



Bank of Russia



2021 H2 REPORT ON THE RUONIA OVERSIGHT COMMITTEE'S ACTIVITY

Moscow
2022

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The Executive Office, the Statistics Department, the Financial Stability Department, and the Internal Audit Department of the Bank of Russia prepared this publication.

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PREFACE

This Report by the RUONIA Oversight Committee of the Bank of Russia (hereinafter, the Report) provides a review of the RUONIA administration over the period from July through December 2021. As the draft public document shall be approved by the RUONIA Oversight Committee, the Report is released no earlier than one month after the end of the period under review. Information on the RUONIA administration is also available in the section [RUONIA](#) on the Bank of Russia website.

The terms in bold are defined in the Glossary.

Please send your feedback on the content or structure of the Report through the [inquiries about RUONIA](#) on the Bank of Russia website.

1. RUONIA OVERSIGHT COMMITTEE

Ruble OverNight Index Average (RUONIA) is the weighted interest rate on overnight interbank ruble loans (deposits) reflecting the cost of unsecured overnight borrowing. The up-to-date version of the Methodology for Producing and Publishing RUONIA (Ruble OverNight Index Average) (hereinafter, the Methodology), effective from 29 November 2021, is [available](#) on the Bank of Russia website.

RUONIA is a risk-free **benchmark** used to monitor and analyse the efficiency of pursuing the operational objective of the Bank of Russia's monetary policy. RUONIA is a benchmark rate used in the pricing of a number of financial instruments, including loans, bonds, and derivatives.

In addition to RUONIA overnight, the Bank of Russia also publishes [RUONIA Averages](#) which are interest rate indicators measuring returns on investment for certain terms earned from daily interest capitalisation at the RUONIA overnight rate.

The Bank of Russia is the **administrator** of RUONIA and is in charge of all the stages of its administration, including the Methodology, the formation of the **RUONIA List**, data collection, and the calculation and publication of the interest rate benchmark.

On 22 June 2020, the Bank of Russia established the **RUONIA Oversight Committee** (hereinafter, the Committee). The Committee oversees the RUONIA administration in terms of its compliance with the [Principles for Financial Benchmarks of the International Organization of Securities Commissions \(IOSCO\)](#).

The Committee's tasks are as follows:

- **oversight** over the RUONIA administration process;
- coordination of the documents and procedures related to the RUONIA administration;
- communication with RUONIA users and other stakeholders, including the Expert Council on Benchmarks and Rates of SRO National Finance Association (SRO NFA).

The [Regulation on the RUONIA Oversight Committee](#) is available on the Bank of Russia website.

Members of the Committee as of 1 January 2022:

Ksenia Yudaeva, First Deputy Governor of the Bank of Russia, Chairperson of the Committee;

Nadezhda Ivanova, Economic Adviser at the Research and Forecasting Department;

Sergey Moiseev, Adviser to First Deputy Governor of the Bank of Russia;

Irina Melnikova, Deputy Director of the Financial Market Strategy Department – Chief of the Division for Strategic Initiatives in the Financial Market;

Roman Mukhlynov, Deputy Director of the Department for Countering Misconduct – Chief of the Division for the Regulation of Countering Misconduct;

Ivan Shevchuk, Deputy Director of the Financial Stability Department – Chief of the Division for Managing Financial Market Risks and Stress Testing;

Vasily Zablotsky, President of Self-regulatory organization National Finance Association (as agreed);

Oleg Gorlinskiy, representative of Self-regulatory organization National Finance Association (as agreed).

The Committee's Executive Secretary is Elena Ershova, Deputy Chief of the Division for Lending and Interest Rates Statistics and Statistics Communication at the Statistics Department.

The Committee held three meetings in 2021 H2.

To ensure the transparency of the RUONIA administration, maintain its high standards, and assure the financial market participants using RUONIA in financial instrument pricing of the reliability and high quality of RUONIA and compliance with the international standards, the Bank of Russia releases

the Report on the Committee's activity. In accordance with the Regulation on the Committee, the Bank of Russia publishes the Report on the Committee's activity every six months on the Bank of Russia website.

2. ACTIVITY OF THE COMMITTEE

Updating the RUONIA List

The Bank of Russia reviews the RUONIA List at least every six months to ensure that the benchmark is representative. Based on the analysis of the structure of the interbank market, the Bank of Russia may decide to update the List or keep it unchanged. To ensure the transparency, objectivity, and coordinated timing of its decisions, the Committee made the decision to establish an official procedure for revising the RUONIA List based on the algorithm for selecting credit institutions. The algorithm factors in a number of quantitative indicators, including **IBL** market participants' activity level (the average daily number of RUONIA panel banks with whom a particular market participant transacted over the period under review); market turnovers (the amount of transactions with RUONIA panel banks over the period under review); closeness to the core of the interbank market (eigenvector centrality of each **RUONIA panel bank**); and consistent credit quality (a RUONIA panel bank's credit rating). Credit institutions are selected according to the Methodology approved by Bank of Russia Order No. OD-1795, dated 24 August 2021.

In October 2021, the Committee updated the [List of RUONIA Panel Banks](#). The RUONIA calculation and publication using the updated list started from 2 November based on data as of 1 November 2021. The updated list now includes three more institutions: China Construction Bank (Russia) Limited, Joint Stock Company Surgutneftegasbank, and Joint Stock Company MUFG Bank (Eurasia).

Improving the methodology for selecting credit institutions to be put on the List of RUONIA Panel Banks, the Committee analyses the criteria for including banks in the List considering their activity level (the average daily number of RUONIA panel banks with whom a particular credit institution transacted) and the regularity of trading (the ratio of trading days to RUONIA calculation days), as well as explores the issue of the best possible number of RUONIA panel banks on the List. Taking into account the findings of this analysis, the Committee made a decision in December 2021 on additional monitoring of the RUONIA panel banks showing low or declining indicators to promptly revise and timely update the List.

The Committee plans to update again the RUONIA List or confirm its current version in 2022 H1.

Adjusting the criterion for calculating the RUONIA Fallback Value

The Committee's remit encompasses monitoring of critical situations, including analysis of operational risks, reasons for errors and lack of data, and incidents of a benchmark value review. The essential aspects of the RUONIA administration are the continuity of the benchmark calculation and publication. In the case of any incidents, this continuity is secured by the RUONIA **Fallback Value**. According to the Methodology for Calculating and Publishing RUONIA, its Fallback Value is calculated when at least one of several conditions is relevant. In May 2021, the share of one of the panel banks exceeded 75% of the overall amount of transactions, which caused an incident. Accordingly, the Bank of Russia was forced to publish the RUONIA Fallback Value for several consecutive days (see the [2021 H1 Report on RUONIA Oversight Committee's Activity](#)). As further developments were uncertain and there was a risk that the situation could occur repeatedly, the Committee made the decision that the criterion of concentration should not be applied temporarily until the end of 2021.

The Committee considered the proposals on how the concentration criterion should be applied further on. Having studied all alternative solutions, the Committee decided to expand the concentration criterion by adding the condition that the Fallback Value should not be calculated if the deviation of the RUONIA value calculated net of the large panel bank's contribution from

the RUONIA value calculated taking into account its contribution is less than 10 basis points. The Committee agreed upon the revised Methodology that was approved by the Bank of Russia Governor for using beginning from the calculation for 30 November 2021.

