Bank of Russia

THE DERIVATIVES MARKET: TRENDS AND RISKS

Review

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CONTENTS

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INTRODUCTION

The development of the global financial market and economic globalisation are accompanied by the evolution and advancement of derivative financial instruments (hereinafter, derivatives). The over-the-counter (OTC) derivatives market has seen significant changes over the past decades, rapidly adjusting to fluctuations in the economic environment and producing a stabilising effect in response to exogenous and endogenous shocks.

Global and national financial crises have clearly exposed the urgent need to monitor, regulate and develop the OTC and exchange-traded derivatives market. The economic crisis of 2007–2009 demonstrated that instruments initially designed to reduce the probability of default at the micro and macro levels but used for speculative purposes can be an impactful driver of destabilisation for the global economy. Inadequate regulation, complex structure of contracts and lack of transaction accounting and risk analysis in the OTC derivatives market have combined to create a non-transparent market, calling for a timely response. The rapid 'contamination' of other financial markets and national economies reached global scale and was compounded by significant interdependence between economic agents.

In the context of growing global awareness of the benefits of developing and regulating the derivatives market, the 2009 Pittsburgh G20 summit marked the starting point for shaping a new environment. This was followed by gradual regulatory and technological changes that stimulated the growing use of centralised clearing of obligations, increased the role of central counterparties (CCPs), reduced the risk of default on counterparty obligations and lowered transaction costs by automating the technological processes of concluding and implementing a transaction. Another step was to require counterparties to report their contracts to trade repositories (depositories), which substantially improved market transparency for regulators.

As Pittsburgh G20 summit decisions were implemented, an unprecedented wave of standards and regulatory requirements emerged, with priority given to CCPs in preventing the spread of market and systemic risk.

Today, the global market for OTC and exchange-traded derivatives is growing intensely. Demand for derivatives is rising on the back of the development of economic indicators, growth in floating-rate loans, competent management of market risks, rising confidence in the market, and countering misselling and the use of instruments for speculative purposes.

Russia has seen a surge of activity in the derivatives market in recent years. In 2014–2015, the market was dominated by FX derivatives, driven by FX imbalances of banks and companies. FX derivatives enabled companies to manage their FX positions, raise synthetic FX loans and hedge their FX risks. After the introduction of sanctions in 2014–2015, the Bank of Russia pursued the policy of reducing the share of foreign currency in the banking sector. These factors led banks to significantly reduce their foreign-currency loan portfolios; companies also began to rely more on financing in rubles. Nevertheless, banks' demand for FX liquidity management increased amid continued significant inflows of foreign currency revenues and funds held in non-financial companies' accounts.

Interest rate derivatives are also actively expanding in Russia. The market for ruble-denominated interest rate swaps alone is 26 times greater than in 2014 by the volume of open nominal positions. This segment has become especially popular amid the growing use of floating-rate loans. As short-term funding sources become increasingly more available to banks, additional risks of changes in interest rates are emerging, generating incentives to lend at floating rates. Some borrowers hedge their interest rate risk through interest rate derivatives. Banks, in turn, are using interest rate derivatives themselves as an additional tool to manage their interest rate positions. Therefore, the interest rate derivatives market is becoming a significant segment of the Russian financial market.

Beyond FX and interest rate derivatives, the Russian market includes commodity and stock market derivatives. This review mainly focuses, however, on FX and interest rate derivatives as the most common derivatives in the Russian market. We describe key stages in the development of the derivatives market in Russia and worldwide over the past ten years, the state of the Russian OTC[1] and exchange-traded derivatives markets, the unique features of simple and exotic contracts and the behaviour of active market participants with their strategies for changes in economic conditions. In addition, analysis of long-term trends is provided. The review aims to improve transparency and confidence in the market, and may be published on a regular basis in the future.

Summary

The following key findings emerge from the analysis presented in this review.

- Recent years have seen a substantial increase in the positions held by participants in the FX derivatives market: since 2018, they are up from $150 billion to nearly $200 billion. This was facilitated by the growth of Russia's external trade turnover, growing attractiveness of the Russian market to foreign investors, primarily in carry trade operations, as well as the Bank of Russia's policy towards reducing the share of foreign currency in the financial sector. The latter factor made foreign currency loans and bond purchases less attractive for banks, strengthening the case of using FX derivatives to manage FX positions.
- Furthermore, there was a sharp increase in the volume of ruble-denominated interest rate derivatives transactions: in nominal terms, the market volume has been increasing by more than 1.5 annually since 2018 and has exceeded ₽10 trillion. We attribute this to two factors. First, this is the result of an active increase in lending at floating rates as banks developed their interest-rate risk management. Second, there was an increase in dollar-denominated transactions in 2020, which was largely caused by a decline in dollar-denominated money market rates to near zero. A substantial segment of the derivatives market is occupied by Cross currency derivatives; their volume is comparable to the size of the FX derivatives market.
- The main share in the Russian interest rate derivatives market is taken by interest rate swaps. Despite their decreased share in the total volume of interest rate derivatives, they continue to play a leading role in the market. The main participants in interest rate swaps are systemically important credit institutions (SICIs) and non-residents: on a net basis, SICIs are generally interested in making fixed payments to non-residents through interest rate swaps in exchange for floating proceeds. For SICIs, this ability is extremely important given the growing share of short-term liabilities and the potential negative impact of rising interest rates on banks' net interest income.
- Russian institutional investors (non-governmental pension funds and insurance companies) are not interested in hedging the interest rate risk of their future liabilities and, accordingly, in interest rate derivatives. This can be explained primarily by the medium- and long-term nature of such liabilities, payments under which do not guarantee income for the recipients as a result of their preferred investment strategy. The guaranteed minimum return on investment life insurance/universal life insurance contracts is usually achieved by placing assets on deposit.
- Non-financial companies are also participants in the interest rate swap market, but the scale of their participation in this market is limited. They use interest rate swaps as a tool to hedge against rising interest rates when borrowing at floating rates. However, the current volume of their floating-rate loans substantially exceeds the volume of their interest rate swap transactions. Therefore, the potential contribution of non-financial companies to market growth appears to be substantial.

[1] *Repository data are analysed for the period since 2014, following the introduction of the obligation to report OTC derivatives transactions.*

- It is not uncommon for corporate borrowers to refuse to hedge their interest rate risk. This can lead to negative implications in a period of tightened monetary policy and generally requires scrutiny by the regulator given the potential risks to financial stability. For example, if interest rates rise, suboptimal practices of interest rate risk management at corporate borrowers may create challenges primarily for smaller companies (including young businesses), which tend to rely on borrowed funds and do not have a wide range of funding sources. At the same time, when borrowers fail to hedge their interest rate risks in appropriate amounts, expanded lending at a floating rate poses greater direct risks of default on loans for the banks themselves.
- Also, there is a discussion in the Russian derivatives market about selecting a benchmark for interest rate derivatives. Currently, the main benchmarks are MosPrime Rate, RUONIA and the Bank of Russia key rate. However, amid the global trend away from indicative rates and towards alternative risk-free benchmarks, the issue of selecting a reliable and representative benchmark for interest rates is becoming even more relevant. In this regard, the Bank of Russia's report Selecting the Main Benchmark for Interest Rates in the Russian Financial Market, being finalised to be published on its website, will initiate public discussion of selecting RUONIA (including its forward-looking versions) as the main benchmark for the derivatives market (and for the securities market and lending operations) as well as the existence/absence of shortcomings or barriers for this choice.
- The segment of interest rate derivatives has also seen an increase in the share of forward rate agreements (FRA), but this instrument remains a 'niche' one with a small number of participants. These transactions are carried out between a narrow group of Russian banks (mainly SICIs) and foreign participants. The ability to access the international market appears to be a key prerequisite for further development of this market segment.
- Interest rate options attract mostly major Russian banks and non-financial companies. The latter use them to hedge their floating-rate loans. These non-financial companies are the core buyers of interest rate options, while major lending banks are the sellers. Major banks with effective systems of market risk management minimise their risks from selling options by making them manageable and moderate. At the same time, uncovered sales of interest rate options by non-financial clients (such transactions are uncommon but sometimes take place) may contribute to the accumulation of risks. Therefore, the market should be regularly monitored for the presence of non-financial organisations.
- Our analysis of the derivatives market has not highlighted any significant critical threats or vulnerabilities regarding financial stability at the current stage. At the same time, potential risks include a ban or limited opportunities to carry out transactions with foreign participants, as a result of sanctions and emerging credit or market risks. In this regard, it is important to stimulate the development of the local derivatives market. Encouraging broader participation of institutional investors is one of the clear ways to achieve this task.

1. THE DEVELOPMENT OF THE DERIVATIVES MARKET IN RUSSIA AND IN THE WORLD

The derivatives market was initially shaped by the need for flexible risk management instruments. Subsequently, derivatives came to be also used extensively for speculative purposes. There were several stages in the global history of exchange-traded and OTC derivatives.

The exchange trading of derivatives with centralised clearing took a long time to mature and goes back to the 18th century. Clearing houses first emerged in Japan on the rice exchange and then spread to the commodity exchanges in Europe. They acquired their present form in the US commodity markets during the 1970s. The collapse of the Bretton Woods system followed by the transition to floating exchange rates gave rise to futures contracts on currency pairs, which were settled by clearing houses. A positive effect on improving the efficiency of clearing was subsequently made by technological innovations, including the spread of computers.

In contrast to exchange-traded contracts, OTC derivatives evolved in the absence of reporting and continuous monitoring of transactions until the global financial crisis of 2007–2009. Despite weak regulation and the complex structure of some OTC contracts, the investment appeal of OTC derivatives was growing, and by 2008 the OTC derivatives market had increased eightfold by the nominal volume of open contracts compared to 1998 (from $72 trillion to $684 trillion).[11] The widespread use of credit default swaps on securitised papers resulted in the tremendous impact of the derivatives market on financial stability in 2007–2009. Given the lack of transparency, standardisation and transaction accounting, market participants and regulators could not assess the risks and real aggregate positions in OTC derivatives in a timely manner. With high market concentration and strong connections between participants, these factors have had a devastating effect on the global financial and economic system, highlighting the need for integrated collaboration between countries to regulate the OTC derivatives market.

In order to reduce systemic risks, the 2009 Pittsburgh G20 summit made decisions to develop the regulation of OTC derivatives worldwide. The designated key areas of development included the standardisation of OTC contracts, accounting and centralised clearing of OTC transactions, development of electronic trading and increased requirements for contracts with no centralised clearing.

The decisions helped accelerate the transition of OTC derivatives to centralised clearing. Trading OTC derivatives with the involvement of CCPs required that the contracts have strictly standardised terms and conditions in line with generally accepted risk management practices, which were later formalised by regulatory documents, such as Principles for financial market infrastructures[22]. The standardised nature of derivatives ensured their liquidity and price competitiveness while maintaining stability in the market.

As part of efforts to implement the Pittsburgh agreement, the European Union began gradually introducing the European Market Infrastructure Regulation for Europe[33] (EMIR EU) in 2012, and the United Kingdom introduced EMIR UK; these are standards establishing the procedure for the circulation of OTC derivatives in the market and regulating the operations of CCPs and trade repositories.

The 2010 Dodd–Frank Act limited the range of US resident participants who can directly make transactions in the OTC market. In the US, the regulation of derivatives was included in the mandates of the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC).

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[1] *The role of over-the-counter derivatives in global financial crisis and corporate failures in recent times and its regulatory impacts, Issahaku Salifu, 2018.*

[2] *Principles for financial market infrastructures, EMIR, 2014.*

[3 3] *Union Regulation (EU) No. 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.*

At the same time, the global reform of the derivatives market has provoked some unintended consequences that pose important challenges to financial stability. For example, the reform is affecting end users (financial and non-financial) to a varying extent. The cost of capital is increasing, and the collateral requirements for transactions involving non-banking participants lead to inefficient use of capital and the inability to invest the necessary funds in operations. The capital requirements cause banks to reduce their presence in commodity markets, which negatively affects the liquidity of these markets. Despite the decline in mutual credit risk, the financial markets are increasingly feeling a rise in concentration and liquidity risk.

The Russian derivatives market is much younger than markets in other countries and does not have the large-scale accumulated problems faced by regulators around the world. The regulator has the advantage of drawing on global experience of derivatives trading and making regulatory decisions based on domestic market development specifics.

In 2011, the National Association of Stock Market Participants (NAUFOR), the Association of Russian Banks (ARB), and the National Foreign Exchange Association (NFA) developed Standard Documentation for Forward Transactions in Financial Markets containing a description of forward transactions and information on standard terms and conditions for OTC contracts; the document was concurred with[44] the Federal Financial Markets Service (FFMS of Russia)[55].

Trade repositories were established in Russia, and regulation was introduced with regard to the transfer by market participants of transaction-related information to trade repositories. Currently, there are two trade repositories operating in Russia that collect, process and store information on OTC derivatives transactions: NCI JSC NSD and the Saint Petersburg Exchange Repository.

At the same time, given both positive and unintended negative implications of international reforms, the Bank of Russia has adjusted the approaches announced in 2016 to the introduction of centralised clearing and mandatory margining of OTC derivatives (as reflected in the final report On the Phased Introduction of the Requirement for Mandatory Centralised Clearing of Standardised OTC Financial Derivatives).

For example, a requirement for mandatory centralised clearing came into force on 1 January 2021 (Bank of Russia Ordinance No. 5352-U[66], dated 16 December 2019, which provided for mandatory centralised clearing of OTC interest rate ruble swaps; their characteristics are defined in the Ordinance).

As of July 2021, the role of a central counterparty on the Russian financial market is performed by three organisations: NCO NCC (JSC) ('NCC'), NCO CCP RDK (JSC) and NCO CCP MSE Clearing Centre (JSC). The largest share of clearing activities is carried out by NCC, which in December 2007 began to carry out clearing activities on the FX market of the Moscow Interbank Currency Exchange (MICEX) and gradually expanded its functions in subsequent years to the stock, futures and commodity markets, as well as to the markets of precious metals and standardised derivatives.

Recent years have been marked by significant growth in the turnover of the global derivatives market, with the largest contribution made by its OTC contracts segment. The findings of the BIS 2019 Triennial Survey of OTC derivatives showed[77] that the global OTC market for FX and interest rate derivatives is larger and more diversified than ever before. The spread of electronic trading has been a significant driver for growth in international trade, increasing the diversity of market participants and optimising transaction and operational costs. In addition, the analysis of information provided by central and national banks on the structure and size of the OTC derivatives market highlighted a distinctive feature in the use of different types of contracts by countries. According to

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[4] Approved by FFMS of Russia Order No. 11-3600/pz-i of 28 December 2011.

[5] The FFMS of Russia was disbanded in 2013; its functions were transferred to the Bank of Russia.

[6] Bank of Russia Ordinance No. 5352-U, dated 16 December 2019, 'On Cases When Contracts That Are Derivatives Shall Be Concluded Only if the Other Party to Such Contracts Is a Person Performing Functions of a Central Counterparty'.

[7] Philip Wooldridge (2019): FX and OTC derivatives markets through the lens of the Triennial Survey, BIS Quarterly Review, December, pp. 15–19.

Aramonte and Huang (2019)[88], emerging market economies have shown a high level of demand for FX instruments, while interest rate derivatives tend to be more in demand in advanced economies. Historically, Russia, like other emerging economies, has seen the most dynamic development of the FX derivatives market.

[8] *Aramonte, S and W Huang (2019): OTC Derivatives: euro exposures rise and central clearing advances, BIS Quarterly Review, December, pp. 83–93.*

2. THE OTC DERIVATIVES MARKET

Prior to 2014, there was no requirement in Russia to submit reports on derivatives to a repository; Form 0409701 reporting was submitted only by credit institutions and did not contain any data on transactions concluded between other categories of participants. Therefore, our analysis of the OTC market relies on the data of NCI JSC NSD since 2014.

FX derivatives are the dominant segment of the OTC derivatives market, with a volume of open transactions at $200 billion. At the same time, the interest rate derivatives market has expanded significantly in recent years.

2.1. FX forwards

In 2015, the volume of open transactions by participants with FX forwards began to grow rapidly to reach $28 billion by the end of that year – over five times more than at the end of 2014. Thereafter, there was a positive trend in demand for this instrument, especially in periods of increased volatility such as the financial crisis in 2015, after economic sanctions were imposed on some Russian companies in 2018, and after the COVID-19 pandemic began in 2020. As of the end of 2021 H1, the volume of FX forwards reached an all-time high and exceeded $45 billion.

