Research of the organization and instruments of management of credit bank risk

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Abstract. In the conditions of the unstable economic environment, the complex system of credit risk management of the Bank becomes particularly relevant, the effectiveness of which determines the minimization of Bank losses from lending activities and the formation of reserves, reasonable differentiation of borrowers. This paper presents the author's opinion on the composition and content of the stages of risk management in a bank on credit risk; studied the practice of implementing systematic methods and methods of risk management in relation to the credit risk of the bank; summarized multilevel system of indicators of credit risk assessment, which determines the multilateral accounting of its manifestations and the quality of subsequent regulation.

1. Introduction

Ensuring optimal parameters in the field of risk management is the basis for improving the competitiveness of banking products, strengthening the degree of reliability and stability of banks, the ability to attract the attention of domestic and foreign customers, international banking communities. To achieve the goals of risk management, they develop a systematic procedure that determines the stages of risk management organization, the tools used and the responsibilities of those responsible for this function [1-3]. The analysis of the existing approaches to the formation of risk management system in the economic literature allowed to take into account the differences, which are mainly terminological in nature, and to generalize some positions in the views of different authors on the number and economic content of risk management stages [4,5]. We consider it expedient to apply the scheme, according to which the risk management process is implemented in four stages. The content of the stages is reduced to the purpose of the work and the tools used. On the basis of the formed understanding of the Bank's financial risk management, it is possible to specify it in relation to such a basic risk for the Bank as credit. It is proposed to differentiate both the identification and measurement of credit risk depending on whether this work is carried out - at the stage of concluding an agreement or on an already formed loan portfolio. A particularly important place in the credit risk management system is a reasonable choice of management methods, which are proposed to be divided into risk minimization methods and risk financing methods. The level of riskiness of bank assets, the number of damages covered by the resources of the bank itself and, ultimately, its financial stability depend on
the optimality of the choice of damages limiting risks and sources of financing. The level of riskiness of bank assets, the number of damages covered by the resources of the bank itself and, ultimately, its financial stability depend on the optimality of the choice of damages limiting risks and sources of financing. Thus, the aim of this study is to determine the optimal risk management process and the formation of a multi-level system of indicators for assessing credit risk, which determines the multilateral accounting of its manifestations and the quality of subsequent regulation.

2. Research methods
The paper used such research methods as analysis and synthesis, a systematic approach; they found their application for the study of materials of legislative acts, generalization and systematization of indicators and procedures for assessing the quality of bank credit risk management. The proposed elements of the methodology for assessing credit risk are:
- to impose on the recommended composition of the risk management stages individual characteristics of quantitative and qualitative assessment, management methods and monitoring of bank credit risk;
- the formation of the authorship of risk assessment indicators, which will allow to take into account the diversity of its manifestations at different stages of the lending process.

3. Results and discussion
According to the results of the analysis of existing approaches in the economic literature to form a risk management system, we consider it expedient to use a scheme in accordance with which the risk management process is implemented in four stages [6]:

1. Study and identification of possible losses (qualitative risk assessment, identification, risk identification) - identification of all potential losses and their possible causes in order to prevent a potential catastrophe and prevent an unsystematic attitude to risk.
2. Assessment and measurement of losses (quantitative risk assessment) is a risk analysis that involves determining the frequency and severity of risk events, financial consequences of losses, the amount of the maximum possible loss, risk management measures, the cost of insurance compensation. The choice of a particular method is determined by the availability of the necessary information base and the level of qualification of managers.
3. Control and financing of risk (risk management itself) – ways or methods of resolving situations fraught with risk. Risk management methods can be summarized as follows and divided into two categories:
   - methods to reduce or prevent the risk (minimizing the risk);
   - risk financing methods.
4. Implementation and systematization (monitoring) – negotiation with respect to insurance, the current control programs to reduce losses, the current change control risk scenarios, the development of mechanisms of external and self-financing.

An effective way to overcome or minimize risks is to regulate them, while each component of financial risk requires its own identification and specific tools for its regulation. The methods of prevention and minimization of risk include [6]:
- abolition (abandonment of risky property, risky activities, risky counterparties);
- diversification (investments, sources of financing, range of products, contractors, activities);
- limitation.

