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STATISTICAL METHODS OF MAINTAINING THE EFFICIENCY OF THE BANKING SECTOR OF THE ECONOMY

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ANNOTATION

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The article discusses methodological approaches to the formation of an assessment of the banking sector's efficiency, the issues of methodological support of statistical analysis of efficiency management.

KEY WORDS: ***banking sector's efficiency, statistical analysis, efficiency management, statistical methods.***

INTRODUCTION

According to economic theory, commodity-money relations are based on three schemes. In the first scheme, the commodity is exchanged for the commodity, in the second the commodity is exchanged for the commodity by means of money, in the third the money is transferred from one owner to another. Consequently, the movement of money is part of a commodity-money relationship that represents the independent movement of money.

A practical approach to the essence of cash flows highlights the main forms of monetary relations: budget - the formation of budgets and the expenditure of funds from them; taxes - payment (collection) of taxes and fees; credit is the transfer and return of money.

A bank is a credit institution that has the exclusive right to carry out the following banking operations: attracting funds from individuals and legal entities, returning these funds, placing them on its own behalf and at its own expense on a timely basis, opening and maintaining bank accounts of individuals and legal entities [1].

One of the main tasks today is to study methodological approaches to the formation of a comprehensive, sectoral and macroeconomic assessment of the efficiency of the banking sector of the economy.

General conceptual approaches to assessing the overall efficiency of the banking sector of the economy are considered in accordance with the following areas of activity, which represent a potential source of economic efficiency: areas of organizational decision-making and management, determined by the quality of strategic and operational decisions that are cost-effective (institutional changes, focus on expanding areas of activity, expanding the range of services provided, etc.); economic efficiency is an investment area determined by the return on assets formed on the basis of invested resources; the sphere of competitive relations within which the cost-effective organization is provided as a result of realization of market advantages (capital centralization, use of a monopoly position in the specialized banking services market, etc.) [2]

The use of statistical methods of performance analysis in the field of production activities, the main content of which is the implementation of intermediary functions for banking organizations, is related to solving the problem of developing the most appropriate and comparable integrated estimates for certain banking organizations. In practice, its possible solution is to use approaches related to the formation of aggregate indicators, which are carried out in statistics, based on the application of the relevant rules of the theory of aggregate structures.

In this regard, the effectiveness of the organization's activities is the use of statistical structures that underlie the formation of the classical average geometric index to assess the degree of compliance of current and target indicators. According to this approach, it is advisable to formulate specific efficiency indices in terms of current levels and their ratio to target or average values. In practice, their organization can be based on the use of private index systems on a hierarchical principle, which allows to ensure the required level of detail of the parameters to be taken into account.

Taking into account the specifics of the sources of economic efficiency in the implementation of specific management or organizational decisions in the banking sector of the economy, statistical analysis of efficiency is advisable to limit the areas associated with assessing their impact on: changes in the overall financial and economic performance of banking institutions; changes in the values of specific performance indicators of banking organizations (including relative indicators and traditional cost ratios); value indicators of the organization as an object of capitalization.

In the first and second cases, the content of such assessments is related to the impact of systemic efficiency on the formation of cost indicators or indicators of economic activity of organizations in the new conditions of the organization, and in the latter case - the measurement of market value dynamics of the organization. In this case, the use of the hypothesis evaluation method seems to be a sufficiently adequate and universal approach to the analysis using the hypothesis measurement method as the main tool for statistical measurement of the significance of the observed changes in the values of the indicators taken into account. At the same time, it is advisable to use the main financial and economic indicators of banking organizations or a system of key ratios as a database for such calculations.

In developing the methodological support of statistical analysis of the management aspect of efficiency, special attention should be paid to the assessments of the processes of addition and merging in the banking sector of the economy. For countries with economies in transition, this aspect of the analysis seems to be most relevant as a way to ensure the real development of this sector and increase the competitiveness of banks in the financial intermediation services market. We propose calculations describing changes in their market value, taking into account the significant features of the processes analyzed, as the most appropriate indicators of the results of structural changes in banking institutions recognized by other market economy entities. In this case, it is recommended to expand the method of estimating the hypotheses to indicators that characterize the market value of such results, formed in the form of appropriate stock indices.

At the same time, alternative approaches to such calculations, in particular, the methods widely used in foreign statistics in the field of special events, known as "event study", including methods of estimating the exchange rate of financial assets Known as the Pricing Model), regression models, etc. are considered to assess the normal (expected) level of income.

The main areas of investment activity, which represent potential sources of income for the banking sector of the economy and, accordingly, are the subject of efficiency assessment, are: direct investment; portfolio investments; participation in investment funds [3].

