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**METHODS OF ANALYSIS OF COMMERCIAL BANKS' DEPOSIT  
PORTFOLIO**

N. F. Kolesnik (a), V. A. Manyeva (b)\*, S. V. Rykov (c)

\*Corresponding author

(a) National Research Ogarev Mordovia State University, Bolshevistskaya Str., 68, Saransk, Russia ,  
kolesniknf@mail.ru

(b) Samara State University of Economics, Soviet Army Str., 141, Samara, Russia, manyeva58@mail.ru

(c) Stary Oskol branch of Belgorod State National Research University, Solnechny Microdistrict, 18, Stary Oskol,  
Russia, rva7868@yandex.ru

**Abstract**

To form and implement a deposit policy, commercial banks need to keep a focus on potential depositors, develop and improve new competitive deposit services and products that will be of interest to different categories of individuals and legal entities, including VIP clients, improve the remote service system, and carry out an active advertising campaign. In addition, in order to conduct an effective deposit policy, it is necessary: firstly, to use such a methodology for analyzing the formation and use of the deposit portfolio, the result of which will be analytical information for decision-making in terms of improving the structure of deposit resources, and, secondly, to evaluate the deposit policy of a commercial bank in order to be competitive at the deposit resources market. Directions of the formation and implementation improvement of the commercial banks' deposit policy are the development of methodical provisions on the analysis of the deposit portfolio to assess the stability of raising deposit resources, efficiency, deposit policy, and to develop practical recommendations regarding the use of information analysis for decision-making on the deposit portfolio management. Developing the theoretical and methodological provisions, the study analyzes the modern scientific idea of improving the methodology for analyzing the deposit portfolio of commercial banks. The author's approach to the formation of a complex methodology for analyzing the deposit portfolio of a commercial bank, which is considered as a continuous cyclical process and includes the proposed stages and directions, is presented.

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## 1. Introduction

Improving the formation and implementation of deposit policy is directly related to the analysis of the deposit portfolio. Many Russian and foreign researchers have devoted their works to the essence and role of deposit resources of commercial banks (Ansori et al., 2019; Dia & VanHoose, 2019; Ilyunina & Lunyakov, 2017; Liu et al., 2020; Rykov, 2016, 2017; Valinurova et al., 2014). Many researchers have also devoted their works to the analysis of commercial banks' resources and other aspects of working with deposit resources (Chizhova et al., 2017; Penchukova & Chizhova, 2018). Conducting research of the economic literature in the field of analysis of a commercial bank's deposit portfolio, we can conclude that there are no comprehensive methods nowadays. The existing methods of analyzing the formation and use of the deposit portfolio, the used methods and tools do not provide enough analytical information for making management decisions to ensure sustainable attraction of deposit resources, do not allow us to get an answer to the questions that commercial banks face when managing the deposit portfolio, and therefore require further study and improvement.

Thus, there is a need to develop a comprehensive methodology that would include a set of analytical procedures that allow for a comprehensive analysis of the commercial bank's deposit portfolio, make it possible to assess the effectiveness of attracting and using deposit resources, and identify reserves for increasing the bank's profitability and liquidity based on a system of indicators. This is the purpose of the study, which involves the development of directions for the development of theoretical, methodological and practical provisions for the analysis of the deposit portfolio of commercial banks.

## 2. Problem Statement

The purpose of this study is to substantiate the author's complex methodology for analyzing the deposit portfolio of commercial banks based on a generalization of theoretical and methodological provisions. The solution to this problem is seen in determining the stages and directions of the methodology, methods of analysis. The complex methodology includes the proposed analyzed indicators. The obtained information based on the results of the analysis allows us to assess the stability of attracting deposit resources for the reporting period and the performance of indicators provided by the business plan. In addition, it will allow evaluating the effectiveness of using deposit funds. This will allow searching for reserves to increase profitability and ensure the liquidity of commercial banks. Thus, the results of the analysis will be one of the conditions for achieving efficient use of deposit resources and, as a result, the formation of a deposit portfolio that ensures maintaining liquidity and increasing the profitability of commercial banks.

