Section 2. Financial markets and financial institutions

2.1. Russian financial market[1]

2.1.1. Trends in the global financial market

The year 2022 was one of the most difficult periods for the global financial market in many years. Due to a unique combination of adverse economic and geopolitical factors, investments in almost all assets, with few exceptions, had negative returns in 2022. Even investment assets such as government securities, precious metals, real estate and cryptocurrency failed to perform their functions of hedging investor returns against losses. In January-February 2023, many financial assets began to show positive returns again, however, this trend gradually slowed down under the influence of the same factors that negatively affected the financial market in 2022.

Rapid growth of interest rates offered by central banks of developed countries amid high inflation, slowdown of the Chinese economy due to specifics of its strategy to combat COVID-2019 and financial crisis in the real estate market, introduction of restrictions in trade relations between the United States and China resulted in significant changes in the structure of global value chains and growth of prices for certain commodities were the reasons for the simultaneous decline of investment asset markets in 2022 and their volatility in early 2023.

The unprecedented rise in U.S. inflation in the last 40 years between 2021 and 2022[2] has resulted in the FRS being forced to sharply raise federal funds interest rates in 2022 at a pace comparable only to the early 1980s. The U.S. inflation,

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2 The Economist (2022). Five financial trends that 2022 killed. December, 21 on-line.

according to the Consumer Price Index (CPI),[1] accounting for 1.4% in December 2020, peaked at 9.1% in June 2022. The FRS federal funds rate rose from 0-0.25% at the beginning of 2022 to 4.50—4.75% per annum in February 2023, allowing to slowdown inflation to 6.5% at the yearend 2022 and 6.4 in January 2023. In the EU, the inflation rate (CPI) rose from -0.3% in December 2020 to 10.6% in October 2022 with a further decline to 9.2% in December 2022 and 8.5% in February 2023. The European Central Bank raised deposit and refinancing interest rates in 2022 from -0.50—0% in early 2022 to 2.5—3.00% in February 2023, respectively.

Rapid growth of interest rates in developed countries caused fears of their economies sliding into recession and global falling demand for commodities. Moreover, the accelerated growth of the FRS rates in the U.S. in 2022 caused the dollar to strengthen against other currencies, which resulted in an outflow of foreign investment from emerging markets accompanied by a respective reduction in the value of companies' shares in these markets. One of the most severe risks of a rapid rate hike is the growth of systemic and liquidity risks in the financial system due to the depreciation of bonds in the portfolios of banks and institutional investors. Indeed, this was the risk that has materialized from March 10, 2023 in the insolvent major Silicon Valley Bank, which failed to cope with a massive outflow of deposits due to insufficient liquid assets and loss of value of government bonds in its portfolio.[2] The suspension of this bank led to a chain of insolvency of several smaller banks and a massive sale of shares of bank issuers.

In H2 2022, there was a slowdown in inflation in the U.S. and the EC, and the growth of interest rates by FRS and ECB also slowed down. This gave rise to optimism in the behavior of global investors in the market and hope that in 2023 inflation will continue to decline, interest rates will stop growing, and economies of developed countries will not fall into recession.

Opening of the Chinese economy amid lifting of restrictions of the zero-tolerance policy for COVID-2019 also inspired optimism. This caused growth of stock indices and bond prices not only in the U.S. and EU countries, but also in other regions of the world. However, in February 2023 it became clear that China's economic recovery is not going fast, in the U.S. the rate of inflation is slowing, developed economies continue to increase employment, household demand in the market remains high.[3] The U.S. FRS officials assumed that interest rates will continue to rise in 2023.[4] Hence, growth of the stock market in February slowed down significantly, but did not stop completely.

1 Hereinafter, the CPI data calculated as the ratio of the value of a fixed list of goods and services in the prices of the reporting month vs its value in the prices of the same month of the previous year

2 *Eisen B.*, *Ackerman A.* (2023). Where Were the Regulators as SVB Crashed? // The Wall Street Journal on-line. 11 March. URL: https://www.wsj.com/articles/where-were-the-regulators-as-svb-crashed-35827e1a

3 *William Watts W.* (2023). The 2023 stock market rally looks wobbly. What's next as investors prepare for longer inflation fight // MarketWatch on-line. 26 February. URL: https://www.marketwatch.com/story/the-2023-stock-market-rally-looks-wobbly-whats-next-as-investors-come-to-grips-with-a-further-rise-in-interest-rates-bdb3e1a3?mod=home-page

4 By *Nick Timiraos N.* (2023). Jerome Powell Says Fed Is Prepared to Speed Up Interest-Rate Rises // The Wall Street Journal on-line. 7 March 7. URL: https://www.wsj.com/articles/jerome-powell-to-testify-to-congress-on-outlook-for-rates-inflation-e4e7f1e3?mod=hp_lead_pos5

Over a 10-year time horizon from 2013—2022, of the 35 types of financial strategies in equity and alternative asset markets in developed world, the highest average annual returns came from the speculative strategy of playing up the NASDAQ-100 index at 32.1% annually, investing in broad index technology stocks (17.2%), NASDAQ-100 index stocks (16.2%), medical and health care stocks (14.8%) and broad portfolio dividend stocks of American companies (13.7%) (*Table 1, Fig. 1*). Investments in speculative strategies with a bet on the VIX index change at -77.7% per annum and a play on the decline of the NASDAQ-100 index -50.6% showed the worst returns on the same time horizon, as well as investments in the S&P commodities index at -4.3% per annum, the gold exchange fund (DLD) — 0.46% and bitcoin — 2.8%.[1]

In 2022, only 4 portfolios out of 38 assets yielded positive returns (*Table 1, Fig. 2*). This means that in the global market of developed-country stocks and alternative assets last year there were virtually no assets capable of protecting investors from the risks of central bank rate hikes, recession and growing geopolitical tension.

Table 1

Dollar yield on popular equity and alternative asset portfolios in the global marketplace from 2013—2022 (% p.a.) and from early 2023 to February 28, 2023 (%)

	Investment strategies	Benchmarks: Morningstar indices and exchange-traded funds (ETFs)	Returns %		
			2013–2022	2022	Since the beginning of the year on February 28, 2023
Global market					
1	Broad U.S. stock market	Morningstar Global Markets	8.47	-17.91	4.26
2	Stocks of companies of developed countries	Morningstar Developed Markets	9.33	-17.9	4.72
3	Stocks of companies of developed countries except U.S.	Morningstar Developed Markets ex-US	5.25	-14.79	5.40
4	Stocks of fintech companies	Morningstar Global Fintech Innovation		-43.15	5.84
5	Dividend stocks – broad diversification	Schwab U.S. Dividend Equity ETF (SCHD)	13.73	-3.23	-1.31
U.S.					
6	Broad U.S. stock market	Morningstar US Market	12.17	-19.49	4.37
7	S&P 500 stocks	Vanguard S&P 500 ETF (VOO)	12.52	-18.19	3.63
8	NASDAQ-100 stocks	Invesco QQQ Trust (QQQ)	16.20	-32.58	10.24
9	Value stocks	Morningstar US Value	10.64	-0.72	1.21

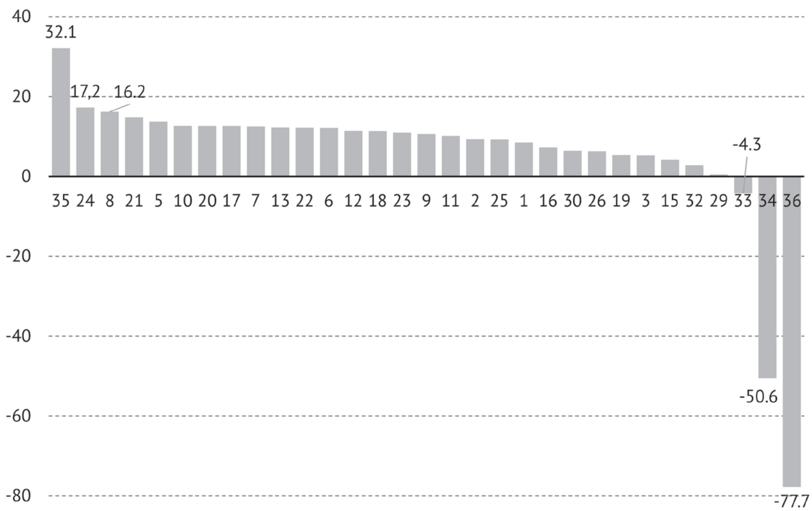
1 The average annual return on bitcoins is calculated for 5 years — from 2028 to 2022.

	Investment strategies	Benchmarks: Morningstar indices and exchange-traded funds (ETFs)	Returns %		
			2013–2022	2022	Since the beginning of the year on February 28, 2023
10	Growth stocks	Morningstar US Growth	12.65	-36.7	9.91
11	Small companies stocks	Vanguard Small-Cap ETF (VB)	10.11	-17.50	7.62
12	Dividend stocks	Morningstar US High Dividend Yield	11.39	-1.00	-0.78
13	ESG-companies stocks	Morningstar US Sustainability	12.26	-18.9	4.11
14	Portfolios compiled using AI	QRAFT AI-Enhanced US Large Cap Mmntm ETF (AMOM)		-26.3	4.45
15	Portfolios compiled using AI	AI Powered Equity ETF (AIEQ)	4.19*	-31.9	7.21
U.S. economic sectors					
16	TV and communications	Morningstar US Communication Services	7.27	-40.94	8.91
17	Cyclic sector of consumer goods	Morningstar US Consumer Cyclical Sector	12.62	-35.52	13.14
18	Countercyclical sector of consumer goods	Morningstar US Consumer Defensive Sector	11.34	-2.61	-2.08
19	Energy	Morningstar US Energy	5,33	62,5	-4,23
20	Financial services	Morningstar US Financial Services Sector	12.63	-12.34	5.1
21	Medicine and healthcare	Morningstar US Healthcare Sector	14.76	-5.18	-5.73
22	Manufacturing industry	Morningstar US Industrials Sector	12.21	-8.08	4.19
23	Utilities	Morningstar US Utilities Sector	10.97	1.65	-7.28
24	Technological sector	Morningstar US Technology Sector	17.23	-31.55	11.33
25	Basic materials sector	Morningstar US Basic Materials Sector	9.27	-11.41	6.96
26	Real estate transactions	Morningstar US Real Estate Sector	6.29	-25.55	3.42
27	Stock investments in AI companies	Global X Robotics & Artificial Intelligence ETF (BOTZ)		-42.69	14.55
28	Stock investments in AI companies	Robo Global Artificial Intelligence ETF (THNQ)		-39.84	16.77
Alternative assets					
29	Gold	SPDR® Gold Shares (GLD)	0.46	-0.77	0.08
30	Real estate	Vanguard Real Estate ETF (VNQ)	6.41	-26.24	3.93
31	Cryptocurrency	ProShares Bitcoin Strategy ETF (BITO)		-63.91	39.94

	Investment strategies	Benchmarks: Morningstar indices and exchange-traded funds (ETFs)	Returns %		
			2013–2022	2022	Since the beginning of the year on February 28, 2023
32	Cryptocurrency	S&P Bitcoin Index	2.83*	-63.89	40.54
33	S&P Commodity Index	iShares S&P GSCI Commodity-Indexed Trust (GSG)	-4.25	24.08	-4.33
Popular speculative strategies					
34	Down play of NASDAQ-100 stocks	ProShares UltraPro Short QQQ ETF (SQQQ)	-50.57	82.36	-27.55
35	Playing for the rise of NASDAQ-100 stocks	ProShares UltraPro QQQ ETF (TQQQ)	32.09	-79.08	27.92
36	Betting on changes in the VIX index	ProShares Ultra VIX (UVXY)	-77.3	-44.81	-27.26
37	Stocks popular in social media	VanEck Social Sentiment ETF (BUZZ)		-47.67	16.83
38	Fund with covered options (hedging by selling call options)	JPMorgan Equity Premium Income ETF (JEPI)		-3.52	-0.49

* on the average for 2018–2022.

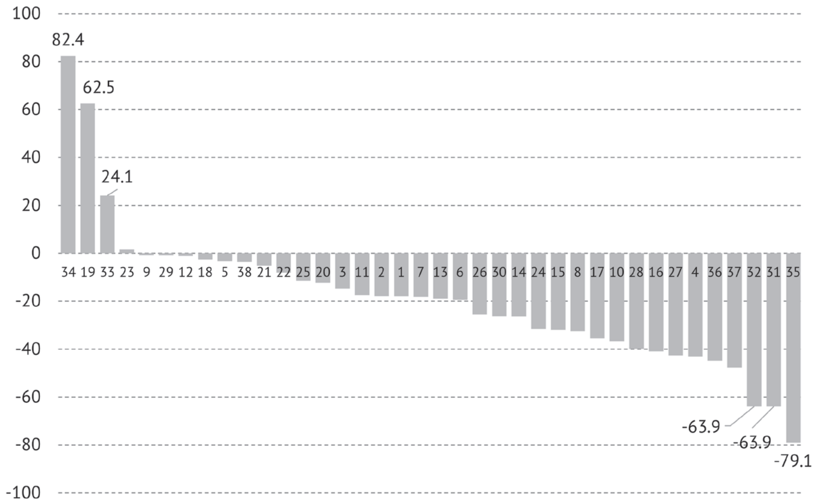
Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.



Note. Name of the investment strategy marked on the graph as a number, is shown in *Table 1* with the corresponding sequence number in column 1.

Fig. 1. Average annual nominal return on global equity market strategies in 2013—2022, % p.a.

Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.



Note. Name of the investment strategy marked on the graph as a number, is shown in *Table 1* with the corresponding sequence number in column 1.

Fig. 2. Nominal profitability of global market strategies shares in 2022, % per annum

Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.

The portfolio with the speculative downside strategy of the NASDAQ-100 index had the highest return of 82.4% annually, followed by investments in energy stocks (62.5%), a portfolio of commodity assets from the S&P index (24.1%) and shares of companies in the utility sector of the economy (1.6%). Minimal losses were attributed to value stock investments (-0.7%) and the gold exchange-traded fund (-0.8%). As can be noted, many of the strategies that showed the worst average annual returns from 2013-2022 were the top performers in 2022.

The worst returns in 2022 showed a speculative strategy of playing for the rise of the index NASDAQ-100 (-79.1%), investing in a cryptocurrency exchange fund ProShares Bitcoin Strategy ETF (BITO) and in bitcoin index S&P (-63.9% each), in shares of companies popular in social media, exchange-traded fund VanEck Social Sentiment ETF (BUZZ) (-47.7%), a speculative strategy of betting on changes VIX (-44.8%) and in portfolio of shares of those companies working in the field of artificial intelligence (-42.7%).

As of February 28, 2023, investments in cryptocurrency (40.5%), upside strategy in the NASDAQ-100 index (27.9%), popular social media stocks (16.8%), artificial intelligence stocks (14.6%), cyclical consumer goods stocks (13.1%) and technology stocks (11.3%) showed the highest returns for the two months of 2023.

Most of these strategies were the most unprofitable in 2022, thus there was a more rapid recovery of these stocks in early 2023.

The year 2022 was the most challenging for the global bond market, as the rapid growth of rates by central banks of developed countries caused an increase in the yields of bond issues, entailing a reduction in the market value in investors' portfolios. However, when interest rates rise, the yields of bonds with longer duration drop most significantly. According to J.P. Morgan Asset Management experts estimates, as of September 30, 2022, 1% p.p. growth in the interest rate results in a 4.2 p.p. decline in the value of 10-year U.S. government bonds.[1] According to the Bank of America estimates, the year 2022 was the worst for the bonds market given the returns of the bond portfolios in the history of this market after 1788[2], caused first of all by rapid growth of the FRS interest rates this year. Due to a rare simultaneous decline in stock and bond prices in 2022, the 60% stock/40% bond strategy, popular with the largest conservative institutional investors in the U.S., suffered significant losses. The economist Jason Zweig of the WSJ estimates that the 60/40 strategy's 2022 return in the U.S. market was the worst since 1974.[3]

As *Table 2* and *Fig. 3* show, in 2013—2022, only 11 portfolios or only 30% out of 37 strategies popular in the global bond market, delivered negative average annual returns. The most profitable investments over the 10-year time horizon were in high-yield U.S. bonds at 4.0% per annum, investments in "Fallen Angels" bonds[4] (3.1%), emerging market infrastructure bonds (2.3%), U.S. corporate bonds with 5—10 year duration, emerging market corporate bonds (2.0%) and U.S. municipal bonds (1.9%). The following strategies yielded the lowest returns in the bond market: Japanese government bonds (3.4% per annum), UK government bonds (2.6%), the broad bond portfolio of UK issuers (-2.3%), Eurozone government bonds (-1.2%) and Eurozone corporate bonds (-1.5%).

In 2022, when interest rates of central banks of developed countries dropped, all 37 bond strategies recorded investors' losses (*Table 1, Fig. 4*). The following strategies had the smallest losses: U.S. broad market bonds with a duration of 1—3 years (-3.9% per annum), U.S. mortgage bonds (-4.4%), U.S. government bonds with a duration of 1—5 years (-5.4%), U.S. corporate bonds with a duration of 1—5 years (-6.2%), and U.S. municipal bonds (-7.3%).

In contrast, holders of government bonds, broad bond portfolios and corporate bonds in the UK suffered the biggest losses (at -33.4%, -32.0%, and -29.5% p.a., respectively). This was followed by investments in government and broad bond portfolios in the eurozone (-23.2% and -22.4%) and investments in inflation-indexed US government bonds (-23.0%).

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1 *J.P. Morgan*. Asset Management. Guide to the Markets. 4Q 2022. 30 September 2022. URL: https://am.jpmorgan.com/us/en/asset-management/adv/insights/market-insights/guide-to-the-markets/

2 *Kollmeyer B*. (2022). 250 years of history is telling investors to bet on Treasury bonds in 2023, Bank of America says // MarketWatch on-line. 29 October. URL: https://www.marketwatch.com/story/250-years-of-history-is-telling-investors-to-bet-on-treasury-bonds-in-2023-bank-of-america-says-11666958942?mod=home-page

3 *Zweig J*. (2022). How to Make Peace With Your Stock Market Losses // The Wall Street Journal on-line. 7 October. URL: https://www.wsj.com/articles/selling-stock-in-down-market-11665153733?mod=wsjhp_columnists_pos1

4 Companies with the lowest investment credit ranking. Their average yield embraces 2018–2022.

Investments in high-yield bonds in the United States and eurozone countries (at 2.6% and 2.4%, respectively), fallen angel bonds in the United States (2.0%), broad market bonds of Chinese issuers (1.6%) and high-yield bonds of emerging stock market companies (1.0%) demonstrated the highest returns in the first two months of 2023.

Table 2

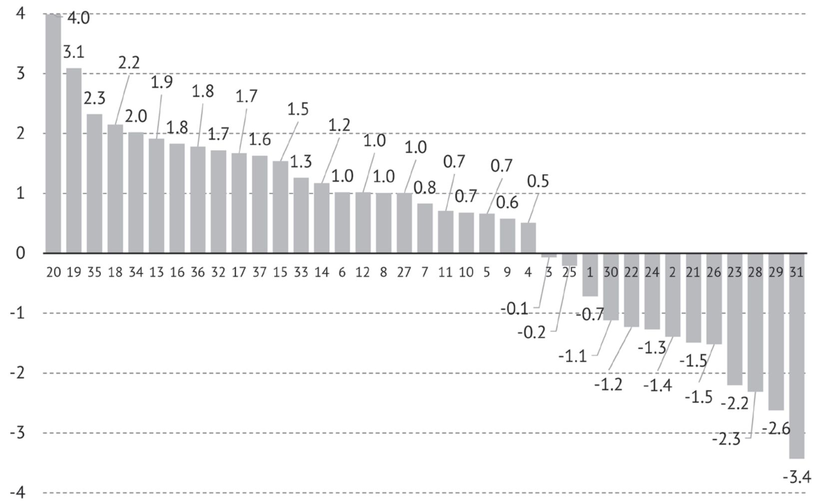
Dollar yields of popular bond portfolios in the global market from 2013–2022 (% p.a.) and from the beginning of 2023 to February 28, 2023 (%)

	Investment strategies	Benchmarks: Morningstar indices and exchange-traded funds (ETFs)	Returns, %		
			2013–2022	2022	Since the beginning of the year on February 28, 2023
Global market					
1	Broad bonds market	Morningstar Global Core Bond	-0.72	-17.31	-0.32
2	Government bonds	Morningstar Global Treasury Bond	-1.39	-18.64	-0.75
3	Government bonds indexed for inflation	Morningstar Global Treasury Inflation-Linked Securities	-0.07	-23.03	-0.10
4	Corporate bonds	Morningstar Global Corporate Bond	0.51	-17.34	0.44
5	Infrastructure bonds	Morningstar Global Bond Infrastructure	0.66	-19.51	0.76
U.S.					
6	Broad bonds market	Morningstar US Core Bond	1.02	-12.96	0.35
7	Broad bonds market with duration of 1–3 years	Morningstar US 1–3 Yr Core Bond	0.83	-3.87	0.06
8	Broad bonds market with duration of 5–10 years	Morningstar US 5–10 Yr Core Bond	1.01	-12.90	0.33
9	Government bonds	Morningstar US Treasury Bond	0.58	-12.44	0.09
10	Government bonds with duration of 1–5 years	Morningstar US 1–5 Yr Treasury Bond	0.68	-5.43	-0.17
11	Government bonds with duration of 5–10 years	Morningstar US 5–10 Yr Treasury Bond	0.71	-12.56	-0.21
12	Government bonds indexed for inflation	Morningstar US Treasury Inflation-Protected Securities	1.02	-11.86	0.46
13	ETF municipal bonds	iShares National Muni Bond ETF (MUB)	1.91	-7.35	0.14
14	Mortgage bonds	Morningstar US Asset-Backed Securities	1.17	-4.43	0.98
15	Mortgage bonds secured by commercial real estate	Morningstar US Commercial Mortgage-Backed Securities	1.54	-9.85	0.50
16	Corporate bonds	Morningstar US Corporate Bond	1.83	-15.71	0.64

	Investment strategies	Benchmarks: Morningstar indices and exchange-traded funds (ETFs)	Returns, %		
			2013–2022	2022	Since the beginning of the year on February 28, 2023
17	Corporate bonds with duration of 1–5 years	Morningstar US 1–5 Yr Corporate Bond	1.67	-6.16	0.29
18	Corporate bonds with duration of 5–10 years	Morningstar US 5–10 Yr Corporate Bond	2.15	-13.73	0.47
19	ETF fallen angels bonds	VanEck Fallen Angel High Yield Bond (FALN)	3.09*	-13.55	1.99
20	High-yield bonds	Morningstar US High-Yield Bond	3.99	-11.09	2.58
	Eurozone, UK, Japan				
21	Broad bonds market	Morningstar Eurozone Core Bond	-1.49	-22.37	-0.92
22	Government bonds	Morningstar Eurozone Treasury Bond	-1.23	-23.25	-0.95
23	Government bonds with duration of 1–3 years	Morningstar Eurozone 1–3 Yr Treasury Bond	-2.20	-10.66	-0.89
24	Government bonds with duration with duration of 5–7 years	Morningstar Eurozone 5–7 Yr Treasury Bond	-1.27	-19.44	-0.87
25	Government bonds indexed for inflation	Morningstar Eurozone Treasury Inflation-Linked Securities	-0.21	-14.74	0.53
26	Corporate bonds	Morningstar Eurozone Corporate Bond	-1.52	-19.61	-0.19
27	High-yield bonds	Morningstar Eurozone High-Yield Bond	1.01	-16.29	2.37
28	Broad bonds market	Morningstar UK Core Bond	-2.31	-31.97	0.33
29	Government bonds	Morningstar UK Gilt Bond	-2.62	-33.45	-0.12
30	Corporate bonds	Morningstar UK Corporate Bond	-1.12	-29.53	2.01
31	Government bonds	Morningstar Japan Treasury Bond	-3.43	-17.61	-2.22
	Emerging markets				
32	Broad bonds market	Morningstar Emerging Markets Composite Bond	1.72	-15.66	0.67
33	Government bonds	Morningstar Emerging Markets Sovereign Bond	1.26	-16.33	0.47
34	Corporate bonds	Morningstar Emerging Markets Corporate Bond	2.02	-15.18	0.82
35	Infrastructure bonds	Morningstar Emerging Markets Infrastructure Bond	2.32	-14.00	0..9
36	High-yield bonds	Morningstar Emerging Markets High-Yield Bond	1.78	-14.69	1.04
37	Broad bonds market of Chinese issuers	Morningstar China USD Broad Market Bond	1.63	-13.57	1.57

* on the average for 2018–2022.

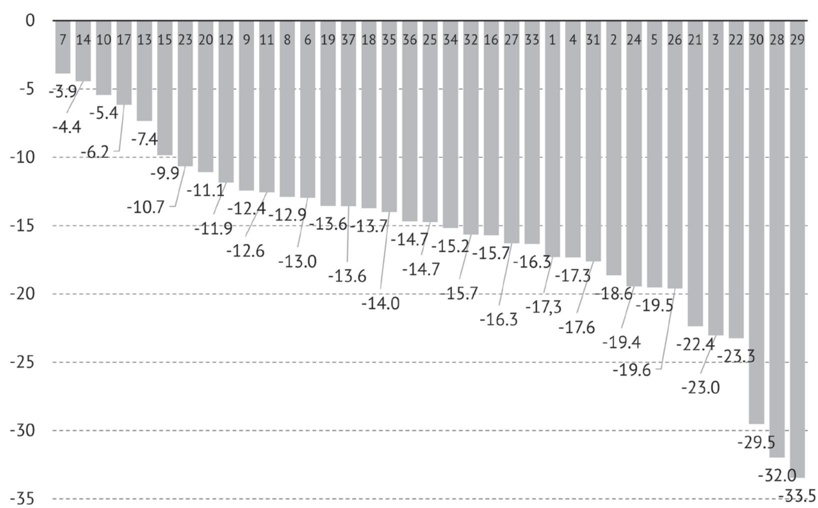
Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.



Note. Name of the investment strategy marked on the graph as a number, is shown in *Table 2* with the corresponding sequence number in column 1.

Fig. 3. Average annual nominal yield of bond portfolios in 2013—2022, % p.a.

Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.



Note. Name of the investment strategy marked on the graph as a number, is shown in *Table 2* with the corresponding sequence number in column 1.

Fig. 4. Nominal yield of bonds portfolio in 2022, % p.a.

Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.

Summarizing the changes in the global financial markets in 2022, The Economist highlights 5 main trends of the year: the end of the era of cheap money; the end of long-term growth trend of the stock market from 2009 to 2021; limited capital raising opportunities in stock markets; reduced attractiveness of investing in growth stock strategies in favor of value stocks; crisis of confidence in the unregulated cryptocurrency market.[1]

2.1.2. Sanctions and responses in the Russian financial market

In 2022, in addition to difficulties experienced by the global market, the Russian economy and financial market faced unprecedented sanctions from 49 unfriendly countries. According to Castellum.AI[2], information resource, as of February 24, 2023, about 11.500 sanctions were imposed on Russia after February 24, 2022, in addition to 2.700 other measures taken since 2014. The total number of these sanctions was 3.3 times higher than those imposed on Iran, which has been the main target of such restrictions for many years. Sanctions by unfriendly countries against Russia in the financial sphere were aimed at restricting the access of Russian organizations and individuals to the financial and banking and international payment systems of these countries and reducing foreign exchange earnings coming into Russia.

Assessment of the blocked assets of the parties to the conflict

First of all, sanctions imposed after February 24, 2022 provided for blocking the financial assets of the gold and foreign exchange reserve of the Russian Federation, as well as of individuals and organizations under respective sanctions. There is still no accurate data on the value of the assets frozen in this manner. The Wall Street Journal, citing officials' estimates, evaluates that Western authorities have frozen more than $330 bn worth of Russian assets, including about $300 bn of the Russian gold and foreign exchange reserve.[3]

The information about the value of blocked assets abroad belonging to Russian companies and individuals is less transparent. Anders Åslund, cited by The Economist, estimates the value of foreign assets of Russian individuals under sanctions at about $400 bn, of which only $50 bn has been frozen.[4] According to more updated estimates for the beginning of 2023, cited by the resource POLITICO, referring to the European Commission, the value of Russian assets frozen in the EU is 68.0 bn euros (about $65 bn), of which Belgium, the center of

1 The Economist. Five financial trends that 2022 killed. 21 December 2022. URL: https://www.economist.com/finance-and-economics/2022/12/21/five-financial-trends-that-2022-killed?utm_content=article-link-1&etear=nl_today_1&utm_campaign=a.the-economist-today&utm_medium=email.internal-newsletter.np&utm_source=salesforce-marketing-cloud&utm_term=12/22/2022&utm_id=1429525
2 URL: https://www.castellum.ai/russia-sanctions-dashboard
3 *Talley I.* (2022). U.S. Prosecutors Target Russian Assets, but Legal Hurdles Loom // The Wall Street Journal online. 24 November. URL: https://www.wsj.com/articles/u-s-prosecutors-target-russian-assets-but-legal-hurdles-loom-11669233820
4 Could seizing Russian assets help rebuild Ukraine? // The Economist. 2022. URL: https://www.economist.com/finance-and-economics/2022/06/06/could-seizing-russian-assets-help-rebuild-ukraine

the international clearing and settlement system Euroclear, accounts for 50.0 bn euros and Luxembourg with Clearstream for 5.5 bn euros.[1]

According to estimates of official representatives of the Bank of Russia, referred to by RBC[2], as of November 30, 2022, the total value of blocked assets of Russian investors amounted to Rb5.7 trillion, or $93.3bn. However, approximately 20% ($18.7bn) of the above asset value accounted for funds belonging to retail investors. It can be assumed that among these private investors prevail individuals who are not included in any sanctions lists, and that is why the formal application of any restrictions by foreign financial institutions is unreasonable.

Taking into account the mentioned data it can be assumed that the total value of the assets blocked in foreign jurisdictions belonging to Russian residents (government, business and individuals), accounted for about $393 bn in 2022.

According to responses of the Russian Federation, assets of non-residents invested in shares and corporate bonds of Russian companies as well as federal loan bonds (OFZ) and Russian Eurobonds were blocked in Russian financial institutions.

According to our estimates, the total value of blocked assets belonging to non-residents in February 2022 amounted to approximately $192bn, including $86bn invested in equity financial instruments of Russian companies, $50bn in corporate Eurobonds, $37bn in OFZ and $19bn in government Eurobonds of the Russian Federation.[3] This was more than three times higher than the scale of restrictions on transactions with the assets of non-residents after the default of the government short-term obligations (GKO) in 1998, when about $60 bn were blocked for non-residents' investment in the securities of Russian issuers.[4]

Basic sanctions by unfriendly countries

After February 24, 2022, basic sanctions by unfriendly states imposed in the sphere of financial markets included the following measures:

1. Blocking and foreclosure of Russian assets. Freezing of the Bank of Russia's foreign currency reserves in the banks of G7 countries to the amount of about $300 bn. Later, the practice of seizing assets was extended to the assets of individuals on the sanctions lists. A permanent working group "Russian Elites, Proxies and Oligarchs" (REPO) was set up from representatives of G7 countries to monitor and seize assets of sanctioned organizations and individuals.

In February 2023, it was announced that the EU Committee of Permanent Representatives (Coreper) would establish a special task force on the use of frozen assets in the EU to rebuild Ukraine[5], which can spread not only to the

1 URL: https://www.castellum.ai/russia-sanctions-dashboard
2 URL: https://quote.ru/news/article/63d8c5db9a79475d8f7a1497
3 As of February 2023, the value of blocked investments of non-residents dropped significantly due to revaluation of their value by their owners and use of various opportunities to get out of these assets.
4 *Smith E.* (2022). Russia thinks it has found a way around Washington's dollar bond payment blockade // CNBC on-line. URL: https://www.cnbc.com/2022/06/06/russia-thinks-its-found-a-way-around-us-dollar-bond-payment-blockade.html
5 URL: https://www.reuters.com/world/europe/eu-seeks-use-frozen-russian-funds-rebuild-ukraine-2023-02-14/

frozen assets of the foreign exchange reserve of Russia, but also to the assets of sanctioned companies and individuals. In the U.S. the courts began to make decisions on the recovery of seized property of individuals under sanctions in favor of Ukraine based on lawsuits by authorized executive bodies.[1]

The U.S. ban on transactions with the Bank of Russia, the Ministry of Finance of Russia and the National Welfare Fund, introduction of sanctions against the Russian Direct Investment Fund (RDIF) and its CEO.

2. Sanctions against key Russian financial institutions. The list of major Russian banks by US Treasury Department's Office of Foreign Assets Control (OFAC) SDN (VTB, Otkritie Financial Corporation, Sovcombank, Promsvyazbank, Novikombank, Sber, Alfa Bank, Rossiya Bank, SMP Bank, Transcapitalbank, Investtorgbank, Moscow Industrial Bank, Far East Bank, Rosbank, etc.) implies blocking of banks' assets in US jurisdictions and prohibits any dollar transactions and any transactions with US banking counterparties.

As of February 24, 2023, the U.S. added a number of Russian second-tier banks to its SDN sanctions list, including Saint Petersburg Bank, Zenit Bank, Uralsib Bank, and MTS Bank, MKB, Lanta Bank, Metallinvestbank, Levoberezhny Bank, Primorye Bank, SDM Bank, Urals Bank for Reconstruction and Development.[2]

The European Union also imposed restrictive sanctions on Russian banks similar to the U.S. sanctions. Their application resulted in exclusion of 10 major Russian banks from SWIFT, including VTB, Rossiya, Otkrytie, Novikombank, Promsvyazbank, Sovcombank, Sberbank, Rosselkhozbank and MKB. On February 25, 2023, Alfa Bank, Rosbank and Tinkoff Bank were added to this list of banks subject to EC sanctions. Thus, by early March 2023, virtually all Russian systemically important banks, except subsidiaries of two European banks, Raiffeisen and UniCredit Bank, were under strict restrictive sanctions of the United States and the EC, as well as a number of other developed countries. In this respect, these two banks are increasingly coming under pressure from foreign financial regulators aimed at reducing business and leaving Russia.[3]

3. Ban on cash payments and investments from Russia. In March 2022, Visa and Mastercard suspended their activities in Russia, and card transactions of these payment systems are no longer available outside Russia. However, Visa and Mastercard cards previously issued by Russian banks are still serviced by the National Payment Card System in Russia without interruption**.**

EU banks are not allowed to take deposits from Russian citizens and companies exceeding Euro100,000, sell securities denominated in euros to clients from Russia, provide services for the sale of securities issued after April 12, 2022, and conduct listing of shares of any Russian state companies (with more than 50% government stake) on European stock exchanges.

1 *L.Uvarchev*. (2023). For the first time, the U.S. announced the transfer of assets confiscated from Russians to Ukraine. // Kommersant, February 4. URL:https://www.kommersant.ru/doc/5810341

2 *N.Zarutskaya*. (2023). Why 11 Russian banks are under sanctions // Vedomosti. February 24. URL: https://www.vedomosti.ru/finance/articles/2023/02/25/964270-11-bankov?from=newsline

3 *A.Stolyarov*. (2023). UniCredit and Raiffeisen become deadlocked //Expert. No.9. February 27 – March 5. URL: https://expert.ru/expert/2023/09/unicredit-i-raiffeisen-zashli-v-tupik/

4. Restrictions on borrowing by Russian organizations on global markets. The imposition of sectoral sanctions implying restrictions for foreign investors on all transactions, including financing and other transactions involving new debt with a maturity of more than 14 days and new shares for major Russian companies, including Gazprombank, Rosselkhozbank, Gazprom, Gazprom Neft, Transneft, Rostelecom, Russian Railways, etc. The U.S. nationals were prohibited from making new investments in Russia's energy sector and from financing foreign companies making such investments.

A ban on borrowing in the U.S. and European markets for the largest Russian companies with state participation, restrictions on Russian companies to settle in dollars, euros, pounds and yen, and a ban on the supply of dollar and euro banknotes to Russia.

A ban imposed by the EC on financial evaluation of Russia and Russian companies by European rating agencies resulted in withdrawal of credit ratings of Russia and many Russian companies by major international rating agencies Fitch, Moody's and S&P, making it impossible for global institutional investors to invest in the securities of these issuers. At the same time, Russian securities were excluded from leading international indices of such stock index administrators as MSCI, S&P, Dow Jones Indices, FTSE Russell, etc., as well as bond indices supported by JPMorgan, Bloomberg and others.

On 3 June 2022, the European Union imposed sanctions against the National Settlement Depository (NSD), the largest securities depository in Russia. The above sanctions implied a complete freezing of NSD's assets in the EU countries and a ban on transactions and operations with NSD by residents of those countries. This meant that NSD's clients, even if they were not on any of the sanctions lists, were unable to conduct transactions with the securities that NSD held with Euroclear and Clearstream or receive any income or payments on those securities.

The de facto restriction was imposed even earlier, in March 2022, when the European securities depositories Euroclear and Clearstream on their own initiative have suspended transactions in NSD's accounts with those international settlement and clearing organizations.[1]

Blocking of some funds from the foreign currency reserve of the Bank of Russia and the ban on Russian companies making settlements in dollars and euros on May 25, 2022 resulted in a situation where the Russian Ministry of Finance, having foreign currency resources at its disposal, was not able to transfer them through NSD to Euroclear to pay for the government Eurobonds maturing in 2027 and 2047 in the amount of $100 mn. This issue could not be resolved within a month resulting in a formal declaration of default on Russia's foreign debt by international rating

1 At the end of December 2022, the governments of Luxembourg and Belgium decided to temporarily unblock NSD's accounts with Euroclear and Clearstream until January 7, 2023, so that eligible NDC clients not subject to sanctions could sell their foreign securities. However, in reality the inaccuracy in the interpretation of these legal norms and unrealistically tight deadlines for their implementation prevented Russian market participants from returning at least some of these assets to their possession. At the beginning of March 2023, a number of major Russian brokers sent the documents necessary to unblock client assets to the financial authorities of Belgium and Luxembourg, but these measures have not yet brought any significant positive results for Russian private investors.

agencies.[1] Even though the Russian Federation did not officially recognize these events as defaults, and foreign bondholders refrained from applying any formal legal procedures to enforce these obligations, this resulted in the termination of the credit default swaps (CDS) market for bonds of Russian issuers in June 2022 and became the basis for significant discounting of the value of bonds and shares of Russian issuers in portfolios of international institutional investors.

Russia's participation in the Financial Action Task Force (FATF) was suspended as of February 24, 2023.

5. Restrictions on the receipt of foreign currency proceeds in the Russian Federation. The U.S., EU, UK, Japan and a number of other countries, imposed restrictions on gold transactions involving sanctioned Russian government agencies and financial institutions. In addition, the EU imposed a ban on European companies to service cryptocurrencies of Russians, as well as restrictions on the provision of financial services, information technology consulting and some other business services to Russia.

At the end of 2022 and in Q1 2023, the G7 countries introduced measures to establish a price ceiling on oil, gas and petroleum products exported by Russia, aimed at reducing foreign exchange earnings flowing into the country. Among other things, these measures posed significant risks to the stability of the ruble exchange rate and the operating environment for financial institutions.