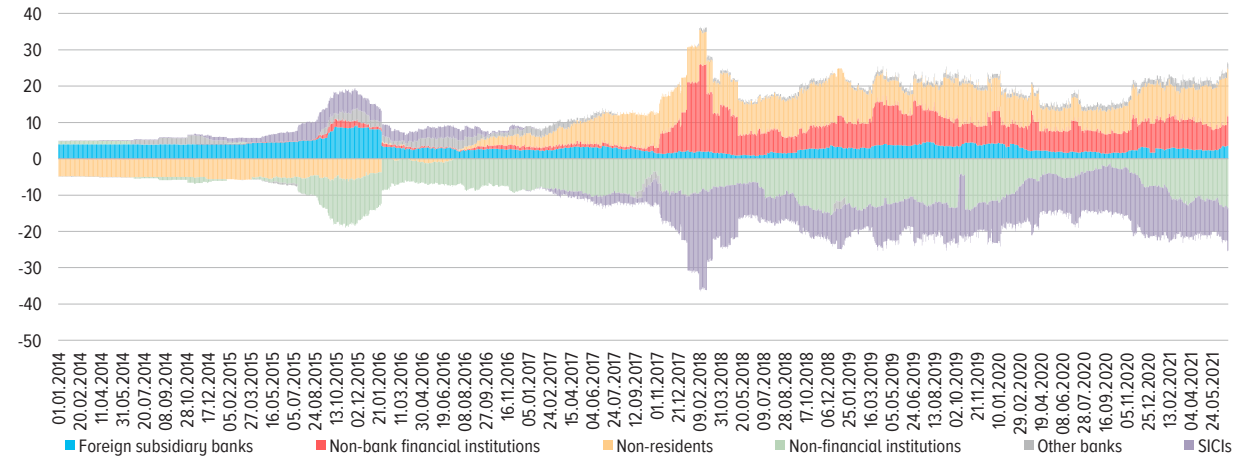
The principal demand for the purchase of foreign currency in the domestic market through FX forwards is demonstrated by non-financial organisations and systemically important credit institutions. The first category of participants needs currency, presumably to pay for imports crucial to their business operations (for example, foreign-made manufacturing equipment) or to service foreign debt. However, in times of prolonged appreciation of the ruble, non-financial companies tend to lose interest in foreign currency purchases through FX forwards, avoiding an increase in their liabilities by locking in the forward rate and watching the continued appreciation of the ruble. This contributes to the gradual accumulation of currency risk, which materialises in periods of ruble depreciation (especially during a sharp increase in the exchange rate).

In turn, SICIs also hedge their FX risk by periodically increasing their position when a possible shortage of FX liquidity arises. For such contracts, the currency is supplied primarily by non-residents and foreign subsidiary banks, which thus enter the Russian financial market. From time to time, non-credit financial institutions (NFIs) become active sellers of currency in forwards. Even though NFIs

VOLUME OF OPEN FX FORWARDS *Chart 1*
($ BILLION)

Source: NCI JSC NSD.

DISTRIBUTION OF PARTICIPANT CATEGORIES BY OPEN POSITION OF FX FORWARDS *Chart 2*
($ BILLION)



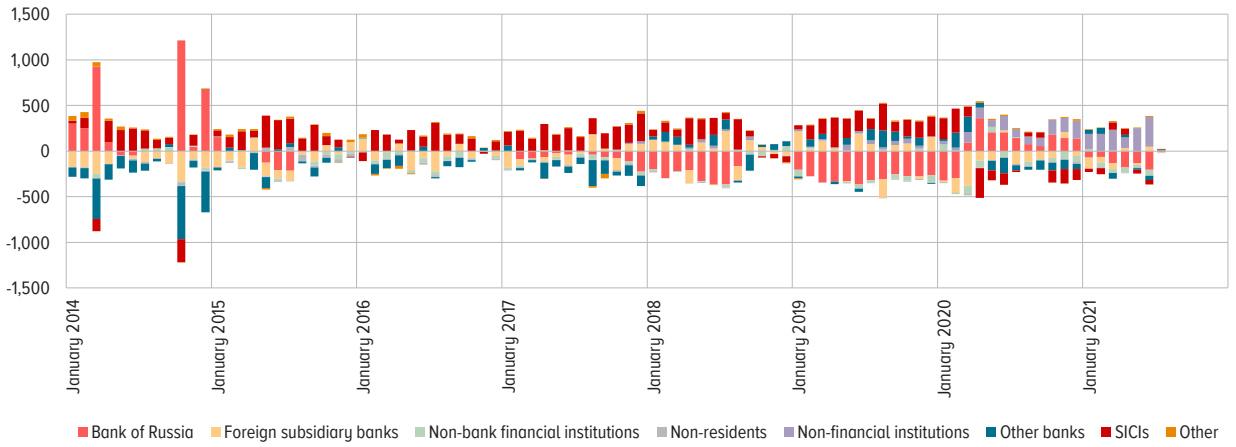
Source: NCI JSC NSD.

have no surplus of FX liquidity, and therefore such market behaviour seems uncharacteristic for this category of participants, many NFIs are part of major banking groups and conclude transactions not only on their own behalf but also on behalf of the group as a whole.

It is worth noting that the distribution of participants in the spot FX market is the opposite of that in the forwards market. Non-financial institutions, particularly exporters, sell foreign currency in the domestic market, while NFIs purchase foreign currency in the spot market. On the surface, one might get the impression that the combination of spot and forward instruments creates a 'synthetic' FX swap in the market as non-financial institutions use the first leg to sell currency (in the spot market) and the second leg to buy it (in the forwards market). However, this is done by different participants. While exporters sell foreign currency to service their operations in rubles, including the payment of taxes, forward transactions to purchase foreign currency are concluded by companies with an import component in their business.

The situation is similar for NFIs: while transactions in currency forwards involve NFIs – which are members of banking groups and make transactions on behalf of the group – in the spot market, foreign currency is converted mostly by brokers acting on behalf of their clients. Therefore, such segments as spot/purchase of foreign currency and forwards/sale of foreign currency (or spot/sale

DISTRIBUTION OF PARTICIPANTS IN THE SALE/PURCHASE OF FOREIGN CURRENCY IN THE DOMESTIC SPOT EXCHANGE MARKET *Chart 3*
(₽ BILLION)



Source: PJSC Moscow Exchange.

of foreign currency and forwards/purchase of foreign currency) may involve different participants within the same category that are homogeneous in terms of their activities or hedging objectives within the segment.

2.2. FX swaps

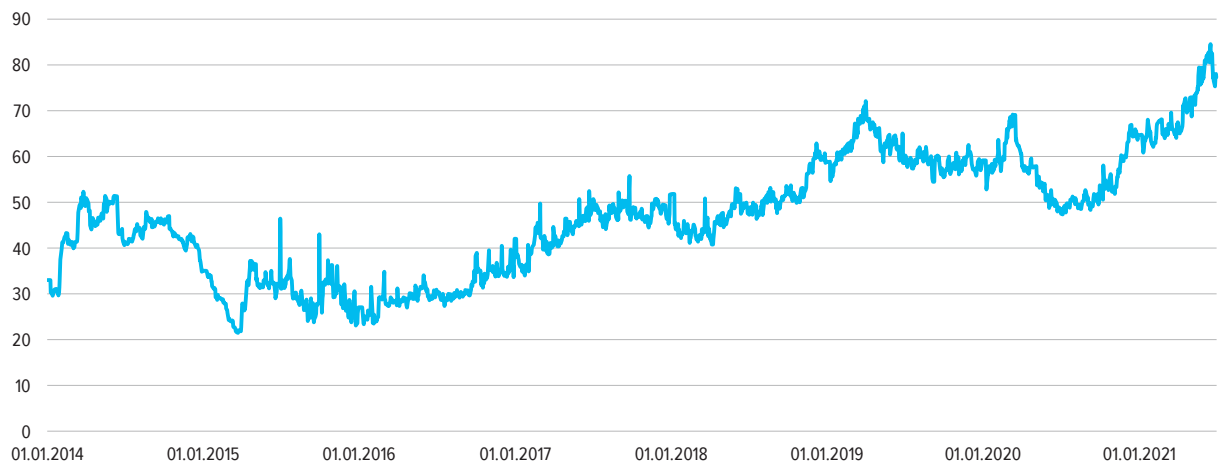
After a slight decline in 2014–2015, the OTC FX swaps market has been gaining momentum year after year. Since the beginning of 2016, the volume of open transactions ($27 billion at the time) has grown to reach a record high of $84.5 billion by mid-June 2021 (Chart 4).

In contrast to the previously discussed segments of the FX market, the main participants in the FX swaps market are non-residents and foreign subsidiary banks. Foreign participants' counterparties are usually SICIs, which need to place their accumulated foreign currency liabilities (Chart 5). Major banks serving exporters accumulate foreign currency through corporate deposits and place it in the money market. The foreign currency interbank lending and currency repo markets are not active and are not suited for placing/raising a large volume of foreign currency liquidity, so the bulk of foreign exchange transactions in the money market occurs in the segment of currency swaps.

During calm periods, when the market is stable and there are no shocks or volatility, non-residents stick to a carry trade strategy1, which allows them to earn on the difference in interest rates. Since the differential of interest rates in US dollars and rubles is significant (despite minor temporary changes), non-residents find it profitable to borrow foreign currency through FX swaps at a 'low' interest rate (in foreign currency) and to place rubles at a 'high' interest rate. In other words, to implement a carry trade strategy through FX swaps, non-residents 'buy' foreign currency on the first 'leg' by giving rubles, and on the second 'leg' the opposite operation occurs, when non-residents 'sell' foreign currency and receive rubles. In the vast majority of cases, transactions are made overnight and are curtailed when volatility rises in the financial market.

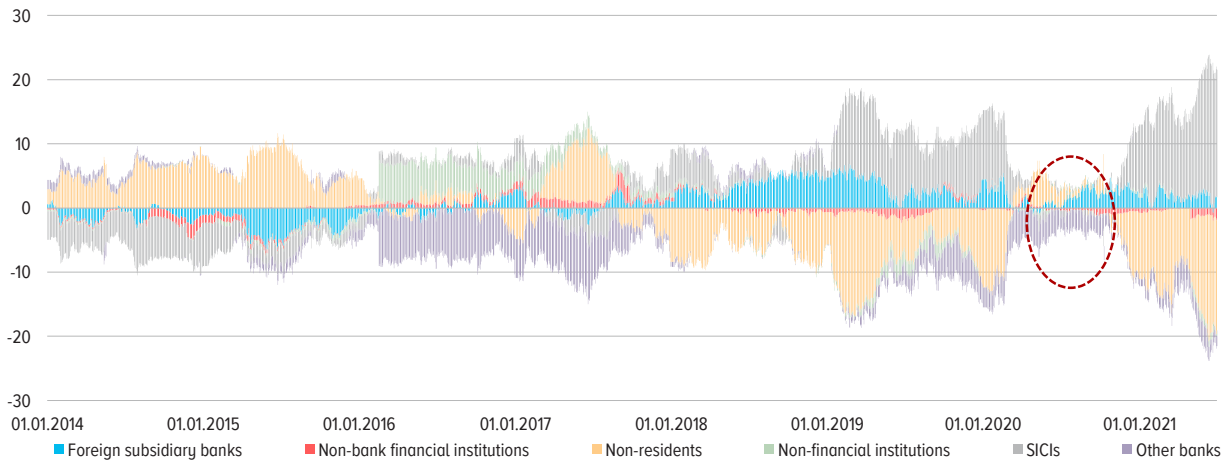
A traditional carry trade strategy involves converting foreign currency into rubles and then investing the proceeds in ruble-denominated assets (for example, OFZs). In the Russian market, similar operations are implemented in the FX swap market; these are mostly overnight transactions with minimum risk (in contrast to OFZ transactions). Since the non-resident group as a whole holds a short position in foreign exchange (as part of a carry trade or ruble liquidity management), we will assume that, other things being equal, all non-resident transactions in FX swaps are concluded as part of a carry trade strategy.

VOLUME OF OPEN FX SWAP TRANSACTIONS *Chart 4*
($ BILLION)



Source: NCI JSC NSD.

DISTRIBUTION OF PARTICIPANT CATEGORIES BY OPEN NET POSITION IN FX SWAPS *Chart 5*
($ BILLION)



Source: NCI JSC NSD.

A prerequisite for a carry trade strategy is the availability of rubles to non-residents. In order to acquire rubles, a non-resident enters into a conversion transaction to sell foreign currency in the FX market and thereby assumes foreign exchange risk because when closing the strategy in the future the non-resident will need to buy foreign currency in the market at the rate in effect at the time of closing. The difference between the rates in these transactions results in a profit or loss. When the ruble depreciates, non-residents dial back their carry trade operations in order to minimise possible losses from exchange rate differences. The curtailment of carry trade operations leads to additional demand for foreign currency and may further weaken the ruble.

However, not all transactions in the FX swap market carried out by non-residents can be classified as carry trade. Some of them, for instance, are conducted by Russian subsidiaries of foreign banks to manage their ruble liquidity. Such operations can take place without conversion transactions and may have no effect on the ruble exchange rate.

Overall, non-residents' FX swap transactions in the Russian market pose no significant risks to financial stability given that the potential pressure on the ruble associated with them (in the context of carry trade transactions) is limited. In negative scenarios for the Russian financial market, non-residents do not immediately sell their rubles on the spot market, with the bulk of sales taking place through OTC trades. The pressure on the ruble may also be offset by increased supply of foreign currency from exporters who, all other things being equal, would benefit from converting foreign currency proceeds into rubles at a lower exchange rate of the national currency.

In the period under review, we can see several such episodes. Despite the different market conditions, foreign participants promptly changed their positions in FX swaps without any substantial pressure on the ruble exchange rate. When non-residents close their positions in FX swaps, local participants increase the supply of foreign currency, and this rebalances the market. Subsequently, after the period of increased volatility is over, non-residents return to the Russian swaps market and resume their carry trade operations.

2.3. Currency options

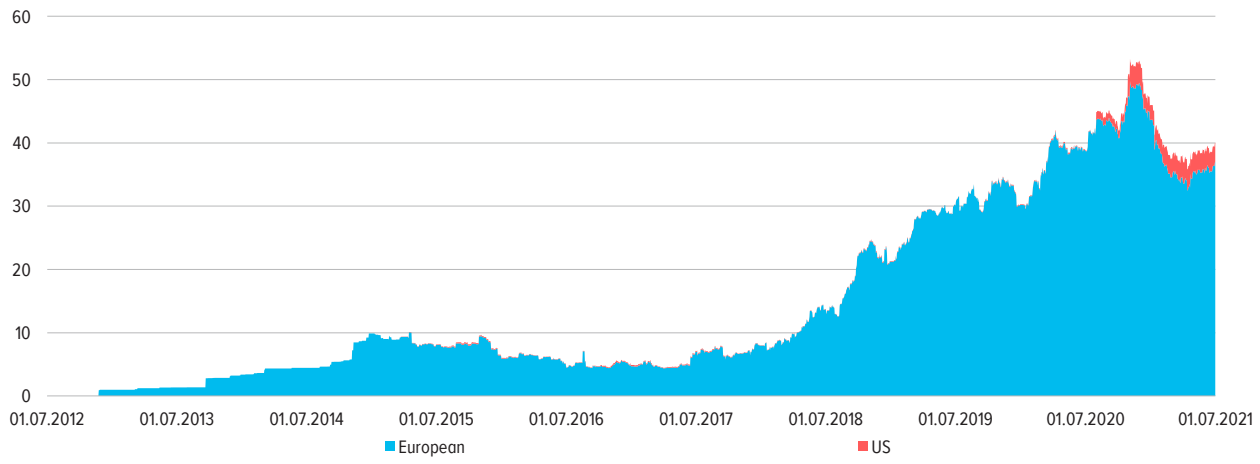
In advanced economies, currency options account for a substantial share in the derivatives market. In Russia, due to transaction accounting specifics, data on the first currency option transactions became available at NSD in 2012 H2. In general, the number of active contracts was

relatively low until 2018, when the aggregate volume of open transactions in options[1] remained within $10 billion (Chart 6). The volume of transactions has markedly grown since 2018, peaking in late November 2020 at nearly $53 billion. Then there was a noticeable decline in the number of open contracts, and the volume of transactions stabilised at $40 billion. Most options are European (92.3% as of 1 July 2021); several very large contracts stand out among US options where one of the currencies is the pound sterling. These contracts account for 98.7% of all US options as of 1 July 2021.

The main participants in the currency options market are banks categorised as SICIs as well as non-residents and foreign subsidiary banks (Chart 7). Virtually throughout the entire period under review, open positions of SICIs were roughly equal to similar positions of non-residents and foreign subsidiary banks. SICIs acted as buyers and sellers of currency options to hedge the risks of foreign currency appreciation and depreciation against the ruble.