Each of the presented directions is characterized by features that determine both the specificity of the use of statistical methods in assessing the effectiveness of innovative activities, as well as the feasibility or expediency of such an assessment by banking institutions. In this regard, first of all, the specificity of the latter direction is determined by the existence of objective limitations for the banking sector of the economy in terms of controlling the allocation of invested resources, which significantly limits the ability to create realistic calculations of efficiency.

In contrast to direct investments, which are characterized by the existence of a methodological framework for statistical analysis of efficiency (including existing international recommendations in this area, in particular, the guidelines for evaluating the effectiveness of investments of the United Nations Industrial Development Organization - UNIDO), portfolio investments made by banking institutions In assessing the effectiveness, as a rule, it is necessary to adapt the existing statistical methods to the characteristics of the database used. In particular, it shows the features of the use of classical methods of statistical forecasting based on stock exchange statistics. However, the approaches used in their analysis emphasize that there are fundamental differences that are primarily determined by the expected periods of investment.A separate area of use of statistical methods and models in the analysis of the efficiency of the banking sector of the economy is the area of competitive relations. A classic example of the systemic effect of the implementation of the competitive advantages of the organization in the market of banking services is the considered scale effect (returns to scale, scale effect).

In this case, efficiency estimates for the banking sector of the economy can be obtained based on the use of traditional statistical methods and models. However, it is important to select generalized quantitative indicators that characterize the scope of the banking sector as a source of appropriate economic efficiency. In this regard, the Herfindal-Hirschmann general index, which allows to assess the degree of centralization of operations in the banking sector of the economy, is a sufficiently consistent scale indicator [4]. . A more common apparatus of production functions can also be recommended in statistical practice to compile appropriate calculations, which reflects the relationship between changes in the amount of resources used and changes in the corresponding production results.

The specifics of the use of statistical methods in the analysis of the effectiveness of specific aspects of the activities of organizations in the banking sector of the economy are given in the following table (Table 1).

The analysis substantiates the conclusion that the most promising approaches aimed at assessing technical efficiency in terms of methodological and practical aspects in the development of complex assessments for banking organizations. The methodological basis of the analysis is quite common in the theory and practice of statistics, and can be a scheme of modeling their activities in the form of a model with a set of input (resources) and output (production) parameters.

Table 1
The main directions of the use of statistical methods in the analysis of the effectiveness of banking organizations

Sources of cost-effectiveness	**Methods and models used**	**Analytical processes**
Financial intermediation	Index method	Attracting and allocating financial resources
Area of management	Hypothesis testing Correlation-regression analysis Hypothesis testing Correlation-regression analysis	Shaping market value Addition and merging processes Exchange processes
Investment sector	Methods of forecasting Compilation of calculation coefficients Discounting methods Methods of quoting parameters	Exchange processes Investment processes
The field of competitive relations	Production functions	Centralization of capital Combining activities

In fact, this approach creates similarities between the statistical models that formalize the processes of the banking sector and industrial enterprises, which allows to harmonize the basic principles of the theory of development of financial and banking institutions and the classical theory of corporate processes.

A typical and most common example of a parametric model used in modern banking sector performance appraisal and considered as a tool for conducting experimental calculations is a model based on the construction of Stochastic Frontier Analysis (SFA). According to the interpretation of the calculation ratios obtained on its basis, an organization is considered inefficient if its operating costs exceed the optimal level conditionally (according to the potential capabilities of the organization) on a scale not explained by existing statistical errors.

It is also noted that the principles of creating models for assessing the efficiency of the banking sector of the economy can be extended to the level of sectoral and macroeconomic research. This thesis is confirmed by a number of specific examples from foreign and international practice, in particular, studies related to the analysis of the efficiency of the banking sector in the European Union, Asia-Pacific region [5].

According to the SCO, the banking sector of the economy represents an element (subject) of economic turnover interrelated with other entities within the system of financial flows, and as a sector of the economy (financial and non-financial corporations, public sector, households and non-profit organizations) will be displayed.

Such assessments can be made on the basis of a system of indicators presented in the relevant accounts of the system. In our view, the advantage of this approach over other approaches available in modern statistics is the balance of indicators used and the ability to create different combinations of evaluation criteria based on them based on the goals and objectives of the study. At the same time, there are different possibilities for the implementation of certain aspects of the analysis, based on the content of information used, which is primarily determined by the level of development of national statistics in individual countries.

Current statistics For countries operating in the context of the application of all methodological principles, a complete set of indicators reflected in the calculations can be used for economic and statistical analysis. In the absence of such a system, the initial set of indicators is limited by the methodological and technical capabilities of the separation of indicators related to the activities of the banking sector of the economy within the accounting system used.

In the first case, such an analysis may be based on the use of a system of indicators formed for the mixed subsector "Banks, Bills of Exchange" and "Savings Banks". In our opinion, such a system may, in its entirety, consist of the sum of all the indicators reflected in the accounts. In the latter case, the possibilities of analyzing the efficiency of the banking sector of the economy are limited only to the general aspects of the activities of organizations in the field of financial intermediation.