Russia's response

Despite the severity, the mentioned sanctions did not result in a crisis of the Russian financial system due to expedient response taken by the government of the Russian Federation and the Bank of Russia. The principal measures to stabilize the financial system were as follows.[2]

1. Maintaining domestic financial stability. With a view to prevent an outflow of funds from bank deposits and maintain their price stability, on February 28, 2022 the Bank of Russia decided to temporarily raise its key rate from 9.5% to 20%. As risks to financial stability and inflationary expectations decreased during the year, the key rate decreased and reached 7.5% at the end of the year.

To prevent a liquidity crisis in the banking system after February 24, 2022, the Bank of Russia increased the volume of refinancing of banks, strengthened the flexibility of instruments for bank borrowing and reduced the collateral requirements for centralized loans. During the acute phase of low liquidity, the daily volume of bank refinancing reached Rb 9.6 trillion. Additional cash was released from banks as a result of a temporary reduction of the mandatory reserve requirements for all types of reserve liabilities to 2% and growth in the averaging ratio for banks having universal and basic licenses to 0.9.

1 The current situation related to a number of obligations under Eurobonds not fulfilled for technical reasons beyond the control of the Russian Federation can be called a "quasi-default" when in terms of domestic law, obligations to non-residents have been fulfilled (see more about this later in this section), while owners of these bonds refrain from bringing any claims against the issuer of these bonds.

2 Detailed list of measures taken by the Bank of Russia, ref.: URL: https://www.cbr.ru/Content/Document/File/134865/plan_limit.pdf

After February 24, 2022 trading in shares and bonds was temporarily suspended and short sales prohibited. On March 21, trading in OFZ was resumed with trading in shares from March 24 and in corporate bonds on March 26. As of the end of 2022, all the sections of the stock market at Moscow Exchange were functioning as usual.

To ensure balanced liquidity on the securities market and to prevent excessive volatility, the Bank of Russia decided to buy individual issues of OFZs from March 21, 2022 in the amounts required to limit the risks to financial stability.

To maintain the stability of the ruble exchange rate, mandatory sale and repatriation of foreign exchange earnings by exporters were introduced, followed by relaxing of these requirements as the ruble rate stabilized.[1] Since May 24, 2022, for residents - participants of foreign economic activity the size of compulsory sale of foreign currency was reduced from 80 to 50% of the proceeds due to residents under all foreign trade contracts.

At the same time, restrictions were imposed on transactions using foreign currency: on money transfers abroad, on withdrawals of cash currency from foreign currency deposits and on sale of cash currency by banks. As the situation was stabilizing, some relaxations were introduced, for example, limits on money transfers were increased and banks received more options to sell foreign currency.[2]

2. Measures to unblock assets of Russian residents. A key focus of the struggle against sanctions was the efforts of financial regulators and their supervised financial organizations to unfreeze the financial assets of Russian residents blocked in foreign jurisdictions, as well as to create legal and organizational conditions for Russian issuers to fulfill their obligations under securities issued in foreign jurisdictions, primarily Eurobonds and depositary receipts.

However, the Bank of Russia stated from the very beginning that it would not buy back blocked foreign assets from Russian companies and individuals.[3] In the context of high geopolitical risks, this measure was justified, but in the future, it will probably be necessary to introduce mechanisms of insurance of client assets, especially investments of unqualified investors, against operational risks of financial intermediaries, including risks of asset blocking in superior depositories.

3. Freezing assets of non-residents. First of all, in response to the blocking of Russian investors' assets, the government and the Bank of Russia promptly imposed restrictions on non-residents' investments in the securities of Russian issuers. To prevent the outflow of foreign portfolio investments, transactions with residents of unfriendly countries were restricted by prohibiting brokers to execute instructions from non-residents to sell securities of Russian issuers. Starting from September 2022, these restrictions were abolished for non-residents from friendly countries.

4. Measures to ensure fulfillment of obligations on securities of Russian issuers and protect the rights of Russian investors. In April 2022, a decision was made to delist

1 Executive Order of the President of the Russian Federation of 28.02.2022 No.79 "On application of special economic measures due to unfriendly actions by U.S. and adjoined foreign countries and international organizations.
2 URL: http://www.cbr.ru/press/event/?id=14059
3 Main trends of RF financial market development for 2023 and for 2024 and 2025 // Bank of Russia. P. 39, 2022. URL: https://www.cbr.ru/Content/Document/File/143773/onfr_2023-2025.pdf

depository receipts of Russian companies from foreign stock exchanges with subsequent conversion into domestic securities, as well as a ban on placement and circulation of securities of Russian issuers in terms of depository receipts on foreign stock exchanges.[1] Later, the procedure of automatic conversion of the mentioned receipts was introduced to overcome difficulties for investors in conversion of depository receipts into shares of the corresponding companies. It envisaged that holders of receipts, whose rights were accounted for by foreign depositories, could submit an application until October 11, 2022 for conversion to the Russian depository, a depo for shares on which receipts were issued. During automatic conversion, all Russian depositories, which accounted for the receipts, debited them from the accounts of holders and instead credited the shares of Russian issuers. No action was required from holders of receipts, regardless of whether they were residents or non-residents.

Amid the risk of defaults on Eurobonds of the Russian Federation and a number of corporate issuers for reasons beyond their control due to sanctions restrictions on transfers of funds in favor of owners of these bonds through foreign banks, comprehensive legislative measures were taken to ensure the performance of these obligations through Russian financial institutions.

The Executive Order of the President of the Russian Federation No. 303 of 23 May 2022 provided for introduction of a temporary procedure for Eurobond payments, whereby obligations under Eurobonds of the Russian Federation are considered discharged if they are discharged in rubles in an amount equivalent to the value of obligations in foreign currency at the exchange rate on the date of their transfer to the National Settlement Depository (NSD), through which they will be communicated to creditors. These requirements were timely fulfilled by the Ministry of Finance of Russia.

To protect the rights of private investors in the context of asset blocking, countermeasures have been taken to ensure reducing dependence of the Russian market on foreign infrastructure.

In particular, it was envisaged to make payments of income on securities of Russian companies issued in foreign jurisdictions through the Russian infrastructure, as well as the performance of obligations on Eurobonds of Russian issuers.[2] Finally, Russian holders of Eurobonds were able to receive coupon and other payments from the issuers of these bonds in rubles through Russian financial institutions.

A special procedure provides for the performance of obligations by Russian issuers to non-residents using "C"-type accounts with crediting and storing funds in rubles.[3] These accounts could be opened in the name of non-residents,

1 Federal law of 16.04.2022 No.114-FZ "On amendments to Federal law "On Joint Stock Companies and crtain legislative acts of the Russian Federation."

2 Executive Order of the President of the Russian Federation of 22.06.2022 No.394 "On temporary procedure of fulfillment of government debt obligations of the Russian Federation to residents and foreign creditors, expressed in government securities with their nominal value specified in foreign currency."

3 Executive Order of the President of the Russian Federation of 05.03.2022 No.95 "On temporary procedure for fulfilling obligations to some foreign investors."

recipients of payments on securities based on applications of their issuers without consent of these non-residents. Conversion of these funds into foreign currency can be done only with the permission of the Russian authorities.

Initially, the C-type accounts were opened with NSD's settlement depository to settle securities obligations. However, the Board of Directors of the Bank of Russia on December 29, 2022[1] decided on the centralized transfer of all the "C"-type bank accounts where non-residents' frozen funds were stored, to the Deposit Insurance Agency (DIA), fully controlled by the Bank of Russia. This measure could be related to the ideas of creating a special compensation fund on the basis of DIA intended for payments to Russian investors whose assets have been blocked because of the sanctions imposed on NSD. It was assumed that the source of setting up of this fund could be the income received from the investment of the non-residents' funds, blocked in bank accounts of type "C".

However, according to the Bank of Russia Governor, so far work on creation of such a fund has been suspended until clarity comes with the EU decision to block funds of Russian residents in the NSD.[2]

On a regular basis, the amount of funds held in these accounts is not disclosed by DIA, but according to the most current data of the Bank of Russia as of November 11, 2022, it was Rb280 bn or $4.5 bn.[3]

To restructure Eurobond debts, Russian issuers received the option of issuing so-called substitute bonds, representing bonds issued under Russian law and traded within the Russian infrastructure, which the investor can receive in exchange for the issuer's Eurobonds.[4] The parameters of the replacing bonds should have corresponded to parameters of the replaced issue of Eurobonds in terms of maturity, the amount of income, the calendar of coupon payments and face value. At the same time, all payments on these bonds are made in rubles at the current exchange rate. The issuer can maintain or adjust other terms of the issue at his sole discretion. Substituting bonds not demanded in the process of exchange for Eurobonds can be sold to other investors. The information letter of the Bank of Russia No. IN-018-34/154 of 30.12.2022 recommended the participants of the financial market to use the mechanism of substituting bonds to fulfill their obligations under Eurobonds.[5] Later, Elvira Nabiullina, Bank of Russia Governor, spoke on the results of the Bank Board of Directors meeting held on February 10, 2023, and declared compulsory specified exchange for all issuers of corporate Eurobonds.[6] The main challenge hindering the issuance of replacement

1 URL: http://www.cbr.ru/about_br/dir/rsd_2022-12-29_31_02/
2 Debates on creation of a compensation fund for investors suspended on February 10 // Frank Media. 2023. URL: https://frankrg.com/112079
3 URL: https://www.interfax.ru/business/872120
4 The issue of replacement bonds is based on the Federal law of 14.07.2022 No. 292-FZ "On Amending Certain Legislative Acts of the Russian Federation, repealing para 6, Part 1of Article 7 of the RF Law" On State Secrets ", suspending certain provisions of legislative acts of the Russian Federation and on establishment of specific regulations on corporate relations in 2022 and 2023" and Executive Order of the President of the Russian Federation of 5 July 2022 No.430 "On repatriation of foreign currency and currency of the Russian Federation by residents-participants of foreign economic activity."
5 URL: https://www.cbr.ru/Crosscut/LawActs/File/6114
6 URL: https://frankrg.com/112060

bonds is that issuers and holders of Eurobonds have different estimates of their current value, whereby they should be exchanged for new obligations of issuers.

To prevent the expansion of blocked assets of retail investors amid realized depository risks, transactions in foreign financial instruments were temporarily included in the list available only to qualified investors.[1] Thus, starting from October 1, 2022, sale of securities of issuers from unfriendly states to unqualified investors was restricted, and from January 1, 2023 it was completely suspended.

5. Measures to support sustainability of banks and institutional investors. A wide range of regulatory relaxations for credit institutions was introduced to preserve the potential of lending to the economy in the changed conditions. In particular, an option was provided preventing worsening the assessment of the borrower's financial position, debt service quality, quality category of collateral, quality category of loans, other assets and contingent credit liabilities, as well as an option of applying lower risk ratios on credit claims to certain types of borrowers.

To maintain financial stability of financial organizations under increased volatility in the value of financial instruments, the Bank of Russia widely used the practice of temporary relaxation of prudential supervision requirements.

For example, NGPF and professional participants of the securities market were allowed to use fair value of financial instruments and foreign exchange rates as of February 18, 2022, and, the cost of acquiring if financial instruments were acquired between February 18 and December 31, 2022.[2]

To minimize the impacts of sanctions, it was decided to ban credit institutions from disclosing certain information. NFEs received the respective right. Issuers of securities were allowed to independently decide on the amount of information to be closed, up to and including refusal to disclose documents and statements.[3]

This resulted in a suspension of publication of their statements by a large number of issuers on their own websites and on the site of Interfax - Corporate Information Disclosure Center[4], where issuers of securities are required to disclose their financial statements and other information.

For example, PJSC Sberbank has not only suspended the publication of statements, but also removed old financial statements from its website[5], and the Corporate Information Disclosure Center portal has completely disappeared from the database containing statements.[6] PJSC Gazprom limited the publication of statements for Q4 2021 and kept the history of financial statements.[7] A search of

1 URL: http://www.cbr.ru/press/event/?id=14135
2 The Bank of Russia information letter of 25.02.2022 No.IN-018-53/16: URL: http://www.cbr.ru/Crosscut/LawActs/File/5801
3 RF Government Decree of 12.03.2022 No.351 " On specifics of disclosure and provision in 2022 of information to be disclosed and provided in accordance with the requirements of the Federal Law "On Joint-Stock Companies" and the Federal Law "On the Securities Market" and specifics of disclosure of insider information in accordance with the requirements of the Federal Law "On Counteraction of Illegal Use of Insider Information and Market Manipulation and on Amendments to Some Legislative Acts of the Russian Federation."
4 URL: https://www.e-disclosure.ru/#
5 URL: https://www.sberbank.com/ru/investor-relations/t_disclosure
6 URL: https://www.e-disclosure.ru/portal/company.aspx?id=3043
7 URL: https://www.e-disclosure.ru/portal/files.aspx?id=934&type=4

reports on the official disclosure portal[1], where all issuers are required to publish reports for investors, shows that there were 7,316 news of any annual report for 2021 (of which 7,276 for January-November 2021), and only 3,455 for 2022. It is worth specifying that these include the publication of not only consolidated statements, but also according to RAS standards. However, issuers of securities, as a rule, issue reports according to IFRS standards. The number of reports on the publication of annual or quarterly consolidated statements fell from 960 in 2021 (957 as of January-November) to 82 in 2022, which more clearly illustrates the reporting situation of securities issuers.

According to our estimates based on information disclosed by Cbonds resource, in the real sector only 284 companies out of 337 that disclosed their annual accounts according to IFRS for 2020, provided data for 2021 (a 16% drop), and for H1 2022 only 201 companies (a further 29% drop). Thus, 40.3% companies of the real sector have exercised their right to refuse disclosing reporting. It is worth noting that this list includes companies that are foreign issuers doing business in Russia: X5 Retail Group N.V., Yandex N.V., VK Company Ltd and others (a total of 21 companies out of 201 that disclosed statements for H1 2022).

A sharper decline in information transparency is observed in the financial sector. Only 91 out of 288 financial institutions (the sample includes banks, insurance companies, non-state pension funds and other financial companies), known for their reporting data for 2020, disclosed information by the end of 2021 (a 68% drop) and 22 by the end of 2022 (another 76% drop). Thus, 92.4% of financial organizations took advantage of their right to refuse disclosing information compared to 2020.

2.1.3. Yield and risks of Russian securities

Due to professional response to the unprecedented financial sanctions by the Russian Government and the Bank of Russia, the domestic financial and currency markets have held up and maintained their financial stability. Nevertheless, in 2022, the Russian financial market was influenced by two strong negative factors: the cyclical decline of the global financial market (see above) and the sanctions pressure, causing a review of the attitudes of major foreign investors from unfriendly countries to invest in the securities of Russian issuers.

According to Bank of Russia estimates[2], main channels of the global economy and financial markets impact on the domestic financial market are current account transactions related to the receipt of foreign exchange earnings, potential contamination effects of the friendly countries markets, imbalance in banking and other financial intermediaries' currency positions and shortage of foreign exchange liquidity, as well as risks of settlements and payments. The stock-market channel of global risks implies a negative impact on the domestic market lacking demand for securities from non-residents and the disappointment in the market by domestic private investors.

1 URL: https://www.e-disclosure.ru/poisk-po-soobshheniyam
2 Financial stability survey. Q2-3 2022. M.: Bank of Russia, 2022. URL: https://www.cbr.ru/analytics/finstab/ofs/2_3_q_2022/

In the context of termination of the circulation of equity and debt securities of Russian issuers on global markets and restrictions on the receipt of income and other payments, the introduction of a ban by the authorities on transactions with entities and sanctioned individuals and the isolation of domestic Russian financial market for non-residents from unfriendly countries, the value of shares and bonds of Russian issuers in the eyes of global investors became significantly more conservative compared with the cost of similar financial instruments in the territory of the Russian Federation.

According to analysts at MSCI dealing with management of the international stock indices, from the perspective of the credit default swaps (CDS) market, shares of major Russian issuers, i.e. Gazprom, Sberbank, Rosneft and Lukoil, have zero value due to high probability of default on their debt obligations[1, 2], no matter what the companies are conducting real activities, and their shares are still listed in rubles on the Moscow Stock Exchange.

As *Table 3* and *Fig. 5* show, portfolios of Russian companies showed the worst returns among all given investment strategies in emerging stock markets during the adverse 2022 for the whole global market. At the same time, the return on portfolios of globally branded exchange-traded funds (ETFs) for shares of Russian companies was significantly lower than the return on the RTS Index portfolio for shares on the Moscow Exchange.

By the end of 2022, exchange-traded funds iShares MSCI Russia ETF, VanEck Russia ETF and VanEck Russia Small-Cap ETF showed record losses of -81.1%, -78.8% and -66.3% p.a., respectively.[3] Thus, the return on the RTS and RTS domestic indices for the same year was only -39.2% and -32.9% p.a. At the same time, the exchange-traded fund for a broad portfolio of emerging market companies, iShares Core MSCI Emerging Markets ETF, in the same year showed a negative return of only -20.0% p.a., i.e. the value of the same Russian PJSC shares was almost twice lower in portfolios of global exchange-traded funds as compared with the RTS index portfolio.[4] A specified discount in the value of shares of Russian companies

1 *Hanis T., Sass Z.* (2022). Are Russian Stocks Worthless? // MSCI Research. 26 May. URL: https://www.msci.com/www/blog-posts/are-russian-stocks-worthless-/03202146429

2 In contrast to the Ministry of Finance, Russian companies have greater opportunities to repay debts on Eurobonds at the expense of foreign currency proceeds left in foreign banks, which perform functions of paying agents. However, the repayment of debt on Eurobonds under the above scheme results in a situation that due to sanctions, Russian owners of corporate Eurobonds cannot receive payments owed to them in foreign currency on account of coupon payments and repayment of the cost of bonds.

3 In 2022, a number of ETFs specialized in investing in Russian stocks have been liquidated (for example, Direxion Daily Russia Bull 2X Shares RUSL) or are in the process of liquidation (iShares MSCI Russia ETF ERUS).

4 Similarly, the value of Russian shares in the portfolios of the largest pension global funds in 2022 declined significantly more than the value of the RTS index portfolio — the total return. For example, value of the Calpers pension fund's investments in Russian assets declined from $765 mn at the end of 2021 to $194 mn as of June 2022, however, the decline was not due to the sale of some assets, but only because their market value fell by 74.6%. Ref.: CNBC (2022). Russia divestment promises by U.S. states go largely unfulfilled // CNBC on-line. 27 August. URL: https://www.cnbc.com/2022/08/27/russia-divestment-promises-by-us-states-go-largely-unfulfilled-.html. Similarly, value of Russian shares in the Norwegian State Pension Fund's portfolio, according to the Norges bank investment management annual report, dropped due to their revaluation as illiquid assets from $3.4 bn in 2021 to $0.4 bn at the end of June 2022, or by 87.9%. Ref.: Norges

in the future may act as a deterrent to investment in these shares in the domestic financial market as well.

Table 3

Returns in dollars of equity indices and exchange-traded funds (ETFs) investing in emerging market equities from 2013–2022 (% p.a.) and from the beginning of 2023 as per February 28, 2023 (%)

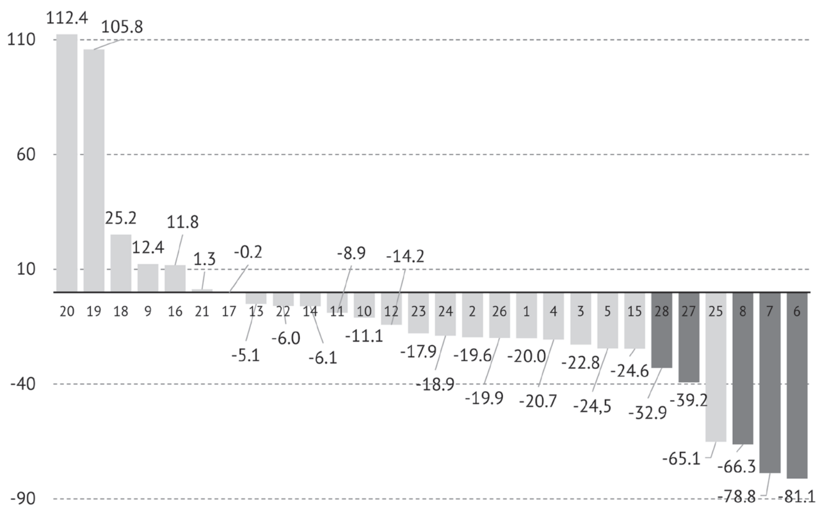
	Investment strategies	Benchmarks: Morningstar and exchange-traded funds (ETFs)	Ticker	Returns, % p.a.		
				2013–2022	2022	Since the beginning of the year on February 28, 2023
1	ETFbroad market	iShares Core MSCI Emerging Markets ETF	IEMG	1.36	-19.97	1.39
2	Developing countries except China	iShares MSCI Emerging Mkts ex China ETF	EMXC	-0.16*	-19.56	1.20
3	China	iShares MSCI China ETF	MCHI	1.61	-22.76	0.76
4	China – major companies	iShares China Large-Cap ETF	FXI	-1.05	-20.66	-1.20
5	China – small companies	iShares MSCI China Small-Cap ETF	ECNS	2.13	-24.5	2.84
6	Russia	iShares MSCI Russia ETF	ERUS	-12.72	-81.11	0.00
7	Russia	VanEck Russia ETF	RSX	-12.28	-78.81	0.00
8	Russia – small companies	VanEck Russia Small-Cap ETF	RSXJ	-10.25	-66.28	0.00
9	Brazil	iShares MSCI Brazil ETF	EWZ	-2.70	12.35	-2.50
10	Brazil – small companies	iShares MSCI Brazil Small-Cap	EWZS	-5.34	-11.13	-2.78
11	India	iShares MSCI India ETF	INDA	6.14	-8.94	-7.04
12	India – small companies	iShares MSCI India Small-Cap ETF	SMIN	8.52	-14.23	-3.30
13	South Africa	iShares MSCI South Africa ETF	EZA	-1.18	-5.12	-3.37
14	Saudi Arabia	iShares MSCI Saudi Arabia	KSA	9.74*	-6.07	-3.82
15	Poland	iShares MSCI Poland ETF	EPOL	-4.18	-24.62	2.01
16	Argentina	Global X MSCI Argentina ETF	ARGT	8.10	11.81	16.93
17	Indonesia	iShares MSCI Indonesia ETF	EIDO	-1.37	-0.15	2.32
18	Chile	iShares MSCI Chile ETF	ECH	-5.68	25.17	3.77
19	Turkey	iShares MSCI Turkey ETF	TUR	-3.27	105.81	-4.11

bank Investment management. Government Pension Fund Global. Half-year report 2022. URL: https://www.nbim.no/contentassets/e49be8b7b9764b929bcdd21f4176f2bb/gpfg-half-year-report_2022.pdf

	Investment strategies	Benchmarks: Morningstar and exchange-traded funds (ETFs)	Ticker	Returns, % p.a.		
				2013–2022	2022	Since the beginning of the year on February 28, 2023
20	Turkey	iShares MSCI Turkey ETF USD Dist	ITKY	-2.45	112.39	-4.70
21	Mexico	iShares MSCI Mexico ETF	EWW	-1.38	1.26	16.56
22	Malaysia	iShares MSCI Malaysia ETF	EWM	-2.85	-5.98	-4.82
23	Broad market index	Morningstar Emerging Markets	Index 1	2.53	-17.93	0.84
24	BRICS	Morningstar BRIC	Index 2	2.35	-18.92	-2.07
25	Developing countries in Europe	Morningstar Emerging Markets Europe	Index 3	-8.02	-65.06	3.68
26	Dividend shares	Morningstar Emerging Markets Dividend Yield Focus	Index 4	1.05	-19.88	2.14
27	Russia	RTS index	Index 5	-4.4	-39.2	-2.51
28	Russia	RTS index – total return	Index 6	1.4	-32.9	-2.24

* on the average for 2018–2022.

Source: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.



Note. Name of the investment strategy marked on the graph as a number, is shown in *Table 3* with the corresponding sequence number in column 1.

Fig. 5. Nominal return of popular exchange-traded funds (ETFs) investing in emerging market stocks in 2022, % p.a.

Sources: own calculations based on statistics of the Morningstar information resource and The Wall Street Journal statistics.

Interestingly, in 2022, the stock indices of some countries with a less stable financial system than in Russia in terms of exchange rate volatility, interest rates and inflation, showed the highest returns among the developing countries. The highest returns for the year were earned by exchange-traded funds investing in Turkish stocks: iShares MSCI Turkey ETF USD Dist and iShares MSCI Turkey ETF a t 112.4% and 105.8% p.a., respectively. They were followed by Chilean exchange-traded funds (iShares MSCI Chile ETF), major Brazilian (iShares MSCI Brazil ETF) and Argentine companies (Global X MSCI Argentina ETF) with returns 25.2%. 12.4% and 11.8% p.a. The phenomenon of high returns in the Turkish stock market can be explained by the specific monetary policy of the Turkish authorities, when amid 80% inflation, the central bank regularly reduced centralized interest rates encouraging domestic investors to buy shares of local companies as a tool to protect their savings from inflation. Growth of the equity bubble through the cheap money strategy poses high risks to financial stability in the said financial market. High returns on equities in Argentina are also due to these assets used by domestic investors as a hedge against high inflation of 98.4% in 2022.

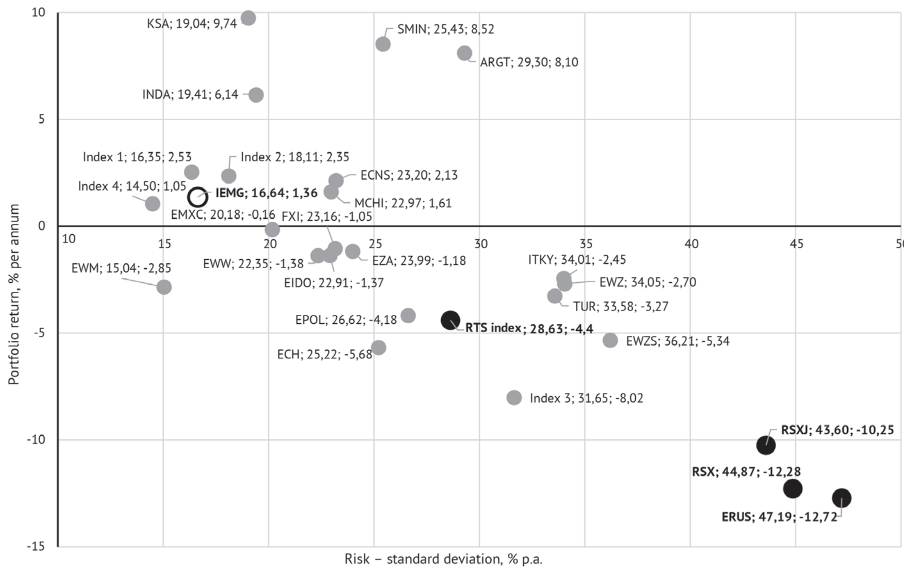
However, unlike Turkey, Argentina's current central bank rate is high at 75% per year, aimed at curbing inflation. The most attractive market for investors in 2022 under consideration was Brazil's equity market, where a moderate inflation rate of 5.8% per year in December 2022 was accompanied by a high central bank interest rate of 13.75%. Positive returns on Brazilian company stock indices in local currency and in dollars are largely due to the confidence of local and global investors in the macroeconomic stability of this country.

In January-February 2023, the RTS Index - Total Return with a year-to-date return of -2.24% declined less than the value of stock portfolios from Malaysia, Turkey, India, Poland, Saudi Arabia and Brazil, but lost to the broader iShares Core MSCI Emerging Markets ETF portfolio, which gained 1.4% in value.

All three exchange-traded equity funds of Russian companies stopped disclosing their returns in 2023 preparing to terminate their activities.

On the 10-year time horizon from 2013 to 2022, portfolios of exchange-traded equity funds of Russian companies were the lowest-yielding and the riskiest according to the standard deviation of their returns (*Table 3*, *Fig. 6*). The average annual return and risk values of those portfolios were -12.7% and 47.2% for the iShares MSCI Russia ETF, -12.3% and 44.9% for the VanEck Russia ETF, and -10.2% and 43.6% for the VanEck Russia Small-Cap ETF. The average annual return on the RTS Index was -4.4% and the risk indicator was 28.6%. Consequently, over long time horizons the value of the most popular shares of Russian issuers among investors of global investment funds was significantly lower and the volatility risks higher as compared with the parameters of value and volatility of the above shares on the domestic stock market.

At the same time, broad market index of the developing countries iShares Core MSCI Emerging Markets ETF, in contrast to all Russian PJSC portfolios under review, posted a positive average annual return of 1.4% over the same time period, while its average annual risk parameter of 16.4% was 41.9% lower than that of



Note. Name of exchange-traded funds corresponding to tickers on a chart, ref. *Table 3*.

Fig. 6. Average annual nominal returns and risks of popular exchange-traded funds (ETFs) investing in emerging market equities, 2013—2022, % p.a.

Source: own calculations based on statistics of Morningstar information resource.

the RTS Index portfolio and 62.9% lower than that of VanEck Russia ETF, once the largest stock fund of Russian companies in the global market.

It was possible to maintain financial stability and prevent the devaluation of the ruble exchange rate on the domestic stock and bond market, thanks largely to the efforts of the RF Government and the Bank of Russia. The exchange rate stability in 2022 was also facilitated by a favorable combination of external conditions, namely relatively high prices and the ongoing, despite sanctions, demand for oil, gas, coal, grain, chemical fertilizers and some other goods exported by Russian companies, with moderate demand for imported goods and services.

Financial regulators managed to maintain confidence of domestic investors in deposits in the banking system and investments in stocks and bonds. All segments of the domestic financial market continued to function in full. With a relatively stable ruble exchange rate and maintaining its moderate convertibility, the ruble yield on bank deposits, issues of government bonds and bonds of major corporate issuers remains acceptable for different categories of domestic investors.

Restrictions and geopolitical risks of 2022 impacted most significantly on the liquidity of the domestic exchange market of financial instruments due to the withdrawal of foreign investors from unfriendly countries and growth of conservatism of private investors with regard to investments in risky assets. In 2022, the average volume of secondary trading in shares, depositary receipts and units of funds at the Moscow Exchange (ME) dropped by 41.3% compared to 2021 on OFZ and non-government bonds, respectively, by 41.5% and 20.4% (*Table 4*). The volume of trading in foreign stocks at the St. Petersburg Stock Exchange (SPE) in 2022 reduced by 68.5% compared to the same indicator in 2021. The decline in the foreign stock market at the SPE was largely caused by regulatory restrictions on the purchase of foreign securities by unqualified investors. The reduction in exchange liquidity at the Moscow Exchange (ME) futures and options market reached 50.2% and 66.4%, and 16.8% at the foreign exchange market.

Only the volume of exchange REPO transactions, primarily due to increased liquidity from banks and refinancing of the Bank of Russia, in 2022 exceeded the volume of pre-crisis 2021 by 28.8%.

In January-February 2023, approximately the same trends of reduced exchange liquidity operated as compared to January-February 2022, i.e., the period when the 2022 sanctions were not yet in effect. The exception is the market of non-government bonds with liquidity in the first two months of 2023 increasing by as much as 97.2% compared to the same period of 2022. This can be explained by the inflow of high liquidity in large banks in early 2023 directed in a single manner to purchasing corporate bonds.

Table 4

Trading volumes at the Moscow Exchange (ME) and the St. Petersburg Exchange (SPE) in 2017—2022 and for the period from January to February 2022 and 2023, trillion rubles.

	2021	2022.	Average for 2017–2021	Change (%) in 2022 vs:		January–February		
				2021	2017–2021	2022	2023	Change, %
1. Volume of secondary trades:								
Bonds, receipts, investment units	30.0	17.6	17.3	-41.3	1.9	8.8	1.8	-79.1
OFZ	7.2	4.2	7.1	-41.5	-40.9	1.2	0.5	-61.9
Non- government bonds	2.9	2.3	3.5	-20.4	-33.7	0.3	0.6	97.2
2.REPO transactions	420.8	541.9	365.8	28.8	48.2	74.5	74.4	-0.1
Including with central counteragent (CC)	271.0	301.8	230.9	11.4	30.7	43.9	39.6	-9.8
3. Fx market	322.0	267.8	331.4	-16.8	-19.2	62.3	36.3	-41.8
4. Futures	151.8	75.6	102.8	-50.2	-26.4	33.2	7.8	-76.4
5. Options	6.8	2.3	6.2	-66.4	-63.2	1.1	0.3	-74.3
6. SPE, foreign bonds, billions of dollars	388.5	122.2		-68.5		55.2	9.4	-83.0

Source: own calculations based on ME and SPE.

However, negative trends in the market associated with a reduction in exchange liquidity due to the withdrawal of non-residents, the risk of outflow of domestic savings from financial assets and a sharp simultaneous decline in the value of investments in stocks and ruble bonds, were offset by a number of monetary policy measures (MP).

First of all, it concerns professional maneuvering of the key interest rate of the Bank of Russia. As shown in *Fig. 7*, during the acute phase of the conflict, on February 28, 2022 the Bank of Russia raised its key rate from 8.50% to 20.0% on time, preventing outflow of funds from banks and their spillover to the foreign exchange market, and then, from April 11 to September 21, as the exchange rate stabilized and inflation decreased, it started to reduce the rate down to 7.50%, thus supporting the market of ruble bonds, because when their yield is falling, the market value of bonds in portfolios of investors is growing. Thus, unlike the markets of developed countries, where a sharp growth in centralized interest rates resulted in a sharp decline in bond yields, while investments in bonds of local issuers in the Russian financial market, as a rule, brought positive returns.

Another factor of the bond market and the banking system stability in 2022 was the maintenance of a relatively high level of liquidity surplus of the banking system, which we estimate as the sum of surplus (+) - deficit (-) liquidity of banks "plus" the value of funds placed on deposits with the Bank of Russia and in its bonds (*Fig. 8*). This was partly due to the easing of the Bank of Russia's monetary policy and the fiscal policy of the Ministry of Finance during the year. The surplus of bank liquidity in terms of funds in correspondent accounts and deposits with the Bank of Russia reached Rb12.4 trillion on February 15, 2023. The average daily values of this indicator rose from Rb5.4 trillion in December 2022 to Rb 8.5 trillion

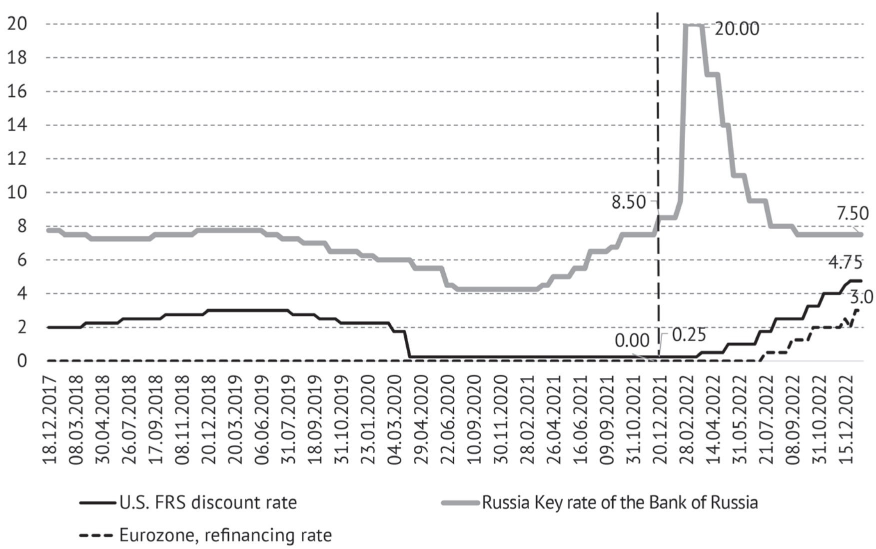


Fig. 7. The FRS discount rate, the European Central Bank's refinancing rate and the Bank of Russia's key rate, % p.a., from December 2017 to February 28, 2023

Source: Own calculations based on Cbonds.

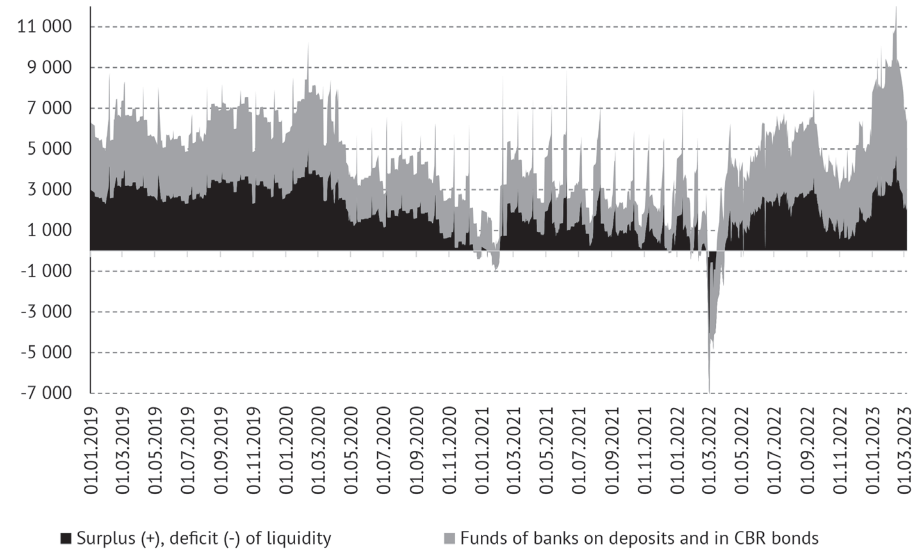


Fig. 8. Total amount of bank liquidity from January 2019 to March 7, 2023, billion rubles

Source: own calculations based on the Bank of Russia.

in January and Rb 9.6 trillion in February 2023. A year earlier, the respective values were Rb2.3 trillion in December 2021, Rb3.2 trillion in January and Rb2.2 trillion in February 2022.

Growth of bank liquidity in late 2022 – early 2023 was an important factor that contributed to the sustained demand for OFZ and corporate bonds of major issuers, as banks remained the key investors in the market for ruble-denominated bonds. With the departure of non-residents from the OFZ market, the role of banks as investors in the government bond market increased significantly in 2022–2023.

The internal activities of banks given the growing inflows of funds into the banking system due to growth of budget expenditures were the main sources of formation of the aggregate bank liquidity surplus, as well as an increase in the volume of refinancing of banks at the expense of the resources of the Bank of Russia (*Fig. 9*). The average daily volume of banks' own sources of liquidity rose from Rb1.3 trillion in December 2021 to Rb3.5 trillion in December 2022 and Rb 7.3 trillion in February 2023. The average daily volume of refinancing of banks by the Bank of Russia rose to a smaller extent from Rb1.0 trillion in December 2021 to Rb 1.8 trillion in December 2022 and Rb 2.2 trillion in February 2023.

