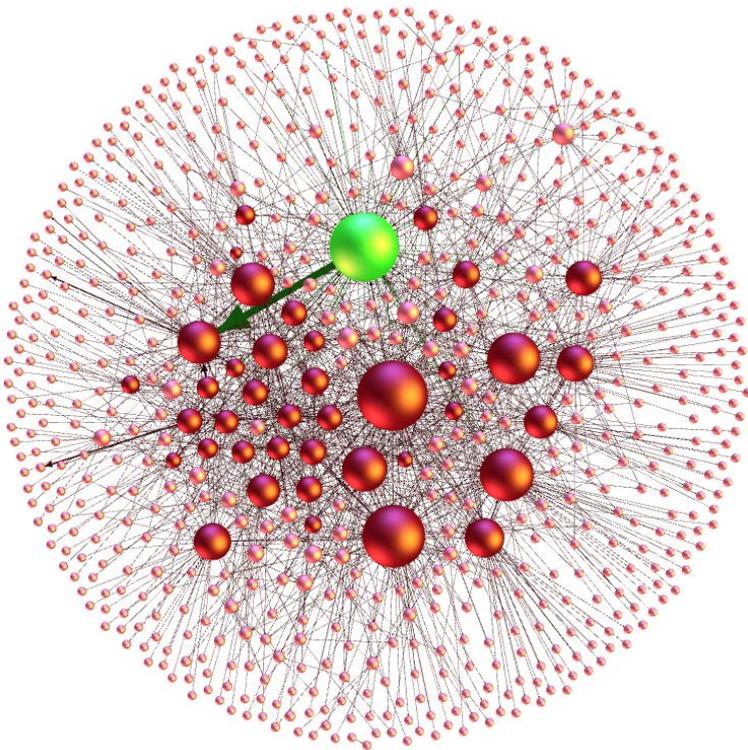


Quarter 1, 2014

Money Market Review



The Central Bank of the
Russian Federation
(Bank of Russia)

This Review is prepared by the Bank of Russia Financial Stability Department in cooperation with the Monetary Policy Department

The statistics used in the Review and the methodological comments are published on the Bank of Russia website under Financial Stability:

http://www.cbr.ru/analytics/?Prtid=fin_stab

Comments and suggestions on the Review's structure and contents are welcome at: reports@cbr.ru.



All references to this Bank of Russia document should be appropriately cited

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Purpose of the Money Market Review

In this Review, the money market includes the ruble segment of the interbank lending market, the FX swap market, and the interdealer repo market with maturities of up to 7 days inclusive. The focus is somewhat more on the repo market due to its cross-sectoral nature. The Bank of Russia is committed to promoting money market development to achieve the following:

- A stable environment for liquidity reallocation, i.e. with acceptable volatility of short-term interest rates and smoother changes in transaction values;
- Equal access to liquidity for market participants;
- Counterparty default risk minimised through sound collateral management;
- A balanced development of various market segments, specifically, a full-fledged segment beyond overnight maturities;
- A favourable environment for the development of the CCP-cleared market.

The importance of money market monitoring is underpinned by the following:

- The money market plays a key role in banking intermediation, which provides for on-going conversion of short-term borrowings into long-term loans to the economy; its uninterrupted functioning enables banks to refinance their liabilities continuously and efficiently use their capital to provide funding to the economy;
- The money market is the first to come under pressure in case of a financial turmoil, therefore, its parameters may serve as early warning indicators;
- The money market is crucial in intragroup operations of financial groups and conglomerates, which require close attention under consolidated supervision;
- The money market, in its interdealer repo and swap segments, may concentrate financial sector systemic risks, because its players include not only banks but also non-bank professional securities market participants;
- Money market trends are a good indication of liquidity conditions in the banking sector;
- Potential disruption of the money market and panic sales of collateral would significantly push up the cost of market funding and make it more difficult for non-financial organizations to access it;
- Money market conditions impact the central bank's capacity to manage banking sector liquidity and short-term interest rates.

In view of the importance of the money market for financial stability, the Bank of Russia issues **regular quarterly reviews** of its developments and the level of systemic risk.

The ultimate purpose of this publication is to facilitate financial stability by minimising systemic liquidity risks via enhancing money market transparency. A better awareness of the market structure and trends will allow market participants to improve their perception and assessment of their own risks. Moreover, the Bank of Russia seeks to communicate to market participants potential collective implications of their individual investment decisions in case of domino effects that are not quite fully addressed in market risk assessments.

The Review, rather than being a Bank of Russia official publication, is a research paper focused on the analysis of market developments in the period under review. The latest reported data are given as of the last business day of the quarter, while potential material events after the reporting date are excluded from the analysis. The Review is available in Russian and English on the Bank of Russia website.

SUMMARY

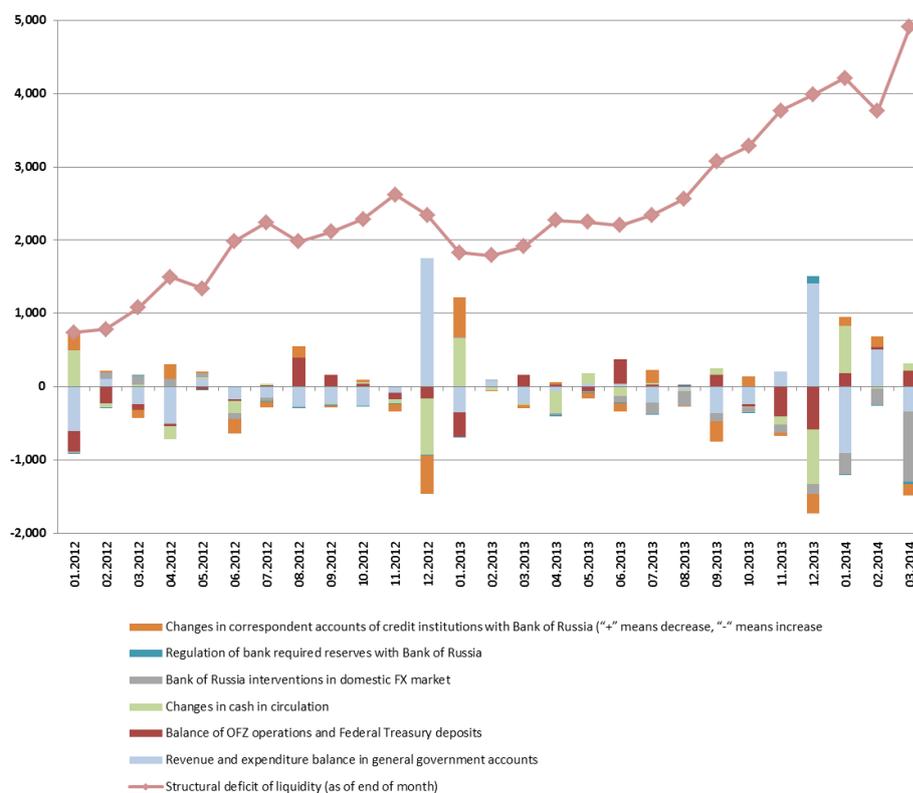
- The escalation of international political tensions in March 2014 was reflected in a certain decrease in the activity of money market participants. The value of open positions fell in all segments of the money market through replacing part of transactions with Bank of Russia operations, as well as due to the lower volume of transactions with non-residents.
- Requirements for additional funds (securities) to be placed in the repo market amounted to nearly 0.8 billion rubles on some days of the period under review, but that did not have a destabilizing effect on the market, since almost all requirements were met. In the period under review, no large-scale defaults on liabilities were observed.
- Due to a large volume of bonds issued in December 2013, the value of marketable collateral in bank balance sheets increased by 0.3 trillion rubles from 1 December 2013 to 4.9 trillion rubles as of 1 March 2014. Year on year, the annual growth in the value of marketable collateral amounted to 20% (17% on 1 January 2014 as compared with 1 January 2013).
- The issuing activity in the domestic bond market was relatively low in the first quarter of 2014. The value of IPOs of both corporate bonds and federal loan bonds turned to be less than the same figures in 2013. Thus, the possibility of increasing banking sector refinancing was limited in the period under review.
- The Bank of Russia assessed the institutional structure of OFZ portfolios by holder and maturity. Non-residents dominated OFZ portfolios with maturities ranging from 3 to 10 years.
- The repo market and the FX swap market demonstrated the most efficient transmission of liquidity. They had a denser network of linkages among participants and a more homogeneous distribution of interest rates. Inadequate efficiency of liquidity reallocation in the interbank lending market resulted from the limitations on interdealer interaction in the money market and manifested itself by a relatively high volatility of interest rates.

1. MONEY MARKET STRUCTURE AND CURRENT CONDITIONS

1.1. Banking sector liquidity factors

In the first quarter of 2014, in addition to budget fund flows and changed cash in circulation that traditionally produced a significant impact on liquidity at the beginning of a calendar year, Bank of Russia interventions in the domestic FX market contributed to a substantial change in banking sector liquidity (Chart 1). Amid a negative external situation, the Bank of Russia sold foreign currency within its exchange rate policy, the volume of which amounted to 1.5 trillion rubles in the first quarter of 2014 (of which 1 trillion rubles in March 2014).

