European Journal of Business Startups and Open Society

Vol. 5 No. 4 (Apr - 2025): EJBSOS

http://innovatus.es/index.php/ejbsos

Crediting Small Business Entities: Problems and Ways to Solve Them

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Abstract: Improving the crediting practices of small business entities is a necessary condition for ensuring the continuity of their activities and for the technical and technological re-equipment. This creates the need to identify urgent problems related to the improvement of this practice and to develop scientifically based solutions to address them.

The article identifies urgent problems related to the improvement of the crediting practices of small business entities by banks in Uzbekistan and develops scientific proposals aimed at solving them.

Key words: commercial bank, small business, credit, crediting practices, interest rate, inflation, devaluation, income.

INTRODUCTION

Supporting the development of small business entities in Uzbekistan is one of the priority areas of state economic policy. In particular, the decree of the President of the Republic of Uzbekistan dated March 19, 2025, No. PF-50, outlines specific target indicators for the development of small and medium-sized businesses, including increasing their share in GDP to 55%, their share in exports to 34%, and their share in providing employment to 75%, establishing brand production in at least 100 small and medium-sized business entities, and increasing the number of entrepreneurial entities with more than 100 employees to 4,000 [1]. This creates the need to form an effective system for financing the activities of small and medium-sized business entities. In turn, forming an effective system for financing the activities of small and medium-sized business entities necessitates the improvement of crediting practices by commercial banks.

LITERATURE REVIEW ON THE TOPIC

F. Allen and D. Gale acknowledge the existence of two systems for financing the activities of small and medium-sized business entities: a system based on the activities of banks and a system based on financial markets, emphasizing the relatively significant importance of the first system [2].

According to D. Snyder, Vice President of Wells Fargo Bank, and T. Bryen, the regional director of this bank, the following serious shortcomings exist in the scoring model:

- bank employees do not have sufficient training to develop and manage strategies based on scoring;
- the management information system is not suitable for effective evaluation and monitoring;
- the existence of applying credit scoring models to bank products, applicant groups, or geographical areas without verifying their effectiveness;
- over time, models may lose their effectiveness for various reasons, which creates the need for constant and detailed monitoring of scoring cards [3].

Research and methods.

J. Sinki writes that while commercial banks hold a leading position in providing financial services to small businesses in the USA, the provision of term loans and leasing credits, as well as opening credit lines, plays an important role in the financial services offered to small business entities [4].

J. Sinki's conclusion is of significant practical importance for current banking practices. This is because, firstly, leasing credits are considered a form of credit with a relatively low level of credit risk due to having specific collateral; secondly, crediting through opening a credit line has several advantages (the client is relieved from the need to apply to the bank for credit each time, interest is paid only on the utilized portion of the credit limit, and the bank can monitor the intended use of the credit).

Chanel-Reynaud G. and Bloy E. conclude in their scientific research dedicated to financing the activities of small and medium enterprises that the establishment of good relations between small and medium enterprises and large enterprises increases their ability to utilize commercial bank loans. This is because large enterprises analyze whether small and medium enterprises can meet market demands before entering into business relationships with them. Additionally, they continuously monitor the status of small and medium enterprises that are partners with large enterprises [5].

According to V. Safaryan, factoring is a promising form of financing for small enterprises that have the potential to increase sales volume but lack working capital [6].

According to A. Stakhnyuk, the main factors hindering the increase in the level of utilization of commercial bank loans by small business entities are the insufficient development of the mechanism for supporting small businesses, the low quality of collateral objects, the lack of transparency in client activities, and the inadequacy of resources necessary for long-term investments in the real sector of the economy, especially affordable and long-term resources [7].

I. Rakhmonov substantiates the existence of the following opportunities for improving the microfinancing practices of commercial banks for small business entities:

- It is necessary to reduce the mandatory reserve rates set by the Central Bank for term deposits attracted by commercial banks for up to one year by 50% (with the condition that the remaining funds from the 50% reduction are provided as microloans);
- The Central Bank's mandatory reserve rate should not apply to the term deposits of microfinance organizations in commercial banks [8].

I. Alimardonov proposed to improve the methodology for determining the creditworthiness of small business entities by adding profitability ratios, debt service coverage ratios, and creditor turnover ratios to the composition of financial ratios in his dissertation research dedicated to improving the crediting practices of small business entities [9].