In 2022, the majority of investments in Russian companies' stock portfolios showed a significant negative return (*Table 5, Fig. 10*). The Ruble index of the Moscow Exchange, the total return, declined by 37.3%, which, however, was much less than the losses of stock exchange funds of the Russian companies on foreign stock exchanges (*Table 3*). In difficult conditions, the Moscow Exchange

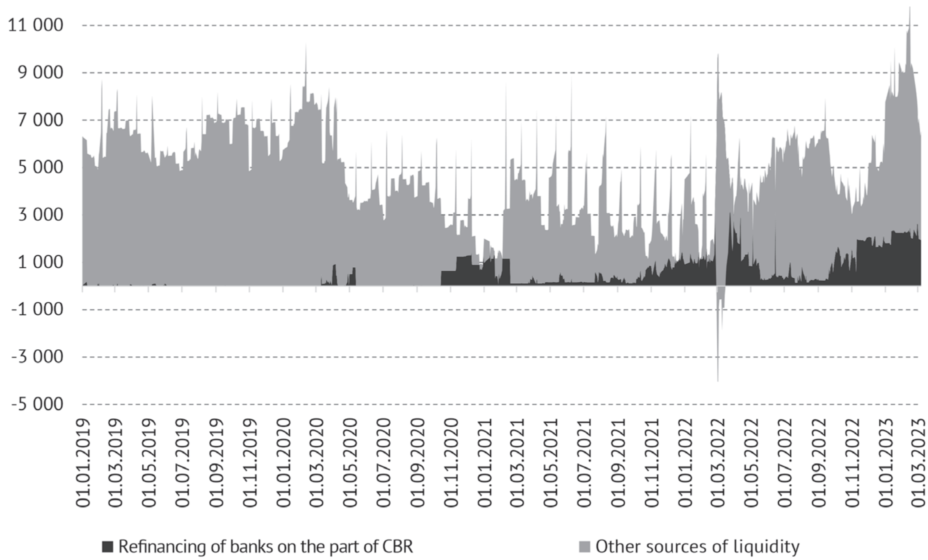


Fig. 9. Sources of total banking liquidity from January 2019 to March 7, 2023, billion rubles

Source: own calculations based on the Bank of Russia.

stock index was supported by funds of domestic private investors and restrictions imposed on the withdrawal of portfolio investments in Russian shares by non-residents from unfriendly countries. Only three portfolios out of all 29 strategies under consideration on the domestic stock market had positive yield in 2022, i.e. shares of chemical and petrochemical companies at the rate of 17.5%, shares of small capitalization companies (5.7%) and low-liquidity shares (2.8%).

Table 5

Yield in rubles of investments in shares and bonds on the domestic market in 2018—2022 (% p.a.) and for the period from the beginning of 2023 to February 28, 2023 (%)

	Investment strategies	Benchmarks: index, portfolio of an open-end or exchange-traded UIF	2018–2022	2022	Since the beginning of the year on February 28, 2023
Russia PJSC stocks					
1	Moscow Exchange index – total return	MCFTR Index	7.7	-37.3	4.9
2	Broad stock index	Wide_Market_TR	14.9	-22.4	6.0
3	Stocks of large capitalization companies	Big_TR	15.1	-21.3	5.6

	Investment strategies	Benchmarks: index, portfolio of an open-end or exchange-traded UIF	2018–2022	2022	Since the beginning of the year on February 28, 2023
4	Stocks of small capitalization companies	Small_TR	22.6	5.7	35.3
5	Growth stocks	Growth_L_TR	17.8	-18.7	13.5
6	Value stocks	Value_H_TR	10.1	-29.9	5.7
7	Stocks with low accumulated yield	Low_Return_TR	-0.1	-28.8	2.7
8	Stocks with high accumulated yield	High_Return_TR	17.3	-21.7	9.5
9	Low liquidity stocks	Low_Liq_TR	13.9	2.8	3.1
10	High liquidity stocks	High_Liq_TR	14.5	-27.3	8.0
11	Stocks with low dividend yield	Low_DY_TR	14.1	-27.2	4.7
12	Stocks with high dividend yield	High_DY_TR	16.7	-15.2	-1.6
13	Stocks without dividend payment	No_Div_TR	2.9	-18.4	15.2
14	Stocks with dividend payment	Was_Div_TR	15.6	-22.8	1.3
15	Private companies' stocks	Private_TR	17.7	-20.9	5.8
16	State-owned companies' stocks	SOE_TR	11.0	-24.1	5.5
17	Stocks with low market value	Low_PE_TR	11.5	-23.2	2.6
18	Stocks with high market value	High_PE_TR	18.7	-21.3	6.3
19	Financial ecosystems bonds	RusEco Index		-41.5	11.5
Moscow Exchange industry indices – total return					
20	Oil & gas companies	MEOGTR		-29.4	0.9
21	Electric power industry	MEEUTR		-22.4	5.0
22	TV communication	METLTR		-15.8	9.6
23	Metallurgy and mining	MEMMTR		-45.4	9.9
24	Financial sector	MEFNTR		-48.0	11.7
25	Consumer sector	MECNTR		-36.3	4.5
26	Chemistry and petrochemicals	MECHTR		17.5	9.8
27	Transport	METNTR		-44.7	17.2
28	Information technologies	MEITTR		-58.3	12.4
29	Construction	MERETR		-43.3	4.5
OFZ					
30	Broad OFZ portfolio	RGBITR – Moscow Exchange index	5.6	3.7	0.04

	Investment strategies	Benchmarks: index, portfolio of an open-end or exchange-traded UIF	2018–2022	2022	Since the beginning of the year on February 28, 2023
31	Index of the most liquid state bond issues	Cbonds-GBI RU	6.3	7.5	-0.02
32	Government bonds with maturity of 1 to 3 years	Cbonds-GBI RU 1–3Y	7.3	11.8	0.8
33	Government bonds with maturity of 3 to 5 years	Cbonds-GBI RU 3–5Y	7.0	10.7	0.9
34	Government bonds with maturity of 5 years and more	Cbonds-GBI RU 5Y	5.9	5.2	-0.6
Corporate bonds					
35	Broad index of corporate bonds	IFX-Cbonds	8.6	11.9	1.2
36	Bonds with medium and above average credit rating	Cbonds-CBI RU BBB/ ruAA-	7.9	10.8	0.6
37	Bonds with moderately low credit rating	Cbonds-CBI RU BB/ruBBB	8.9	12.4	1.4
38	Bonds with low credit rating	Cbonds-CBI RU B/ruB-	10.2	15.9	2.5
39	High yield bonds	Cbonds-CBI RU High Yield		7,9	2,5
40	Bonds with maturity of 1 to 3 years	Cbonds-CBI RU 1-3Y	8.4	11.8	1.0
41	Bonds with maturity of 3 to 5 years	Cbonds-CBI RU 3-5Y	8.3	11.1	1.0
42	Bonds with maturity of 5 years and more	Cbonds-CBI RU 5Y		5.5	-1.9

Note. The return of the factor investment strategies (lines 2–18) was calculated based on IAES RANEPA resource "Constructor CAPM-ru». URL: https://ipei.ranepa.ru/ru/capm-ru; Index of the financial ecosystems bonds RusEco (line 19) was calculated and published by IAES RANEPA. URL: https://ipei.ranepa.ru/ru/capm-ru/ruseco-index

Sources: Own calculations based on resources of Moscow Exchange, Cbonds and "Constructor CAPM-ru" IAES RANEPA.

It was an interesting pattern of 2022 that all 17 factor investment strategies listed in *Table 5* (lines 2–18), and half of the 10 sectoral strategies in the shares of Russian companies showed a higher return than the index portfolio of Moscow Exchange, that is, the total return.

This result is due to factor portfolios of shares that are as a rule much more diversified by the number of issuers than the Moscow Exchange index, and in the industry strategies the weights of certain issuers do not coincide with the structure of the Moscow Exchange index, which is dominated by a limited set of shares.

Over the 5-year time horizon 2018–2022, 15 of the 17 factor strategies outperformed the Moscow Exchange Index portfolio with its average annual return of 7.7% per annum, which indicates the stability of the pattern of higher

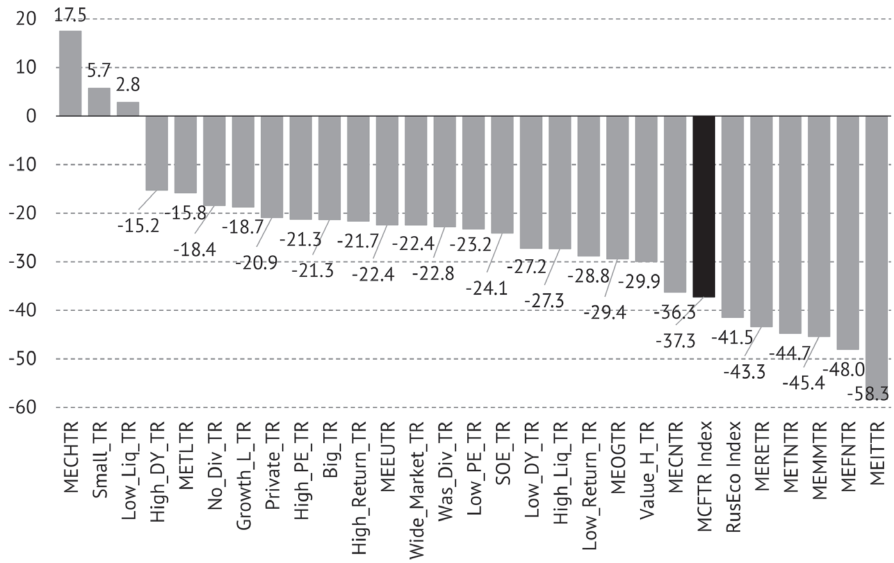


Fig. 10. Yield of the factor and industry investment strategies in the domestic stock market compared to the Moscow Exchange index — total return in 2022, % p.a.

Sources: Own calculations based on resources of Moscow Exchange, Cbonds and "Constructor CAPM-ru" IAES RANEPA.

returns of factor strategies compared to the most popular index of the Russian stock market. All this shows that even in the current difficult conditions investors in Russian equities can noticeably improve the returns of their individual portfolios by investing in a wider range of issuers with a higher risk of volatility of these investments. This factor should be taken into account when improving financial regulation and the strategies of financial structures to expand the range of financial instruments available to domestic investors.

Unlike the global market of 2022, the yield of all OFZ and corporate bond portfolios on the domestic bond market was positive, which can be explained by the fact that, unlike the interest rates of the FRS and the ECB, the key rate of the Bank of Russia actually dropped during the year (*Table 5*). The cumulative yield of the broad index OFZ portfolio (RGBITR) amounted to 3.7% and the index of corporate bonds (IFX-Cbonds) reached 11.9% per annum. Portfolios of both OFZs and corporate bonds presented a somewhat unexpected pattern showing a lower total yield of bonds with a longer duration compared to bonds with a shorter duration amid a downward trend in the key rate of the Bank of Russia.[1] This may be due to the narrow range of bonds included in a particular index or to the challenge in determining the market value of illiquid bonds. One can also note the

1 Generally, when centralized interest rates decline, the total return of bond portfolios with longer duration should be higher than the total return of portfolios with shorter duration.

low aggregate yield in 2022 of the government bonds portfolios with maturity of 5 years and more at the rate of 5.2%, as well as portfolios of high-liquid corporate bonds at 7.9%, which stems that these categories of bonds were not in sufficient demand among investors in the market. This means that they were traded on the exchange at a significant discount from the face value. The lower yield of long-term bonds compared to short-term bonds could mean that investors in the bond market are expecting the Bank of Russia key rate to increase, which would mean a more active decline in the value of long-term bonds compared to short-term ones.

Financial ecosystems set up by major banks and technology companies play an increasingly important role in the Russian market. For investors, investing in ecosystem shares may be a way to obtain an additional premium to the return on their investment portfolio. In 2022, both total (including dividends) and exchange rate returns of the RusEco[1] financial ecosystems portfolio decreased more significantly compared to the total and exchange rate returns of the Moscow Exchange index (*Fig. 11*). In 2022, the size of the cumulative premium on the full return of the RusEco index compared to the return of the Moscow Exchange index was 4.4 p.p., and the premium on the exchange rate return was 12.9 p.p.

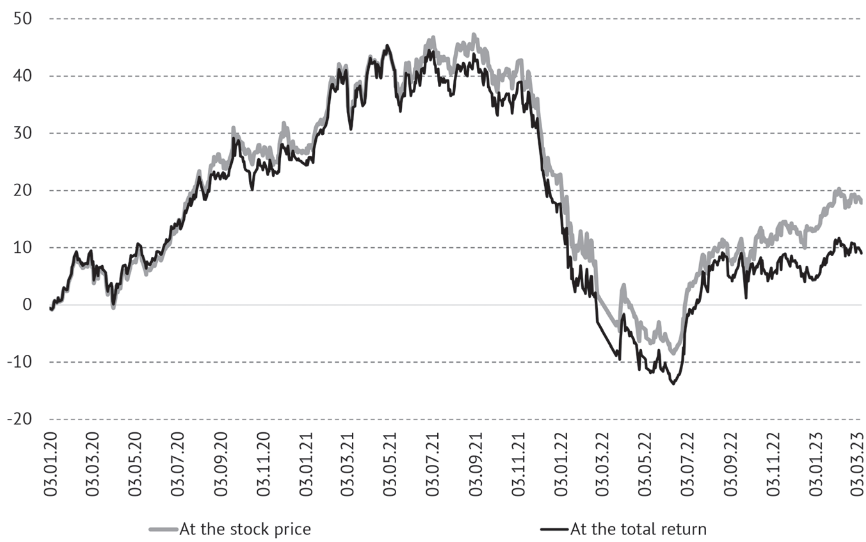


Fig. 11. The rate of return premium of the RusEco index of IAES RANEPA to the Moscow Exchange index from January 2020 to March 9, 2023, cumulative total, p.p. (January 1, 2020 = 0 p.p.)

Source: Own calculations based on "Constructor CAPM-ru" information database.

1 IAES RANEPA calculates monthly the index of Russian financial ecosystems portfolio value dynamics (RusEco). It reflects the exchange and total return (TR) of the bonds of 9 companies claiming to be financial ecosystems, i.e. Moscow Exchange, MTS, Ozon, Rostelecom, Sber, TCS Group, VK, VTB and Yandex. The RusEco Index allows us to evaluate whether the "ecosystem" of financial and technology companies brings an additional return premium for investors. For a detailed description of the index, ref.: URL: https://ipei.ranepa.ru/ru/capm-ru/ruseco-index

from January 1, 2020. At the end of the first two months of 2023, the value of the financial ecosystem portfolio was recovering faster than the RusEco Index. As of February 28, 2023, the accumulated premium on the full return of the RusEco index since January 1, 2020 rose to 10.7 p.p. and the exchange rate return to 19.3 p.p. Thus, the outpacing growth of the financial ecosystems' portfolio value compared to the Moscow Exchange index was restored in 2023.

2.1.4. Financial crises in the Russian stock market

As of March 1, 2023, the index of the Moscow Exchange fell by 39.8% from its level of December 30, 2021. Over the same period, the stock price of "Gazprom" fell by 52.0%, MMC "Norilsk Nickel" by 35.7%, "Rosneft" and "Lukoil" stocks by 39.7% and 38.3% respectively, "Novatek" stocks by 37.6% and "Uber" by 41.9% (*Fig. 12*). Stocks of Lukoil, Novatek and MMC Norilsk Nickel, which, unlike the other three most liquid shares were issued by private rather than state-owned companies, showed relatively higher yield compared with the Moscow Exchange. Owing to sanctions, the key risk for stocks of major Russian companies is that due to lacking new demand from global investors, their market value may remain significantly below pre-crisis levels for several years. In this segment of the domestic financial market there is the greatest risk of disappointment in investments in risky assets for private investors.

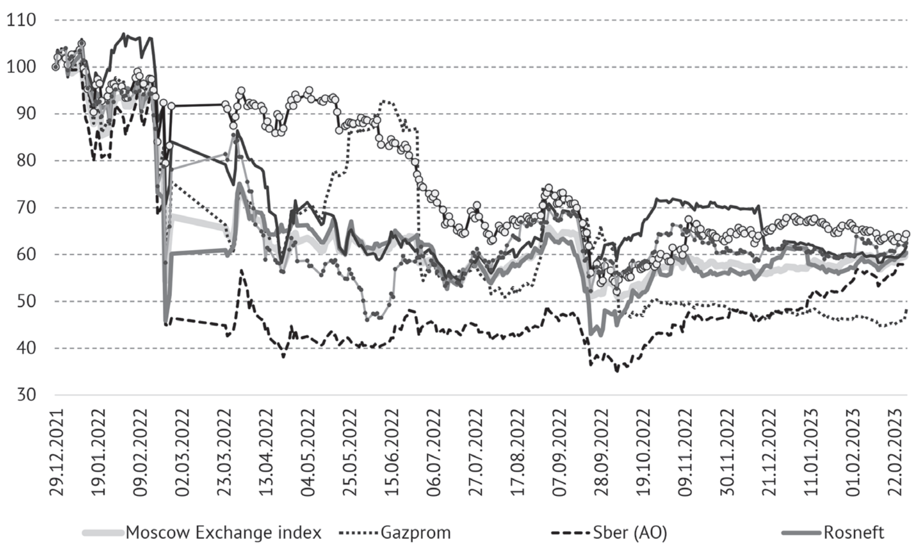


Fig. 12. Change in the value of the Moscow Exchange index and the value of stocks of "Gazprom", MMC "Norilsk Nickel", "Novatek", "Lukoil", "Rosneft" and "Sberbank" as of March 1, 2023, % (the values of the Moscow Exchange index and the stocks prices of the issuers on 30.12.2021 = 100%)

Source: Authors' calculations based on Moscow Exchange data.

The significance of stocks for long-term private investors and NPFs means that without investing a sufficiently high share of the portfolio, especially taking into account the challenge of using global diversification strategies, it is almost impossible to achieve that long-term investments of pension savings could have a significant impact on the increase in the replacement rate of lost earnings of their owners. In this sense, if the stagnant growth trend of the domestic stock market continues for the next few years, the current measures taken to stimulate long-term savings may be ineffective. The financial regulator needs to develop an effective growth strategy for the Russian equity market.

Investors frequently perceive risks to financial asset prices as a rare and sudden event called a "black swan."[1] However, in our opinion, on the long horizons, starting from 1997, the dynamics of the market of the Russian issuers stocks is more precisely marked by the alternative hypothesis of "black turkeys" of Lawrence Siegel[2] and Paul Kaplan.[3] According to this theory, financial crises are viewed as events that last over time from the moment stock prices fall to their full recovery to the pre-crisis level. In this sense, financial crises are not such rare and sudden events; many capital markets permanently live under such crises throughout their existence.

During the entire 27-year history of the Russian stock market from September 1995 to February 2023 the Russian stock market has faced five waves of financial crises that took place in 1997, 2008, 2014, 2020, and 2021 (*Table 6*). The first crisis happened in August 1997 and lasted until August 2003. After that, one crisis was soon replaced by another, and often before the recovery of another crisis was completed, a new one began. For example, after the fall of the stock market in June 2008, the value of the RTS index has not yet recovered, amounting on February 28, 2023 to only 38.5% of its pre-crisis level of May 2008. However, there were three new financial crises from March 2014 to December 2019, from January 2020 to May 2021, and from November 2022 until present. Thus, as of February 28, 2023, the last (fifth in the history of the domestic stock market) financial crisis, where the value of the RTS index fell by 49.2% in February 2022 vs its peak in October 2021, has not yet ended and has already lasted for 16 months. Thus, according to L. Siegel's theory, as of February 2023, there were two "black turkeys" in the stock market at the same time in terms of the 2008 stock market downturn not yet over and a new crisis since November 2021.

From September 1995 to February 2023, there was only one 5-year period, from August 2003 to May 2008, when the stock market of Russian companies was not in a state of financial crisis, i.e., there was no "black turkey" event.

Crises on the Russian stock market are usually accompanied by significant declines on the global oil market, which is one of the key drivers of foreign exchange earnings in the country (*Table 6*). After Brent oil prices fell in August

1 *N.Taleb* (2015). Black swan. Under the Sign of Unpredictability.2-nd edition, add. Translated from English. M.: KoLibri, Azbuka-Atticus.
2 *Siegel Laurence B*. (2010). Black Swan or Black Turkey? The State of Economic Knowledge and the Crash of 2007–2009. // Financial Analysts Journal. Vol. 66. Iss. 4. July/August. P. 6–10.
3 *Kaplan Paul D*. (2020). What Prior Market Crashes Taught Us in 2020 // Morningstar on-line. 23 July. URL: https://www.morningstar.com/features/what-prior-market-crashes-can-teach-us-in-2020

2008 by 67.7%, their recovery to the pre-crisis level has not been completed until now after 175 months, which also does not allow the RTS index to recover to the peak value of 2008. The specifics of the current stock market crisis, which began in November 2021, is that for the first time such a crisis occurs at relatively high oil prices. The brief slump in oil prices at the end of 2021 ended in just three months, while the decline in the stock market has lasted 16 months and the value of the RTS Index in February 2023 was only 51.3% of its October 2021 peak. In this case, the main reason for the decline in the stock market is the lack of demand for shares from non-residents in the context of sanctions and cautious attitude of domestic investors to the stocks of Russian companies.

Table 6

Parameters of financial crises in Russia from July 1997 to February 28, 2023

Index, date of peak value	Depth of the index decline	Period of the index decline and recovery		Index as of February 28, 2023 г. (peak = 100%)
		Period	Months	
RTS index				
July 1997	-91.3	August 1997 – August 2003	73	
May 2008	-78.2	Recovery has not been completed	177	38.5
February 2014	-48.9	March 2014 – December 2019	72	
December 2019	-34,5	January 2020 – May 2021	17	
October 2021	-49.2	Recovery has not been completed	16	51.3
Moscow Exchange index				
August 1997	-79.1	September 1997 – May 1999	21	
May 2008	-68.2	June 2008 – April 2016	95	
December 2013	-13.2	January 2014 – January 2015	13	
December 2019	-17.6	January – November 2020	11	
October 2021	-52.8	Recovery has not been completed	16	54.3
Brent oil price				
December 1996	-58.3	January 1997 – November 1999	35	
July 2008	-67.7	Recovery has not been completed	175	61.7
June 2014	-72.6	July 2014 – March 2022	93	
December 2019	-72.7	January 2020 – May 2021	17	
October 2021	-11.2	November 2021 – January 2022	3	

Sources: own calculations based on Moscow Exchange, Bank of Russia and resource: URL: http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rbrte&f=m

The recovery from two downturns out of five financial crises for the RTS index that began in June 2008 and November 2021 has not been completed as of the end of February (*Fig. 13*).

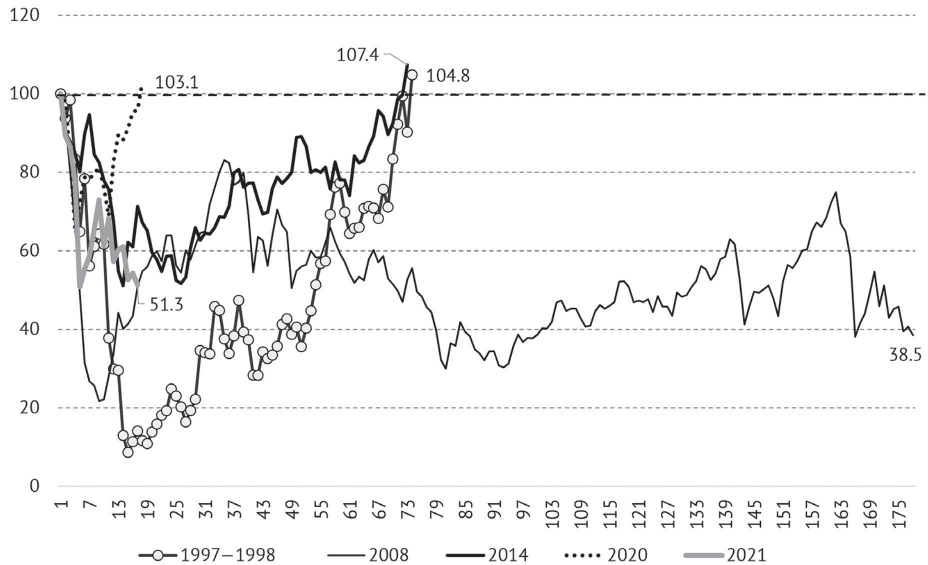


Fig. 13. Changes of the RTS index relative to its peak values in July 1997, May 2008, February 2014, December 2019 and October 2021 on a time horizon measured in number of months, as of February 28, 2023, in % (peak = 100%)

Source: own calculations based on Moscow Exchange

The recovery of the RTS index since June 2008 until present took 177 months or 14.7 years, and its value on February 28, 2023 was only 38.5% of its peak in May 2008. The decline of the RTS index since November 2021 was 49.2% of October 2021 and lasts for already 16 months. The current decline of the RTS index is somehow lower due to strengthening tendency of a ruble vs dollar in 2022.

Only the recovery from shock of November 2021, which lasted for 16 months, had not been completed out of the five financial crises for the ruble index of the Moscow Exchange as of February 2023 (*Fig. 14*). Compared to other four previous crises, the current level of 54.3% decline of the Moscow Exchange index is inferior to the depth of the stock market decline during the recessions of 1997 by 79.1% and 2008 by 68.2%. In terms of the recovery period of the Moscow Exchange index, the current decline, which lasts 16 months, is the third in the history of financial crises in Russia and in the next six months may exceed the recovery time of the MICEX index during the financial crisis of 1997–1998, which lasted 21 months.

Over long historical horizons, equity markets sometimes recover very slowly, and in some cases. they never recover for decades to the levels reached in the past. The most long-term crises in the history of stock markets count as recessions of the U.S. stock market during the Great Depression of 1929–1933, as well as the stock market of Japanese companies after 1989. The recovery of

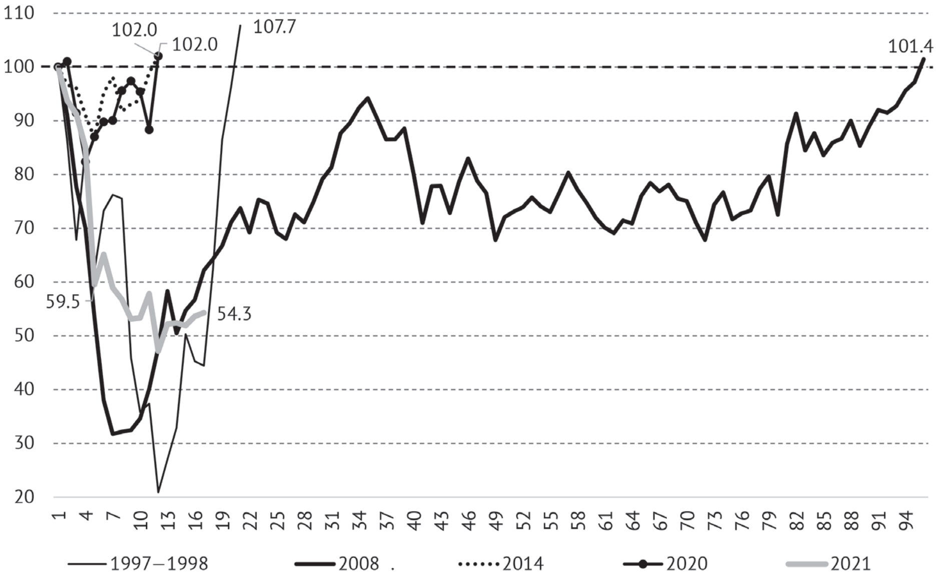


Fig. 14. Changes in the Moscow Exchange index vs its peak values in August 1997, May 2008, December 2013, December 2019 and October 2021 on the time horizon measured in number of months, as of February 28, 2023, in % (peak = 100%)

Source: own calculations based on Moscow Exchange

the Dow Jones Industrial Average (DJIA) stock index in the United States after the Great Depression lasted 303 months or 25.3 years (*Fig. 15, Table 7*). In 2015, this anti-record was broken by the Japanese NIKKEI-225 index, which as of February 28, 2023, could not recover for 398 months or more than 33 years. Its value in February 2023 was only 70.5% of its 1989 peak.

The recovery period after the 2008 crisis of the Russian currency index RTS and the MSCI Brazil Index reached 177 months, i.e., the milestone typical for relatively rare in the global history of medium-term financial crises. After the dot. com crash in the U.S. in 2000, the NASDAQ index returned to its pre-crisis values for the same 177 months, and the recovery of the South Korean stock index KOSPI after the severe financial crisis in South Korea in 1989 lasted 183 months. Such lengthy periods of the stock indices recovery as a rule indicate serious structural problems in the economy, preventing the restoration of capitalization of the national companies' stocks. As of February 28, 2023, the current values of the RTS and MSCI Brazil indices were only 38.5% and 32.8% respectively of their 2008 pre-crisis peaks, which can put these indicators in 2023 on the path of recovery from long-term rather than medium-term crises, similar to the recovery of the American DJIA index after the Great Depression of 1929.

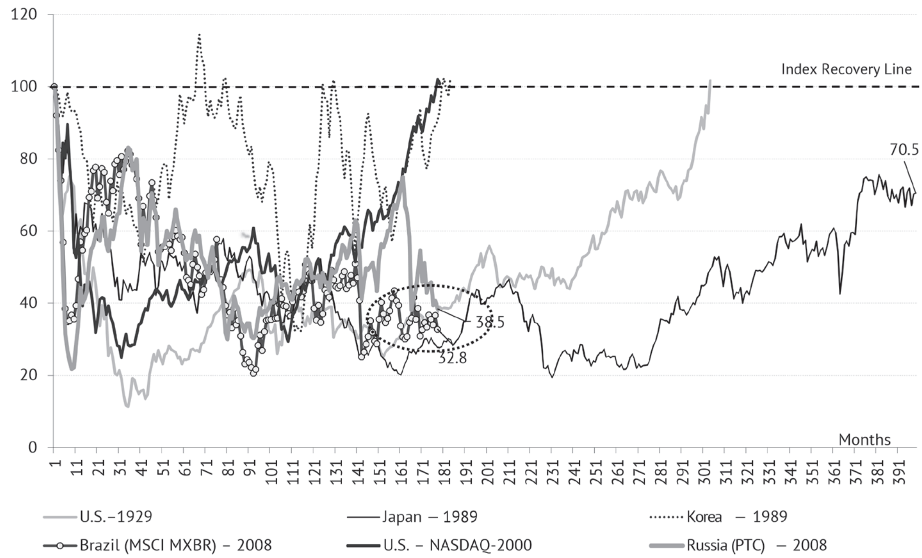


Fig. 15. Depth and duration of the longest periods of stock index recovery as of February 28, 2023 (pre-crisis peak = 100%)

Sources: own calculations based on Moscow Exchange and Bloomberg.

Table 7

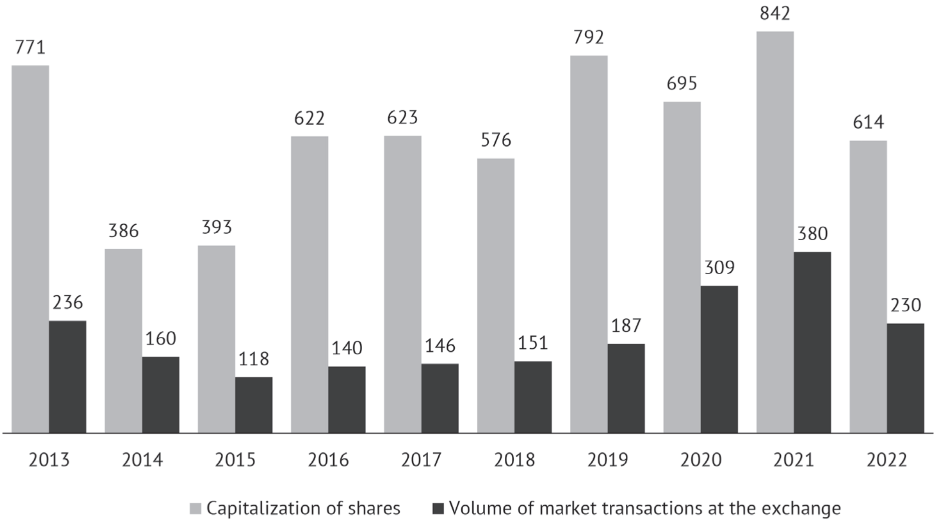
The lengthy recovery periods for country stock indices as of February 28, 2023

Country (index – the crisis start year)	Period of the index recovery vs peak, months	Completing recovery	Current value of the unrecovered index, % (peak = 100%)
Japan (Nikkei – 1989)	398	No	70.5
U.S. (DJIA – 1929)	303	Yes	
South Korea (KOSPI – 1989)	183	Yes	
U.S. (NASDAQ – 2000)	177	Yes	
Russia (PTC dollars – 2008)	177	No	38.5
Brazil (MSCI dollars – 2008)	177	No	32.8
China (MSCI – Shanghai dollars — 1997)	122	Yes	
China (MSCI – Shanghai dollars – 2008)	82	Yes	

Sources: own calculations based on Moscow Exchange and Bloomberg.

2.1.5. Institutional features of the stock market

In 2022, compared to 2011, capitalization of Russian equities dropped from $842bn to $614bn or by 23.4% (*Fig. 16*). The liquidity of the stock market as measured by the volume of market transactions in shares on the Moscow Exchange, decreased to a greater extent. Over the same period, the volume of these transactions has reduced from $380 bn to $230 bn or by 39.5%.



* Market transactions are defined as transactions made during an anonymous auction at the Moscow Exchange.

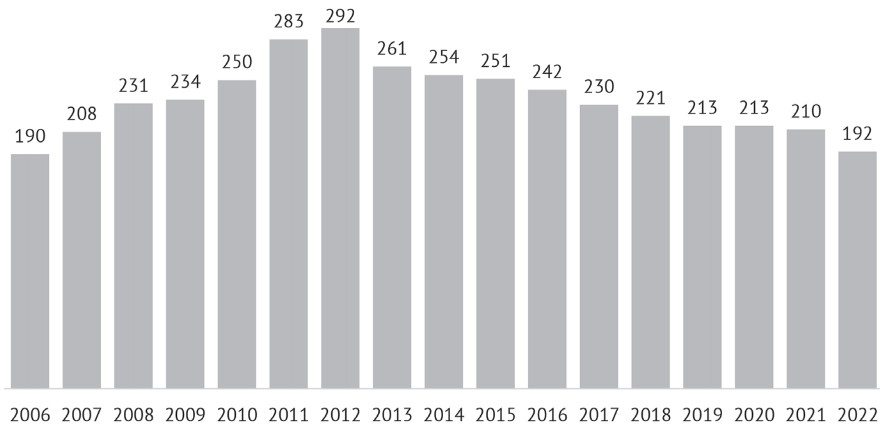
Fig. 16. Capitalization and volume of market transactions in shares*
on the Moscow Exchange from 2013 to 2022, billion dollars

Source: own calculations based on World Federation of Exchanges.

For 10 years, starting in 2013, there has been a continuing downward trend in the number of Russian issuers listed on the Moscow Exchange (*Fig. 17*), and the number of Russian issuers in the listing of shares on the Moscow Exchange has been tending to decrease (*Fig. 17*). In 2022, the number of issuers in the stock exchange listing dropped by another 18 companies compared to 2021 and amounted to 192 issuers. The main challenge in replenishing the listing is the weak inflow of new Russian companies to the exchange.

A serious issue of the Russian stock market is the lack of proper statistical records of public offering transactions on stock exchanges. This is manifested in discrepancies in the IPO-SPO statistics of Russian companies and data of the Moscow Stock Exchange, the World Federation of Exchanges, Preqveca.ru and other information providers. This review, using the example of transactions in 2020—2022, provides our own classification of public offering transactions on Russian and foreign stock exchanges of companies registered in Russia and conducting their main activities in Russia (Russian companies).[1]

1 Based on the classification of transactions of the World Federation of Exchanges, we identified 8 varieties of public offering transactions on stock exchanges. The first group includes 4 types of transactions conducted on the Russian stock exchanges, involving an IPO or SPO shares with the attraction of new capital into the company or with the simple resale of shares by their previous owners (i.e, without attracting new capital in the company). The second group includes similar four types of transactions in IPO and SPO, but only on foreign stock exchanges with the shares of companies that conduct their core business primarily in Russia. Taking into account the



* For the period 2006-2011, the data provided for the MICEX listing, and for 2012-2022 for the listing pf PJSC Moscow Exchange.

Fig. 17. The number of Russian companies listed on the Moscow Exchange from 2006 to 2022*

Sources: own calculations based on NAUFOR collection "Russian stock market in 2015. Events and facts" (for 2006–2008), as well as on World Federation of Exchanges for 2009–2022.

After a certain revival of the market of public offerings of Russian companies in 2020—2021, in 2022 there was only one IPO deal of VUSH Holding PJSC (ticker — WUSH) and one SPO deal of Positive Group PJSC (ticker — POSI). As *Table 8* shows, the total volume of IPO-SPO transactions with participation of Russian companies on all exchanges in 2022 was the equivalent of $48.6 mn or just 1.0% of the volume of transactions in 2021. In this case, out of the total volume of two transactions in the amount of $48.6 mn, $31.0 mn was aimed to attract new capital into the company and $17.6 mn represented the resale of shares by their former owners.

Stock markets contribute to structural changes in the economy through mergers and acquisitions (M&A), In 2022, there was globally observed a decline in M&As from $5.4 trillion in 2021 to $3.4 trillion in 2022, or 37.2% (*Fig. 18*). In Russia, the total value of committed public M&A transactions dropped from $38 bn in 2021 to $27 bn in 2022, or 28.9%, that is, lesser than globally. Besides, the actual volume of mergers and acquisitions in Russia in 2022 could exceed the aforementioned value of transactions, because many M&A deals for the acquisition by Russian structures of assets of subsidiaries of foreign manufacturers that left the Russian market were conducted on terms that were not publicly announced. According to calculations of the AK&M[1] information agency, in 2022, foreign business sold their assets for a total amount of $16.3 bn and respectively the total amount

restrictions on transactions with the shares of Russian companies abroad introduced in 2022, the IPO-SPO transactions of the second group will probably not be conducted in the near future.

1 *M.Mordovina*. (2023). Analysts estimated the value of sold Russian assets by foreigners // RBC online. February15 URL: https://www.rbc.ru/finances/15/02/2023/63eca9869a79477016f25667

Table 8

Classification of IPO-SPO transactions by Russian companies in 2020–2022, million dollars

	2020	2021	2022	Change relative to 2021, %
1. Transactions on Russian stock exchanges, total	1625,8	2148,1	48.6	-97.7
Including:				
IPO with new capital raising	550,0	807,9	31.0	-96.2
IPO with resale of shares of the current owners	1075,8	1100,1	3.0	-99.7
SPO with new capital raising	0.0	0.0		
SPO with resale of shares of the current owners	0.0	240.0	14.6	-93.9
2. Transactions on foreign exchanges, total	1311.1	2766.4	0.0	
Including:				
IPO with new capital raising	1311,1	2204,7	0.0	
IPO with resale of shares of the current owners	0.0	561,7	0.0	
SPO with new capital raising	0.0	0,0	0.0	
SPO with resale of shares of the current owners	0.0	0,0	0.0	
3. Transactions on Russian and foreign exchanges, total	2936,9	4914,5	48.6	-99.0
Including:				
IPO with new capital raising	1861,1	3012,6	31.0	-99.0
IPO with resale of shares of the current owners	1075,8	1661,9	3.0	-99.8
SPO with new capital raising	0.0	0.0	0.0	
SPO with resale of shares of the current owners	0.0	240,0	14.6	-93.9

Sources: own calculations based on official issuers' information and the Moscow Exchange.

of M&A deals in Russia constituted $42.9 bn according to their data, which is 1.6 times higher than the cost of M&A deals published by Merger.ru.