Chart 1. Liquidity drivers, billions of rubles

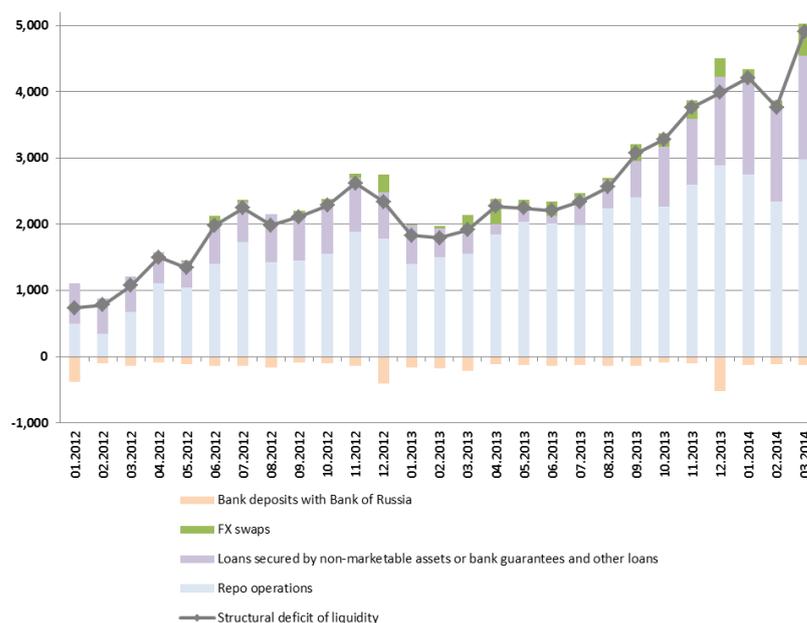


The budget channel served as an additional factor of liquidity withdrawal in the period under review through which 700 billion rubles were absorbed (excluding OFZ operations and Federal Treasury deposits). Given the considerable utilisation of marketable collateral, credit institutions maintained strong demand for Federal Treasury deposits with banks. In general, 0.3 trillion rubles were granted through the channel in the first quarter of 2014. Bank demand at OFZ auctions organised by the Russian Ministry of Finance in the reporting period was moderate, which, combined with a significant repayment of the domestic public debt, caused an inflow of liquidity into the banking sector in the amount of 100 billion rubles.

Bank of Russia interventions in the domestic FX market and an outflow of budget funds from the banking sector in the first quarter of 2014 were partially offset by a decline in cash demand. The most significant change in the value of cash in circulation occurred in January as a result of seasonal

factors. During the period under review, a decline in cash in circulation led to an increase in banking sector liquidity in the amount of 700 billion rubles.

Chart 2. Structural deficit of liquidity and Bank of Russia liquidity provision/absorption operations, billions of rubles



A seasonal decrease in bank balances of correspondent accounts with the Bank of Russia in the first quarter of 2014 stood at 0.1 trillion rubles. The value of funds transferred to required reserve accounts was negligible in the reporting period and did not have a material impact on banking sector liquidity.

Repo operations with the Bank of Russia, the debt to which increased during the quarter by 0.1 trillion rubles to 2.9 trillion rubles remained a major mechanism for bank refinancing (Chart 2).

Bank of Russia loans secured by non-marketable assets, which were substantially promoted by Bank of Russia introduction of 3-month credit auctions on a monthly basis, remained a significant source of liquidity in the period under review, amid the limited value of marketable collateral. As a result, the debt on these operations rose by 0.2 trillion rubles to 1.6 trillion rubles in the first quarter of 2014.

Marketable collateral scarcity faced by individual credit institutions contributed to higher demand for Bank of Russia FX swaps. While in January-February 2014 these operations were irregular, mostly conducted in the periods of large tax payments, in March 2014 they acquired a sustainable character along with a rise in structural liquidity deficit. In these circumstances, the total FX swap debt of credit institutions increased by 0.2 trillion rubles to 0.4 trillion rubles in the quarter, and the average daily value of liquidity provided through these operations on the days of their execution amounted to nearly 160 billion rubles.

1.2. Repo market structure and conditions

In the first quarter of 2014, the deteriorating international situation had a major impact on the money market. Open positions in the interdealer repo market decreased by more than 20% in the first quarter of 2014. On 6 January 2014, the value of open positions stood at just over 500 billion rubles, whereas on 28 March 2014 it was less than 390 billion rubles (Chart 3).

This reduction was related to an increase in Bank of Russia repo operations, which given higher market interest rates partially replaced repo transactions previously conducted among banks. In addition, amid rising foreign political tensions banks narrowed liquidity provision to non-residents who were clients of non-bank financial institutions (Chart 4).

Chart 3. Value of open positions in the interdealer repo market, billions of rubles

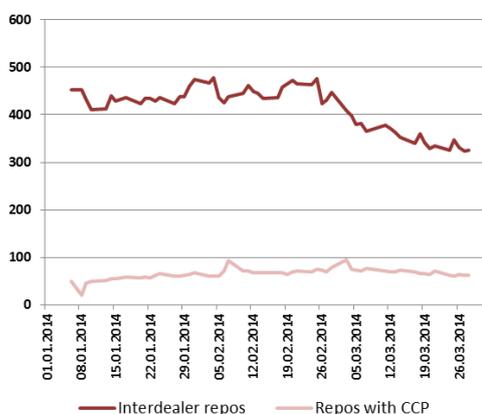
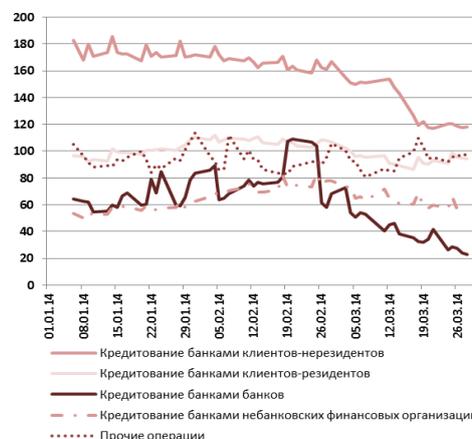


Chart 4. Value of open positions by counterparty, billions of rubles



It should be noted that only a few of the largest market participants significantly reduced their lending, while quite a large number of market participants and their clients lowered the amount of borrowing (Chart 5 and Chart 6). In the quarter under review, against the background of increased volatility there continued growth in the value and share of repos with the central counterparty in the total value of interdealer repos. In March, the value of these transactions reached 16% of open positions in the market (see Section 3).

Chart 5. Value of open positions in the repo market by creditor, billions of rubles

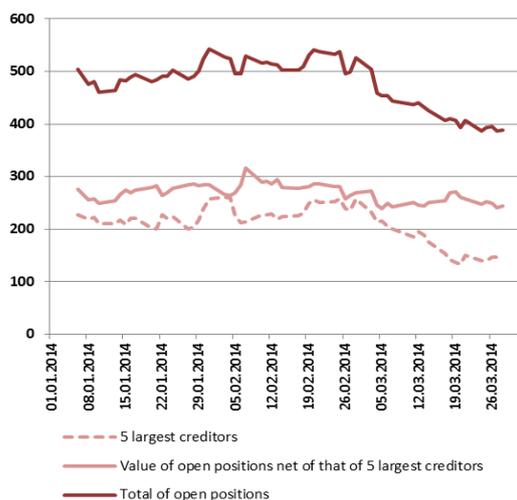
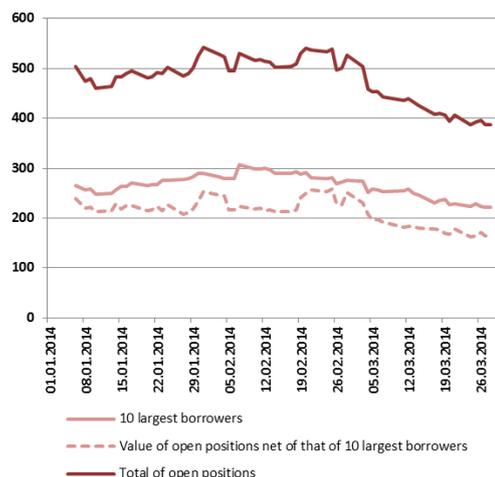


Chart 6. Value of open positions in the repo market by borrower, billions of rubles



In the first quarter of 2014, a significant fall in prices was registered in the securities market: the MICEX index fell from 1,500 to 1,250 points, i.e. by more than 15%. The maximum daily decline of the MICEX index stood at 6% in the reporting period. Such a serious shock to the securities market was a factor in market risk materialisation.

In the reporting period, the above event did not cause a major disruption in the interdealer repo market. At the moments of a strong fall in the stock index market values remained relatively stable, the total value of additional funds (securities) placed under repo transactions on some days reached nearly 0.7 billion rubles (Chart 7 and Chart 8), but virtually all requirements were met.

Chart 7. Requirements for additional funds placed in the market of repo operations with equities

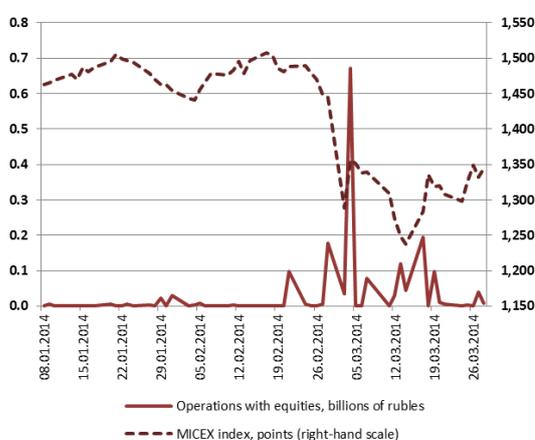
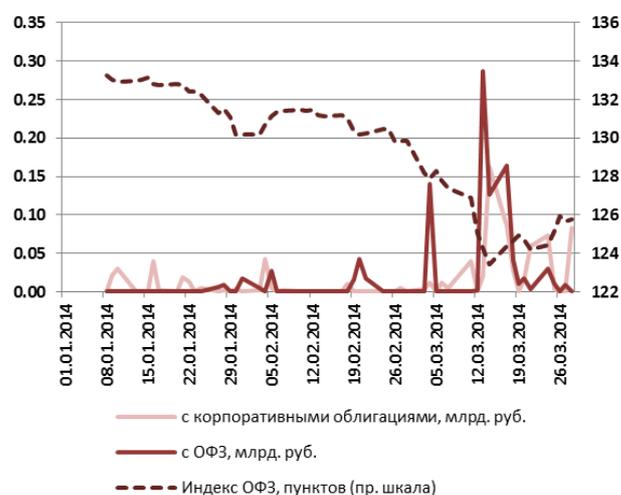


Chart 8. Requirements for additional funds placed in the market of repo operations with bonds



In general, the larger portion of total additional placements referred to transactions with equities used as collateral. In the above operations, liquidity was provided primarily by banks, and borrowers were the clients of banks and non-bank financial institutions (Chart 9).