Completion of the pilot on RUONIA Averages

In September 2021, the Bank of Russia started to calculate and publish **RUONIA Averages** for one, three and six months, and the **RUONIA Compounded Index**. They may be used by market participants on their own to calculate interest rates for any reference periods. For both information products, interest is calculated as compound interest on business days and as simple interest on weekends, holidays, and the days for which RUONIA was not calculated.

RUONIA Averages are meant to be used in financial instruments with floating interest rates. RUONIA Averages have a range of benefits for borrowers, issuers and investors as compared to such alternatives as the Bank of Russia key rate and the arithmetic mean from RUONIA daily values applied in variable coupon-income federal government bonds (OFZ-PK). First, this is total transparency as the benchmark is to be published on a daily basis and thus the accrued coupon income is known for every day. Second, the compound interest algorithm helps smooth out yield fluctuations and avoid short-term shocks of the money market. The third benefit is the economic sense as final yield is measured based on the results of overnight reinvestment. Fourth, this mitigates basis risk as the pricing of assets based on RUONIA Averages will be highly correlated with similar conditions in the interbank liabilities market.

In 2021 H2, the Bank of Russia carried out external and internal consultations on the methodology for calculating RUONIA Averages, as well as the rules and procedure for their use. The discussions were held within the Bank of Russia's Working Group for the analysis and development of the methodology for calculating interest rates in various segments of the financial market, with the engagement of financial market participants' representatives invited, as well as at SRO NFA. Following the consultations, the methodology for calculating RUONIA Averages was adjusted: calculations should be based on the actual number of days in a year (in order to take into account leap years). There were no other comments or proposals.

In December 2021, the Committee agreed upon the methodology for calculating and publishing the RUONIA Index and Averages. The statistical series posted on the Bank of Russia website within the pilot calculation from 1 September 2021 were recognised as final, that is, they should not be recalculated and published anew. In 2022, the Bank of Russia plans to develop and launch on its website the calculator of RUONIA Averages for any periods.

Consultations with market participants regarding the use of RUONIA Averages in financial instruments

Pursuant to the Committee's decision, the authorised representatives of the Bank of Russia held a series of meetings with a wide range of market participants. As of the middle of 2021, RUONIA was used predominantly to calculate coupon payments on government bonds. The meetings were carried out to explain the benefits and costs of using RUONIA Averages when issuing loans and bonds in the private sector.

Over August – December 2021, the Bank of Russia's representatives met with the Top 20 banks organising bond offerings, the Top 10 lessors issuing bonds, and the non-financial organisations – clients of PJSC SKB-Bank (its new name is BANK SINARA) and carried out the panel discussion 'Interest rate benchmarks and liquidity management instruments: RUONIA and RUSFAR as alternatives to the use of the key rate' at the Association of Corporate Treasurers. Furthermore, a special focus was placed on the largest Russian issues of floating rate bonds. Specifically, the Bank

of Russia held meetings with Rosneft Oil Company and the State Development Corporation VEB. RF.

At the end of 2021, financial institutions started to use RUONIA in the bond market. In November 2021, VEB. RF began to issue ruble bonds with their coupon yield linked to RUONIA.¹ Moreover, in December 2021, RESO-LEASING became the first private company that issued ruble bonds linked to RUONIA.² However, issuers currently use the arithmetic mean from RUONIA daily values, rather than RUONIA Averages to calculate coupon yield. The reason for this is that the calculation of coupon yield based on RUONIA Averages needed for organising securities trading in the secondary market is not automated. As a result of the work carried out by the Bank of Russia with the National Settlement Depository acting as the central depository, the mechanism automating the daily calculation of the accrued coupon yield will be completed by the middle of summer 2022 at the Moscow Exchange. In addition, in order to simplify the use of RUONIA Averages, the Bank of Russia added the RUONIA Index and Averages in the open API system on the Bank of Russia website. As a result, the practice of using RUONIA Averages in the bond market can be expected to become adopted no earlier than in 2022 H2. Concurrently, there are no technical barriers for using RUONIA Averages in ruble loans.

Pursuant to the Committee's decision, the [user guide on RUONIA Averages](#) was prepared and published on the Bank of Russia website. In December 2021, the Bank of Russia prepared the information letter '[On using RUONIA as a floating interest rate when developing financial products](#)' (No. IN-05-15/2, dated 12 January 2022) sent to credit and non-bank financial institutions. In this information letter, the Bank of Russia notes that the methodology for calculating RUONIA term values is in line with the calculation procedures established for similar risk-free interest rates used by foreign financial market regulators. Its use helps smooth out interest expenses, and RUONIA term values can thus be considered to be a protection against interest rate shocks of the money market. In its letter, the Bank of Russia emphasises that RUONIA Averages are reliable interest rates and, in line with best international practices, recommends the use of RUONIA and RUONIA Averages when developing financial products.

In 2022, the Bank of Russia will continue meetings with market participants from among non-financial organisations in order to clarify the procedure for using RUONIA Averages. In 2022 H1, the Bank of Russia plans to release the information and analytical material 'On transition to financial benchmarks that meet international standards'.

RUONIA trademark assignment

In 2020, based on the results of the international audit carried out with the engagement of E&Y, the Bank of Russia decided to start the preparations for the assignment of the RUONIA trademark from SRO NFA. The auditor noted potential risks and operational problems related to the fact that the Bank of Russia did not have the right to the RUONIA trademark. The Bank of Russia received several proposals from SRO NNFA. Having considered them, the Committee recommended a one-time acquisition of the trademark. On 30 April 2021, SRO National Finance Association and the Bank of Russia signed the agreement on the alienation of the exclusive right to the trademark. The Committee also made the decision to engage a patent attorney to register the transfer of the exclusive right to the trademark with the federal executive agency for intellectual property. The patent attorney reported that the exclusive right to the RUONIA trademark was transferred to the Bank of Russia on 21 September 2021.

The Bank of Russia does not plan to commercialise the RUONIA administration as this would contradict Article 3 of the Federal Law 'On the Central Bank of the Russian Federation (Bank of

¹ www.еэб.рф/press-tsentr/51210/.

² <http://e-disclosure.ru/portal/company.aspx?id=31827>.

Russia)' (profit generation is not a goal of the Bank of Russia's activities). The Bank of Russia provides all information products free of charge to all financial market participants as a public good.

Internal audit

In accordance with IOSCO's Principle 17 'Audits', the administrator of a financial benchmark should appoint an independent auditor with appropriate experience and capability to periodically review and report on the administrator's adherence to the IOSCO Principles. For these purposes, in 2020, the Bank of Russia signed an agreement with E&Y on the assurance engagement to confirm the compliance of RUONIA and its administration with the IOSCO Principles. Following the audit, the Bank of Russia released the statement on the compliance of the RUONIA administration with the IOSCO Principles for Financial Benchmarks that was verified by E&Y as reliable in all material respects.

Internal audit in the Bank of Russia is carried out regularly by the Internal Auditing Department applying a risk-based approach. The findings of internal audits are submitted to the Bank of Russia Governor, reviewed by the Committee, and presented for consideration to the National Financial Board. The designated employees of the Internal Auditing Department are invited to attend the Committee's meetings as observers.