As a result, according to our calculations based on Merger.ru, Russia's share in the global volume of M&A deals has even increased slightly over the year, from 0.7% in 2021 to 0.8% in 2022.

In terms of key indicators that describe the capacity of the stock market, Russian stock exchanges are noticeably inferior to many foreign competitors. Amid the decline in the global financial market and sanctions pressure in 2022, the Moscow Exchange's performance against the criteria of capitalization and liquidity of the stock market noticeably deteriorated compared to other organized markets, but by the number of listed shares, even despite the absolute reduction of this indicator on the Moscow Exchange, its performance against other countries has somewhat improved (*Fig. 19a, b, c*). In other words, the reduction in the number of issuers in stock exchange listings in 2022 has again become a global trend, and this process was even faster globally than in the Russian domestic market.

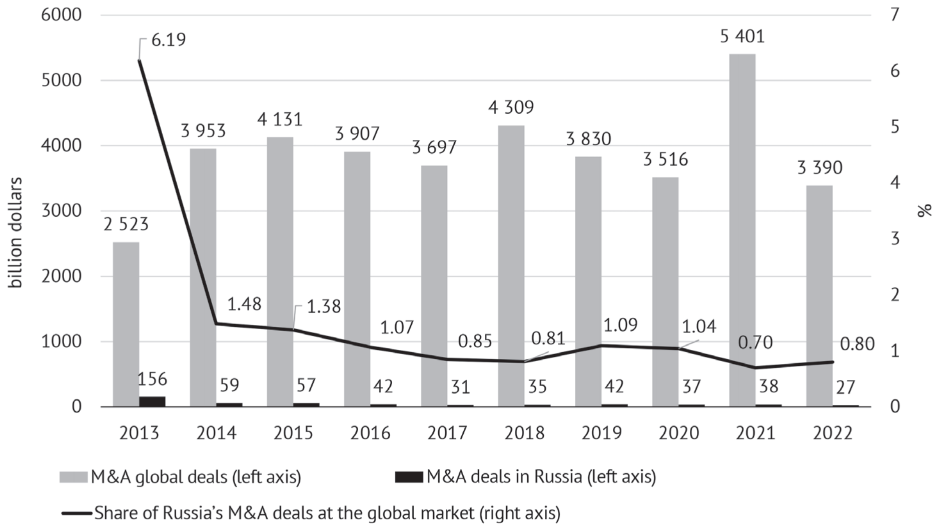
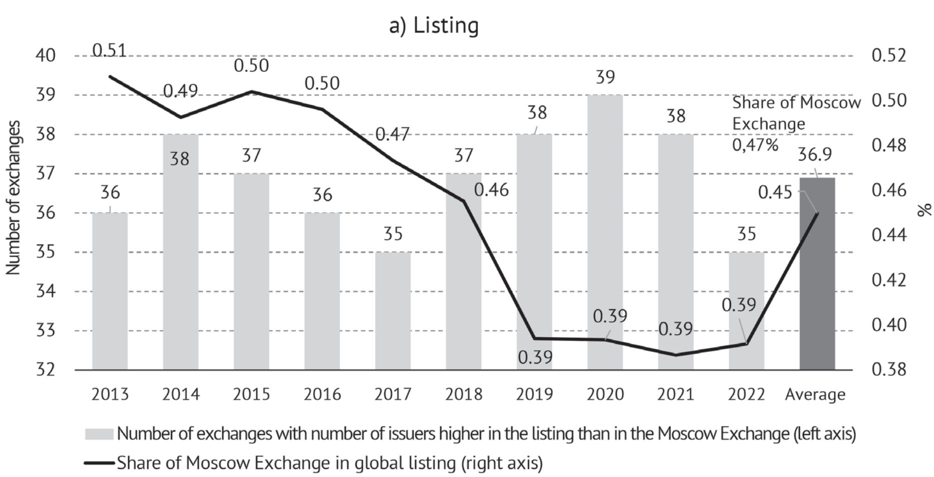


Fig. 18. The value of mergers and acquisitions (M&A) globally and in Russia (billion dollars) and share of M&A deals in Russia in the total value of similar deals in the world (%), 2013—2022

Sources: own calculations based on Merger.ru information resources of the Cbonds agency and Institute of Mergers, Acquisitions and Alliances (IMAA) and PwC.



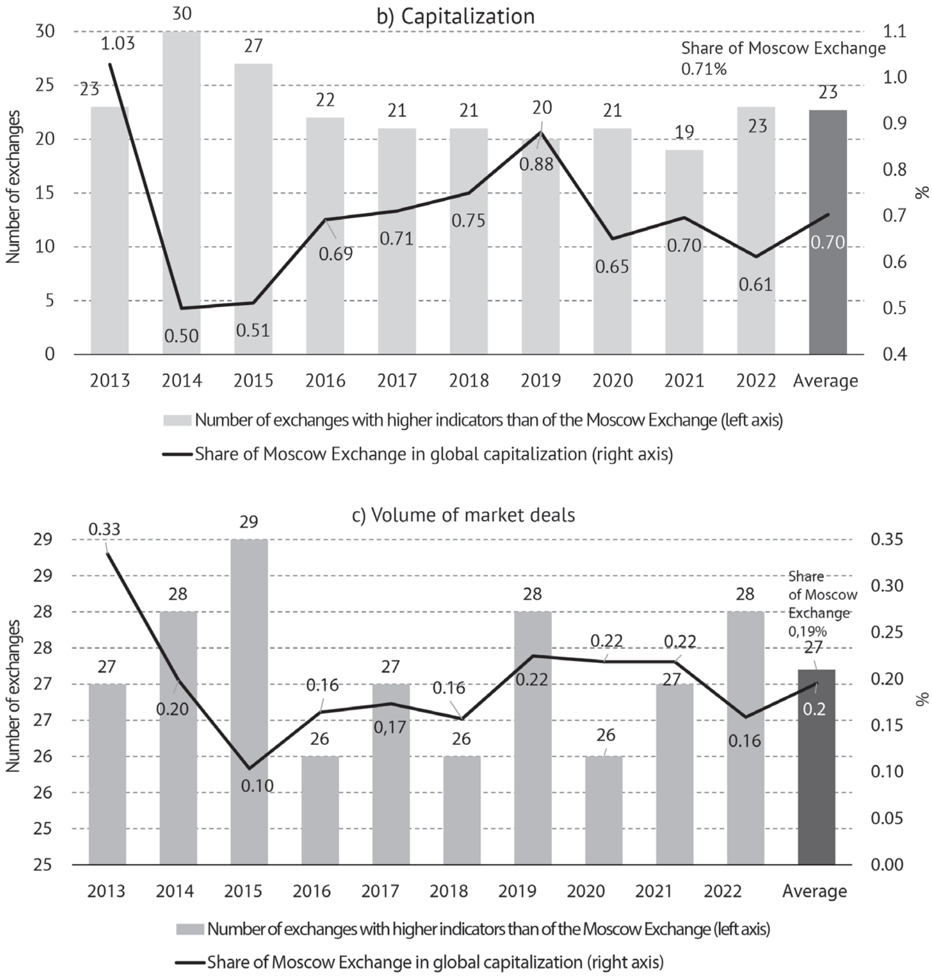


Fig. 19. Indicators of competitiveness of the Russian stock market in 2013–2022:

a) number of foreign exchanges with a greater number of listed issuers than the Moscow Exchange and the share of Moscow Exchange in the sample of listed companies on the global stock market, %;
b) number of exchanges with higher capitalization of issuers in the listing than the Moscow Exchange, and the share of Moscow Exchange in the global capitalization, %;
c) number of exchanges surpassing the Moscow Exchange by volume of market transactions and the share of Moscow Exchange in the total value of market shares transactions in shares globally, %

Sources: own calculations based on WFE and Moscow Exchange.

In terms of the number of national listed companies in 2022, the Moscow Exchange was behind 35 other global exchanges compared to 38 as in the previous year (*Fig. 19a*). Its share in the total number of publicly traded global companies remains stable at 0.39% over the four years from 2019 to 2022.

By value of capitalization of issuers in 2022, the Moscow Exchange was inferior to 23 exchanges in the world as compared to 19 in the previous year, and its share in global capitalization of companies decreased from 0.70% in 2021 to 0.61% in 2022 (*Fig. 19b*).

In terms of the volume of market equity transactions in 2022, the Moscow Exchange was behind 28 exchanges globally compared to 27 in 2021, and its proportion in the total volume of exchange transactions with shares fell from 0.22% in 2021 to 0.16% in 2022 (*Fig. 19c*).

Thus, in 2022, a particularly difficult year for the Russian financial market, there was no collapse of its competitive positions against other global markets. However, the data in *Fig. 19a, b, c* show that the downward trend in the competitive positions of the Russian stock market has been observed for a long time: by the criterion of the number of listed companies steadily since 2013; by capitalization and stock liquidity since 2019. This indicates the presence of long-term factors, which appeared even before the geopolitical events of 2022, which can be associated not only with external sanctions, but also with slowing economic growth, excessive levels of regulatory burden, weakness of domestic institutional investors and lack of confidence in the market on the part of private investors.

The Russian stock market is characterized by a high level of issuers' concentration by capitalization, however, starting from 2020, there is a tendency of its decline (*Fig. 20, Table 9*). The share of top 10 PJSCs in total capitalization of issuers dropped from 70.1% in 2019 to 62.6% in 2022, the share of top 20 issuers dropped from 82.9% to 78.2%, respectively. This reflects on the whole positive changes in the structure of the exchange listing, consisting in the outstripping growth of the market value and investment attractiveness of the less liquid "second-tier" shares as compared with the traditional "blue chips". It was noted above (*Table 5, Fig. 10*) that in 2022 and in the previous years, many factor portfolios, where the largest "blue chips" have a more modest weight relative to the Moscow Exchange index portfolio, showed a higher return relative to the above stock index. The increased demand of domestic investors for "second-tier" shares not only makes it possible to diversify portfolios, but can also become a driver of recovery of the domestic stock market in the medium term. It should be taken into account that investments in these shares present a higher risk compared to blue chips, primarily in terms of liquidity of these shares and objectivity of assessment of their market value.

Nevertheless, for several years now, six companies, Gazprom, Rosneft, NOVATEK, Sberbank, Lukoil and MMC Norilsk Nickel, have held a stable lead in terms of capitalization value, accounting for exactly 50.0% of that value in 2022. Among the top 10 companies in the Russian market, 8 represent the fuel and energy complex and basic materials industries. Only two companies, Yandex and partly Sber (as a financial ecosystem) represent high-tech sector.

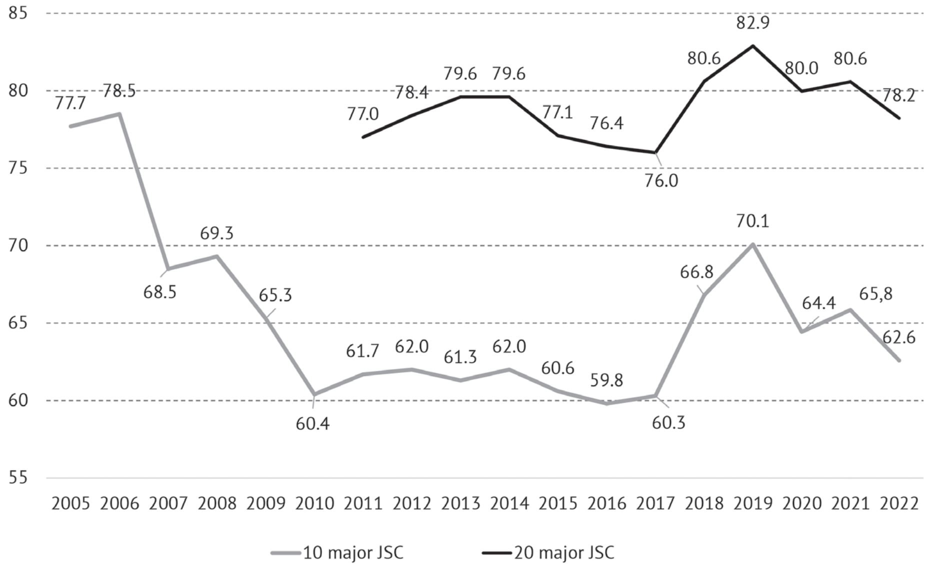


Fig. 20. Share of major PJSC in capitalization of domestic stock market, %

Source: own calculations based on Moscow Exchange

Table 9

Capitalization of 10 major Russian public joint stock companies (PJSC) in 2020–2022

	Issuer	2020		Issuer	2021		Issuer	2022	
		Capitalization, billion rubles	Percentage, %		Capitalization, billion rubles	Percentage, %		Capitalization, billion rubles	Percentage, %
1	PJSC Sberbank	5 873	11.4	PJSC Gazprom	8 078	12.9	PJSC Gazprom	3 852	10.1
2	PJSC Gazprom	5 024	9.8	PJSC Rosneft	6 336	10.1	PJSC Rosneft	3 834	10.0
3	PJSC Rosneft	4 620	9	PJSC Sberbank	6 329	10.1	PJSC NOVATEK	3 242	8.5
4	PJSC NOVATEK	3 814	7.4	PJSC NOVATEK	5 248	8.4	PJSC Sberbank	3 040	7.9
5	PJSC MMC Norilsk Nikel	3 738	7.3	PJSC Lukoil	4 539	7.2	PJSC Lukoil	2 811	7.4
6	PJSC Lukoil	3 590	7	PJSC MMC Norilsk Nikel	3 496	5.6	PJSC MMC Norilsk Nikel	2 339	6.1
7	PJSC Polyus	2 049	4	PJSC Gazpromneft	2 568	4.1	PJSC Gazpromneft	2 169	5.7
8	YANDEX N.B.	1 634	3.2	PJSC Polyus	1 761	2.8	PJSC Polyus	1 044	2.7
9	PJSC Gazpromneft	1 507	2.9	YANDEX N.B.	1 447	2.3	PJSC FosAgro	828	2.2
10	PJSC Surgutneftegaz	1 286	2.5	PJSC Surgutneftegaz	1 423	2.3	PJSC Surgutneftegaz	774	2,0

	Issuer	2020 Capitalization, billion rubles	2020 Percentage, %	Issuer	2021 Capitalization, billion rubles	2021 Percentage, %	Issuer	2022 Capitalization, billion rubles	2022 Percentage, %
	Capitalization of all issuers on Moscow Exchange	**51 428**	**100**	**Capitalization of all issuers on Moscow Exchange**	**62 604**	**100**	**Capitalization of all issuers on Moscow Exchange**	**38 238**	**100**
	Capitalization of top 5 issuers	**23 070**	**44.9**	**Capitalization of top 5 issuers**	**30 528**	**48,8**	**Capitalization of top 5 issuers**	**16 778**	**43.9**
	Capitalization of top 10 issuers	**33 137**	**64.5**	**Capitalization of top 10 issuers**	**41 224**	**65,8**	**Capitalization of top 10 issuers**	**23 931**	**62.6**

Source: own calculations based on Moscow Exchange

In 2022, the share of state-owned companies (SOCs)[1] declined in capitalization to 48.9% from 50.5% in 2021 (*Fig. 21*). Given that the most capitalized SOCs operate in industries such as fuel and energy, energy, transportation, and banking, SOCs' share of capitalization typically increased during periods of rising oil prices (2010–2012, 2016–2018, 2021) and declined during periods of falling oil prices (2013–2014, 2020). The unusual reduction in the share of SOCs in capitalization in 2022, despite the noticeable growth in oil prices in 2022, may be due to the fact that large state-owned companies experienced the greatest pressure resulted from international sanctions from unfriendly countries.

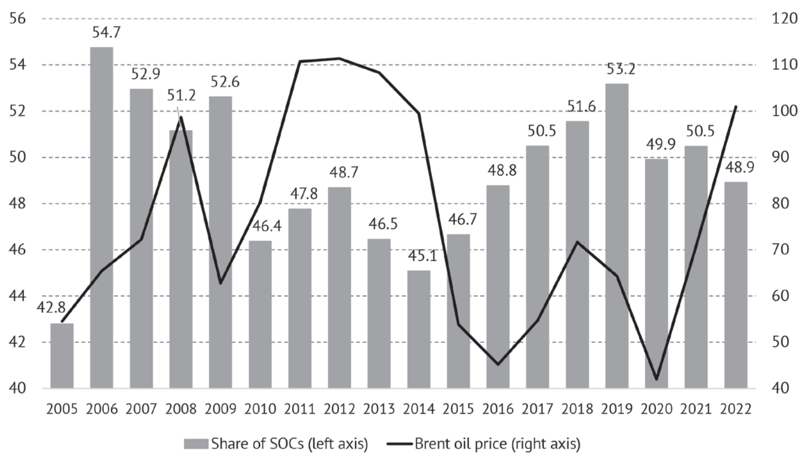


Fig. 21. Share of state-owned companies in capitalization of domestic stock market and price for Brent oil barrel in 2005–2022

Source: own calculations.

1 A state-owned company (SOC) is an organization controlled by the state, which acts as the sole owner, the owner of a majority or significant minority stake (share in the authorized capital) of at least 10%.

2.1.6. The bond market

The bond market situation

As shown above, despite unprecedented sanctions the domestic bond market remained stable in 2022. Further, unlike substantial losses of bond portfolio holders on global markets the ruble yield on Russian issuers' bonds remained generally positive owing mostly to measures aimed at reducing the RF Central Bank's key rate, maintaining an acceptable level of liquidity in the banking sector and facilitating a stable exchange rate of the Russian ruble.

However, a number of challenges on the bond market holds back its further development. Amid uncertainty, investors still expect a rise in interest rates and higher credit risks. According to the opinion of the Chairman of the RF Central Bank, risks in the economy have shifted towards proinflationary risks.[1] For this reason, the RF Central Bank still believes that the key rate is more likely to increase, rather than decrease. Expectations of growth in centralized interest rates lead to a situation where investors prefer making investments in shorter-term bonds and require an additional premium when investing in long-term securities. Amid a lack of transparent financial information on issuers and credit risks, only large companies have an access to the primary market.

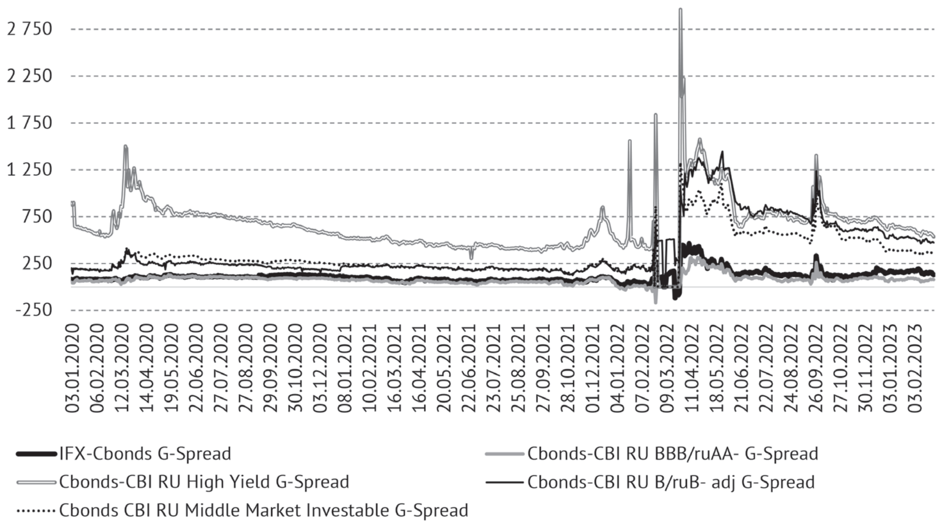
As shown in *Fig. 22*, owing to the effective policy of maintaining a financial stability the regulators succeeded in neutralizing the implications of sudden growth in corporate bonds' G-spreads after the developments of February 2022 and facilitating later a stable decrease thereof to acceptable levels. Corporate bonds' effective G-spreads are still above the pre-crisis level, however, they do not hinder the full functioning of the market of these financial instruments.

So, on December 30, 2021 the average G-spread of bonds of the portfolio of the most liquid and reliable IFX-Cbonds issuers was equal to 62.3 p.p. Shortly after the resumption of trading on the corporate bond market it amounted to 439.1 p.p. as of March 31, 2022 and fell to 156.4 p.p. by February 28, 2023. So, its current value is 2.5 times the 2021 level and in the current situation this does not prevent the full functioning of the primary and secondary markets of corporate bonds with a high credit quality. However, in terms of lower quality bonds of a broader spectrum, even though the current values of their G-spreads increased to a lesser extent relative to 2021 than the spreads of high-grade bonds, these excessive spreads along with investors' low propensity to credit risks limit these bonds' growth.

In 2021, high-yield bond spreads increased from 508.2 p.p. to 563.3 p.p. as of February 28, 2023 or by 10.8% on bonds with a medium investment grade rating (Cbonds CBI RU Middle Market Investable) from 186.1 p.p. to 368.0 p.p. or by 97.7%.

In 2022, the stability of the domestic market of ruble corporate bonds was facilitated by this market's traditionally weak reliance on non-residents'

1 The statement by Elvira Nabiullina, Chairman of the RF Central Bank on the results of the meeting of the Board of Directors of the RF Central Bank on March 17, 2023. URL: https://www.cbr.ru/press/event/?id=14629



* G-spread is the indicator of a credit risk of corporate bond issues, representing the difference between yield to maturity of corporate bonds and yield to maturity of government bonds with the same duration.

Fig. 22. Average sizes of G-spreads* of ruble corporate bonds with various credit ratings in 2020–2022 as of March 2, 2023, p.p.

Source: own calculations based on the data of Cbonds.

investments, while banks, the main investors on the bond market, succeeded in maintaining a sufficient level of excess liquidity.

Another problem of corporate bonds consists in their low duration, that is, the period of circulation (*Fig. 23*). The average annual duration of the portfolio of reliable IFX-Cbonds bonds fell from 675 days in 2021 to 494 days in 2022 or by 26. 8% and that of high-yield bonds (HYB) from 511 days to 454 days or by 11.3%. A decrease in bond duration takes place amid an economic uncertainty and expectations of a pickup in interest rates. Low duration bonds are more difficult to use as a source of long-term investments, so in the present situation they are mostly used as an instrument of refinancing issuers' current activities and redemption of debt on bank loans.[1]

1 See, for example: *M. Kolomietz, E. Kulieva, G. Galieva* (2023). The Corporate Sector on the Bond Market: Refinance for All, SMB Debuts; 40% of the Companies Wait for the Spring Opening // The "Expert RA" Review. March 1. URL: https://www.raexpert.ru/researches/ua/debt_market_2023/

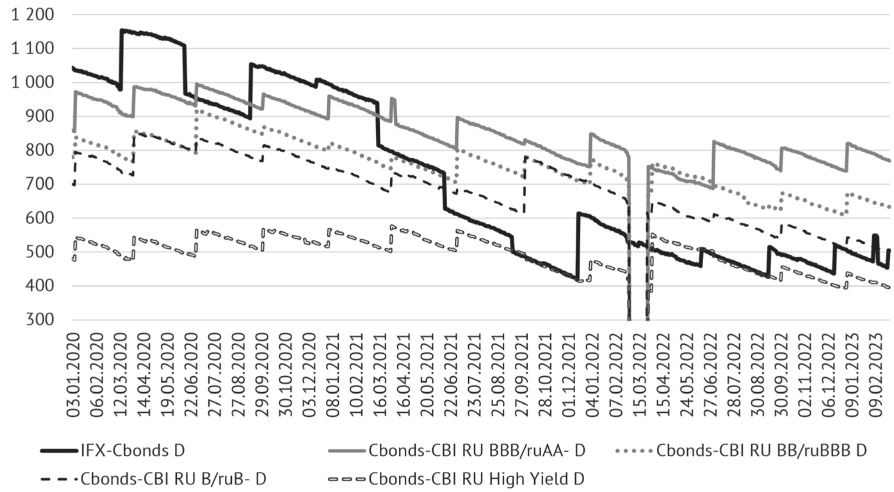


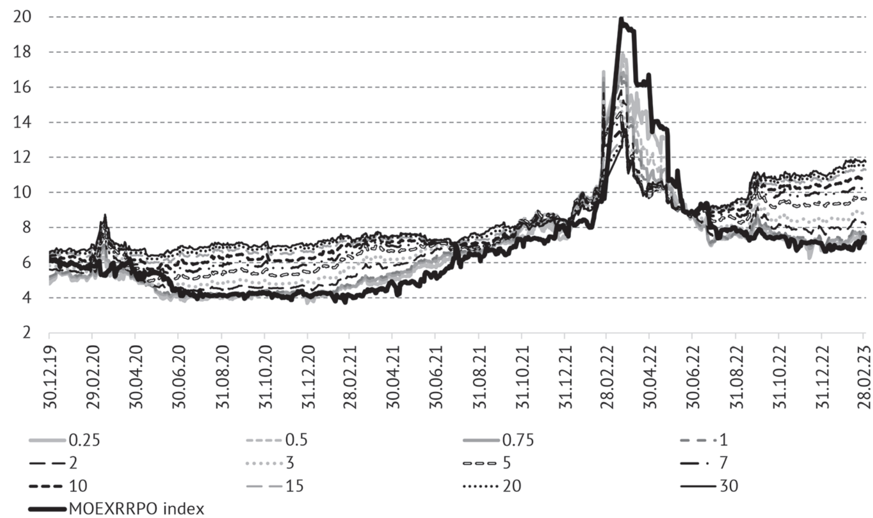
Fig. 23. Corporate bonds duration (days), January 1, 2020 — March 2, 2023

Source: own calculations based on the data of Cbonds.

In 2022, the market of government bonds (OFZ) remained stable and its role in funding the budget has been growing since November 2022. As of February 28, 2023, yield to maturity of short-term and mid-term OFZ with a duration of up to two years was also somewhat lower than that as of December 30, 2021 owing mostly to a decrease in the Central Bank of Russia's key interest rate which had an effect to a great extent on financial market participants' short-term expectations. However, the market of long-tern OFZ issues with a duration of 10 years and more has seen the trend of growing yield to maturity of OFZ issues since the end of July 2022, which is the evidence of investors' pro-inflationary expectations on the bond market. Further, the main buyers of long-term expectations used to be large foreign portfolio investors. Replacement of their demand with that on the part of large backbone Russian banks is also a factor of growing yield of long-term OFZ. According to the opinion of the Central Bank of Russia, growth in yield of long-term bonds on the government debt market is substantiated by the fact that market participants believe that the RF Ministry of Finance's annual plan of borrowings may be increased in order to cover the budget deficit.[1] At the same time, higher yield of long-term OFZ issues complicates the placement of new OFZ issues and leads to the appreciation of the cost of borrowed funds for financing budget expenditures.

As shown in *Fig. 24*, the popular rate of the MOEXREPO money market is close in terms of its values to the Central Bank of Russia's key rate; at first, it increased sharply from 7.93% per annum as of December 30, 2021 to 19.34% as of March 31, 2022, while later it was falling gradually to 8.05% and 7.46% on July 29, 2022

1 URL: https://www.cbr.ru/Collection/Collection/File/43767/DKU_2301-07.pdf



Note. MOEXREPO is the interest rate of the REPO exchange money market with the central counterparty (REPO with CC) at the Moscow Exchange.

Fig. 24. The values of zero-coupon yield curve of OFZ with maturity of 0.25—30 years and MOEXREPO money market rates, December 30, 2019 — March 3, 2023, % per annum

Source: own calculations based on the data of the Central Bank of Russia and the Moscow Exchange.

and February 28, 2023, respectively. The yield behavior of the OFZ portfolio with various durations was following the behavior of the money market interest rate till the end of July 2022. But after that, yields on OFZ with a duration of up to two years stopped falling, or increased insignificantly, while yields on long-term bonds with a duration of 10 years and more started to grow at a higher rate. Accordingly, yield spreads of long-term bonds increased considerably relative to money market interest rates.

For example, as compared with the MOEXREPO rate, the yield spreads of 2-year OFZ amounted to 0.42 p.p., -0.54 p.p. and 0.85 p.p. as of December 30, 2021, July 29, 2022 and February 28, 2023, respectively. As of the same dates, the yield spreads of 10-year OFZ were equal to 0.51 p.p., 0.84 p.p. and 3.38 p.p., respectively. In other words, as of February 28, 2023, the spreads of long-term OFZ issues surpassed 4-fold the spreads of intermediate bonds.

However, the Central Bank of Russia believes that with taking into account a relatively low volume of the government debt and the RF Ministry of Finance's options to place OFZ with insignificant premiums relative to the secondary market the agency will still be able to keep in check the interest rate risk.[1]

1 The Review of Financial Market Risks. November–December 2022. The Analytical Report. Moscow: The Central Bank of Russia. C. 3. URL: https://www.cbr.ru/Collection/Collection/File/43666/ORFR_2022-11.pdf

By contrast with the equity market, the domestic bond market continued its growth in value terms in 2022. The year 2022 saw the appreciation of government securities in circulation in Russia from Rb15.8 trillion in 2021 to Rb18.1 trillion, an increase of 14.6% (a 12.6% growth of this indicator in 2021). Over the same period, the value of domestic corporate bonds picked up from Rb17.6 trillion to Rb20.3 trillion, an increase of 12.6% as compared with 8.3% in 2021 (*Fig. 25*). The value of government and corporate bonds in circulation kept growing in January-February 2023.

After February 24, 2022, a recovery of the domestic bond market was facilitated by financial regulators' effective measures aimed at eliminating temporary financial shocks in February-March and reducing subsequently the Central Bank of Russia's key rate.

By contrast with 2021, when the Russian Central Bank switched over from the policy of cutting the key rate to the policy of increasing it, in 2022 amid the renewed process of key rate cuts and easing of the monetary policy despite serious sanctions the volumes of initial offerings of government, regional and corporate bonds increased considerably. The volumes of new corporate bond issues grew from Rb3.4 trillion in 2021 to Rb4.1 trillion in 2022, an increase of 19.5%, and those of federal loan bonds (OFZ), from Rb2.6 trillion to Rb3.3 trillion, an increase of 24.5% (*Fig. 26*). In 2022, the primary market of regional bonds virtually nullified: the volumes of its new issues were equal to the mere Rb1.1 bn as compared with Rb157.6 bn in 2021 on the back of changes in the sources of regional budgets funding in 2022. There were no new issues of Central Bank of Russia bonds in 2022.

In the period of a pickup in the Central Bank of Russia's key rate in 2021, the volumes of new corporate bond issues fell from Rb4.2 trillion in 2020 to Rb3.4 trillion in 2021, a decrease of 18.3%. Over the same period, the volumes of new offerings of government bonds decreased from Rb6.6 trillion to Rb2.6 trillion, a decrease of 60.0% and those of new regional bond issues, from Rb265 bn to Rb158 bn, a decrease of 40.5%.

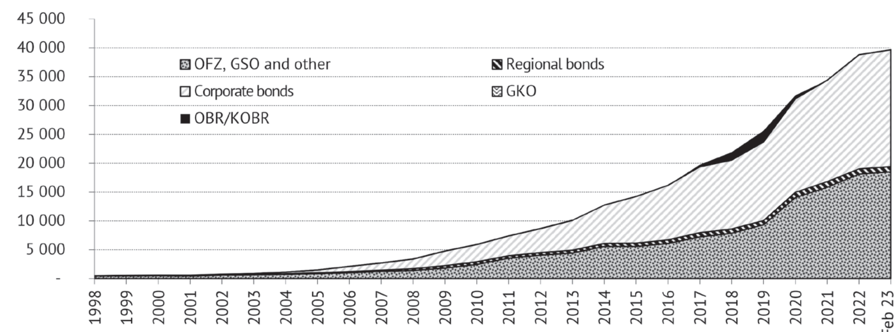


Fig. 25. The volumes of ruble bonds in circulation, 1998—February 2023, billion rubles

Source: own calculations based on the data of the RF Ministry of Finance and Cbonds.

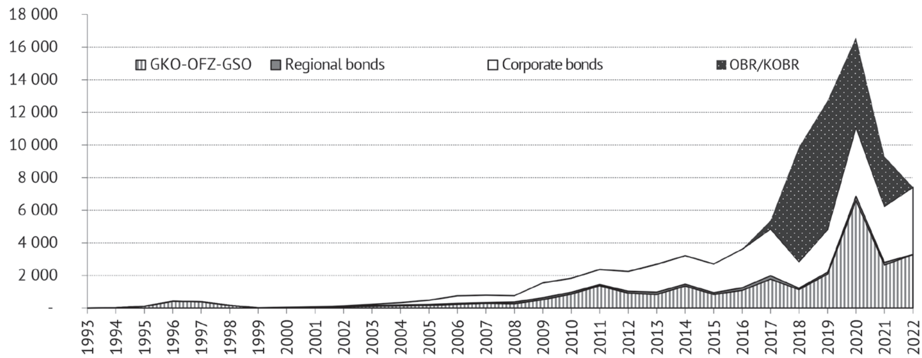
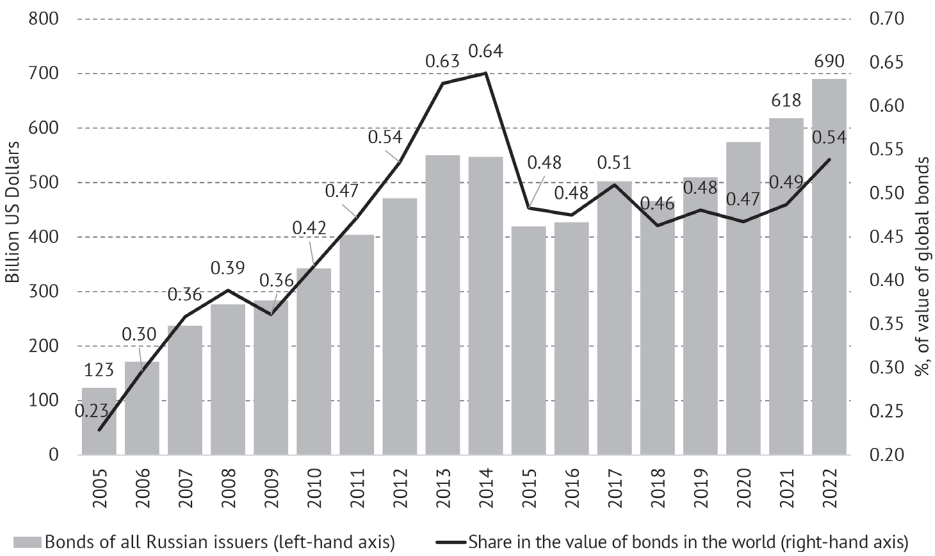


Fig. 26. The volumes of ruble bond offerings, 1993—2022, billion rubles

Source: own calculations based on the data of Cbonds.

It is noteworthy that all types of Russian bonds account for the mere 0.5% of the value of the global bonds circulation (*Fig. 27*). Dynamic growth in Russian bonds from $123 bn in 2005 to $547 bn in 2014 was accompanied by an increase



Note. In 2022, in calculating the share of Russia the value of global bonds is given on the basis of estimates of SIFMA (USA). Russian issuers' bonds include corporate, government and municipal domestic bonds and Eurobonds.

Fig. 27. The value of Russian issuers' bonds in circulation (billion US Dollars) and their share in the value of global bonds (%), 2005–2022

Source: own calculations based on the data of Cbonds and SIFMA.

in the share of Russian bonds in the value of global bonds from 0.23% to 0.64% because the growth rates of the Russian bond market outpaced those of the global bond market.

In 2022, despite sanctions and termination of the influx of new investments by global investors, the overall volume of the Russin bond market was growing faster than the global bond market. The overall value of various types of bonds in all Russian issuers' circulation, including Eurobonds, increased from $618 bn in 2021 to $690 bn in 2022, an increase of 11.6%. The share of Russian bonds in the overall value of global bond issues picked up from 0.49% to 0.54%. With a relatively stable exchange rate of the Russian ruble in 2022 amid cuts in the key rate, the value of Russian bonds was growing while in developed countries central banks were raising interest rates and it affected the value of issued bonds.

The corporate bond market

After foreign sanctions were imposed on the domestic corporate bond market in 2022, the issuing of bonds continued every month; for Russian issuers it became the only source of refinancing the bond debt. Starting from August 2022, the value of new corporate bond issues has surpassed considerably the monthly volumes of placed corporate bonds in 2020-2021 (*Fig. 28*). In August-December 2022, the overall value of new corporate bond issues was equal to Rb3.6 trillion as compared with Rb2.8 trillion and Rb1.8 trillion in the relevant period of 2020 and 2021, respectively.

In January-February 2023, the value of new corporate bond issues amounted to Rb670.4 bn as compared with Rb362.6 bn, Rb302.9 bn and Rb82.4 bn in the relevant period of 2020, 2021 and 2022, respectively.

In 2022 and early in 2023, several Russian companies issued domestic bonds denominated in foreign currency (foreign currency corporate bonds (CB)). According to our calculations based on the data of Cbonds, in 2022 the volume of new foreign currency CB offerings was equal to the equivalent of $27.8 bn or Rb1533.2 bn; in 2023 the volume of new issues of specified bonds amounted

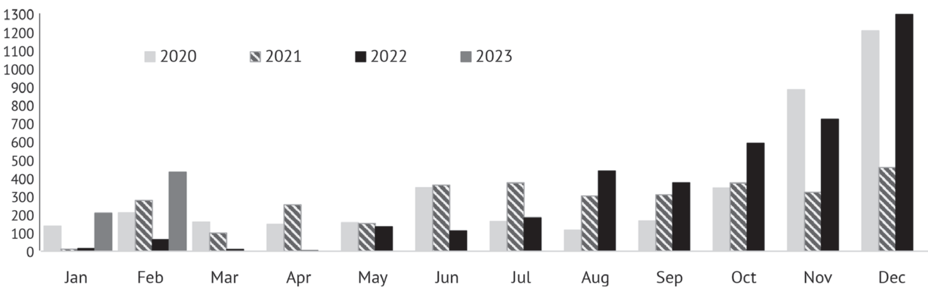


Fig. 28. The volume of corporate bond offering in 2020–2022 and January-February 2023, billion rubles

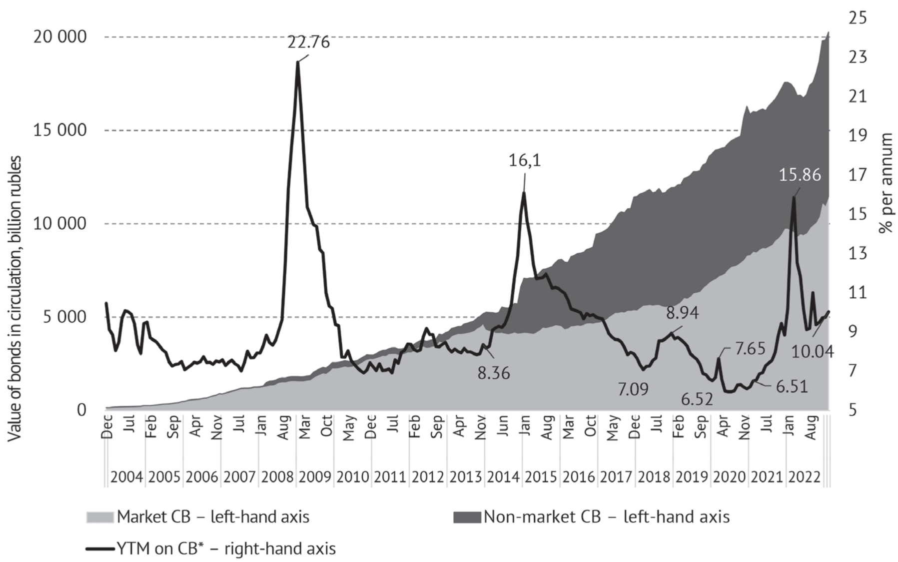
Source: own calculations based on the data of Cbonds.

to $7.0 bn or Rb525.4 bn as of March 15. Thus, in 2022 and January-March 2023 the new foreign currency corporate bond issues were equal to 37.2% and 77.1%, respectively, of the overall sum of new corporate bond issues on the domestic market, including non-market placing.