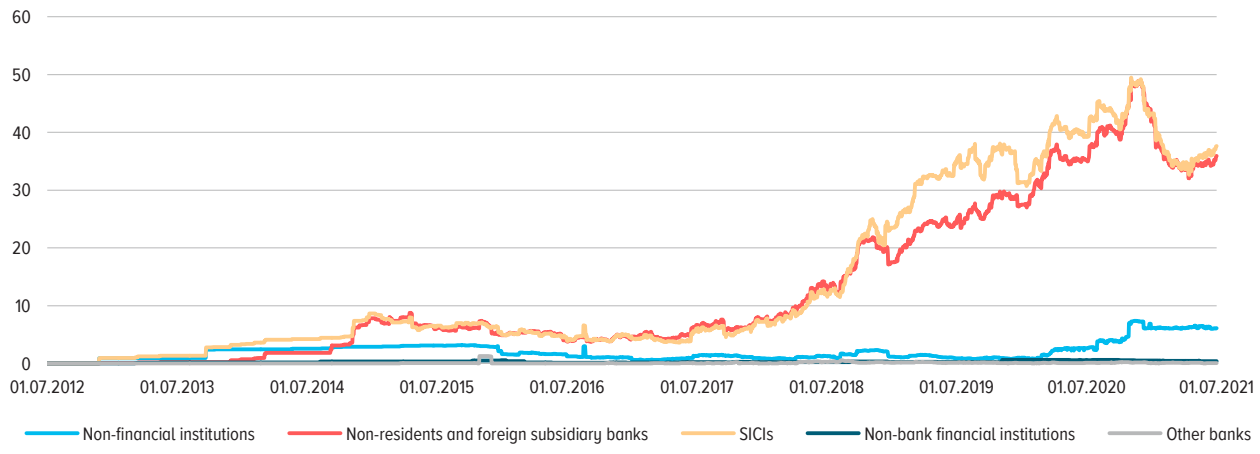
The amount of open positions differed markedly only in 2018–2020 when SICIs were making many transactions not only with non-residents but also with each other. It could also be noted that non-financial institutions are beginning to take a more prominent position in the currency options

VOLUME OF OPEN CURRENCY OPTION TRANSACTIONS *Chart 6*
($ BILLION)



Source: NCI JSC NSD.

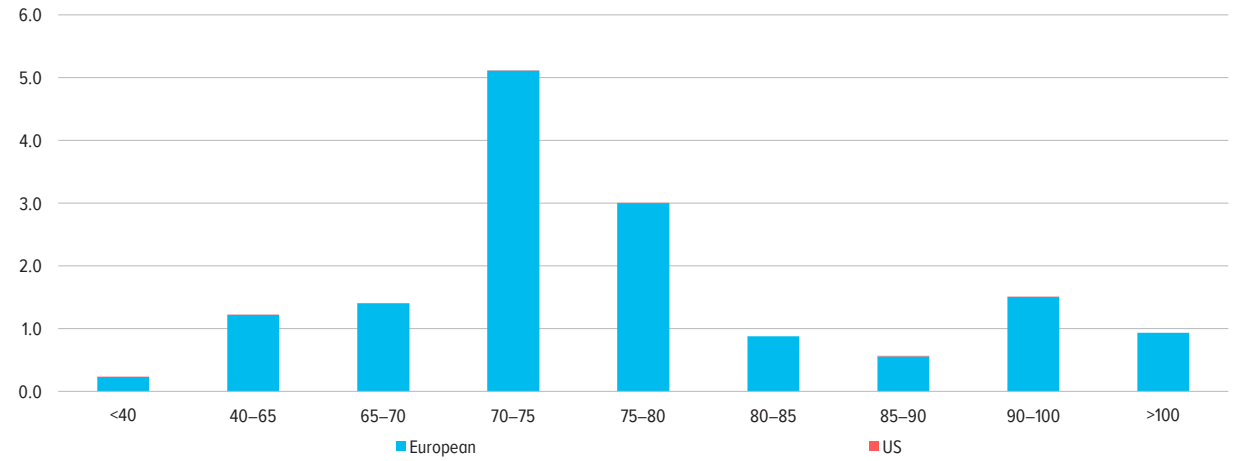
DISTRIBUTION OF OPEN TRANSACTIONS IN CURRENCY OPTIONS* BY PARTICIPANT CATEGORY *Chart 7*
($ BILLION)



** Each option is counted twice in the calculations.*
Source: NCI JSC NSD.

[1] *Each option is counted once in the calculations.*

HISTOGRAM OF NOMINAL VOLUMES OF CURRENCY OPTIONS ON THE RUBLE–US DOLLAR PAIR DEPENDING ON THE STRIKE INTERVAL *Chart 8*
($ BILLION)



Source: NCI JSC NSD.

market, with total transactions rising above $6 billion in nominal terms in 2021. The largest entities in terms of transaction volume are natural resource companies in the mining / minerals processing sector.

The participants of the currency options market on the ruble-US dollar pair enter into contracts mostly with strike prices close to the current market rate – that is, in the range of 70–75 rubles per US dollar (Chart 8). As of 1 July 2021, the value of such contracts reached $5.1 billion, with the aggregate nominal value of options standing at nearly $14.9 billion. The value of contracts with a strike price in the range of 75–80 rubles was also large ($3 billion).

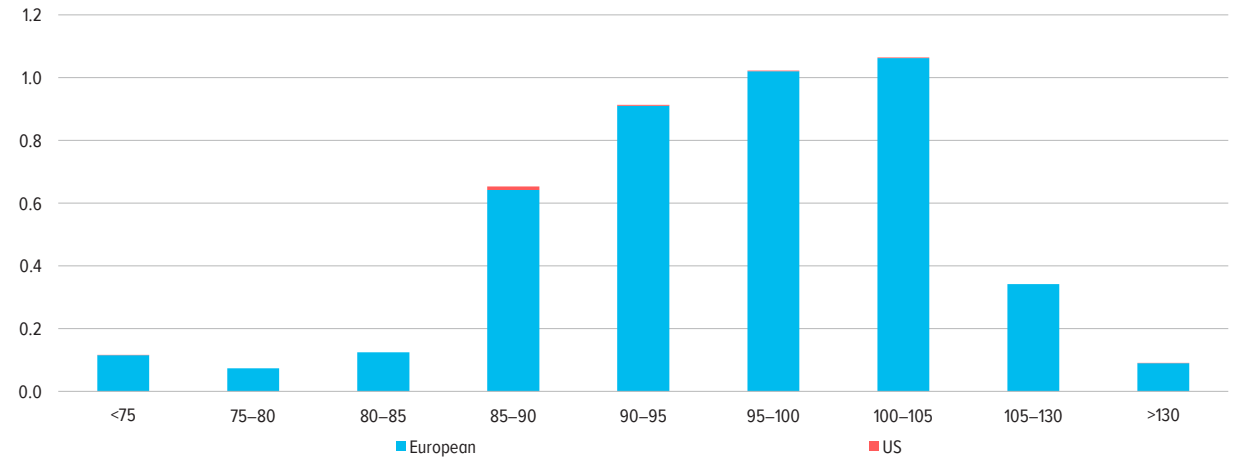
Contracts with other strike prices were smaller in terms of their nominal volume compared to the aggregate nominal volume of options with a strike price in the range of 70–80 rubles per US dollar. At the same time, some strike prices are far from the spot rate, including both low prices (up to 40 rubles) for long-term options concluded in 2013 and those with a strike price of more than 100 rubles. The overwhelming majority of options are European, while the share of American options is about 0.1%.

In the market for currency options on the euro-ruble pair, most contracts (in terms of nominal value) were concluded with a strike price in the range of 90–95 rubles per euro (Chart 9). There was also a significant volume of options with a strike price of more than 100 rubles per euro. More than half of such contracts are long-term (with maturities starting from 2023) and European (the overall share of American options is about 0.4%). As of 1 July 2021, the total nominal amount of concluded currency options was about $4.4 billion, which is 3.4 times less than for the ruble-US dollar pair.

Although the scale of the currency options market is smaller compared to the FX forwards and FX swaps markets, sellers often hedge only a portion of their position dynamically. For this reason, when the exchange rate of currencies used as the underlying asset becomes increasingly volatile, the exercise of currency options is often accompanied by a ‘feedback effect’, with sellers of foreign currency having to urgently buy it in the spot market in order to meet their obligations under the options. In times of high volatility, the buyers of options can also purchase foreign currency to hedge the risk of the seller’s default under the options.

A similar situation emerged in the Russian market in 2014 H2 when the depreciation of the ruble and a sharp increase in strike prices under currency options led market participants to buy currency to eliminate the risks of defaulting on the options, thereby putting the ruble under further pressure. In the current situation, the volumes of transactions concluded on the currency market are limited, so there are no significant risks for the stability of the ruble.

HISTOGRAM OF NOMINAL VOLUMES OF CURRENCY OPTIONS ON THE RUBLE-EURO PAIR DEPENDING ON STRIKE INTERVAL ($ BILLION) *Chart 9*



Source: NCI JSC NSD.

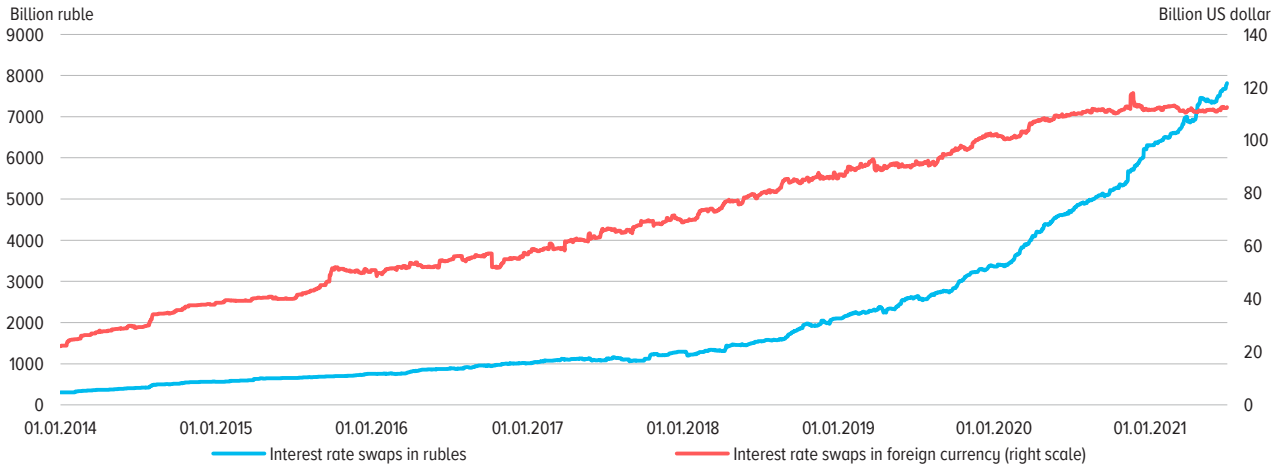
2.4. Interest rate swaps

In addition to currency risk, another important risk for hedging is interest rate risk, which has become relevant in recent years as the share of banks' short-term funding grew and floating-rate loans expanded. A simple interest rate swap is one of the most suitable instruments to hedge interest rate risk.

Interest rate swaps account for the bulk of interest rate derivatives in the Russian market[2]. In April 2021, the volume of ruble swap contract transactions in the Russian market was at an all-time high of above 7 trillion rubles in nominal terms. At the beginning of active growth in 2019, the position was nearly ₽2.1 trillion, showing record growth in 2020 from ₽3.3 trillion to ₽6 trillion (Chart 10).

Overall, in the past three years, the share of ruble-denominated transactions in the total volume of interest rate swaps has increased substantially: in almost 7.5 months of 2021, 57% of the transactions were concluded in rubles, while the share of other currencies has noticeably declined (Chart 11).

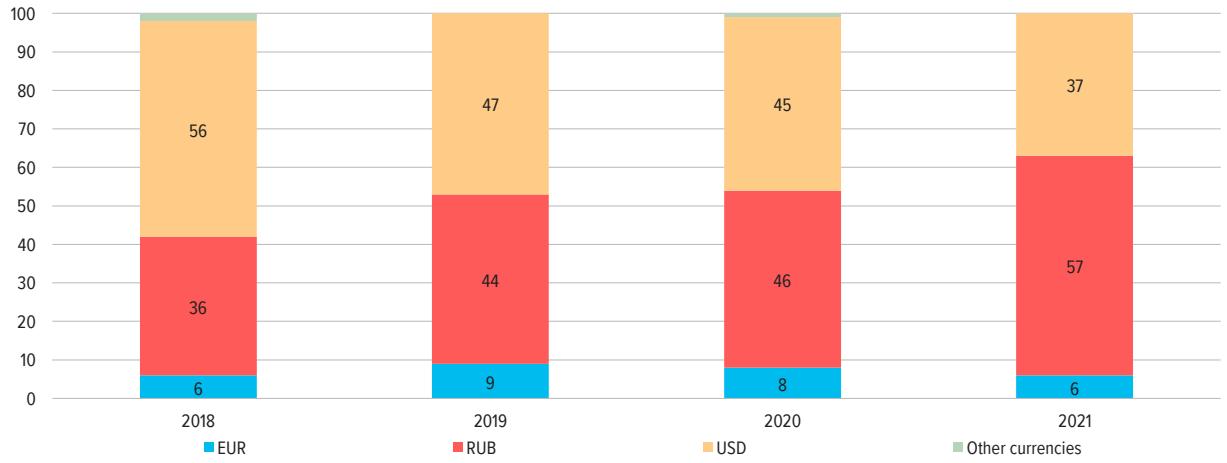
VOLUME OF OPEN INTEREST RATE SWAP TRANSACTIONS IN RUBLES AND FOREIGN CURRENCIES (IN NOMINAL TERMS) *Chart 10*



Source: NCI JSC NSD.

[2] *This section discusses single-currency interest rate swaps without considering cross-currency swaps.*

CURRENCY COMPOSITION OF INTEREST RATE SWAPS IN THE RUSSIAN MARKET *Chart 11*
(%)



Source: NCI JSC NSD.

Nominal volumes of interest rate swaps in foreign currencies jumped in 2018, 2019 and 2020, reflecting growing interest in hedging and speculative strategies. In 2021, the total position in interest rate swaps with foreign currencies totalled $115 billion, having risen by 11% compared to early 2020.

Importantly, the segment of interest rate swaps in foreign currencies began to develop before the ruble-denominated segment, and as early as 2015 the volume of open transactions exceeded $40 billion. The ruble-denominated segment of interest rate swaps began to develop later than the segment in foreign currencies, which we attribute primarily to the absence of a broad practice of interest rate risk management by banks (the development of this practice began later and gave impetus to the surge in the market development in 2019–2021). In addition, there was no need for banks' clients to hedge their interest rate risk on the ruble market as floating-rate loan portfolios were still in early development stages.

Key participants in the Russian interest rate swap market are major banks, including SICIs, and international banking groups. The share of SICIs is growing as the practice of interest rate risk hedging and transactions of clients with derivatives gains momentum. The share of smaller banks is still fairly low (no more than 2%), and Russian institutional investors (non-governmental pension funds and insurance companies) are not represented at all on the Russian OTC interest rate derivatives market (except for isolated and extremely rare transactions of insurance companies to hedge borrowed loans).

In stark contrast to international practice (where non-governmental pension funds and insurance companies are active participants in the interest rate swap market), Russian institutional investors show no interest in hedging the estimated value of their future liabilities (the so-called 'liability hedge').

Interest rate swaps are mostly concluded by SICIs with non-residents, NFIs or foreign subsidiary banks (Chart 12). A SICI's net interest generally involves seeking to pay a long-term fixed rate through interest rate swaps. This position is due to the prevalence of short-term liabilities and long-term assets in the term structure of banks' balance sheets. Interest rate swaps, whereby banks receive a fixed rate and pay a floating rate, make it possible to hedge the interest rate risk associated with such a balance sheet structure.

For non-residents, interest rate swap transactions can be either part of an overall investment strategy related to investments in ruble assets or speculative operations, the search for arbitrage opportunities etc. In the first case, the interest in having a fixed rate may be associated with the desire to invest in ruble assets without diverting a large amount of capital (interest rate swaps have

For reference. Non-governmental pension funds are mainly at the accumulation stage, which roughly corresponds to defined contribution plans. Thus, income from asset management is allocated to finance future payments without guaranteed minimum income, which resembles a pass-through arrangement. The amount of payments for future pensions will be determined based on the level of funds on the pension accounts of insured persons at the time of their future retirement. Thus, NPFs are not interested in hedging the interest rate risk of their liabilities.

Liabilities of insurance companies under investment and universal life insurance agreements are generally similar to pension coverage. They are medium-term (from 3 to 7 years, sometimes longer). At the same time, agreements often include a certain guaranteed rate of return to be paid by the insurance company. However, most life insurance agreements resemble defined contribution plans as the main payment at the end is not guaranteed and depends on the outcome of the investment strategy. The guaranteed minimum return is achieved by placing assets on deposit for the duration of life insurance/universal life insurance agreements with a fixed rate or by purchasing a risk-free bond (OFZ). An investment strategy often involves using assets selected by a customer from proposed strategies (for example, precious metals, stocks, commodity assets). Derivatives can be used to structure strategies, generally not in their pure form but 'wrapped' in a security.