Over September – November 2021, the Internal Auditing Department carried out the analytical event 'Assessment of the RUONIA administration process at the Bank of Russia'. This event aimed to assess the compliance of the RUONIA administration process with the IOSCO Principles, the correctness of the RUONIA calculation, the existing and potential risks that might affect the RUONIA administration, and the effectiveness of the risk management and internal control system. The audited units are the Statistics Department, the Financial Market Strategy Department, and the Public Relations Department. Following this analytical event, the Internal Auditing Departments concluded as follows:

- the administration of RUONIA complies in all material respects with the Bank of Russia regulations and the IOSCO Principles;
- the RUONIA Methodology is in line with international practices; and
- the system of risk management and internal control over the RUONIA administration are efficient.

Nonetheless, the Internal Auditing Department gave recommendations on enhancing the RUONIA administration process, including the following:

- updating Bank of Russia regulations and other documents taking into account the changes in the structure of the Bank of Russia and the Statistics Department;
- boosting cross-functional communication with regard to informing the Bank of Russia's supervisory divisions about the organisations put on the List of RUONIA Panel Banks who submitted incorrect reporting used to calculate RUONIA to the Bank of Russia in some cases;
- implementing measures to mitigate risks associated with the coming migration of the reports processing and RUONIA calculation processes to the target IT solutions;
- regular analysis of the international experience in the administration of financial benchmarks;³ and
- changing the structure of the Bank of Russia website to improve the accessibility of the information about RUONIA.

Having considered the internal audit report, the Committee made a number of internal decisions aimed at enhancing the RUONIA administration process.

³ Considering the importance of the analysis of the practical aspects as part of the study of international experience in the administration of financial benchmarks, the Committee made the decision to prepare quarterly overviews of international experience in the administration of foreign financial benchmarks beginning from 2022.

Public disclosures

Considering the Committee's decisions, the Bank of Russia changed the structure of its website and expanded the coverage of the published information, specifically:

- RUONIA values and RUONIA Averages are published in the section [All indicators](#) on the Bank of Russia website;
- the page about RUONIA on the Bank of Russia website now includes the section [RUONIA Index and Averages](#);
- the [user guide](#) on RUONIA Averages was released.

In July 2021, the Committee approved the [2021 H1 Report on RUONIA Oversight Committee's Activity](#). According to the Regulation on the Committee, the collegial body reviews reports made by the Bank of Russia's structural units responsible for data preparation and the RUONIA calculation and publication, as well as compiles and releases its report on the Bank of Russia website every six months. To provide comprehensive information to foreign investors, the reports are translated into English and are available in the English version of the Bank of Russia website. Furthermore, the Bank of Russia is considering the possibility of releasing regular information about the use of RUONIA in financial markets on the Bank of Russia website.

Plans for 2022

In 2022, the Committee plans to:

- update the List of RUONIA Panel Banks or confirm its current version every six months;
- discuss the formation of the long-term curve of RUONIA-based interest rates;
- hold meetings with market participants from among financial and non-financial organisations to clarify the procedure for using RUONIA Averages;
- release the information and analytical material of the Bank of Russia 'On transition to financial benchmarks that meet international standards'; and
- modify the structure on the Bank of Russia website to improve the accessibility of the information about RUONIA and RUONIA Averages.

3. REVIEW OF RUONIA IN 2021 H2

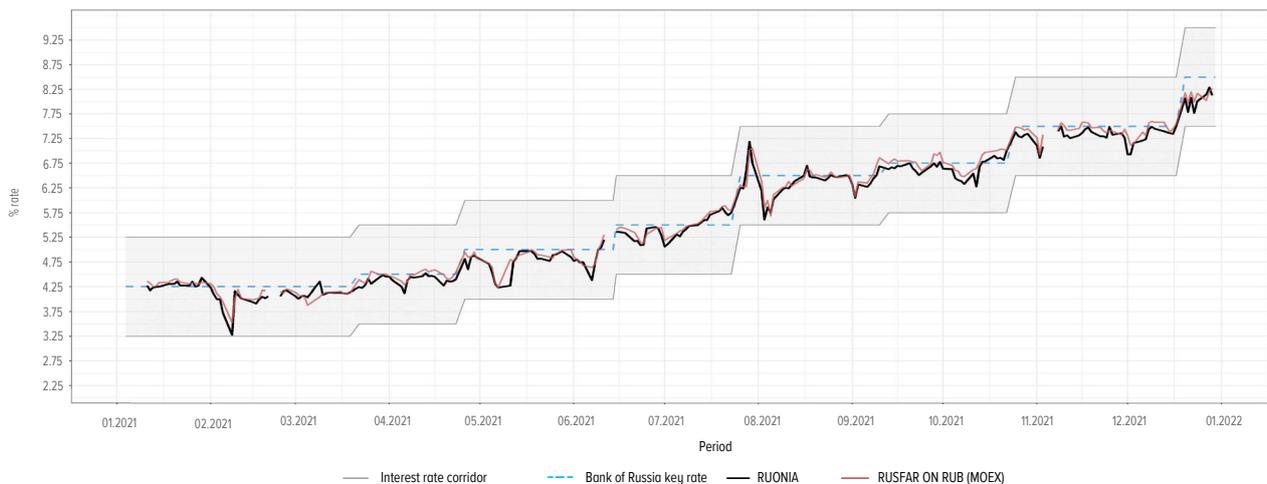
RUONIA as an IBL market benchmark

In 2021 H2, according to the decisions of the Bank of Russia Board of Directors, the Bank of Russia key rate was steadily increased six times. The analysis of the RUONIA values over this period shows that the benchmark level adjusted fairly quickly to the new level of the sideways trend in the money market. RUONIA movements were generally consistent with changes in RUSFAR, another indicator of the cost of overnight borrowing (Chart 1).

The dynamics of RUONIA in 2021 H2 are representative of the demand and supply in the interbank market. Overall, the amount of transactions in 2021 hovered around the average level of 170 billion rubles (Chart 2), which is 25% more than in 2021 H1.

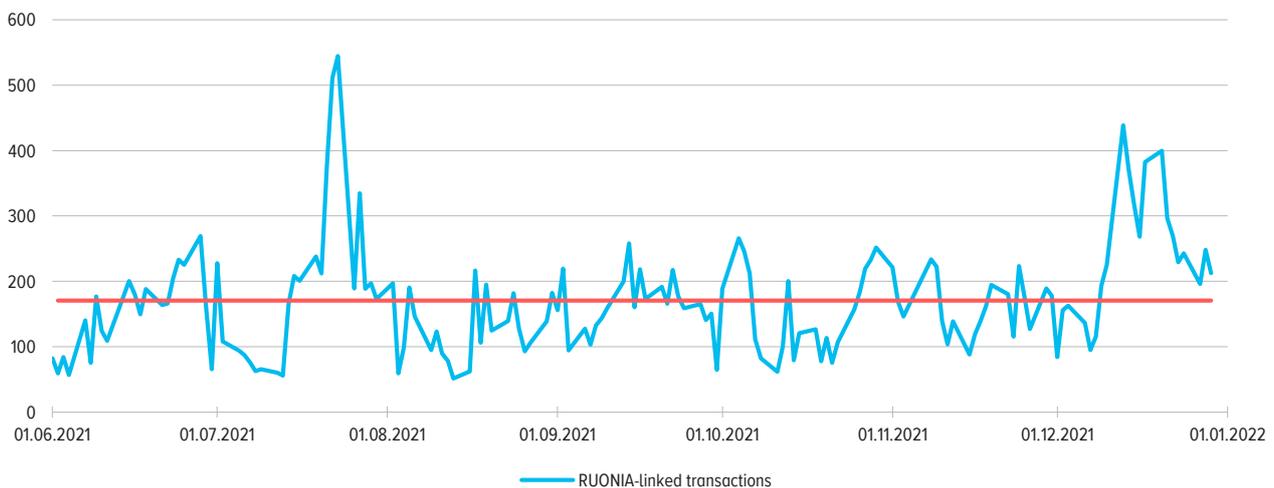
MOVEMENTS OF RUONIA, INTEREST RATE CORRIDOR, AND RUSFAR (%)