In the pattern of new issues of foreign currency corporate bonds, bonds denominated in US Dollars prevailed in 2022; they accounted for 52.3% of all foreign currency corporate bond issues. Bonds denominated in yuan, euro and other currencies accounted for 39.1%, 6.8% and 1.8% of new issues, respectively. As of March 15, 2023, US Dollars accounted for the whole volume of new foreign currency corporate bond issues.

In 2022, in the pattern of foreign currency corporate bond issuers six entities, including Siti Invest, a specialized financial entity (21.5%), Gazprom Kapital (19.7%), Rusal (15.2%), Rosneft (10.0%) and Lukoil (7.7%) accounted for 80.1% of all issuers. In January-March 15, 2023, Gazprom Kapital accounted for 100.0% of new foreign currency corporate bond issues.

After the 2008 crisis, the ruble yield of the IFXCND index grew occasionally on the back of depreciation of prices for oil and investors' concerns amid geopolitical risks and international sanctions (*Fig. 29*). In 2014 and February 2022, the peaks of yield to maturity of the index portfolio coincided with the highest values of



* Yield to Maturity (YTM) of the IFXCBN portfolio.

Fig. 29. The value of ruble corporate bonds in circulation and yield to maturity of the IFX-Cbonds corporate bond portfolio, December 2003 — February 2023

Source: own calculations based on the data of Cbonds.

the Central Bank of Russia's key rates. Corporate bond market growth has largely been facilitated by means of an increase in non-market issues since 2014.[1]

As of February 2023, out of the overall value of Rb20.3 trillion of ruble corporate bonds in circulation market bond issues and non-market bonds accounted for Rb11.5 trillion (or 56.6%) and Rb8.8 trillion (43.4%), respectively.

In March 2021 - March 2022, with the key rate picking up from 4.25% to 20.0%, the average yield to maturity of the index portfolio of IFXCBND bonds increased from 6.56% to 15.86% per annum over the same period. Later, as the financial market stabilized and the key rate decreased the yield to maturity of corporate bonds fell to 10.04% as of February 28, 2023.

In the difficult year of 2022, investors' cautious approach to investments in corporate bonds with high credit and interest risks amid cuts in the key rate and a relatively stable exchange rate of the Russian ruble facilitated domestic corporate bond market issuers to raise a much higher net volume of funds as compared with the pre-crisis 2021, with default statistics improved simultaneously. The share of ruble corporate bonds with some form of default fell from 3.3% in 2020 to 2.7% and 1.7% in 2021 and 2022, respectively (*Fig. 30*). At the same time, the volume

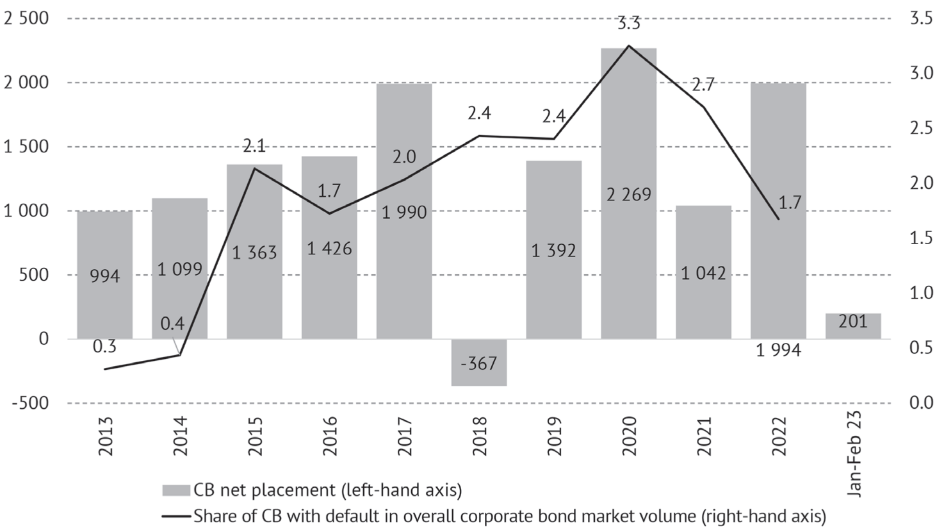


Fig. 30. The value of CB net placement (billion rubles) and the share of CB with default in the overall volume of their market (%), January 2013 – February 2023

Source: own calculations based on the data of Cbonds.

1 According to the definition of the Central Bank of Russia, a non-market issue means a situation where the whole offering or a larger portion thereof is purchased by the managing bank or companies which are close to the issuer. See: The review of the Russian Financial Sector and Financial Instruments. 2019. The Analytical Report. Moscow: The Central Bank of Russia. p. 37.

of net funds raised by issuers increased 2-fold from Rb1,0 trillion in 2021 to Rb2.0 trillion in 2022.

However, the main credit risks on the Russian bond market are currently concentrated in the market segment of corporate Eurobonds because of sanctions.

The number of issuers on the Moscow Exchange corporate bond market exceeds considerably the number of companies in the stock listing. In this sense, the corporate bond market is used more actively than the equity market for attracting new funds and refinancing the development of companies from various economic sectors.

On the exchange, over a long period of time the number of corporate bond issuers decreased from 467 in the pre-crisis 2007 to 198 in 2018 (*Fig. 31*). It happened not only because of changes in borrowing schemes when for issuing corporate bonds large issuers often used a subsidiary, while at present bonds are issued by companies directly, but also because large bond issues had an advantage in terms of issuers' costs and listing requirements. In 2018, amendments were introduced in the securities market legislation to simplify corporate bond issuing as regards decision-making on issuing bonds, reduction of time-limits for registration, simplification of reporting on the bond issue outputs and lifting of limitations regarding the deadlines for placement of securities. In 2022, the number corporate bond issuers on the Moscow Exchange increased from 376 to 398, growth of 5.8% (*Fig. 31*). As of February 28, 2023, the number of issuers was equal to 394 companies.

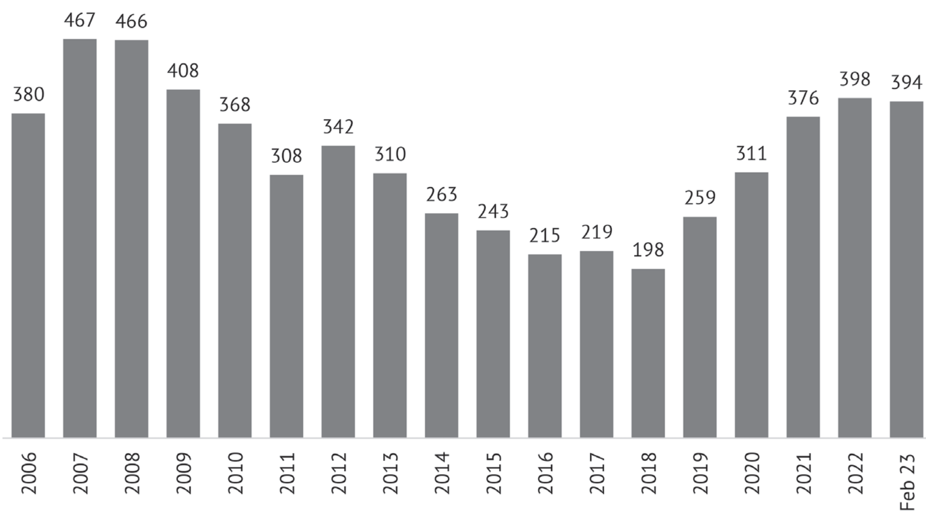


Fig. 31. The number of issuers of market corporate bonds at the Moscow Exchange, 2006 – February 2023

Source: The data of Cbonds.

By contrast with the previous years, in 2022 the distinctive feature of the domestic corporate bond market consisted in the fact that mostly high-quality issuers with a high credit rating were the main drivers of new corporate bond issues.

In 2022, the share of bonds of the "first echelon" issuers[1] in the overall value of new corporate bond issues amounted to 65%, while that of the "second echelon" fell by 0.2%. By estimates of experts of the *Expert RA* rating agency published by the *Expert* magazine, "the primary bond market has become virtually inaccessible for issuers with a rating below BBB."[2]

Despite advanced growth in new bond issues of the "first echelon" issuers, in 2022 the number of corporate bond issuers increased and brought about a decline in the level of concentration in the financial market segment under review. The share of top-20 issuers in the overall volume of new bond issues remained virtually at the same level as in 2021: 76.4%–76.5% of the overall value of placements, while the share of top-10 issuers declined from 68.3% in 2020 and 64.4% in 2021 to 59.2% in 2022 (*Fig. 32*).

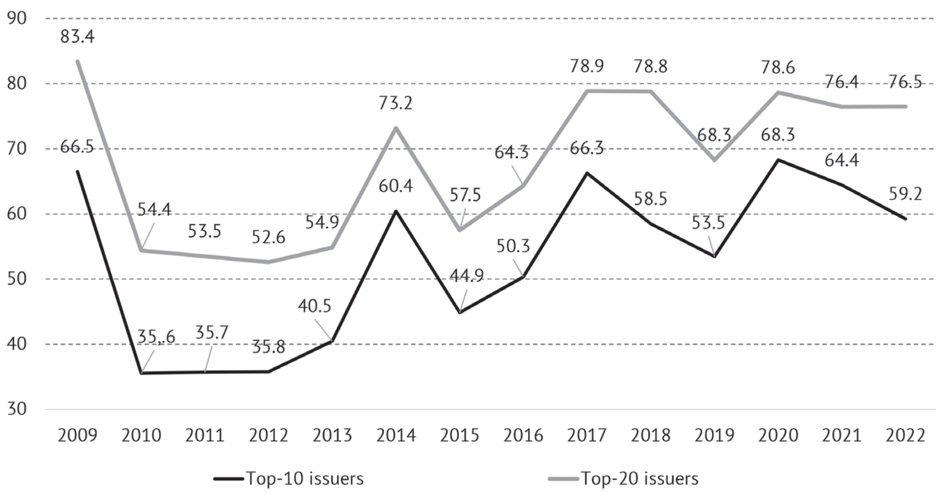


Fig. 32. The share of top-10 and top-20 issuers in new issues of ruble corporate bonds, 2009–2022, %

Source: own calculations based on the data of Cbonds.

1 The "first echelon" bonds include bonds with "BBB-" and higher ratings assigned by Russian rating agencies AKRA and Expert RA. In this case, the credit rating "BBB-" is the lower limit of investment ratings of Russian corporate bond issuers. At the same time, in the Russian legislation there is no universal understanding of the "investment credit rating" which is common for different institutional investors. The "second echelon" bonds include bonds with "BB-" – "BB+" ratings assigned by Russian rating agencies AKRA and Expert RA.

2 *E. Obukhova*. No Chance for Bonds // The Expert magazine. Issue No, 1–3. December 26, 2022 – January 22, 2023

The year 2022 saw a new trend when out of 10 large issuers on the ruble corporate bond market four issuers represented the so-called special financial institutions (SFI), that is, new and not quite transparent entities with a zero-balance established for securitization of financial flows from some assets (*Table 10*). In 2022, only these four SFI – *Idei i Investitsii*, *Aurum-1*, *MIP-1* and *Mediinye Aktivy* – carried out placements of Rb398 bn worth of bonds or 14.3% of the overall value of ruble corporate bond issues.

Table 10

Top 10 corporate bond issuers and their share in the overall value of ruble corporate bond issues

	Issuers	2020		Issuers	2021		Issuers	2022	
		Billion Rb	**%**		**Billion Rb**	**%**		**Billion Rb**	**%**
1	Rosneft	815	17.7	DOM.RF Ipotechny Agent	418	13.3	DOM.RF and DOM. RF Ipotechny Agent	519	18.6
2	Sberbank of Russia	550	12.0	VEB.RF	411	13.1	Avtodor	277	10.0
3	VTB. including Demtra Holding	489	10.6	Sberbank of Russia	366	11.7	SFI Idei i Investitsii	156	5.6
4	DOM.RF	386	8.4	VTB. including Demetra Holding	273	8.7	VEB. RF	156	5.6
5	RZhD	353	7.7	Veresayeva, 6	130	4.1	Sberbank of Russia and Sberbank KIB	149	5.3
6	GSP-Finans	243	5.3	Gazprom Kapital	120	3.8	SFI Aurum-1	101	3.6
7	VEB	90	2.0	OTEKO-Portservis	96	3.1	SFI MIP-1	83	3.0
8	Azot (Kemerovo)	88	1.9	Alfa-Lizing	76	2.4	Rosseti	80	2.9
9	GTLK	66	1.4	RZhD	69	2.2	MTS	72	2.6
10	Gazprombank	59	1.3	AFK Sistema	63	2.0	SFI Mediinye Aktivy	58	2.1
	Capitalization of all ruble corporate bond issues	**4595**	**100**	**Capitalization of all ruble corporate bond issues**	**3 137**	**100**	**Capitalization of all ruble corporate bond issues**	**2 787**	**100**
	Capitalization of issues of top-10 corporate bond issuers	**3138**	**68.3**	**Capitalization of issues of top-10 corporate bond issuers**	**2022**	**64.4**	**Capitalization of issues of top-10 corporate bond issuers**	**1651**	**59.2**

Source: own calculations based on the data of Cbonds.

In 2022, the corporate bond market's insufficient orientation to issuers from the real sector of the economy is an important challenge. According to our calculations based on the data of the Central Bank of Russia,[1] the share of new corporate bond issues of banks and other financial institutions was equal to 68.3% in 2021 and 69.0% in 2022, while in January 2023 it increased to 93.9%.

In the overall value of corporate bonds in circulation, the share of bond issues of financial institutions grew from 40.3% in 2018 to 43.9% in 2022 and 43.1% in February 2023 (*Table 11*). As of February, the share of the financial sector together with extraction, transportation, power industry and building was equal to 85.3% of the value of corporate bonds in circulation. It means that companies from such modern sectors of the economy as the manufacturing, the chemical and petrochemical industries, IT, telecommunications and communication, education and other use to a lesser extent market mechanisms of funding by means of bonds than the above specified five sectors of the economy.

Table 11

The sectorial pattern of the ruble corporate bond market, 2018 – February 2023, %

	2018	2019	2020	2021	2022	February 2023
Financial institutions	40.3	41.8	40.2	42.9	43.9	43.1
Production of oil, gas and coal	30.2	27.9	28.3	25.5	25.4	27.0
Transportation	9.5	8.9	9.3	9.7	7.6	6.7
Power industry	4.6	3.9	3.2	2.8	3.1	3.2
Building	4.1	4.4	4.4	4.3	5.4	5.3
Other sectors	11.3	13.1	14.6	14.8	14.6	14.7

Source: Own calculations based on the data of Cbonds.

Despite higher sanctions risks, the volume of the market of Eurobonds of Russian companies remains considerable in US Dollar terms in February 2023 and is shrinking slowly (*Fig. 33*). Notably, its size fell from $107 bn in 2021 to $71 bn as of February 2023, a decrease of 33.6%. With taking into account higher risks of payments on such bonds in favor of Russian residents with foreign banks and depositaries being frozen and formal defaults declared on these bonds owing to a failure of issuers under sanctions to transfer in a timely manner available funds to foreign holders of Eurobonds, issuers of these bonds have to take efforts to make early redemption of the debt.

As stated above, in order to prevent mass defaults of Russian companies on the Eurobond market because of sanctions restricting a transfer of funds by issuers to foreign financial institutions for debt servicing the Russian legislation provided for the procedure for voluntary issuing of the so-called "substitution bonds." On December 30, 2022, the Central Bank of Russia advised companies to carry out a mandatory issue of such bonds for restructuring their debt obligations. According

1 URL: https://www.cbr.ru/statistics/macro_itm/sec_st/issue/

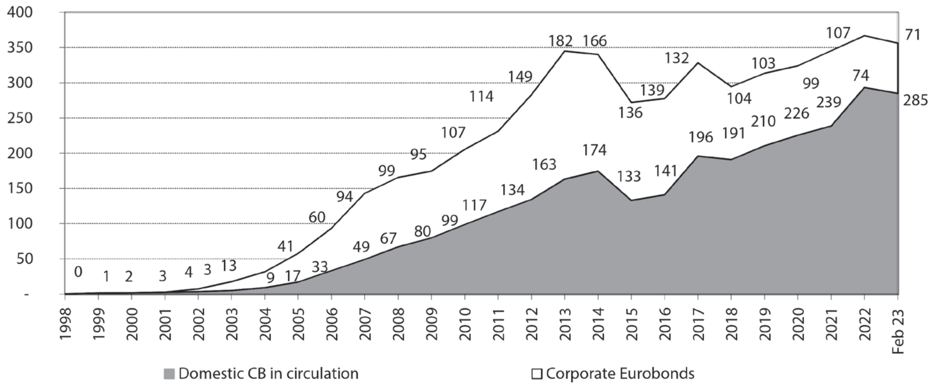


Fig. 33. The volumes of Russian issuers' corporate bonds in circulation, 1998 – February 2023, billion US Dollars

Source: own calculations based on the data of Cbonds and the Moscow Exchange.

to the mass media reports,[1] late in February 2022 the Ministry of Finance and the Central Bank of Russia prepared the draft of the Executive Order of the RF President requiring Russian issuers of Eurobonds to issue substitution domestic securities on a mandatory basis.

With introduction of sanctions in 2022 and until now, Eurobond issuers have adopted various debt servicing strategies which do not imply the issuing of substitution bonds. A large portion of issuers, both those under sanctions and non-sanctioned ones, chose the strategy of separate payments in rubles to resident-holders through the National Settlement Depositary (NSD) and foreign bondholders through foreign depositaries. NOVATEK, EVRAZ, Global Ports, ABH Financial, Ozon, Yandex and VK bought back their bonds, while Evrokhim and SUEK postponed their coupon payments. As of March 15, 2023, only six companies – Gazprom Kapital, Lukoil, Sovkomflot, Borets Kapital, Metalloinvest and MMK – used the option of placement of substitution bonds.

According to our calculations based on the data of Cbonds, in 2022 the volume of placement of substitution bonds amounted to the equivalent of $7.58 bn or Rb526.5 bn; in 2023 the volume of new issues of such bonds was equal to $7.0 bn or Rb525.4 bn as of March 15. Substitution bond issues have not become the main mechanism of restructuring of Russian companies' foreign debts so far. As of March 15, 2023, the overall volume of substitution bonds was equal to $14.4 bn, that is, 18.2% of the overall value of Russian companies' Eurobond issues in October 2022 when the first placement of substitution bonds took place.

In 2022, bonds denominated in US Dollars dominated in the pattern of new issues of substitution bonds and accounted for 74.9% of all new issues of such

1 *S. Sheludchenko* (2023). The RF Ministry of Finance and the Central Bank of Russia will require issuers to substitute Eurobonds // The Vedomosti daily, February 22. URL: https://www.vedomosti.ru/finance/articles/2023/02/22/963952-minfin-i-tsb-obyazhut-emitentov-zameschat-evrobondi

bonds; bonds denominated in euro and other currencies accounted for 19.9% and 5.3% of the new issues of substitution bonds, respectively. Early in 2023, 66.8% and 33.2% of the new issues of substitution bonds were denominated in US Dollars and euro, respectively.

As of March 15, 2023, the pattern of issuers of new substation bond issues was as follows: Gazprom Kapital (77.9%), Lukoil (11.6%), Sovcomflot (4.8%), MMK (2.1%), Metalloinvest Holding (2.0%) and Borets Kapital (1.5%).

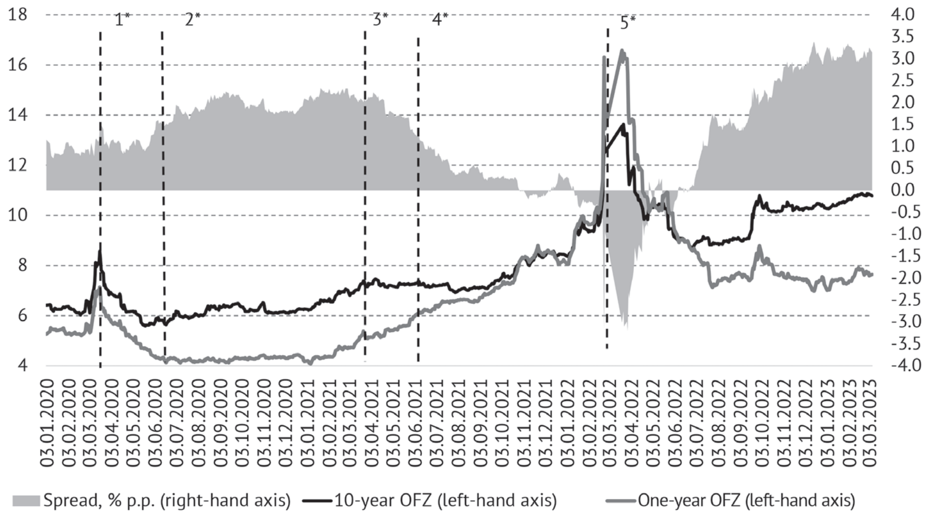
The calculations based on the Cbonds data (with coupon income and the market value of investments taken into account) of the comparative cumulative yield on substitution bonds and various corporate bond portfolios show that the specified yield on substitution bonds surpasses considerably the relevant indicator of ruble corporate bonds, but is lower than that of Eurobonds issued by companies. From December 1, 2022 till February 28, 2923, the cumulative total yield in rubles was as follows: index portfolios of substitution bonds (23.81%), corporate Eurobonds (36.4%) and ruble corporate bonds (2.11%) with the exchange rate of the Russian ruble (in US Dollars) appreciating by 22.98%.

It means that amid the weakening of the ruble from December 1, 2022 till February 2023, investors saw the advantage of substitution bonds as compared with the respective ruble fixed income instruments in the principal and coupon payments on substitution bonds being linked to the US Dollar and euro. However, the cumulative yield on substitution bonds was lower than that on respective corporate Eurobonds because of the factor of lower risks of recoverability of investments serviced through the domestic infrastructure and regulation thereof within the jurisdiction of the Russian Federation.

The market of RF government bonds

Owing to high rates of borrowing in March-August 2022, the RF Ministry of Finance did not hold auctions on OFZ placement. A decrease in domestic investors' demand for OFZ during this period was driven by banks' high deposit rates. However, on the back of cuts in the Central Bank of Russia's key rate in H2 2022 and a relatively high liquidity surplus in the banking sector (see *Fig. 7* and *9*), the RF Ministry of Finance resumed large-scale borrowings on the domestic market to finance advanced growth in budget expenditures in Q4 2022 and Q1 2023.

Stability of the government bond market is measured by the indicator of the spread between yield to maturity of 10-year and one-year government bonds. From October 2021, this spread turned occasionally negative and reached its minimum of -3.15 p.p. on February 24, 2022 (*Fig. 34*). Spread negative values suggesting an inversion of the yield curve of bonds with various durations is the evidence of growing instability of the financial system when interest rates on short-term bonds grow because of alack of short-term financial flows and problems related with liquidity of financial instruments, while interest rates on long-term bonds decrease on the contrary because of market participants' expectations of imminent cuts in the Central Bank of Russia's interest rates for the sake of economic growth and financial support of the business. Not accidentally, a negative spread of the yield curve of long-term and short-term government



Note. 1* – the financial shock related with the beginning of the COVID-19 pandemic and the liquidity shock on global financial markets; 2* – growth of the program of government borrowings with a focus on domestic investors; 3* – the beginning of the period of a rise in in the key rate of the Central Bank of Russia: from March 23, 2021 till February 28, 2022 the key rate increased from 4.25% per annum to 20.0% per annum; 4* – introduction of US sanctions banning US investors to buy RF government bonds on the primary market; 5* – The Central Bank of Russia sets the key rate of 20% per annum.

Fig. 34. The yield to maturity of 1-year and 10-year OFZ (% per annum) and the spread between their yields (p.p.), January 3, 2020 – March 7, 2023

Source: Own calculations based on the data of the Central Bank of Russia and the Moscow Exchange.

bonds is regarded in different countries as a strong predicator of recession and a financial crisis.

After February 24, 2022, the Central Bank of Russia's professional actions aimed at raising sharply the key rate, refinancing banks and maintaining a stable exchange rate of the Russian ruble helped avoid a cash liquidity deficit in the banking sector and reduce later the yield on short-term and long-term obligations. From June 24, 2022, the spread of yields on OFZ entered the zone of positive values and started to grow. As of February 28, 2023, the yield to maturity of 1-year government bonds fell to 7.73% per annum, that is below its value as of December 30, 2021 (8.35%), which is the evidence of the banking sector's high liquidity. The yield on 10-year OFZ was falling as the Central Bank of Russia's key rate decreased, while from the end of September 2022 this decline stopped. As of February 28, 2023, the yield was equal to 10.87% per annum as compared with 8.43% as of December 30, 2021. It means that bond market participants expect in short-term a rise in the key rate. Consequently, the yield spread was equal to

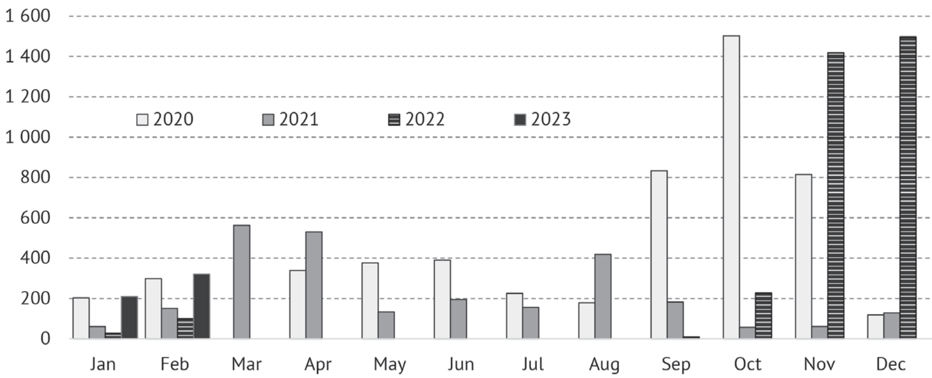


Fig. 35. The volumes of OFZ auction placements in 2020–2022 and January-February 2023, billion Rb

Source: own calculations based on the data of Cbonds.

3.14 p.p. as of February 28, 2023. However, it does not mean this value of the spread is optimal, but most importantly, it is not negative.

In October-December 2022, the overall value of new OFZ issues was equal to Rb3.1 trillion as compared with Rb2.4 trillion in the same period of 2020 and Rb0.2 trillion in 2021 (*Fig. 35*). In January-February 2023, the value of new issues of government bonds amounted to Rb550.3 bn as compared with Rb501.3 bn, Rb211.8 bn and Rb128.1 bn in 2020, 2021 and 2022, respectively.

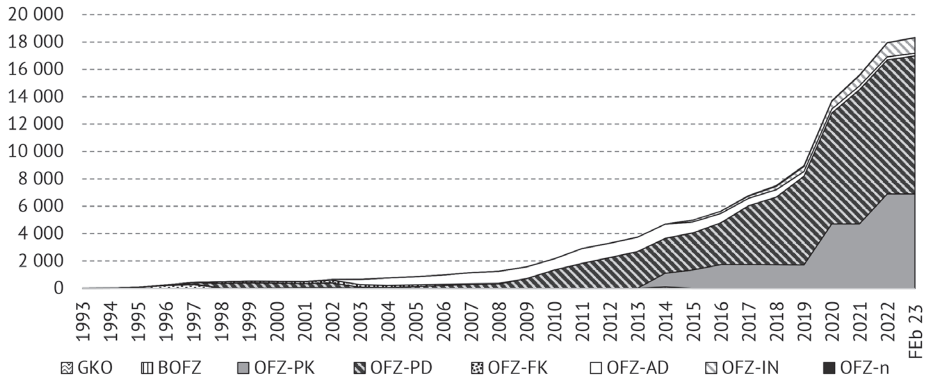
Amid prevailing uncertainties about future key rate trends, the record-high volumes of borrowings by the RF Ministry of Finance over the past three years late in 2022 and early in 2023 led to relatively high borrowing rates, particularly, on bond issues with a duration of over 5 years.

In November-December 2022, securities with a floating coupon (OFZ-PK) accounted for 80.6% of the volume of OFZ placements. At auctions, these securities were in high demand with large systemically important banks which bought 90.7% of all OFZ placed in November-December.

A trend of growing interest rates on placed OFZ has been explicit since the beginning of 2023. By seeking to limit the cost of expenditures of the state debt servicing at auctions in 2023, the RF Ministry of Finance offered mainly fixed income OFZ (OFZ-PD) to market participants. Market participants took increased interest in inflation indexed OFZ (OFZ-IN). According to the data of the Central Bank of Russia, the most active buyers of classical OFZ-PD were systemically important credit institutions, while OFZ-IN were purchased mainly by collective investors, including pension funds.[1]

Private investors started to invest more actively in government securities because of their disappointment with yields and risks related with investments in subordinated issues of bonds and structural bonds. According to the data of the

1 URL: https://www.cbr.ru/Collection/Collection/File/43767/DKU_2301-07.pdf



Note. Hereinafter, the following acronyms are used:
BOFZ is zero-coupon federal loan bonds;
GKO is short-term zero-coupon government bonds;
OFZ is federal loan bonds;
OFZ-AD is federal loan bonds with debt amortization;
OFZ-IN is federal loan bonds with an inflation-indexed nominal value;
OFZ-PD is federal loan bonds with a fixed coupon income;
OFZ-PK is federal loan bonds with a floating coupon income linked to RUONIA rate;
OFZ-n is federal loan bonds for individuals ("popular bonds").

Fig. 36. The volume of GKO-OFZ issues in circulation, 1993 – February 2023, billion rubles

Source: own calculations based on the data of RF Ministry of Finance and Cbonds.

Central Bank of Russia, the value of individuals' investments in government, sub-federal and municipal bonds increased from Rb492.4 bn in 2021 to Rb741.3 bn in 2022, growth of 50.5%.[1]

At the same time, new OFZ issues growth drivers which existed late in 2022 and early in 2023 can largely be exhausted. The maintaining of excessive liquidity in the banking sector and easing of the monetary policy are pro-inflationary factors and can hardly be used on the same scale. Private investors' interest in OFZ will probably remain in future, but it is unlikely to replace investments of foreign portfolio investors and Russian financial institutions. In such a situation, in 2023 the volumes of government borrowings on the domestic financial market may become smaller.

As of February 2023, the overall OFZ volume amounted to Rb18.3 trillion, an increase of 17.3% as compared with Rb15.6 trillion in 2021 (*Fig. 36*).

The largest segment of the OFZ market is OFZ-PD with a fixed coupon yield. The size of the coupon yield on such bonds is known in advance for the whole period of their circulation and this makes it feasible for the RF Ministry of Finance to manage effectively expenditures related with the state debt servicing. For

1 Statistical data to the review of key indicators of professional securities market participants. The Central Bank of Russia, 2023. URL: https://www.cbr.ru/securities_market/statistic/

a long time, the main investors in OFZ-PD, particularly those with a long duration, were foreign portfolio investors. In a new situation of 2022 and early in 2023, with increased interest rate risks banks and other financial institutions approach cautiously such bonds and this leads to constant growth in yields on auctions for their placement. The value of OFZ-PD increased from Rb9.8 trillion in 2021 to Rb10.1 trillion in February 2023, growth of 3.1%. The share of OFZ-PD in the value of OFZ decreased from 62.9% in 2021 to 55.1% in February 2023.

In 2022 and the first two months of 2023, OFZ with a floating coupon (OFZ-PK) providing their holders more flexibility in managing liquidity and interest rate risks were more attractive to domestic financial institutions. In case of OFZ-PK, the size of a coupon is linked to RUONIA money market rate which follows normally the key rate of the Central Bank of Russia. The overall value of OFZ-PK bonds in circulation increased from Rb4.7 trillion in 2021 to Rb6.9 trillion in February 2023, an increase of 46.8%. The share of OFZ-PK in the value of OFZ increased from 30.2% in 2021 to 37.6% in February 2022. In January-February 2023, despite increased yield of new OFZ issues on auctions, the RF Ministry of Finance did not issue new OFZ-PK.

OFZ-AD bonds with amortization of the principal debt are a convenient instrument for investing pension savings amid market volatility, but create difficulties for the RF Ministry of Finance in managing the state debt. As growth of the pension savings system slows down, demand for this instrument declines. The value of OFZ-AD fell from Rb271 bn in 2021 to Rb192 bn in February 2023, a decrease of 29.1%; the share of OFZ-AD in the overall value of OFZ declined from 1.7% to 1.0%.

With inflation risks taken into account, OFZ-IN bonds envisaging indexation of their par value depending on the level of inflation measured in accordance with the consumer price index are a popular instrument of the government securities market. By virtue of their protective properties, OFZ-IN bonds are in high demand with domestic institutional and private investors. The value of OFZ-IN increased from Rb764 bn in 2021 to Rb1130 bn in February 2022, growth of 47.9%; the share of OFZ-In in the overall value of OFZ increased from 4.9% to 6.2%.

OFZ-n bonds, which are sometimes called “popular bonds” because they are meant for private investments and positioned by the RF Ministry of Finance as an off-exchange instrument for promoting financial literacy of the population, account for an insignificant share of the OFZ market (0.1%). With OFZ-n bonds being sold via large retail banks, they have to compete aggressively with these banks’ own financial products for their customers. The value of OFZ-n decreased from Rb43 bn in 2021 to Rb19 bn in February 2022, a decline of 55.8%. With banks lacking open architecture standards for sales of financial products of various providers, a rise in popularity of bonds of large and reliable issuers, such as the RF Ministry of Finance, is complicated among private investors.

In 2022, on the back of sanctions imposed by unfriendly countries and RF retaliatory measures foreign portfolio investors’ OFZ investments were frozen and payments on them transferred to the “S”-type bank account for non-residents with banks and the DIA. In November 2022, in accordance with Federal

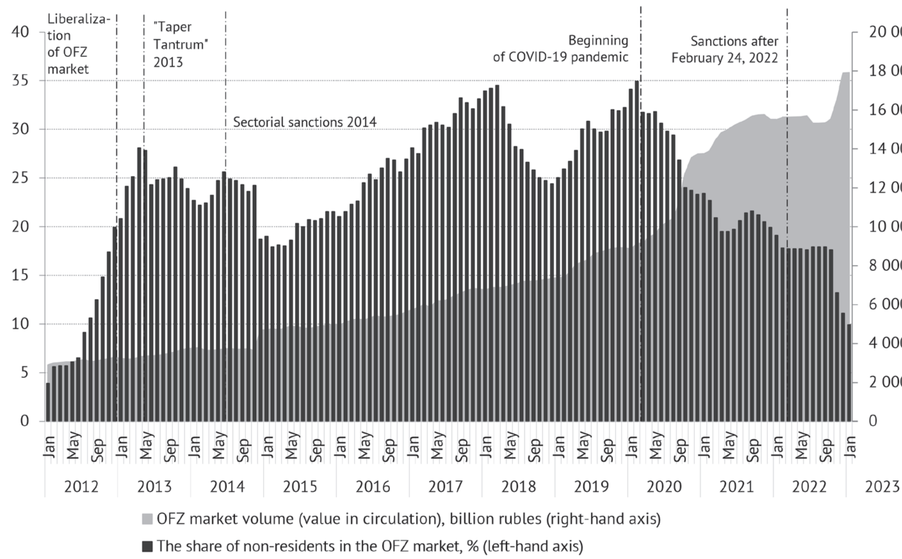


Fig. 37. The share of non-residents on the OFZ market (%) and the value of OFZ in circulation (billion Rb), February 2012 — January 2023

Source: own calculations based on the data of the Central Bank of Russia and Cbonds.

Law No.319-FZ of July 14, 2022 “On Amendment of Individual Statutory Acts of the Russian Federation” an involuntary transfer of OFZ recorded in accounts of nominal holders from unfriendly countries to Russian depositaries was carried out.

Over 10 years, that is, in the period from February 2013 when nominee accounts were opened by foreign clearing companies Euroclear and Clearstream with the Russian central depositary (NSD) till February 2023, the share of non-residents’ investments in OFZ was very volatile (*Fig. 37*). Occasionally, it fell dramatically owing to some developments leading to the outflow of foreign portfolio investors’ capital from OFZ, for example, Taper Tantrum[1] in May 2013, the introduction of sectoral sanctions against Russia in July 2014, growing concerns over the expansion of sanctions against the RF public debt in April 2018, the beginning of the financial crisis related with the coronavirus pandemic in March 2020 and the escalation of geopolitical risks after February 24, 2022. The maximum share of non-residents’ investments in OFZ was registered in February 2020 (34.9% of the volume of OFZ in circulation), while the minimum one, in January 2023 (9.9%).

In February 2022, when sanctions were introduced, the value of OFZ owned by non-residents, mostly large pension and investment funds, was equal to

1 For example, as a result of the US Federal Reserve’s declaration of its intension to raise centralized interest rates, a sudden large-scale exit of global portfolio investors from emerging financial markets took place.

Rb2.9 trillion or 17.9%. The analysis of subsequent developments suggests that despite restrictions imposed on non-residents' operations with OFZ, non-residents actually had various options of exit from these assts. In compliance with Federal Law No.319-FZ of July 14, 2022, holders of Russian securities (including OFZ) were granted the right of an involuntary transfer of these securities from foreign depositaries to custody accounts with the Russian depositary.[1] According to the data of the Central Bank of Russia[2], out of the overall volume of securities debited from nominal accounts with foreign depositaries (Rb1.36 trillion), the share of OFZ was equal to 94.4%. It turned out quite unexpectedly that nearly a half of the volume of bonds transferred to the Russian accounting infrastructure (about Rb640 bn) was owned by residents, despite the fact that they were early accounted for in foreign depositaries. As a result, the share of non-resident holders of OFZ decreased from 17.6% as of November 1, 2022 to 13.2% as of December 1, 2022. In economic terms, the scheme of OFZ ownership by Russian residents via offshores could hardly be popular. Most likely, it was operations on purchasing by Russian residents of OFZ from non-residents in foreign jurisdictions with a subsequent re-registration thereof to the specified residents' custody accounts with Russian depositaries. According to the Russian media, these operations with OFZ did not stop after November 2022.[3] As a result, the value of OFZ with non-residents fell from Rb2.2 trillion in November 2022 to Rb1.8 trillion in January 2023, a decrease of 18.9%.

In 2022, the share and absolute value of non-residents' investments on the market of RF government Eurobonds were declining slower as compared with ruble OFZ (*Fig. 38*). However, according to some business media, the activity was high on the off-exchange market with operations on purchasing Eurobonds from non-residents from unfriendly countries via brokers from friendly countries and Russian financial institutions' offshore subsidiaries.[4] The value of non-residents' investments in government Eurobonds fell from $20.0 bn in 2021 to $16.3 bn in 2022, a decrease of 18.5%, while the value of non-residents' investments in OFZ over the same period declined from Rb3.1 trillion to Rb2.0 trillion, a decrease of 35.5%. The share of non-residents in Russian Eurobonds fell from 51.1% in 2021 to 45.0% in 2022, a decline of 6.1 p.p., while the share of non-residents in OFZ (owing among other things to advanced growth in new investments in bonds on the part of Russian residents) decreased from 19.9% to 11.1%, a fall of 8.8 p.p.