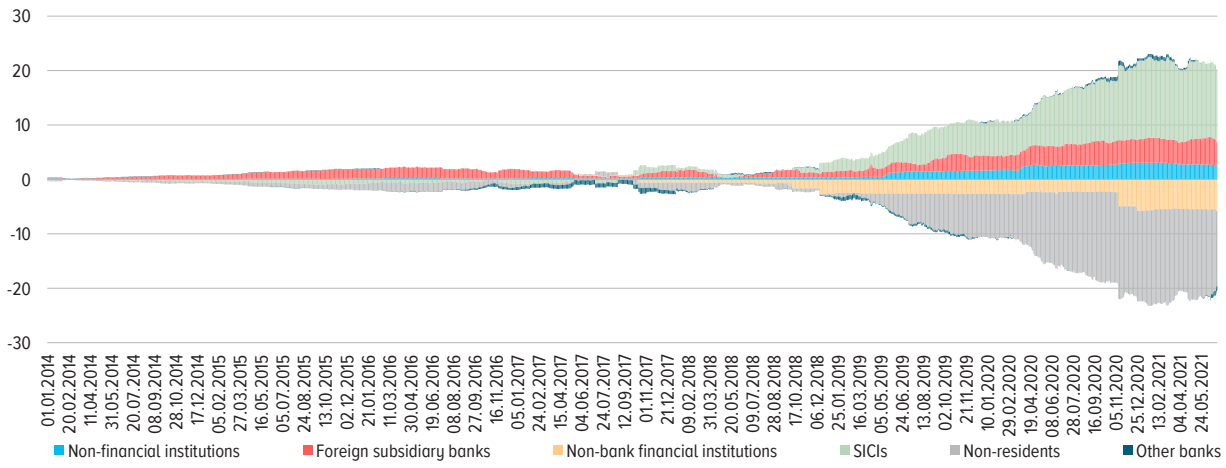
low weighting coefficients). In the second case, non-residents can take position risk using a specific market situation or having the ability to hedge this risk using other instruments (for example, foreign exchange derivatives).

At the same time, dynamics in the volume of transactions are affected by expectations of a change in interest rates: during the period of expectations of an increase in the key rate, the volume of open transactions between SICIs and non-residents (and foreign subsidiary banks) started to decline. However, starting from mid-April 2021, SICIs continued hedging the risk of growth in rates.

In the currency and ruble segments of the interest rate swap market, the main recipients of floating-rate payments are SICIs, and the payers are foreign participants (Chart 13). Non-financial companies are not regular players in the interest rate swap market.

The development of lending at floating rates makes a certain contribution to the growth of corporate customers' transactions; however, the volumes of derivative transactions of non-financial companies are still far from the volume of loans at floating rates. For example, according to Reporting Form 0409303, for six months of 2021, banks issued more than ₽5 trillion worth of loans at a floating rate (of which ₽2.9 trillion are loans pegged to the key rate)[3], with total notional amount of ₽496.3 billion of interest rate swaps concluded by non-financial companies (of which swaps in US

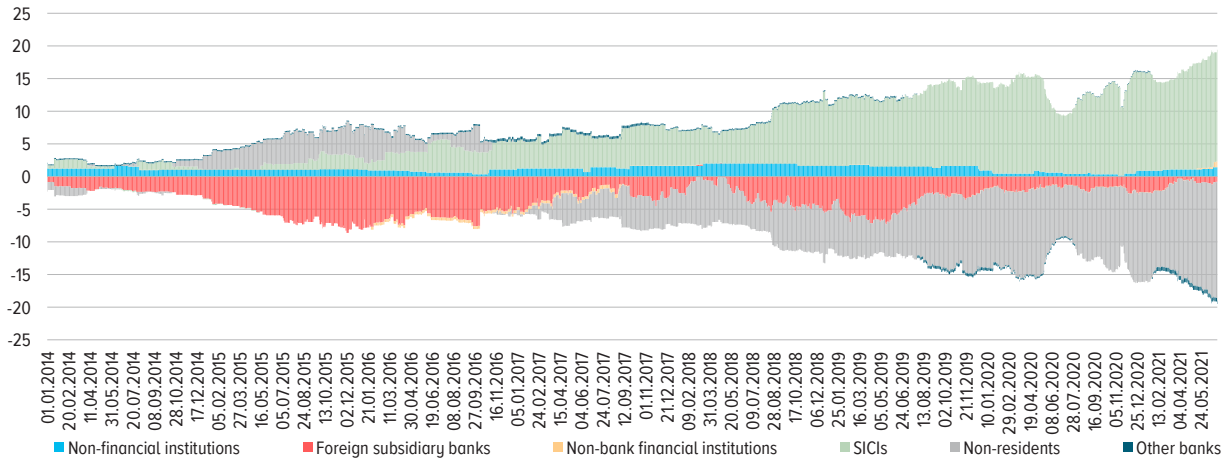
DISTRIBUTION OF NET POSITIONS ON INTEREST RATE SWAPS IN RUBLES BY PARTICIPANT CATEGORY *Chart 12*
(₽ BILLION)



Source: NCI JSC NSD.

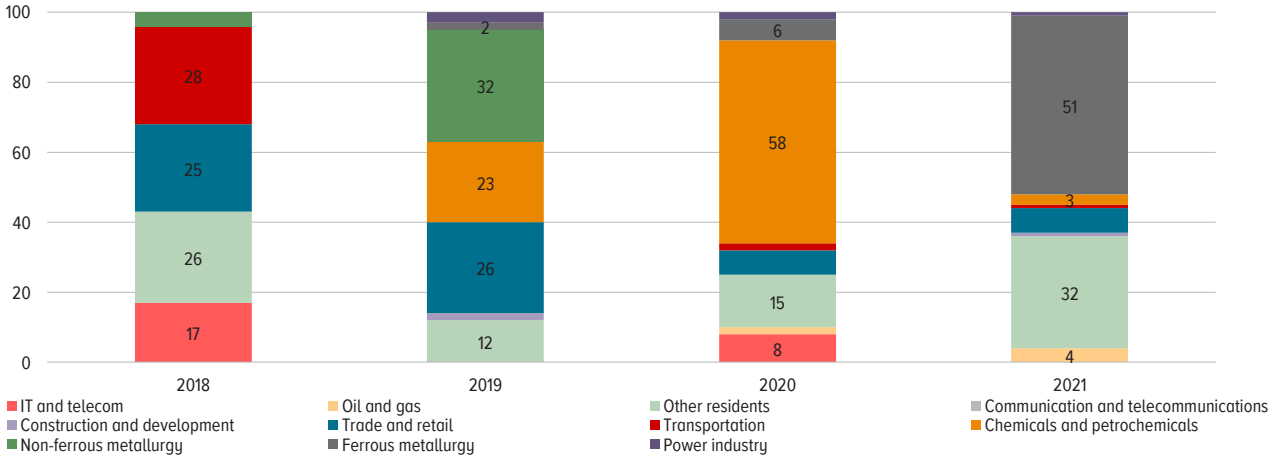
[3] *The calculation includes loans to residents with a non-zero volume of loans and excludes loans for which the rate may change from time to time if certain conditions are met, as well as loans for which a combined rate is set (for example, floating/variable or fixed/floating).*

DISTRIBUTION OF NET POSITIONS ON INTEREST RATE SWAPS IN FOREIGN CURRENCY BY PARTICIPANT CATEGORY *Chart 13*
($ BILLION)



Source: NCI JSC NSD.

INDUSTRY STRUCTURE OF NON-FINANCIAL COMPANIES PARTICIPATING IN THE INTEREST RATE SWAP MARKET IN THE VOLUME OF CONCLUDED TRANSACTIONS *Chart 14*
(%)



Source: NCI JSC NSD.

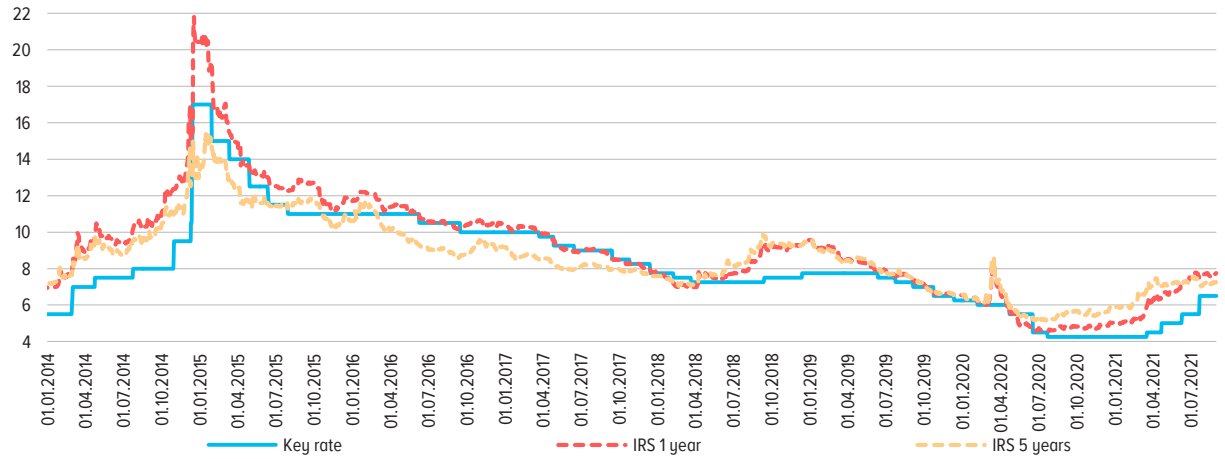
dollars account for the main share). The volume of ruble interest rate swaps concluded by banks' corporate customers in 2020 versus 2019 increased by 15% to ₽136 billion; however, in the first half of 2021, non-financial companies entered into ruble swaps for only ₽18.5 billion. These transactions are generally concluded by customers, not very large, in a rather wide range of industries (Chart 14).

At the same time, transactions emerged in 2021 where several non-financial companies receive a fixed rate and pay a floating rate. Whereas the volume of such transactions is small (₽3 billion), they are speculative in nature and strengthen the risk of growing payments by non-financial customers if interest rates increase.

In 2020, decreasing US dollar rates led to a rise in hedged USD loans (by a factor of more than 11 to ₽89 billion), but such transactions were one-off: a large chemical company hedged a portfolio of dollar loans. In the first half of 2021, a similar situation was observed: a large metallurgical company hedged its USD-denominated loan portfolio with several smaller customers hedging ruble-denominated loans.

Importantly, corporate customers often elect not to hedge their interest rate risk, preferring floating-rate loans. This is most often the case during periods when the interest rate swap rate exceeds the current floating interest rate on a loan (Chart 15).

DYNAMICS OF KEY RATE AND INTEREST SWAP RATES *Chart 15*



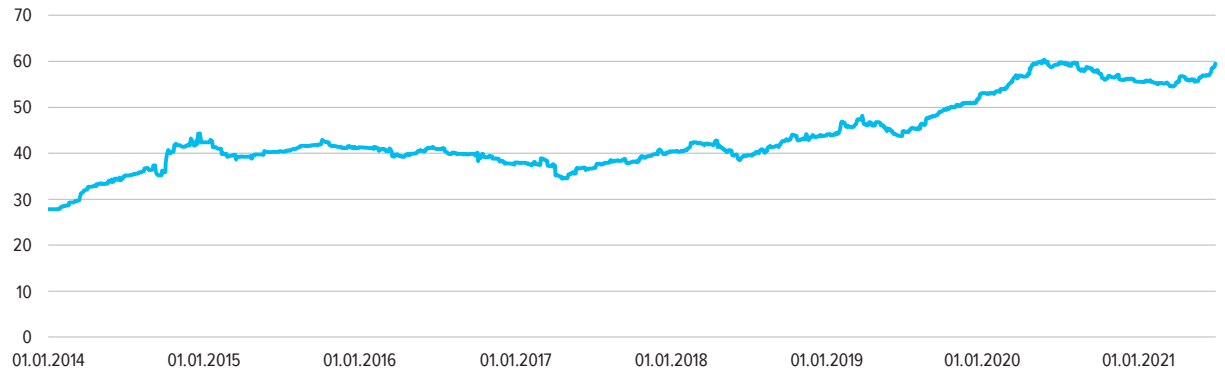
Source: Bloomberg.

2.5. Cross-currency swaps

A cross currency swap is an instrument combining the properties of currency and interest hedges. It enable simultaneous management of currency and interest rate risks. In Russia, the cross currency swap has historically been used as a method for synthetic foreign currency lending, which developed extensively in 2010–2014. Further on, the practice of using cross - currency swaps as currency financing instruments gained currency among large Russian companies seeking to diversify financing sources for their operations as much as possible. The dynamics of hedging foreign currency loans through cross currency swaps strongly depend on changes in the ruble exchange rate: the weakening of the ruble causes an increase in the cost of this strategy and therefore reduces demand for it[4]. Cross currency swaps are used most actively and regularly by banks to manage market risk.

The trading of cross currency swaps in Russia has seen a long-term upward trend. It is characterised mainly by positive dynamics of open transactions with small local surges in December 2014 (a period of growth in money market rates and an increase in the Bank of Russia key rate caused by the need to limit increased devaluation and inflation risks) and from May through August 2020 (when Russia imposed anti-pandemic restrictions). The increase in the volume of cross currency swaps underscores their importance as instruments to hedge risks (Chart 16).

VOLUME OF OPEN CROSS CURRENCY SWAP TRANSACTIONS (FOR THE FIRST PART OF THE TRANSACTION) *Chart 16*
($ BILLION)



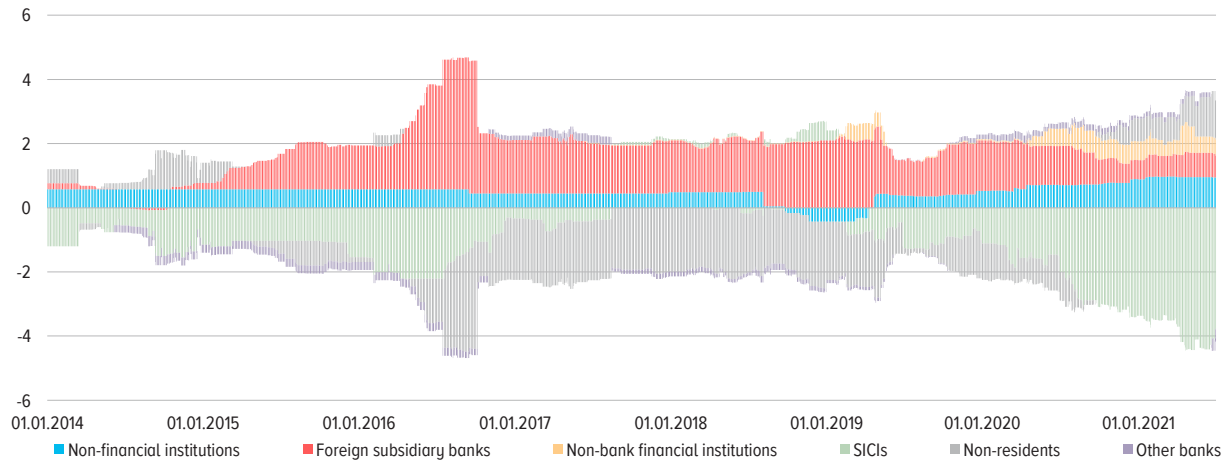
Source: NCI JSC NSD.

[4] *For more details, see Review of the Russian Financial Sector and Financial Instruments 2020 (p. 47).*

The main market participants were SICIs, non-financial institutions and non-residents. The behavioural strategies of various categories of participants in the cross currency swap market differed but remained homogeneous and for the most part constant within one category (Charts 17–20). The most interesting peculiarities were observed in the behaviour of the following participants:

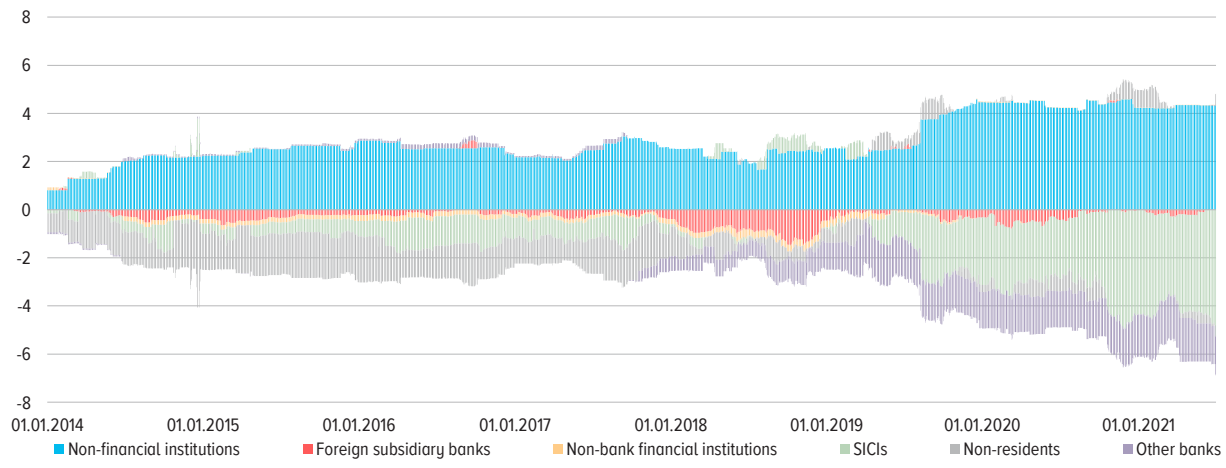
1) SICIs – some of the most active market participants – place foreign currency accumulated on deposits using cross currency swaps at a fixed rate. As of 1 July 2021, such transactions in this group totalled $10.5 billion. At the same time, SICIs obtain ruble liquidity to conduct business in Russia from non-financial companies, NFIs and non-residents.
2) Non-financial institutions place the ruble liquidity of SICIs and receive foreign currency loans in exchange. The real sector thereby obtains foreign currency lending, and banks are able to avoid the high risk ratios that apply to direct lending in foreign currency. If a transaction is subject to margin requirements, the associated credit risks are minimal. If a transaction is not marginable, it is necessary to establish a credit limit on the amount of market risk for this transaction (the bank retains the nominal value in rubles 'in pledge').
3) Non-residents place rubles at both floating and fixed rates, earning profit on carry trades similarly to FX swap operations but concluding longer transactions.