Chart 1



RUONIA VOLUMES IN 2021 H2 (BILLIONS OF RUBLES)

Chart 2



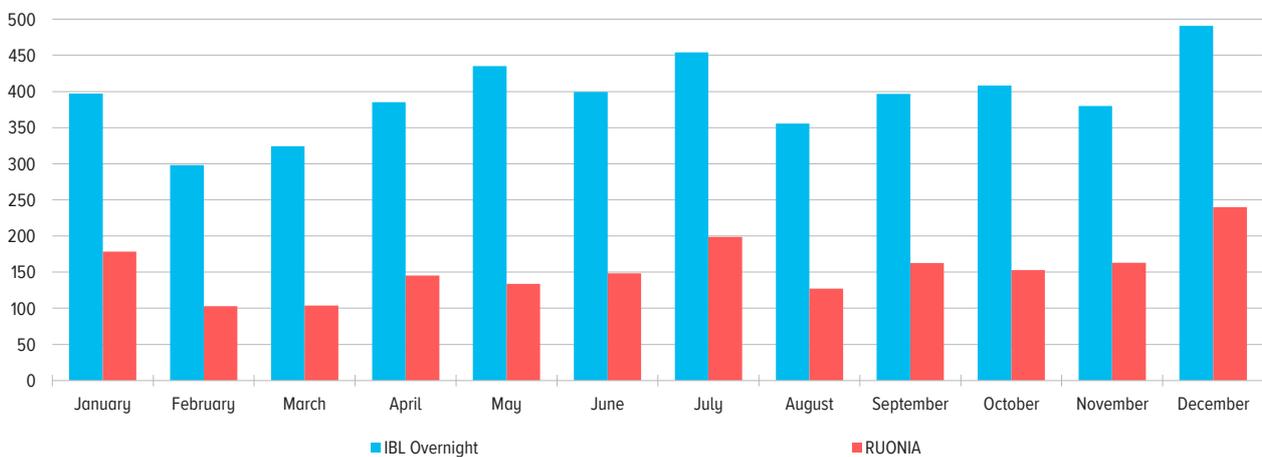
The RUONIA volume accounted for a considerable portion of the average daily turnover of the overnight IBL market (over 38%), which is due to the level of activity of the RUONIA panel banks in the market (Chart 3).

The diagram of the network structure (Chart 4) shows that the RUONIA panel banks' transactions represented the transactions of the core of overnight IBL.

Chart 5 shows the portion of the RUONIA panel banks who conducted transactions taken into account in the RUONIA calculation in the total number of the RUONIA panel banks. In 2021 H2, the average percentage of the RUONIA panel banks' activity exceeded 64%, which, along with the above factors, confirms that the transactions carried out by the RUONIA panel banks are sufficiently representative of the market measured.

AVERAGE DAILY TURNOVER OF RUBLE-DENOMINATED OVERNIGHT INTERBANK LOANS WITH RESIDENTS AND AVERAGE DAILY RUONIA VOLUME IN 2021
(BILLIONS OF RUBLES)

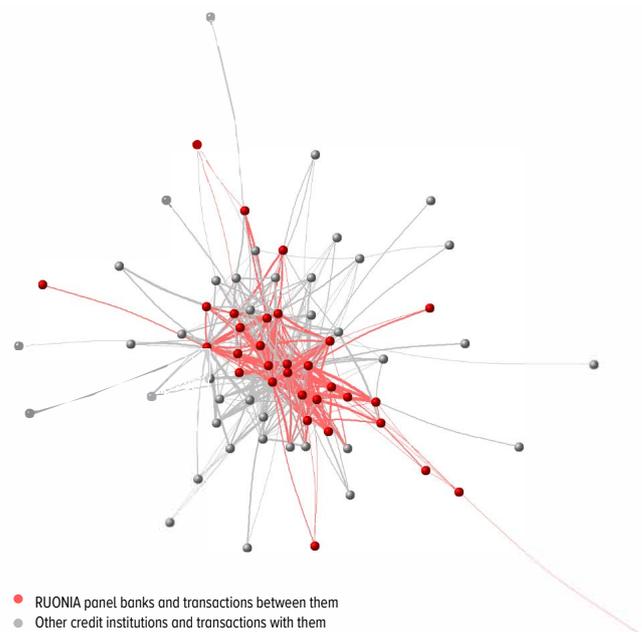
Chart 3



* The average daily volume of RUONIA is calculated as a total of RUONIA volumes over a month divided by the number of the days of publication over the month.

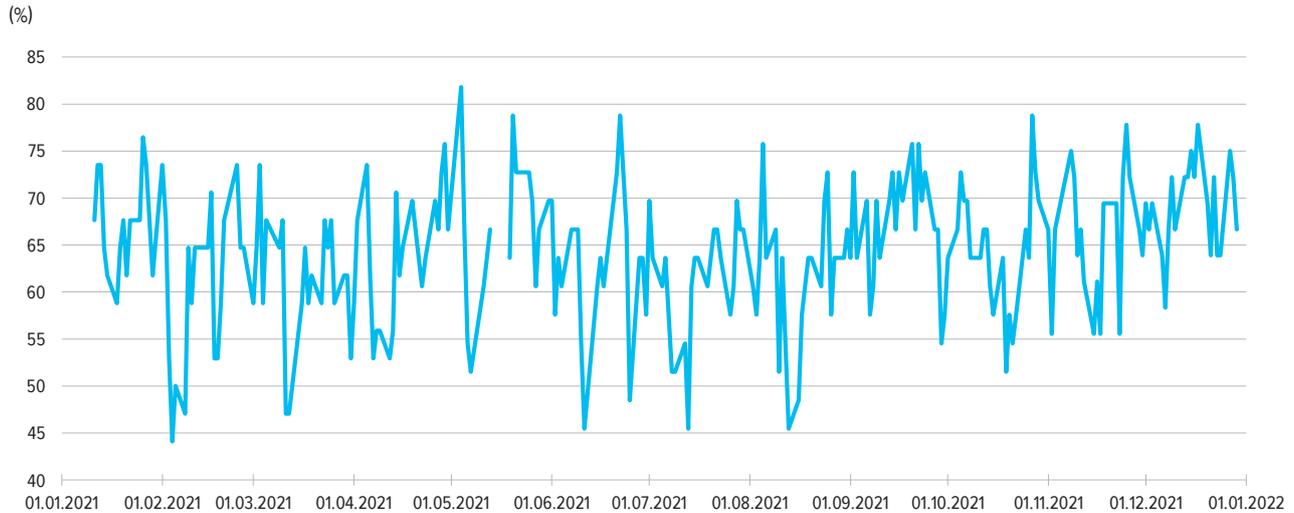
NETWORK STRUCTURE OF TRANSACTIONS IN THE OVERNIGHT IBL MARKET OVER 2021 H2

Chart 4



PORTION OF THE PANEL BANKS WHO CONDUCTED TRANSACTIONS IN THE TOTAL NUMBER OF THE RUONIA PANEL BANKS IN 2021 (%)