## 3. Research Questions

Within the framework of this work, the following research areas are identified:

1. The theoretical provisions of a comprehensive analysis of the commercial banks' deposit portfolio are disclosed.
2. The purposes of a comprehensive methodology for analyzing the deposit portfolio of commercial banks are defined.

3. The stages and directions of comprehensive methods of analysis of the commercial banks' deposit portfolio have been developed.

4. The composition of the analyzed indicators for attraction and turnover of deposit resources is suggested.

5. A set of indicators for assessing the stability of attracting deposit resources has been formed.

6. The directions of using analytical information for making decisions on deposit portfolio management are suggested.

#### **4. Purpose of the Study**

The purpose of the study is to develop theoretical and methodological provisions for analyzing the deposit portfolio of commercial banks, to develop practical recommendations for using the results of analysis in making decisions on managing the deposit portfolio. For this purpose, the target orientation of the complex methodology for analyzing the deposit portfolio has been established. The content of the stages and directions of the suggested methods of analysis is revealed. Segmentation of depositors in the analysis of the deposit portfolio is proposed. From the variety of analyzed indicators, we selected those indicators that allow to evaluate the work of a commercial bank in attracting deposit resources. The measures that commercial banks should take in terms of forming and implementing deposit policy to ensure regulatory levels of liquidity are outlined. Practical recommendations on the use of analytical information for making decisions on deposit portfolio management are offered.

#### **5. Research Methods**

Questions of deepening and expanding the scientific and methodological foundations, development of practical recommendations on the methodology for analyzing the deposit portfolio of commercial banks required the use of the following research methods:

- observation and systematization of accumulated theoretical research results to reveal the theoretical provisions of a comprehensive analysis of the commercial banks' deposit portfolio;
- system and comparative analysis for the development of stages and directions of a comprehensive methodology for analyzing the deposit portfolio of commercial banks;
- grouping for segmentation of depositors in the analysis of the deposit portfolio;
- comparison as a result of selecting the analyzed indicators;
- coefficient method that allows to calculate the quantitative relationships between different groupings;
- the generalization method was used to develop practical suggestions for using analytical information to make decisions on managing the deposit portfolio.

#### **6. Findings**

In the study, the deposit portfolio is understood as a set of deposit resources attracted by the bank for a certain period or on demand in national and foreign currencies, precious metals from credit organizations, legal entities that are not credit organizations, and individuals.

A comprehensive methodology for analyzing the deposit portfolio of a commercial bank is used to achieve the following goals:

- summarizing the results of the deposit policy implementation for the reporting periods;
- determining the volume of attracting deposit resources in various structural sections;
- calculation of reserves to increase profitability and ensure the bank's liquidity.

A comprehensive methodology for analyzing the deposit portfolio of a commercial bank is a continuous cyclical process that includes the following stages:

Stage one. Monitoring of the deposit market. The goal of the stage is to develop measures to eliminate and loosen negative factors affecting the process of attracting and using deposit resources.

Stage two. Analysis of the achieved actual indicators on deposit resources for the reporting periods. At this stage, the actual volume of deposit resources is analyzed and trends on the deposit resources market are identified.

Stage three. Planning the volume of attracted deposit resources by categories of depositors, terms, types of currencies and other analytical sections for the current and long-term prospects. It includes development of planning methods; development of a business plan for the bank's development with an assessment of multi-variant projected scenarios for the deposit portfolio; determination of regional features of the deposit market; calculation of projected values of the bank's profitability and liquidity.

Stage fourth. Assessment of the stability of attracting deposit resources. At this stage, new banking products and technologies are being introduced, including those related to the digitalization of banking processes, the establishment of flexible tariffs and interest rates, and measures are being developed to reduce banking costs.

A comprehensive methodology for analyzing a deposit portfolio includes the following elements and techniques:

- informal (logical) - development of a system of indicators; comparison; construction of analytical tables; methods of situational analysis and forecasting, etc.;
- formalized (mathematical) - factor analysis, grouping method, methods of financial calculations, etc.