According to the results of the study and generalization of risk management methods, which are reduced to finding sources of damage coverage, we believe that the methods of risk financing include:
- deduction (leaving losses from the risk on the responsibility of the entity carrying out risky activities);
- transfer of risk (transfer of responsibility for financing losses from risk to third parties - guarantors, guarantors, tenants, freight forwarders, etc.);
- insurance (organization of financing of losses from risks at the expense of third-party insurance capital, i.e. at the expense of the insurance company).

At the same time, with respect to the retained losses, the risk can be financed in the following ways [6]:
- at the expense of current income (for incoming revenue, incoming cash flow);
- self-insurance (formation of reserves, funds at a certain risk or a set of risks);
- borrowed capital (attracting a short-term loan to finance payment gaps in the implementation of risk events, disruption of the balance of cash flows);

Let us consider the features of risk management tools and the legislative and regulatory framework for credit risk.

Currently, the composition of Bank risks in the Russian Federation determines the order of the Bank of Russia from 15.04.2015 N 3624-U (edited on 27.06.2018) "On requirements to risk management system and capital of credit organizations and banking groups". According to this regulatory document, credit risk is a risk arising from the probability of non-fulfillment of contractual obligations by the borrower or counterparty to the credit institution.

The Position of the Central Bank of the Russian Federation from 28.06.2017 N 590-P "On the procedure of formation by credit organizations of reserves for possible losses on loans, loan, and similar debts" (as amended on 27.11.2018) credit institutions are obliged to form reserves for possible losses on loans. The reserve is formed on a specific loan or on a portfolio of homogeneous loans, that is, on a group of loans with similar characteristics of credit risk. It regulates the system of approaches and indicators of credit risk assessment for loans, describes the methods, rules, and procedures used in making a professional judgment about the credit risk for a single loan or a portfolio of homogeneous loans.

Assessment of the loan and determination of the amount of the settlement and actual reserve is carried out by credit institutions on their own on the basis of professional judgment, which is made in accordance with the provisions of the CBR and the internal regulations of the Bank.

According to the Regulation, the Bank's internal documents must contain a complete list of significant factors used by the credit institution in the classification of loans by risk. In addition, the credit institution reflects in internal documents [6]:
- credit risk assessment system for loans, which allows classifying loans (portfolios of homogeneous loans) by quality categories, containing more detailed procedures for assessing the quality of loans and forming a reserve than provided by the Regulations of the Central Bank of the Russian Federation;
- the procedure for evaluating loans, including criteria for evaluating loans, the procedure for documenting and confirming the assessment of loans;
- the procedure for making and implementing decisions on the formation of a reserve;
- the procedure for making decisions on the recognition of debts on uncollectible loans, etc.

Thus, credit risk management is a certain sequence of actions organized in a certain way, divided, as we can assume, into the following stages:

I. Identify the factors and causes of negative consequences in the lending process; identification implies clarification of types of bank loans, which borrowers, at which stages of the credit process, and under what external and internal circumstances the sale and increase of credit risk occur.

II. Quantitative assessment of credit risk. It is proposed to differentiate both the identification and measurement of credit risk depending on whether this work is carried out - at the stage of concluding an agreement or on an already formed loan portfolio. With this in mind, a quantitative assessment of credit risk is carried out:

1. according to the already formed portfolio is made in the course of:
   - classification of loans by quality categories and subsequent analysis of trends in the volume and structure of the loan portfolio;
   - calculation of the coefficients of the risk analysis of the loan portfolio (as part of assessing the quality of the loan portfolio).
2. when deciding on the conclusion of a loan agreement is reduced to:
   - determining the likelihood of the realization of risk and the size of potential losses in the course of
     a borrower's credit rating
   - using the borrower's credit history data.