Perhaps, in future the share of non-residents in government Eurobonds may decrease if the RF Ministry of Finance issues substitution bonds, but it has not happened yet. Late in November 2022, the issue of a possible exchange of Russian

1 Subsequent amendments to the legislation provided for new additional cases where an application could be submitted for an involuntary transfer of the accounting of titles to Russian securities after November 24, 2022.
2 The review of financial market risks. November – December 2022. The Information and Analytical Report. Moscow: The Central Bank of Russia, 2023. p. 11. URL: https://www.cbr.ru/Collection/Collection/File/43666/ORFR_2022-11.pdf
3 Non-residents keep selling OFZ with a 40% discount in 2023, as well // Frank Media. January 27, 2023. URL: https://frankrg.com/110155
4 *A. Stolyarov* (2023). Russian investors have started a dangerous game // The Expert magazine. Issue No.8. February 20–26.

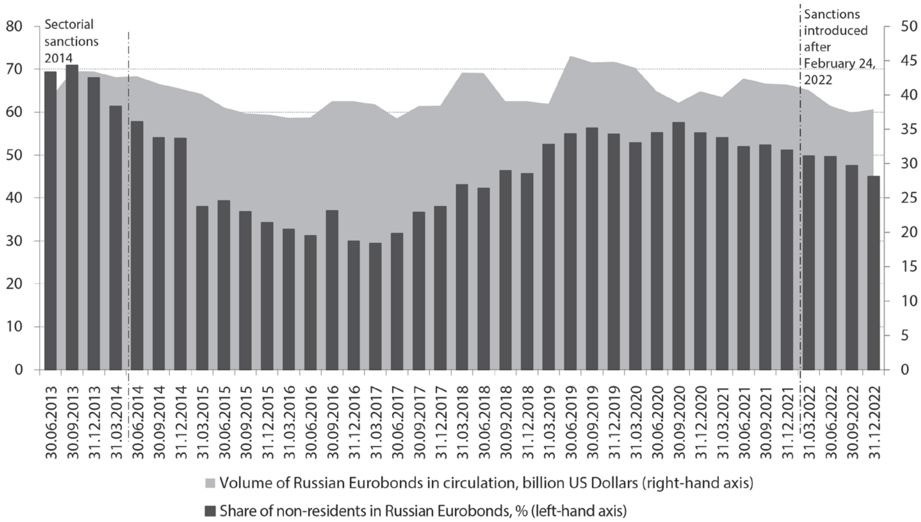


Fig. 38. The share of non-residents on the market of Russian government Eurobonds (%) and the value of Russian government Eurobonds in circulation (billion US Dollars), July 2013 — December 2022

Source: own calculations based on the data of the Russian Central Bank and Cbonds.

Eurobonds for federal loan bonds was on the agenda, however, according to the mass media reports the RF Ministry of Finance and large banks failed to negotiate the quantitative parameters of the deal.[1]

During a long period of time after the financial crisis, starting from the mid-2000s, the Russian Federation pursued the policy of advanced growth in borrowings in rubles on the domestic market as compared with accumulation of debts in foreign currency (*Fig. 39*). In 2006, the values of the RF domestic and foreign debts became equal and amounted to $38 bn, each. After that, the value of ruble bonds (OFZ and GSO) started to grow faster as compared to foreign borrowings.

The overall value of Russian government bonds increased from $256 bn in 2021 to $298 bn in February 2023, growth of 16.4%. The value of ruble government bonds increased from $215 bn to $260 bn, growth of 20.9%, while the value of Eurobond issues declined from $42 bn to $38 bn, a decrease of 9.5%. As a result, the overall share of Russian bonds in the overall value of RF domestic and foreign debts increased from 83.8% in 2021 to 87.3% in February 2023.

Taking into account the sanctions-related actual refusal of foreign financial institutions to receive funds from the Russian Federation in performance of obligations on the earlier issued government Eurobonds, it is necessary to find

1 *Siluanov*: The Ministry of Finance and banks failed to reach an agreement on the price of exchange of Russian Eurobonds for OFZ // Frank Media. November 25, 2022. URL: https://frankrg.com/102778

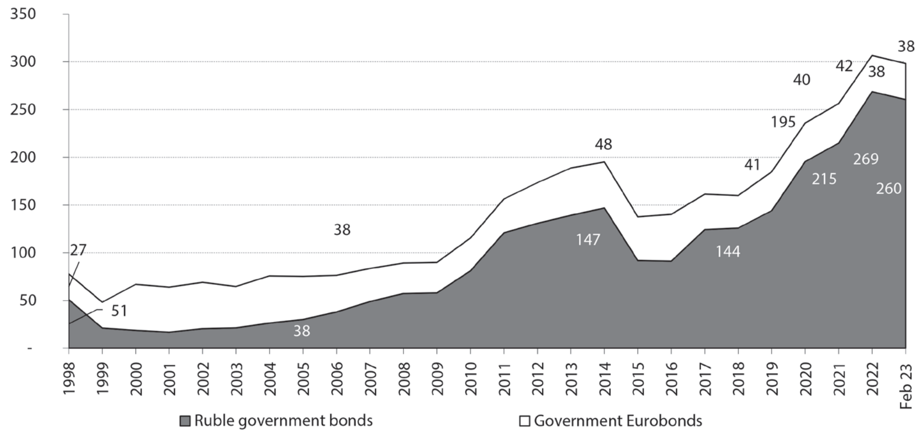


Fig. 39. The volumes of domestic government bonds and Russian Eurobonds in circulation, 1998 – February 2023, billion US Dollars

Source: own calculations based on the data of Cbonds and the Moscow Exchange.

a solution regarding the conversion of the specified Eurobond issues in other financial instruments regulated by the RF legislation.

So, in 2022 despite sanctions and the outflow of foreign capital, the domestic market of government bonds remained stable owing to liquidity surplus in the banking sector and private investors' increased interest in OFZ investments. The authorities' flexible measures aimed at reducing the OFZ market's reliance on non-residents and settlements with them in future may facilitate non-residents' return to the domestic market in case of mitigation of the current geopolitical risks. A higher uncertainty prevailed on the market of Russian government Eurobonds where risks of quasi-defaults may potentially increase because of artificial difficulties in transferring of funds to bondholders. Further to the measures taken to protect the interests of Russian investors in the specified Eurobonds, it is necessary to take other measures as well to reduce the Russian Federation's obligations on the specified securities.

2.1.7. The derivatives and FX markets

The derivatives market's economic purpose consists in facilitation of investment assets pricing, as well as provision of hedging to market participants from sudden changes in prices for assets in future. However, the derivatives market where private investors prevail is often used for speculative transactions with a use of a higher credit leverage as compared with the spot market, rather than for managing risks.

Contrary to expectations, in 2022 and the first two months of 2023 high volatility of the FX and financial markets did not lead to a pickup in the value of operations on the derivatives exchange market (*Fig. 40*). This shows that private investors which dominate on this market use it to a greater extent for short-term

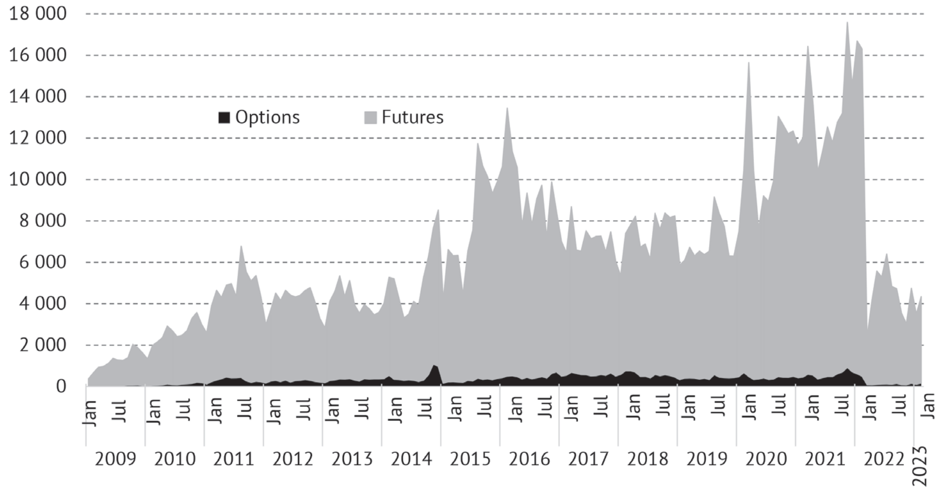


Fig. 40. The value of futures and options trades on the Moscow Exchange, January 2009 — February 2023, billion Rb

Source: own calculations based on the data of the Moscow Exchange.

deals, rather than for hedging. The trading volume on the futures market of the Moscow Exchange shrank from Rb151.8 trillion in 2021 to Rb75.6 trillion in 2022, a decrease of 50.2%; the volume of options trades decreased from Rb6.8 trillion to Rb2.3 trillion, a decrease of 66.4%. In January-February 2023, the volume of futures and options trades decreased by 76.4% and 74.3%, respectively, as compared with the relevant period of 2022.

This situation was driven not only by depreciation of assets' base value, but also by the exit of non-residents from the derivatives market (they accounted for 48% of the trading volume in 2021) and private investors' declining interest in deals with US Dollar and euro derivatives. According to the data of the Moscow Exchange, the share of individuals in trading volumes on the derivatives market increased from 43% in 2021 to 65.5% in February 2023.

In 2022, traditional exchange contracts accounted for the main volumes of trades on the futures market (*Fig. 41*). Currency futures, primarily on the US currency and the euro played a major role on the Moscow Exchange's futures market with fast growth in trades with alternative currencies, primarily the yuan. With demand for the US Dollar and the euro falling in 2022, the volume of trades in currency futures decreased from Rb66.7 trillion in 2021 to Rb45.3 trillion in 2022, a decline of 32.1%. However, this decline was smaller than a fall in the overall volume of the futures market; as a result, the share of currency futures increased from 38.9% in 2021 to 66.9% in 2022. In February 2023, the share of currency futures fell to 57.8%.

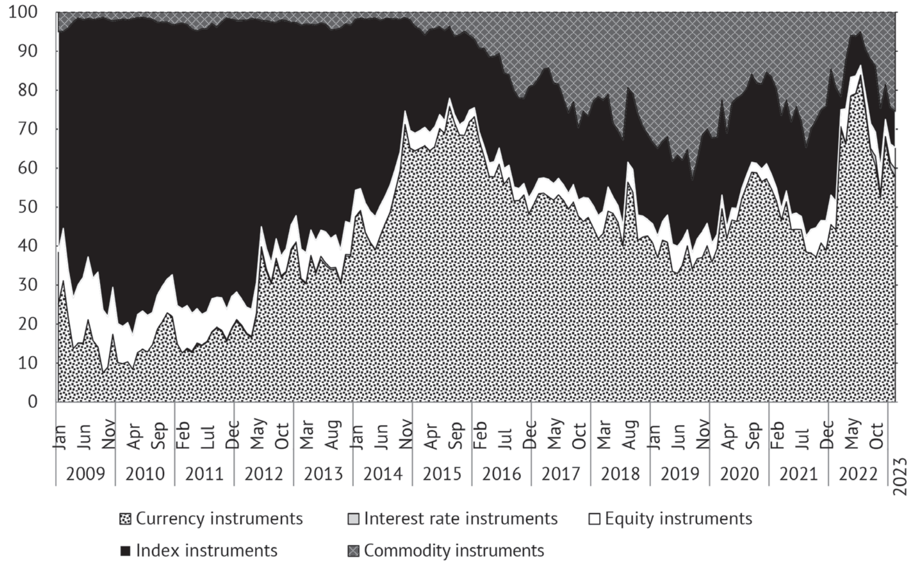


Fig. 41. The pattern of the Moscow Exchange futures market, January 2009 — February 2023, % of the value of deals

Source: own calculations based on the data of the Moscow Exchange.

The second most important futures market segment is represented by index futures contracts, primarily on the RTS and Moscow Exchange stock indices. Notably, their volumes of trades fell from Rb38.9 trillion in 2021 to Rb14.8 trillion in 2022, a decrease of 62.0%. The share of index futures declined from 29.4% in 2021 to 8.9% in 2022; it increased somewhat to 9.3% as of February 2023.

Over the past two years, commodity futures on various commodity assets (Brent oil, natural gas, silver, gold, wheat, copper, nickel and other) were one of the most actively developing sectors of the Moscow Exchange futures market. With the exit of non-residents in 2022, the volume of commodity futures trades decreased from Rb38.6 trillion in 2021 to Rb10.4 trillion in 2022, a decline of 73.1%; as a result, the share of commodity futures fell from 24.0% in 2021 to 18.5% in 2022. However, early in 2023 commodity futures became more popular with private investors and their share on the exchange futures market picked up to 25.4%.

As the options market is very risky one for individuals' short-term deals, it is probably characterized by relatively modest volumes of such transactions on the exchange. In 2022, the most active segment of the options market was contracts on index instruments. Their volumes fell sharply from Rb4.4 trillion in 2021 to Rb1.1 trillion in 2022, a decrease of 775.1%; their share in the overall volume of exchange-traded options fell from 63.8% in 2021 to 31.0% in 2022 and 27.4% in February 2023 (*Fig. 42*). The volume of currency options decreased from Rb2.0 trillion in 2021 to Rb1.1 trillion in 2022; their share in the overall volume of options

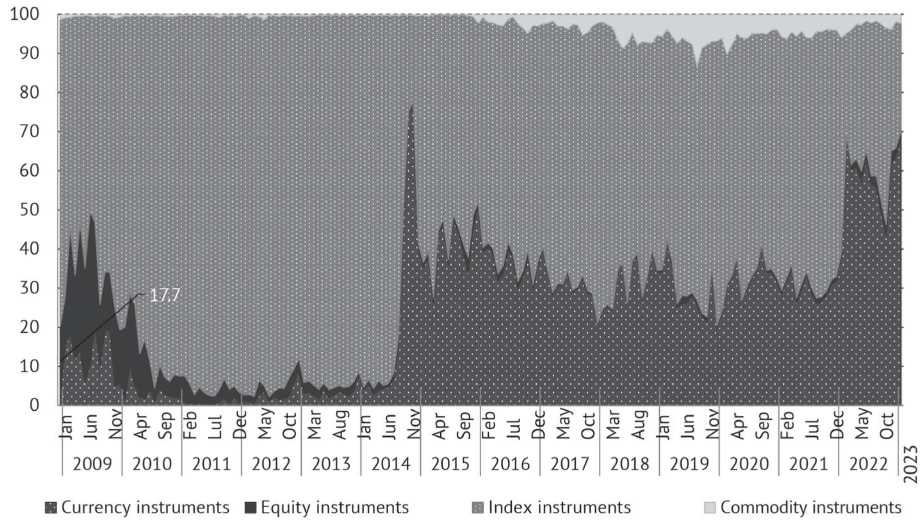


Fig. 42. The pattern of the Moscow Exchange options market, January 2009 – February 2023, % of the value of deals

Source: own calculations based on the data of the Moscow Exchange

transactions increased over the same period from 30.8% to 61.7% and 68.4% in February 2023. Other segments of the options market are quite insignificant.

In 2022, a decline in interest in transactions with the US currency and the euro on the Moscow Exchange FX and derivatives markets was accompanied by exchange trades participants' increased interest in friendly countries' alternative currencies, notably, the Chinese yuan. On the spot market, the share of the yuan in the volume of currency trades increased from 0.4% in 2021 to 41.0% and 45.5% in 2022 and February 2023, respectively (*Fig. 43*). Over the same period, the share of the US currency fell respectively from 82.6% to 37.3% and 32.5%. The share of the euro in settlements increased somewhat from 11.8% in 2021 to 13.8% and 16.0% in 2022 and February 2023, respectively.

Apart from utilization of the yuan in foreign trade operations, a pickup in investors' demand for the Chinese currency was heated primarily on the back of emergence of new financial products, such as yuan bank deposits, as well as yuan-denominated bonds which were placed by some large Russian companies.

In 2022, the volume of transactions with the Chinese currency on the futures market was more moderate (*Fig. 44*). However, during 2022 the share of transactions with the yuan increased from 0% in 2021 to 27.5% with a subsequent decline to 21.5% in February 2023. Over the same period, the share of transactions with the US Dollar fell from 92.0% to 63.9% with a subsequent rise to 72.7% in February 2023. The share of transactions in euros increased from 8.0% in 2021 to 8.6% in 2022 and then fell to 5.8% in February 2023.

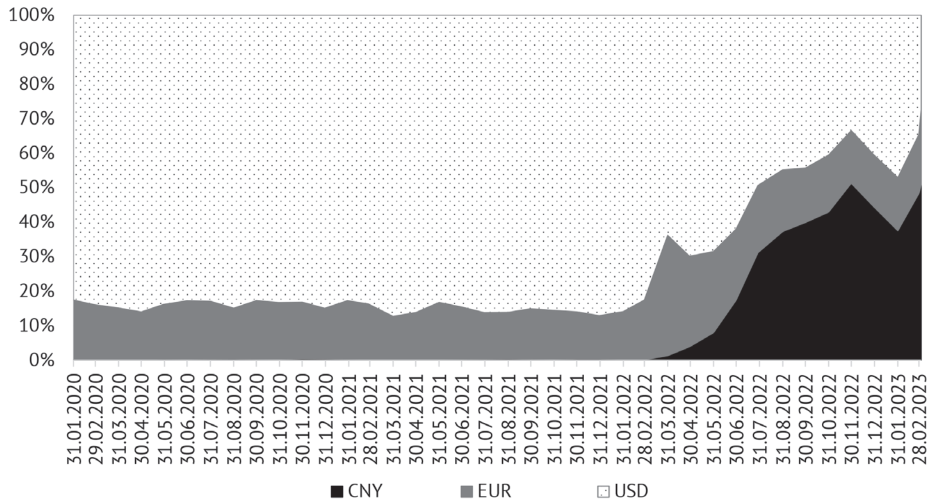


Fig. 43. The pattern of the Moscow Exchange FX spot market, 2020 — March 3 2023, % of the value of transactions

Source: own calculations based on the data of the Moscow Exchange.

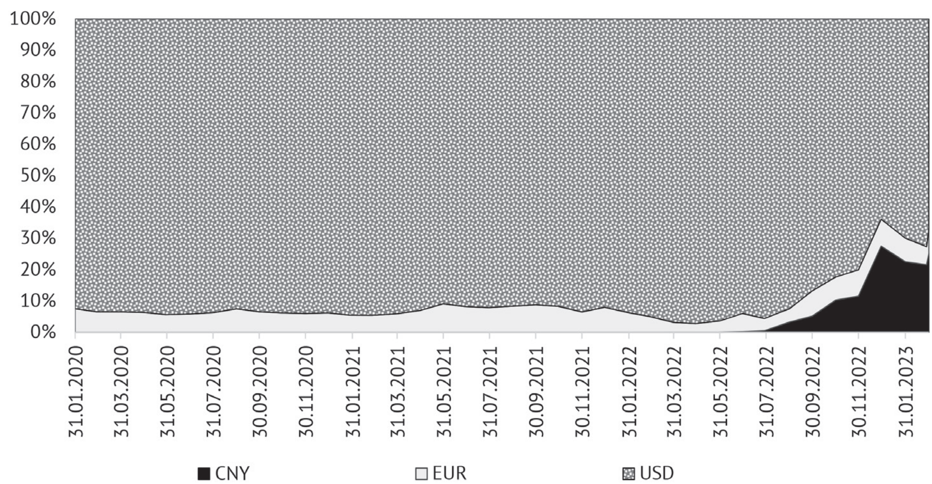


Fig. 44. The pattern of the Moscow Exchange futures FX market, 2020 — March 3, 2023, % of the value of deals

Source: own calculations based on the data of the Moscow Exchange.

2.1.8. Financial intermediaries and exchanges

On the back of tough sanctions imposed on a number of large financial institutions (the Sberbank, the VTB, the Otkrytie Bank, the Sovkombank and other), many of them had to spin off one or another business into a separate entity. However, the number of licenses for dealer activities decreased from 279 licenses in 2021 to 277 licenses in 2022 and that of licenses for trust management of securities, from 182 licenses to 179 licenses; there was only an increase in the number of brokerage licenses from 251 licenses to 253 licenses (*Fig. 45*).

The number of licenses of professional securities market participants over the long-term horizon has been decreasing since the beginning of the 2008 crisis, thus reflecting the overall trend towards higher stability of the domestic financial market coupled with the decline of the role of the stock market in the economy.[1] The establishment of the financial mega-regulator in September 2013 sped up somewhat the process of reducing the number of effective licenses of professional securities market participants (PSMP), however, the main reasons for cancellation of licenses as in cases before the establishment of the mega-regulator, were licensees' declarations of their exit from the business.

A more serious challenge in the development of the Russian stock market is an insignificant number of new professional securities market participants whose emergence on the stock market is meant to promote competition. A slowdown in

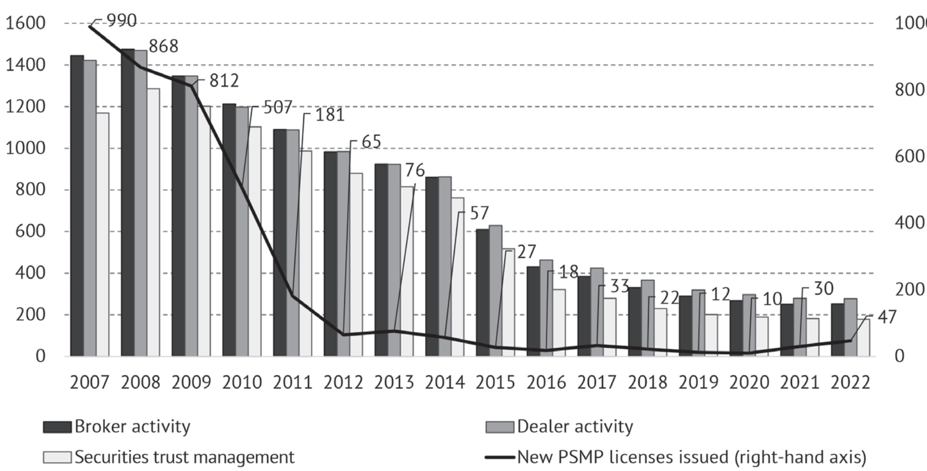


Fig. 45. The number of brokerage, dealing and securities trust management licenses (left-hand axis) and the number of issued PSMP licenses (right-hand axis), 2007—2022

Source: own calculations based on the data of NAUFOR and the Central Bank of Russia's registers.

1 For more details on the decline in the stock market's role in the economy, see: *A.E. Abramov, A.D. Radygin, M.I. Chernova* (2021). The Russian stock market: trends, challenges and the guidelines for development // The Voprosy Ekonomiki. Issue No.11. pp. 5–32.

the number of new players started from 2012. The year 2021 saw some growth in the number of new licenses of professional securities market participants: from 10 licenses in 2020 to 30 licenses in 2021. In 2022, the number of new licenses increased to 47 licenses on the back of a forced restructuring of large companies because of sanctions introduced by unfriendly countries.

The concentration of financial intermediaries and utilization of economies of scale are a reasonable strategy of upgrading their efficiency; such things take place to a varying extent in many countries. However, the specifics of the Russian domestic market of financial services consists in the existence of considerable administrative barriers on the way of growth of independent fintech and competition between financial platforms based on the open architecture for sales of investment and financial products; domination of several large financial ecosystems primarily on the basis of government structures, as well as the Central Bank of Russia's project activity in the fields which compete directly with private financial institutions.[1] In the field of fintech, they postpone repeatedly the introduction of the standard of "open banking" and open API addresses – similar to the EU's Second Payment Services Directive of 2015 (PSD2) – binding to large financial institutions. The review of the best foreign practices used by regulators for facilitating the development of fintech in order to promote competition on financial markets is presented, for example, in Restoy's study.[2] The adoption of the legislation on the activities of fintech and platform (marketplace) operators has led to the introduction of artificially excessive capital requirements to operators of such platforms and restrictions on such operations by commercial banks, brokers and asset management companies.

The situation on the Russian financial market after February 24, 2022 has revealed high risks of the strategy of development of the Russian financial market based on the priority development of the limited number of financial ecosystems established on the basis of large state-owned banks and companies. Promotion of the competition on the financial market can be facilitated by legislative measures stimulating competition between investment platforms; creation of the environment for implementation of fintech private projects; reduction of administrative barriers for new companies' entry to the market; introduction of fiduciary standards of sales of investment and financial products;[3] more comprehensive orientation of important infrastructure development projects to the needs of financial intermediaries and their customers.[4]

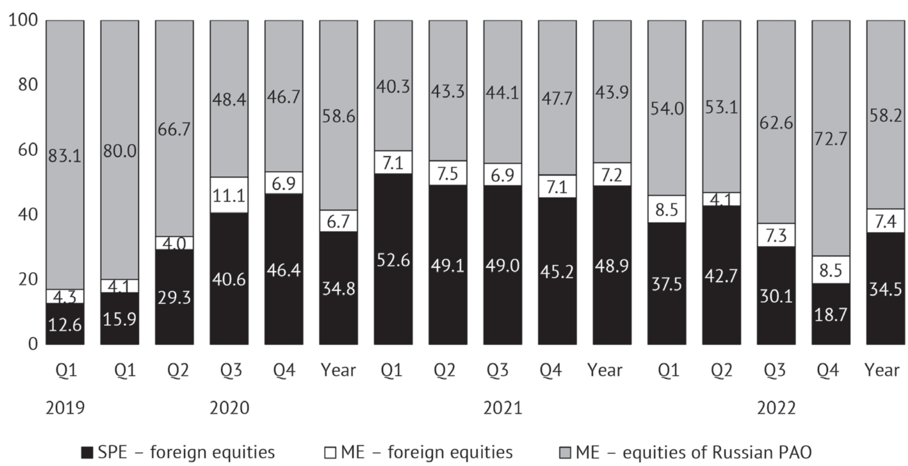
The year 2011 saw the deal on the merger of the MICEX with the RTS; it sped up the development of stock exchange trading technologies and concentrated

1 In "the Main Guidelines for the Development of the Financial Market of the Russian Federation in 2022 and the 2023-2024 Period" approved by the Central Bank of Russia in 2021, we counted mentions of the Central Bank of Russia's 14 projects competing to some extent with financial services of private financial institutions.
2 *Restoy Fernando* (2021). Fintech regulation: how to achieve a level playing field. Financial Stability Institute, BIS // Occasional Paper No.17. February.
3 These standards suggest restrictions in respect of financial intermediaries' conflict of interests when selling financial products to customers.
4 On the development of investment platforms and fintech, see: *A. Abramov* (2019). To Stake Out a Platform // The Expert magazine. Issue No.44. October 28 – November 3. pp. 64–68.

the liquidity on auction participants' accounts with the single clearing system. However, along with positive changes, the merger of the MICEX with the RTS led to the disappearance of competition between the exchanges which used to stimulate the development of exchange activities and promote its efficiency. In 2020–2021, the accelerated development of the St. Petersburg Exchange (SPE) which organized trades with equities of foreign issuers helped restore the competition between the exchanges on the equity market. However, in 2022 the SPE business was hit hard owing to the regulator's gradual introduction of requirements limiting non-qualified investors' access to transactions with foreign issuers' securities.

The share of SPE on the domestic spot market of equities of Russian and foreign issuers decreased from 48.9% in 2021 to 34.5% based on the results of 2022, including to 18.7% in Q4 2022 (*Fig. 46*). A decrease in the SPE's volume of trading was mainly driven by sanctions which led to the blocking of some customers' assets with foreign depositaries, as well as the Central Bank of Russia's decision on a gradual introduction of restrictions on transactions with foreign securities for non-qualified investors. Despite sanctions and restrictions for non-qualified investors, the SPE continues to provide access to trades in companies' equities on US exchanges and the Hong Kong Stock Exchange.

The Moscow Exchange sought to realize its advantages on the market as a comprehensive organizer of auctions with various investment and financial assets. The overall volumes of exchange trades increased from Rb1010 trillion in 2021 to Rb1056 trillion in 2022, an increase of 4.5% (*Fig. 47*).



Note. Exchange-traded equity volumes include market deals and deals in negotiated trading.

Fig. 46. The share of the Moscow Exchange (ME) and the St. Petersburg Exchange (SPE) in the overall volume of stock exchange transactions with equities, %

Source: own calculations based on the data of the World Federation of Exchanges and the SPE.

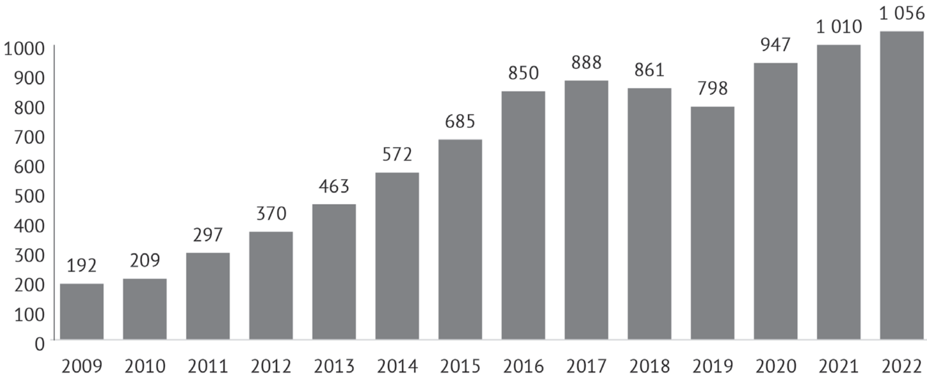


Fig. 47. The volume of trading with all instruments on the Moscow Exchange, 2009 – 2022, trillion rubles

Source: own calculations based on the data of the Moscow Exchange.

The model of a universal exchange forms some risks of reduced market motivation to develop some business segments which do not yield high exchange fees. At present, this is evident in the decline in the importance of the stock market and the derivatives market in overall volumes of exchange trades. In 2010—2018, the share of the stock exchange market in the overall volume of stock exchange transactions decreased from 13.2% to 4.4%, but then it started to pick up slowly. However, in 2022 the specified share fell again to 3.5% as compared with 5.2% in 2021 (*Table 12*).

Table 12

The pattern of the market of the Moscow Exchange, 2010 – January 2023, %

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Jan.22**	**Jan.23**
Stock market	**13.2**	**10.3**	**6.5**	**5.2**	**3.6**	**3.0**	**2.8**	**4.0**	**4.7**	**5.1**	**5.8**	**5.2**	**3.5**	**6.1**	**3.1**
including:															
Equities. RDR and units	8.0	6.6	3.1	1.9	1.8	1.4	1.1	1.0	1.3	1.6	2.5	3.0	1.7	4.8	1.0
Bonds	5.2	3.7	3.4	3.3	1.9	1.6	1.7	3.0	3.5	3.5	3.2	2.2	1.9	1.2	2.1
Secondary trading	3.4	2.9	2.8	2.7	1.5	1.2	1.1	1.2	1.2	1.3	1.2	1.0	0.6	0.8	0.5
Market of placements	1.8	0.8	0.6	0.6	0.3	0.4	0.6	1.7	2.3	2.2	2.1	1.2	1.2	0.4	1.7
FX and money market	**72.0**	**70.6**	**80.0**	**84.3**	**85.6**	**83.3**	**83.6**	**86.5**	**86.8**	**87.0**	**80.5**	**78.9**	**89.1**	**74.7**	**92.6**
including:															
Money market	33.9	41.3	48.3	50.7	45.7	38.0	44.8	47.3	46.4	48.4	45.7	47.2	63.7	43.3	72.1
REPO operations	31.5	38.3	45.8	47.9	42.0	33.2	40.4	43.1	38.0	39.2	40.7	41.7	51.3	38.3	45.6
Credit market	2.4	3.1	2.5	2.8	3.7	4.8	4.4	4.2	6.3	6.7	5.0	5.5	12.4	5.0	26.5
FX market	38.1	29.3	31.6	33.7	39.9	45.4	38.8	39.2	40.5	38.6	34.7	31.7	25.4	31.4	20.5

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Jan.22	Jan.23
Spot deals	18.0	15.8	16.6	12.4	13.6	15.1	12.6	8.8	10.1	8.4	10.2	9.4	9.5	11.5	6.7
Swap deals	20.1	13.4	15.0	21.3	26.3	30.3	26.2	30.3	30.4	30.2	24.5	22.2	15.9	19.9	13.9
Derivatives market	**14.8**	**19.1**	**13.5**	**10.5**	**10.7**	**13.7**	**13.6**	**9.5**	**10.4**	**10.3**	**13.7**	**15.7**	**7.4**	**19.2**	**4.3**
DFIs	**0.0**	**0.0**	**0.0**	**0.0003**	**0.0002**	**0.001**	**0.002**	**0.01**	**0.1**	**0.1**	**0.1**	**0.3**	**0.0**	**0.0**	**0.0**
Commodity market	**0.001**	**0.003**	**0.006**	**0.005**	**0.003**	**0.02**	**0.02**	**0.01**	**0.02**	**0.01**	**0.01**	**0.02**	**0.02**	**0.01**	**0.02**
Overall	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**102**	**103**	**100**	**100**	**100**	**100**	**100**

Source: own calculations based on the data of the Moscow Exchange.

The FX and money market segment accounts for the major volumes of trades on the Moscow Exchange; its share increased from 78.9% in 2021 to 89.1% in 2022. Over the same period, out of this segment the share of the money market increased from 47.2% to 63.7% and the share of FX market decreased from 31.7% to 25.4%.

Over the subsequent four years (2018-2021), the derivatives market was growing at advanced rates, primarily owing to the market of derivatives on foreign currency assets. However, in 2022 its share fell sharply from 15.7% in 2021 to 7.4% in 2022.

2.1.9. Investors on the domestic financial market

Despite a high volatility of the stock market, the overall number of unique customer accounts with brokers at the Moscow Exchange increased from 16.8 mn in 2021 to 23.6 mn in January 2023, an increase of 40.5%. However, since most of such accounts do not have assets, the more objective indicator of private investors' trading activity is the number of active customer accounts which are involved at least in one stock exchange transaction a month. The number of such accounts decreased from 2.6 mn in 2021 to 2.3 mn in January 2023 on the Moscow Exchange, a decline of 11.5%, and from 0.8 mn to 0.2 mn on the St. Petersburg Exchange, a decline of 75.0% (*Fig. 48*).

In 2022 – January 2023, growth in the number of individual investment accounts (IIA) slowed down considerably. The number of such accounts increased from 4.8 mn in December 2021 to 5.2 mn in January 2023, growth of 8.3%. However, in 2022 growth in the number of IIA was much lower than in 2021 (37.1%). This slowdown was driven by a higher level of legal uncertainty about the existing IIA of level 1 and level 2. According to the draft Federal Law "On Amendment of Article 10.2-1 of the Federal Law "On the Securities Market" developed by the RF Ministry of Finance and published for public discussion,[1] it is planned to introduce a new type of individual investment accounts, that is, IIA of the 3rd type which is expected to replace the existing IIAs.

The data on the number of brokerage accounts registered by the exchanges do not reflect the actual extent of households' involvement in stock market operations. In the bulk of individuals' brokerage accounts there are either zero balances or assets which are insufficient for safe investing.

1 URL: https://regulation.gov.ru/projects#npa=136735

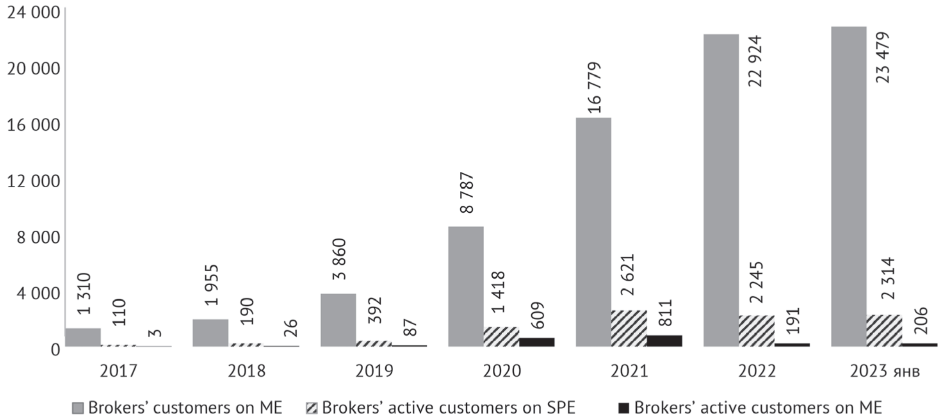


Fig. 48. The number of registered accounts and brokers' active customers on the Russian exchanges, 2017 – January 2023, thousand accounts

Sources: own calculations based on the data of ME and SPE.

According to the data of the Central Bank of Russia[1], the value of assets on private investors' brokerage accounts decreased from Rb8.3 trillion in 2021 to Rb6.0 trillion in 2022, while the number of brokers' unique customers made public by the Moscow Exchange increased over the same period from 16.8 mn to 22.9 mn (*Table 13*).

In 2021, out of the overall number of brokerage account holders 10.6 mn individuals (63.3%) did not have any assets on their accounts, while in 2022 their number increased to 15.1 mn customers (65.7%). By our estimates, for the creation of a very simple diversified portfolio private investors need to have at least Rb100,000 on their accounts.[2] In 2021, the number of private investors with investment potential (the assets value of at least Rb100,000 on the account) was equal to the mere 1.7 mn individuals or 9.9% of the overall number of brokerage account holders. In 2022, the number of such investors fell to 1.6 mn individuals and their share, to 6.9%.

The number of private investors without a potential for full diversification of investments (with assets value of up to Rb100,000 in accounts) and destined most likely to receive income on individual portfolios below the market level amounted to 4.5 mn and 6.3 mn individuals in 2021 and 2022, respectively, that is, their number increased by 40.0% over the year. The regulators' insufficient attention

1 URL: https://www.cbr.ru/securities_market/analytics/
2 According to the study of the Central Bank of Russia (2022), owing to a failure to ensure a full diversification of portfolios of brokers' customers with assets value of Rb10,000 to Rb100,000, this group of investors saw the worst negative income on their portfolios among various groups of investors in H1 2022. See: The Portrait of a Broker's Customer. H1 2022. Moscow: The Central Bank of Russia. p.14. URL: https://cbr.ru/Content/Document/File/143859/Portrait_client_brok.PDF

Table 13

The data on the distribution of the number of private investors and the value of customers' assets depending on the value of assets on brokerage accounts, 2021–2022

	Number of customers				Portfolio volume			
	2021		2022		2021		2022	
	mn persons*	%	mn persons*	%	trillion Rb	%	trillion Rb	%
1. from Rb1 mn and more	0.5	3.0	0.4	1.8	7.6	91.1	5.3	87.6
2. from Rb100,000 and more	1.7	9.9	1.6	6.9	8.2	99.1	5.9	98.5
3. below Rb100,000	4.5	26.8	6.3	27.4	0.1	0.9	0.1	1.5
4. empty accounts	10.6	63.3	15.1	65.7	0	0	0	0
5. Overall (total of lines 2–4)	**16.8**	**100.0**	**22.9**	**100.0**	**8.3**	**100.0**	**6.0**	**100.0**

* The number of unique customer accounts with brokers on the Moscow Exchange.
Source: The Central Bank of Russia.

to this risk may lead in the long run to private investors' substantial losses on the stock market and a decrease in their trust in investments in risk assets.