The suggested comprehensive methodology for analyzing the bank's deposit portfolio is carried out in the following areas.

1. Horizontal and vertical analysis of the bank's liabilities.

When analyzing the bank's liabilities, the actual volume of deposit resources is analyzed, and their trends in dynamics and structure are revealed. The analysis calculates the growth and increase rates of the bank's liabilities and deposit resources as part of the liabilities. The total coefficient of the customer base is calculated, i.e. the share of customer funds (legal entities and individuals) in liabilities is determined. Ideally, it should be aimed at 100 %. This coefficient characterizes the stability of the bank's independence from interbank deposits.

Further, the coefficient of the client base is calculated and analyzed by categories of depositors: legal entities, individuals, and credit organizations.

In conclusion, we analyze the coefficient of customer base diversification, which is determined by the ratio of attracted funds of individuals to attracted funds of legal entities. This coefficient characterizes the degree of stability of the resource base.

2. Horizontal and vertical analysis of the deposit portfolio. This analysis should be carried out:

- by time intervals of attracting deposits and certificates - on demand, urgent (diversification is applied for periods up to 30 days, from 30 to 90 days, from 91 to 180 days, from 181 to 1 year, from 1 year to 3 years, over 3 years);

- by type of deposit (national currency, foreign currency);

- by categories of depositors (credit organizations, legal entities, individuals);

- by deposits form (deposits, savings certificates).

For these purposes, it is proposed to segment depositors and deposit resources:

- credit organizations with deposits: up to 700 thousand rubles; from 700 thousand to 1 million rubles; from 1 million to 3 million rubles. Deposit length: up to 30 days; from 31 days to 1 year;

- legal entities with deposits: up to 700 thousand rubles; from 700 thousand to 1 million rubles, from 1 million to 3 million rubles; over 3 million rubles. Deposit length: up to 30 days, from 31 days to 1 year; from 1 year to 3 years;

- individuals with deposits: up to 100 thousand rubles, from 100 thousand rubles to 300 thousand rubles, from 300 thousand rubles to 700 thousand rubles, from 700 thousand to 1 million rubles from 1 million to 3 million rubles. Deposit length: up to 30 days, from 31 days to 1 year, from 1 year to 3 years, over 3 years

Horizontal and vertical analysis of the deposit portfolio should be carried out in the bank and its branches. Horizontal analysis determines the trends of each group of deposit resources. It helps to predict their growth or decrease. In vertical (structural) analysis, determining the specific weights of individual groups of deposit resources makes it possible to determine their structure and the volume occupied by a particular group of deposit resources.

3. Analysis of indicators of attraction and turnover of deposit resources.

To analyze the attracted resources and their turnover, it is suggested to use the following indicators: the number of deposit turnover for the period by depositors category, the coefficient of attracting deposit resources by depositors category, the coefficient of concluded deposit agreements by depositors category. The procedure for calculating these indicators and their economic substance are presented in Table 1.

**Table 1.** Indicators of attraction and turnover of deposit resources

Indicator	Method of calculation	Economic substance
The number of deposit turnover for the period by depositors segments	The ratio of the deposits amount returned to credit organizations to the average deposit balance for the period for each segment	It shows how many times the funds in deposits were turned over for a certain period. The more turns funds make, the more effectively they are used for each segment
Coefficient of attracting deposit resources by depositor segments	The ratio of the attracted deposit resources amount to the amount of loans issued by a commercial bank for each segment	It shows the total amount of deposit resources for 1 RUB of funds provided to customers in the form of a loan for each segment
Coefficient of concluded deposit agreements by depositor segments	Ratio of the number of deposit agreements concluded for the period to the number of agreements at the end of the period for each segment	It shows an increase (decrease) in the number of deposit agreements for each segment

The proposed indicators should be calculated and analyzed in general by bank and branches, by categories of depositors, by terms of attraction, by types of currency.

