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CURRENT TRENDS IN SCIENTIFIC RESEARCH DEVELOPMENT

PROCEEDINGS OF XII INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE JULY 4-6, 2025

BOSTON
2025

УДК 330.4

DEVELOPMENT OF PRIVATBANK STRATEGY

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Introductions. The banking sector plays an important role in financing the economic system of the country, because, on the one hand, it accumulates investment resources of households, and on the other hand, it makes them available to other economic entities as financial means for business development, being an important intermediary in the financial resources market. A banking institution, striving to achieve the efficiency of its own economic activities, must offer the most favorable conditions for cooperation for participants in the financial and credit resources market. Thus, the study of the efficiency of the banking sector is an important aspect of regulating the system of monetary and credit relations of the country.

Aim. Generalization of methodological approaches and development of proposals based on them for managing the efficiency of the economic activities of a banking institution.

Materials and methods. For the purposes of managing the efficiency of PrivatBank's business activities, we will determine the structure of its loans by type of borrowers and perform a regression analysis of the impact of different types of loans on the formation of the bank's profit after tax and taking into account other transactions that affect the final value of the bank's profit (for example, tax refunds). Each type of loan is taken as a factor indicator of the formation of the bank's profit. The impact of these factors does not have time differences, and therefore the assessment of their

impact on the resulting indicator is most appropriate when building a multiple regression model. It is also necessary to check the absence of collinearity of factor indicators, which could affect the reliability of the regression model. The purpose of regression analysis is to determine the degree of influence of a separate factor indicator on the change in the value of the resulting indicator. This will allow us to determine exactly the direction of lending that will allow us to achieve the largest increase in profit in terms of the value changes of the factor indicator per one monetary unit, UAH.

To form the initial data that will be used to build the multiple regression model, we will compile Table 1.

Table 1.

Input data for constructing a regression model of changes in bank profits due to the size of loans issued by their specific composition

Indicators	Symbols	Years						
		2018	2019	2020	2021	2022	2023	2024
Loans to small and medium-sized businesses, UAH million	x_1	8 251	8 555	6 859	11903	21311	25 454	23 606
Loans to individuals - credit cards, UAH million	x_2	45 314	51 890	40 609	45 314	46 593	54 500	62 703
Mortgage loans, individuals, UAH million	x_3	12 923	11 467	9 566	3912	9 858	8559	5618
Loans to individuals - consumer loans, UAH million	x_4	4 193	4 148	3 500	5 343	3 880	9 764	12 738
Profit, UAH million	y	12 798	32 609	24 302	35 050	30 198	37857	40373

Compiled based on the official website of Privatbank Financial Statements https://privatbank.ua/about/finansovaja-otchetnost

Results and discussion. Using the built-in Excel function Data/Regression, you will obtain the values of the linear coefficients of multiple regression. The multiple regression equation for the considered factors has the following form:

$$Y = 0{,}41x_1 + 1{,}189x_2 - 2{,}123x_3 - 2{,}11x_4 - 2795{,}84.$$

From the obtained equation it follows that the factor indicators x1 and x2 have a positive effect on the value of the resulting indicator, while the factors x3 and x4 have a negative effect on the resulting indicator. The negative effect of the volume of loans issued, and mortgage loans and consumer loans to individuals, can be explained by the high level of their riskiness in the current economic conditions, and, accordingly, their unprofitability due to non-return or return with significant delays. From the partial coefficients that stand in front of the factor indicators, it is clear that the largest increase in profit among the considered indicators is provided by loans to individuals in the form of credit card issuance.

Let us interpret the model that reflects the change in Privatbank's profit due to changes in the size of various types of loans, which are represented in the model by 4 groups.

The correlation coefficient of the multiple linear regression model is r=0.919, which indicates a very close relationship between the selected factor indicators and the level of profit as a resulting indicator. The coefficient of determination of the regression model is $R^2 = 0.844$. This means that 84.4% of the variation in the outcome indicator can be explained by the influence of the factor indicators included in the model.

An important aspect of the multiple model is the exclusion of collinearity between factor indicators. We will establish the mutual influence of factor indicators using the built-in Correlation function. Thus, we can observe the presence of a strong correlation between factors x_1 and x_4, as well as the group of factors x_1 and x_2, x_3 and x_4, respectively. Thus, for the adequacy of the regression model, it is necessary to remove some of those factors that have collinearity.

To decide on the exclusion of factors, we will determine the partial linear correlation coefficients of the factors and the outcome indicator using the Correlation function. The result is as follows: $ry(x_1) = 0.669$; $ry(x_2) = 0.68$, $ry(x_3) = -0.71$, $ry(x_4) = 0.671$. Thus, it is proposed to leave 2 factors in the regression model, which have the largest partial value of the correlation coefficient, and do not have collinearity between themselves. Such factors can be x_2 and x_3. The correlation coefficient between

them is only 0.31, which is an acceptable value. Thus, the edited regression model for the two factors x_2 and x_3 will have the following form:

$$y = 0.64x_2 - 1.66\ x_3 + 13330.33$$

According to the latter model, the correlation coefficient r=0.864, which indicates a sufficiently close relationship between the result indicator and the factor indicators, R^2=0.747. Thus, 74.7% of the variation in the result indicator is explained by the change in the factor indicators included in the model.

The standard error of the considered regression equation is 5773.01, which characterizes the possible error of the sample population of the resulting indicator in relation to the general population.

We will check the statistical significance of the multiple regression coefficients using the Student's t-statistic. The Student's statistic helps to determine whether there is a significant relationship between the independent variables and the dependent variable, and whether each regression coefficient is statistically different from zero. In multiple regression, when there are several independent variables, it is necessary to check the significance of each of them. The t-statistic helps to determine whether each of the independent variables affects the dependent one, or its influence is random. We calculate the t-statistic for each regression coefficient (b) using the formula:

t = b / standard error (b).