Chart 9. Structure of additional funds placed in the interdealer repo market by counterparty

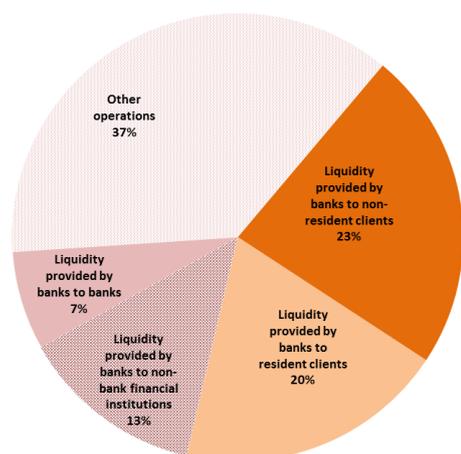
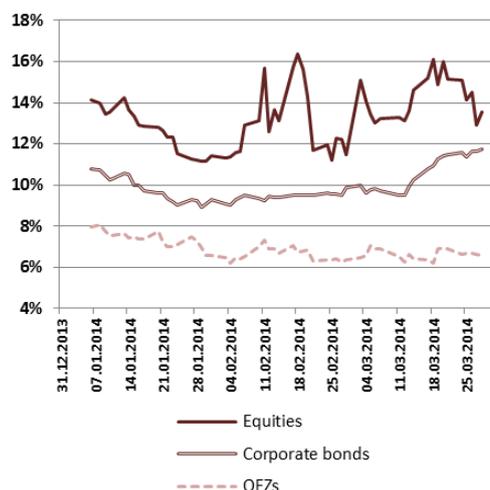


Chart 10. Weighted average haircuts in the interdealer repo market by collateral type, billions of rubles



In March 2014, amid growing uncertainty in the securities market, haircuts in repo operations with corporate bonds as collateral started to rise (Chart 10). At the beginning of the quarter, the haircuts averaged about 10%, and by the end of the quarter about 12%. Meanwhile, the dynamics of haircuts in operations where equities used as collateral had no pronounced trend and were characterized by relatively high volatility.

At the end of the quarter, the spread between the amount of haircuts in repos with equities and corporate bonds reached minimum values. A relatively low level of haircuts in repos with equities meant that this segment of the repo market was at greater potential market risk.

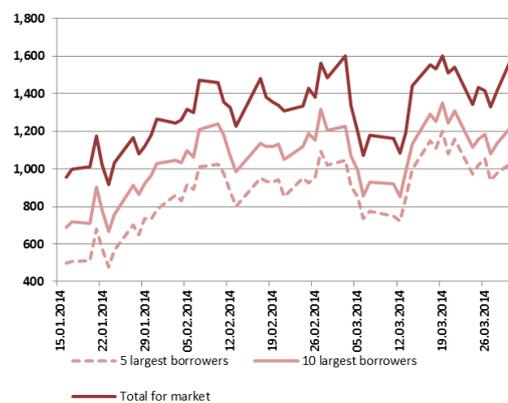
1.3. Structure and conditions of the FX swap market

In the first quarter of 2014, the value of FX swap operations significantly increased. On 15 January 2014, the value of open positions on swap operations stood at about 1.0 trillion rubles, whereas on 31 March 2014 it was about 1.6 trillion rubles. This growth was mainly associated with a rise in exchange operations with the Bank of Russia¹ (Chart 11). The Bank Russia provided ruble liquidity to market participants through swaps, and it conducted almost all of these operations on the Moscow Exchange, continuously maintaining its bids in a trade blotter. Among the recipients of ruble liquidity, mainly some of the largest borrowers expanded their swap operations (Chart 12).

Chart 11. Value of FX swap operations, billions of rubles



Chart 12. Value of swap operations by ruble liquidity recipient, billions of rubles



The dynamics of open positions on swap operations in the reporting period was largely correlated with the dynamics of the ruble exchange rate against the US dollar (Chart 13). Participants had to compensate the reduction of available ruble funds as due to growth in foreign currency assets by borrowing from the Bank of Russia, including through FX swap operations.

¹ The value of the FX swap market is determined based on data from the reporting Form 0409701, which is provided by large banks that are participants of the money market and foreign exchange market. The indicated market value partially includes the swap operations with the Bank of Russia.

Chart 13. Swap operations and the US dollar exchange rate

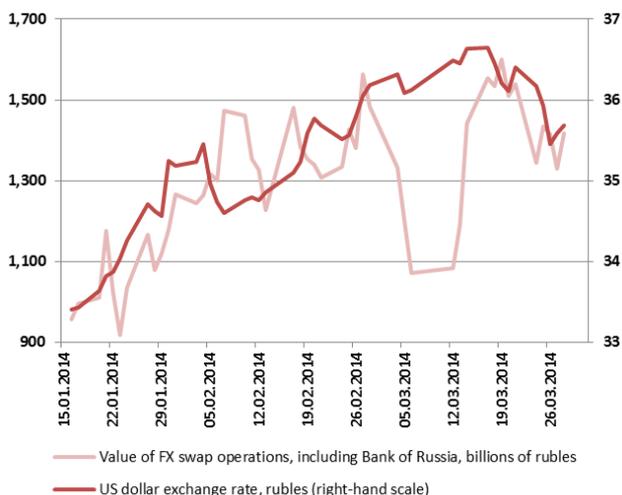
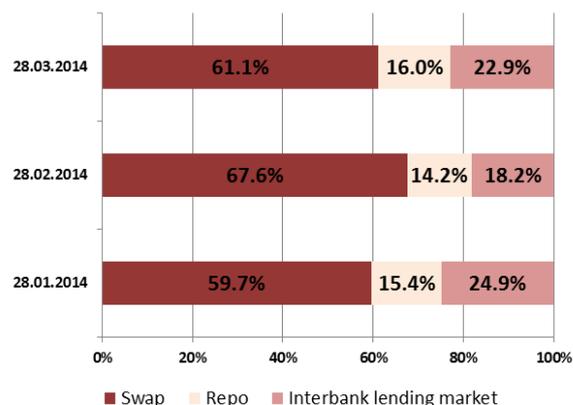


Chart 14. Money market structure



In the first quarter of 2014, the share of FX swap transactions showed an upward trend in the money market and amounted to 61.1% by the end of the period under review (Chart 14). Taking into account expected growth in market asset utilization ratios (see Section 4), it is possible to expect an increase in the relative size of swap operations in the money market.

1.4. Structure and conditions of the interbank lending market

Despite an unfavourable external environment and Bank of Russia ongoing efforts to rehabilitate the banking sector, the situation in the interbank lending market remained generally stable. The market volume slightly declined: from 400 billion rubles at the beginning of the quarter to 350 billion rubles at the end (Chart 15). The reduction was mainly due to the actions of a few major players included in the RUONIA list (Chart 16). The banks conducted operations in all the segments of the money market and were fairly large borrowers from the Bank of Russia. A decrease in their interbank operations was due to their refocus on other segments of the money market (see Section 5 on cross-sectoral liquidity allocation). The volume of funds borrowed by small banks rose slightly.

Chart 15. Interbank borrowing volumes, billions of rubles

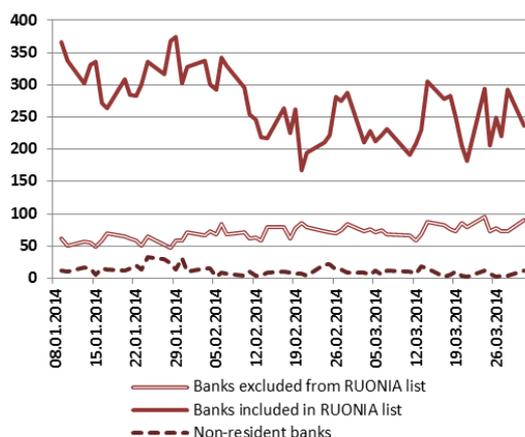
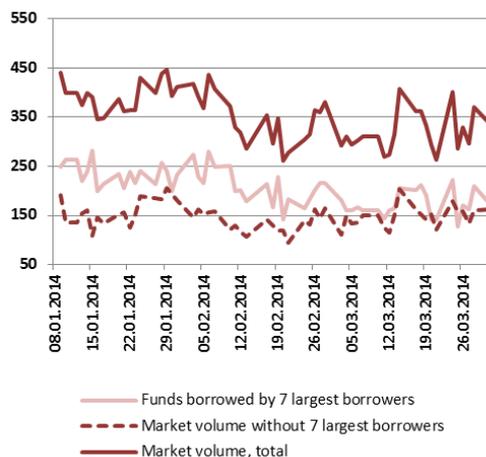


Chart 16. Concentration of borrowers in the interbank lending market, billions of rubles



The escalation of foreign political tensions had a significant impact on interbank loan rates. The deterioration of the external background led to a widening spread between the borrowing rates of banks included in the RUONIA list and other banks (Chart 17). At the end of the quarter, due to a seasonal increase in demand for liquidity, the borrowing rates of banks excluded from the RUONIA list exceeded the upper border of the Bank of Russia interest rate corridor. Given continuing foreign political tensions, one cannot exclude the repetition of these events in the future.