In terms of the pattern of financial assets, in 2022 the behavior of households was rational and predictable in advance; during the period of high volatility on financial markets and uncertainty households directed a bulk of their financial assets into cash and bank deposits.[1] As seen from *Table 14*, individuals' cash savings on hands increased from Rb19.1 trillion in 2021 to Rb22.1 trillion in January 2023; the value of bank deposits grew from Rb41.3 trillion to Rb 45.8 trillion. The share of investments in cash and bank deposits, including funds on escrow accounts in the value of households' financial assets increased from 76.8% in 2021 to 78.9% in January 2023.

In absolute terms, in 2021 — January 2023 households' investments remained at the level of Rb5.3 trillion, however, their share in financial assets decreased from 6.8% to 6.2%. The value of bonds owned by households shrank from Rb3.1 trillion in 2021 to Rb2.8 trillion in January 2023; their share in assets also fell from 4.0% to 3.2%. In the period under review, the value of savings in collective investments (investment funds, pension funds and insurance reserves) increased, while the share of financial assets fell from 4.1% to 3.9% in investment funds and from 8.3% to 7.8% in pension funds and insurance companies.

So, both before and after 2022 households' consolidated portfolio of financial assets remained markedly conservative and aimed, to a greater extent, at preserving the value, rather than receiving an additional income from investments in risk assets. This points to individuals' increasingly insufficient confidence in the stock market, particularly in 2022 and early in 2023.

1 Households' reorientation in favor of short-term investments after February 24, 2022 is explicitly evident in the statistics on ruble bank deposits after February 24, 2022. According to the data of the Central Bank of Russia, in the overall value of households' ruble bank deposits, the share of deposits for the term of 91–181 days increased from 8.7% in December 2021 to 29.4% in January 2023, while that of deposits for the term of over a year decreased from 26.9% to 13.6%.

Table 14

The pattern of households' financial assets, 2017—2022, %

	2017	2018	2019	2020	2021	2022	January 2023
Cash	24.8	25.5	23.5	26.3	24.3	25.4	25.7
Deposits and escrow account balances	57.9	56.4	56.4	52.9	52.5	53.8	53.2
Equities	3.8	3.6	4.4	5.3	6.8	6.0	6.2
Bonds	1.5	2.4	3.0	3.3	4.0	3.3	3.2
Investment funds	2.4	2.8	3.0	3.4	4.1	3.8	3.9
Pension savings and insurance reserves	9.6	9.4	9.7	8.8	8.3	7.7	7.8
Financial assets, overall	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: own calculations based on the data of the Central Bank of Russia.

With non-residents' investments in Russian issuers' securities frozen in 2022 and the level of development of domestic institutional investors being insufficient enough, private investors became the main driving force which maintained liquidity of equities and bonds on the exchange. The share of non-residents in market transactions with equities on the Moscow Exchange fell from 48.5% in 2021 to zero in 2022 and, on the contrary, the share of private investors increased over the same period from 38.5% to 76.0% (*Fig. 49*). Also, the share of resident organizations, notably non-bank financial institutions, increased (from 13.0% in 2021 to 24.0% in 2022). In February 2023, the share of private investors was equal to 81.0%.

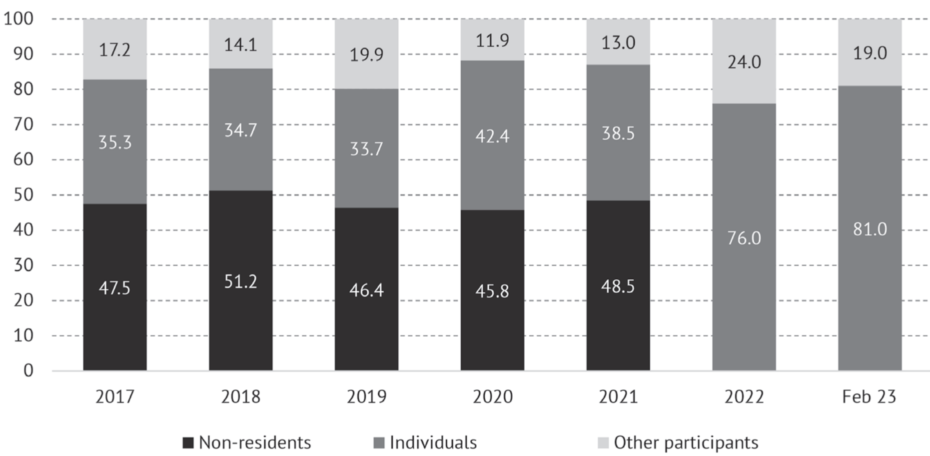
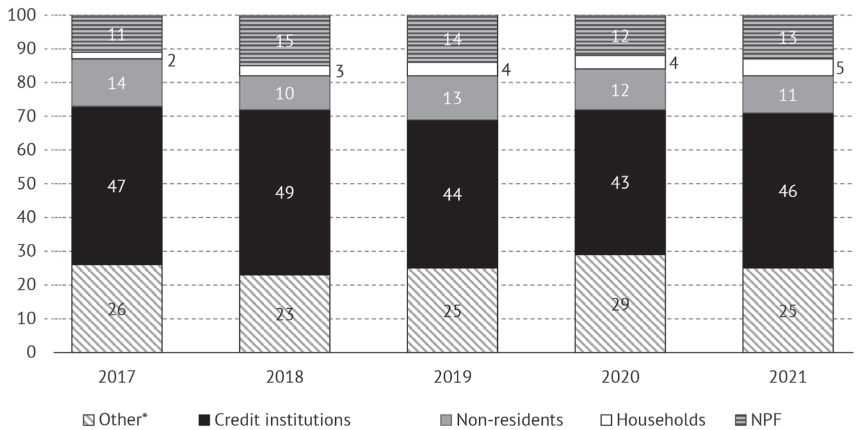


Fig. 49. The pattern of investors in the secondary equity trading regime on the Moscow Exchange, 2017 – February 2023, %

Source: compiled on the basis of the statistical data to the Financial Stability Review of the Central Bank of Russia and the Moscow Exchange.



* The public sector, non-banking financial institutions, insurers, investment funds and other resident-institutions.

Fig. 50. The pattern of corporate bond holders, 2017–2021, %

Source: own calculations based on the data of the Review of the Russian Financial Sector and Financial Instruments in 2021. The Central Bank of Russia.

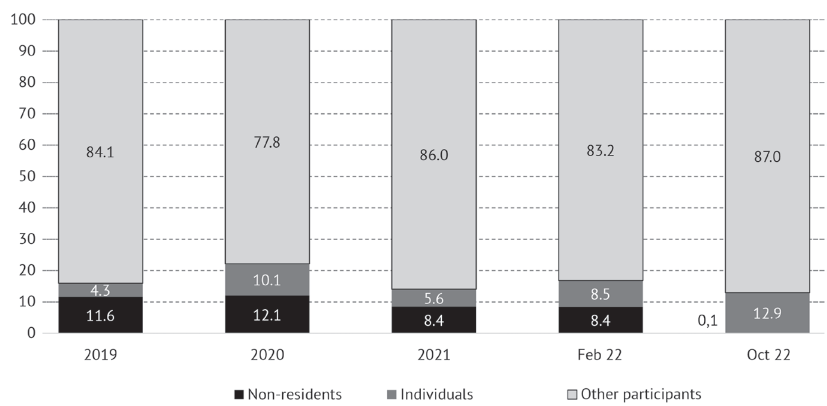


Fig. 51. The pattern of investors in the secondary OFZ trading regime on the Moscow Exchange, 2019 – October 2022, %

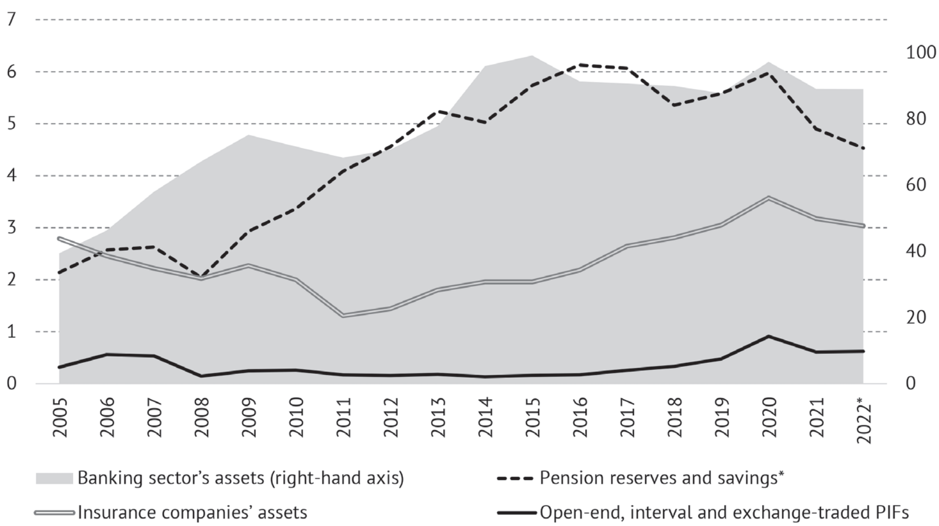
Source: own compilation based on the statistical data to the Financial Stability Review of the Central Bank of Russia and the Moscow Exchange.

The Central Bank of Russia has not published yet the statistic on the corporate bond market in 2022. In 2021, the share of private investors in the pattern of main holders of corporate bonds was equal to the mere 5% (*Fig. 50*).

In the pattern of volumes of stock exchange transactions with OFZ on the Moscow Exchange, the share of private investors is small, however, it increased markedly from 5.6% in 2021 to 12.9% in October 2022 (*Fig. 51*). Individuals increasingly regard investments in government securities as the most attractive alternative as compared with deposits and equities. In the period under review, the share of non-residents in stock exchange transactions with OFZ fell from 8.4% to 0.1% and that of other participants, primarily banks and other financial institutions increased somewhat from 86.0% to 87.0%.

Despite sanctions and the global financial crisis, in 2022 the value of financial institutions' assets relative to GDP turned out to be virtually unchanged at the level of 97.2% relative to 97.8% in 2021 (*Fig. 52*). Apart from market factors, this was facilitated by the Central Bank of Russia's easing of the regulation of financial organizations; such a measure made it feasible to preserve the estimate of some financial assets on their balances on conditions prevailing before February 24, 2022 (*See Section 2.1.2*).

Over the year, the relative value of assets of opened-end, interval and stock mutual funds (PIFs) remained virtually unchanged in the amount of 0.6% of GDP in 2021 and 2022 and that of bank assets stood at the level of 89.1% and 89.0% of GDP in 2021 and 2022, respectively. The value of pension savings and pension reserves fell from 4.9% of GDP in 2021 to 4.5% of GDP in September 2022 owing mainly to the continued moratorium on mandatory pension savings. Insurance companies' assets decreased from 3.2% to 3.0%. Early in 2023, financial regulators



* The data on pension reserves and savings are presented as of October 1, 2022.

Fig. 52. The share of bank assets, pension reserves and savings, assets of insurance companies and the value of net assets of open-end, interval and exchange-traded PIFs in Russia, 2005—2022, % GDP

Source: own calculations based on the data of the Central Bank of Russia, the RF Pension Fund and Rosstat.

started the development of a new system of pension savings which is expected to replace the existing system of mandatory pension savings.

In 2022, the main achievement of the collective investment segment was its ability to remain financially sustainable and retain trust of several million private investors despite the fact that a portion of financial assets of open-end and exchange-traded PIFs happened to be frozen in foreign jurisdictions.

In 2022, the overall value of net assets of open-end and exchange-traded PIFs without taking into account the data on funds with frozen assets amounted, by estimates of the Central Bank of Russia,[1] to Rb722.7 bn, while Investfunds.ru revealed the overall value of net assets of these funds, including funds which suspended its operation, being equal to Rb919.4 bn (*Fig. 53*). So, according to the data of Investfunds.ru,[2] the difference between these two estimates corresponds to the value of assets of open-end and exchange-traded investment funds which suspended their operations because of sanctions; it is equal to Rb196.7 bn or 21.4% of the value of assets of open-end and exchange-traded PIFs.

The year 2022 saw the halt of the seven-year period which began in 2015 when amid growth in yield on securities of Russian issuers and the declining return on bank deposits private investors made actively investments in open-end PIFs (*Fig. 54*). If in 2021 these funds received Rb330 bn worth of new private investments, in 2022 their outflow amounted to Rb36 bn. In January-February 2023, the net outflow of funds from open-end PIFs decreased to Rb3 bn.

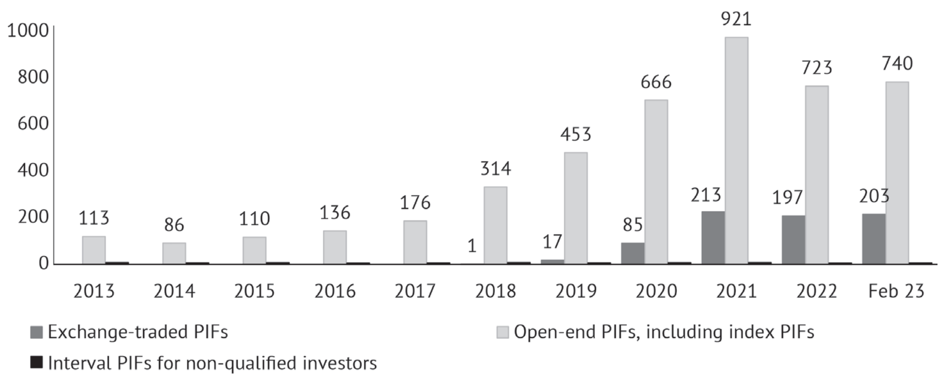
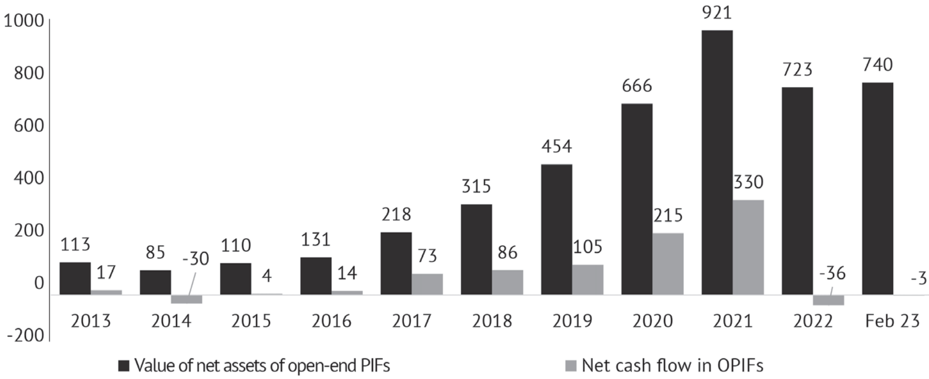


Fig. 53. The value of net assets of open-end and stock exchange PIFs, 2013 – February 2023, billion Rb

Source: own calculations based on the data of Investfunds.ru, including the value of funds with frozen assets

1 URL: https://www.cbr.ru/statistics/RSCI/activity_uk_if/stat_pif_aif/
2 These calculations do not take into account the value of assets of foreign ETFs under management of FinEx in the sum of Rb100 bn as of 2021; Russian investments in these securities were frozen in accounts with Euroclear.



Note. The value of net assets of OPIFs in January-November 2022 includes the value of PIFs with frozen assets. NAV of OPIFs without frozen assets amounts to Rb515.2 bn.

Fig. 54. The value of net assets of open-end PIFs and investors' net cash flow in these funds, 2013 — February 2023, billion Rb

Source: own calculations based on the data of Investfunds.ru.

Private investors' behavior in PIFs is often of a pro-cyclical pattern: a fall in underlying stock indices brings about sales of PIF units, while growth attracts new investments in PIFs. Thus, private investors intensify volatility of prices for equities and bonds. Vigorous growth in the RTS index during the recovery from the coronavirus pandemic from April 2020 till October 2021 generated a considerable inflow of private investments in open-end equity PIFs (*Fig. 55*). A sudden fall in the index in January-February 2022 amid heightened geopolitical risks and a rise in the key rate led eventually to the capital outflow from equity PIFs. In 2022, PIF unit holders' behavior ceased to be pro-cyclical; temporary stock market index growth did not stop the outflow of capital from equity PIFs.

Medium-term interest rates on bank deposits have a considerable effect on cash flows of investors in open-end bond PIFs. A decrease in bank deposit interest rates stimulated the influx of capital in bond PIFs and, on the contrary, a rise in such interest rates provokes the outflow of investors' funds (*Fig. 56*). In H2 2022, this specifics of the behavior of investors in bond PIFs was broken; a decrease in bank deposit rates in that period of time was accompanied by a substantial outflow of capital from bond PIFs. Probably, this was caused by private investors' disappointment with the performance of these PIFs.

In 2022, the market of collective investments saw an interesting anomaly in private investors' behavior. Normally, this category of investors is not good at choosing the right time for entry to and exit from mutual funds, that is, they buy PIF units when prices for assets are high and redeem units when the value of their mutual fund portfolio declines. This leads, as a rule, to a situation where returns on PIFs surpasses those on investments in mutual fund units. For example,

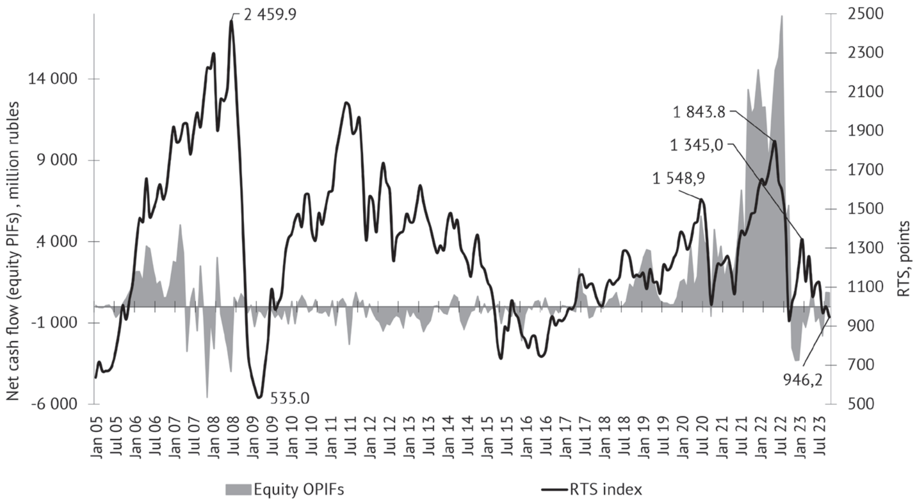


Fig. 55. Monthly net cash flows of investors' funds in open-end equity PIFs (OPIF) (billion Rb) (left-hand axis) and the RTS index (points) (right-hand axis), January 2005 – February 2023

Source: own calculations based on the data of Investfunds.ru and the Moscow Exchange.

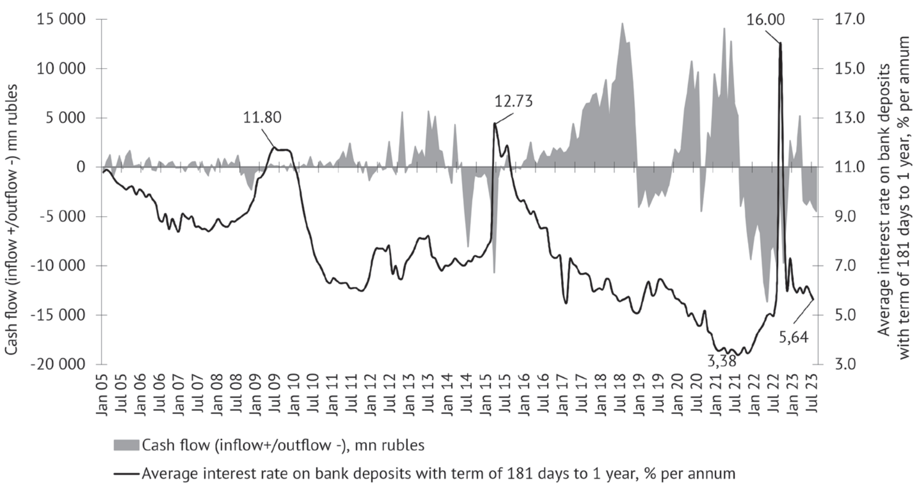


Рис. 56. Investors' monthly net cashflows in open-end bond PIFs (OPIFs) and the interest rate on bank deposits with the term of 181 days to 1 year, January 2005 – February 2023

Source: own calculations based on the data of Investfunds.ru and the Moscow Exchange.

according to our calculations based on the data of Investfunds.ru, in 2020–2022 the average annual returns on open-end PIFs and exchange-traded PIFs were equal to -0.1% per annum and 3.9% per annum, respectively. Over the same period of time, average return on private investments in open-end PIF units was equal to the mere -1.38%. The year 2022 saw quite the opposite trend: average return on open-end PIFs amounted to -15.67%, while unit holders' investments in the same funds demonstrated a smaller negative return of -14,84%; returns on portfolios of exchange-traded PIFs and private investments in their units were equal to -13.04% and -9.85%, respectively. This trend was particularly explicit in exchange-traded and open-end precious metal PIFs: with an average return of 7.08% on exchange-traded PIFs of this category, return on unit holders' investments amounted to 39.78% per annum, while open-end precious metal PIFs' respective values were equal to 0.98% and 16.59%, respectively.

This pattern reveals that owing to a difficult situation caused by sanctions and slumps on global financial markets in 2022 private investors in open-end and exchange-traded PIFs exercised caution in choosing the right moment for entry to and exit from mutual funds and this helped them reduce substantially losses from investments as compared with returns of mutual funds themselves and in a number of cases even earn a high income. This example shows the importance of transparent information on mutual funds' performance, professional analytics and competent investment advice.

According to the data of the Central Bank of Russia's surveys of private investors,[1] this category of investors, in which insufficiently diversified individual portfolios prevail, does not actively take an advantage of collective investments. According to the review of the portrait of the broker's customer, in H1 2022 70% of men and 64% of women do not invest in mutual investment funds (PIFs) and foreign exchange-traded funds (ETFs). The main obstacles for a more active use of investment funds on the domestic market are high costs of funds for investors, an outdated practice of sales of PIF units implying large banks' sale of only funds of their own production to their customers and an insufficient level of transparency on PIFs for the general public, as well as the analytics for private investors. In 2022, substantial damage to private investors' confidence in investment funds was caused by the freezing of foreign assets in portfolios of PIFs and ETFs; as a result, some investment funds' operations stopped and investments of their investors were frozen.

For example, in 2012–2022 investors' average relative costs in open-end PIFs even increased as follows: equity PIFs: from 4.6% in 2012 to 4.7% of the average annual value of net assets of these investment funds; bond and money market PIFs: from 2.6% to 3.0%; funds of hybrid investments: 4.5% to 5.1% (*Table 15*). In 2022, the costs of exchange-traded index PIFs of similar categories were several times lower, however, they surpass considerably the costs of similar investment funds on the global financial market.

1 URL: https://www.cbr.ru/analytics/rcb/cl_broker/

Table 15

The average size of general costs on management of open-end and exchange-traded unit investment funds relative to the average annual value of their net assets, 2012–2022, %

	2012	2022	Change, %
Open-end PIFs:			
equity	4.6	4.7	2.2
Bonds and money market	2.6	3.0	15.4
Hybrid investments	4.5	5.1	13.3
Exchange-traded PIFs:			
equity		1.1	
Bonds and money market		0.9	
Hybrid investments		1.3	

Source: own calculations

* * *

In 2022, despite high volatility of investment assets and isolation from developed countries' financial markets because of sanctions the financial market proved its sustainability and retained the trust of domestic investors and this can be regarded as its major achievement. All financial instruments on the exchange market circulate in normal mode and there were no serious bankruptcies of corporate and regional bond issuers. The number of private investors entering the market keeps growing. The attraction to the stock market of large volumes of households' savings in cash currency and deposits amounting nearly to 80% of the overall value of financial assets may become a driver of recovery and subsequent growth of the domestic equity and bond markets.

The main challenges of the domestic financial market are as following.

The freezing of the substantial financial assets of the government, business and private investors with foreign financial institutions; the need of more active reorientation of Russian financial market participants to financial markets of friendly countries.

One year after the sharp decline in stock market indices on February 24, 2022, prices for equities of large companies did not virtually demonstrate any upward trends. Amid non-residents' exit from the market, private investors who accounted for over 80% of the volume of transactions on the equity market of the Moscow Exchange in February 2023 rendered some support to the equity market. However, private investors' funds alone may be insufficient for the recovery of the domestic equity market. For the search for new drivers of growth in the value of equities of Russian issuers by attracting funds of banks, institutes of development, domestic institutional investors and non-residents from friendly countries, it is necessary to adopt a clear state strategy of recovery of the domestic capital market.

The attractiveness of the domestic equity market can be promoted by a large-scale public offering of equities of new companies from the technology sector, former foreign companies which passed into hands of Russian owners in 2022 and issuers from other economic sectors. However, this requires measures of state support of the stock market, accelerated development of alternative investment funds and creation of a favorable environment and motivation for attraction of investments funded by individuals' long-term savings.

With reduced transparency of the information on the state of the economy, budget and activities of securities issuers because of sanctions, investors experience serious difficulties in making informed decisions. In this situation, it is necessary to adopt a more thorough approach to the scope of limitations regarding the disclosure by issuers of the financial reporting and substantive information on corporate developments and support Russian information resources and platforms rendering services in the field of disclosure of information.

On the bond market, the most serious challenge consists in bonds' low liquidity and high yield to maturity on government bonds and partially corporate bonds. Proinflationary expectations of market participants still prevail. Small and mid-sized companies and issuers with a moderately low credit rating have limited capabilities to place bonds.

There is still an insufficient level of competition between financial institutions. This is evident in high tariffs and fees on financial services and interbank transfers, a slow influx of new companies to the financial market and a weak role of fintech, which is independent of banks, in providing financial services to households.

The stock market received a substantial support from private investors. However, private investors encounter risks of low diversification of individual portfolios, a lack of transparency of securities issuers, high costs of intermediaries' services and a lack of opportunities to buy different providers' financial products on the basis of the open architecture for sales.

The diversification of private investors' individual portfolios can be upgraded by means of higher availability and investment attractiveness of collective investment instruments, such as open-end and exchange-traded PIFs. Returns on such investments may increase on the back of more active application of the strategy of factor and sectoral investing, as well as reduction in funds management costs. Despite a number of proposals announced by financial regulators for the future, some issues associated with future mechanisms of long-term savings by individuals and corporate and individual pension schemes remain uncertain.

In 2022, the Central Bank of Russia approved "The Main Guidelines for the Development of the Financial Market of the Russian Federation in 2023 and the 2024—2025 Period" and the RF Ministry of Finance continued its work on the draft of "The Strategy for the Development of the Financial Market of the Russian Federation till 2030". These documents determine five main lines of the development of the financial market, including: the creation of an environment for consolidating the role of the financial market in financing the transformation of the Russian economy; protection of the rights of consumers of financial services and investors, as well as promotion of availability of financial services for individuals and the business; transformation of foreign economic payments and settlements; digitalization of the financial market and the development of the payment infrastructure; facilitation of financial stability. As seen from the discussion of these documents, they need further elaboration, particularly regarding the issues related with facilitation of competition on the market of financial services, maintaining of the required level of transparency of the information on issuers and securities for investments, as well as adoption of system measures aimed at creating an environment for individuals' long-term savings.

2.2. Municipal and sub-federal debt market [1]

According to data released by the RF Ministry of Finance, against the backdrop of deteriorating economic dynamic, the consolidated debt of the subjects and municipalities of the Russian Federation amounted to Rb3.16 trillion, or 2.09% of GDP, as of January 1, 2023. Despite an increase by Rb 312.1 bn in nominal terms, it declined in real terms by 3.4%, or 0.9% of GDP. As of January 1, 2022, its size was Rb2.85 trillion, or 2.18% of GDP.

The volume of accumulated debt of the subjects of the Russian Federation stood at Rb2.79 trillion as of early 2023, with the share of budget loans in the total volume of accumulated debt grew at an outpacing rate from 55.4% to 71.0%.

Accordingly, the share of market borrowings declined: the share of accumulated debt in the form of debt securities in the total amount of accumulated debt contracted from 32.3% to 23.4%, in the form of bank loans — from 10.4% to 4.5%.

The volume of municipalities' accumulated debt having dropped in nominal terms by Rb2.1 bn amounted to Rb374.6 bn (*Table 16*). The share of municipalities' debt to superior budgets in the total volume of debt surged nearly twice, from 35.1% to 65.0%, the share of bank loans nosedived almost twice - from 58.4% to 30.2%, and the share of securities went down from 5.3% to 3.7%.

The subjects of the Russian Federation got an opportunity to replace more expensive market borrowings with inter-budget loans as part of the implementation of anti-crisis measures. According to Clause 1.7 of the Plan of priority actions to ensure development of the Russian economy under the external sanctions, approved at the meeting of the Presidium of the Government Commission on Enhancing the Stability of the Russian Economy under Sanctions of March 15, 2022 Federal Law No. 128 FZ of May 1, 2022 "On Amending Articles 9 and 10 of the Federal Law "On Amending the Budget Code of the Russian Federation and Certain Legislative Acts of the Russian Federation and Setting Specifics of Budget Implementation" was adopted.

The above Federal Law stipulated that in 2022 the Ministry of Finance of the Russian Federation had a right to extend budget loans from the federal budget in the amount of up to Rb390.7 bn to the subjects of the Russian Federation whose estimated fiscal capacity index did not exceed 1.5 in 2022, in order to repay commercial debts of the subjects of the Russian Federation (municipal entities). Later on, by Federal Law No. 146-FZ, of 28.05.2022, the above limit was increased up to Rb420.0 bn.

1 Author: *Shadrin A.E.*, Director of Socio-Economic Development Institute NRU HSE.

Table 16

Volume and structure of the state debt of the RF subjects and municipal debt as of January 1, 2022 and 2023

Types of debt securities	Amount of state debt of RF subjects, Rb bn					Amount of municipal debt, Rb bn				
	2022	Share in total debt, %	2023	Share in total debt, %	Increase/decrease, y-o-y, %	2022	Share in total debt, %	2023	Share in total debt, %	Increase/decrease, y-o-y, %
Government (municipal) securities	799.9	32.33	651.8	23.37	8.95	19.9	5.3	13.9	3.7	-30.2
Loans issued by credit institutions, foreign banks and international financial institutions	257.6	10.41	126.2	4.53	5.88	220.0	58.4	113.3	30.2	-48.5
Public budget loans from other budgets of the budgetary system of the Russian Federation	1371.5	55.43	1979.9	71.00	-15.57	132.4	35.1	243.6	65.0	84.0
Government (municipalities) guarantees	39.3	1.59	24.9	0.89	0.70	4.5	1.2	3.8	1.0	-15.6
Other debt liabilities	6.3	0.25	5.9	0.21	0.04	0.005	0.0	0.005	0.0	0.0
Total: amount of state (municipal) debt	**2 474.5**	**100.0**	**2 788.7**	**100.0**	**13.9**	**376.7**	**100.0**	**374.6**	**100.0**	**-0.6**

Source: Own calculations on data released by the Finance Ministry of Russia.

In addition, in accordance with this Federal Law, the subjects of the Russian Federation in 2022 were exempt from repayment of debt to the Russian Federation on budget loans.

Another source for borrowing of the RF subjects from the federal budget was the provision of budget loans for financial support of infrastructure projects, provided in accordance with the Government of the Russian Federation of 14.07.2021 No. 1190.[1]

1 See in detail: Operational report on the execution of the consolidated budgets of the subjects of the Russian Federation for January-June 2022. Accounting Chamber of the Russian Federation.

As a result, 27 subjects of the Russian Federation accumulated 100% of their debt by the beginning of 2023, which accounted for interbudgetary loans (*Table 17*).

In this context, in 2022, the number of RF subjects registered the emission of debt securities decreased four-fold, from 24 in 2021 to 6. The following subjects had their prospectuses registered: the Sakha Republic (Yakutia), the Republic of Karelia, the Kaliningrad, Ulyanovsk, Sverdlovsk and Magadan regions. The only municipality that registered the bond issue was the city of Tomsk (in 2021, two municipalities issued bonds).

The largest share of borrowings related to bond issues was taken by St. Petersburg (89.1% of the total structure of accumulated debt), the Sakha Republic (Yakutia) (58.7%), the Krasnoyarsk Krai (56.7%), the Republic of Bashkortostan (39.0%), the Belgorod region (40.8%) and the Moscow region (36.2%).

Table 17

Structure of state debt of the RF subjects as of January 1, 2023

RF Subject	Government (municipal) securities		Loans issued by credit institutions, foreign banks and international financial institutions		Public budget loans from other budgets of the budgetary system of the Russian Federation		Total debt amount*
	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn
Central Federal district	**254,00**	**32,7**	**13,19**	**1,7**	**508,83**	**65,4**	**777,48**
Belgorod region	12,67	40,8	0,00	0,0	17,32	55,7	31,09
Briansk region	0,00	0,0	0,00	0,0	11,06	100,0	11,06
Vladimir region	0,00	0,0	0,00	0,0	6,71	100,0	6,71
Voronezh region	0,00	0,0	0,00	0,0	20,88	100,0	20,88
Ivanovo region	0,00	0,0	0,00	0,0	11,28	100,0	11,28
Kaluga region	0,00	0,0	0,00	0,0	29,55	100,0	29,55
Kostroma region	0,00	0,0	0,00	0,0	23,69	100,0	23,69
Kursk region	0,59	5,7	0,00	0,0	9,57	93,4	10,25
Lipetsk region	3,70	27,9	0,00	0,0	9,49	71,6	13,25
Moscow region	105,05	36,2	10,36	3,6	174,51	60,2	289,92
Orel region	0,00	0,0	0,00	0,0	22,04	100,0	22,04
Ryazan region	0,00	0,0	0,00	0,0	24,34	100,0	24,34
Smolensk region	0,00	0,0	1,33	5,8	21,75	94,2	23,08
Tambov region	4,55	22,2	0,00	0,0	15,96	77,8	20,51
Tver region	0,00	0,0	0,00	0,0	15,51	100,0	15,51
Tula region	0,00	0,0	1,50	7,5	18,25	91,5	19,94

Moscow. 2022. Pp. 43–44. URL: https://ach.gov.ru/upload/iblock/877/4voa484h3u2yxeki3y08r7mqfpwl9od7.pdf; *Bukharsky V., Tirsky T., Galieva G*. Consolidated budgets of the regions: Sustainability in spite of sanctions. Moscow. 2022. URL: https://raexpert.ru/researches/regions/regional_budgets_2022/

RF Subject	Government (municipal) securities		Loans issued by credit institutions, foreign banks and international financial institutions		Public budget loans from other budgets of the budgetary system of the Russian Federation		Total debt amount*
	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn
Yaroslavl region	12,01	24,8	0,00	0,0	36,39	75,2	48,41
City of Moscow	115,43	74,0	0,00	0,0	40,53	26,0	155,96
North-Western Federal district	**93,45**	**30,7**	**23,81**	**7,8**	**183,84**	**60,4**	**304,28**
Republic of Karelia	0,80	2,9	6,61	24,2	19,96	72,9	27,37
Republic of Komi	10,00	30,7	0,00	0,0	22,62	69,3	32,62
Arkhangelsk region	0,00	0,0	8,00	17,2	38,58	82,8	46,58
Vologda region	0,00	0,0	0,00	0,0	16,69	99,7	16,75
Kaliningrad region	3,50	12,9	3,00	11,0	19,14	70,5	27,17
Leningrad region	0,00	0,0	0,00	0,0	6,52	100,0	6,52
Murmansk region	0,00	0,0	6,20	30,6	12,48	61,5	20,28
Novgorod region	0,00	0,0	0,00	0,0	18,72	100,0	18,72
Pskov region	0,00	0,0	0,00	0,0	18,99	100,0	18,99
City of St. Petersburg	78,76	89,1	0,00	0,0	9,67	10,9	88,43
Nenets autonomous okrug	0,40	46,2	0,00	0,0	0,47	53,8	0,87
Sothern Federal district	**31,00**	**12,7**	**35,61**	**14,6**	**177,86**	**72,8**	**244,47**
Republic of Adygea (Adygea)	0,00	0,0	0,74	19,9	2,99	80,1	3,74
Republic of Kalmykia	0,00	0,0	0,60	7,0	7,93	93,0	8,53
Republic of Crimea	0,00	0,0	0,00	0,0	5,68	100,0	5,68
Krasnodar krai	24,50	21,8	0,00	0,0	88,06	78,2	112,56
Astrakhan region	0,00	0,0	0,00	0,0	16,11	100,0	16,11
Volgograd region	6,50	10,9	10,10	16,9	43,14	72,2	59,74
Rostov region	0,00	0,0	24,17	63,4	13,95	36,6	38,11
City of Sevastopol	0,00	0	0,00	0	0,00	0	0,00
North-Caucasus Federal district	**9,95**	**13,9**	**0,00**	**0,0**	**61,32**	**85,7**	**71,51**
Republic of Dagestan	0,00	0,0	0,00	0,0	11,56	100,0	11,56
Republic of Ingushetia	0,00	0,0	0,00	0,0	2,39	100,0	2,39
Kabardino-Balkar Republic	0,00	0,0	0,00	0,0	7,03	100,0	7,03
Karachaevo-Cherkassia Republic	1,75	30,2	0,00	0,0	4,05	69,8	5,79
Republic of North Osetia-Alania	0,00	0,0	0,00	0,0	8,67	100,0	8,67
Chechen Republic	0,00	0,0	0,00	0,0	6,35	100,0	6,35
Stavropol krai	8,20	27,6	0,00	0,0	21,26	71,6	29,71

RF Subject	Government (municipal) securities		Loans issued by credit institutions, foreign banks and international financial institutions		Public budget loans from other budgets of the budgetary system of the Russian Federation		Total debt amount*
	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn
Volga Federal district	**102,84**	**15,7**	**18,15**	**2,8**	**530,23**	**80,8**	**656,45**
Republic of Bashkortostan	15,00	39,0	2,70	7,0	20,71	53,9	38,41
Republic of Mariy El	1,00	9,9	0,00	0,0	9,09	90,1	10,09
Republic of Mordovia	0,00	0,0	3,18	9,4	30,63	90,6	33,80
Republic of Tatarstan (Tatarstan)	0,00	0,0	0,00	0,0	98,52	95,2	103,53
Udmurt Republic	5,00	7,3	0,00	0,0	63,75	92,7	68,75
Chuvash Republic — Chuvashia	0,00	0,0	0,00	0,0	10,61	100,0	10,61
Perm krai	0,00	0,0	1,00	4,9	19,46	95,1	20,46
Kirov region	0,00	0,0	0,00	0,0	24,20	100,0	24,20
Nizhniy Novgorod region	41,50	31,2	0,00	0,0	91,23	68,6	132,95
Orenburg region	3,61	19,8	0,00	0,0	14,65	80,2	18,26
Penza region	0,00	0,0	4,93	19,6	20,24	80,4	25,17
Samara region	18,30	28,7	0,00	0,0	45,45	71,3	63,75
Saratov region	3,50	5,9	0,00	0,0	55,79	94,1	59,29
Ulyanovsk region	14,93	31,6	6,35	13,5	25,90	54,9	47,18
Urals Federal region	**60,58**	**34,2**	**0,00**	**0,0**	**114,38**	**64,6**	**177,03**
Kurgan region	0,00	0,0	0,00	0,0	17,49	100,0	17,49
Sverdlovsk region	49,18	46,2	0,00	0,0	57,24	53,8	106,42
Tyumen region	0,00	0,0	0,00	0,0	5,18	81,9	6,33
Chelyabinsk region	7,00	18,1	0,00	0,0	30,80	79,6	38,70
Khanty-Mansi autonomous okrug — Yugra	3,40	48,1	0,00	0,0	3,67	51,9	7,07
Yamal-Nenets autonomous okrug	1,00	97,6	0,00	0,0	0,00	0,0	1,02
Siberian Federal district	**66,50**	**20,9**	**10,60**	**3,3**	**234,59**	**73,9**	**317,56**
Republic of Altai	0,00	0,0	0,00	0,0	2,52	100,0	2,52
Republic of Tyva	0,00	0,0	1,30	32,5	2,70	67,5	4,00
Republic of Khakassia	2,00	8,5	0,00	0,0	21,58	91,5	23,58
Altai krai	0,00	0,0	0,00	0,0	5,30	100,0	5,30
Krasnoyarsk krai	28,71	56,7	0,00	0,0	21,92	43,3	50,63
Irkutsk region	0,00	0,0	0,00	0,0	19,21	100,0	19,21
Kemerovo region — Kuzbass	4,50	7,8	0,00	0,0	47,52	82,1	57,88
Novosibirsk region	13,00	27,2	0,00	0,0	34,88	72,8	47,88
Omsk region	5,00	8,7	9,30	16,2	43,01	75,0	57,31

RF Subject	Government (municipal) securities		Loans issued by credit institutions, foreign banks and international financial institutions		Public budget loans from other budgets of the budgetary system of the Russian Federation		Total debt amount*
	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn	Share in total amount, %	Rb bn
Tomsk region	13,30	27,0	0,00	0,0	35,93	73,0	49,23
Far East Federal district	**33,46**	**13,9**	**24,84**	**10,4**	**168,87**	**70,4**	**239,90**
Republic of Buryatia	0,00	0,0	3,92	16,7	19,45	83,0	23,43
Republic of Sakha (Yakutia)	28,50	58,7	0,00	0,0	8,76	18,0	48,59
Zabaikalsky krai	0,00	0,0	2,70	8,5	29,05	91,5	31,75
Kamchatka krai	0,70	7,5	5,17	55,5	3,45	37,0	9,32
Primorsky krai	0,00	0,0	0,00	0,0	7,98	94,8	8,42
Khabarovsk krai	3,26	6,4	0,00	0,0	47,53	93,2	51,00
Amur region	0,00	0,0	9,94	30,7	22,45	69,3	32,39
Magadan region	1,00	5,6	3,11	17,3	13,87	77,1	17,98
Sakhalin region	0,00	0,0	0,00	0,0	2,54	100,0	2,54
Jewish autonomous region	0,00	0,0	0,00	0,0	5,60	100,0	5,60
Chukotka autonomous okrug	0,00	0,0	0,00	0,0	8,20	92,3	8,88
Total	**651,79**	**23,4**	**126,21**	**4,5**	**1 979,92**	**71,0**	**2 788,69**

* In addition to the categories of accumulated debt highlighted in the table, the Russian Ministry of Finance also includes state (municipal) guarantees and "other debt obligations".