DISTRIBUTION OF NET POSITIONS IN CROSS CURRENCY SWAPS BY PARTICIPANT CATEGORY, RECIPIENTS AT FLOATING RUBLE RATES *Chart 17*
($ BILLION)



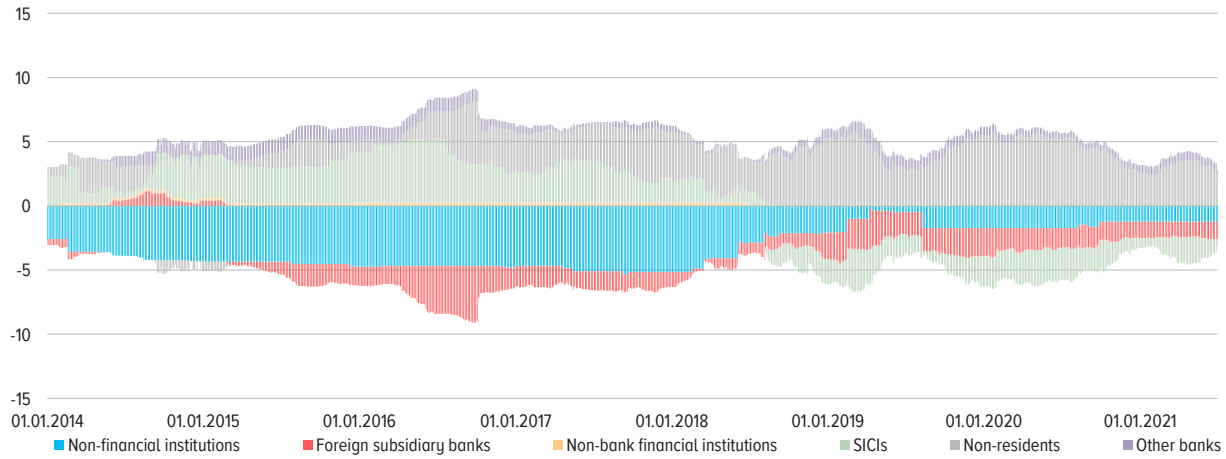
Source: NCI JSC NSD.

DISTRIBUTION OF NET POSITIONS IN CROSS CURRENCY SWAPS BY PARTICIPANT CATEGORY, RECIPIENTS AT FIXED RUBLE RATES *Chart 18*
($ BILLION)



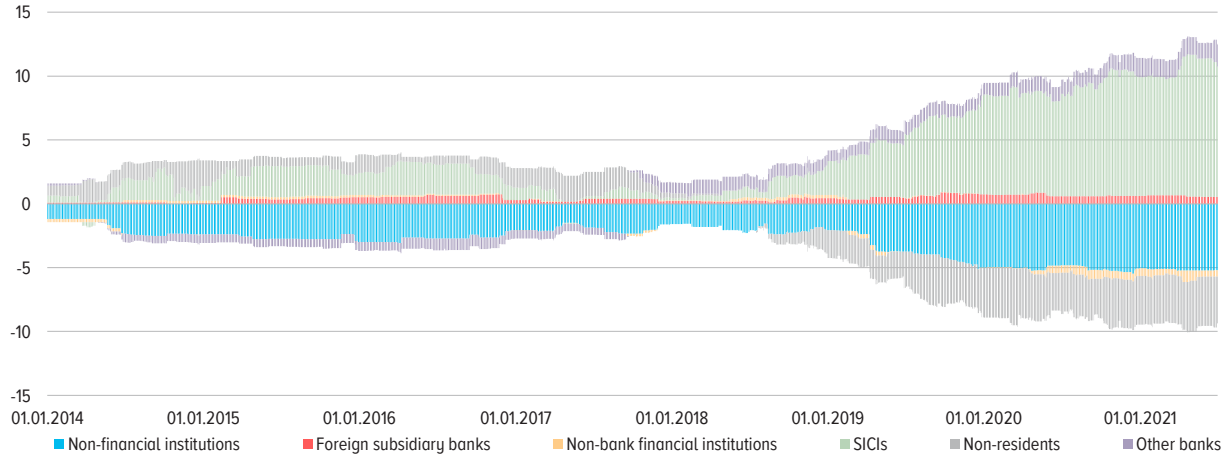
Source: NCI JSC NSD.

DISTRIBUTION OF NET POSITIONS IN CROSS CURRENCY SWAPS BY PARTICIPANT CATEGORY, RECIPIENTS AT FLOATING CURRENCY RATES *Chart 19*
($ BILLION)



Source: NCI JSC NSD.

DISTRIBUTION OF NET POSITIONS IN CROSS CURRENCY SWAPS BY PARTICIPANT CATEGORY, RECIPIENTS AT FIXED CURRENCY RATES *Chart 20*
($ BILLION)



Source: NCI JSC NSD.

2.6. Forward rate agreements

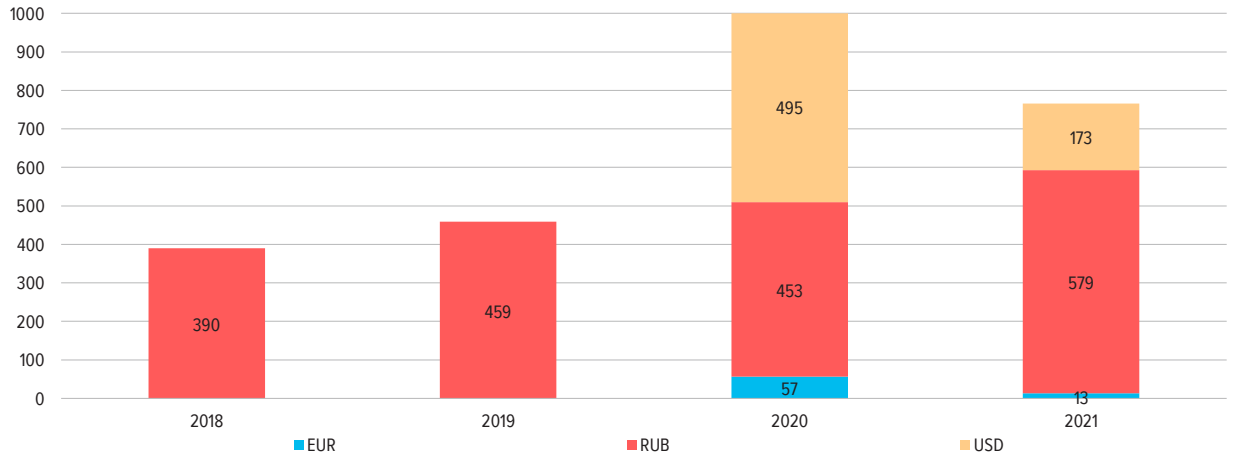
Forward rate agreements (FRAs) are not very common in the Russian market. They are in fact a niche product with a limited set of interest rates (for a period of 3 or, less often, 6 months). Nevertheless, nominal volumes of FRA transactions more than doubled in 2020 on 2019 (Chart 21), mainly at the expense of USD rate transactions.

The main participants in FRA transactions are large banks and non-residents. Until 2020, SICIs had acted mainly as recipients of a fixed rate; in 2020, as both recipients and payers of a fixed rate in equal shares; their interest once again shifted in 2021 as they increasingly became recipients of a fixed rate.

The changes in 2020 were marked by increasing volumes of transactions in foreign currency; in 2021, the volume of transactions involving rates in US dollars and euros began to decline, and SICIs returned to the more familiar role in transactions with non-residents.

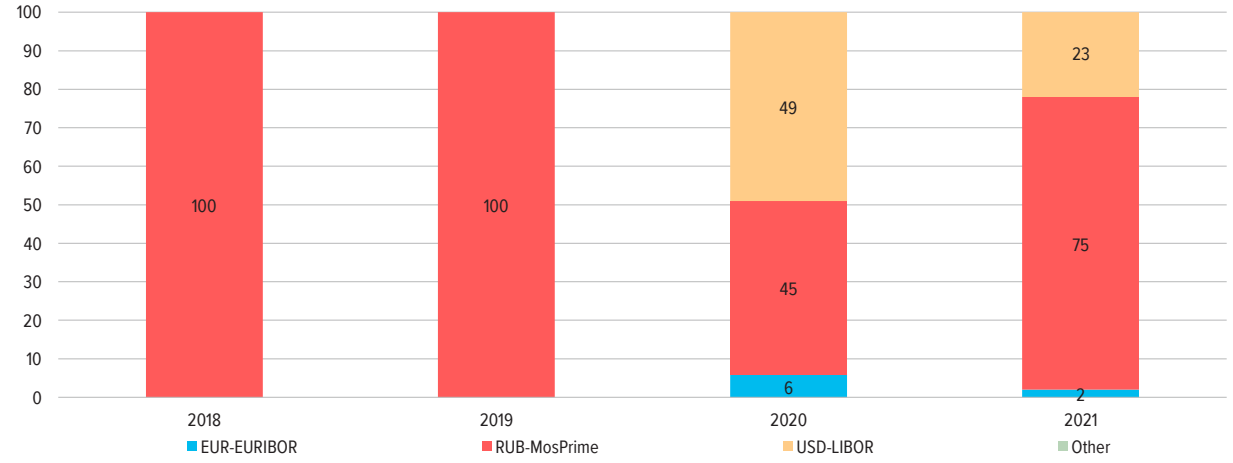
Given the prevalence of FRA transactions in rubles until 2020, the only reference rate for FRAs in the Russian market was the MosPrime Rate (Chart 22). In 2020, LIBOR rates in US dollars and EURIBOR in euros were used in transactions in foreign currencies (55% of transactions last year were in these currencies); for the year to date, their share has not been that significant.

VOLUMES OF FRA TRANSACTIONS BY CURRENCY *Chart 21*
(₽ BILLION)



Source: NCI JSC NSD.

REFERENCE RATES FOR FRA TRANSACTIONS *Chart 22*
(%)



Source: NCI JSC NSD.

2.7. Interest rate options

Interest rate options stand out among other types of interest rate derivatives in that the main participants in this market are large Russian banks and non-financial companies. Cap options account for the largest volumes of transactions[5] (Chart 23). According to NCI JSC NSD, a collar option strategy, which makes it possible to fix the interest rate corridor, accounts for a minimal share; however, the real volume of such strategies is most likely higher as they are sometimes 'sold' to customers not as one transaction (which incorporates two options, cap and floor) but as two separate transactions.

In 2019 and 2020, the volume of floor transactions increased significantly[6]: growth in 2019 was associated with a single transaction to sell an option by a non-resident company linked to a Russian developer and the subsequent chain of transactions to transfer this position to the end buyer, a

[5] *Cap options are agreements between the option seller and the buyer in which the option seller compensates the buyer if the market interest rate (or the interest rate under a loan agreement) exceeds an established level (the strike price).*

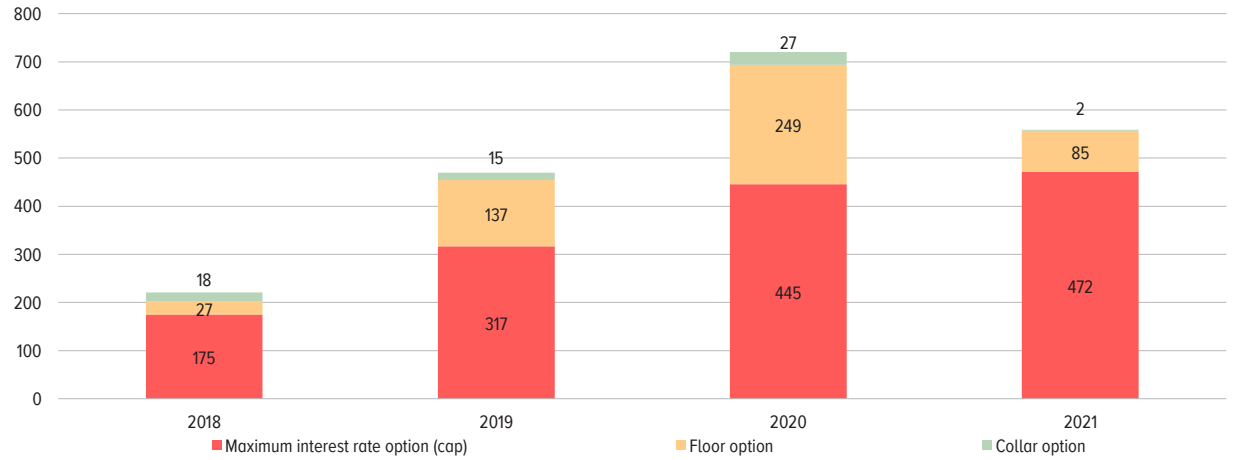
[6] *Floor options are agreements between the option seller and the buyer in which the option seller compensates the buyer if an established level of the interest rate (the strike price) exceeds the market interest rate (or the interest rate under a loan agreement).*

Russian SICI. In mid-2020, Russian companies made transactions to sell floor options on the key rate as well as large transactions of SICIs with a non-resident bank to sell floor options on 3M USD LIBOR at the zero level. Transactions for the sale of floor options allow sellers to receive a premium, but if interest rates fall below the agreed-upon strike price, the seller will have to compensate the option buyer for the difference between the market rate and the strike value. The sale of floor options on LIBOR at zero actually means that the Russian bank at the time of the transaction did not expect the 3M LIBOR rate to fall into negative territory and remain there for the term of the transaction.

Importantly, despite the relatively small volumes of transactions over the first 7.5 months of 2021 the volume of premiums on sold options is already above last year (Chart 24). The increased marginality of the product is set to boost its further growth thanks to banks' interest given that banks, as core sellers of interest rate options in the domestic market, seek to expand non-credit types of income.

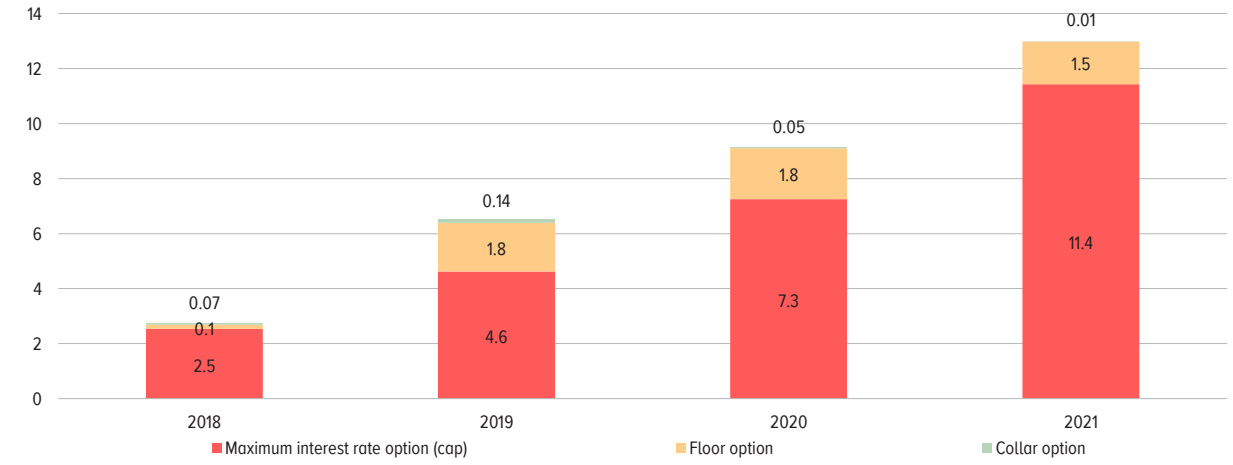
The Russian ruble is the main transaction currency. In 2020, the share of options in US dollars increased, which is largely due to a decrease in US dollar rates (this contributes to a decrease in the cost of options and makes speculative and hedging strategies cheaper).