Chart 5



RUONIA in financial instruments

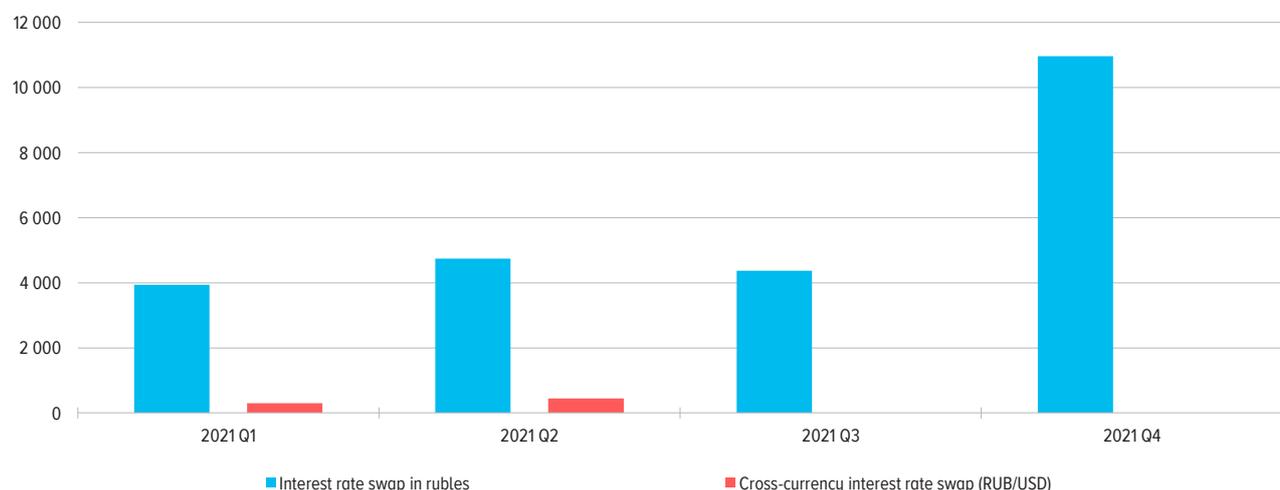
In 2021 H2, the trend towards an expanded use of RUONIA in interest rate swaps remained and strengthened, which proved that market participants were more interested in the benchmark (Chart 6).

Over the period under review, market participants continued to steadily apply the three main floating rates in ruble-denominated interest rate swaps – MosPrime, RUONIA, and the Bank of Russia key rate. In October – December, the portion of transactions using MosPrime contracted significantly, while the increase in transactions linked to the key rate that had started in June 2021 continued. In November 2021, the portion of transactions using the key rate reached the highest level over 2021 H2, surpassing 35%, which is almost the same as in January 2021 that recorded a peak of 37%.

In October – December 2021, the portion of transactions linked to RUONIA expanded, while that of transactions based on MosPrime declined. Ultimately, the portion of transactions with RUONIA exceeded that of transactions linked to MosPrime and the Bank of Russia key rate in December. The largest portion of RUONIA transactions in 2021 H2 was recorded in December. Furthermore,

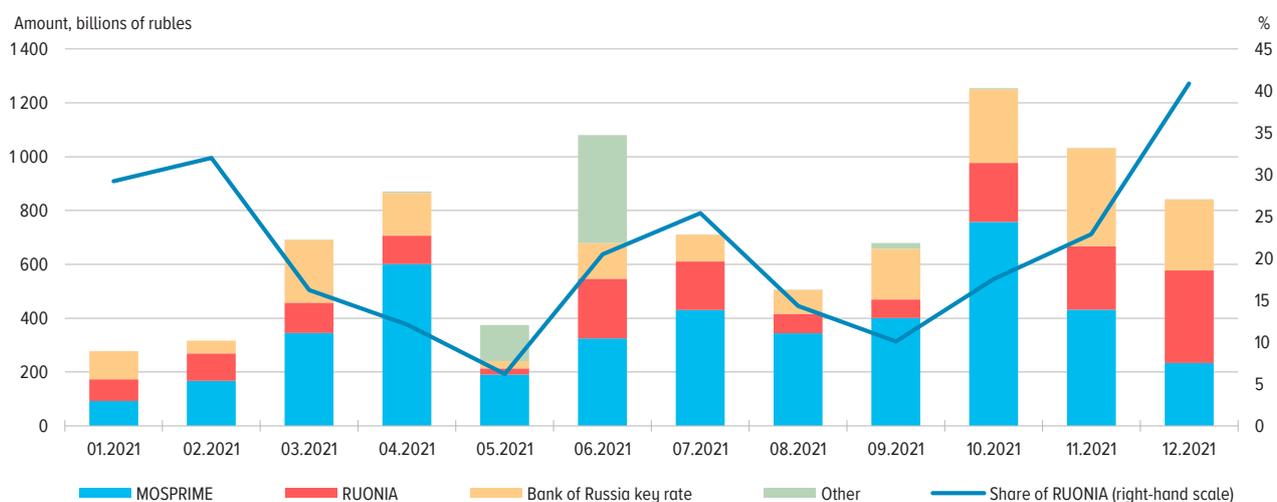
TURNOVER OF OTC DERIVATIVES USING RUONIA, BY CURRENCY, IN 2021 (MILLIONS OF US DOLLARS)

Chart 6



COMPARISON OF THE USE OF RUONIA AND OTHER FLOATING RATES IN RUBLE INTEREST RATE SWAPS IN THE SAME CURRENCY

Chart 7



the average portion of transactions linked to RUONIA in 2021 H2 increased by 2.4 pp as compared to 2021 H1, reaching 21.8%.

Beginning from the end of October 2021, amid higher inflation and geopolitical risks and, accordingly, uncertainty about further changes in interest rates, increasingly more market participants preferred to hedge interest risk. There was a rise in interest rate swap transactions linked to RUONIA in both over-the-counter and exchange markets.

This period of 2021 was characterised by shifts in the structure of net transactions of the market participants conducting RUONIA-based interest rate swap transactions. Non-residents became net beneficiaries of floating-rate interest payments calculated based on RUONIA, whereas previously they mostly made such payments to the benefit of large Russian banks.