Chart 17. Interbank borrowing rates

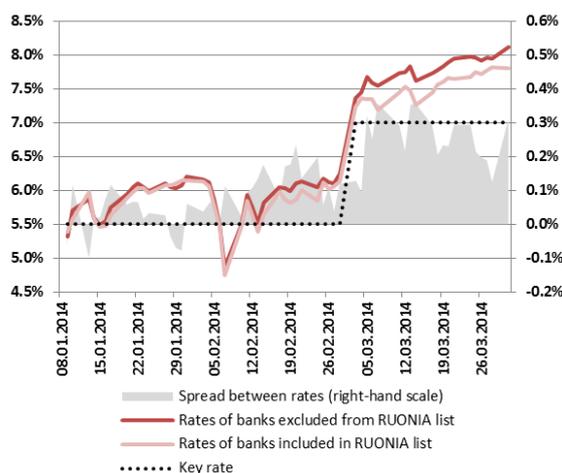
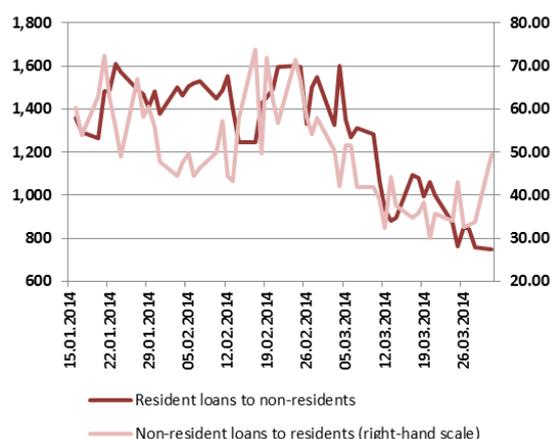


Chart 18. Interbank transactions with non-residents (including FX operations), billions of rubles



In the first quarter of 2014, the volume of interbank transactions with non-residents was going down (Chart 18). The deals were mainly concluded in US dollars and euros. Russian banks preferred to place their deposits with foreign banks, and more than two thirds of the above transactions were of intra-group character. This trend was partially attributable to the lower liabilities of foreign bank subsidiaries to individuals and legal entities.

2. IMPACT OF KEY EVENTS ON THE MONEY MARKET

The deterioration in the foreign political situation in the first quarter of 2014 resulted in a significant drop in stock market indices and the ruble depreciation. The situation in financial markets was stabilised due to the Bank of Russia measures of a temporary change in the parameters of the exchange rate policy, as well as a higher key rate. Open positions in the money market somewhat decreased at the end of the quarter, mainly as a result of the lower volumes of the swap market (Chart 19). However, this decline was offset by growth in FX swap operations with the Bank of Russia and the total value of swap operations rose in the first quarter.

Chart 19. Volume of operations in money market segments, billions of rubles

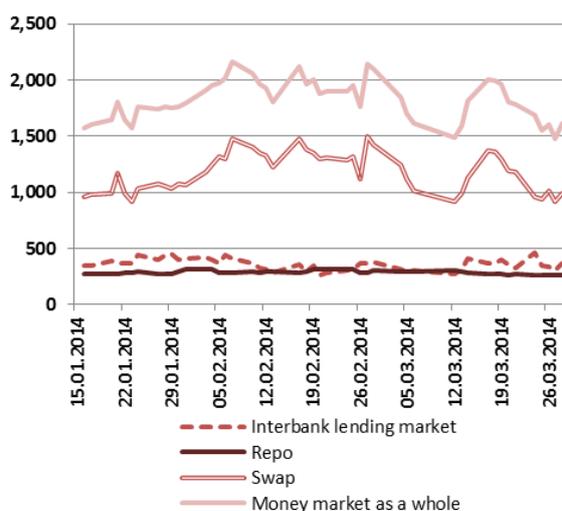
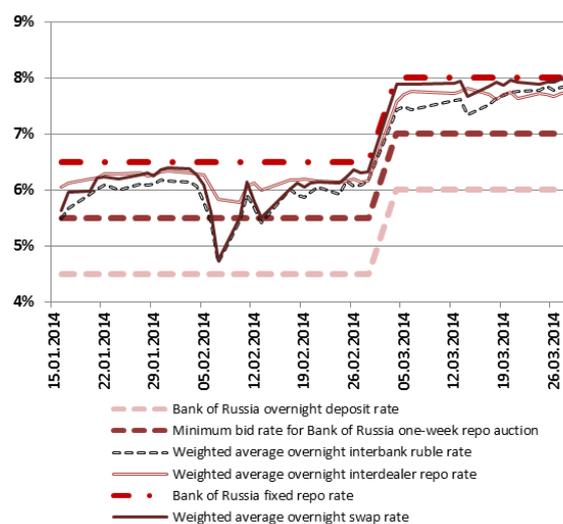


Chart 20. Money market overnight rates



However, the general concern of market participants about the development of the situation in Ukraine led to rising tensions in the money market. Since the end of February 2014, the rates were registered near the upper border of the Bank of Russia interest rate corridor with an upward trend (Chart 20). Despite the tension in the money market in the period under review, there were no defaults, which would serve as a trigger for subsequent defaults of other participants.

On 3 March 2014, the Bank of Russia Board of Directors took a decision to temporarily raise from 11.00 am (Moscow Time) the key rate up to 7.0% per annum. The decision was aimed at preventing inflation and financial stability risks associated with higher volatility in financial markets. This decision helped to adjust money market rates to reflect a new benchmark of the Bank of Russia interest rate policy.

The tensions in the money market observed in March 2014 also manifested themselves in the increased demand for Bank of Russia refinancing instruments, including fixed-term transactions. The volume of Bank of Russia FX swaps and repos on fixed terms reached the peak by the end of the first quarter of 2014, 15% of the total volume of Bank of Russia refinancing through swaps and repos. At the same time, it had virtually no impact on the spread between the average rate of borrowing from the Bank of Russia and the key rate (an increase was of about 10 basis points).

Chart 21. Structure of operations in money market segments

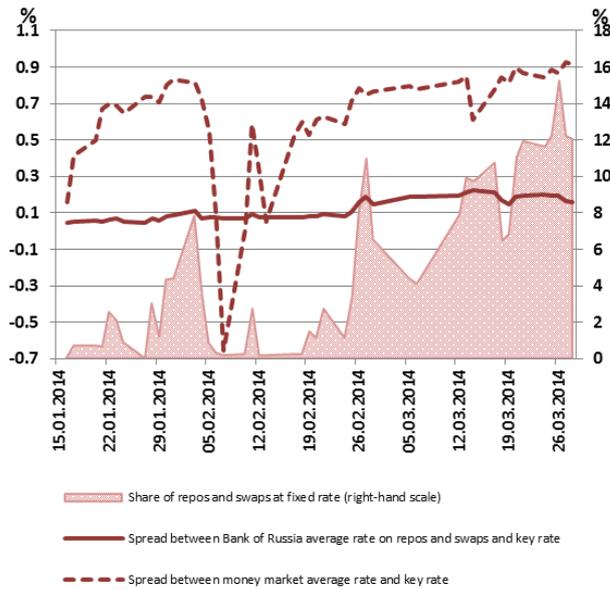
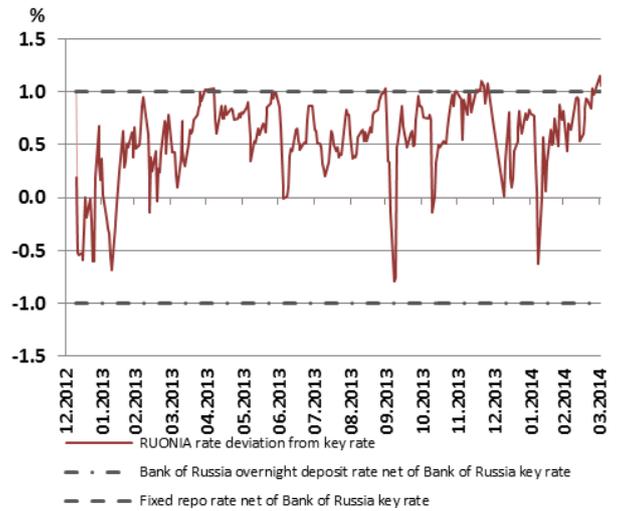


Chart 22. Deviation of the RUONIA rate from the key rate



At the end of the first quarter of 2014, the total amount of the banking sector debt to the Bank of Russia reached a record of 4.95 trillion rubles. In the period of significant growth in the banking sector total debt to the Bank of Russia (from 14 February to 25 March 2014), 2 large banks accounted for more than 75% of repo debt growth.

Until the end of 2014, one should expect an increase in banking sector refinancing by the Bank of Russia, aimed at offsetting the effect of the autonomous factors of bank liquidity (see Section 1.1.). As a consequence, further growth in the utilization ratios of marketable and non-marketable collateral and market interest rates approaching the upper border of the Bank of Russia interest rate corridor can be expected (Chart 22).