NOMINAL VOLUME OF CONCLUDED INTEREST RATE OPTIONS* *Chart 23*
(₽ BILLION)



** Each option is counted once.*
Source: NCI JSC NSD.

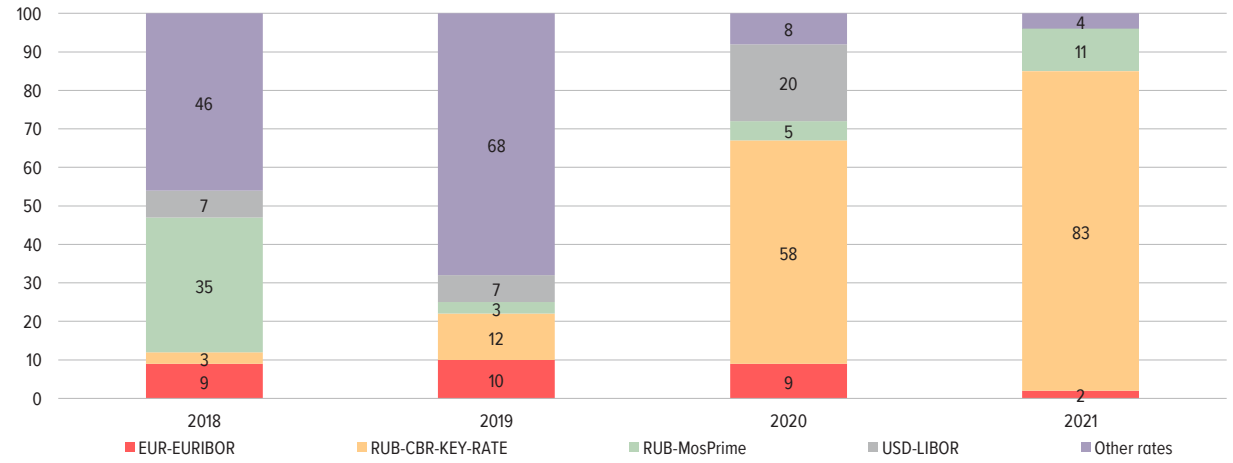
PREMIUMS PAID ON INTEREST RATE OPTIONS* *Chart 24*
(₽ BILLION)



** Each option is counted once.*
Source: NCI JSC NSD.

REFERENCE RATES IN INTEREST RATE OPTIONS
(% OF THE NOMINAL VALUE OF TRANSACTIONS)

Chart 25



Source: NCI JSC NSD.

In the structure of interest rates on which transactions are concluded, transactions on the key rate stand out with their explosive growth (Chart 25). The share of transactions on the MosPrime Rate in the total volume of interest rate options has dropped since 2018; however, their volumes are still growing in value terms. Also, key rate options have been since 2020 in the lead by the volume of premiums paid. At the same time, the 20% increase in LIBOR transactions in 2020 accounts for only 7% of premiums. The low-price appeal of options must have contributed to the growing interest in hedging dollar loans and building trading strategies with the use of options on USD rates.

Given the large volume of transactions on the key rate, we made a separate analysis of cap and floor transactions with the Bank of Russia key rate as the underlying asset. The values of the options' strike prices were compared with key rate dynamics[7].

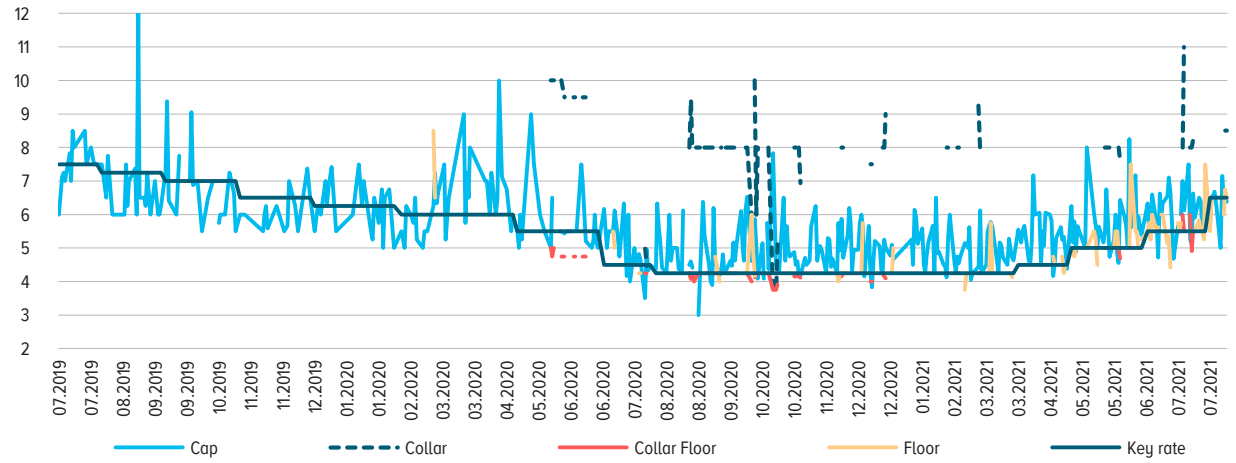
Before the onset of the pandemic, a rather large number of cap transactions were concluded at a strike level about 1 pp below the key rate (which suggested stable expectations of at least 5% reduction in the key rate before the lockdown). However, with each subsequent rate cut as decided at Bank of Russia Board meetings, the volume of such instruments dropped (Chart 26). Besides, despite the ongoing rate cuts, since the middle of the year many have been waiting for a rate hike of up to 2 percentage points.

Low numbers of collar instruments with zero premium came as another sigh of expectations for a rate hike. These instruments are structured in such a way that a floor option is sold (bought), and a cap option is bought (sold). To achieve a zero premium, the strike prices for options are selected so that the floor premium compensates for the cap premium. Starting in September, their structure ensured that the floor is close to the current key rate (about 4%) and the cap is much higher (about 8%). In other words, the likelihood of a further rate cut (reflected in the floor option with a strike price of about 4%) has since September been seen as equal to the probability of an almost 4 pp rate hike (reflected in the cap option with the strike price of about 8%).

Unlike other types of interest rate derivatives, interest rate options do not for the most part involve non-residents. Foreign participants are mainly involved in transactions for foreign indices, while transactions with ruble interest rates are mostly made by local participants.

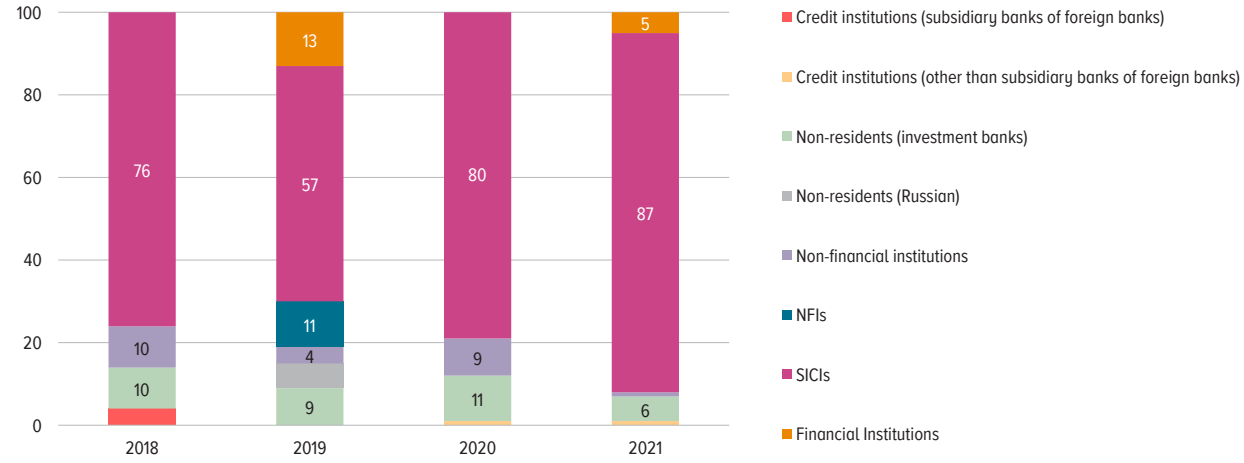
[7] *For the purpose of the analysis, the transaction date was used as the parties take into account the expectations of a future rate change as of the date of the transaction. The rates are weighted based on the nominal value of the transactions.*

STRIKE LEVELS OF INTEREST RATE OPTIONS ON THE KEY RATE *Chart 26*
(PP)



Source: NCI JSC NSD.

SELLERS OF INTEREST OPTIONS* *Chart 27*
(₽ BILLION)



** Each option is counted once.*
Source: NCI JSC NSD.

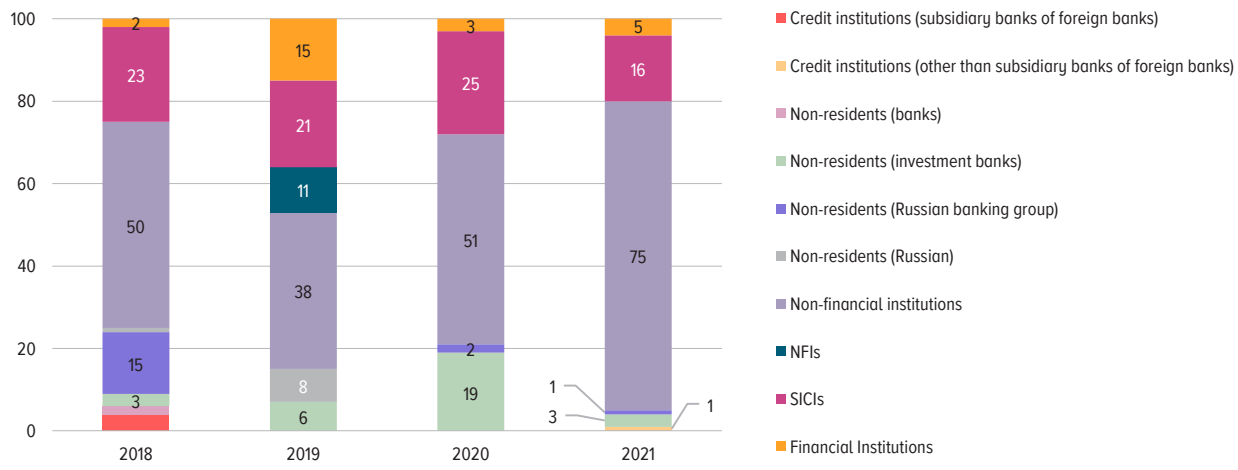
The main sellers of interest rate options are mainly systemically important banks (Chart 27). Selling interest rate options to corporate customers does not require high credit limits to be established since the customer's obligation is only for the option premium[8].

The main buyers of interest rate options are mostly non-financial companies (Chart 28). For them, options are a convenient and flexible instrument to hedge interest rate risk, the cost of which is the premium paid in the form of a single or periodic payment (in forwards and swaps, transactions do not involve the payment of premiums). This limits the demand for options for hedging large and long-term loans. At the same time, given the low need for credit limits, this type of hedging is becoming popular (including thanks to state banks building up sales) among small companies: 45% of transactions are concluded by companies for nominal volumes of up to ₽100 million, and 88%, for volumes of up to ₽500 million (Chart 29). Thus, small non-financial companies reduce their risk exposure through available hedging instruments.

[8] *In the structures of collar interest rate options or other options, customer obligations to pay a premium may even not arise: such transactions are often structured at a zero premium for the customer. However, a larger credit limit in this case may be required: such structures include the 'built-in' sale of an option by the customer to the bank (and the customer's obligation to exercise the option), and the premium on the sold option compensates for the cost of the 'built-in' purchase of another option by the customer.*

BUYERS OF INTEREST OPTIONS*
(₽ BILLION)

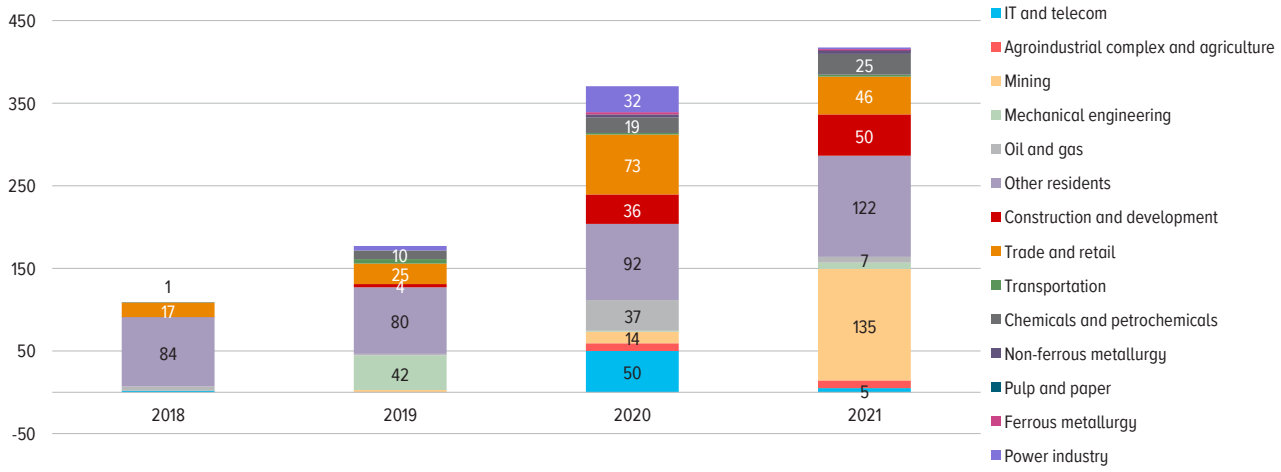
Chart 28



** Each option is counted once.*
Source: NCI JSC NSD.

NON-FINANCIAL COMPANIES THAT ARE BUYERS OF INTEREST RATE OPTIONS*
(₽ BILLION)

Chart 29



** Each option is counted once.*
Source: NCI JSC NSD.

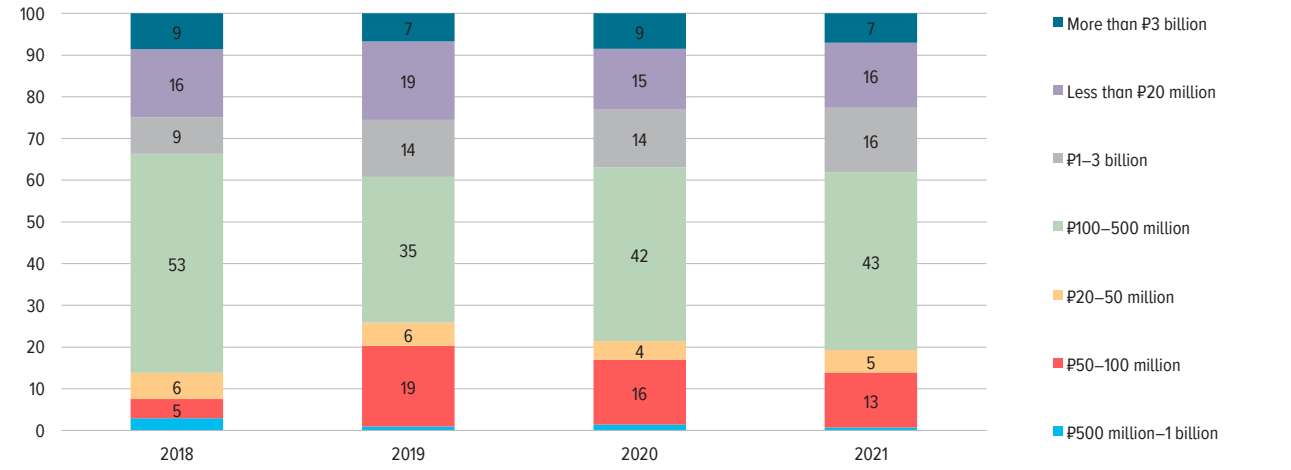
Sales of options deserve a special mention. In terms of systemic risks, the uncovered sale of options may spur their accumulation given that the seller's market risks may be unlimited. Where the sellers of options are large banks[9] – which issue floating-rate loans and operate efficient market risk management systems – risks related to options sales are moderate and manageable. Speculative sales of interest rate options by banks or other financial institutions, unrelated to corporate lending, do not for now raise any concerns, either: small in volume, these are essentially one-off transactions. Having said that, the situation should be monitored regularly (e.g. once a year).

Options sales by non-financial companies are still negligible. At the same time, some companies are implementing the collar strategy not through one interest rate option transaction (collar) but through two (buying the cap option and subsequently selling the floor option). The sale of the floor option might be mistakenly considered uncovered. Yet, the company normally hedges its floating-rate loan[10] by selling a floor option and simultaneously purchasing a cap option. For example, two

[9] *Banks calculate their market risk from derivative transactions in accordance with Bank of Russia Regulation No. 511-P, dated 3 December 2015, 'On the Procedure for Calculating Market Risk by Credit Institutions'.*

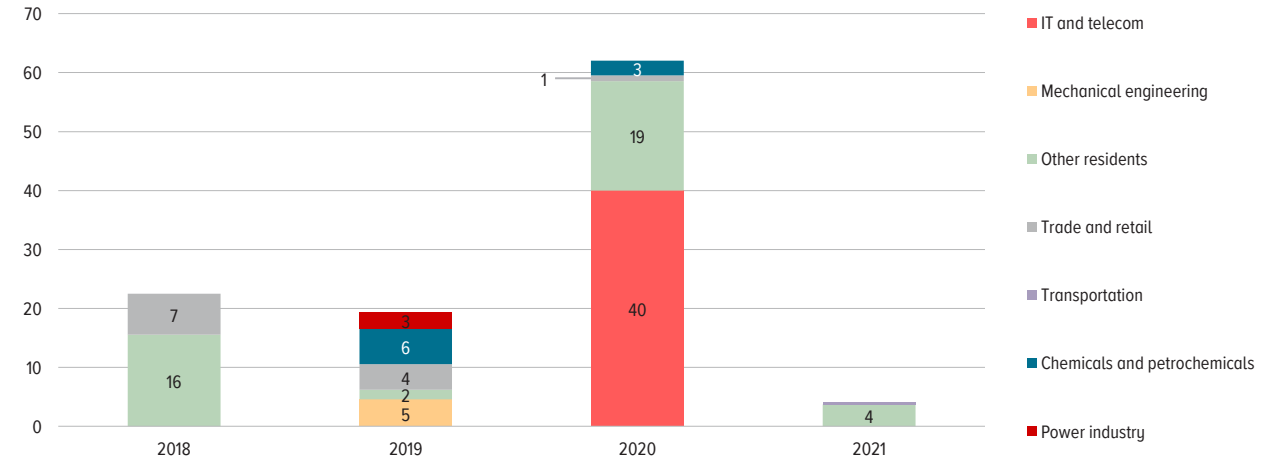
[10] *Such a combination of simultaneously executed transactions helps limit loan payments to a certain corridor and is equivalent in an economic sense to an interest rate collar transaction.*

PURCHASES OF OPTIONS BY NON-FINANCIAL COMPANIES BY AMOUNT *Chart 30*
(%)



Source: NCI JSC NSD.