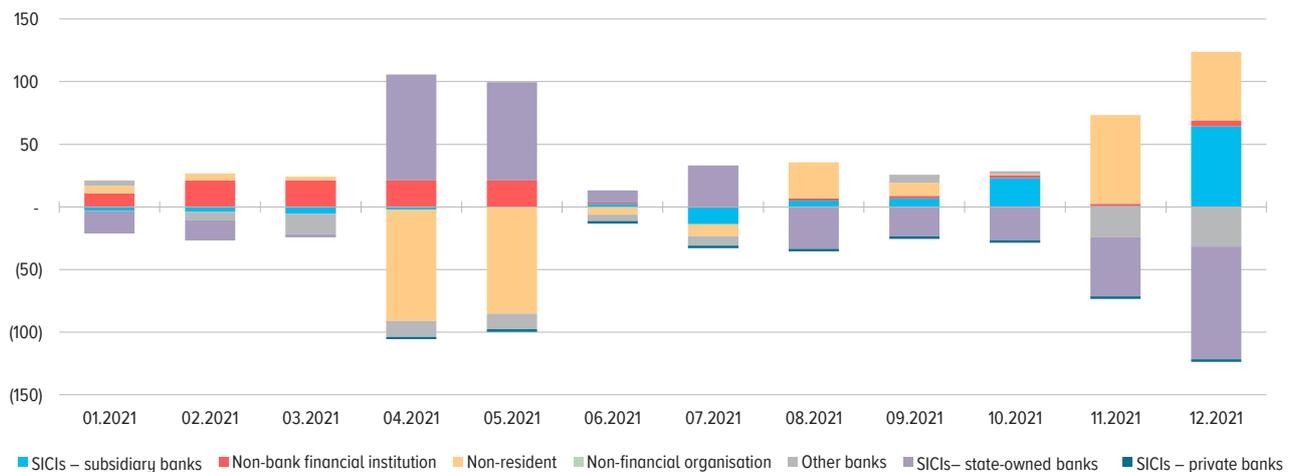
Beginning from October 2021, open positions in RUONIA-based interest rate swaps surged in the market of standardised derivatives on the MOEX. One of the drivers was the transfer of a part of over-the-counter transactions to centralised clearing. This market provides a broad range of instruments with various maturities. However, market participants mostly prefer swaps for six, nine, and twelve months. In 2021 Q4, they demonstrated the highest demand for one-year interest rate swaps, and two-year transactions emerged as well.

Due to the increase in transactions in the market of standardised derivatives, the Bank of Russia's measures to promote RUONIA in the Russian market, and market participants' interest in a further expansion of the range of instruments in terms of their maturities, the MOEX started to consider in 2021 H2 the issue of extending the maturities of overnight index swaps (OIS) linked to RUONIA. Currently, the longest maturity of RUONIA-based interest rate swaps in the market of standardised derivatives is two years, whereas the maturities of RUONIA-linked swaps in the over-the-counter market may reach five to six years. In this regard, the MOEX plans to extend the maturity of RUONIA-based OIS to ten years.

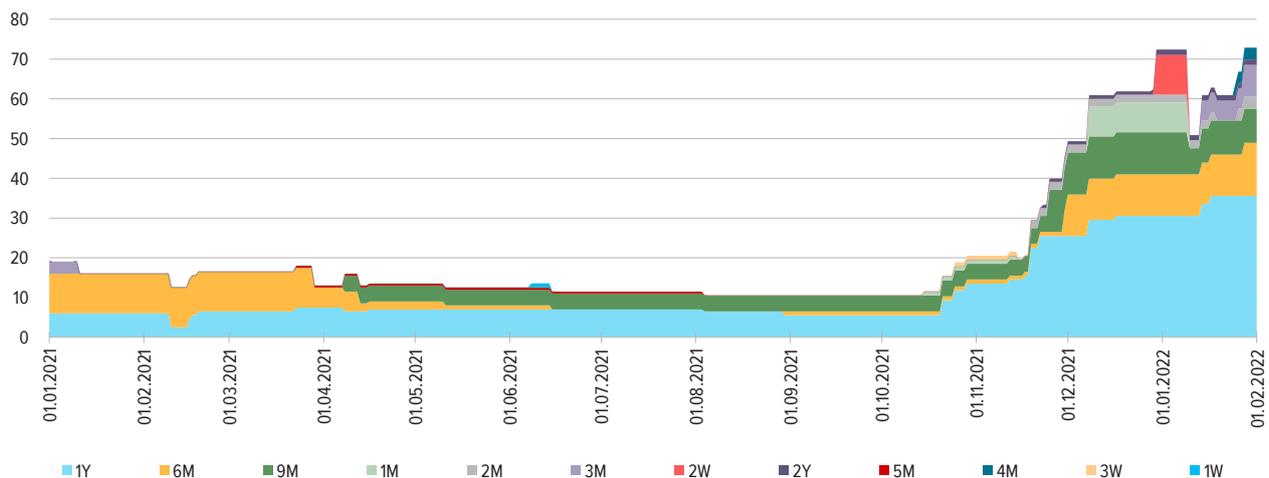
To hedge interest rate risk, market participants can conduct long-term transactions (for up to ten years) using MosPrime. However, when the horizon is that long, market participants accumulate basis risk as the practice of using MosPrime beyond the derivatives market (in loans and bonds) is insufficient, MosPrime includes the credit risk premium, and the formation of this benchmark is only indicative.

As RUONIA is calculated based on actual transactions carried out in the money market, the structure of RUONIA-linked OIS smooths out fluctuations in RUONIA values on certain days, which is especially important during the periods of higher volatility.

NET POSITIONS OF THE MAIN GROUP OF PARTICIPANTS IN THE MARKET OF RUONIA-LINKED INTEREST RATE SWAPS (BILLIONS OF RUBLES) Chart 8



OPEN POSITION IN RUONIA-LINKED INTEREST RATE SWAPS IN THE MARKET OF STANDARDISED DERIVATIVES ON MOEX, BY MATURITY (BILLIONS OF RUBLES) Chart 9



In 2021 Q4, market participants revised upwards their expectations about interest rate movements and started to include an elevated interest risk premium in the price of RUONIA-based instruments. Until the middle of October 2021, fixed interest rates on interest rate swaps linked to RUONIA did not significantly exceed the Bank of Russia key rate. Contrastingly, beginning from mid-October, market participants started to conduct RUONIA-based swaps setting fixed interest rates that considerably surpassed the level of the Bank of Russia key rate. In early 2022, the interest risk premium soared even more, with fixed interest rates on some transactions soaring above the two-digit level.

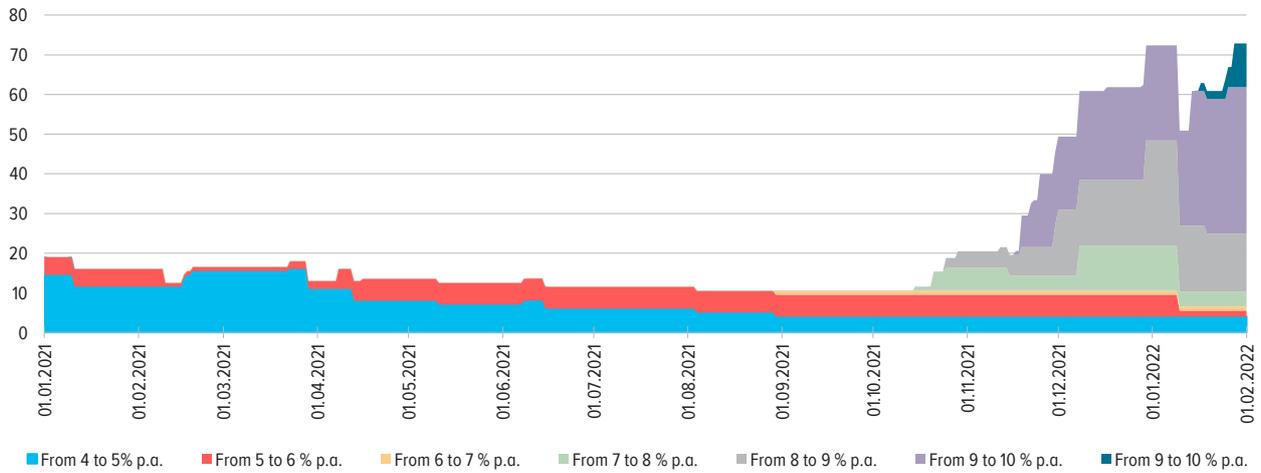
Despite the surge in the exchange market of RUONIA-linked OIS transactions in 2021 H2, this segment of the derivatives market remains highly concentrated. State-owned banks account for over 75% of the conducted transactions to receive both fixed- and floating-rate interest payments.

