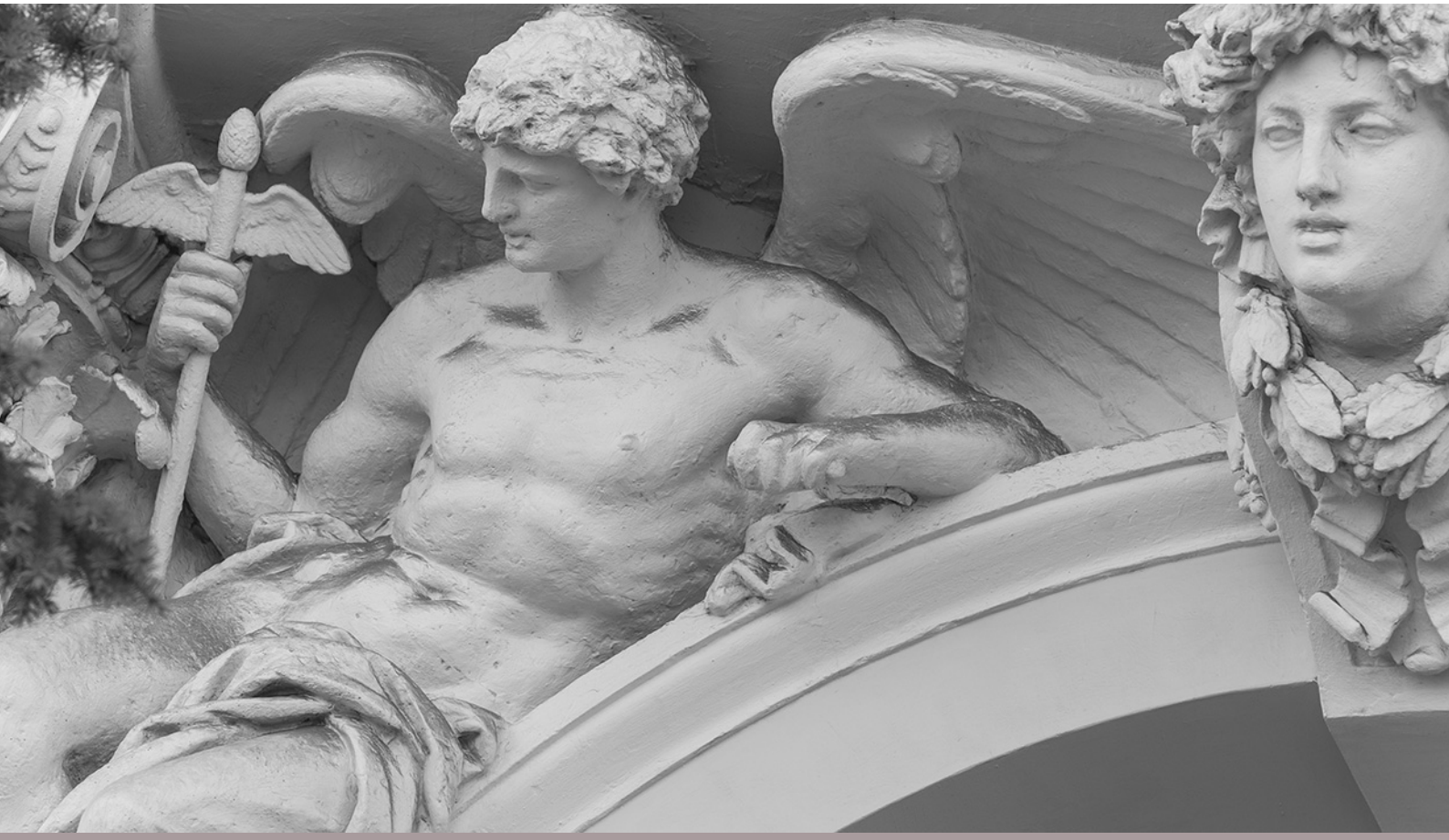
Bank of Russia

The Central Bank of the Russian Federation



No. 1

2017 Q4

Information and Analytical Review

FINANCIAL MARKET RISKS REVIEW

MOSCOW

This review was prepared by the Bank of Russia Financial Stability Department.

The statistical data used in the review as well as the methodological comments are published on the Bank of Russia's website in the Financial Stability section (*http://www.cbr.ru/analytics/?Prtid=fin_stab*).

Notes, comments and suggestions regarding the structure and contents of the review can be sent to *reports@cbr.ru*.

The reference to the Central Bank of the Russian Federation is mandatory if you intend to use information from this review.

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AIM OF THE FINANCIAL MARKET RISKS REVIEW

In accordance with Article 452 of Federal Law No. 86-FZ, dated 10 July 2002, 'On the Central Bank of the Russian Federation (Bank of Russia)', the Bank of Russia monitors the situation in the Russian financial market, among other things, to identify conditions threatening the financial stability in the Russian Federation. To inform financial market participants and other stakeholders of the monitoring results and identified risks, the Bank of Russia publishes this Financial Market Risk Review ('Review') on a quarterly basis.

The ultimate objective of this Review is to promote financial stability with regard to minimising systemic risks by increasing transparency of the financial market. The availability of more information regarding financial market structure and trends will help market participants to understand and assess their own risks better. Moreover, the Bank of Russia aims to inform market participants about potential collective consequences of their individual decisions in case of systemic effects.

The Review structure includes the description of the situation and risks in the financial markets by the following key segments: money market, foreign exchange market, securities market, and derivatives market. At the same time, the Review focuses on identifying and analysing trends related to the accumulation and/or occurrence of risks as well as describing their potential consequences from the financial market stability standpoint. Therefore, some of the presented issues are cross-cutting and concern the operation of the financial market as a whole.

When performing its functions as a mega-regulator, the Bank of Russia monitors the situation and identifies operational risks in the financial market across different sectors because, first, most major financial market participants are members of financial groups, which requires conducting a cross-sectoral analysis. Second, market participants usually conduct operations in different financial market segments simultaneously, and therefore, it is necessary to evaluate the aggregate risks of such operations.

The combination of the chosen financial market segments and the cross-sectoral approach to the identification and analysis of risks determines the matrix information presentation structure. This structure provides for the description of individual financial market segments while the issues regarding the analysis of potential risks and their potential occurrence can touch upon the adjacent financial market sectors and have systemic consequences.

The Review is not an official publication of the Bank of Russia but an informational and analytical material dedicated to the analysis of the situation and assessment of risks in the financial markets during the reporting period. The Review is published in the electronic form in Russian and English on the Bank of Russia's website.

SUMMARY

Money market

- In general, in 2017 Q4, the situation in the money market remained stable. The accumulating liquidity surplus on the back of increased budgetary expenses led to higher volume of open positions in the domestic money market in 2017 Q4. During the reporting period, the positive liquidity position[1] (net placement of short-term liquidity) rose mostly in banks with state participation. As of the year-end, only the above category of banks and banks beyond top-30 by assets showed a positive liquidity position. These banks placed their excess liquidity mainly in Bank of Russia deposits.
- Amid the structural liquidity surplus observed in 2017 Q4, the liquidity coverage ratio (LCR) was not growing sustainably while the LCR of systemically important credit institutions (SICI) was in fact declining during the reporting period (except for the end of December due to the calendar effect). The main reason why the structural liquidity surplus has failed to produce any significant influence on banks' liquidity coverage ratio is that the accumulating structural liquidity surplus is accompanied by growing client account balances with banks potentially sensitive to shocks and, therefore, does not lead to lower systemic liquidity risk.
- The continuing irregularity in liquidity distribution and the negative liquidity position of certain banks may be accompanied by increased liquidity risks in systemic stress conditions. The analysis of the adequacy of collateral of banks with a negative liquidity position in a hypothetical situation when the interbank loan (IBL) market is closed and in case of a negative revaluation of collateral under repo transactions does not reveal any material liquidity risks in the majority of market participants. At the same time, it would be advisable for certain banks to limit their leverage in the money market or to increase the size of their unencumbered marketable assets.
- The trend of rising amount of open positions in the central counterparty (CCP) repo market continued in Q4. For the most part, the growth was concentrated in the ruble deals segment, including repo operations with clearing participation certificates (CPC). At the same time, the market was characterised by declining share of the largest participants in the amount of lending and borrowing, thus limiting counterparty concentration risks. Moreover, the increased share of government bonds in the CPC asset structure also contributed to the reduction of risks in the CPC market.
- In Q4-end, the Russian market saw an increased demand for foreign currency liquidity, which is characteristic for the end of the year. In late December 2017, the European and Japanese markets also faced increased costs of dollar liquidity with 1-month FX swap spreads reaching 250 bp on peak days. Short-term sell/buy FX swap operations of the Bank of Russia helped to balance the supply and demand. No FX repo auctions to provide FX liquidity were required.

Securities market

- Risks in the securities market in 2017 Q4 remained low. OFZ yields were falling over all maturities. By the quarter-end, the yield curve assumed a positive (normal) shape after being almost flat in the beginning of the reporting period. The curve slope rose due to declining short- and medium-term interest rates, which reflects the trend of decreasing inflation expectations in 2017 Q4. At the same time, higher oil prices led to the fundamental strengthening of budget indicators and decreasing sovereign risk premiums. Against this background, non-residents continued to increase their investments in OFZ

[1] *A liquidity position is positive when the amount of funds placed in the money market and invested in the instruments of the Bank of Russia is greater than the amount of borrowings. Otherwise, the position is considered negative.*

preferring medium-term issues (with the duration of 6-8 years). The share of non-residents' investments in certain issues exceeds 75%. The risk of increased concentration of foreign investors can potentially lead to the instability of their pricing.

- From 1 January to 1 December 2017, systemically important credit institutions (mostly subsidiaries of foreign banks) increased their investments in OFZ by RUB 101 billion. Non-governmental pension funds were the largest contributors in OFZ investments. Their portfolio during the reporting period rose from 164 to 547 billion rubles (3.34 times) bringing the share of OFZ in the pension funds structure from 5 to 15%. Therefore, there were signs of declining demand for OFZ from major domestic banks. At the same time, SICI continue to use Bank of Russia irrevocable credit lines (ICL) to comply with liquidity coverage ratio (LCR) requirements. In order to stimulate SICI to comply with these requirements using market instruments, the Bank of Russia may consider raising ICL payments in the future.

Derivatives market

- In 2017, all segments of OTC markets for foreign exchange and interest rates derivatives demonstrated positive dynamics. According to NSMA, the trading volume in the FX swap segment grew 2.7 times while the interest rate swap and index swap instruments showed a 5.3-times increase as compared to 2016. It should be noted that the FX forward segment saw an intensive growth of open positions since 2017 H2. During the reporting period, the largest increase in the amount of open positions was observed for instruments with the maturity of up to 30 days (from 3 to 12 billion dollars). Therefore, the growth is generated due to active conclusion of short-term forward contracts. At the same time, the market faces such vulnerability factors as low diversification of participants willing to buy or sell foreign currency and the concentration of forward execution amounts over certain periods. However, the practice of execution of large forward contracts in the Russian market provides for reviewing their terms and restructuring the deals by moving their value dates to future periods.

Complex stress-testing

- On the back of 2017 results, the Bank of Russia conducted a complex stress-testing of the financial market to compare the findings and to prepare a comparative appraisal of changes in the market stability during the year. As in 2016 Q4, the current complex stress-test was designed to assess the stability of the central counterparty and liquidity risks of market participants in case of a significant 2-day shock in the financial market. The stress-testing results demonstrate that credit institutions have enough liquid assets to cover their additional liquidity requirements in case of a market stress. The aggregate additional liquidity requirements were RUB 135.8 billion with RUB 81.7 billion for on-exchange and RUB 54 billion for OTC positions. Higher aggregate liquidity demand, as compared to the last year (RUB 83 billion), was due to growing scale of operations and the amount of open positions in the market.
- At the same time, the amount of unencumbered collateral in credit institutions also increased. As of 18 December 2017, the value of free marketable assets in banks was RUB 8 trillion unevenly distributed among market participants and held mostly by major banks. As a result, the liquidity strain was RUB 1.9 billion, which does not pose any systemic threat for the banking sector.

Central counterparty reform

- In 2017, the Bank of Russia continued its work to reform the central counterparty institute, which plays a key role in ensuring a seamless and stable operation of the financial market. The reform initiated in 2015 resulted in the establishment of the central counterparty as a separate non-bank credit institution type (NCI-CC) and in the implementation of a separate model of its prudential regulation.
- NCI NCC (JSC) (hereinafter, NCC) was the first financial market infrastructure institution that applied to the Bank of Russia to change its status from bank to non-bank credit institution and to obtain the central counterparty status in accordance with new regulatory requirements. Starting from 28 November 2017 when the central counterparty status was granted to it by the Bank of Russia, NCC undertook to comply

with the permissible under the new regulatory regime combinations of banking operations, specific required ratios, requirements for the implementation of the risk management system, and requirements for the disclosure of information on central counterparty activity in line with global standards and practices.

- Thanks to the NCC's status change to become a non-bank credit institution and its newly assigned central counterparty status, the NCC has the right to continue servicing its customers to the full extent. Following the NCC's assignment of a central counterparty status, its management quality should comply with the requirements of Bank of Russia Ordinance No.2919-U, dated 3 December 2012, 'On the Assessment of the Management Quality of a Credit Institution Acting as a Central Counterparty' for NCC clearing participants to be able to apply reduced risk ratios to calculate required ratios. Under the newly introduced special regulatory regime for the central counterparty institute as a non-bank credit institution, the current supervisory regime applicable to such institutions will be unchanged including in terms of intensity.

1. MONEY MARKET

1.1. Ruble money market

The accumulating liquidity surplus on the back of increased budgetary expenses led to higher volume of open positions in the domestic money market in 2017 Q4. The activity of market participants was mainly expressed in the growth of long-term (over 1W) borrowings in the repo market (Chart 1 and 2).

The banking sector liquidity surplus in 2017 Q4 led to higher amounts of funds placed by credit institutions as deposits with the Bank of Russia, which rose from 785 billion to 1.85 trillion rubles (Chart 3). As of the year-end, RUB 352 billion were invested in Bank of Russia coupon bonds (COBR).

Chart 4 shows the dynamics of short-term liquidity position for two groups of banks. The first group is comprised of banks with a positive liquidity

Chart 1

Dynamics of open positions by instruments in 2017 (RUB bn)

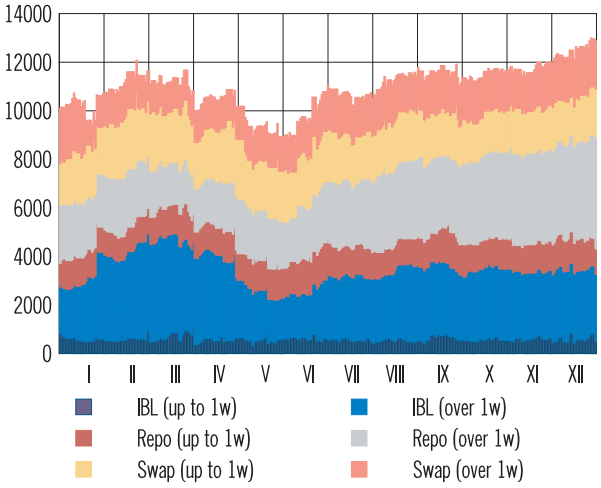


Chart 2

Distribution of open positions by instruments (%)

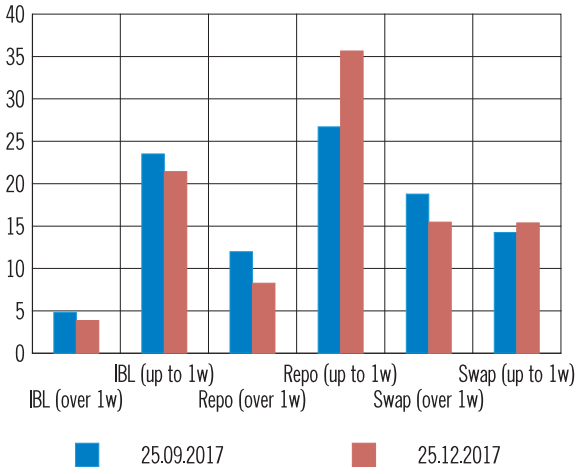


Chart 3

Credit institutions' claims to the Bank of Russia by instruments in 2017 (RUB bn)

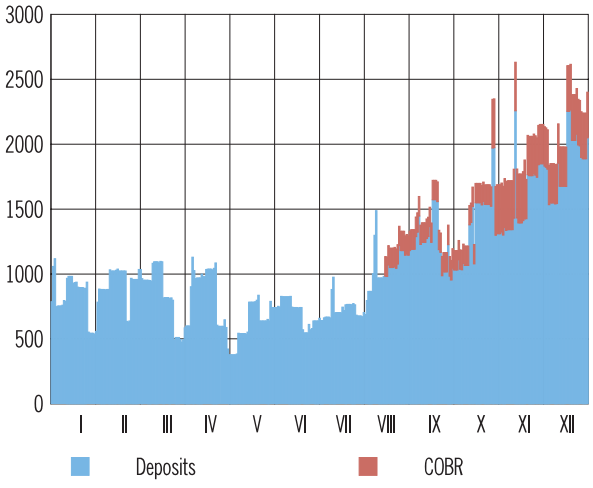


Chart 4

Distribution of short-term liquidity by groups of banks (RUB bn))

Chart 5

Debt of credit institutions to the Federal Treasury and the Bank of Russia in 2017 (RUB bn)

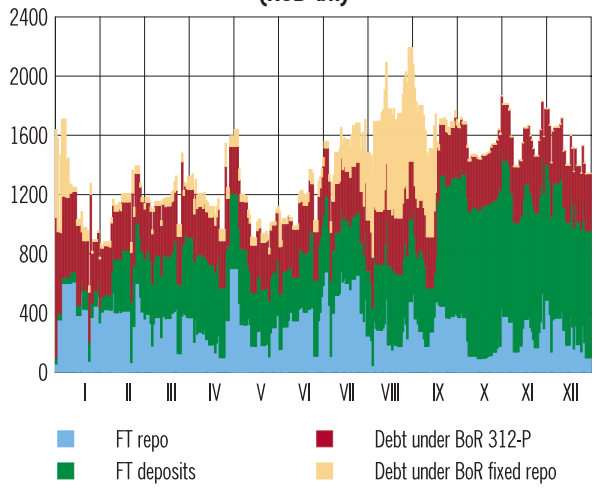


Chart 6

Distribution of open positions by instruments (RUB bn)