The critical value of the Student's t-statistic for α = 0.05 and the number of degrees of freedom of 6 will be 2.45. Since this is a two-tailed distribution, the limits of acceptance of the null hypothesis lie within +2.45; -2.45. The calculated value for the coefficient at x_2 will be 1.91, and at x_3 it is -2.12. Therefore, both calculated t-test indicators do not exceed the critical value of 2.45. This allows us to conclude that the partial correlation coefficients of the multiple regression model are statistically significant.

Let's check the adequacy of the constructed model as a whole using the Fisher test. Model testing by the F-test (Fisher test) is a statistical evaluation method used to

check whether there are significant differences between groups (usually in linear regression models). The F-test is used to test the hypothesis of equality of means in several groups or to assess whether the change in the model is significant by comparing it with a simple base model. To check the regression model by the F-test, it is necessary to compare the calculated value, which is equal to 0.063, with the tabular value of the Fisher-Snidecor distribution.

If the calculated criterion value is greater than the critical value of the Fisher distribution, which is taken with a certain level of significance α and degrees of freedom (k -1) and (n – k) , then the hypothesis is not accepted. That is, the average values (at least some of them) belong to different general populations and are different. For the constructed model, the calculated value of the F-criterion 0.063 is less than the critical value 230.2 (r_1=1, r_2=5, for α = 0.05). Thus, the constructed regression model is adequate.

According to the results of mathematical modeling of the impact of the types of bank loans on the level of its profitability, it can be concluded that the bank should increase the volume of lending to individuals using credit cards in order to increase the level of total profit. This type of loan has the closest correlation among the other types of bank loans considered with the resulting indicator in the form of total profit. Credit cards offer convenience and flexibility in managing finances, as well as the possibility of instant access to funds. The main advantages: instant access to the credit limit, convenience in spending, the possibility of non-cash payments and, often, a grace period without interest. These advantages can increase the number of bank customers who are focused on small loans within the established limit of funds, which follows from the assessment of the borrower's reliability.

The constructed linear multiple regression model

$$y = 0.64x_2 - 1.66\, x_3 + 13330.33$$

allows us to predict that an increase in the volume of lending to individuals through the issuance of credit cards by 1 million UAH will allow the bank to receive

640 thousand additional profits. In contrast, an increase in the volume of mortgage lending to individuals by the bank by 1 million UAH. will lead to a reduction in total profit of 1.66 million UAH. The bank needs to consider these features of lending when planning the distribution of the loan portfolio. Regarding non-performing loans, it is necessary to introduce stricter criteria for selecting borrowers, which will reduce the percentage of non-repayment of loan funds.

Conclusions. The lending areas of PrivatBank identified through modelling, which do not currently have a significant impact on its performance, can be improved by implementing measures to reduce the riskiness of such loans. Today, given the uncertainty of the environment in which PrivatBank operates, as well as new challenges and threats caused by martial law and the economic downturn, the priority areas for improving the bank's loan portfolio may include

- development of attractive lending programs for large businesses, in addition to the existing ones. However, given the military operations, we should not expect a significant increase in such loans, especially long-term ones. Ukrainian businesses are now mainly in need of credit resources to replenish their working capital, finance capital investments and restructure their debts, and are hoping for lower interest rates due to the NBU's key policy rate cut;

- continuing active lending to small and medium-sized businesses through participation in the government program ‘Affordable Loans 5-7-9%’, relaxation of credit standards for SMEs, low interest rates and large loan amounts will stimulate demand, but the risk of deterioration in loan portfolio quality should not be ruled out;

- maintaining a sufficient and optimal level of the resource base while continuing the policy of reducing the cost of loans for customers. Maintaining the resource base requires a comprehensive approach, including effective management of assets and liabilities, attracting new sources of financing, in particular through the development of profitable deposit products for individuals and legal entities, which will stimulate the growth of the deposit base, and effective use of financial market opportunities to attract funds using financial instruments;

- developing attractive household lending programs by easing credit standards for all types of retail loans, for consumer loans, since non-bank financial institutions also compete in this sector along with banks. - continue to create and implement high-quality and innovative products and services, in the direction of personalization of service in terms of big data analysis. Using big data analytics to create individual offers and personalized financial solutions for customers. This allows not only to meet the needs of customers, but also to ensure the stability and competitiveness of the banking institution, since new products and services create additional sources of income and contribute to the growth of the bank's profitability. The introduction of new technologies allows us to reduce costs and increase the efficiency of the bank's internal processes. - optimization and restoration of regional branch networks and banking infrastructure, which includes analysis and assessment of the existing network, development of an optimization strategy, integration of modern technologies, improvement of the level of customer service, etc. This will positively affect the quality and availability of services, which increases the level of customer satisfaction and strengthens competitive positions in the market.

- implementation of constant monitoring and forecasting of credit risk using a credit decision matrix, the importance of the development of which is associated with changes in the scale of lending, which affects the quality of the loan portfolio, and this requires appropriate action by the bank's management. However, it is necessary to understand that favorable economic and social conditions are necessary for the operation of the bank and the restoration of the lending function, in particular, positive dynamics of economic growth, moderate controlled inflation, a stable exchange rate, a decrease in the discount rate, an increase in the welfare of the population, etc. Given the military actions, it is not worth hoping for an improvement in economic and social conditions in the country, therefore, the bank must respond to market challenges in a timely manner by adapting and improving its credit policy to modern conditions.