Hence, the exchange market of RUONIA-linked OIS transactions remains interbank almost completely, just as the underlying asset market. A further development of the RUONIA benchmark, RUONIA Averages, and a gradual abandonment of the MosPrime benchmark will boost the number of market participants and market liquidity.

It should be stressed that the events arranged by the Bank of Russia at the end of 2021 Q4 to discuss the prospects of using RUONIA and opportunities emerging for the development of the

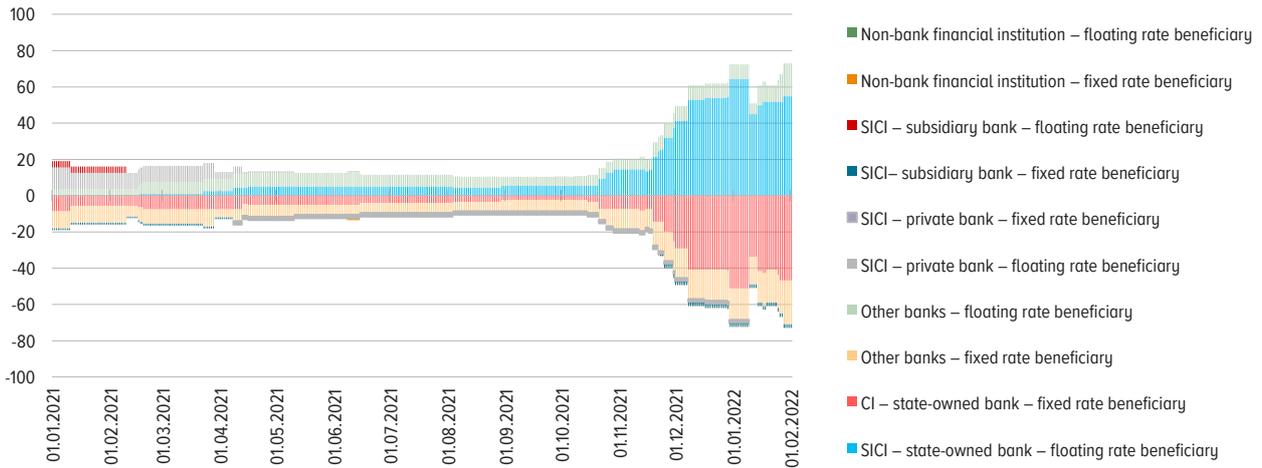
COMPARISON OF THE USE OF RUONIA AND OTHER FLOATING RATES IN RUBLE INTEREST RATE SWAPS IN THE SAME CURRENCY (BILLIONS OF RUBLES)

Chart 10



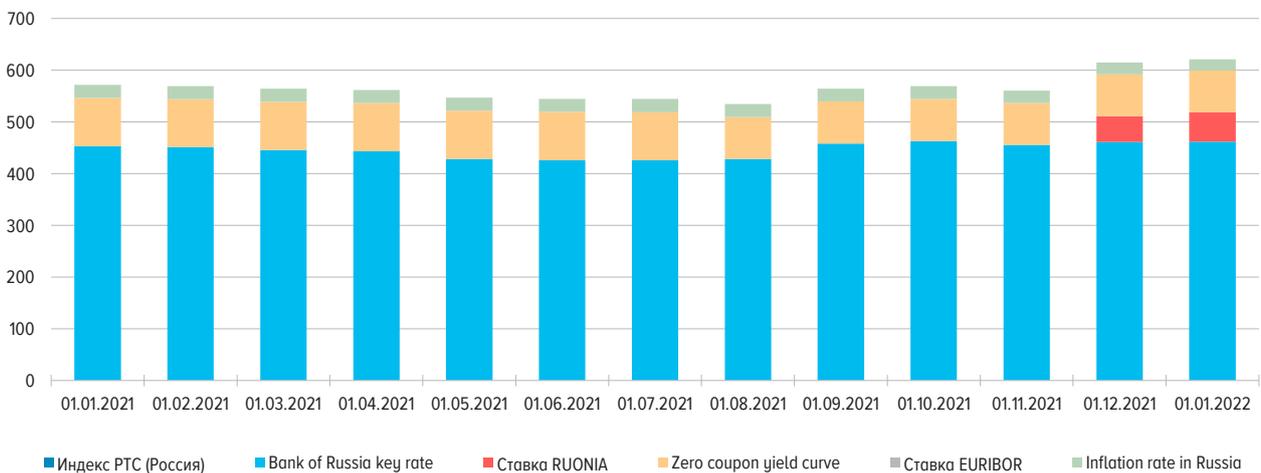
COMPARISON OF THE USE OF RUONIA AND OTHER FLOATING RATES IN RUBLE INTEREST RATE SWAPS IN THE SAME CURRENCY (BY INTEREST RATE BENEFICIARY) (BILLIONS OF RUBLES)

Chart 11



ISSUED VARIABLE-COUPON DEBT SECURITIES BY BENCHMARK RATE TYPE IN RUBLES (BILLIONS OF RUBLES)

Chart 12



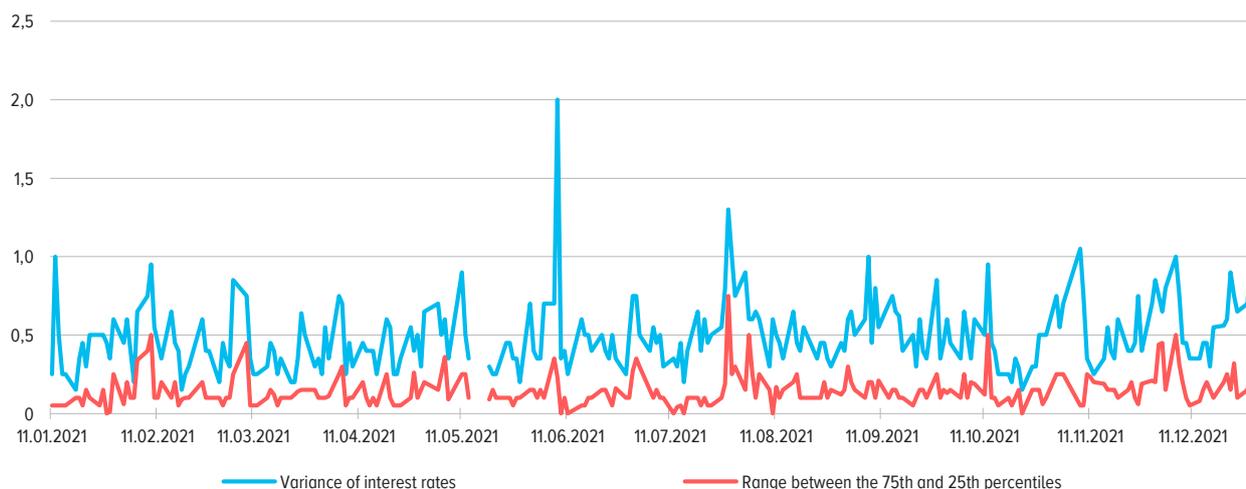
derivatives market within the use of the RUONIA Index and Averages made it possible to organise the issue of bonds using RUONIA as the main component. Chart 12 shows the issue of variable-coupon debt securities by financial institutions classified as 'other financial institutions' (S125) broken down by benchmark rate type in rubles.