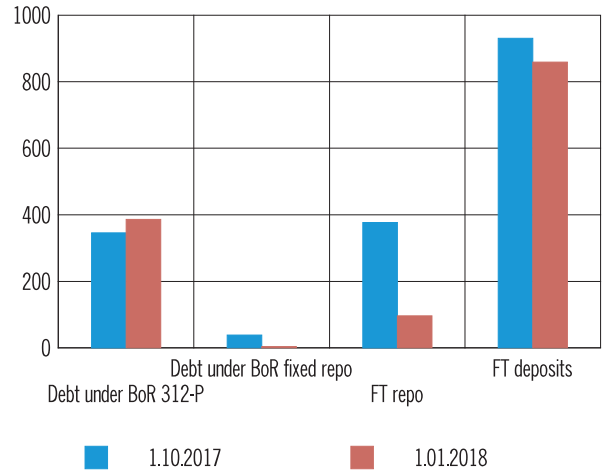


Chart 7

Structure of operations of banks with a positive liquidity position (RUB bn)

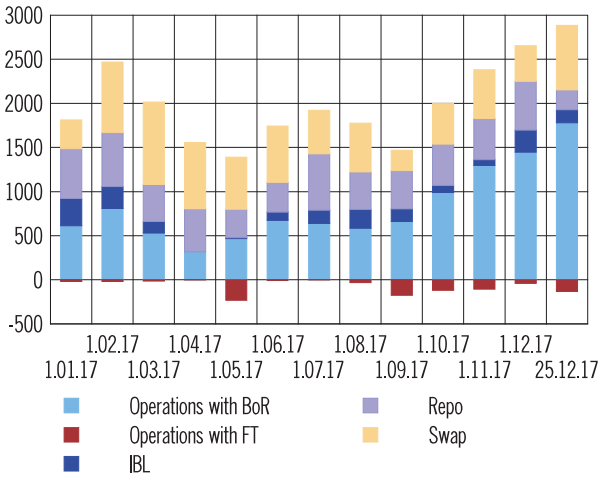
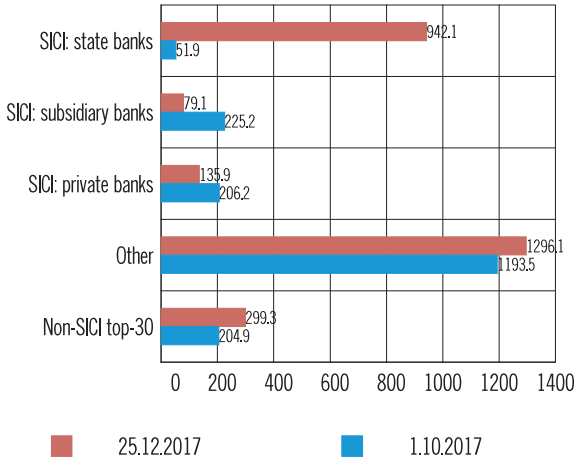


Chart 8

Distribution of positive short-term liquidity position by groups of banks (RUB bn)



position while the position of the second group is negative. The aggregate position of the first group rose by 46% while that of the second group fell by 47%.

Banks borrowed from both the market and the Bank of Russia and the Federal Treasury (FT), although in lesser amounts. Obligations under fixed-rate repo operations with the Bank of Russia dropped from RUB 38 billion as of 1 October to RUB 3.5 billion as of the year-end. Borrowings from FT as bank deposits went down by 8% from 930 to 860 billion rubles. The amount of FT repos fell by 75% from 377 to 96 billion rubles (Chart 5 and 6).

The amount of operations of banks with a positive liquidity position rose in Q4 mainly due to deposits with the Bank of Russia (Chart 7); the aggregate liquidity position increased by 74% from 1.58 to 2.75 trillion rubles. The share of systemically important banks with state participation rose during the quarter from 2 to 34% leading to the decrease in the share of banks beyond top-30 from 63 to 47% (Chart 8).

Amid a significant structural liquidity surplus growth in 2017 Q4, the liquidity coverage ratio (LCR) was not growing sustainably while the LCR of systemically important credit institutions (SICI) was in fact declining during the reporting period[1] (Chart 10). The accumulation of structural liquidity surplus is accompanied by growing client account

[1] *Except for the end of December due to the calendar effect.*

Chart 9

Structural liquidity surplus, highly liquid assets of the banking sector and LCR

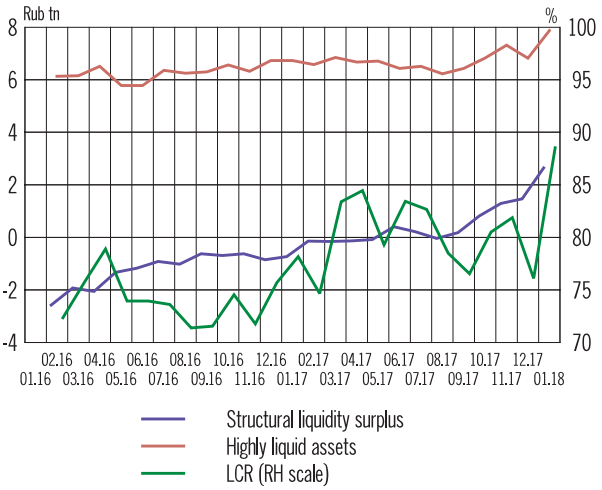
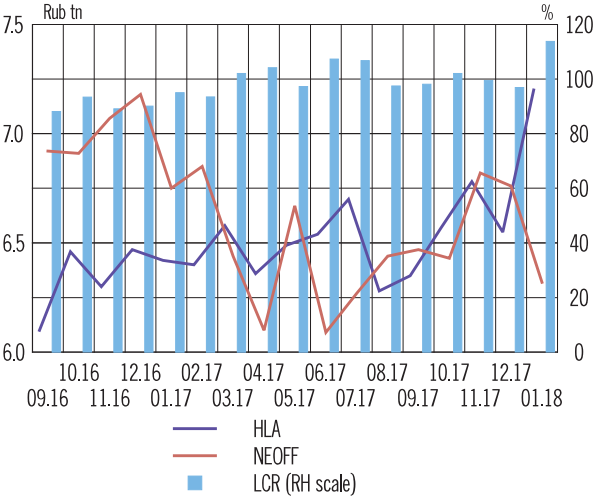


Chart 10

LCR, highly liquid assets and net expected outflow of funds for SICI



balances with banks potentially sensitive to shocks, which does not lead to lower systemic liquidity risk.

Banks with a negative liquidity position borrowed funds mainly in the swap market (Chart 11). As compared to the previous period, the negative liquidity position went down by 53% from 2,267 to 1,069 billion rubles. During the reporting period, SICI with state participation had a zero liquidity position while in the previous quarter they were the main borrowers accounting for 44% of the aggregate amount of the negative liquidity position (Chart 12).

To analyse the liquidity risk, an assessment of the tolerance of banks with a negative liquidity position to potential market shocks (which involves closing limits in the interbank lending market and asset devaluation) was conducted. See Table 1

Chart 11

Structure of operations of banks with a negative short-term liquidity position (RUB bn)

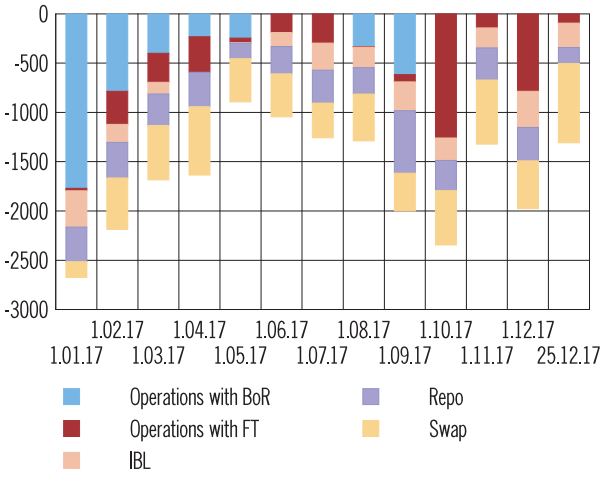


Chart 12

D istribution of negative short-term liquidity position by groups of banks (RUB bn)

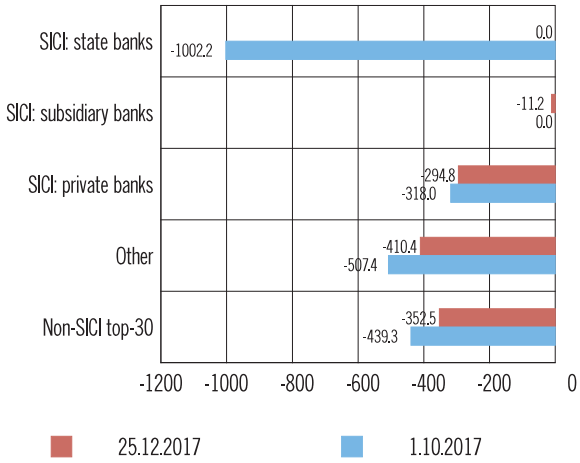


Chart 13

Spread between RUONIA and key rate in 2017 (%)

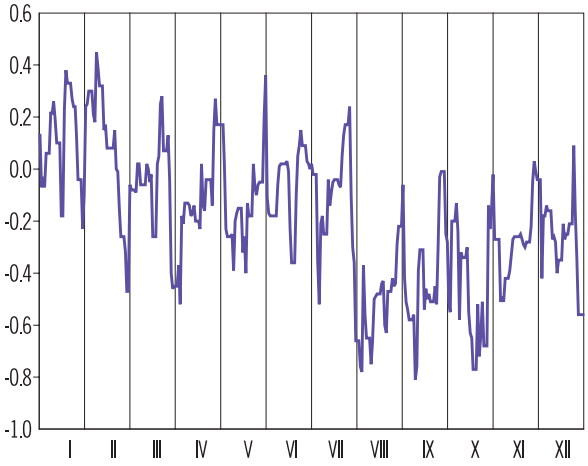


Table 1

Structure of operations and collateral deficit by groups of banks

Bank groups	Aggregate borrowings in the IBL market	Borrowings in the repo market	Borrowings from BoR and FT	Shock size (IBL + 0.1 * repo)	Collateral value	Collateral deficit	Banks with collateral deficit
SICI: State banks	304.2	18	340	340	2 253.10	0	0
SICI: Private banks	2.3	52.4	129.4	20.5	506.7	0	0
SICI: Subsidiaries	0	0	0	0	0	0	0
Non-SICI	68.7	334.4	20.6	104.7	556.2	18	8

for the results of the calculation of adequacy of collateral to deal with this shock.

The majority of banks with a negative liquidity position (92%) have a sufficient collateral cushion to resist the shock. Only 8 banks that are not systemically important suffer from collateral deficit. It means that the money market is currently stable and does not show any signs of a significant liquidity risk. The negative spread between RUONIA and the key rate also points at low liquidity risk (Chart 13).

1.2. CCP repo market

In Q4, the amount of repo operations with the central counterparty (CCP) somewhat declined, however, the activity in 2017 in general was higher: the turnover in the ruble segment , where the main part of activity was observed, rose by 18% since the beginning of the year from 12.2 to 14.4 trillion rubles per month (Chart 14).

The amount of dollar operations in comparison with the previous quarter rose by 13.3% from 234.2 to 265.5 billion US dollars per quarter. The amount of open positions in the ruble segment went up by 9% from 1.83 to 2 trillion rubles (Chart 15).

In the reporting period, the CPC repo market again saw a significant increase in participants' activity (Chart 16 and 17), which reflects the attractiveness of this market segment. By late December, the average daily amount of trades in the CPC repo market reached approx. RUB 87 billion vs. RUB 60 billion in late September 2017. In November – December 2017, the aggregate amount of transactions increased by 70.5% vs. September – October. In Q4, the average daily turnover was RUB 59.8 billion for O/N repo and RUB 6.6 billion for 2 to 7 days repo transactions. Operations with the maturity of 8 to 30 days are still not in demand of market participants. The aggregate open position in the CPC repo market reached approx. RUB 137.6 billion by the end of Q4 and was almost twice as high as in Q3.

The concentration of both lenders and borrowers in the CPC repo market in Q4 decreased noticeably.

Chart 14

Monthly turnover of CCP repo deals (RUB bn)

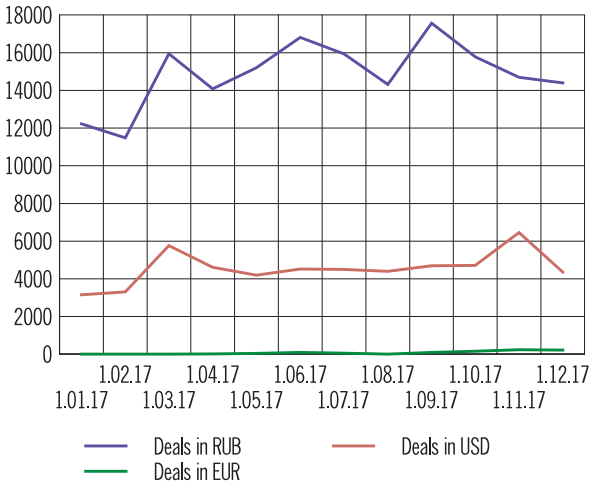


Chart 15

Dynamics of open CCP repo positions in 2017 (RUB bn)

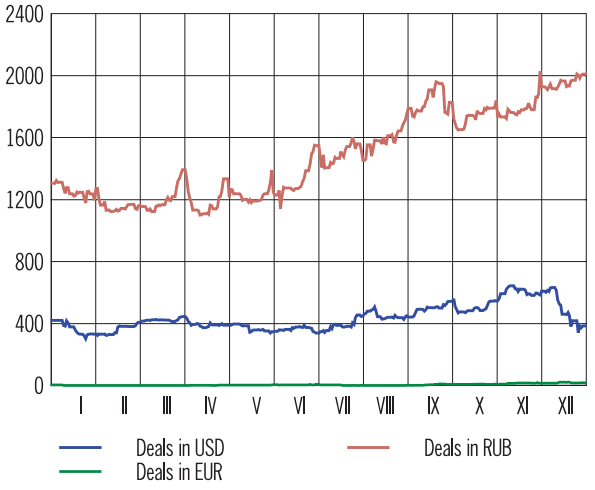


Chart 16

CPC repo deals turnover in 2017
(RUB bn)

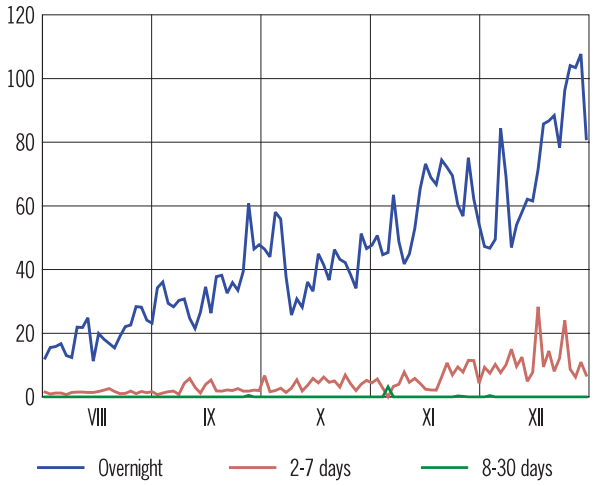


Chart 17

Dynamics of open CPC repo positions in 2017
(RUB bn)

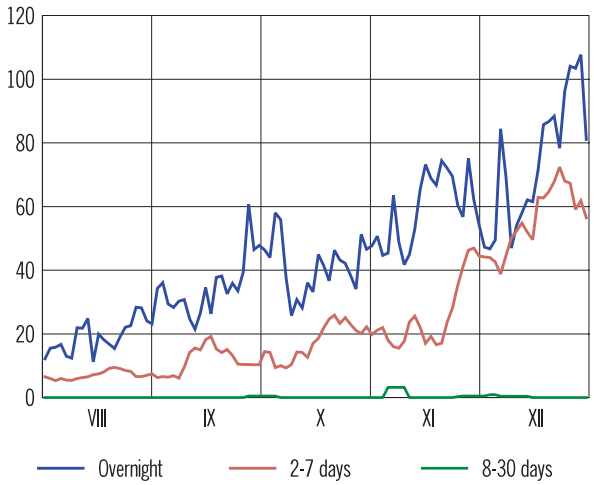
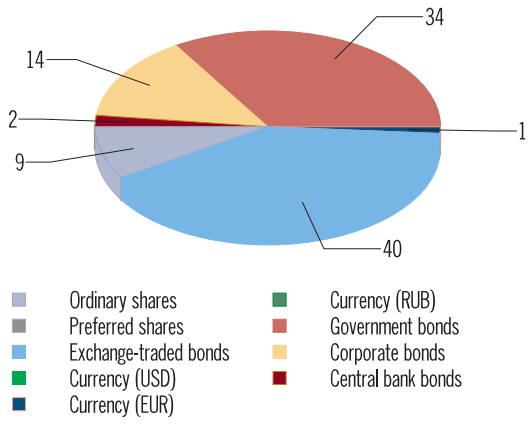


Chart 18

Collateral structure by asset types as of 2017 Q4-end*
(%)



** The share of assets not indicated on the chart is less than 1%.*

If in early September 2017 the largest borrower accounted for more than 50% of the market, by the year-end its share went down to a quarter of the CPC repo market. A similar situation was observed with regard to the largest creditor.

The credit risk went down as a result of higher collateral quality. The share of government securities in the CPC collateral structure (Chart 18) increased by 21% as compared to the previous quarter due to 10% and 11% lower shares of exchange-traded and corporate securities, respectively.

The quality of corporate bonds remains high because they conform to the requirements of Bank of Russia Ordinance No. 2919-U.

