Credit Institution Liquidity Management as a Financial Stability Factor

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Abstract. Due to the strengthening requirements of the Bank of Russia for credit institutions and the increasing amount of loan transactions in banking, credit institutions have to constantly monitor the changes of external and internal risks, improve the existing risk management system in order to increase their financial stability.

In this respect, the risk management for the loss of liquidity may seem a comprehensive and controversial problem, whose best solution can only be found taking into consideration various factors and management goals.

This article aims to study the methodology of liquidity assessment and management for a credit institution. The authors address the components, stages, and goals of risk management, assessment, and risk management criteria in the banking sector and on the credit institution level, as well as the liquidity risk assessment and management direction selection in credit institutions.

1. Introduction

Liquidity risks attract special attention among other banking risks. As seen in theoretical concepts, the financial [1], [5], [11] and the banking [3], [6] sectors are developing steadily. Their sophistication leads to the change of the economic nature of the concept of liquidity, which is evident in the works of such economists as S. Brajovic-Bratanovic, H. Grüning, and T. Koch. [12], [13].

Concerning commercial banking, the nature and the problem of liquidity management are expressed in special information sources, laws and regulations of the Russian Federation, and the statutory documents of the Bank of Russia.

In this respect, management features shall be taken into consideration while studying the methodology of the assessment of this kind of risk both at the economic entity level [2], [4] and at the regulator level.

2. Materials and methods

Generally, integrated risk management process at the commercial banking level contemplates certain implementation logic and goals (Table 1).

Table 1. Goals and stages of integral risk management in a credit institution.

Risk management stage goal	Stage no.	Risk management stage nature
Determining all substantial risks influencing credit institution operations.	1	Risk identification and assessment
Determining the goal risk level by registering risk metrics in business plans.	2	Planning risk exposure level
Approving the maximum allowed 4th risk level by the supervisory board of the credit institution, as well as developing a system of limits and restrictions to abide by the risk appetite set.	3	Setting risk appetite
Developing a substantial risk management system in order to control target values for risk types.	4	Managing overall risk level

3. Results

At the megaregulator level, banking sector liquidity is calculated as the expected level of structural liquidity deficit/proficit, which is the difference between the refunding operation debts and the debts on the Bank of Russia's operations to sterilize surplus liquidity. This indicator depends on the level of necessary liquidity attraction (structural deficit of liquidity) through transactions with the Bank of Russia or on the employment of funds in the Bank of Russia (structural proficit of liquidity).

While analyzing the liquidity at a commercial bank-level, time-based classification is usually used (instant, current, medium-term and long term). Banks bring out highly liquid, liquid, slowly liquid and illiquid assets, based on the liquidity costs of the bank.

As the liquidity of financial market fluctuates, the bottom level of bank liquidity may influence its financial solvency and stability. Liquidity assessment presents a difficult problem because it is connected with a risk assessment for both active and passive transactions of the bank.

The qualitative and quantitative equilibrium of inbound and outbound flows of credit funds is the main factor in maintaining a credit institution's liquidity. In theory, liquidity management is based on the assumption that the assets and the equities of a credit institution must correspond in terms and volumes [8], [9], [10]. This would be perfect, but it is not realistic in practice.

In practice, liquidity risk assessment and management are carried out through calculating risk metrics, balance forecasting (top-down and bottom-up approaches), scenario analysis, and stress testing.

Bank liquidity is intertwined with market liquidity, whose potential influences bank liquidity level.

The analysis of the key indicators of the Russian banking sector shows the following main trends influencing liquidity and financial stability in general[7]:

Firstly, there is a reduction of credit institutions qualified for banking operations in the period between 01.01.17 and 01.01.19 from 623 to 484, i.e. by 22.3%.

Secondly, the banking sector experienced an increase in the volume of employed credit resources by 68%.

Thirdly, the recent period shows the reduction of structural proficit of liquidity by 0.6 trillion rubles, making up 2.5 trillion rubles at the end of the month. The seasonal increase of cash operations facilitated the 0.2 trillion-ruble liquidity outflow. Besides, banks increased their remaining balances in their correspondent accounts in the Bank of Russia, in order to average-out obligatory resources (OR).

