of restructured mortgage loans 47
Chart 54. Change in the average amount of newly issued equity participation agreements loans (₽ billion) and annual interest rate weighted by 6 largest banks 48
Chart 55. Dynamics of interest rate on mortgages issued on the security of equity participation agreements for 7 largest banks 48
Chart 56. Dynamics of the average mortgage loan maturity 48
Chart 57. The impact of real estate price premium and loan maturity on the number of payment period, up to which mortgage loan at 0.1% is associated with high risks for a borrower compared to 'market' mortgage 49
Chart 58. Quarterly premiums transferred to RNRC 50
Chart 59. Interconnections on outgoing reinsurance of Russian insurers for 2021: the network is very branched, RNRC represents one of many node points, foreign reinsurers play a significant role 50
Chart 60. Network of interconnections on outgoing reinsurance of Russian reinsurers for 9 months of 2022: the number of interconnections has steeply declined, RNRC dominates 50
Chart 61. Dynamics of premiums and payments under ILI, ₽ billion 50
Chart 62. Banking sector income structure 55
Chart 63. Dynamics of capital adequacy ratio 56
Chart 64. Returns on pension savings and pension reserves 57
Chart 65. New business dynamics 58
Chart 66. Cryptocurrency market capitalization 61

LIST OF TABLES

Table 1. GDP growth rates (%), IMF forecast as of October 2022 8
Table 2. Dynamics of Russian stock market indicators during episodes of increased volatility 21
Table 3. Price index on the primary and secondary housing markets in Russia 32
Table 4. Criteria for applying risk weight add-ons 36