1.3. FX money market

In 2017 Q4, the average volume of positions in the on-exchange FX money market declined from USD 31.2 billion in the previous quarter to USD 28.4 billion. While in early October the average amount of open positions in on-exchange FX swaps was USD 12 billion, by the end of December it rose by 65% reaching USD 20 billion. The opposite situation was observed in the organised FX repo market. Since the beginning of Q4, the average amount of open positions here went down from 15 to 10 billion US dollars.

The short-term (overnight) FX swap market also tended to grow in Q4 reflecting the increased demand for FX liquidity due to the calendar effect related to the end of the year (Chart 20). As of the end of December, the volume of trades in this market grew substantially as compared to the beginning of the quarter and amounted to USD 12 billion. As in Q3, banks with state participation were the largest creditors while private banks faced an increased demand for foreign currency. The share of non-residents in general declined as compared to Q3 and hardly exceeded 20% of the market (Chart 21).

The OTC segment of FX instruments is characterised by a larger volume of trades. In Q4, the average volume of open positions in the OTC FX swaps and repo were 20 and 47 billion US dollars, respectively. Open positions were gradually declining since October and, as a result, from early October to late December, the aggregate size of this market dropped from 71 to 63 billion US dollars.

The amount of open positions in the short-term (overnight) FX swap market is far less than

Chart 19

Dynamics of on-exchange FX repo and FX swap markets in 2017 Q4 (USD bn)

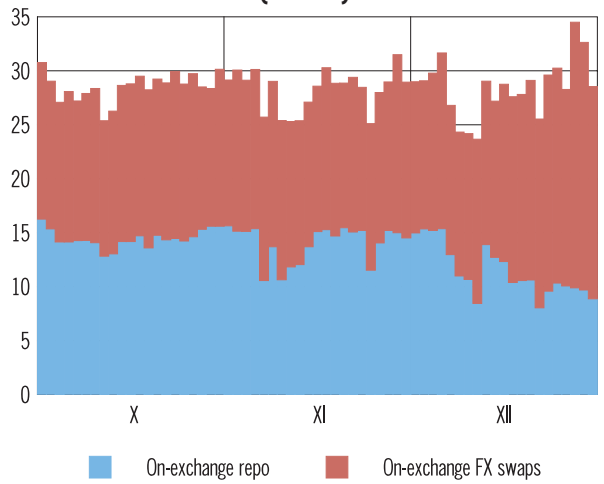


Chart 20

Distribution of open positions in on-exchange O/N FX swaps in 2017 Q4 (USD bn)

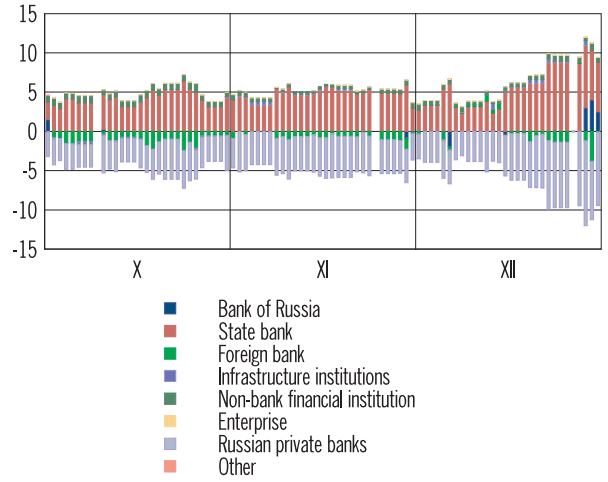


Chart 21

Share of non-residents in the on-exchange FX swap segment in 2017 (%)

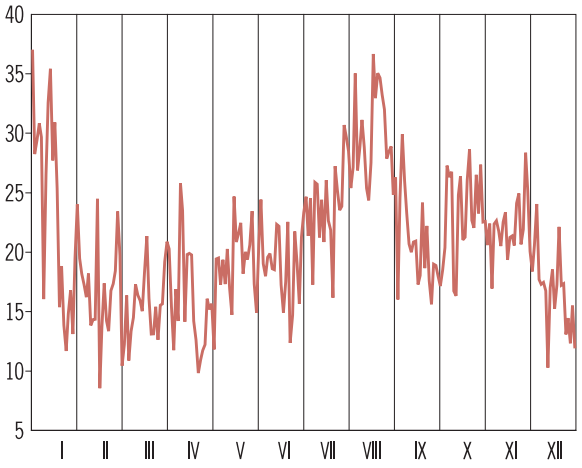


Chart 22

ynamics of OTC FX repo and FX swap markets in 2017 Q4 (USD bn)

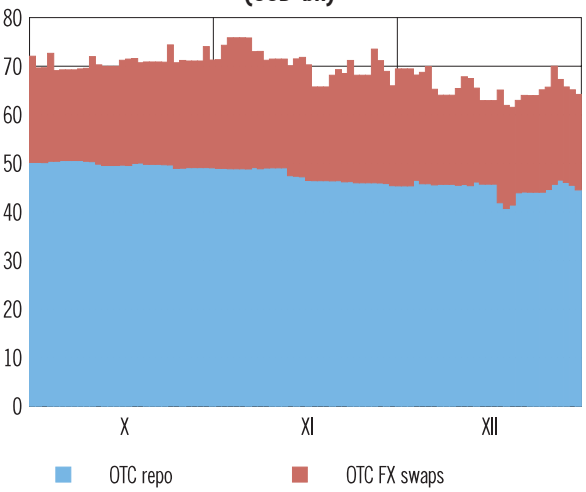
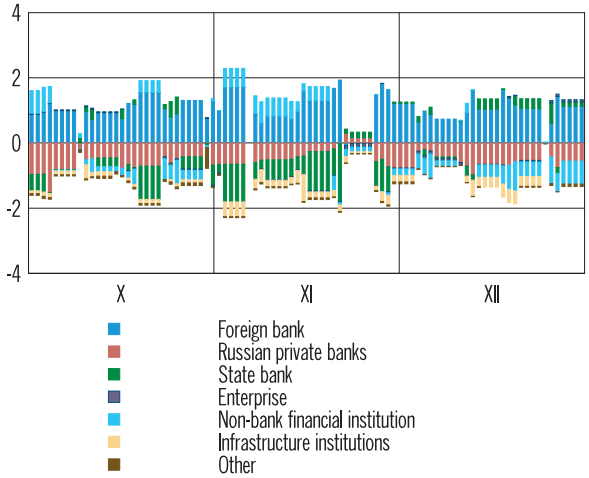


Chart 23

Distribution of open positions in OTC O/N FX swaps in 2017 Q4 (USD bn)



in the on-exchange market. In general, the average open position was USD 1.5 billion. Foreign banks were the largest creditors providing FX liquidity for Russian banks. The share of foreign banks was gradually increasing since early Q3, reaching 70-80% in the OTC segment in Q4.

In late Q4, the spread between the implied ruble interest rate under FX swaps and the 1-month IBL interest rate went below -250 bp.

Overall, it reflects the seasonal worsening of market conditions in the end of the year, however it should be noted that a similar situation was observed in the European and Japanese markets. In Japan, the spread dropped below -250 bp but returned to the normal level in early 2018 Q1, just like in Russia and the EU (Chart 24).

Chart 24

Spreads between 1-month implied and deposit interest rates for RUB, EUR and JPY (2017 Q4, bp.)

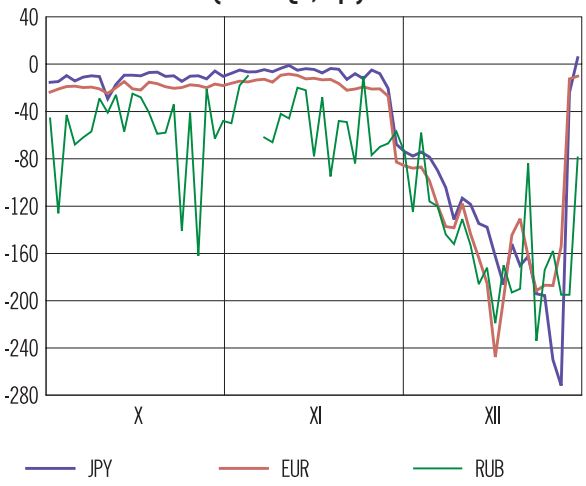


Chart 25

Spreads between 1-month implied and deposit interest rates for RUB, EUR and JPY (2016 Q4, bp.)

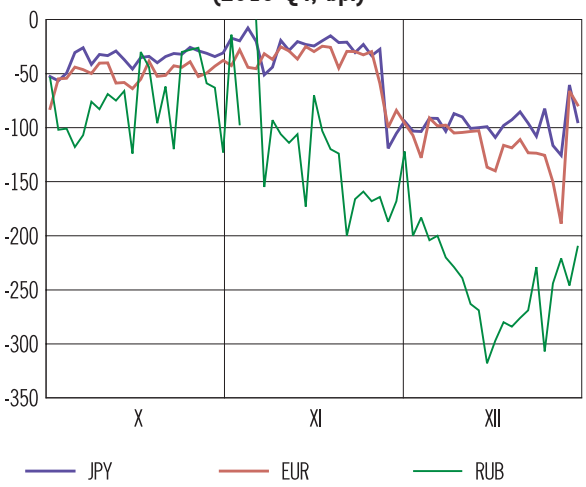


Chart 26

Ruble IBL interest rate – Implied ruble interest rate under O/N FX swaps (2017 Q4, bp.)

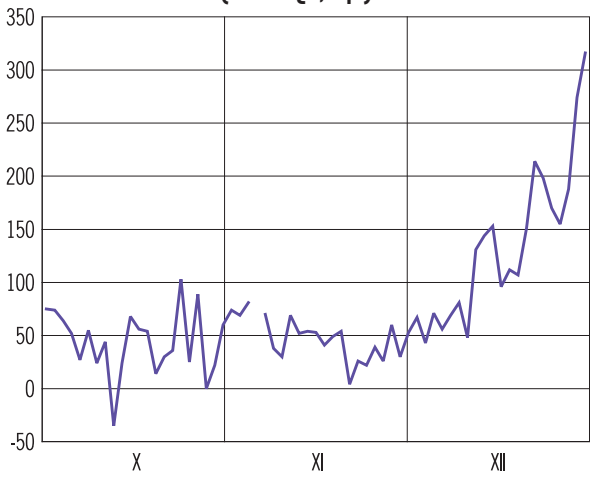


Chart 27

Ruble IBL interest rate – Implied ruble interest rate under FX swaps (2016 Q4, bp.)

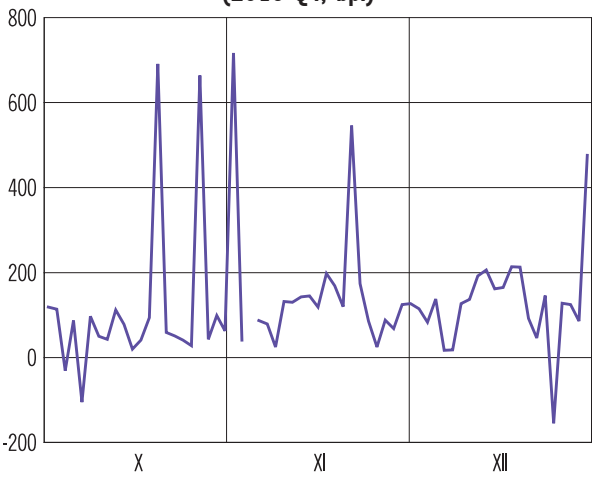


Table 2

Bank of Russia O/N FX swap operations in 2017 Q4

Date of deals with TOD/TOM settlements	Amount, USD mln	Date of deals with TOM/SPOT settlements	Amount, USD mln
29.12.2017	2490.7		
28.12.2017	2000	28.12.2017	2000
27.12.2017	1000	27.12.2017	2000
12.12.2017	111,8	22.12.2017	1
10.10.2017	266.2		

In the same period of 2016, the ruble spread was much lower than the swap spreads in the European and Japanese markets. The overnight spreads also demonstrated seasonal deviation in 2017, but the situation was more favourable than in the same period of the previous year.

The maximum spread between the O/N IBL ruble interest rate and the implied ruble interest rate under FX swaps was a little above 300 bp in late December (Chart 26) while in 2016 Q4 it reached 700 bp (Chart 27).

In 2017 Q4, the turnover of Bank of Russia operations in the FX money market grew to USD 9.8 billion vs.

During the last three business days in December, the amount of Bank of Russia FX swap operations was USD 9.5 billion (Table 2). For the sake of comparison, in the same period of 2016, this amount was USD 15 billion. Lower amount of Bank of Russia operations demonstrates the improvement of FX liquidity conditions vs. the previous year.

Box 1.
FX market and ruble volatility

An important trend in 2017 was that ruble volatility was gradually declining. In Q4, the average ruble volatility was 9.5% vs. 15% in the beginning of the year and over 27% in early 2016 (Chart 28).

The average amount of FX spot purchases in 2017 Q4 was RUB 24.5 billion per day (Chart 29). Banks with state participation were the largest sellers of foreign currency while private banks and the Federal Treasury were the main buyers. In December, the Federal Treasury was purchasing foreign currency for RUB 12 billion per day on average, thus balancing the supply and demand in the market. Therefore, by the end of the reporting period ruble volatility was at its lowest level (8.7%) for the last two years.

Chart 28

Implied ruble exchange rate volatility under 1-month options
(%)

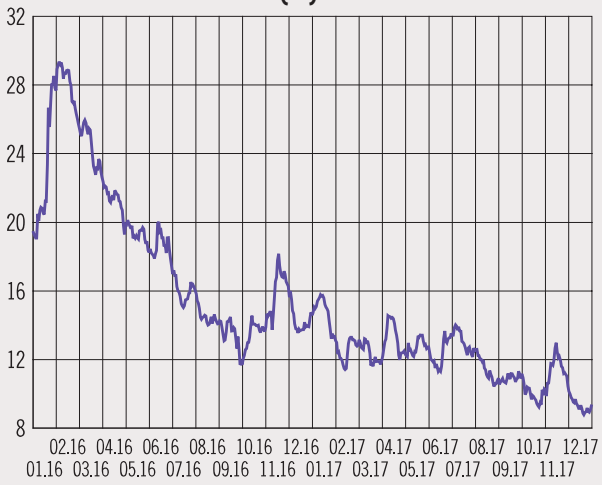
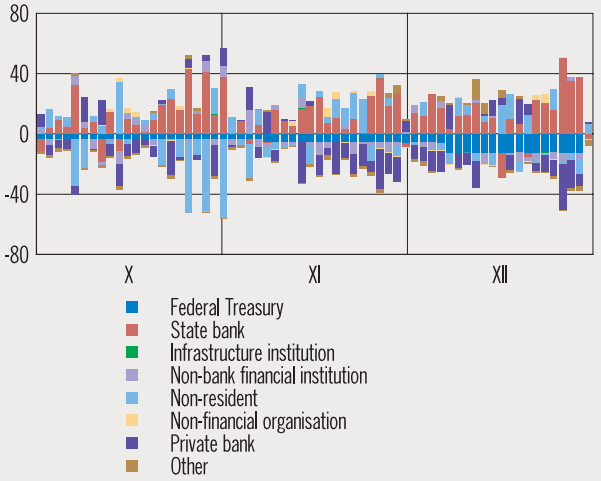


Chart 29

FX spot sales and purchases in 2017 Q4 by market participants
(RUB bn)



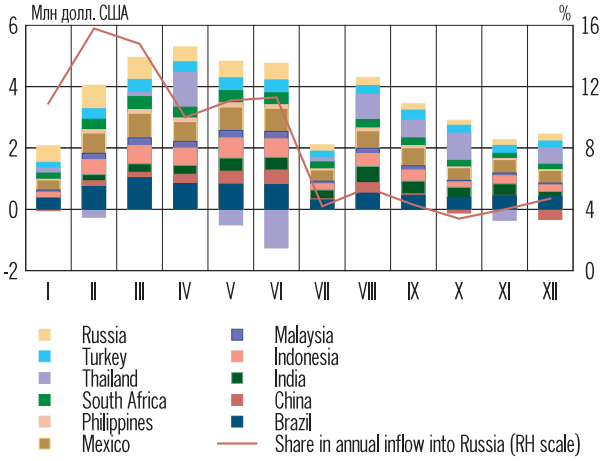
2. SECURITIES MARKET

In 2017, foreign investors maintained an overall high interest in Russian government bonds (OFZ). The increased demand for Russian bonds was observed on the back of the general trend of capital inflow into emerging markets economies (EME) (Chart 30). In 2017 H2, the inflow of funds into EME, including Russia, dwindled. The decrease in the inflow into Russia was partially related to the possibility of new sanctions against the country[1]. However, in 2017 H2 foreign investors continued to purchase Russian bonds, albeit in lesser amounts (26% of all capital inflow into Russia took place in H2).

The continuing historically low volatility (VIX) in global financial markets and the improving situation in the commodity market (primarily due to the extended OPEC+ agreement to cut oil production) led to higher risk appetite among investors

Chart 30

Capital inflow into EME bonds and the share in annual inflow into Russia in 2017*



** Information on inflow/outflow is taken from the Emerging Portfolio Fund Research(EPFR) website..*

[1] *Draft law H. R. 3364 and law PL 115-44.*

Public debt market

Due to high non-residents' interest towards OFZ in 2017, we have analysed the dynamics and structure of on-exchange demand and the structure of the investment in individual OFZ issues. In 2017, systemically important credit institutions accounted for the largest share (38%) of OFZ purchases[2] in on-exchange trading (Chart 31). The shares of non-residents and foreign subsidiary banks[3] were 16% and 20%, respectively (Chart 32). The distribution of market participants by OFZ trading volume in 2017 generally resembles the distribution of their net purchases, save for a larger share of other banks and other organisations with proportionally smaller shares of other participants. The share of Russian investors in net purchases and trade volume is 64% and 69%, respectively, which is close to 2016 values[4].