Source: Own calculations on data released by the RF Finance Ministry.

2.3. The banking sector[1]

2.3.1. Key indicators and financial performance of the banking sector

At the end of 2022, there were 361 credit institutions in the Russian banking system. A year earlier their number amounted to 370 units (a decrease by 9 units during the year, in 2021 – by 37 units). There were 3 revocations of licenses (in 2021 – 26), the number of voluntary revocation of licenses came to 9 (in 2021 – 11). There were 225 banks with universal license as of the end of the year (232 banks as of the beginning of the year) and 101 banks with the basic license (103 banks as of the beginning of the year). The number of non-bank credit institutions was 35, the same as in the previous year (*Fig. 57*).

1 Author: *Zubov S.A.*, Candidate of Economic Sciences, Docent, Senior Researcher, Structural Studies Department, IAES RANEPA.

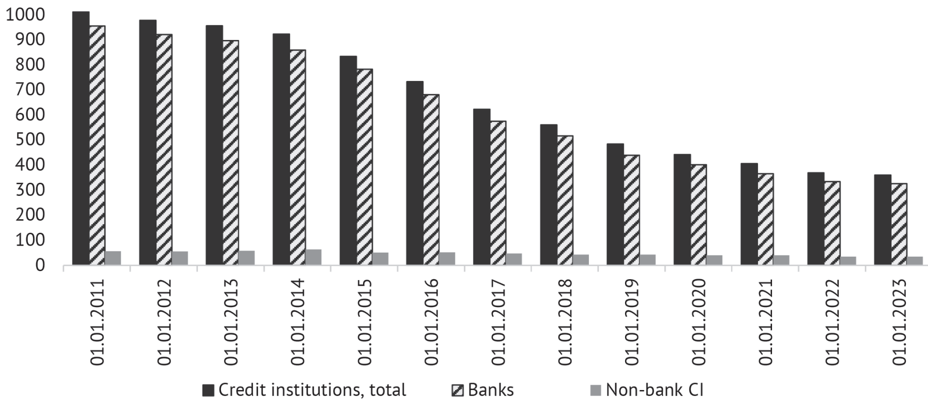


Fig. 57. Dynamics of the number of credit institutions over the last 12 years

Source: Bank of Russia. URL: https://cbr.ru/statistics/bank_sector/lic/

A slight reduction in the total number of banking credit institutions was accompanied by consolidation of the banking sector. 2022 saw an increase in assets, (information on equity and profit is not published). Due to the rapid recovery of the economy, total assets of credit institutions last year increased by 14.7% (in 2021 the increase amounted to 15.9%). Thus, the growth rate of assets remained approximately at the level of the previous year.

Over January-June, the losses of the banking sector exceeded Rb1.5 trillion, the negative financial result is largely due to the Western sanctions against the largest Russian credit institutions, revaluation of currency positions due to a sharp change in the exchange rate of the ruble, as well as the outrunning growth of funding costs over the return on assets due to the growth of the key rate. In H2 2022, as the economic situation stabilized, the aggregate loss gradually decreased, and at the end of the year the banking sector recorded a profit at the level of Rb203 bn, the share of profitable credit institutions stood at 78%.

2.3.2. Corporate lending

The aggregate credit indebtedness of corporate borrowers to Russian banks as of January 1, 2023 reached Rb50.8 trillion. The increment of the corporate credit portfolio in 2022 reached Rb8,110.3 bn, or 19.0%. A year earlier, the corporate credit portfolio of Russian banks increased by Rb5,492.2 bn, or 14.7%. The record growth of the corporate credit portfolio was largely ensured by the replacement of external borrowings by the corporate sector. A significant role was also played by the provision of state subsidies, which were allocated to support systemic enterprises affected by sanctions. During the past year, banks provided loans under this program in an amount exceeding Rb1.5 trillion. Businesses were given loans at 10–11% of the amount up to Rb10 bn, up to Rb30 bn — for holding structures.

Another factor was the support of project financing of developers with targeted loans of Rb2.2 trillion at concessional interest rates (4—5% per annum), secured by the balance of the buyers of housing on escrow accounts.

However, the volume of loans provided last year amounted to Rb 65.9 trillion, which is 23.1% less than in 2021 (Rb85.6 trillion), the decrease in the volume of loans in rubles (Rb58.2 trillion against Rb77.1 trillion in the previous year), the issue of foreign currency loans has decreased by 10.7% (Rb7.6 trillion against Rb8.6 trillion in 2021). Thus, we can conclude that the growth of the total loan portfolio of legal entities with a decrease in the volume of granted loans is due to the restructuring of debt (provision of vacations, credit extensions) in the context of the financial crisis associated with the geopolitical conflict. The total volume of restructuring, according to the Central Bank of Russia, amounted to Rb13.4 trillion, or 23% of the corporate loan portfolio.[1] Banks were actively restructuring loans to large businesses, SMEs and individual entrepreneurs[2] as part of the plan of priority actions to ensure the development of the Russian economy under external sanction pressure, both under the state and their own programs.

The level of overdue debt declined by 2.2% compared to the beginning of the year (the previous year growth was 21.4%) and reached Rb2.8 trillion, which is 5.5% of the total credit portfolio (a year ago — 6.7%) (*Fig. 58*). These figures indicate some improvement in the quality of the loan portfolio, which, however, is largely due to the indulgence of the Central Bank, in particular, the permission not to reflect the deterioration of the quality of loans, if the borrower has problems

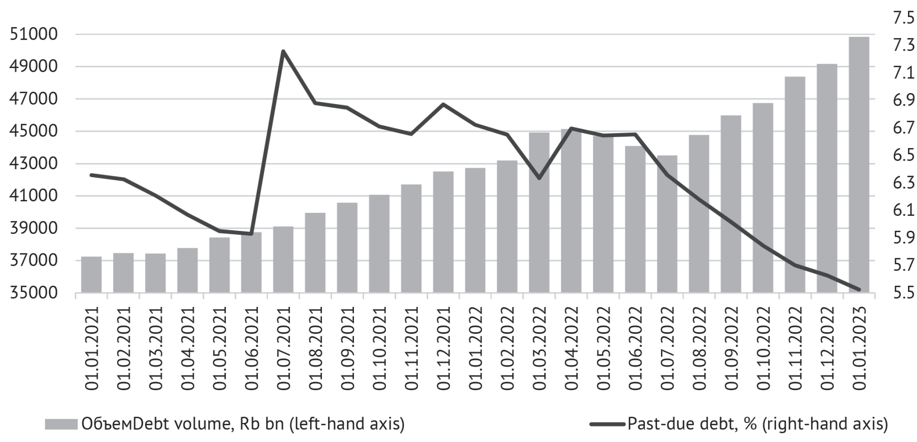


Fig. 58. Corporate lending dynamic and past-due debt in 2021–2022

Sources: Bank of Russia, own calculations.

1 URL: https://www.cbr.ru/Collection/Collection/File/43816/analytical_review_bs-2022.pdf
2 Called up for military service by mobilization in the Armed Forces of the Russian Federation or contracted on a voluntary basis to perform the tasks assigned to the Armed Forces of the Russian Federation.

due to restrictions associated with sanctions imposed by Western countries. Another factor in improving the quality of the loan portfolio was an increase in the volume of transactions for the sale of bad debts on the securities market, as well as some large write-offs of bad debts.

The sectoral structure of corporate loans did not undergo significant changes compared to the previous year. The leaders in terms of debt as of January 1, 2023 are manufacturing companies (Rb12.6 trillion, or 24.8% of the total corporate debt), financial and insurance companies (Rb8.3 trillion, or 16.2%), and wholesale and retail trade companies (Rb5.4 trillion, or 10.7%).

At year-end 2022, companies engaged in financial and insurance activities are leading by volume of attracted loans (Rb20.7 trillion, or 31.4% of the total amount of loans), the wholesale and retail trade (Rb14.4 trillion, or 21.9%) and manufacturing businesses (Rb11.9 trillion, or 18.1%).

The rise of market rates after the increase of the key rate to 20% at the end of February, as well as more cautious approach of banks to the selection of borrowers against the backdrop of growing uncertainty about the financial stability of enterprises led to a decrease in the volume of corporate credit debt during March-May 2022. This decline was especially noticeable in foreign currency loans. Further, some support to corporate borrowers was provided by the state programs of concessional lending to systemic enterprises (industry, trade and agro-industrial complex), adopted by the RF Government, which provided for the origination of loans worth about Rb1.4 trillion.[1]

Since June there has been a gradual adaptation of enterprises in a wide range of industries to structural changes in the economy, which led to a revival of economic activity and a partial recovery in the volume of corporate lending. Despite the fact that the volume of lending never returned to the 2021 level, in general, we can conclude that the crisis is over and, in the absence of new shocks, about the growth of corporate lending in 2023. In particular, the market stabilization is indicated by the fact that some changes were recorded in the term structure of corporate lending – while the overall lending grew the volume of short-term lending contracted (up to 6 months) and went up the share of long-term loans (over 1 year — to 70.5% against 68.9% by the end of 2021).

The changes taking place (aggravation of the geopolitical conflict and international situation, “partial mobilization”) increase the rate of uncertainty in the sphere of corporate business. Despite the fact that, in general, the banking sector has managed to adapt to the ongoing changes and maintain the volume of lending in the context of aggravating credit risks, the potential threat in the form of accumulation of bad debts is still relevant. It cannot be ruled out that the banking sector may face a delayed effect of sanction pressure on Russian business, which, in turn, will lead to veiled accumulation of bad loans in bank balance sheets. In this regard, the government and the Central Bank need to develop additional macroprudential regulation measures and, possibly, new programs to support enterprises through concessional lending.

1 RF Government Decrees of 16.03.2022 No. 375 and of 17.03.2022 No. 393, RF Government Edict of 18.03.2022 No. 532-p.

In recent months, the Russian government and the Central Bank have managed to neutralize banking risks and maintain the level of lending to the corporate sector. However, the high concentration of corporate liabilities is still a potential source of systemic risk for the domestic banking sector. In the near term, measures will be needed to encourage diversification of the corporate loan portfolio of banks, which, in turn, will largely depend on the development of small and medium-sized enterprises, as well as on the implementation of the country's competition and antitrust strategy.

2.3.3. Retail lending

As of January 1, 2023, the total volume of retail bank loans hit Rb26.9 trillion. Over the past year, the volume of lending increased by Rb2.4 trillion, or 9.7%, which is significantly lower than the increase in 2021 (Rb4.6 bn, or 22.9%).

The increase in the total retail loan portfolio is ensured primarily by mortgage lending (increase — 17.5%), while the volume of debt on consumer loans has grown merely by 2.7%, and the debt on car loans has decreased by 3.8%.

The growth in the volume of retail debt is entirely in the ruble segment — the volatility of the ruble, high currency risks and a significant reduction of payments in dollars and euros have led to a virtually complete rejection of foreign currency loans, which during the year dipped by 53.5% (in 2021 the downturn was 22.5%) and amounted to only Rb22.0 bn.

During the past year, the dynamics of interest rates on loans was unstable and was determined by political events and administrative decisions of the Central Bank. The record burst of interest rates was recorded in late February — early March, when the Bank of Russia decided to hike its key rate to 20%. Subsequently, as the monetary policy was softening and the key rate was reduced, banks were cutting interest rates on retail loans. However, in September, after the decision to start "partial mobilization", there was a growth of interest rates on retail loans again, which was reflected in short-term lending rates (*Fig. 59*)

Since the beginning of 2022, the increment in past-due debt amounted to 14.7%, its total volume hitting Rb1,083.7 bn (*Fig. 60*). The share of past-due debt in the credit portfolio has grown insignificantly and as of January 01, 2023 comes to 4.0%, while a year ago this figure was 3.8%. The NPL90+ is also relatively low at 8.8%, which is less than in the crisis year of 2020 on the back of epidemiological factors. However, despite the relatively high quality of the loan portfolio, the Central Bank in Q3 2022 recorded alarming signals:[1] the growth of the volume of lending to borrowers with high non-performing loans (NPL)[2] (such level is considered the NPL above 80%) by 4 p.p. to 32%, as well as the growth of Payment-to-Income Index[3] (PTI) by 14 p.p. to 42%. These indicators may show the hidden nature of the issues in the field of credit policy of banks and the potential growth of arrears in the future.

1 URL: https://www.cbr.ru/Collection/Collection/File/43512/2q_3q_2022.pdf
2 Debt load ratio is calculated as the ratio of the average monthly payments of the borrower on all credits and loans (including the requested credit) to the average monthly income of the borrower.
3 Payment-to-income index calculated by credit institutions according to their own methods.

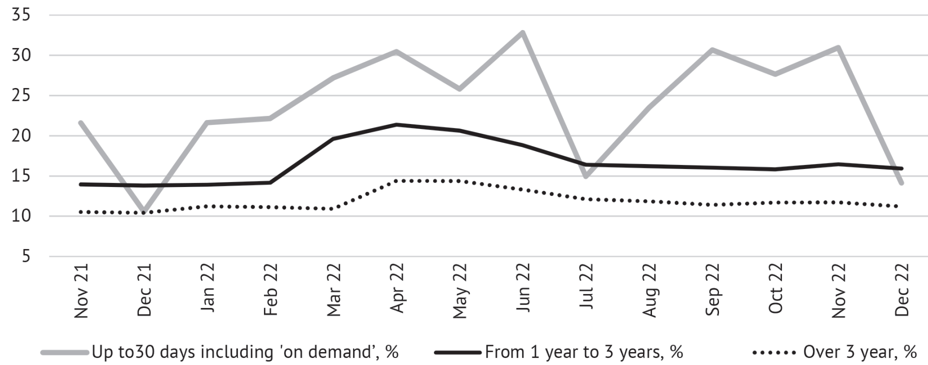


Fig. 59. Weighted average interest rates on loans provided by credit institutions to individuals in rubles, %

Source: Bank of Russia.

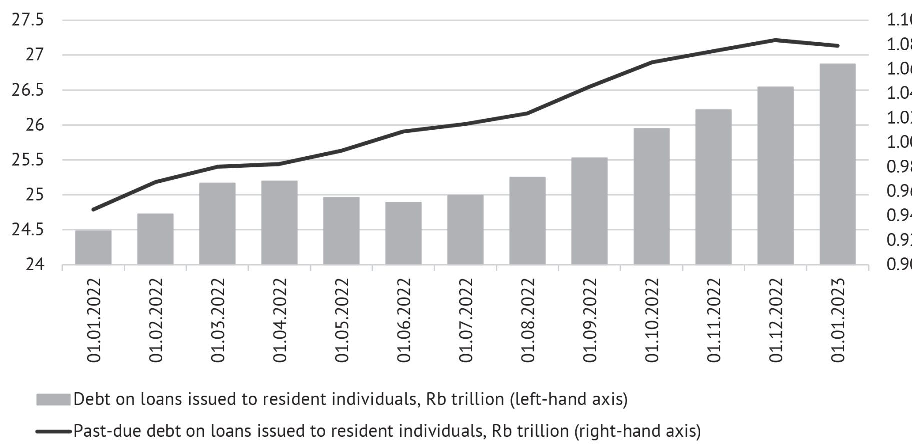


Fig. 60. Total debt and overdue debt on loans to resident individuals, Rb trillion

Source: Bank of Russia.

Last year banks approved credit applications from citizens less frequently: according to the National Bureau of Credit Histories (NBKI),[1] during the analyzed period, banks approved only 26% of citizens' applications for a loan, which is 7 p.p. lower than the corresponding index of 2021. Decreased level of approval of credit applications indicates a more cautious credit policy of banks in terms of political and financial instability. The main reasons for refusal: bad credit history (or lack thereof), low personal credit rating (PCR) and high debt burden of borrowers relative to disposable income.

1 URL: https://nbki.ru/company/news/?id=1567769

Given that by the end of 2022, the average number of retail loans per borrower in Russia amounted to 2.3 loans (an increase of 0.1 unit as compared with the end of 2021),[1] we can conclude that the banks' customer base currently does not have prospects for growth and in a tightening of bank lending standards even with a high demand for credit, the number of borrowers will stagnate, this, in turn, may lead to over credit borrowers with a relatively high personal credit rating and acceptable level of debt.

Due to the fact that the growth of debt overburden in the context of financial and economic instability can create additional macroeconomic risks and in the future affect the sustainability of the banking sector, the Board of Directors of the Central Bank decided to establish quantitative limits on issuing unsecured consumer loans in Q1 2023.[2]

In accordance with the decision of the Bank of Russia, the limit for loans with a DLR of more than 80% will be 25% of the total volume of consumer loans. At the same time, the volume of consumer loans originated with 5-year maturity should not exceed 10%.

The introduction of macroprudential limits will restrict the growth of consumer indebtedness by discouraging lending to borrowers with a high debt load and artificially lengthening the term of loans, which will make the structure of consumer lending more balanced, while not creating additional requirements to the capital of banks.

This limitation is set only for banks with a universal license. For banks with a basic license the introduction of such limits is inexpedient due to their insignificant contribution to the debt load of the population.

The decision on the possible extension of this limitation for Q2 2023 will be considered by the Central Bank in February 2023, taking into account the dynamics of the debt load of the population and lending standards.

In the meantime, the Central Bank prepared draft amendments to Directive 5782-U, aimed at expanding the ability of banks to use the model approach to assess the income of the borrower for the purposes of calculating the DLR.[3] This decision can be regarded as a loosening, which would allow banks to vary their own methods and in some cases make credit more accessible to borrowers with ambiguous financial situation. It is assumed that banks will be able to calculate the NPL for consumer loans using internal models for assessing income after the validation of these models in the Central Bank.

In general, the aggregate retail loan portfolio increased in 2022 despite the crisis. This is largely due to the stable development of the banking system in the previous crisis years, as well as the fact that in the context of stagnating incomes of the households faced a shortage of funds to cover expenses and have a need for borrowed funds to maintain the previous level of consumption. Besides, in the periods of crisis aggravation and growth of inflationary expectations, there is an increased demand for consumer goods and, accordingly, a demand for bank loans.

1 URL: https://nbki.ru/company/news/?id=1597722
2 URL: https://www.cbr.ru/press/pr/?file=638046460634914087FINSTAB.htm
3 URL: https://www.garant.ru/products/ipo/prime/doc/405654369/#review

Taking into account the aggressive lending policy of some banks in the context of rather high competition and at the same time low potential for expansion of the client base, this fact may negatively affect the quality of credit servicing in the nearest future. In general, the Central Bank's decisions to cool the consumer lending market in early 2023 look timely and will allow banks to maintain the quality of their loan portfolios at the required level.

2.3.4. Mortgage lending

As of January 1, 2023, the aggregate portfolio of mortgage housing loans (MHL) amounted to Rb13.8 trillion. The increase in the aggregate portfolio for the year amounted to Rb2.0 trillion, or 17.5%, which is somewhat lower than the respective index for 2021 (at that time the mortgage loan portfolio increased by Rb2.5 trillion, or 26.6%). Despite the decrease in the market growth rate, the share of the debt on mortgage housing loans in the total debt on retail loans increased throughout the year and reached 51.5% (47.5% by the end of 2021).

During the past year 1.5 million mortgages worth of Rb4.8 trillion were originated, the respective figure for the previous year was 1.9 million loans worth of Rb5.7 trillion; the reduction amounted to 15.6% (*Fig. 61*). The structure of originations has undergone some changes: under the effect of the extension of state programs with lower interest rates, the volume of mortgage loans on the primary market (MHL under co-investment contract) amounted to 42.9% of the total volume of originations (in 2021 the figure came to 33.1%).

Almost all transactions were concluded in the ruble segment; the total volume of mortgage loans extended in foreign currency in 2022 amounted to Rb77 mn. During the year, the debt on MHL in foreign currency decreased by Rb8.8 bn to Rb6.7 bn (less than 0.1% of the total MHL portfolio). Foreign currency loans will

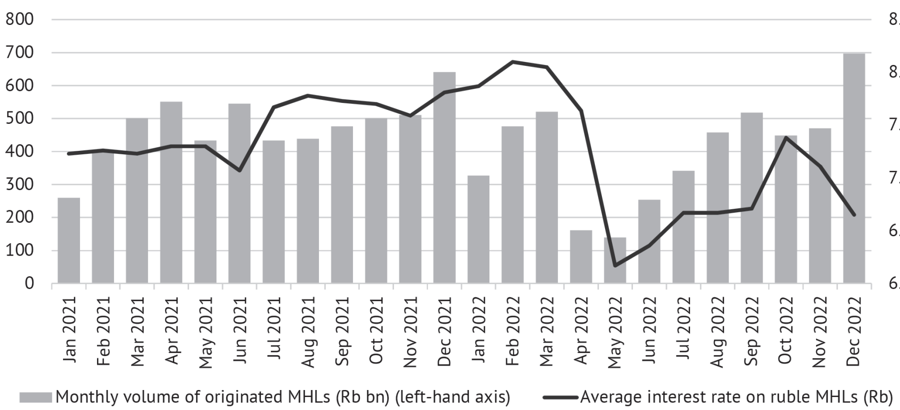


Fig. 61. Dynamics of monthly lending volumes and interest rates in the housing mortgage lending market in 2021–2022

Source: Mortgage housing lending. URL: https://www.cbr.ru/statistics/pdko/Mortgage/ML/

remain unprofitable due to the barrier add-on to the risk ratios (from 200% and higher depending on the total cost of credit).

The average size of mortgage loan for the year went up by 18.6% to Rb3.95 mn (at the end of 2021 – Rb3.33 mn), which also contributed to the growth in housing prices at the primary (for the year increased by 37.3%) and the secondary market (the annual increase – 23.1%).

The weighted average loan term has increased, in December it was 311.3 months, and a year earlier – 262.8 months (an increase of 18.5%). The increase in the term of the loan allows to reduce the monthly debt burden on borrowers, thereby reducing the risk of loan defaults.

A positive 2022 trend is the growth in the volume of securitization transactions. This type of operations allows banks to unload their balance sheets and obtain additional liquidity for lending. In 2023, the volume of securitization may increase due to securities with privileged mortgages as the underlying asset. However, the rapid growth in securitization of mortgage assets leads to an expansion of the market and the hyperactivity of banks in mortgage lending, which in turn will lead to an increase in the volume of the portfolio at the expense of loans of dubious quality. Moreover, the secondary mortgage market may become a source of crisis, as it was in the U.S. in 2006–2007.

The quality of the loan portfolio remains at an acceptable level – overdue debt over the past year shrank by 8.4% and as of January 1, 2023 amounted to only 0.4% of the total debt on MHL (0.6% as of the beginning of 2022), which is much lower than in other types of bank loans (from 4 to 7%). The share of non-performing loans (NPL 90+) also remained at a minimum level – about 0.7%.

The average weighted interest rate on mortgage loans in the primary market fell to 4.3%, which is generally lower than in 2021 and was ensured by the softening of the monetary policy of the Central Bank of Russia (a decrease in the key rate), implementation of partnership programs of major developers and banks at rates from 0.01 to 2% (the rate is subsidized by the developer through selling the apartment at a higher price) and renewal of preferential mortgage programs for the population with relatively low interest rates.

On the secondary market, the opposite rate dynamic was observed. However, no significant growth was recorded; the increase in rates during the sharp aggravation of the geopolitical conflict and the imposition of anti-Russian sanctions on loans offered led to a drop in the volume of loans. In general, by the end of the year the rate rose to 9.3%, which is higher than in 2021 by 1 p.p.

During the year, in order to stimulate mortgage lending, the government took a number of measures concerning the reformatting of the state preferential programs. As a result, plans for curtailing preferential mortgage lending were revised, and at the end of 2022, the preferential mortgage on new buildings was extended until July 1, 2024. Under the new conditions, the rate on loans increased from 7 to 8%, the loan amount went up to Rb12 mn for Moscow and St. Petersburg, in other regions – up to Rb6 mn (the loan amount may be increased to Rb30 mn and Rb15 mn respectively, using other mortgage programs), the amount of down payment – 15%. Since 2023, family mortgages became available to parents with two children or more under the age of 18 years on the date of the contract. The annual rate under the program — 6%.

One of the main innovations was the launch of a preferential mortgage program for the construction of private houses by private housing construction, without a contract with professional developers. Despite the mortgage market slowdown, the volume of mortgages on private housing projects and ready-made houses in 2022 increased by 8% to the level of 2021.

Another stimulus for the development of the mortgage market was the introduction of a mortgage program for IT specialists at the rate of 5% with a down payment of at least 15%. However, this program is not yet in demand due to complicated loan conditions and the availability of IT corporations' own mortgage programs. In total, at the end of 2022 in Russia under the program 5 thousand loans were originated worth of Rb44.79 bn.[1] In December 2022, the Russian Government reduced the plan for granting preferential mortgages for IT specialists.

In the process of fighting for clients, banks develop new marketing solutions, while taking on additional risks. In the past year, the "mortgage with a passport" program was especially popular. The essence of the program is that the borrower does not need to confirm employment or income. As a rule, it is applied to transactions with ready-made real estate. Such practice is fraught with risks, since a full analysis of client's creditworthiness is not carried out, which can lead to inadequate assessment of the borrower and possible issues with loan repayment.

Another area that banks are exploring is digital mortgages. The introduction of digital services in the mortgage process makes it possible to reduce the time for its implementation, simplify the procedure of evaluation, registration and insurance of real estate and to obtain a loan without visiting the office (with electronic signature and biometric characteristics of the client). However, in this connection the operational risks are actualized — the digital transformation can be accompanied by a violation of communication between software developers, front-office specialists and decision-makers. In the near future, the Central Bank will have to take measures to curb the possible negative consequences of a hasty and unsystematic digitalization of the banking sector.

Another trend of the past year was the growing influence of ESG[2] on the Russian banking sector. At the initiative of the Central Bank, it is proposed to launch a new type of housing loan — a "green" mortgage, which is a subsidy for the purchase of housing in houses that meet green building standards. The program may be tested in the Far East as part of the existing state mortgage subsidy program.

At the suggestion of the President of the Russian Federation, the government is launching a new tool to support industrial enterprises — industrial mortgages. Russian organizations will be able to obtain long-term preferential loans for the purchase of industrial real estate. It is planned that loans will be issued for up to 7 years at a preferential rate of 5% per annum, while for innovative technology

1 URL: https://www.kommersant.ru/doc/5864435?from=top_main_1
2 ESG – Environmental, Social, and Corporate Governance.

companies the rate will be even lower – 3%, the upper limit of industrial mortgages is proposed to be set at Rb500 mn.

The full potential of the Russian mortgage market will be unlocked by introducing a wide range of financial instruments, which are now being actively developed by leading players: mortgage bonds, development of mortgage marketplaces, introduction of blockchain technology and other products and processes. The introduction of these tools will optimize banking business processes, simplify and accelerate the processing of loan transactions, which will translate into lower rates and increase the affordability of mortgage loans for a wide range of borrowers.

At present, in the context of such negative phenomena as GDP decline, high inflation, reduction of real incomes of the population, the government and the regulator should promote the development of the mortgage market not only to stimulate its further growth, but also to increase the affordability of housing. In general, mortgages improve the welfare of the population by improving housing conditions, motivate citizens to maintain high incomes by entering into long-term credit relations, and facilitate labor migration. However, forcing the growth of lending through low interest rates, abolishing the initial payment, simplifying the procedure of issuing credit and reducing monthly payments is dangerous, because of the high credit risks, the accumulation of imbalances that can lead to a mortgage bubble. In this regard, in the near future, the Central Bank will continue to build a comprehensive system of regulation of the mortgage market. As the political and macroeconomic situation stabilizes, the gradual reduction of state subsidized programs and the transition of mortgage lending to market principles is possible.

2.3.5. Bank resources

The main resource of credit institutions still remains the funds of clients (individuals and legal entities) in bank accounts and deposits. At the end of the year, the total amount of customer funds amounted to Rb97.1 trillion, having increased since the beginning of the year by 13.0%. This is slightly lower than the same indicator for 2021, which recorded an increase of 16.5%.

The total volume of retail funds (excluding funds in escrow accounts) as of January 1, 2023 hit Rb36.8 trillion, an increase of Rb1.9 trillion, or 5.5% in absolute terms, which corresponds to the data for 2021 (an increase of Rb1.9 trillion, or 5.7%). The total annual growth is almost entirely provided by the December increase when the households' funds moved up by Rb2.5 trillion. This growth is due to the advance payment of pensions and social benefits. Seasonal inflow of funds to deposits in December 2022 was more intense compared to December of the previous year.

The total amount of funds in deposits of legal entities (excluding the funds of government agencies and individual entrepreneurs) during the past year has grown more significantly – by Rb5.1 trillion, or 20.9%, to the level of 29.3 trillion rubles, which also corresponds to the rate of 2021 (an increase of Rb4.2 trillion, or 20.9%).

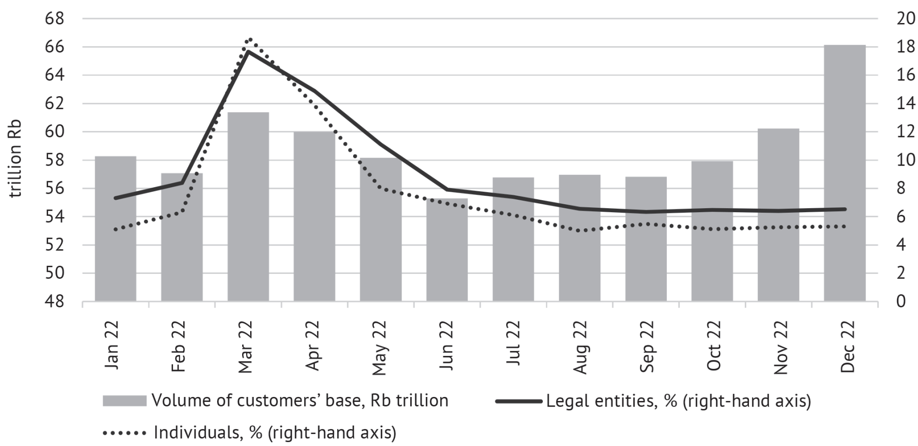
Against the backdrop of record high rates of money emission, balances in settlement and current accounts of corporate clients continued to grow in 2022. Over the year, they rose by Rb3.0 trillion (by 19.2%), reaching Rb18.5 trillion, which repeats the growth dynamic in 2021 (by Rb2.5 trillion, or 18.9%).

During 2022, the term structure of client funds changed in favor of short-term deposits. Individual customers have significantly (by 30.4%) reduced investments in medium- and long-term deposits (over 1 year) to the level of Rb7.9 trillion, which, as of January 1, 2023 amounted to only 21.6% of the total volume of individuals' deposits (a year ago, the volume of deposits with the term of 1 year or more amounted to Rb11.4 trillion, or 32.8% of the total volume). The maximum increase in short-term deposits was recorded on the terms of 3 to 6 months.

The structure of corporate deposits changed in a similar way. The reduction of deposits over 1 year amounted to 14.6%, and their value in the total volume declined to 23.3% (32.0% at the beginning of the year). The greatest demand was for short-term deposits of 1 to 3 months (an increase of 85.5%).

Funds in escrow accounts continued to grow last year and hit Rb4.0 trillion. However, the growth rate nosedived markedly (32.7%) compared to the previous year (157.9%), which is due to the mortgage market slowdown.

A sharp increase in the key rate to 20% at the end of February 2022 contributed to the growth of interest rates (the maximum yield on some proposals reached 24% per annum, *Fig. 62*). The interest of bank customers in fixed-income instruments



* For December – own estimates.

Fig. 62. Dynamics of interest rates on short-term (up to 1 year, including "on demand") deposits of individuals and legal entities* and the total volume of banks' debt on deposits of individuals and legal entities at the end of the month in 2022

Source: Bank of Russia. URL: https://cbr.ru/vfs/statistics/BankSector/Borrowings/02_01_Funds_all.xlsx и URL: http://www.cbr.ru/Collection/Collection/File/43719/Bbs2301r.pdf increased significantly, as well. Also, the abolition of personal income tax on bank deposits income and accounts received in 2021 and 2022 (the tax on bond coupons was retained) contributed to a shift in interest in favor of retail deposits. The decline in the Russian securities market, as well as sanctions against National settlement depository (NSD)[1] and major brokers largely undermined confidence in the stock market, which contributed to the outflow of funds from brokerage and trust management accounts to term and savings deposits. Last year the geopolitical and economic uncertainty forced Russians to adhere to the savings model of consumer behavior and to accumulate savings. Overheating of the mortgage market and declining interest in real estate investments, which, like the stock market, are an alternative to bank deposits, played their part on the behavior of individual clients.

Funds of individual customers in rubles reached Rb32.7 trillion, an increase of 17.8% over the year, while in 2021 the growth was markedly lower — 6.8%. Foreign currency deposits fell to Rb4.1 trillion (the fall over the year — by 42.8%, in the previous year — an increase of 1.4%). Currency deposits of legal entities were in a similar vein, their decline over the year constituted 20.9% (as opposed to the growth of 6.3% in 2021). In 2022, the share of ruble funds in the total amount of the customers' funds on deposits rose from 76.8% to 86.0%.

The reduction in foreign currency deposits was partially due to the outflow of funds abroad on the back of the imposition of Western sanctions and the disruption of the usual investment formats: investments in securities of Western countries became unavailable to Russian investors. Russian banks due to the lack of opportunities to place foreign currency funds in Western banks-counterparties reduced rates on foreign currency deposits almost to zero values. At the same time, additional commissions were introduced for servicing foreign currency accounts. Customers were thus forced to convert their foreign currency deposits into ruble deposits or to keep their foreign currency funds in cash. During the year, the Central Bank twice raised mandatory reserve requirements in respect of liabilities in foreign currency (from August 1, 2023 to 5% of the liability), which also reduced the attractiveness of borrowing in foreign currency for the banks. Another factor in the devaluation of client deposits was the strengthening of the ruble against the dollar and euro against the beginning of the year.

In Q1 2022, major banks with state participation incurred losses owing to the sanctions imposed on them, which provide for asset freezing. In general, the Russian banking system faced a serious indirect impact of sanctions in the form of asset impairment, growth of credit and other financial risks. In this connection, the issue of the need for systemic additional capitalization of the banking sector has become more relevant. According to estimates of the Central Bank of Russia, the total need for additional capitalization amounted to about Rb700 bn.[2] However, during the year banks successfully pursued a policy of risk minimization and

1 National settlement depository – central depository of Russia, keeps records of ownership rights to Russian securities, makes settlements on transactions, performs functions of safekeeping foreign securities, and is a paying agent for Russian eurobonds.
2 URL: https://www.forbes.ru/finansy/481880-cb-ocenil-vozmoznuu-potrebnost-bankov-v-dokapitalizacii-v-700-mlrd-rublej

carried out active measures to replenish capital, interacting with their owners on the issues of additional capitalization. Last year, 29 banks received additional capitalization, the total volume of the authorized capital increase amounted to 180 billion rubles, mainly at the expense of additional issues and other investments in the capital.

At year-end 2022, Russian banks recorded a net profit of Rb203 bn, driven by growth of interest and commission income amid falling interest rates, the recovery of business activity in H2 2022, as well as regulatory easing by the Central Bank. At present, systemic additional capitalization of the banking sector is not required, and we can talk about "point solutions" for individual banks in the form of financial support from shareholders.[1]

In 2023, in the absence of new shocks, a large-scale outflow of funds of citizens is not expected, which will allow banks to maintain a stable positive trend in customer deposits. The likelihood that confidence in the stock market will be fully restored in the near future is low due to the instability of political and geopolitical factors. Meanwhile, the government forecasts an increase in the real incomes of its citizens. Under such conditions, instruments with fixed yield in the presence of the state deposit insurance system will remain the most attractive form of placement of free assets due to the lack of more profitable and reliable alternatives.

1 URL: https://tass.ru/ekonomika/15627499