4. Analysis of interest expenses on deposit resources.

The analysis calculates the growth and increase rates of interest expenses on deposit resources in general for the bank and branches, by categories of depositors, by terms of attraction, by types of currency. The average interest rate on deposits by categories of depositors is analyzed, which shows the ratio of interest on deposits to the average balance of deposits for each category of depositors. To analyze the deposit portfolio, the influence of factors on the amount of interest expenses is calculated: the volume of attracted deposit resources by categories of depositors and the size of the interest deposit rate by categories of depositors.

5. Assessment of the stability of attracting deposit resources.

This is the final direction of the deposit portfolio analysis. When assessing, we suggest calculating: the coefficient of variability of the resource balance for each category of depositors, the coefficient of deposit ruble subsidence, and the average deposit retention period for depositors' categories. The procedure for calculating these indicators and their economic substance is presented in Table 2.

**Table 2.** Indicators for assessing the stability of attracting deposit resources

Indicator	Method of calculation	Economic substance
The coefficient of variation of resources balance on the segments of depositors	The ratio of the minimum amount of deposit resources remaining to its average value for the period on each depositor segment	The closer the indicator under consideration is to one, the more stable the balance is
The coefficient of deposit ruble subsidence	Ratio of changes in deposit balances for each segment of depositors to the amount of attracted deposits for this segment for the period	The higher the deposit settlement level is, the better it is for the bank
The average storage data of the deposit on depositors segments	The reverse indicator is the number of deposit turnover for the period for each segment of depositors. The ratio of the average deposit balance for the period to the amount of deposit repayment for the period for each segment of depositors	It characterizes the average duration (in days) of one turnover of funds in deposits. Its decrease indicates an increase in the speed of circulation of funds in deposits

To manage their deposit portfolio, commercial banks need to:

- determine which category of clients is profitable from the point of view of efficient use of their resources, i.e. provides greater stability of the deposit mass and a higher minimum required balance on their account;
- timely attract clients, i.e. know the category of clients and how many of them is supposed to be in each category, which and how many clients should be attracted in order to ensure the necessary optimal volume of the deposit portfolio;
- ensure efficient use of deposit resources, i.e. calculate the cost of deposit products and determine their profitability in the context of each customer segment, which will allow for a flexible individual interest rate policy;

- develop an information and analytical system to support management decision-making in the formation and use of the deposit portfolio. This is a key factor, as it provides the necessary analytical and evaluation information for rapid and timely response to changes in the internal and external environment.

Maintaining the liquidity and profitability of commercial banks is a prerequisite for achieving efficient use of deposit resources and, as a result, the formation of a deposit portfolio. Calculation of reserves for increasing the amount of profit is determined for each category of depositors. Their main sources are increasing the volume of deposit resources, reducing interest rates on attracted deposits, and improving the quality of deposit services.

In order to ensure regulatory levels of liquidity, the bank have to take the following measures:

- to improve the liquidity management structure, which includes a strategy to limit liquidity risks;
- to perform an analysis of the bank's liquidity, during which deviations in their reduction or exceeding the regulatory values may be detected;
- to develop operations with liquid securities, as well as interbank lending and operations with the Central Bank of the Russian Federation;
- to use mechanisms to improve the deposit insurance system;
- to implement the market formation of secondary loan obligations.

## 7. Conclusion

In conclusion, it should be noted that the suggested comprehensive methodology for analyzing the deposit portfolio of commercial banks is the result of searching for the optimal option for assessing the effectiveness of using attracted deposit resources by commercial banks. An effective deposit policy is a policy that is implemented by commercial banks to attract deposit resources and manage them in order to achieve the planned level of profitability and to ensure liquidity standards. The conclusions made on the basis of the indicators analysis will make it possible to implement the strategic targets and tasks set by the deposit policy of banks. The results of the deposit portfolio analysis serve as a starting point for the final assessment of the deposit policy effectiveness. Assessment of the effectiveness of the commercial banks' deposit policy is a set of assessment procedures that allow to draw conclusions about the strategy implemented to attract deposit resources. Thus, the proposed comprehensive methodology for analyzing the deposit portfolio gives a clear idea of the scale of the bank further development within the current restrictions on attracting deposit resources.

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