From 1 January to 1 December 2017, SICI increased their OFZ investments by RUB 101 billion (Chart 33). Among them, SICI that are subsidiaries of foreign banks account for the largest share of the additional investments (RUB 98 billion). The share of other types of SICI remained almost the same. The OFZ market in general rose by RUB 1107.6 billion, which, along with the net purchase share data, indicates that SICI tend to buy at the on-exchange market (mainly, at OFZ auctions) and to sell at the OTC market.

In early October, the amount of foreign investments in OFZ was stable but began to decline in the second half of the month.

As a result, the share of non-residents' investments in OFZ fell from 33.2% as of mid-October to 30.9% as of mid-November 2017

[2] *Here and onwards, the figures indicate net purchases and net sales of trade participants.*

[3] *Systemically important credit institutions that are subsidiaries of foreign banks were not included in this category because their OFZ purchase model is closer to that of other SICIs rather than of subsidiaries of foreign banks.*

[4] *The estimates were presented in Financial Market Risk Review for 2017 Q1.*

Chart 31

Shares of OFZ net purchases by types of participants in 2017 (%)

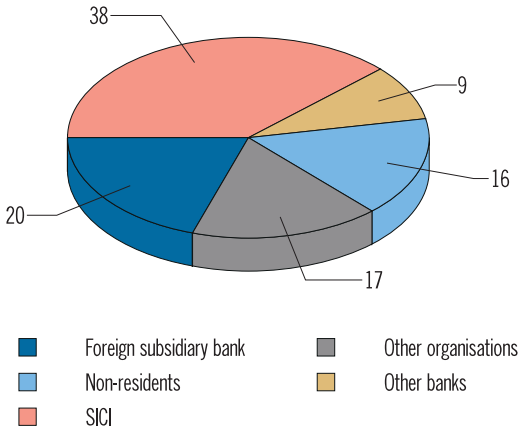


Chart 32

Share of OFZ trading by types of participants in 2017 (%)

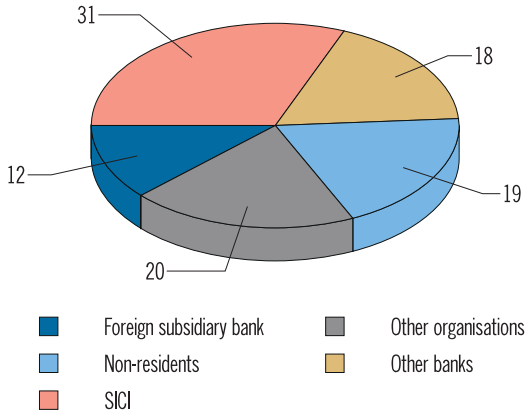


Chart 33

Dynamics of SICI investments in OFZ in 2017 (RUB bn)

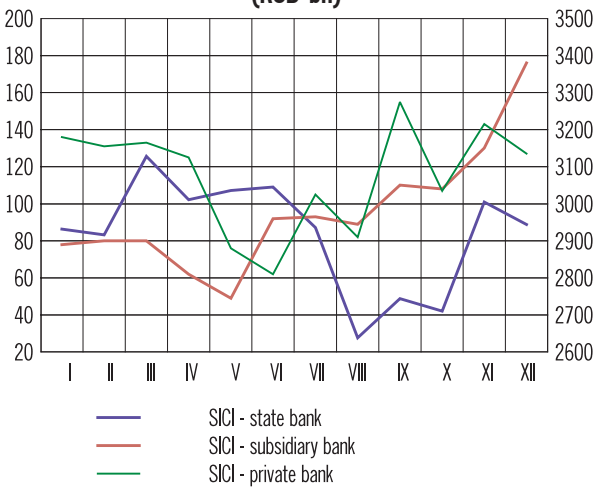
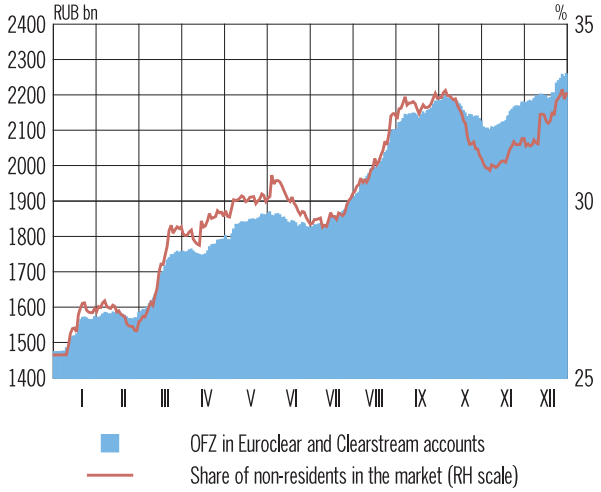


Chart 34

Dynamics of non-residents' OFZ investments and their share in 2017



(Chart 34)[5]. Foreign investments in Russian sovereign bonds declined on the back of the global trend of decreasing capital inflow into EME due to lower risk appetite of global investors amid higher expectations of monetary policy tightening by major central banks.

Starting from the second half of November, foreign investments in OFZ resumed growth increasing by 1.4 pp to 32.3% as of the end of 2017. Investors' interest in Russian public debt market rose amid continuing strength of the USDRUB exchange rate (unlike other EME currencies). For example, the implied volatility of 1-month at-the-money USDRUB options fell during the period in question from 13% to 9%, which is the lowest level in 2017. In 2018, volatility continued to decline. The implied volatility of the above options dropped to 8.3 pp, the lowest level since 2014[6].

The decision to extend the OPEC+ agreement up to the end of 2018 was also a positive factor.

[5] *The amount of investments was calculated as the amount of OFZ holdings in foreign depositories according to NSD.*

[6] *See Box 1 FX market and Ruble Volatility for details.*

Box 2.
Use of OFZ by SICI for liquidity risk management purposes

Federal government bonds (OFZ) account for the largest share of high quality liquid assets (HQLA) included in liquidity coverage ratio (LCR) calculation. LCR was developed in accordance with documents of the Basel Committee on Banking Supervision[1] and entered into force on 1 January 2016 at 70%, the minimum permissible rate for SICI, with the consequent annual increase by 10 pp up to 100% from 1 January 2019.

SICI can increase LCR in two ways: by raising HQLA[2] or using irrevocable credit lines (ICL)[3]. Raising OFZ holdings was the most popular way for SICI to increase HQLA.

As of 1 December 2017, only three banks included ICLs in the LCR calculation for the amount of RUB 399 billion out of the total credit line size of RUB 977 billion (Table 3). During the period in question, banks with state participation demonstrated a decline in the ICL amount for RUB 90 billion while private banks showed a RUB 55 billion increase. From 1 June 2017 to 1 December 2017, SICI in general demonstrated a decrease in Russian public debt holdings in the amount of RUB 196 billion.

For the purpose of LCR calculation, OFZ are considered level 1 assets (HQLA-1) and are recognised at a zero haircut to the fair (market) price[4]. This group also includes cash funds (cash, cheques, etc.), funds with the Bank of Russia and authorised bodies of other jurisdictions (to the extent included in the limited list of placed funds), and other

Table 3

ICL and OFZ usage by SICI for LCR calculation (RUB bn)

Bank groups among SICI		Banks with state participation	Private banks	Foreign subsidiary banks
ICL included in HQLA as of 1.12.2017		344	55	0
OFZ included in HQLA as of 1.12.2017	OFZ	1535	241	176
	Eurobonds, in RUB	357	158	73
ICL increase from 1.06.2017 to 1.12.2017		-90	55	0
Increase in OFZ included in HQLA from 1.06.2017 to 1.12.2017 (in RUB + eurobonds)		-221	-37	62
OFZ share in bank's aggregate securities portfolio, %	1.06.2017	34.4	29.0	56.0
	1.12.2017	31.4	24.7	68.0

Table 4

Changes in SICI LCR from 1.06.2017 to 1.12.2017

Bank groups among SICI	LCR, %		LCR change, pp.
	1.01.2017	1.12.2017	
Banks with prevailing Russian Government or BoR participation	104	92	-12
Banks with prevailing private participation	97	101	4
Banks with prevailing international (foreign) banks' participation	151	109	-42

[1] 'Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools (January 2013)', 'Principles for Sound Liquidity Risk Management and Supervision (September 2008)'.

[2] Including the increase in certain foreign currency-denominated HQLA of banking groups (credit institution) exceeding the net expected outflow of funds in that foreign currency.

[3] Bank of Russia Regulation No. 510-P, dated 3 December 2015, 'On the Procedure for Calculating the Liquidity Coverage Ratio (Basel III) by Systemically Important Credit Institutions'.

[4] Bank of Russia Regulation No. 421-P, dated 30 May 2014, 'On the Procedure for Calculating Liquidity Coverage Ratio (Basel III)'.

debt securities issued by governments, central banks having a high credit quality (for details see Bank of Russia Regulation No. 510-P).

SICI in general demonstrate mixed dynamics with regard to their LCR during the reporting period (Table 4). Banks with state participation and foreign subsidiary banks demonstrated a decline in ICL for 12 and 42 pp respectively while private banks saw an increase in ICL by 4 pp.

Therefore, in 2017, SICI continued to use Bank of Russia irrevocable credit lines to comply with liquidity coverage ratio requirements. In case of excessive usage of ICL to comply with LCR requirements, the Bank of Russia may consider raising ICL payments in the future.

Box 3.
Non-resident concentration risks in certain OFZ issues

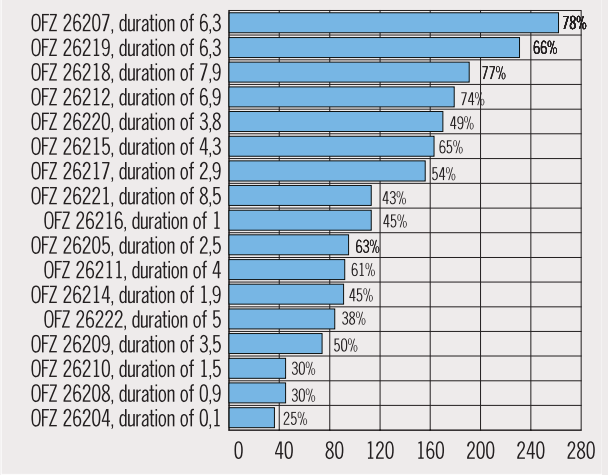
From 1 January to 1 December 2017, non-residents' OFZ holdings rose by RUB 665 billion to RUB 2182 billion. The average duration of the portfolio was growing during the first three quarters but returned to the level observed in early 2017 (approx. 4.7 years) by 1 December. The structure of non-residents' OFZ portfolio broken down by duration changed: a growth was observed in OFZ holdings with the durations of 6 to 8 years and 2 to 4 years.

These structural changes are only partially related to the transition of certain OFZ issues from the longer to the shorter duration intervals.

The maximum amount of non-residents' holdings is observed in OFZ 26207, 26219 and 26218 with the average share of 73%.

Chart 36

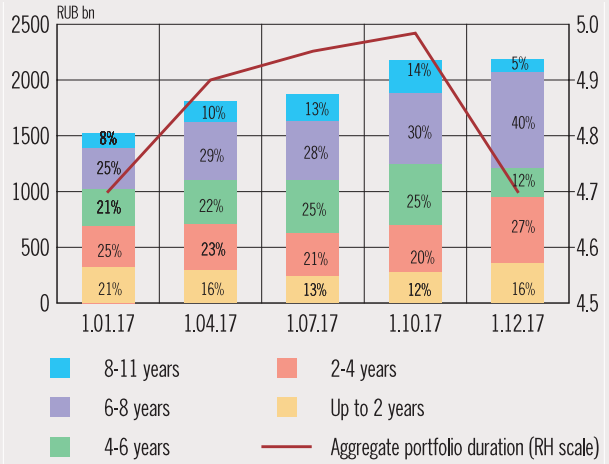
Non-residents' OFZ holdings and their share by issues in 2017*



** The chart displays OFZ where the share of non-residents exceeds 10% and the amount of investments is over RUB 16 billion.*

Chart 35

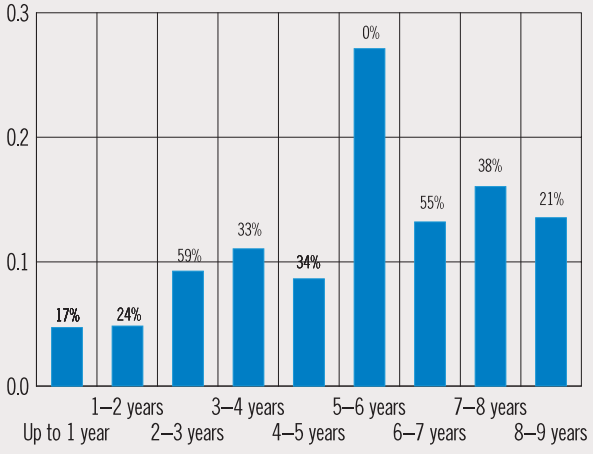
Distribution of non-residents' OFZ holdings by duration intervals in 2017*



** According to Reporting Form 0409711.*

Chart 37

Average bid-ask spread of OFZ prices* in Q4 and the share of non-residents in respective durations as of 1 December 2017



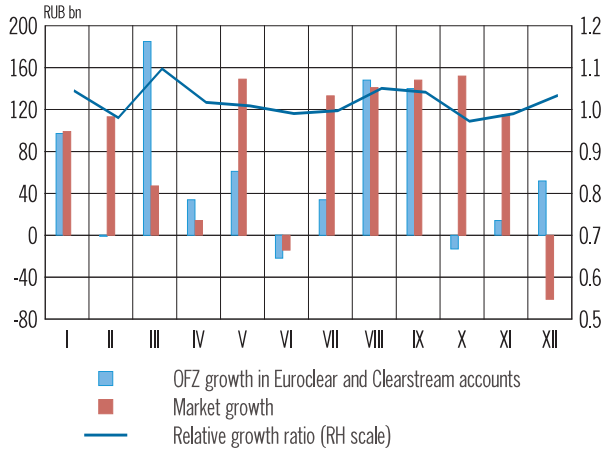
** Bid-ask spread data for all OFZ-PDs.*

We have not found any relation between the bid-ask spreads of OFZ-PD prices[1] and the distribution of non-residents' investments in issues with different duration in 2017 Q4. For issues with the largest share of non-residents' holdings (duration of 2 to 3 years and 6 to 7 years), the bid-ask spreads were at the levels similar to the closest OFZ issues. The bid-ask spread tends to increase with the duration, save for the duration of 5 to 6 years, which can be attributed to worse liquidity of certain issues in this category.

[1] Spreads of OFZ-PD are much lower than those of OFZ-AD. See Financial Market Risks Review for 2017 Q3 for the corresponding analysis.

Chart 38

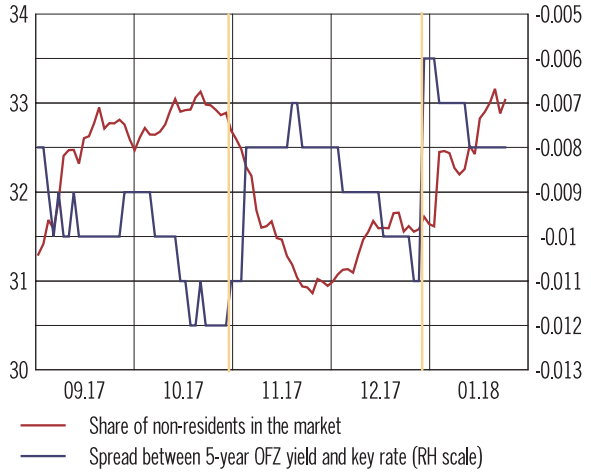
Dynamics of OFZ market and non-residents' portfolio growth in 2017*



** Growth is calculated as a ratio of one plus the relative growth of non-residents' investments to one plus the relative growth of the OFZ market.*

Chart 39

Dynamics of non-residents' OFZ holdings (acc. to NSD) and yield spread* (%)



** Yellow lines show the dates when the Bank of Russia cut its key rate.*

In general, the increase in non-residents' investments in Q4 was relatively small and amounted to just RUB 41 billion (Chart 38).

It should be noted that nearly all growth observed in Q4 occurred in December and took place in the shrinking market: in December, the amount of repayments was RUB 200 billion, or 40% of all repayments in 2017. In January 2018, the growth of non-residents' investments picked up pace with their holdings increasing by RUB 45 billion during the month.

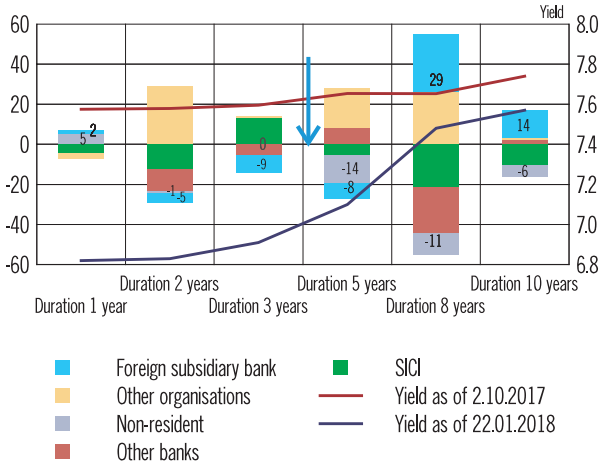
OFZ yields across all maturities kept declining during Q4. By the quarter-end, the yield curve assumed a positive (normal) shape after being almost flat in the beginning of the reporting period.

The curve slope rose due to declining short- and medium-term interest rates, which reflects the trend of decreasing inflation expectations in 2017.

In Q4, non-residents sold OFZ in the OTC market for RUB 26 billion and bought OFZ in the primary market for RUB 40 billion (Chart 40 and 41). If we add foreign subsidiary banks to non-residents, the sales in the OTC market will amount to RUB 4 billion and the purchases in the primary market will amount to RUB 99 billion. OFZ with the duration of 5 and 8 years were the most traded in the secondary market (43% and 30%, respectively).