SALES OF INTEREST RATE OPTIONS BY NON-FINANCIAL COMPANIES BY INDUSTRY* *Chart 31*
(₽ BILLION)



** Each option is counted once.*
Source: NCI JSC NSD.

large telecommunications companies in 2020 implemented several option strategies by fixing the interest rate corridor (collar) in two separate transactions, including the sale of floor options (Chart 31). In the first 7 months of 2021, only two separate transactions were recorded for the sale of options by non-financial companies to a total of ₽4.2 billion.

Thus, the volume of sales of interest rate options by non-financial companies is currently not a cause for concern, either. However, interest rate options trading in the OTC market should be regularly monitored to prevent their uncontrolled growth.

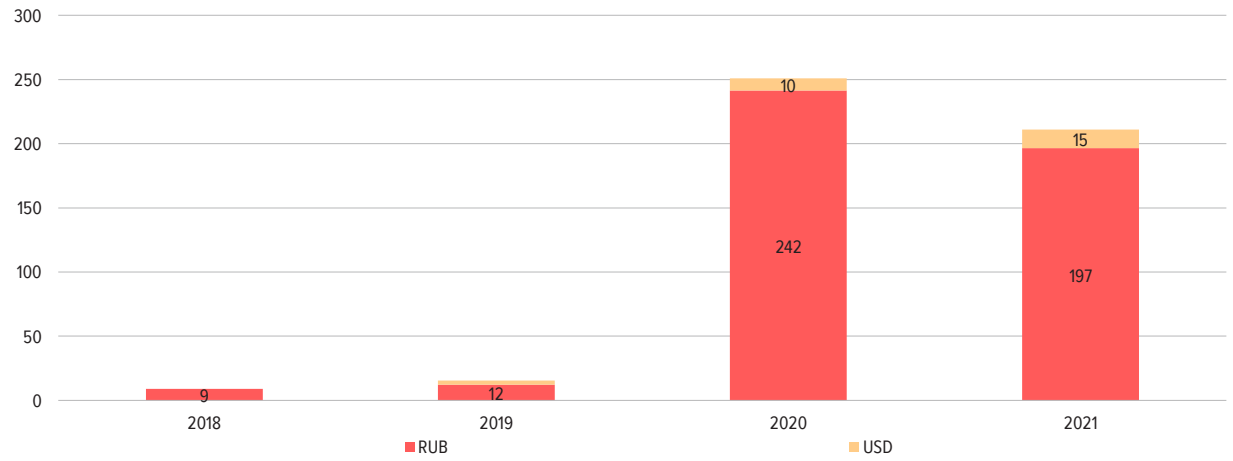
2.8. Swaptions

For the Russian market, swaptions[11] remain a rather niche product with a minimum number of participants. They include two Russian state-owned banks, two non-residents linked to Russian legal entities and international banking groups, and a non-financial company that in 2021 concluded two swaption sales transactions in US dollars.

[11] *A swaption is a contract that entitles the buyer to make a swap transaction in the future with the parameters set at the time of the swaption transaction.*

VOLUMES OF SWAPTIONS BY CURRENCY
(₽ BILLION)

Chart 32



Source: NCI JSC NSD.

Buyers of swaptions are entitled to make an interest rate swap at a future date on certain terms; in other words, these transactions allow buyers to make money from the assessment of expectations of future rate changes. The risk of sellers of swaptions (as with the exercise of any options transactions) is the likelihood of the transaction being exercised on unfavourable terms (as compared with the prevailing market conditions at the time of exercise).

As in the case of other interest rate derivatives, there was a surge in 2020 in the volume of swaptions to above ₽250 billion (Chart 32). As recently as 2018, these transactions in the Russian market were one-off; they were concluded by only one SICI.

The key currency in which transactions are made is the ruble, with the MosPrime Rate remaining the only reference rate in rubles used in transactions[12]. Swaption sellers are SICIs and, to a lesser extent, non-residents. At the same time, buyers of swaptions are also mainly SICIs; however, a significant market share (27% in 2021) is occupied by non-residents that are part of a Russian banking group. It was they who accounted for the surge in demand for this instrument in 2020.

Thus, due to the insignificant volumes of open transactions in comparison with other types of derivatives and the small number of market participants, the risks to financial stability in this segment are very limited.

[12] *In the reference rate column of statements, in addition to the MosPrime Rate index, there is a reference to other indicators, without indicating a specific index. In 2020, the share of such transactions was 15%.*

3. THE EXCHANGE-TRADED DERIVATIVES MARKET

3.1 The MOEX standardised derivatives market

The Moscow Exchange standardised derivatives market was created in 2013 in pursuance of the 2009 Pittsburgh G20 decisions to transfer standardised derivative trades to stock exchanges and strengthen the role of the CCP. This market offers both exchange and over-the-counter transactions with a CCP. The latter are in great demand among participants. A noticeable increase in trading volumes in the standardised derivatives market began in 2017. In 2013–2016, participants mainly connected to the standardised derivatives market to test trading systems (the IT systems of even large players required serious revision). Moreover, market participants at that time did not have any economic incentives to trade derivatives through the CCP as they estimated their costs as too high (because of fees and the need to provide collateral).

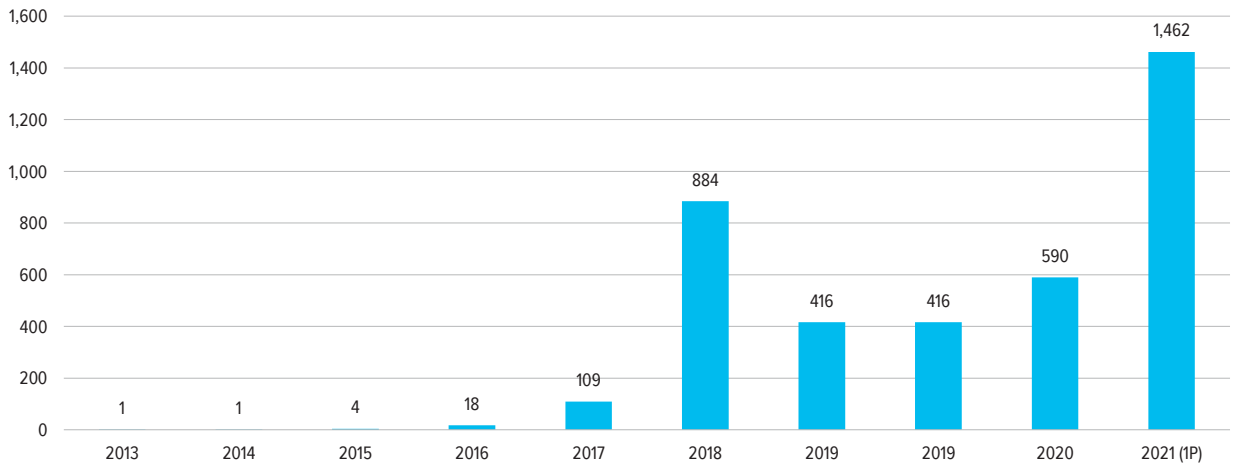
Currently, the standardised derivatives market is actively developing, and its participants have access to the following instruments with maturities of 3 days to 10 years: FX swaps, FWD & NDF, FX options, OIS & IRS and XCCY swaps. At the same time, market participants can make transactions in two forms: (1) over-the-counter transactions with CCPs; (2) exchange transactions with CCPs. Each option has its peculiarities with regard to recognition in tax accounting as well as differences in the way banks calculate the required ratios N1 and N6.

As of the end of 2021 H1, the trading volume on the standardised derivatives market increased by a factor of 12 versus 2017 and reached ₽1,462 billion[1] (Chart 33).

The largest volume of open transactions was recorded among contracts with currency, interest rate and cross-currency swaps (Chart 34), while the demand for currency options remained at an insignificant level. In the future, the Moscow Exchange plans to launch a new standardised product – options on interest rate swaps (swaptions).

The most attractive instruments for opening positions were those with a maturity of 5 years[2] and up to 3 months (Chart 35).

TRADING VOLUMES ON THE STANDARDISED DERIVATIVES MARKET, 2013—2021 *Chart 33*
(₽ BILLION)



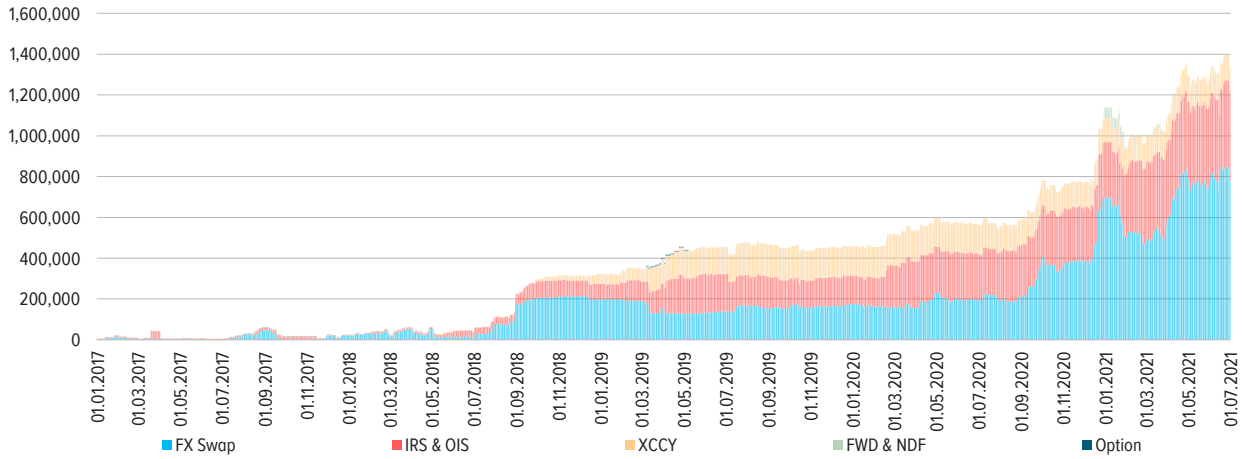
Source: PJSC Moscow Exchange.

[1] *Information on OTC transactions with CCPs made on the standardised derivatives market is also to be submitted to repositories. Therefore, the data on the trading volumes of OTC derivatives provided in the sections above include information on the standardised derivatives market.*

[2] *One major participant in the standardised derivatives market accounts for a large share of open transactions.*

OPEN TRANSACTIONS BY DERIVATIVE TYPE
(₽ BILLION)

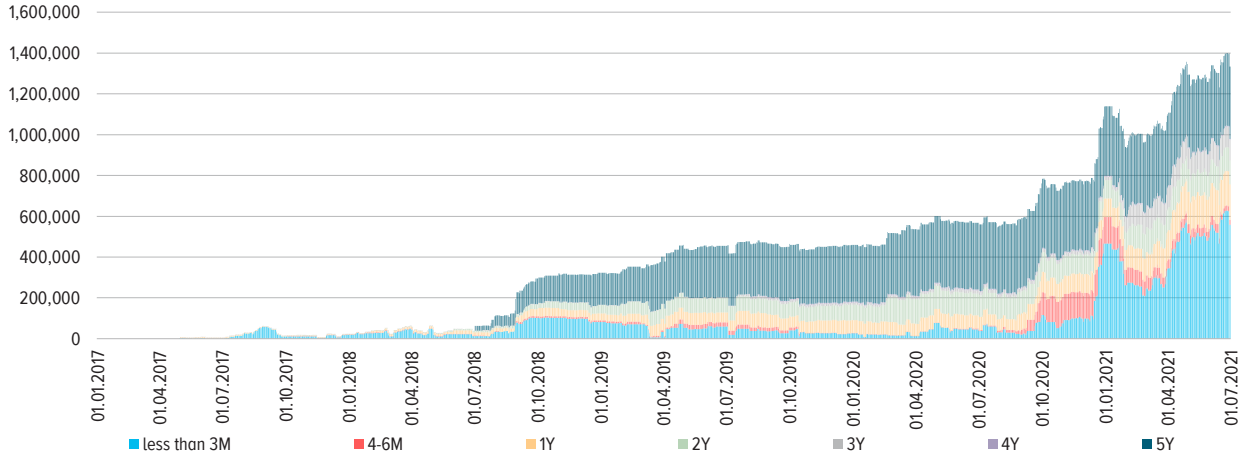
Chart 34



Source: PJSC Moscow Exchange.

OPEN TRANSACTIONS BY MATURITY
(₽ BILLION)

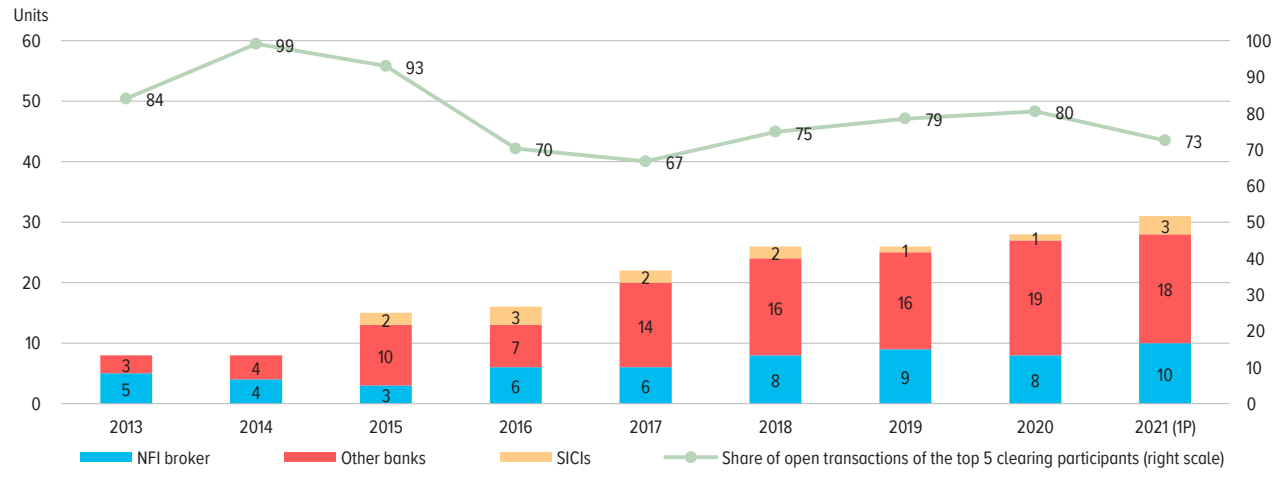
Chart 35



Source: PJSC Moscow Exchange.