Detailed information on parameters for RUONIA calculation

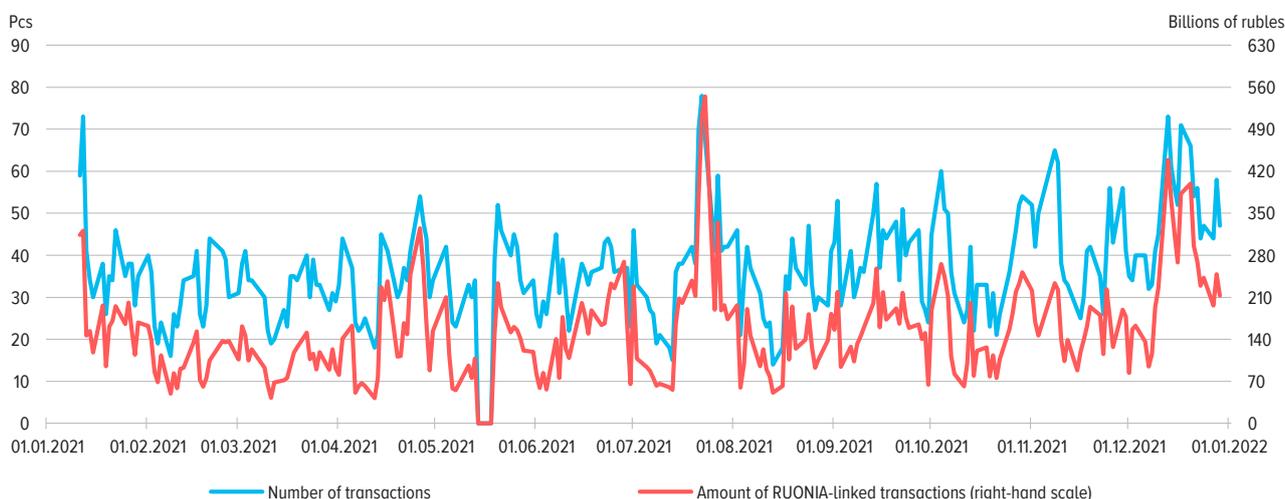
Chart 13 shows the dynamics of the difference between the maximum and minimum rates and the dynamics of the range between the 75th and 25th percentiles of the RUONIA panel banks' interest rates over 2021 H2. The coefficient of correlation between these indicators, calculated for the year, equals 0.54, with a sufficiently high level of reliability (t-criterion equals 10). There was an obvious surge in RUONIA-linked transactions by the end of each month, except September. These indicators showed no significant changes in their dynamics over the period under review.

Chart 14 shows changes in the number and amounts of the RUONIA panel banks' transactions over 2021 H2. The data published statistically confirm the correlation between these two indicators: the coefficient of their correlation is sufficiently high reaching 0.90, with the t-criterion equalling 31.

DYNAMICS OF DIFFERENCE BETWEEN THE MAXIMUM AND MINIMUM RATES AND OF THE RANGE BETWEEN THE 75TH AND 25TH PERCENTILES OF THE RUONIA PANEL BANKS' INTEREST RATES OVER 2021 H2 Chart 13



NUMBER AND AMOUNTS OF THE RUONIA PANEL BANKS' TRANSACTIONS OVER 2021 H2 Chart 14



Based on the data provided, it is possible to conclude that transactions of similar amounts prevail in the transactions conducted between the RUONIA panel banks and that a rise in the amount is often achieved through an increase in the number of conducted transactions.

The average amount of a transaction reached 4.20 billion rubles, thus increasing by 10.7% over 2021 H2, as compared to 3.80 billion rubles in 2021 H1. Furthermore, the average amounts of a transaction were almost the same in Q3 and Q4, namely 4.21 and 4.20 billion rubles, respectively. Hence, the expansion of the RUONIA List in Q4 did not change this indicator, that is, the amounts of the transactions conducted by the three new panel banks on the RUONIA List were similar to those of the other panel banks.

Summary on errors in reporting affecting the published RUONIA value and the RUONIA Fallback Value calculation

The calculation of RUONIA covering unmatched transactions in the 2021 H2 benchmark calculation base was made only once in 2021 Q3. The said unmatched transactions did not affect the benchmark value and volume, which proves that the updated Methodology offers the optimal approach to recording unmatched transactions.

In 2021 H2, there were no cases when a fallback value was calculated. Considering the events that occurred in 2021 H1, the Methodology was revised, which became the basis for modifying the assessment of the conditions requiring the calculation of a fallback value where the level of concentration per credit institution is exceeded. Specifically, a new condition was added for assessing the extent of the change in the calculated RUONIA value taking into account the transactions of the credit institution that exceeded the threshold and excluding these transactions. The updated Methodology became effective since the moment of the calculation for 30 November 2021.

GLOSSARY

Administration – the set of functions for developing and communicating the benchmark, including the definition of the benchmark, elaboration of its methodology, collection and processing of source data, and calculation and communication (publication) of the benchmark.

Administrator – the organisation responsible for the benchmark administration.

Benchmark – an aggregated indicator in the form of an index, interest rate, or exchange rate enabling the analysis of changes in the value of underlying assets over time and the assessment of the situation in the market of underlying assets both as a whole and of its individual segments.

IBL – interbank lending.

Oversight – one of the functions of the administrator who should control the revision and change of important administration processes, including the intended, expected, or known use of the benchmark, as well as any significant actual or potential conflict of interest.

Ruble OverNight Index Average (RUONIA) – an interest rate benchmark which is the weighted average interest rate on unsecured overnight ruble lending transactions carried out between the credit institutions put on the RUONIA list.

RUONIA Average – an interest rate benchmark measuring returns on investment for a certain period (term) earned from daily interest capitalisation at RUONIA rates. RUONIA Averages are calculated and published by the Bank of Russia for one, three, and six months.

RUONIA Fallback Value – a RUONIA value calculated to ensure the continuity of the calculation of this benchmark where it cannot be calculated according to the standard procedure.

RUONIA Index – a value that is equal to the value of one ruble capitalised on a daily basis at RUONIA rates, beginning from 11 January 2010 (the first day for which RUONIA was calculated). Using the RUONIA index, every market participant can calculate interest rates for any (non-standard) reference periods.

RUONIA List – the list of Russian credit institutions whose transactions are used to calculate RUONIA; this list is approved by the Bank of Russia according to the established procedure.

RUONIA Oversight Committee (Committee) – the Bank of Russia's collegial body responsible for overseeing the RUONIA administration process to be performed in compliance with the IOSCO Principles for Financial Benchmarks).

RUONIA Panel Bank – a credit institution put on the RUONIA List.