Chart 40

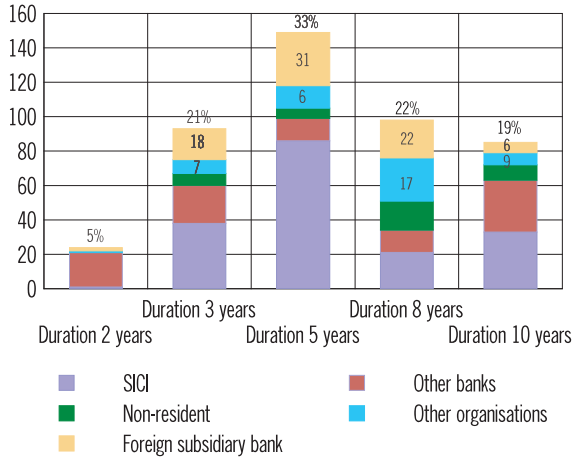
Dynamics of net on-exchange purchases of OFZ and changes in the yield curve* (RUB bn)



** Yield curves are on the RH-scale in %; column labels are for non-resident and subsidiary banks.*

Chart 41

OFZ purchases at auctions from 1.10.2017 to 22.01.2018* (RUB bn)



** The percentage values above columns show the share of OFZ with the specific duration in the total amount of placements during the period.*

A similar situation was observed in the primary OFZ market, where 5- and 8-year duration bonds were the most issued. During the period in question, OFZ with the duration of 1 to 3 years led the decline.

Corporate bonds and stock market

In the on-exchange corporate bonds trading, the dynamics of non-residents' purchases were similar to the dynamics of their operations in the OFZ market: in October and November, non-residents were selling corporate bonds while in December they purchased a small amount (Chart 42). In Q4 in general, non-residents reduced their corporate bond holdings for RUB 31 billion. It should be noted that from 1 to 22 January 2018 foreign subsidiary banks sold corporate bonds for RUB 15 billion, which is the highest monthly amount since early 2017.

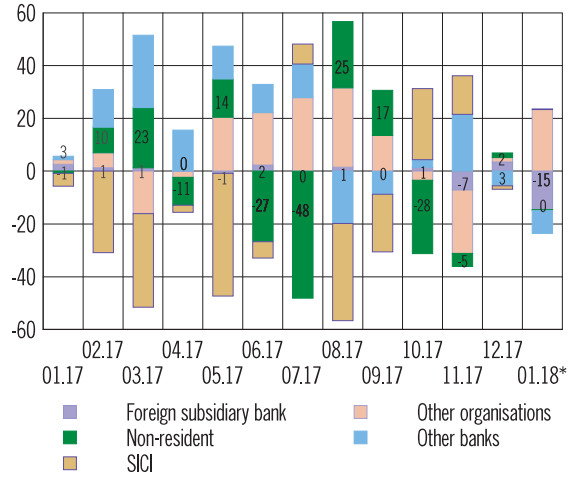
The dynamics of non-residents' purchases in the secondary on-exchange stock market in 2017 Q4 were opposite to the dynamics of their operations in the OFZ and corporate bonds markets (Chart 43). For the most part of 2017, the increase in foreign investments in stocks was accompanied by their decrease in debt instruments and vice versa.

The increase in non-residents' investments in Russian shares in late December and in January can be partially explained by the general trend of the inflow of investments into EME equity markets. As a result, on 25 January 2018, the MOEX index (earlier known as MICEX index) reached 2326 points, the highest level in the history of its calculation.

Domestic investors maintain a stable and high volume of on-exchange trading in the corporate market where their share is almost 90%. In the on-exchange market, the share of foreign investors has historically been relatively high but its value remains stable in the 45-50% interval.

Chart 42

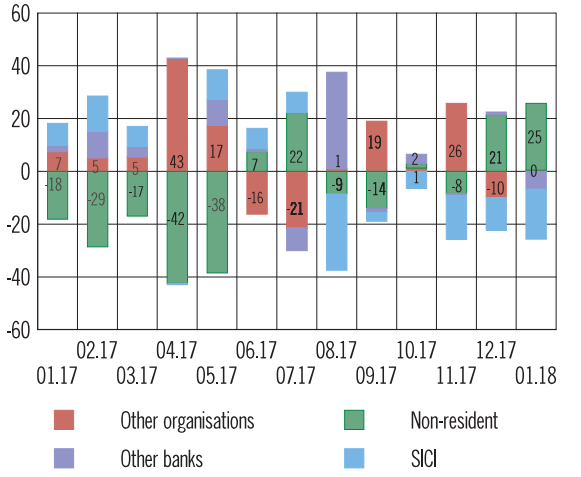
Corporate bonds trading in the secondary on-exchange market (RUB bn)



** The information on sales and purchases in January 2018 is for the period from 1 to 22 January.*

Chart 43

Equity trading in the secondary on-exchange market* (RUB bn)



** The information on sales and purchases in January 2018 is for the period from 1 to 22 January.*

Box 4.
The effect of the European regulatory requirements (MiFID II/MIFIR) on the financial market

On 3 January 2018, the Second Directive and the Markets in Financial Instruments Directive Regulation (EU) (MiFID II/MIFIR) came into force. The documents contain the MiFID requirements updated taking into account the current situation. MiFID is the basic document regulating the operation of the EU financial markets since 2007. The decision to carry out the reform aimed at ensuring a high level of investor protection and regulated market integrity was taken because the increasing scale of on-exchange trading, developing technologies and growing complexity of financial products had led to gaps in the legislation. It is expected that the measures aimed at increasing the financial market transparency and stability will help boost the efficiency of the EU financial system.

MiFID II governs the operations of European companies whose business processes are related to conducting professional investment activities or providing investment services and those of non-EU firms conducting investment activity through an EU-based branch. The transformation of the European financial markets will have global consequences.

According to the new law, in order to gain access to European trading floors legal entities (regardless of their residency) must obtain an international Legal Entity Identifier (LEI). A six-month transition period was introduced for the compliance with this requirement.

If a company that is not an EU resident intends to obtain a right to provide investment services inside the EU, it might need to register a branch in one of the EU members. Supervisory bodies received the authority to impose sanctions on firms that violate the requirements. If a violation is detected, the firm's permission can be revoked.

Moreover, services related to the provision of analytical reports are now a separate product and their price can no longer be included in trading fees. This restriction concerns not only in-depth research but also traditional morning reports. This measure is aimed at increasing the transparency of investors' expenses on the analytics. Negative effects of this innovation included cutting the analytics expenditures by investment funds and the increased risk of the monopolisation of the analytics services industry.

New requirements for the real-time provision of pre- and post-trading information on trades by firms were introduced. Firms must use the APA (Approved Publication Arrangements) system to prepare reports on all operations and negotiations with clients. All trading platforms (national exchanges, multilateral trading systems and organised trading systems) must regularly provide reports on prices and demand volumes. To protect investors even further, companies will be obliged to inform their clients on every 10%-drop of the value of the portfolio. Some believe, however, that this measure could increase market volatility. If a share is traded both within the EU and at foreign exchanges, European investment companies may trade it only in the EU or in the markets recognised as equivalent to the regulated market. A market can be recognised as equivalent to the regulated market if the requirements specified in the directive are complied with. Securities traded in any one regulated market are allowed for trading in all other regulated markets. Currently, the trading floors of Australia, Hong Kong, the USA, and Switzerland have been recognised as equivalent to the regulated market.

This provision leads to a risk that firms will be required to conduct transactions in a more transparent but a less liquid market. To solve this issue, one of the objectives of MiFID II lies in transferring a significant amount of trading to the regulated markets. The transformation of the securities market involving an increase in on-exchange operations will be implemented by lowering the amount of OTC trades and a large-scale transition of bonds and derivatives trading to electronic and other trading platforms. It is planned to cut the amount of non-regulated trading by introducing a double volume cap on dark pool trading: the maximum amount of trades allowed to be performed within a year without a prior disclosure of their parameters to the public will be limited to 8% of the total issue size over all exchanges, and 4% if they are performed at one exchange only[1].

[1] Due to the fact that ESMA does not have the complete statistical information on transactions, the date of entering into force of the requirement for the restriction of dark pool trading was postponed to March 2018.

Therefore, it is expected that systematic internalisers (SI) that enable direct execution of clients' orders will gain popularity. The SI category was established to implement restrictions and rules for non-regulated trading under MiFID but was barely used before. To execute orders, SI will be able to use their own capital and to establish a pool of assets. SI will be represented by banks and algorithmic traders. Moreover, SI will allow investors to cut their costs of compliance with new regulations (this function is laid upon the operator). It is noted that the attractiveness of SI could make it more difficult to cut the OTC trading volume.

MiFID II particularly focuses on commodity futures and emission credits; the regulation also covers the energy industry. In particular, in order to restrict the arbitrage, limits on open positions in commodity derivatives were introduced.

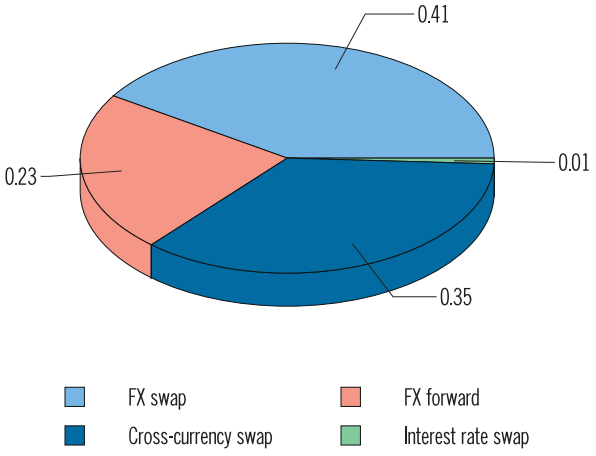
Despite higher costs of market participants due to the need to adapt to the new requirements, it is expected that in the long-term the Second Directive will help increase the share of on-exchange trading in the European market, boost its transparency and attractiveness for investors willing to operate in a stable market.

3. OTC DERIVATIVES MARKET

In 2017, all segments of the OTC derivatives market (FX swaps, FX forwards, cross-currency swaps, and interest rate swaps) experienced growth. According to NSMA, the trading volume in the FX swap segment grew 2.66 times while the interest rate swap and overnight index swap instruments showed a 5.29-times increase as compared to 2016. However, due to the uncertainty in the oil market, short-term (up to 1 year on average) derivatives contracts still prevail. The market for OTC FX derivatives (forwards and swaps) grew to a larger extent indicating an interest towards such instruments for both hedging the FX risk and cutting the costs of funding.

Chart 44

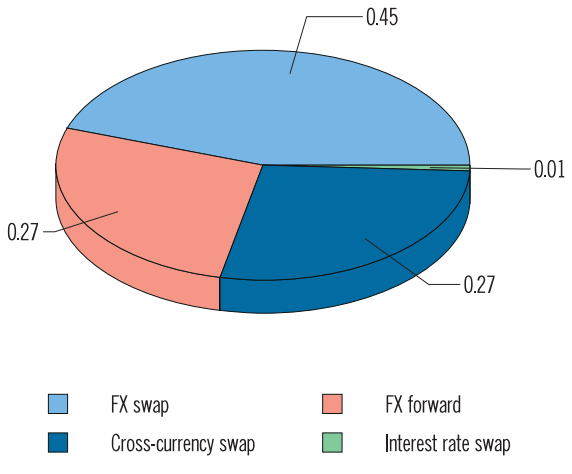
Open positions in 4 OTC derivatives as of 1.12.2016 (USD bn)



Source: NSD.

Chart 45

Open positions in 4 OTC derivatives as of 1.12.2017 (USD bn)



Source: NSD.

FX derivatives

FX derivatives are traditionally in demand in the Russian market. During the first six months of 2017, the OTC market for FX swaps grew significantly. In the second half of the year, the

Chart 46

Open FX swap positions in different underlying currency pairs in 2017 (USD bn)

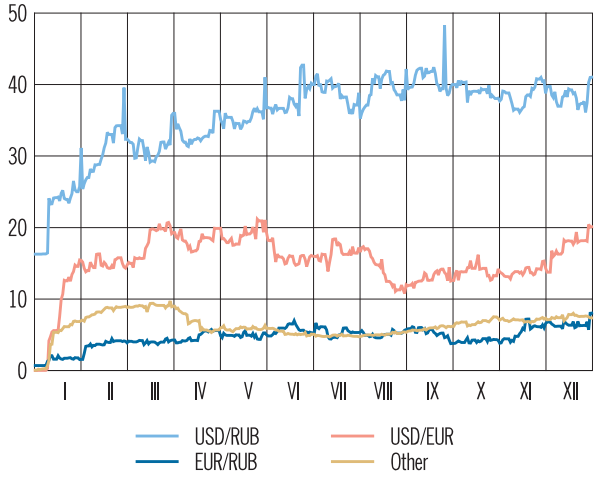


Chart 47

Open FX swap positions with different maturities in 2017 (USD bn)

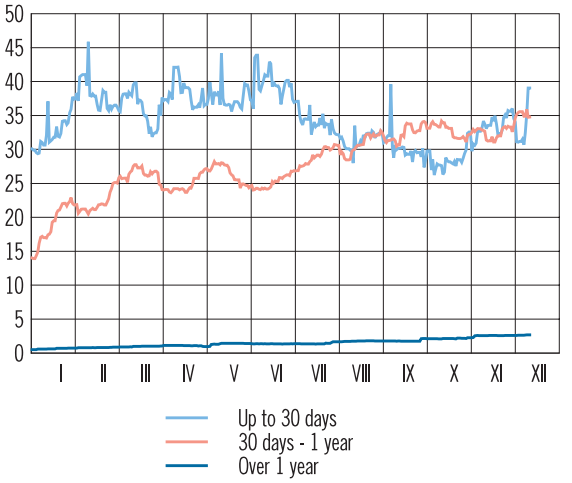


Chart 48

Trade scheme for the FX swap instrument in 2017 (RUB tn)*

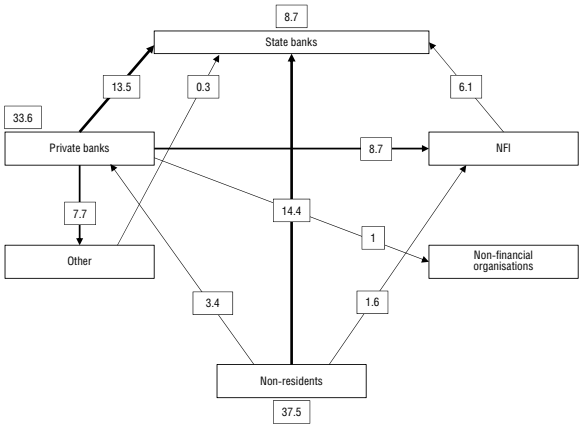
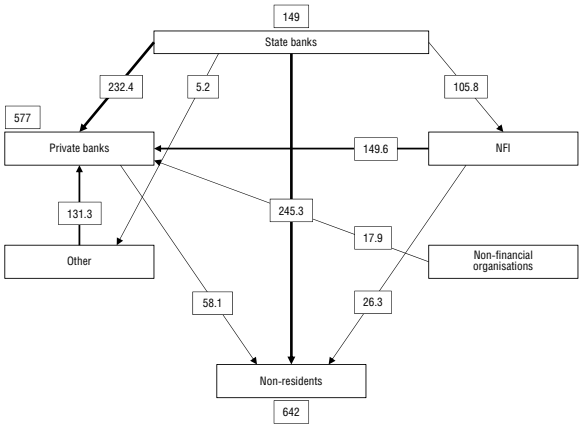


Chart 49

Trade scheme for the FX swap instrument in 2017 (USD bn)*



** Here and onward, the arrow width shows the net cash flow in the specified currency. Often, derivative transactions do not presume an exchange of notional amounts but the volume of derivative transactions is calculated as a total of their notional values.*

amount of open positions in USDRUB was around USD 40 billion. The EURUSD swap market showed mixed dynamics, recovering by the end of the year to USD 20 billion observed in June. Changes in open positions in other currency pairs, including EURRUB, were insignificant; in Q4 they remained below USD 8 billion.

Market participants view the FX swap market primarily as an instrument of obtaining short-term FX liquidity. This trend was prevalent in 2017 and can be expected to continue in 2018.

The segment of medium-term FX swaps surged in 2017 from 15 to 35 billion US dollars. This growth can be explained by the termination of FX repo operations with the Bank of Russia and continuing demand for foreign currency from companies with USD-denominated external obligations. From early September to early November, the amount of open positions in medium-term FX swaps (1 month to 1 year) exceeded the short-term positions (less than 1 month) (for overnight FX swaps see the 'FX money market' section of this report).

The dynamics of medium-term swaps stayed positive all year long while short-term OTC swaps became less popular starting from mid-2017.