Credit organizations, as business entities, make it a priority to make a profit in their activities. It is clear that a financial institution cannot operate without a certain share of income, but, as a rule, in the case of banks, it is not advisable to prioritize profit as a single goal, because in this case banks are misdirected to society and society to banks. Thus, it is appropriate to interpret the purpose of the activities of credit institutions as activities that benefit customers (ie provide the necessary monetary resources and other operations in the credit market) for profit. Therefore, it is more accurate to say that banks operate on a commercial basis and do not make profitability their main goal.

To fully understand the goals and activities of the bank, it is necessary to define its mission. In the context of the pandemic, the following are distinguished: development and strengthening of the banking system, protection and maintenance of the stability of the national currency; the Central Bank, which is responsible for ensuring the stability and development of the payment system, as well as for the issuance of funds.

In addition to the Central Bank, there is a system of banks engaged in commercial banking, including: universal banks that carry out a wide range of banking operations and operate in the interests of the client; investment banks engaged in operations with investments in securities and derivative financial instruments; savings banks, the main purpose of which is to attract funds from the population.

Credit institutions perform a number of functions that, in accordance with their functions and the purpose of their existence, maintain the status of a commercial bank and radically separate their activities from the activities of the company in any other independent economic sphere.

First of all, credit institutions, while acting as a financial institution, are engaged in attracting and accumulating temporarily vacant funds of the population. The funds accumulated in bank accounts, on the one hand, bring income to their owners, on the other hand, they serve as resources for the bank's credit operations, serve as a source for lending. This function is not only the main function for a commercial bank, but also serves as the main type of activity and income.

The second distinctive function of the bank in the financial market is its activity as an intermediary in lending. Thus, the commercial bank eliminates the problems inherent in the credit sector and assumes some of the risks. The Bank directs the accumulated temporarily vacant funds to a location where it can generate economic benefits by calculating and correcting all possible risks, taking into account in advance the more favorable terms of the transaction.

Currently, a lot of payments for individuals and legal entities go through banks. Therefore, mediation in the implementation of settlements and payments can be called a separate function of banking, as only credit institutions have the absolute right and ability to regulate and ensure the settlement process between almost all types of subjects of money circulation and economic relations. By optimizing their operations, banks carry out successful operations with many financial instruments, offering customers various forms of accounts: letters of credit, payment orders, collection, checks and promissory notes, bank cards and more. In addition, credit institutions are actively developing and offering new products (e.g., the development of electronic cashless payments, which has become very popular in recent years, on new terms that are attractive to customers)

The purpose of a bank analysis is to determine its reliability, solvency, and ability to cover potential losses at its own expense. Thus, the bank balance sheet is a tool of bank management.

Financial analysis often considers financial stability, solvency, liquidity, business activity, absolute and relative indicators of profitability.There are three main methods of analysis: horizontal analysis, vertical analysis, and coefficient analysis.

Horizontal analysis is based on the grouping of assets and liabilities (separately). The essence of this methodology is to determine the absolute growth rates of balance items, to identify trends in substances, to predict the increase or decrease in the amount of substance.

When conducting a horizontal analysis of the bank's balance sheet, it is necessary to pay attention to the decrease in the volume and specific weight of the securities portfolio, expressed in total assets. Since the horizontal method is fundamental to the bank, it requires monitoring changes in lending and investment activities. Thus, large changes in this or that substance should be identified and justified by horizontal analysis.

It should be noted that the growth of bank assets often leads to negative consequences. However, a horizontal analysis of a bank’s balance sheet alone is not sufficient to assess, it is necessary to analyze banking performance using other effective methods using different indicators.

Vertical analysis determines the structure of a company’s assets and liabilities by allocating separate weights to balance sheet groups. Specific weights allow to determine the share of certain resources in the bank's balance sheet, ie: to assess the composition of the customer base, determine the value of bank resources, identify the main types of active operations, identify the most effective and inefficient investments of the bank, develop measures for asset and liability management.

The study of the structure of the balance sheet of a commercial bank should begin, first of all, with the analysis of liabilities that reflect its own funds and sources of borrowed funds, as the volume and composition of liabilities is a condition determining the form and direction of use of bank resources.Commercial banks must maintain the ratio of their own funds and borrowed funds in accordance with established standards.

The Bank's active operations make up the bulk of its operations. The balance sheet asset describes the composition, placement and intended use of bank funds. It shows what financial resources are spent on and what the purpose of available economic resources is.

In short, each bank has its own characteristics of managing its activities. However, they do not have to be the same in different countries. The activity of banks in any country is directly related to issues of national importance, such as regulating the monetary economy and thereby reducing or increasing the money supply, ensuring the soundness of the country's finances through the reduction or issuance of loans.

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