III. Measures to minimize and finance credit risk.

The methods of prevention and reduction of credit risk include:

a) improving the methodology, tightening the requirements for assessing the creditworthiness of
   borrowers;

b) limitation, including compliance with the Bank of Russia regulations related to credit risk. The
   limitation is an important means of reducing the level of risk and is based on the data of credit
   analysis. An example of such a method of minimizing credit risk can serve as limits on credit lines,
   limiting the size of a large loan, etc.

c) diversification of credit investments by borrowers, terms, forms of ensuring the repayment of
   credit, sectors of the economy, etc.;

d) crediting of dependent joint-stock companies, i.e. organizations in which the bank has an equity
   stake, suggesting an impact on management processes and results.

Methods of financing credit risk, we believe, include:

a) formation of a provision for possible losses on loans in accordance with the regulatory act of the
   Central Bank of the Russian Federation and internal regulatory documents of the Bank;

b) the use of various forms of ensuring the repayment of loans (in the first place, this is a pledge
   and surety);

c) insurance; insurance is the transfer for a fee of all or part of its own risk to a specialized
   insurance company; it should be noted that the risk is not reduced. Insurance is, by its nature, a form
   of pre-reservation of resources intended to compensate for the damage caused by the expected occurrence
   of risks [6]. Insurance products currently used to finance credit risk include collateral insurance,
   borrower's liability insurance for non-compliance with contract terms, borrower's life and health
   insurance, title insurance, insurance of the bank's loan portfolio (the insurer is a bank for this
   insurance product).

d) financing from the funds of own capital, ensuring the maintenance of the required level of
   capital adequacy of the bank.

e) the "risk premium" method, which implies the establishment of a higher interest rate compared
   to risk-free credit operations.

IV. Monitoring and improvement of credit risk management systems; this stage is extremely
   important and necessary since a change in the conditions for carrying out a borrower's activity changes
   the level of its credit risk, which requires changes in the assessment of the bank's loan portfolio and
   the bank's credit policy.

Both the quantitative risk assessment of the already formed loan portfolio and the efficiency of the
established risk management process are performed using the scorecard. According to the results of
the study and summarizing the opinions of numerous authors in the field of credit management in the
bank, we have formed a multi-level system of credit risk assessment indicators, which determines the
multilateral accounting of its manifestations, which, in turn, improves the quality of subsequent
regulation:

1) mandatory standards limiting the Bank's credit investments established by the Instruction of the
   Central Bank of the Russian Federation dated 28.06.2017. N 180-I "On mandatory ratios of banks"
   (ed. from 27.11.2018); evaluation is thus reduced to ascertaining of the fact of their execution and the
   nature of their dynamics; the purpose of the calculation and tracking of these indicators in more down
   to limit the risk that it does not involve obtaining information for analyzing the factors that define it;

2) based on the results of the classification of loans by quality categories (in accordance with the
   Provision of the Central Bank of the Russian Federation No.590-P) calculate the share of problem and
   bad loans, its dynamics; it is advisable to compare the value of the share of loans of category IV and V
with the all-Russian level in the Federal district, with the level of banks of similar volume and nature of activity, which will identify factors determining deviations of both positive and negative character;

3) as part of the assessment of the quality of the loan portfolio (according to the criteria of risk, profitability, diversification) the coefficients characterizing the risk and its financing are calculated:
   - risk ratio (the share of overdue debt in the total loan portfolio); make a comparison with the all-Russian level, with banks of similar specialization; identify the most risky categories of credit operations (in foreign currency, in rubles, secured or blank, etc.) and borrowers (different categories of individuals, corporate customers by industry, small business, etc.);
   - reserve ratio (the level of coverage of the existing loan portfolio with the formed reserve); the value and dynamics of the ratio indicate to a greater extent the adequacy of the reserve, rather than the level of risk of loans, as banks have grounds to minimize allocations to reserves;
   - the ratio of the availability and sufficiency of the size of the collateral for repayment of loans (the share of the secured loan portfolio is calculated, the losses on which during the implementation of the risk will be financed by the sale of property and liabilities under the contracts of security of credit transactions); the value and dynamics of the ratio indicate the adequacy of external sources of risk financing, and not its level, since various forms of ensuring the repayment of loans are often implemented in accordance with the established conditions of credit products and do not depend on the results of the credit rating, i.e. riskiness, the borrower;
   - specific gravity prolonged, unsecured loans, refinancing loans in the previous restructured loans;
   - share of overdue interest in interest income on Bank credit operations (recommended limit - 2-3%) [7];
   - the share of large loans in the loan portfolio, Bank assets, and assets in the banking sector of the Russian Federation (indicator for the banking sector of the Russian Federation fixed and published by the CBR);
   - the share of secured loans in the volume of large (fixed only by the CBR in the banking sector);
   - the share of unsecured loans is calculated to assess the risk mainly for retail lending and both at the level of the Bank and the banking sector of the Russian Federation.