State-owned banks were the most active FX swap users attracting rubles from non-residents and private banks and placing dollars. State-owned banks provide FX transaction services to non-financial companies and have an opportunity to place foreign currency in the domestic market through swaps. NFIs also borrowed large amounts of US dollars from state-owned banks and placed

Chart 50

Open FX forward positions in different underlying currency pairs in 2017 (USD bn)

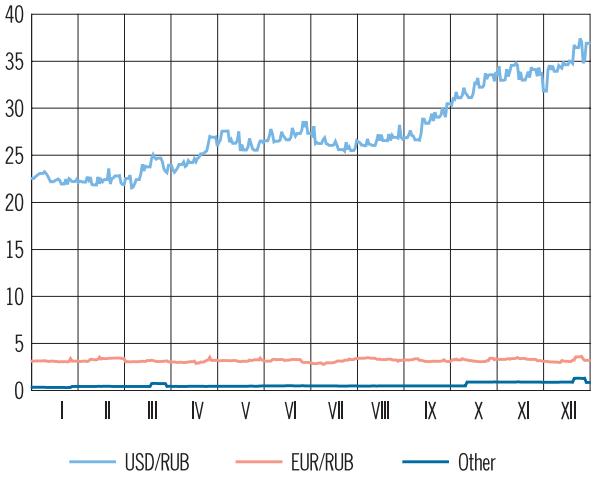


Chart 51

Open FX forward positions with different maturities in 2017 (USD bn)

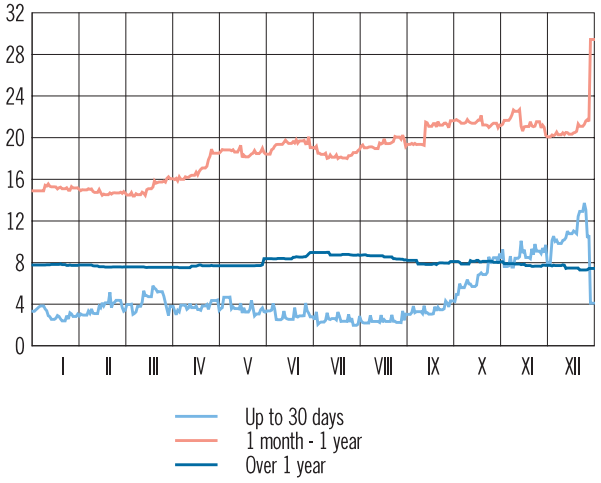


Chart 52

Dynamics of conclusion of forward agreements in 2017 (USD bn)

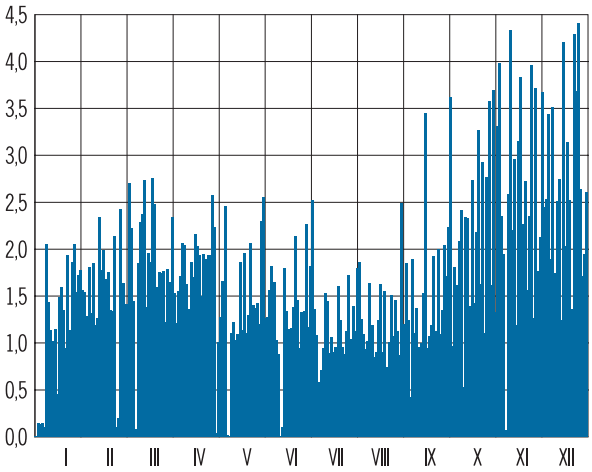


Chart 53

Dynamics of execution of forward agreements in 2018 (USD bn)

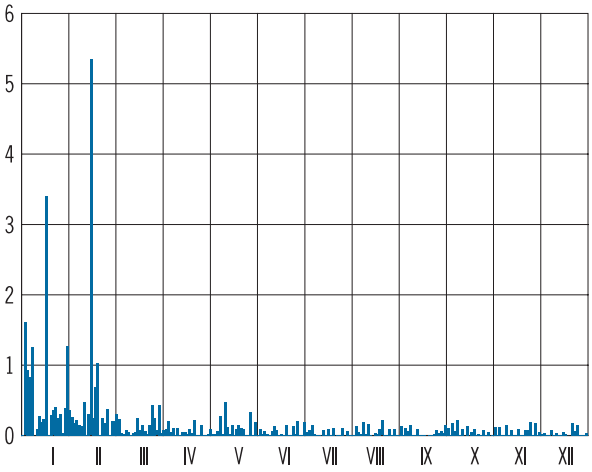
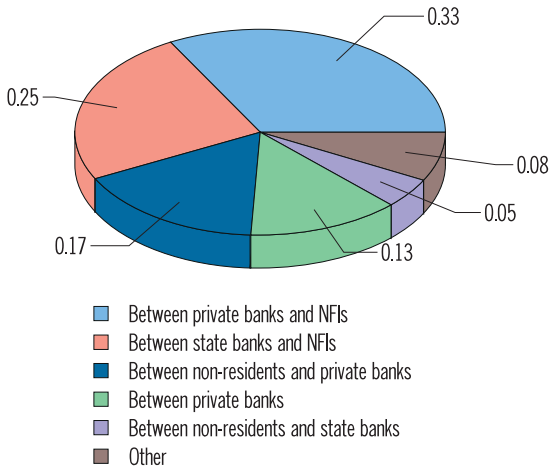


Chart 54

Distribution of FX forward transactions among participants in 2017 (%)



them with private banks and non-residents. The FX forward market was also active in 2017 in general and in Q4 in particular. It is comprised mostly of USDRUB forwards, which is evidenced by the dynamics of open positions during the year (Chart 50). In other currency pairs, open positions stayed within USD 1 billion.

During 2017, FX forward transactions were concluded almost every day. The average daily volume during the first three quarters was USD 1.45 billion but in Q4 it was higher reaching USD 2.46 billion.

This was due to more active conclusion of short-term and medium-term contracts. A large amount of forward contracts (USD 25.6 billion) are due to mature in 2018 Q1. However, for this segment of

Chart 55

Trade scheme for the FX forward nstrument in 2017 (RUB bn)

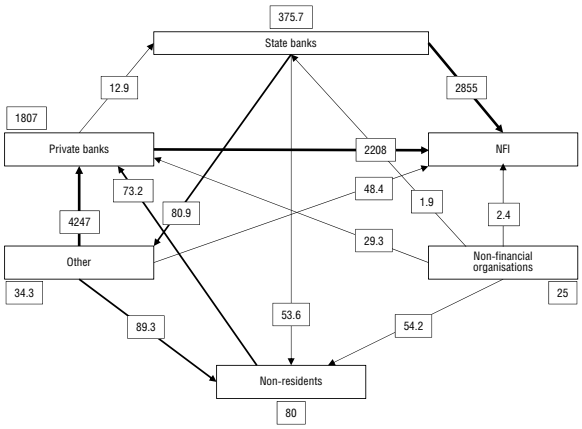
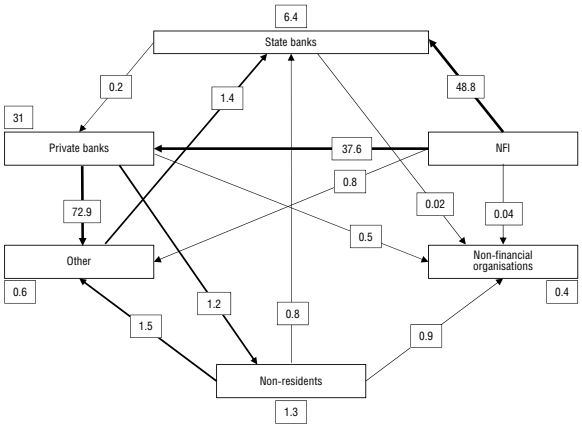


Chart 56

Trade scheme for the FX forward instrument in 2017 (USD bn)



OTC FX derivatives, restructuring contracts and their early termination are customary, therefore no major market consequences are to be expected.

Trades between private banks (usually from top-10 Russian banks by assets) and non-bank financial institutions (e.g., brokers) account for over 30% of the Russian FX forward market. Transactions between state banks and NFIs, with the former also ranking among top-10, account for 25% of the market.

Forward contracts were widely used in transactions between NFIs, state and private banks as the main FX risk hedging instrument with state and private banks buying foreign currency from NFIs under short-term forward agreements (up to 6 months).

Interest rate derivatives

In 2017, and in Q4 in particular, the Russian OTC interest rates derivatives market demonstrated growth despite legal disputes between major credit institutions and non-financial organisations (see FMRR for Q3). This fact allows us to conclude that there is a noticeable demand of market participants for hedging future risks and there are grounds to expect that this trend will continue in 2018.

As it was noted in the Financial Market Risks Review for 2017 Q3, the Russian derivatives market is quite consolidated: termination of certain deals can lead to significant changes in the amount of open positions. Thus, on 1 December 2017, a fixed-float cross-currency swap deal closed inside a large Russian banking group (Chart 58), which resulted in a sharp decline of the aggregate open market position for USD 3.39 billion.

For other cross-currency swap types (fixed-fixed, float-float), the open market position amounted to, on average, USD 7 billion by the end of the year.

Among traded swaps, OTC cross-currency swaps are the most popular. According to NSD, state banks are the largest foreign currency lenders. Their net average annual foreign currency position in the cross-currency swap market was USD 8.2 billion (Chart 60). They are followed by non-financial companies. Oil and gas, mining and chemical industry enterprises (average annual position approx. USD 4.8 billion) are large foreign currency lenders in this particular market due to the specific nature of their business: while receiving foreign currency-denominated revenue and having ruble-denominated operating costs, these companies convert foreign currency into rubles through derivatives. Real-sector trade companies are foreign currency borrowers (their average annual open position was approx. USD 1 billion).

In 2017, non-residents, including foreign subsidiary banks, were the most active traders in this instrument: they concluded cross-currency swaps for USD 11.5 billion. Next come deals between state banks and non-residents with USD 4.4 billion in concluded contracts.

In the interest rate swap market, trades between non-residents were also very active. The annual notional trading amount exceeded USD 27 billion.

Chart 57

Dynamics of open positions in the cross-currency swap market in 2017 (USD bn)

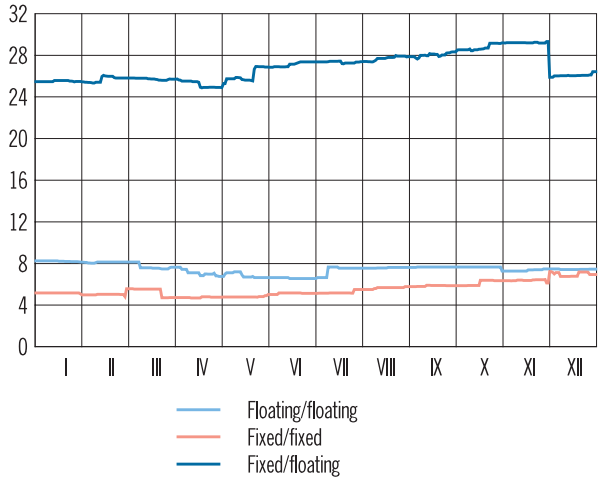


Chart 58

Dynamics of open positions in the interest rate swap market in 2017 (USD bn)

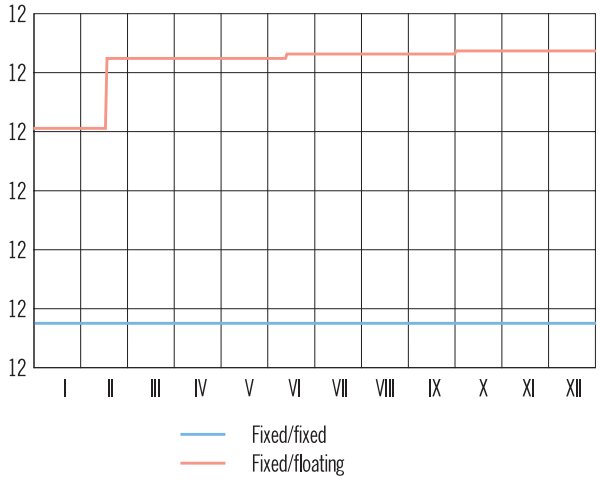


Chart 59

Notional trade scheme for the cross-currency swap instrument in 2017 (USD bn)

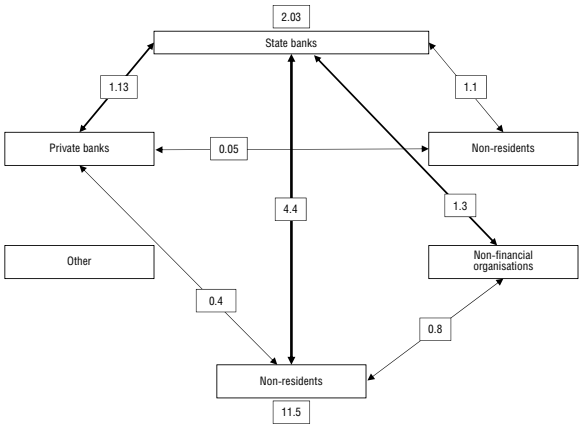


Chart 60

Notional trade scheme for the interest rate swap instrument in 2017 (USD bn)

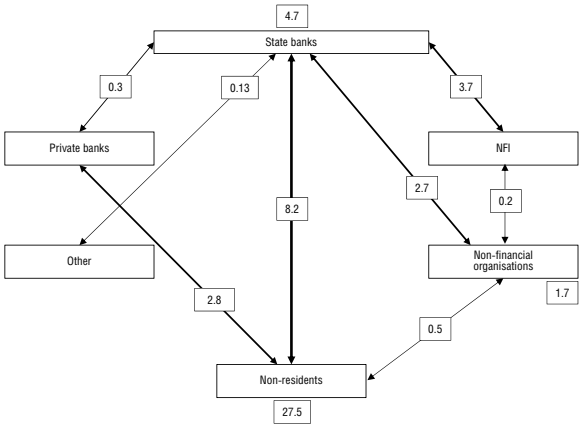


Chart 61

Net lending/borrowing of FX liquidity in the cross-currency swap market by participants in 2017 (USD bn)

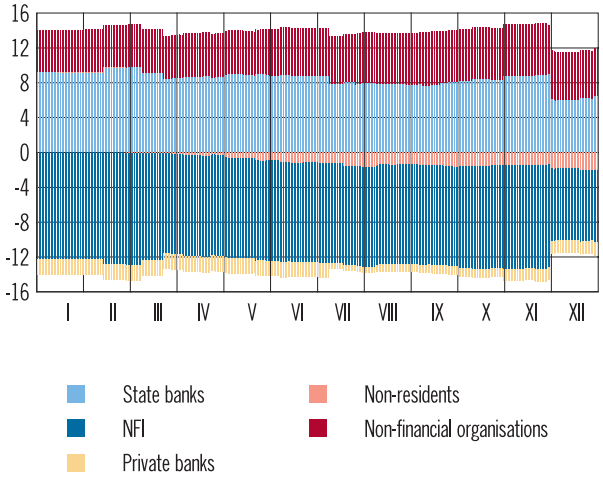
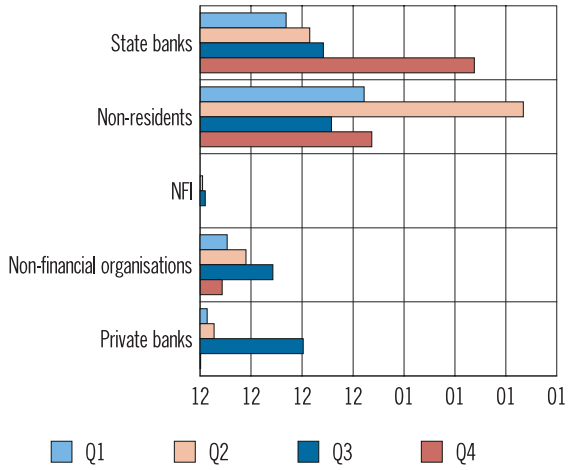


Chart 62

All swap transactions by participants and quarters in 2017 (USD bn)



Trades between state banks and non-residents (USD 8.2 billion) and state banks and NFIs (USD 3.7 billion) were also noticeable.

Borrowing foreign currency in the interest rate and cross-currency swap markets was characteristic of non-bank financial institutions owned by major Russian banking groups with state participation registered in foreign jurisdictions. In total, their average annual borrowings amounted to USD 11.5 billion. Private and foreign banks were much less interested in using this instrument.

In 2017, state banks gradually increased the volume of their transactions with OTC derivatives. Moreover, in Q4, state banks concluded new derivative agreements for almost USD 2.7 billion, or 2.5 times as much as in the previous quarter. This amount was achieved thanks to transactions with just two types of cross-currency swaps: fixed-fixed and fixed-float.

Foreign banks, including their Russian subsidiaries, concluded, in aggregate, new cross-currency swap contracts for USD 7.8 billion with the average monthly amount of USD 1.97 billion.

In 2017 in general, and in Q4 in particular, swaps with the maturities of up to 1 year and up to 3 years were the most popular. In these two segments, state banks and their foreign subsidiaries as well as non-resident banks and their subsidiaries play the key role. The analysis of deals broken down by maturities demonstrates that state banks mainly

Chart 63

Cross-currency swaps that constituted open market position in 2017 by their maturity (USD bn)

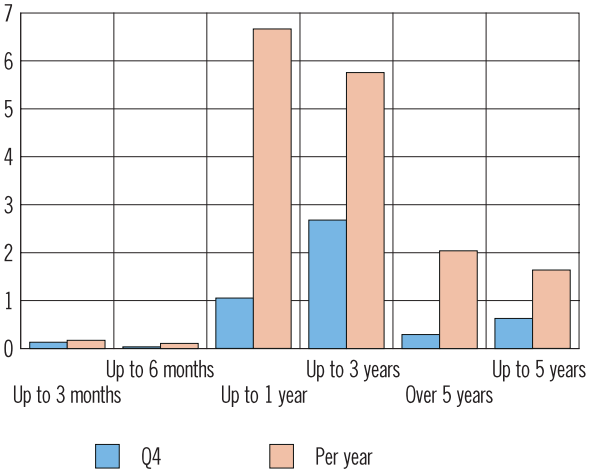


Chart 64

Transactions up to 1 year and up to 3 years that constituted open market position in 2017 by key participant groups (USD bn)

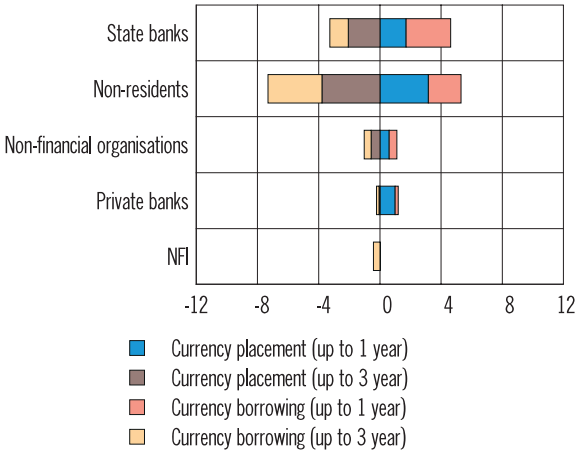
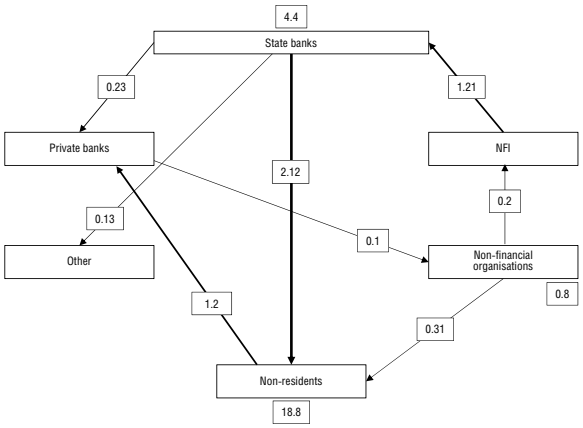


Chart 65

Net fixed rate flow under interest rate and cross-currency swaps in 2017 (USD bn)



lend foreign currency through cross-currency swaps for longer than 1 year while foreign banks prefer to borrow for less than 1 year.