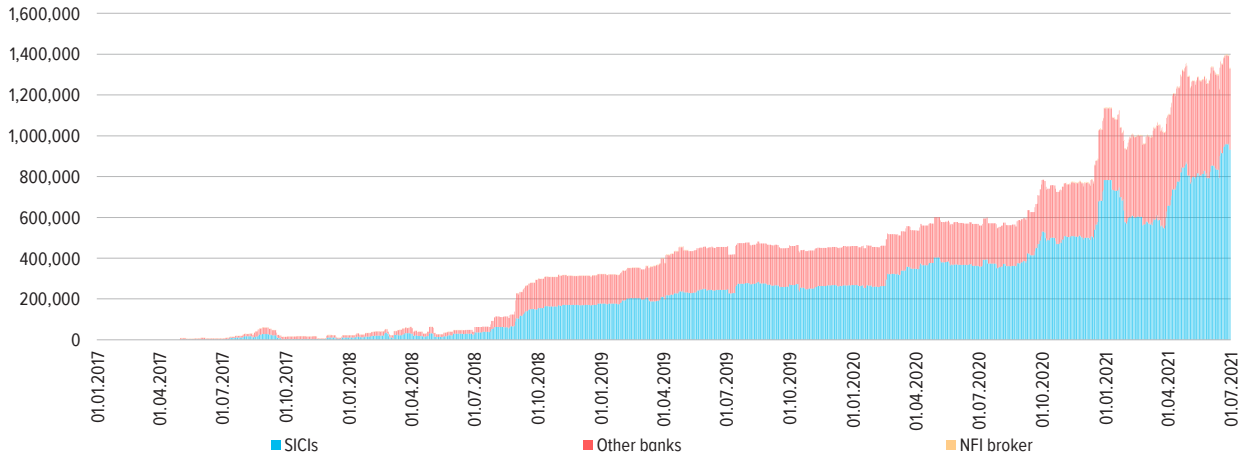
NUMBER OF UNIQUE ACTIVE CLEARING PARTICIPANTS

Chart 36



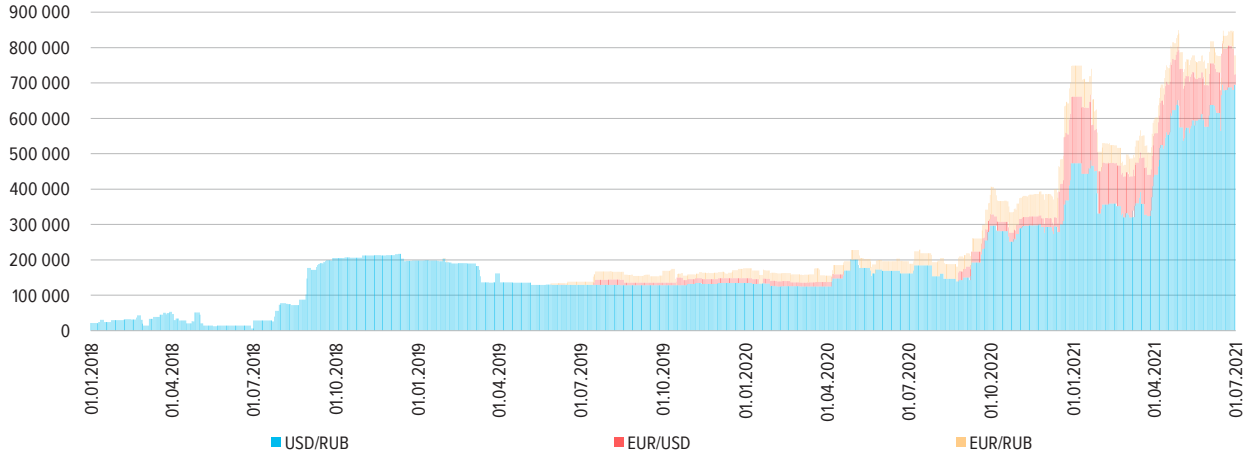
Source: PJSC Moscow Exchange.

OPEN TRANSACTIONS BY CLEARING PARTICIPANT TYPE *Chart 37*
(₽ BILLION)



Source: PJSC Moscow Exchange.

STRUCTURE OF OPEN FOREIGN* DERIVATIVE TRANSACTIONS BY CURRENCY PAIR *Chart 38*
(₽ BILLION)



** FX swaps, FWD & NDF, FX options.*
Source: PJSC Moscow Exchange.

Despite the growth in the number of unique active[3] clearing participants (from 8 to 31), the standardised derivatives market remains highly concentrated (Chart 36). As of the end of 2021 H1, the top 5 clearing participants accounted for 73% of open transactions.

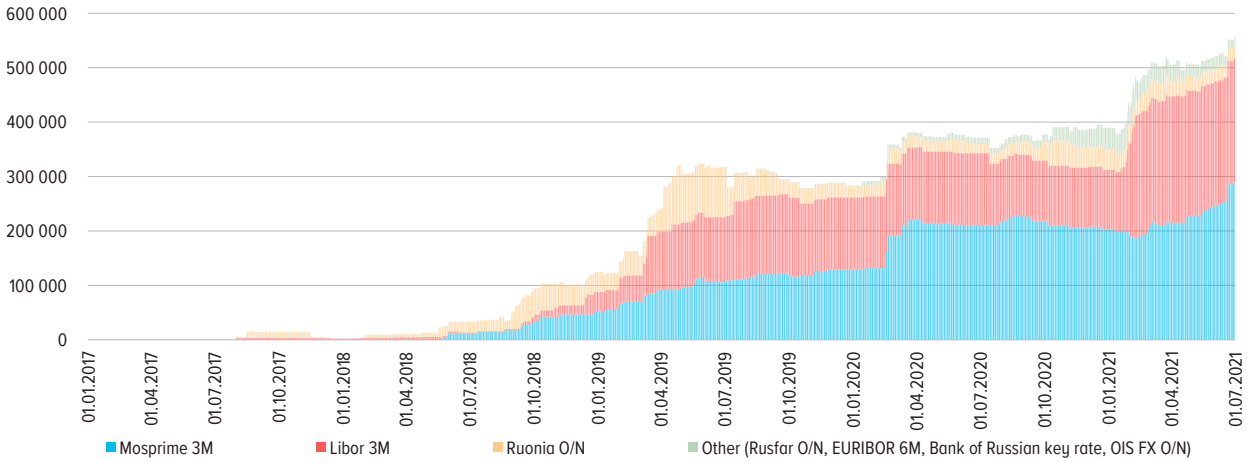
Currently only two categories of participants have direct access to the standardised derivatives market: banks and brokers[4]. At the same time, bank transactions account for almost the entire market volume (Chart 37) due to the fact that large brokers generally belong to banking groups and prefer to conclude transactions within them. The Moscow Exchange is developing plans for direct admission of non-residents to the standardised derivatives market in the future.

Most FX derivatives transactions were performed in the USD/RUB pair (Chart 38). At the same time, starting from 1 April 2019, under FX swap transactions, banks that are not SICIs provide ruble liquidity to SICIs for US dollars and hold, in a comparable volume, the opposite position in cross currency swap transactions, raising rubles for US dollars. Thus, non-SICI banks generally do not have an open foreign exchange position for these instruments but can receive income from swap differences.

[3] *Having made at least one transaction.*

[4] *https://www.moex.com/a2097.*

STRUCTURE OF OPEN INTEREST AND CURRENCY INTEREST SWAP TRANSACTIONS BY FLOATING RATE *Chart 39*
(₽ BILLION)



Source: PJSC Moscow Exchange.

In addition to currency derivatives, the standardised derivatives market offers interest rate derivatives. The reference rates LIBOR and MosPrime Rate accounted for a significant share of open transactions.

The third-largest with regard to the amount of open transactions was RUONIA, while other rates[5] were in little demand (Chart 39).

The future demand for the standardised derivatives market will be positively influenced by such regulatory changes as the introduction of a centralised clearing obligation for certain OTC interest rate derivatives effective 2021 Q4 (Ordinance No. 5352-U) and the introduction in the foreseeable future of mandatory margins for OTC derivatives subject to centralised clearing. The measures are set to boost the volume of transactions on organised trading platforms as transaction terms are made equal and the role of large banks potentially becomes lower.

The standardised derivatives market is also set to benefit from lifting the legal ban on investing pension funds in OTC derivatives (if this happens, this will be critically important for the formation of a 'second party' in the interest rate derivatives market where the interests of NPFs would be opposite to the principal interest of corporate customers in hedging floating rates) and the recognition of NCC by the European regulator (on the condition of direct admission of non-residents).

Exchange-traded instruments currently allow hedging with a limited set of standard instruments with significant margins. This market is more suitable for financial institutions. Comprehensive hedging of flows and liabilities for a corporate customer is more likely to be provided by OTC transactions without a CCP.

3.2 The MOEX forward market

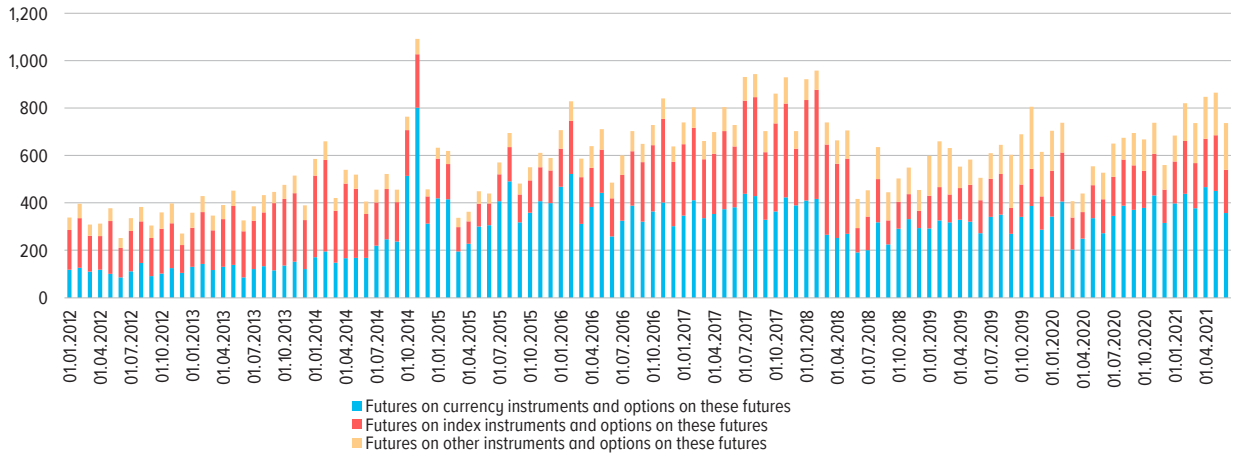
A significant event for the derivatives section of the Moscow Exchange was the merger in December 2011[6] of the two largest Russian exchanges: MICEX and RTS Stock Exchange. As a result of this merger, the derivatives market, previously offered by RTS Stock Exchange, is now functioning on the Moscow Exchange.

The Moscow Exchange derivatives market is used by participants, including retail investors, to hedge risks and implement trading strategies. The most liquid instruments on the derivatives market are futures on the RTS index, on Brent crude and on the US dollar/ruble currency pair. By maturity,

[5] *Rusfar, EURIBOR, the Bank of Russia key rate and the index of the rates for FX swaps (OIS FX O/N).*

[6] *Currently, the merged entity is the Moscow Exchange derivatives market.*

DYNAMICS OF OPEN TRANSACTIONS ON THE MOSCOW EXCHANGE DERIVATIVES MARKET *Chart 40*
(₽ BILLION)



Source: PJSC Moscow Exchange.

futures on the RTS index and the US dollar/ruble currency pair are quarterly, and futures on Brent crude are monthly.

On the derivatives market, like in other segments, NCC performs centralised clearing.

Currently, the Moscow Exchange derivatives market offers the following instruments:

1) deliverable futures contracts for shares of Russian and foreign issuers and for OFZs
2) non-deliverable futures contracts for indices, currency pairs, interest rates and commodities
3) options for the said futures contracts.

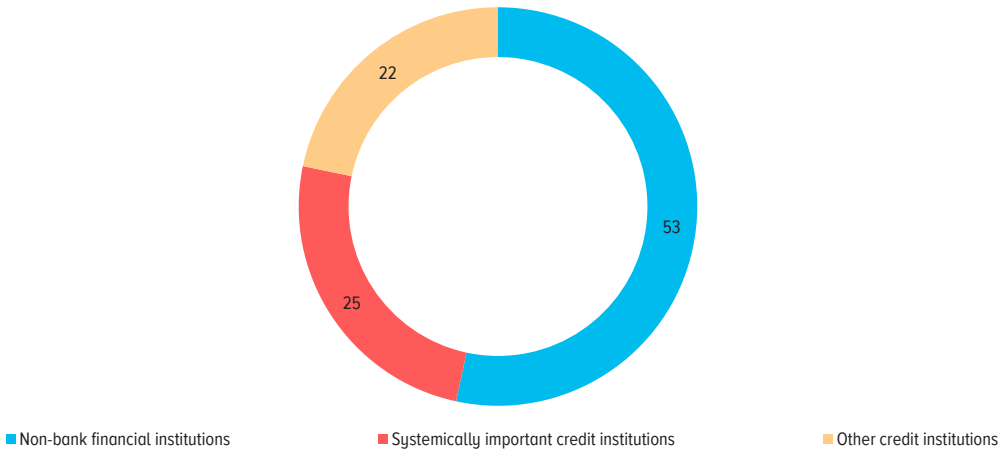
Since 2012, the volume of open transactions in the derivatives market has more than doubled and reached ₽738 billion in June 2021 (Chart 40).

Derivatives for currency pairs and indices are the most popular among investors.

NFIs are the main participants in this market (Chart 41).

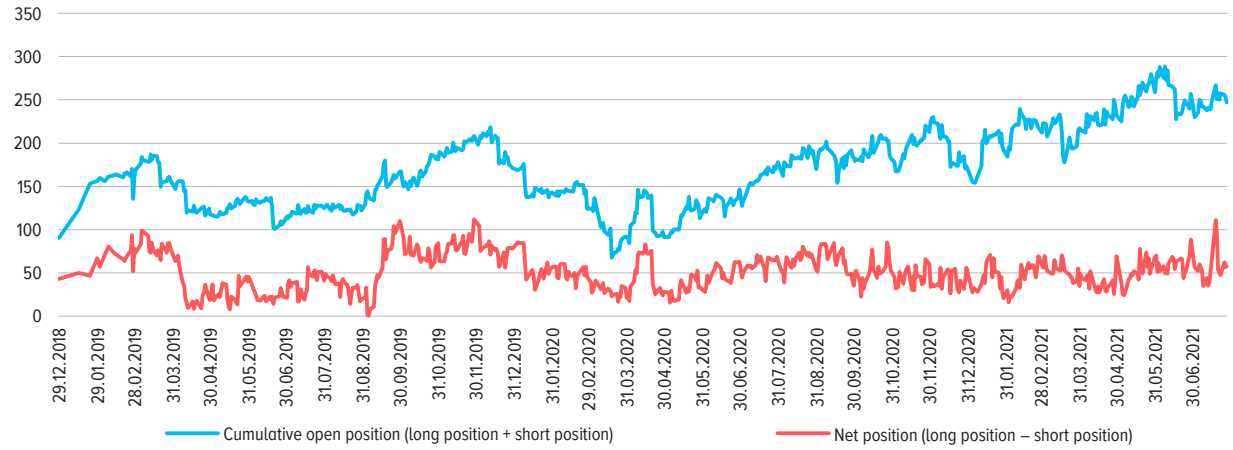
The active participation of NFIs in the futures market can be attributed to the interest in these instruments among NFI customers, primarily individuals. As of 1 April 2021, the total volume of open positions of individuals in futures contracts totalled ₽214 billion, of which long positions accounted for ₽131 billion, and short positions accounted for ₽83 billion. The underlying assets were mainly the US dollar (38%), Brent crude (20%) and the RTS index (14%).

STRUCTURE OF OPEN TRANSACTIONS AS OF 1 JULY 2021 *Chart 41*
(%)



Source: PJSC Moscow Exchange.

VOLUMES OF OPEN POSITIONS OF INDIVIDUALS IN THE FUTURES MARKET *Chart 42*
(₽ BILLION)



Source: PJSC Moscow Exchange.

From the beginning of 2019 to 1 April 2021, the share of open positions of individuals in the futures market mostly fluctuated within the range of 30 to 40%, only reaching 45% at the end of 2019 and in the first quarter of 2021, and as of 1 April 2021, this share was 44%. The distribution of positions among customers has a relatively high concentration: the largest individual customer accounted for 10.6% of the total position, the top 10 customers accounted for 17.2%, the top 100 customers, for 32.9%, and the top 1,000, for 61.0%. Thus, just as in the stock market, individuals play an important role in the above market segment.

Since the end of March 2020, individuals have systematically increased the volumes of their open positions in the futures market (Chart 42), and the number of individuals with open positions has also increased significantly: from 40,000 at the beginning of 2019 to 60,000 at the end of 2021 Q1. Accordingly, the activity of the population in the exchange futures market has increased noticeably over recent years, which indicates both a general trend towards the growing involvement of individuals in the stock market and, possibly, the desire to hedge increased positions opened in the spot market. The number of individuals holding open positions in the futures options market increased from 3,000 at the beginning of 2019 to 6,500 in 2021 Q1. The volume of open positions at the end of the first quarter totalled ₽1.4 billion. The above volume of positions is insignificant for the futures options market; that is, individuals have practically no influence on market conditions.

Starting from 2022, the Moscow Exchange plans to launch trading in options directly on stocks. Unlike the current structure of the options market with the participation of individuals, the underlying assets will not be futures but the most liquid shares of Russian and foreign issuers. The market will focus on retail investors, to which end trading in small lots is planned.

3.3 Saint Petersburg International Mercantile Exchange

In 2010, Saint Petersburg International Mercantile Exchange (SPIMEX) launched trading in derivatives on the derivatives market. Centralised clearing in the said market is performed by NCI CCP RDK (JSC) ('RDK)', which received NCO CCP status in 2020. Currently, the SPIMEX derivatives market offers futures contracts for oil, petrol, diesel and gas.

A crucial promising area of activity for RDK and SPIMEX is the launch of a common natural gas market for the countries of the Eurasian Economic Union. RDK also plans to launch new futures contracts and improve clearing business processes.

CONCLUSION

The Russian derivatives market continues to develop gradually. The significant volumes in its various segments are poised to grow further. This review analyses the overall use of derivatives in the domestic market and focuses in more detail on individual segments. In particular, a significant part of the review addresses interest rate and foreign exchange derivatives, which are the most common types of derivatives in the Russian financial market. The Bank of Russia monitors the derivatives market on an ongoing basis, including for potential risks and vulnerabilities. As there are no current systemic risks to financial stability, these risks may not take too long to arise given the high pace of development of the derivatives market.