3. DEVELOPMENT AND FINANCIAL STABILITY OF MONEY MARKET INFRASTRUCTURE

Despite increased volatility in financial markets, the situation in the money market remained stable in the first quarter of 2014 (see Section 1). The value of transactions with the central counterparty (CCP) grew and in March 2014 reached its historic high for all the markets (2.31 trillion rubles on 3 March 2014) and CCP repos (0.09 trillion rubles on 3 March 2014) and CCP swaps (0.98 trillion rubles on 31 March 2014, see Chart 23 and Chart 24).

Chart 23. CCP operations in all markets, trillions of rubles

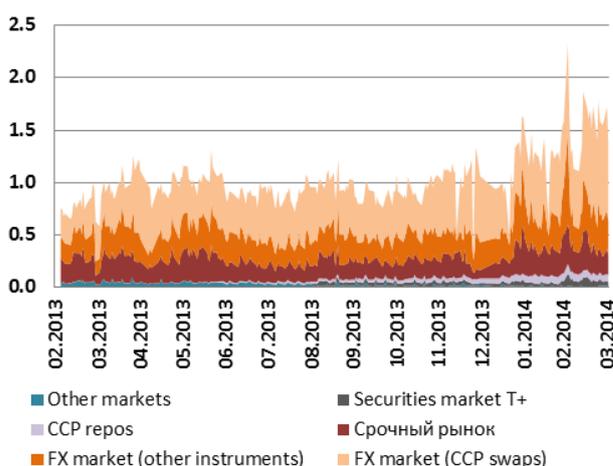
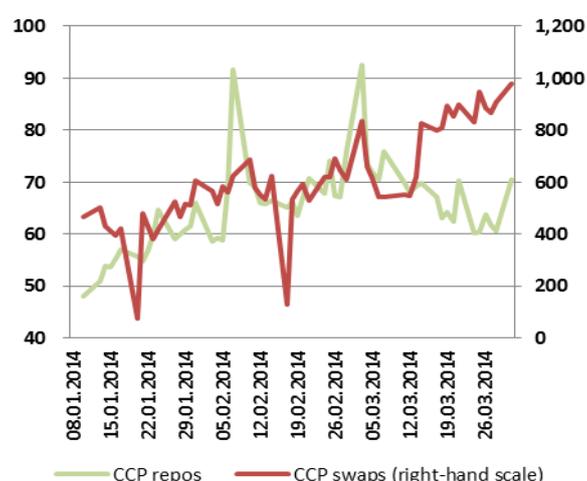


Chart 24. CCP trades in the money market in the first quarter of 2014, billions of rubles



The structure of the CCP money market did not change in the reporting period, and an upward trend was observed in CCP swaps (from 7.5 trillion rubles in January 2014 to 15.4 trillion rubles in March 2014), as well as in CCP repos (from 1.0 trillion rubles in January 2014 to 1.4 trillion rubles in March 2014). The share of CCP repos in the total value of open positions in the repo market tended to increase in the first quarter and stood at 16% in March 2014 (Table 1).

Table 1. Share of CCP operations in money market segments

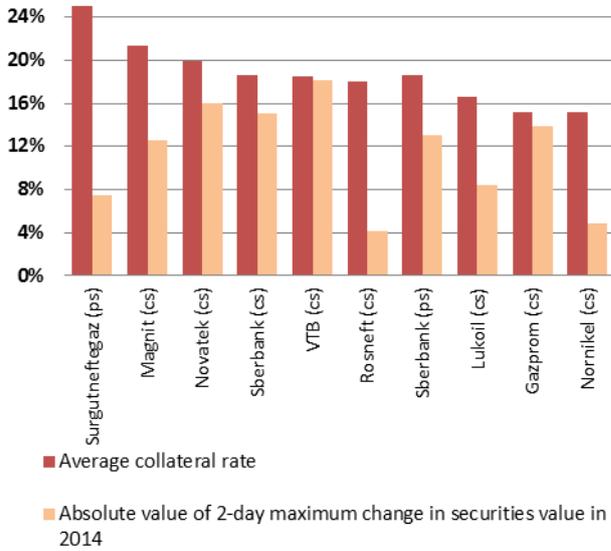
Instruments	January 2014	February 2014	March 2014
Share of FX swaps in FX total open positions	100%	100%	100%
Share of CCP repos in repo total open positions	11%	13%	16%

As a result of increased volatility in financial markets and instability of the external environment conducive to higher financial uncertainty, the Bank National Clearing Centre CJSC (hereinafter NCC) and NCO CJSC National Settlement Depository (hereinafter NSD) took steps in March 2014 to improve their financial soundness.

In March 2014, the NCC acting as the CCP changed the rates of collateral for securities admitted to trading with partial collateral, and set them at a level exceeding a two-day drop in the value of securities in the reporting period, including the most liquid shares² (Chart 25 and Chart 26).

² The most liquid shares are equities the trading volume of which exceeded 80% of the trading volume in equities on the Moscow Exchange in the first quarter of 2014.

Chart 25. Collateral rates and absolute values of the two-day maximum changes in the value of the most liquid shares in the first quarter of 2014



(cs) – common shares
(ps) - preferred shares

In the foreign exchange market, the collateral rates set by the NCC for the US dollar and the euro remained unchanged (5% for US dollars and euros) and fully covered the market fluctuations of the price of foreign currencies in the Moscow Exchange FX market during the period under review (Chart 27 and Chart 28).

Chart 27. Frequency distribution of two-day changes in the USD/RUB rate in the first quarter of 2014

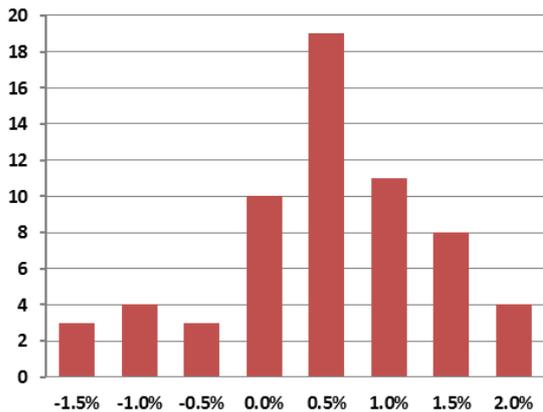


Chart 26. Structure of total trading volume in the securities market by instrument in the first quarter of 2014

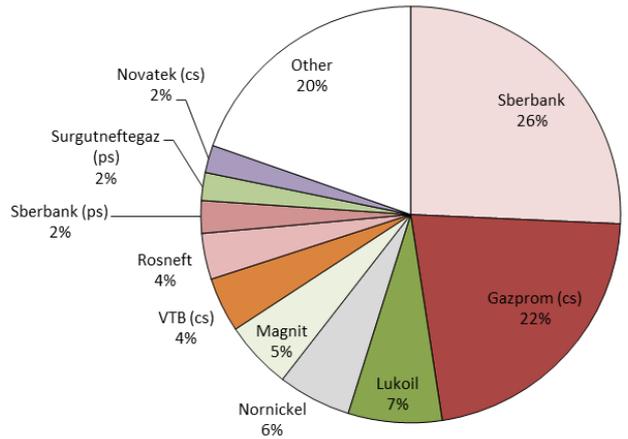
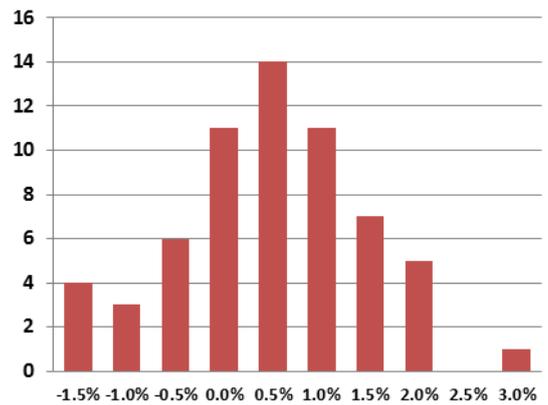


Chart 28. Frequency distribution of two-day changes in the EUR/RUB rate in the first quarter of 2014



Thus, when conducting partially secured operations the NCC as a CCP remained resilient to the potential materialization of market risk. It should be noted that the NCC conducted in the period under review close-out netting procedures against a number of credit institutions whose banking licenses had been revoked. These events did not affect the financial soundness of the NCC. The banks with revoked licenses had no significant positions on CCP operations.

It is worth noting that serving as a clearing organization, the NSD settles trades in the spot market only if clearing participants have deposited the necessary amount of cash and securities prior to settlement and clearing pool formation (on a DVP basis).

In March, the NCC made changes to the Clearing Rules for FX Market and Precious Metals Market, specifying a list of circumstances, the occurrence of which was regarded as the basis for recognizing an emergency situation, and defining measures to settle it. Those changes were also made to the NSD Clearing Rules.

Thus, the measures adopted by the NCC and the NSD are timely and adequate given increased volatility in the financial markets, and analysis of the current situation in the Moscow Exchange markets suggests a conclusion on the absence of significant threats to the financial soundness and continuity of the NCC and NSD operation in potential stressful situations.