By analysing the direction of the fixed and floating rates in the interest rate and cross-currency swap markets, it can be seen that non-residents mostly hedged interest rate risk by making deals with state banks and paying the floating rate (net flow from state banks to non-residents – USD 2.12 billion).

Private banks also tried to hedge their interest rate risk through deals with state banks and non-residents (net flow from state banks and non-residents to private banks – USD 1.43 billion).

Box 5.
Development of bitcoin derivatives market

A rapid development of the global cryptocurrency market and, in particular, the appearance of bitcoin futures in late 2017 call for the continuing monitoring of the situation by the Bank of Russia.

Despite high volatility, the 2017 results showed that bitcoin was the most profitable financial market instrument. According to Bloomberg data, bitcoin surged from USD 897 in early 2017 to USD 19,343 at its peak in December. Therefore, during the year, the instrument grew at least 20-fold.

The highest growth was observed in December 2017, when the Commodity Futures Trading Commission (CFTC) approved the launch of cryptocurrency futures (in 2015, bitcoin was allowed for trading at cryptocurrency exchanges in certain states of the USA). In December 2017, bitcoin market capitalisation reached USD 324 billion.

In early 2018, bitcoin prices plunged to USD 10 thousand (USD 6.2 thousand on 6 February 2017).

The fair value of bitcoin is still to be discovered, therefore the fluctuation of its market price is subject to speculative activity and, theoretically, can persist for a long time.

Due to this fact, regulation of operations with cryptocurrencies should be implemented taking into account their high volatility, anonymity, possibility to be used for illegal operations, and risks for consumers and the country's financial stability.

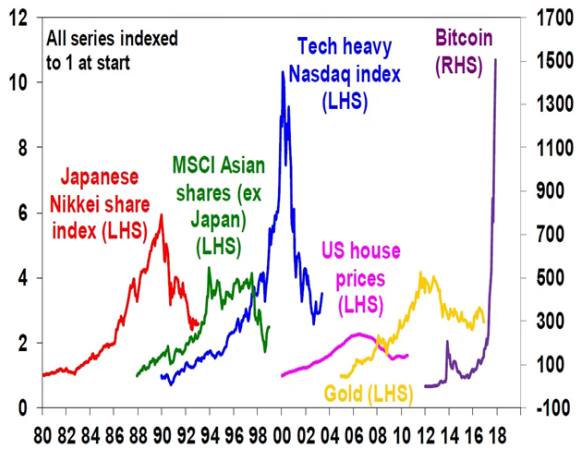
Chart 66

Dynamics of bitcoin exchange rate and market size

Source: coinmarketcap.com.

Chart 67

Largest financial market bubbles over the last 40 years



Sources: Thomson Reuters, Bloomberg, AMP Capital.

4. COMPLEX STRESS-TESTING OF THE FINANCIAL MARKET

The traditional approach to stress-testing of financial market participants provides for the review of their positions broken down by individual instruments or market segments. Usually, when analysing participants' stability, the risk of their positions against their direct counterparties is assessed without considering any possible indirect effects due to the presence of a network structure of market links. The same approach is taken for the stress-testing of the central counterparty (CCP). It usually involves an assessment of the adequacy of cash funds or highly liquid assets for the CCP to comply with its obligations in case of a simultaneous failure of two market participants with the largest positions.

Current research clearly demonstrate the limitations of this traditional approach. In one of the latest papers published by the Office of Financial Research (OFR), 'How safe are Central Counterparties in Derivatives Markets'[1], it is shown that using standard stress-testing methodology leads to underestimation of systematic risks because the failure of the traditional approach to account for network effects means the underestimation of contamination effects that, upon their occurrence, may result in a chain of defaults of the majority of market participants (see Box 4 for details). Considering the research results and the scale of potential consequences in case of risk underestimation, this section describes the conducted cross-sectoral complex stress-testing taking into account market participants' positions in the on-exchange and OTC markets.

The methodology of the complex stress-testing was developed and tested in 2017 Q1 on the basis of the Russian financial market data as of December 2016. The description of the stress-testing results is provided in the Financial Market Risks Review for 2016 Q4[2]. This section describes the complex stress-testing based on the Russian financial market data as of December 2017 in order to compare the results and perform a comparative analysis of the market stability dynamics during the reporting period.

As before, the test was designed to assess the stability of the central counterparty and liquidity risks of market participants in case of a significant 2-day shock in the financial market. The scenario in use assumed rising FX rates and falling securities prices based on 2-day CVaR for 10 years (99%). The stress-testing covered such market segments where changes in the market situation could lead to an urgent need in additional liquidity on the part of credit institutions: exchange market (equity, foreign exchange and derivatives sections of the Moscow Exchange) and OTC market (interdealer repo and repo with the Bank of Russia, interbank loans, FX swaps).

According to the assessment as of 18 December 2017, financial market participants were found to be quite resilient to the liquidity risk within the scenario in question. Considering the existing individual clearing collateral of market participants, the negative revaluation of positions in the on-exchange market will not result in any additional liquidity requirements.

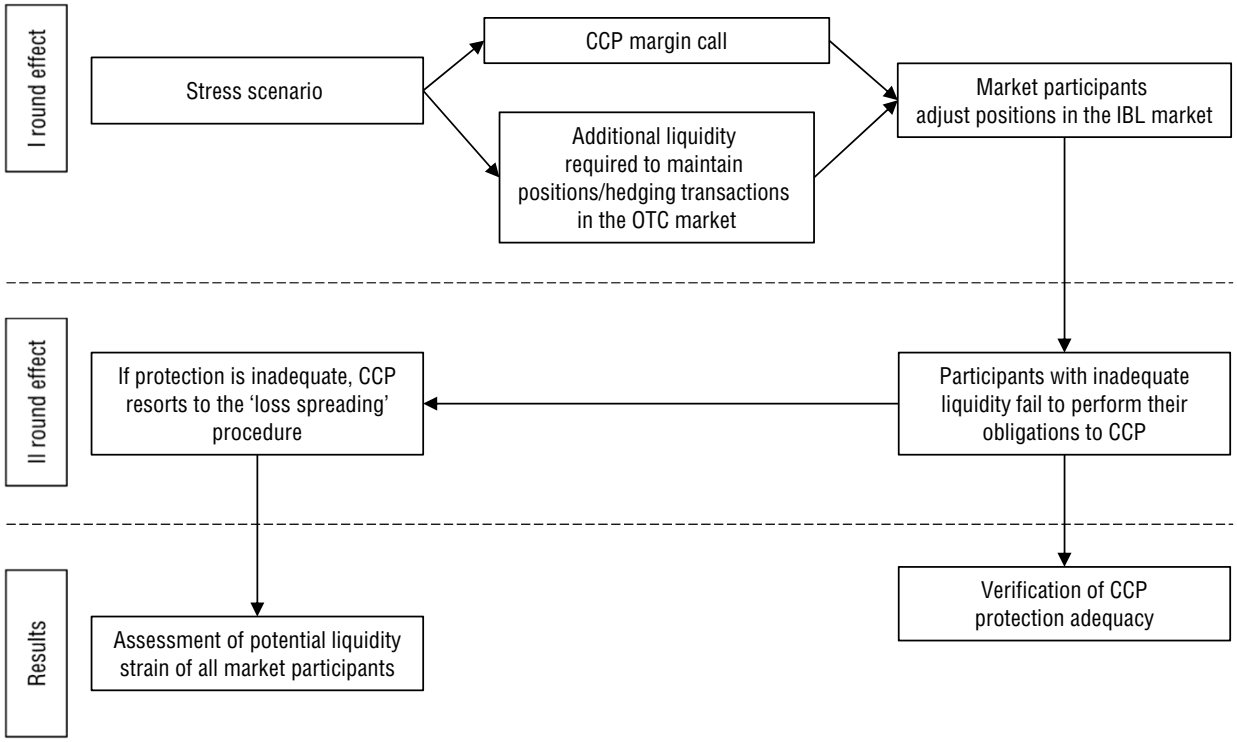
The highest liquidity demand is produced due to falling collateral value in the OTC repo market: securities prices based on 10-year CVaR usually fall below the repo haircut bound and, as a result, borrowers might need to make a partial repayment. The aggregate additional liquidity requirements were RUB 135.8 billion with RUB 81.7 billion for on-exchange and RUB 54 billion for OTC positions. Higher aggregate liquidity demand, as compared to the last year (RUB 83 billion), was due to growing scale of operations and the amount of open positions in the market. At the same time, the amount of unencumbered collateral in credit institutions also increased (RUB 8 tn). As a result, the liquidity strain was RUB 1.9 billion, which does not pose any systemic threat for the banking sector.

[1] *Paddrik M., PeytonYoung H. How safe are Central Counterparties in Derivatives Markets? // OFR working paper. 2017. 17–06. Nov. 2.*

[2] *For details see Financial Market Risks Review for 2016 Q4 on the Bank of Russia's website (http:// www.cbr.ru).*

Chart 68

Complex stress-testing scenario implementation scheme



From the point of view of CCP stability, as in the previous period, potential aggregate losses due to defaulting participants with liquidity shortage are fully covered by their individual and collective clearing collateral (i.e., if the scenario in question materialised, CCP's allocated capital would not be used).

Therefore, the market structure in place as of 18 December 2017 was resilient to the materialisation of the stress scenario with regard to credit institutions' liquidity risks and CCP stability. This result was in many ways determined by the accumulation of the structural liquidity surplus, including due to measures aimed at the rehabilitation of certain credit institutions. In this situation, a large amount of credit institutions' collateral is released and freely available funds in their deposit accounts with the Bank of Russia are built up.

Box 6.
Drawbacks of the standard central counterparty stress-testing methodology: OFR (Office of Financial Research) study

Global financial crisis 2007–2009 demonstrated the vulnerabilities in the framework responsible for the operation and transparency of financial markets stipulating the need to conduct a reform aimed at increasing the financial stability. In particular, in order to support the financial stability of banks and other market participants, G20 countries decided to transfer all standardised deals with OTC derivatives to a centralised clearing platform. Thus, central counterparties (CCP) started to play a key role in providing clearing services in the OTC market[1].

The presence of CCPs allows market participants to standardise contracts, reduce the number of payments, increase market transparency and, therefore, lower transaction and information costs and minimise the counterparty risk. However, the concentration of the systemic risk on the CCP can lead to the increased vulnerability of the system as a whole. For this reason, CCP stress-testing is specifically important to ensure that financial stability is maintained.

The traditional approach to stress-testing usually involves an assessment of the adequacy of cash funds or highly liquid assets for the CCP to perform its obligations in case of a simultaneous failure of two market participants with the largest positions. This method involves an analysis of the direct impact of a default of two agents on CCP's condition and does not take into account the consequences of network effects that occur in the shock environment.

The authors of 'How safe are Central Counterparties in Derivatives Markets?' assessed the risks of the largest US CCP for the credit default swap (CDS) market, ICE Clear Credit, and demonstrated that the use of the standard methodology leads to underestimation of systemic risks for several reasons.

First, the failure of the traditional approach to account for network effects means no evaluation of contamination effects that, upon their occurrence, may result in a chain of defaults of the majority of market participants and in an increased probability of default of the CCP: in case of a shock, CCP will be hard pressed to obtain additional liquidity on a short notice because the majority of participants will not be able to pay additional funds. Second, the standard approach uses a conservative probability of a shock occurrence: despite the fact that the value of stress occurring in case of a default of two participants with the largest deficit is higher than in case of a random default of one or several agents, the probability of such an event is low. The authors proved that, considering the wide network of shock distribution channels, the consequences of a default of several small firms can be comparable to those of a simultaneous default of two major institutions while the probability of default of the CCP in the latter case, if the model takes into account the network effects, is higher than in the standard risk assessment methodology.

The article presents the model for the assessment of the minimum value of the contamination effect and its potential impact on the CCP stability. The stress was represented by the high but probable level of shock used in the Fed 2015 research. Upon its occurrence, this shock results in a sharp decline in prices of credit instruments leading to a surge of marginal payments under CDS contracts. In these circumstances, firms that are net margin payers are not able to perform their obligations. This increases the stress for their counterparties and can lead to a chain of defaults in the market.

A modified Eisenberg-Noe (2001) model is used to calculate the contamination effects. In contrast to the base model, a stochastic approach is used to determine the amount of agents' liquidity strain, which allows obtaining an estimated minimal value of the contamination effect within the system without detailed information about firms' assets.

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[1] BCBS and IOSCO Margin requirements for non-centrally-cleared derivatives, 2015 // Technical report, BIS and OICU-IOSCO, Basil, Switzerland.

5. RESULTS OF THE CENTRAL COUNTERPARTY ACTIVITY REGULATION REFORM

In 2017, the Bank of Russia continued its work to reform the central counterparty institute, which plays a key role in ensuring a seamless and stable operation of the financial market. The reform initiated in 2015 resulted in the establishment of the central counterparty as a separate non-bank credit institution type (NCI-CC) and in the implementation of a separate model of its prudential regulation with due regard to its specifics.

Central counterparty is a financial market infrastructure institution that is a party to all transactions concluded in the financial market segment under its jurisdiction acting as the buyer for all sellers and the seller for all buyers. The central counterparty concentrates all risks related to the settlement of obligations under such transactions with the counterparty credit risk being the most significant[1].

During the first stage of the central counterparty regulation reform, the Bank of Russia initiated amending the federal legislation (in particular, Federal Law No. 7-FZ, dated 7 February 2011, 'On Clearing, Clearing Activities and Central Counterparty') to improve the CCP regulatory environment with due regard to international standards and practices as well as its risk profile, nature and scale of operations.

The new CCP legislation introduced a risk-based approach with regard to the regulation, supervision and oversight of central counterparty's activity, established unified requirements for the legal form of the central counterparty (non-bank credit institution – central counterparty), expanded operational capabilities of the central counterparty, established its default management framework, and introduced CCP business continuity measures.

Currently, Bank of Russia regulations governing the statutorisation of approaches set forth at the federal level stipulate the following for the central counterparty: permissible combinations of banking operations, values and calculation methodology for specific required ratios, requirements for the organisation of the risk management framework and the assessment of the CCP model accuracy, business continuity and disclosure by the central counterparty of information about its activity.

The regulatory environment created as part of the reform received the highest score as a result of the analysis of the conformity of the national legislation to the Principles for Financial Market Infrastructures conducted in 2016 by the BIS Committee on Payments and Market Infrastructures and the International Organisation of Securities Commissions[2].

Taking into account the key role that central counterparties play in ensuring the stable operations of the financial market, the reform provided for a transition period for central counterparties to bring their activity in line with the new requirements.

Currently, there are three central counterparties in the Russian financial market with the largest being the non-bank credit institution/central counterparty-JSC Bank National Clearing Centre (NCC), which is a part of the Moscow Exchange Group and provides services to the trading floor of the same name.

NCC was the first financial market infrastructure institution that applied to the Bank of Russia to change its status from bank to non-bank credit institution and to obtain the central counterparty status in accordance with new regulatory requirements.

Starting from 28 November 2017 when the central counterparty status was granted to it by the Bank of Russia, NCC undertook to comply with the permissible under the new regulatory regime combinations of banking operations, specific required ratios, requirements for the implementation of the risk management system, and requirements for the disclosure of information on its activity in line with global standards and practices. Under the newly introduced special regulatory regime for the central counterparty institute as a non-bank credit institution, the current supervisory regime

[1] *Counterparty credit risk is the risk of non-fulfilment of obligations by a party to a transaction when they fall due or at any other moment in time or in full.*

[2] *Implementation monitoring of PFMIs – Level 1.*

applicable to such institutions will be unchanged including in terms of intensity.

Thanks to the NCC's status change to become a non-bank credit institution and its newly assigned central counterparty status, the NCC has the right to continue servicing its customers to the full extent. Following the NCC's assignment of a central counterparty status, its management quality should comply with the requirements of Bank of Russia Ordinance No.2919-U, dated 3 December 2012, 'On the Assessment of the Management Quality of a Credit Institution Acting as a Central Counterparty' for NCC clearing participants to be able to apply reduced risk ratios to calculate required ratios.

APPENDIX

Regulatory innovations in the financial markets

Benchmark regulation

On 10 October 2017, the International Organisation of Securities Commissions (IOSCO) published a report on the results achieved with regard to the implementation of the recommendations for reforming the financial market indicators (LIBOR, EURIBOR and TIBOR, hereinafter, IBORs) and the introduction of alternative risk-free rates (RFRs). Since the publication of the similar report in 2016, IBOR administrators (EMMI, IBA, JBATA) took noticeable measures to improve the methodology for the calculation of the existing benchmarks. In 2018 H1, it is planned to assess the impact of the new methodology and to hold preliminary consultations with stakeholders before its implementation, which is scheduled for 2018 H2. Despite the fact that FSB recommendations concern only three key global financial benchmarks, the report notes that administrators from other jurisdictions (Australia, Hong Kong, Mexico, Singapore, and South Africa) continue to take measures to reform their reference rates. However, no noticeable progress has been achieved in the transition from key IBORs to alternative RFRs. For some currencies, there are no such plans at all.

On 2 November 2017, the International Swaps and Derivatives Association (ISDA) announced that it was launching a complex research of transferring financial market contracts and practices to alternative risk-free rates/benchmarks. ISDA will hold a global study to identify opportunities of the transition to regional benchmarks. The document will show amendments that will need to be made to both new and existing contracts to transfer from IBORs to alternative RFRs. Moreover, the document will contain the roadmap and scheduled dates for all the operations required to complete the transition.

On 24 November 2017, the BoE Financial Conduct Authority (FCA) confirmed that all 20 banks providing data for LIBOR calculation agreed to continue providing it to ensure that the benchmark would be viable until the end of 2021. FCA expects that by that time the transition to the alternative benchmark will be possible. FCA also announced changes in the composition of banks participating in the benchmark calculation: Societe Generale will no longer provide data on USD and Credit Agricole Corporate and Investment Bank, on JPY.