The purpose of these calculations is the development of mechanisms of coordination of a credit policy based on credit risk, evaluation of the effectiveness of the credit policy, review and re-evaluation of the loan portfolio with the aim of improving its quality.

4. Conclusion
Practice shows that banking risks with all their diversity reflect the specifics of a credit institution, they are based on its actions or omissions, delays, premature or erroneous actions of its actions. In any case, their presence requires from the Bank a purposeful, systematic activity, not a separate set of individual activities, but a certain risk management system. These provisions have determined the need and importance of the study, which includes the following elements of scientific novelty:
   - the author's opinion on the composition and content of the stages of risk management on banking financial risks in general and, in particular, in relation to the credit risk of the bank, which provides a comprehensive, holistic nature of management and increase its effectiveness;
   - a multi-level system of credit risk assessment indicators was formed, which determines the multilateral accounting of its manifestations and the quality of subsequent regulation.

The effectiveness of the proposed stages, methods for assessing and managing credit risk is determined at the final step of the proposed construction of the risk management process, which is recommended to be reduced to analyzing the actual data on the implementation of credit risk both in each specific bank and in the banking sector of the Russian Federation as a whole.

Summing up, it should be noted that in practice the effective result of protection against risk can be obtained only in the implementation of methodologically developed procedures of a complete, complete process of risk management in the Bank. To mitigate the impact of risk on the results of the Bank's work, it is necessary to carry out continuous, systematic analytical work to assess the dynamics of risk, the impact of activities, to compare the results with the goals and the degree of their
achievement, which determines the conclusion about the economic feasibility of the measures, methods, techniques.

References

[1] Amaya D, Gauthier G, Léautier T O 2015 Dynamic Risk Management: Investment, Capital Structure, and Hedging in the Presence of Financial Frictions. J. of Risk and Insurance 82(2) 359 https://dx.doi.org/10.1111/jori.12025

[2] Bartram Söhnke M 2017 Corporate Risk Management as a Lever for Shareholder Value Creation. Financial Markets, Institutions & Instruments 9(5) 279 https://dx.doi.org/10.2139/ssrn.279507

[3] Cole C R, MacPherson D A, Maroney P F, McCullough K A, Nyce Ch N, James W 2011 The Use of Postloss Financing of Catastrophic Risk. Risk Management and Insurance Review 14 (2) 265 https://dx.doi.org/10.1111/j.1540-6296.2011.01199.x

[4] Arena M, Arnaboldi M, Palermo T 2017 The dynamics of (dis) integrated risk management: A comparative field study. Original Res. Article 62 65 https://doi.org/10.1016/j.aos.2017.08.006

[5] Gurd B, Helliar C 2016 Balancing risk and innovation: The role of institutional leadership. The British Accounting Review doi: 10.1016/j.bar.2016.10.008

[6] Alexeeva N V, Talanova N V 2015 Features of risk management and legislative and regulatory framework for the regulation of individual risks of banking. Bulletin of the Russian University of Cooperation. 3 4 [in Russian]

[7] Alexeeva N V, Ivanov E A, Kornilova L M 2019 Methodical questions of quantitative assessment of property risk of the enterprise. Proc. of the 33rd Int. Business Information Management Association Conf., IBIMA 2019: Education Excellence and Innovation Management through Vision 2020 pp. 5770-5776