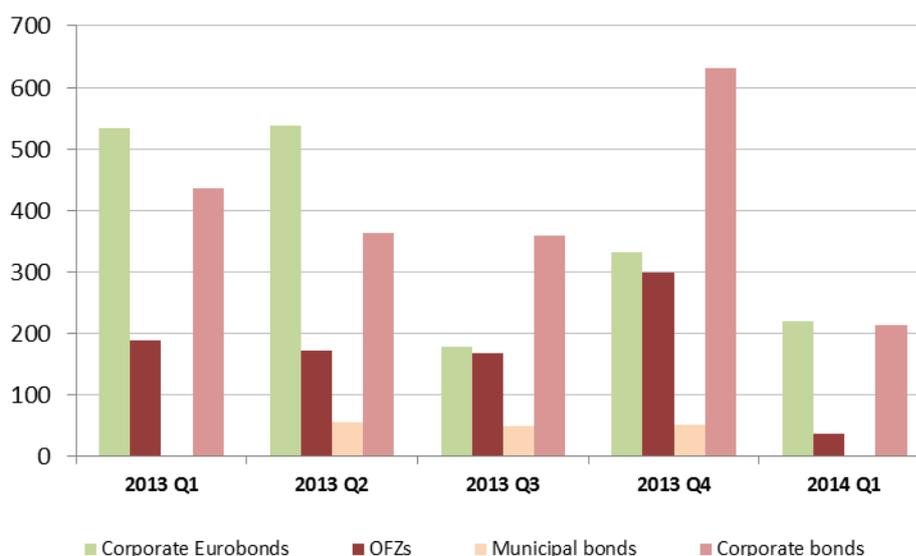
4. MONEY MARKET SYSTEMIC RISKS

4.1. Distribution and dynamics of the value of collateral for repo operations

Bank of Russia repos are currently the main instrument of refinancing credit institutions. Given persistent high banking sector demand for refinancing operations, a larger securities market will help to alleviate marketable collateral scarcity. In this context, debt securities issuance is most important as bonds traditionally dominate the portfolios of Russian credit institutions.

The high volatility of financial markets and increased interest rates in early 2014 lowered the attractiveness of a bond placement. In this connection, the issuing activity in the domestic bond market was relatively low in the first quarter of 2014. The amounts of IPOs of both corporate bonds and federal loan bonds were lower in the first quarter of 2014 than in each of the quarters of 2013. The issuance volume in domestic market stood at less than 0.3 trillion rubles. The volumes of Eurobond placements were also slightly less than the average in 2013 (Chart 29).

**Chart 29. Issuing activity in the securities market
in the first quarter of 2013-the first quarter of 2014, billions of rubles**



Sources: Ministry of Finance; CBONDS, Bank of Russia calculations.

In the first quarter of 2014, growth in marketable collateral of banks continued. According to data as of 1 March 2014, the market value of bank collateral (adjusted by Bank of Russia repo haircuts) was estimated at 4.9 trillion rubles, an increase of 0.3 trillion rubles as compared with the amount registered as of 1 December 2013. Year on year, growth in marketable collateral amounted to 20%.

Table 2. Value of marketable collateral for Bank of Russia repo operations in March 2013, trillions of rubles

Collateral	Outstanding value	Banking sector balance sheet value	Banking sector balance sheet value (conservative estimate)
Debt securities	8.4	4.7	4.6
Equity securities	4.2	0.2	0.2
TOTAL	12.6	4.9	4.8

Note. The indicators are adjusted by Bank of Russia repo haircuts; the value of outstanding debt securities does not include Russian Eurobonds; the conservative estimate takes into account the fact that part of collateral is at the disposal of banks that are not involved in Bank of Russia repos.

The utilization ratios of marketable assets in the first quarter of 2014 were on average below the values of the fourth quarter of 2013. However, during the period of peak bank demand for refinancing, the utilization ratio of marketable assets exceeded 60% (Chart 30).

Chart 30. Outstanding debt of credit institutions and utilization ratio of marketable assets

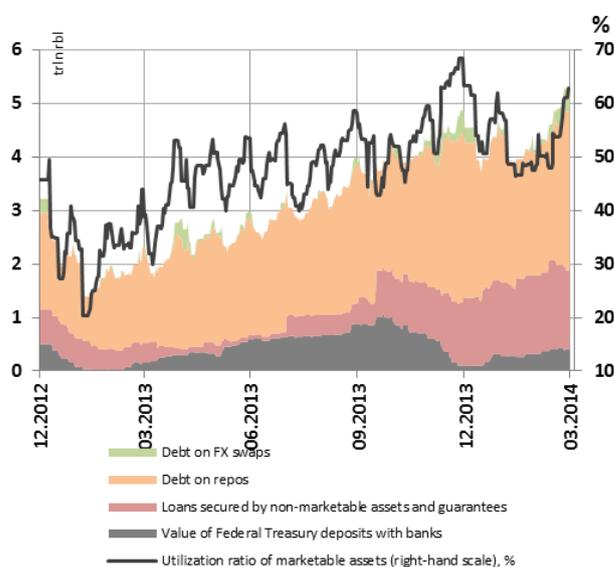
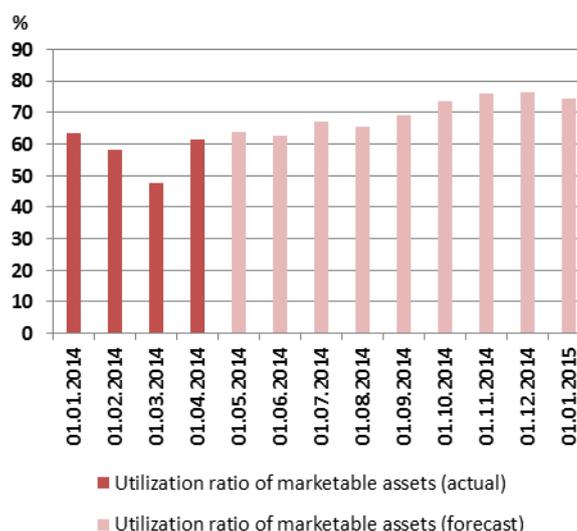


Chart 31. Utilization ratio of marketable assets: actual and forecast values



In general, the present growth rates of bank debt on repo operations outpace the growth of marketable collateral. This trend is expected to continue in the second-fourth quarters of 2014. If the current structure of debt on Bank of Russia refinancing operations and the growth rate of marketable collateral persist, the utilization ratio of marketable assets may exceed 75% by the end of 2014 (Chart 31).

4.2. Structure of OFZ holders by maturity

OFZs are most actively used as collateral for repo operations. Market risk plays an important role in repo transactions. It is caused by the developments in the government borrowing market and investor preferences. The structure of the bond market by securities holder (the share of non-residents, local institutional investors, and others) has a significant impact on market volatility and stability. Based on IMF recommendations, the Bank of Russia began to publish in 2013 regular statistics on non-resident OFZ portfolios. In 2014, the Bank of Russia plans to expand the disclosure on the government debt market to include data on investor institutional structure.

The disclosure on the government debt market shall contribute to higher transparency and more accurate assessment of risks by financial market participants, including interdealer repo market participants. The value of portfolios of certain investors can vary significantly by the maturity segment of the government debt market. In addition, information on the ratio of portfolios held by the major groups of market participants is of interest as well.

In this context, the Bank of Russia assessed the structure of the OFZ portfolio by holder and maturity. The main group of OFZ holders were Russian credit institutions, which accounted for about half of the total market. About a quarter of the market fell on foreign investors, and the rest on other resident investors with pension funds and insurance companies included.

Chart 32. Structure of OFZ holders by maturity (as of 1 February 2014)

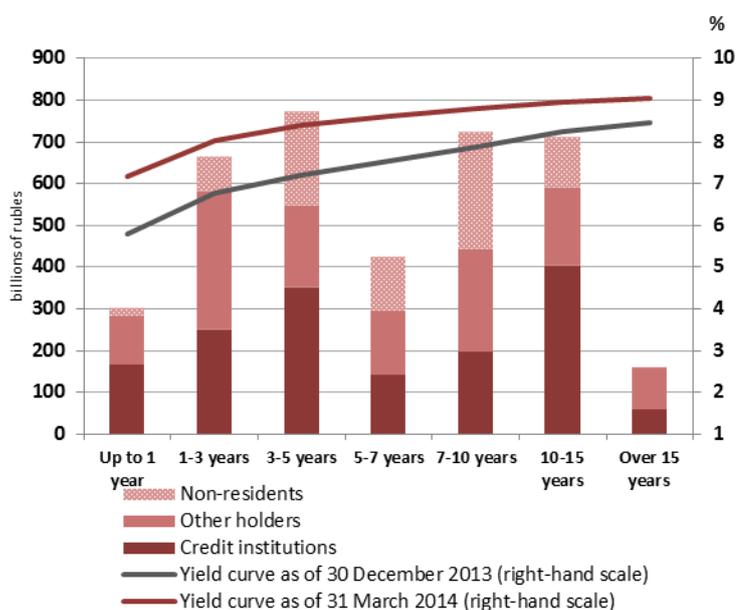


Chart 32 shows that foreign investors prefer securities with maturities from 3 to 10 years. Apparently, this is due to a more attractive profitability of short-term securities and their lower sensitivity to interest rate risk as compared with long-term securities (over 10 years). Individual investors with the portfolios of medium-term papers (3 to 5 years) can hold them to maturity. The non-resident portfolios of short-term (up to one year) and super-long-term (above 15 years) securities are minimal, which can be attributed to unattractive yields and a high sensitivity to interest rate risk, respectively.

Since November 2013, non-resident presence in the OFZ market shows a downward trend. This is reflected both by the reduction in the absolute value of foreign investors' OFZ portfolios (from 933 billion rubles as of 1 November 2013 to 836 billion rubles as of 1 March 2014) and a decrease in the non-resident share of the OFZ total market value (from 26% to 22%). It should be noted that the reduced value of portfolios is not essential for the market, it occurred rather evenly over the entire period and did not have a significant impact on the market situation.