On 8 December 2017, the Federal Reserve Board (FRB) announced its final plans with regard to the introduction of three new benchmarks based on interest rates on treasury securities-backed overnight repo. New benchmarks will be calculated by the Federal Reserve Bank of New York (FRBNY) along with the U. S. Office of Financial Research.

Each of the benchmarks will be calculated as an average interest rate weighted by volume. **The Secured Overnight Financing Rate (SOFR)**, which has the largest coverage, will be calculated based on the trilateral repo data provided by the Bank of New York Mellon (BNYM), the data on the bilateral repo subject to clearing, and the data on repo operations provided by the Depository Trust & Clearing Corporation (DTCC). SOFR will become an alternative to LIBOR in US dollars.

The other benchmark, **Broad General Collateral Rate** (BGCR), will be calculated based on BNYM trilateral repo and DTCC repo operations data. The Triparty General Collateral Rate (TGCR) will only be calculated based on the trilateral repo data provided by BNYM. The rates will be first published in 2018 Q2. FRB NY will publish the benchmarks no later than at 8:00 AM EST.

Foreign exchange market regulation

On 29 November 2017, the European Central Bank and 14 central banks of the EU member

states (Belgium, Denmark, Germany, Estonia, Ireland, Italy, Latvia, Lithuania, Luxembourg, Hungary, Netherlands, Portugal, Finland, and Sweden) **announced their adherence to the Foreign Exchange Global Code of Conduct**. Central banks of other EU member states and the Bank of England will sign a similar announcement in 2018.

On 14 December 2017, the Global Foreign Exchange Committee (GFXC), which comprises representatives of central banks and market participants, **introduced amendments to the FX Global Code** reviewing the part known as Principle 17. The changes concern the ambiguous market practice that allows declining to enter into a loss-making contract. The updated Principle 17 prohibits to make trades using the information from a client order during the last look window. It also stipulates the conditions when certain contracts are excluded from the new requirement.

Securities market regulation

On 26 October 2017, FCA published a document on measures to ensure the efficient operation of primary capital markets. New rules concern the scope, quality and timeliness of information provided by issuers to investors when conducting an IPO and clarify and extend listing rules.

On 10 November 2017, the presidents of the USA and China reached an agreement aimed at the facilitation of access of foreign companies to the Chinese financial market, including the banking, insurance, securities and mutual funds sectors. In particular, China announced increasing the limit on foreign ownership in joint ventures from 49% to 51% with respect to companies conducting their activity in the futures, securities and mutual funds markets.

On 17 November 2017, the European Securities and Markets Authority (ESMA) published a final report on the Money Market Funds Regulation (MMFR). The report contains the Technical Advice (the liquidity and credit quality requirements applicable to assets received as part of a reverse repo agreement; the criteria for the validation of the credit quality assessment methodologies applicable to assets in which the fund invests), draft Implementing Technical Standards and stress-testing Guidelines.

On 15 December 2017, the European Commission took a decision to recognise trade floors of Australia, Hong Kong and the USA as equivalent to the regulated market. On 21 December, the same decision was taken with respect to Swiss exchanges. Thus, these trading floors continued trading in European shares without any changes after the new MiFID II regulation came into force on 3 January 2018. According to the European Commissioner for the Financial Stability, Financial Services and the Capital Markets Union Valdis Dombrovskis, this is an important step towards creating a dynamic capital markets union that will help boosting the competitiveness of the EU as a financial centre.

On 21 December 2017, the European Securities and Markets Authority (ESMA) published technical advice for the European Commission with regard to the improvement of the Short-Selling Regulation (SSR). The suggestions aimed the regulation improvement can be divided into three main areas:

1) exclusion of price-support operations

2) short-term prohibition of short selling

3) transparency of net short positions (in particular, ESMA backs the requirements that certain holders of short positions should have a LEI code).

Derivatives market regulation

Trades with OTC derivatives out of centralised clearing

On 6 October 2017, the Monetary Authority of Singapore (MAS) issued for consultation draft requirements and reference materials describing MAS approaches to the implementation of its authorities, approved by the Parliament of Singapore on 9 January 2017, with regard to regulating the operations and intermediary activity in the OTC derivatives market, increasing the transparency and stability of capital markets and counteracting misconduct. In particular, the document contains: the requirements for companies entering into contracts for difference to notify their retail investors of related risks (preparation of risk fact sheets); guidelines on interpreting the term ‘common investor’ and its application with regard to

insider trading; some wording amendments due to expanding MAS authorities.

On 26 October 2017, the BoE Financial Conduct Authority (FCA) agreed with the European Securities and Markets Authority (ESMA) and published an updated list of net position limits regarding commodity derivatives. The limits are set in accordance with the requirements of the Markets in Financial Instruments Directive (MiFID II). Position limits are set with regard to commodity derivatives contracts on cocoa, coffee, sugar, aluminium, copper, lead, nickel, tin, and zinc.

Regulation of financial market infrastructure institutions

Central counterparty

On 4 October 2017, the ECB published a positive opinion on proposals of the European Parliament and the Council of the EU with regard to the authorisation of central counterparties and the requirements for recognising central counterparties in other jurisdictions. The proposals involved amending Article 22 of the Statute of the European System of Central Banks to the extent of providing the ECB and national central banks with CCP regulation authorities. The ECB also proposes to make a number of amendments and clarifications concerning the official disclosure of information to the European Systemic Risk Board as a result of CCP Executive Sessions within the framework of the European System of Central Banks.

On 9 October 2017, the European Securities and Markets Authority (ESMA) updated the list of central counterparties recognised in other jurisdictions. The list includes Indian CCPs, namely Indian Clearing Corporation Limited, National Securities Clearing Corporation Limited, and MCX-SX Clearing Corporation.

Trade repositories

On 17 November 2017, the European Securities and Markets Authority (ESMA) published for consultations draft guidelines for the calculation of derivatives positions by trade repositories (TR) authorised in accordance with EMIR. These guidelines are necessary because, as it has been identified, TRs apply different approaches to calculating their clients' positions in derivatives, which makes the consolidation and monitoring more difficult. The guidelines contain the deadlines, the scope of data and the methodology to be used in calculation. The guidelines also provide for the uniform approach to the calculation of collateral under derivatives positions. The deadline for sending comments was extended to 15 January 2018.

On 19 December 2017, the European Securities and Markets Authority (ESMA) published for consultations three technical standards under Securitisation Regulation (SR). These documents govern the establishment of specialised repositories that will collect data on the securitisation structure and corresponding cash flows. The repositories will be supervised by ESMA. Moreover, such terms as simple, transparent and standardised securitisation (STS) are introduced. In order to obtain the STS status, specific criteria must be met. The consultations will be held until 19 March 2018.

On 29 December 2017, the Financial Stability Board (FSB) published governance arrangements and implementation plan for the unique transaction identifier (UTI) for OTC derivatives. The primary purpose of the UTI is to uniquely identify individual OTC derivatives transactions in reports to TRs and minimise the likelihood that the same transaction will be counted more than once. The document complements the UTI Technical Guidance developed by the Committee on Payments and Market Infrastructures (CPMI) and the International Organisation of Securities Commissions (IOSCO) and published on 28 February 2017. The FSB proposes to implement UTIs no later than end-2020 and to designate the International Organization for Standardization (ISO) as the responsible body for publishing and maintaining the UTI data format and structure. The FSB also believes there may be benefits to having a common governance framework for the UTI and unique product identifier (UPI). The approaches to UPI governance are still being developed. Therefore, the final international body responsible for the management of UTI and UPI will be determined later.

On 4 January 2018, the European Securities and Markets Authority (ESMA) officially announced

the launch of the Directive and the Markets in Financial Instruments Directive Regulation (EU) (MiFID II/MIFIR) in cooperation with the EU national securities and financial market regulators. The accessibility of data and information for market participants is the key element to ensure the normal operation of the new regulatory regime. The ESMA notes that all regularly updated information will be published on the special webpage (https://www.esma.europa.eu/databases- library/registers-and-data).

Payment systems

On 7 December 2017, the European Central Bank (ECB) announced the launch of projects aimed at the integration of the united European automated real-time gross settlement systems for the Eurozone (TARGET2) and the automated express gross settlement system for the securities market (TARGET2 Securities, T2S). It also announced the development of the Eurosystem Collateral Management System (ECMS). Both projects involve upgrading the existing systems and platforms to increase their aggregate efficiency. The integrated platform is expected to be launched in November 2021. ECMS is scheduled for launching in November 2022. Deutsche Bundesbank, Banco de España, Banque de France and Banca d'Italia will provide services for both projects.

On 12 December 2017, the European Banking Authority (EBA) published guidelines on security measures for operational and security risks of payments services under the Payment Services Directive. The guidelines provide for the following measures to ensure the security of payment services:

- establishment of the effective operational and security risk management framework;
- implementation of processes that detect, prevent and monitor potential security breaches and threats;
- implementation of risk assessment procedures;
- regular testing;
- implementation of processes to raise awareness of payment service users on security risks and risk-mitigating actions.

On 28 December 2017, the People's Bank of China (PBOC) announced regulatory measures with regard to QR code mobile payments on the back of their growing popularity. In particular, financial institutions will be obliged to obtain a special licence to provide QR code payment services. Moreover, interbank operations using QR code will have to pass obligatory clearing through PBOC or other legal clearing chambers. Financial institutions must take complex measures to prevent the leakage of clients' personal data. The testing of payments standards will start in April 2018. According to Ant Financial, a subsidiary of Alibaba, the number of mobile payments users in China reached 520 million.

Rating agencies

On 29 December 2017, the U. S. Securities and Exchange Commission (SEC) published reports on the activity of 10 nationally recognized statistical rating organisations (NRSROs) in 2017. SEC assessed the activity of each NRSRO and noted the improvement in the sphere of regulatory compliance and internal audit. SEC also pointed out that NRSROs were using information technologies more efficiently and that small specialised credit agencies helped maintain the competition between the NRSROs under review.

Regulation of financial technologies

On 16 October 2017, the International Swaps and Derivatives Association (ISDA) published the ISDA Common Domain Model concept presenting the standardised model for derivatives trading and management during the whole lifecycle and the information on how each step in this process must be represented when using the distributed ledger technology.

On 25 October 2017, the Hong Kong Monetary Authority announced new initiatives with respect to the development of the financial technology ecosystem. The Hong Kong Monetary Authority published a document on practical aspects of the implementation of the distributed ledger technology (DLT). This document will serve as the basis for the development of practical recommendations for the future application of DLT in the Hong Kong banking sector. Seven Hong Kong banks have taken a decision to implement DLT in the form of the Hong Kong Trade Finance Platform. It is expected that

this measure will help to mitigate risks, including fraud-related.

On 27 October 2017, the Hong Kong Securities and Futures Commission (SFC) published recommendations on the management of hacking risks in internet trading. New recommendations cover operations with securities and futures, leveraged foreign exchange trading, and asset management transactions. They involve measures related to the protection of clients' trading accounts, the establishment of secure infrastructure, and general cybersecurity risk management measures. The key control element, two-factor client identification to gain access to internet trading accounts, will come into force on 27 April 2018; other requirements will become effective on 27 July 2018.

On 16 November 2017, the Monetary Authority of Singapore (MAS) and the ASEAN Bankers Association (ABA) within the ASEAN Financial Innovation Network (AFIN) announced the launch the so-called regulatory sandbox for financial institutions and fintech firms. AFIN intends to present the integrated platform for testing fintech products and services for banks, microfinance companies, non-bank financial institutions, and fintech firms from the ASEAN region. AFIN will closely cooperate with MAS and other regulators to ensure near real-life conditions. A number of financial institutions have already declared that they will participate in the experimental stage of the AFIN regulatory sandbox: Unionbank (Philippines), Yoma Bank and Wave Money (Myanmar), VP Bank (Vietnam), City Bank (Bangladesh), and Commonwealth Bank (Indonesia).

On 29 November 2017, the Bank of Italy launched the FinTech Channel initiative aimed at finding innovative solutions in the financial sector. Stakeholders are given an opportunity to send their proposals/projects with the description of their product (service) that uses such financial technologies as blockchain, artificial intelligence or machine learning.

On 5 December 2017, the BoE Financial Conduct Authority (FCA) published the third list of fintech companies for testing products, services or business models within the regulatory sandbox. Out of 61 application reviewed, 18 were admitted by the FCA for participation, including proposals involving blockchain-based payment services, general insurance, creating biometric digital ID, Know Your Customer (KYC) verification, etc. The FCA started to accept applications for the participation in the 4th stage of regulatory sandbox operation, which is scheduled for completion on 31 January 2018.

Regulation of cryptocurrency operations

On 27 October 2017, the Japanese Financial Services Agency (FSA) issued a warning for individuals and business entities clarifying the risks associated with initial coin offerings (ICO). FSA informs individuals about the risk of fraud and business entities about risks associated with ICO regulation.

On 30 October 2017, the State Bank of Vietnam issued a warning that cryptocurrencies are not a legal tender and that issuing, offering and using bitcoins and other similar cryptocurrencies as a medium of payment is prohibited. Since 2018, illegal use of cryptocurrencies will be subject to a fine of 150 to 200 million Vietnamese dongs (USD 6.6 to 8.8 thousand).

On 13 November 2017, the European Securities and Markets Authority (ESMA) issued two announcements: on risks of initial coin offerings (ICO) for investors and on ICO rules for businesses. In particular, ESMA warns that ICO is a highly risky and speculative instrument. If ICO is qualified as a financial instrument, than companies participating in ICOs perform a regulated activity and must comply with applicable legal requirements. ESMA notes that firms participating in ICOs must themselves clarify whether their activity is regulated.

On December 2017, after a long discussion with exchanges, the Commodity Futures Trading Commission (CFTC) certified bitcoin futures contracts traded at the Chicago Mercantile Exchange (CME) and CBOE Futures Exchange (CFE) as well as binary option contracts traded at the Cantor Exchange. CFTC also draws investors' attention to the fact that bitcoin markets and exchanges are still highly unregulated. The Commission is still cautious with regard to the volatility and trade practices in these markets. The

trading in new instruments at these exchanges started on 18 December 2017.

On 3 December 2017, President of Venezuela Nicolas Maduro in his weekly TV address announced his intention to develop a cryptocurrency called Petro to avoid financial sanctions imposed by the USA. The currency will be backed by the Venezuelan oil, gas and diamond reserves. Maduro also announced the launch of the Blockchain Observatory that would serve as 'the institutional, political and legal basis' for the launch of the cryptocurrency.

According to him, the cryptocurrency will allow Venezuela to 'move forward in terms of monetary independence, perform financial transactions and overcome the financial blockade'.

The ICO is scheduled for 20 March 2018; the preliminary trading will be conducted by means of selling Etherium tokens and will take place from 20 February to 19 March 2018. The aggregate emission amount will be 100 million tokens.

On 5 December 2017, the Tokyo Financial Exchange Inc. (TFX) announced that it started preparations for the launch of bitcoin derivatives trading scheduled for early 2018. As of today, the exchange has created a work group responsible for studying and developing the regulatory framework to recognise cryptocurrencies as financial products. In April 2017, Japan recognised bitcoin as a legal tender and extended the supervision over bitcoin exchanges. Currently, 15 firms obtained Financial Securities Agency licences. According to Bloomberg, Japanese bitcoin exchanges account for almost a half of bitcoin trading.

On 5 December 2017, the Financial Services Commission of South Korea via the Korean Financial Investment Association issued a directive by which bitcoin futures were declared illegal. The prohibition concerns all Korean Financial Investment Association members.

On 8 December 2017, the Australian parliament adopted amendments to the Anti-Money Laundering and Counter-Terrorism Financing Act (AML/CTF Act) whereby cryptocurrency exchanges will be obliged to register with the Transaction Reports and Analysis Centre (Austrac). Exchanges will also have to comply with other requirements, including AML/CTF rules, identify their clients and store certain records for 7 years.

On 11 December 2017, the Securities & Futures Commission of Hong Kong (SFC) issued a warning to investors regarding risks associated with futures on bitcoin and other cryptocurrency investment products. According to SFC, providing intermediary services for Hong Kong investors at the US trading floors is a regulated activity and requires a licence from SFC.

On 15 December 2017, the Commodity Futures Trading Commission (CFTC) announced the launch of a webpage that is a centralised repository of virtual currency data. The new resource available at http://www.cftc.gov/bitcoin/index.htm is intended to provide the general public with information on virtual currencies, including potential risks associated with investment or speculative activities and the recently opened trading in bitcoin futures and options.

On 15 December 2017, the Commodity Futures Trading Commission (CFTC) published an announcement specifying the criteria of virtual currency actual delivery:

- A customer has the ability to : a) take possession and control of the entire quantity of the commodity, whether it was purchased on margin, or using leverage, or any other financing arrangement, and b) use it freely in commerce (both within and away from any particular platform) no later than 28 days from the date of the transaction.
- The offeror and any of its affiliated parties do not retain any interest in or control over the purchased commodity at the expiration of 28 days from the date of the transaction.

CFTC will accept public comments with regard to the announcement for 90 days.

On 21 December 2017, the Financial Industry Regulatory Authority (FINRA) issued a warning for investors on fraudulent schemes related to acquiring shares of companies that promise high profits associated with cryptocurrencies. FINRA draws investors' attention to the fact that such aggressively marketed schemes usually don't have a licence.

The regulator explains the actual objectives of organisers of such fraudulent schemes, urges investors to be vigilant and to conduct their own checks before making a decision to purchase shares of cryptocurrency companies.

On 28 December 2017, the government of South Korea announced further tightening of

the cryptocurrency regulation. In particular, accounts that allow performing transactions with cryptocurrencies may be opened on behalf of real physical persons only. Moreover, transactions over such accounts, as well as with other financial instruments or portfolios, must be accompanied by client identification procedures and security measures. Besides, the government prohibited banks to open new virtual accounts for cryptocurrency exchanges. The control over the compliance with the new requirements will be exercised by the Financial Intelligence Unit and the Financial Supervisory Service.

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