Fourthly, the banking sector experienced an additional outflow of the funds due to large tax payments of bank clients and federal loan bonds placement by the Ministry of Finance of Russia. The budget channel liquidity absorption was compensated by the transaction of the Russian Federal Treasury and the financial authorities of the constituents of the Russian Federation, allocating their temporarily surplus budget funds in banks.

Fifthly, the balance of foreign currency buying/selling operations under tom next conditions is positive and makes up 42.7 billion rubles. Foreign currency liquidity was supported by the currency inflow in the current account of the balance of payments in the face of the growth of oil prices.

4. Findings

Managing the liquidity risk at the banking institution level is implemented taking into account the current market trends, the forecasted dynamics of balance items and liquidity reserves to fulfill obligations in various time horizons [8], [9].

The regulator sets liquidity ratios. For example, short-term liquidity ratio is used to limit the risk of liquidity loss. Using the methods of the Bank of Russia, this indicator H26 (H27) is calculated using the following formula [10]:

$$Criterion\ 26\ (27) = Criterion\ 26\ (27) = Criterion\ H26\ (H27) = \frac{HLA + ICL + FCMA - AV}{NECO}, \tag{1}$$

where HLA is the highly liquid assets of the credit institution;

ICL is the irrevocable credit line (lines) limitation for the credit institution in question;

FCMA is the highly liquid credit institution assets nominated in specific foreign currencies and surpassing the net outflow of funds;

AV is the adjustment value for the highly liquid assets of the credit institution;

NECO is the net expected cash outflow in the credit institution.

The NECO is calculating using the following formula:

$$NECO = ECO - min(ECI; 0,75 \times ECO), \tag{2}$$

where ECO is the expected cash outflow in the credit institution;

ECI is the expected cash inflow in the credit institution;

Thus, the banking sector is "vulnerable" due to high sensitivity to the liquidity risk as one of the substantial risks in the face of attracting significant resources in the short term. Therefore, the following minimum allowed H26 and H27 values were set by the Bank of Russia: 70% from January 1st, 2016; 80% from January 1st, 2018; 90% from January 1st, 2018;

100% from January 1st, 2019.

5. Discussion

The following liquidity risk classification is used in risk management at various regulation levels (Table 2).

Table 2. Liquidity risk specification.

No	Liquidity risk	Liquidity risk specification
1	Physical liquidity risk	The risk of failure to fulfill the obligation by a bank or a credit institution member towards clients and counterparties in any currency or commodities due to insufficient funds in cash or non-cash form (failure to process payment, credit accomodation, etc).
2	Regulatory liquidity risk	The risk of breaching obligatory liquidity ratios set by the Bank of Russia (e.g. H2, H3, H4, H26, H28), as well as obligatory liquidity ratios set by local regulators in countries of operation for the members of the credit institution.
3	Structural liquidity risk	The risk of physical or regulatory liquidity degradation due to the imbalance of asset and equity structure in the credit institution.

6. Conclusion

Bank liquidity is a key indicator for the evaluation of the reliability and resilience of a commercial bank by both the credit institution itself and by the Bank of Russia as the financial market regulator. The liquidity management process poses to main goals for a commercial bank: creating a minimum amount of liquid funds and maintaining the maximum credit potential.

The goal of liquidity risk management is the timely fulfillment of obligations by the credit institution towards its clients and counterparties while satisfying the requirements of the Bank of Russia. The Bank of Russia sets liquidity ratios for credit institutions in order to provide for financial stability, banking sector reliability and the monetary regulation of the economy.

Thus, a number of indicators can be used to limit liquidity risk:

- Loan to Deposit Ratio (LDR);

- H26 (H27), the short term liquidity ratio for bank groups (credit institutions) set out in the Provision of the Bank of Russia of 03.12.2015 no. 509 P;

- Survival horizon, representing the maximum term in days during which the bank will be able to fulfill its obligation in case of stress scenario using the liquidity buffer available.

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