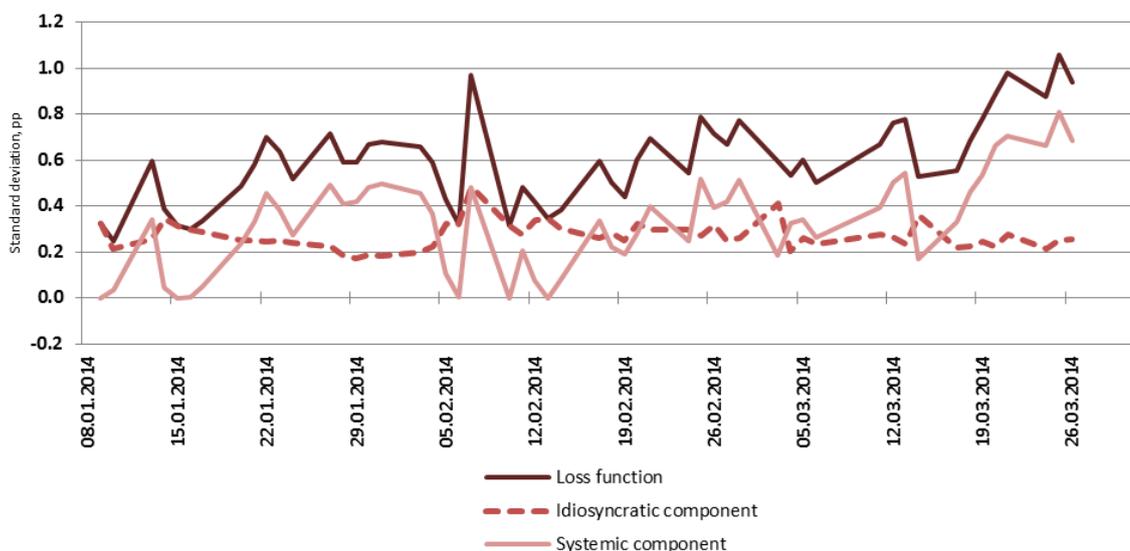
4.3. Evaluation of the banking sector's "loss function" in the interbank lending market

When assessing the level of interest rate stability in the money market, in particular, the interbank lending market, the Bank of Russia used the "loss function" approach³ (see Money Market Review, Quarter 3 of 2013).

The "loss function" increases in line with growth in money market trades at rates significantly deviating from the key policy rate. The economic meaning of the "loss function" is to measure opportunity costs incurred by the banking sector when banks have to secure funding at rates different from the key policy rate.

The "loss function" may be decomposed into two components. The first (idiosyncratic) component captures the deviation of money market interest rates from the aggregate market index, i.e. reflects the scale of market heterogeneity and interest rate risk at an individual level. The second (systemic) component measures the deviation of the aggregate market index from the key policy rate, reflecting, therefore, interest rate risk at a systemic level.

Chart 33. The loss function and its components⁴



In the period under review, the "loss function" showed an upward trend, which began in mid-March 2014 and was associated with growing foreign political tensions, as well as an approaching tax payment period (Chart 33). It should be noted that the idiosyncratic component was at a relatively high level throughout the quarter and was on average comparable to the systemic component. This suggests a lack of efficient liquidity transmission in the interbank lending market (see Section 5).

³ The "loss function" is expressed as a quadratic function of the deviations of money market interest rates from the key policy rate, weighted by the values of respective transactions.

⁴ In this issue of the Review, the "loss function" is assessed for all overnight transactions in the interbank lending market, while in the Money Market Review, Quarter 3 of 2013 the "loss function" was calculated only for transactions included in the RUONIA list.

5. EFFICIENCY OF LIQUIDITY TRANSMISSION IN THE MONEY MARKET

The efficiency of liquidity transmission in the money market is essential to ensure its stability. The functioning of the money market is based on the need of economic agents for the management of short-term cash flows. Part of entities (borrowers) need to take funds, others (creditors) to place their temporary free funds.

The efficiency of liquidity transmission in the money market is determined by the possibility for borrowers/creditors to freely take/place funds at fair interest rates reasonably reflecting all relevant pricing factors. Thus, in the case of a failure of the liquidity transmission mechanism, market participants have limited possibilities of managing their short-term liquidity or manage it based on distorted interest rates, which may cause liquidity risks for individual participants or the market as a whole. Therefore, the efficiency of liquidity transmission and money market stability are closely linked. This section is aimed at answering the following questions.

- Under what conditions is liquidity transmission in the money market most efficient?
- What money market indicators can serve as transmission efficiency indicators?
- What money market segment does provide a larger potential s for efficient liquidity transmission?
- How is liquidity allocated among money market segments?

For efficient liquidity transmission in the money market, it is essential to have, *ceteris paribus*, a set of liquidity transmission channels, in which each participant has alternative possibilities of borrowing (placing) funds. Competition between lenders and borrowers leads to the widest possible choice of potential counterparties, which ensures the best conditions for the allocation of short-term funds.

The optimum conditions for liquidity reallocation in the money market arise at the formation of the complete market structure, in which each participant has positions against all other participants. The network density indicator, i.e. the ratio of the number of actual linkages between participants to the maximum possible number of linkages that are characterizing the complete market, plays the role of the market completeness indicator.

Chart 34. Density of the network of linkages among money market participants, %

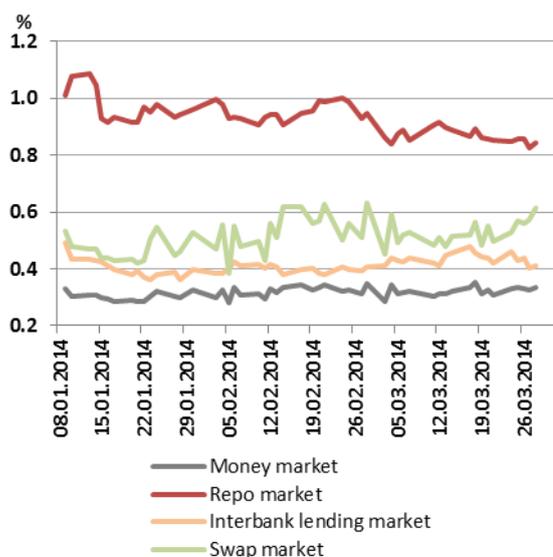
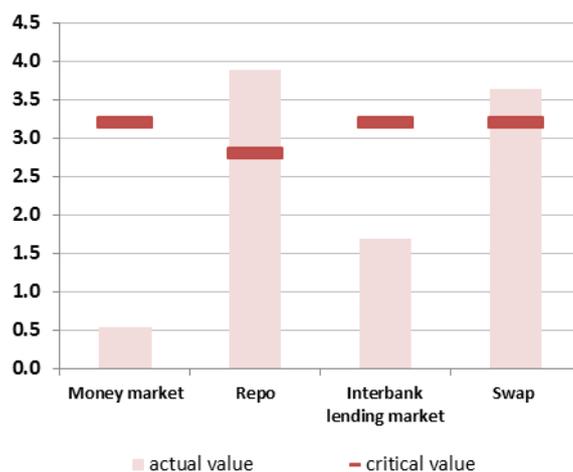


Chart 35. Indicator of money market rate homogeneity



The largest potential for the efficient transmission mechanism in terms of available liquidity reallocation channels is typical of the interdealer repo market, whose density is on average more than twice the density of the interbank lending market (Chart 34). Thus, each participant of the repo market has on average a larger number of counterparties than a participant of the interbank market and the swap market, and, therefore, has more flexibility in managing liquidity. The analysis showed that the density of the repo market declined since the escalation of the foreign political situation, the density of the interbank lending market and the swap market slightly increased in this period. This allowed to maintain the density of the total money market at a stable level.

The availability of a dense structure of linkages among participants is not, however, enough to achieve efficient liquidity transmission, since the flow of liquidity through existing market channels may be constrained as a result of such restrictions as mutual counterparty limits, collateral scarcity, compliance with ratios, etc. The impact of restrictions on liquidity reallocation manifests itself in the deviation of interest rates from the levels characteristic of the market without interdealer restrictions. For this reason, one of the key indicators of efficient liquidity transmission in the money market is the degree of similarity (homogeneity) and coherence in the dynamics of interest rates in its segments.

Analysis of the money market rate homogeneity indicator⁵ supports the conclusion that the interdealer repo market is characterised by relatively higher efficiency of liquidity transmission (Chart 35). In this segment of the market, the interest rates for homogeneous transactions of participants with the same credit risk are as close as possible to each other, which is a sign of efficient liquidity reallocation. According to this criterion, a relatively high efficiency of liquidity transmission is observed in the swap market. On the contrary, the value of the interest rate

⁵ The interest rate homogeneity indicator is calculated as the ratio of the intergroup dispersion of rates to their intragroup dispersion adjusted by the number of transactions in a sample (F-criterion). The criterion for the selection of groups is the credit quality of borrowers evaluated on the basis of credit ratings assigned by international rating agencies. Similar to the network density indicator, the interest rate homogeneity indicator as a measure of the efficiency of liquidity allocation in the market is not additive. Despite the fact that liquidity transmission, according to the analysis, is rather efficient in the most of the money market (the repo market and the swap market), the hypothesis of the efficiency of liquidity allocation in the money market as a whole was rejected.

homogeneity indicator is below the critical level⁶ for the interbank lending market and the money market in general. Thus, the efficiency of liquidity transmission in the interbank lending market is lower than in other segments of the Russian money market.

Additional confirmation of the above statement can be found when analysing the interest rate homogeneity by individual segment of the interbank lending market. For these purposes, the interbank lending market was divided into the core and the periphery, where the core was constituted by the most active participants with a high-density network of linkages (about 30%), whereas all other participants were classified as the periphery. The core mainly includes banks with a high credit quality, and the periphery banks with relatively low credit quality and non-banks (Chart 36)⁷. However, a number of participants in the core and in the periphery have the same credit quality.

Chart 36. Core and periphery banks distributed by rating

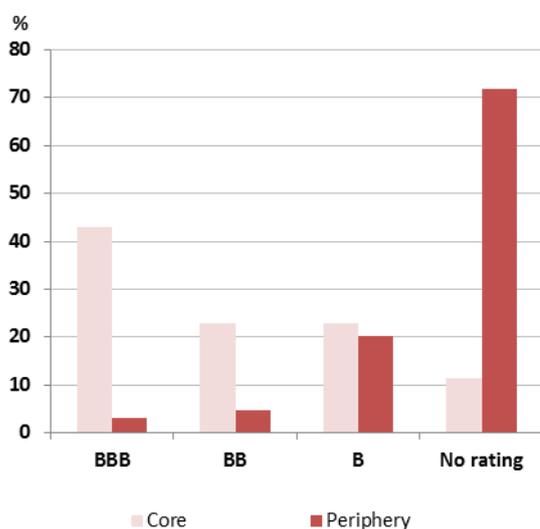
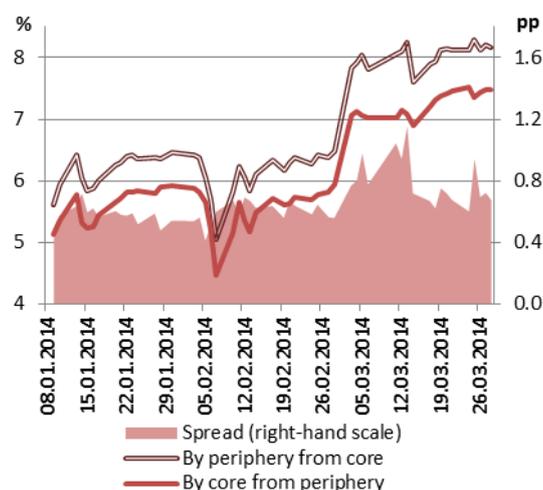


Chart 37. Weighted average overnight borrowing cost in the interbank lending market



To further test the hypothesis of the homogeneity of pricing in the interbank lending market by selected segment, interest rates on transactions between core and periphery participants were compared. Moreover, participants with the same credit quality were selected for the comparison of interest rates in the core and the periphery.

The analysis showed a statistically significant difference in the level of rates on transactions of core participants and those of periphery participants with comparable ratings. The spread between the interest rates of the core and the periphery is positive (about 0.6 percentage points), and it grew significantly after the escalation of foreign political tensions (Chart 37). Thus, this confirms the earlier conclusion of the insufficient efficiency of the liquidity transmission mechanism in the interbank lending market, which is due primarily to the fragmentation of the market outside a narrow group of closely linked core participants.

⁶ The critical value of the indicator is determined based on the 5% quantile of the F-distribution of the statistics used.

⁷ 41 participants belong to the core, of which 35 participants are banks and 6 non-banks. The periphery comprises 689 participants, of which 189 are banks.

The interdealer repo market and the swap market are more effective in liquidity transmission due to collateral and the operations of the central counterparty which provide protection against counterparty risk. These characteristics allow the central bank to inject liquidity in any of these two segments of the money market - repo or swap - with its subsequent reallocation within and outside the money market (Chart 38).

Chart 38. Net liquidity allocation by money market segment, average values of net borrowings for the first quarter of 2014, billions of rubles

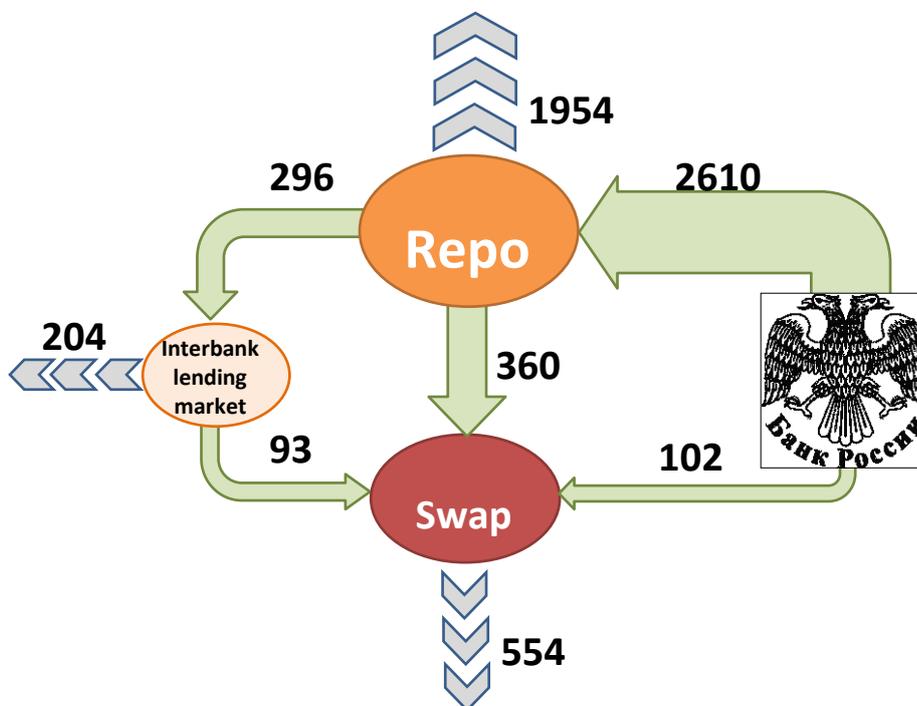


Chart 38 presents a diagram of direct net liquidity flows among money market segments⁸. Liquidity in the amount of about 2.7 trillion rubles on average for the first quarter comes to the money market from the Bank of Russia through two channels: the repo market and the swap market. Given that the cost of funding through Bank of Russia repos (about 7%) is lower than the cost of funding through swap operations (8%), the main flow of liquidity (about 2.6 trillion rubles) is provided by repos. It is worth noting that the major part of these funds (about 2 trillion rubles) is not involved in further reallocation of liquidity through money market transactions, as banks use liquidity outside the money market (e.g., for paying taxes, purchasing securities, foreign currency, etc.).

The rest liquidity received from the Bank of Russia (about 650 billion rubles) goes through the repo market directly to other money market segments, the swap market and the interbank lending market, and is subsequently allocated for funding active operations. Part of the funds from the interbank lending market (about 100 billion rubles) enters the swap market through direct cross-sectoral transactions which enhance its role as a source of short-term resources for money market participants.

⁸ It should be emphasized that the described liquidity flows are calculated on a net basis, i.e., they represent the difference between reverse flows in cross-sectoral linkages. The chart reflects only *direct* net liquidity flows, i.e. flows arising solely from money market transactions. Bank of Russia deposit operations are not taken into account.

Chart 39. Net volumes of funding to money market participants⁹

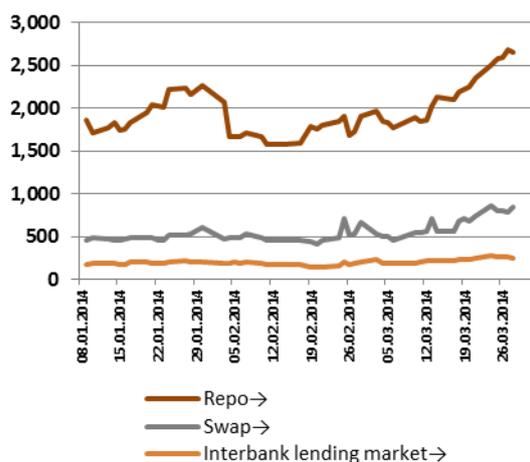
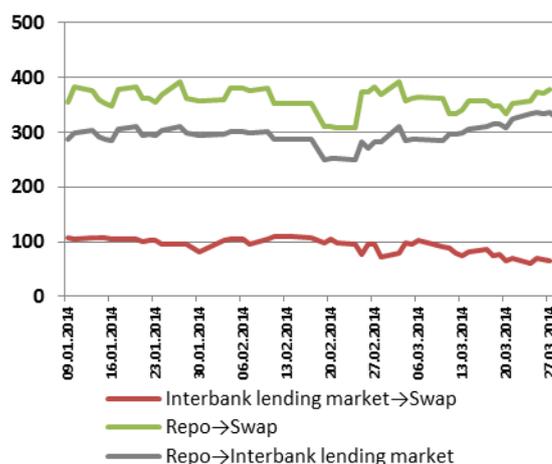


Chart 40. Net volumes of liquidity allocation among money market segments



Analysis of direct net flow dynamics in the first quarter of 2014 showed that the cross-sectoral transmission of liquidity in the money market was stable enough. Significant growth in the net volumes of funding to participants of the repo market and the swap market occurred in March 2014 and was associated with higher borrowings from the Bank of Russia (Chart 39). This, in turn, led to a rise in the value of liquidity directed by the participants of the repo market and the swap market to the interbank lending market (Chart 40). Nevertheless, the amount of additional liquidity reallocated directly in the money market to the interbank lending market through the repo market and the swap market, was significantly smaller than the total flow of liquidity received by the money market in March 2014. Apparently, this explains a considerable rise in the cost of borrowing in the interbank lending market during this period and the exceeding by the RUONIA rate of the upper border of the Bank of Russia interest rate corridor in late March 2014.

⁹ The arrows in the key indicate that net liquidity flows are directed from the corresponding segment outside the money market. The lines in the charts show the transactions of the participants of relevant market segments with the Bank of Russia.