According to A. Vakhabov, it is necessary to subsidize the interest rates of investment loans provided by banks for the establishment of production enterprises and firms specializing in the processing of agricultural products in rural areas from the funds of the Republic of Uzbekistan's Recovery and Development Fund [10].

ANALYSIS AND RESULTS

According to the decree of the President of the Republic of Uzbekistan dated February 10, 2023, No. PF-21, "Criteria for Classifying Business Entities and Measures to Further Improve Tax Policy and Tax Administration":

Microenterprises are business entities whose founders (participants) are individuals and whose total revenue does not exceed 1 billion soums during the calendar year;

Small enterprises are business entities whose total revenue ranges from 1 billion to 10 billion soums during the calendar year.

Medium-sized business entities are those whose total revenue ranges from 10 billion to 100 billion soums during the calendar year.

Large business entities are those whose total revenue exceeds 100 billion soums during the calendar year [11].

It is worth noting that the main source of financing for the activities of small business entities in our republic is the loans from commercial banks.

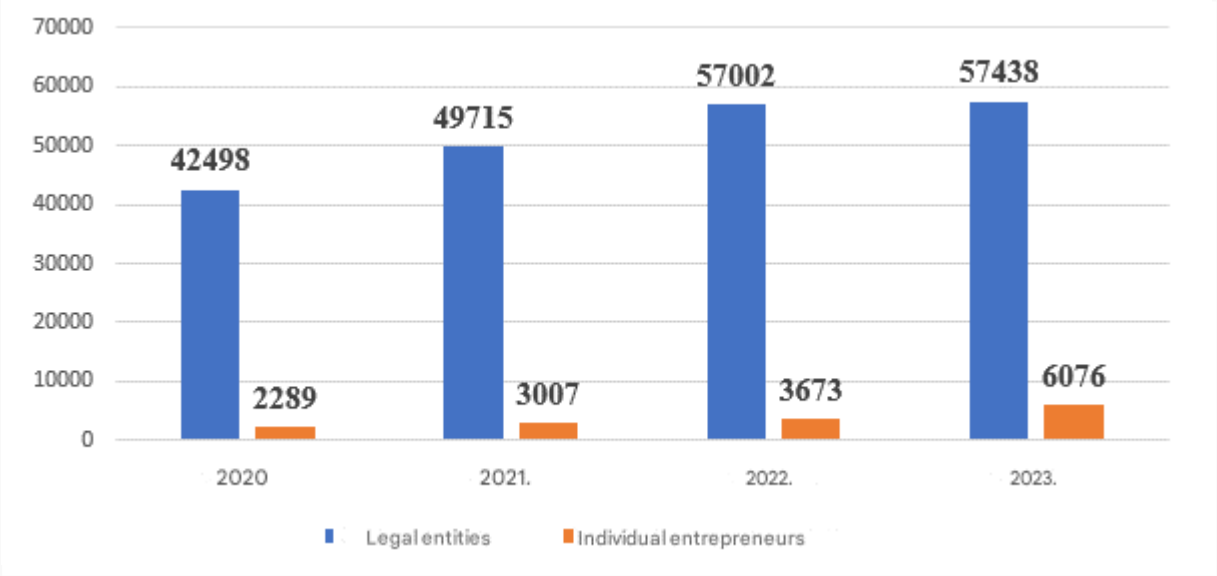


Figure 1. Loans provided by commercial banks of the Republic of Uzbekistan to small business entities with legal entity status and individual entrepreneurs, in billion soums.

The data from Figure 1 shows that in our republic, from 2021 to 2023, the amount of loans provided by commercial banks to small business entities with legal entity status, as well as the amount of loans provided to individual entrepreneurs, has shown a growth trend.

We will evaluate the level of loans provided by our republic's banks to small business entities through the data in the following table (Table 1).

Table 1The level of loans provided to small business entities by commercial banks of the Republic of Uzbekistan, in percentage

Indicators	2020	2021	2022	2023
Loans - total	100,0	100,0	100,0	100,0
The share of loans granted to small business entities in total loans	39,8	31,7	15,5	13,5

The data from Table 1 indicates that from 2020 to 2023, the ratio of loans provided to small business entities by our republic's commercial banks to total loans has shown a declining trend. This is considered a negative situation from the perspective of improving the lending practices for small business entities.

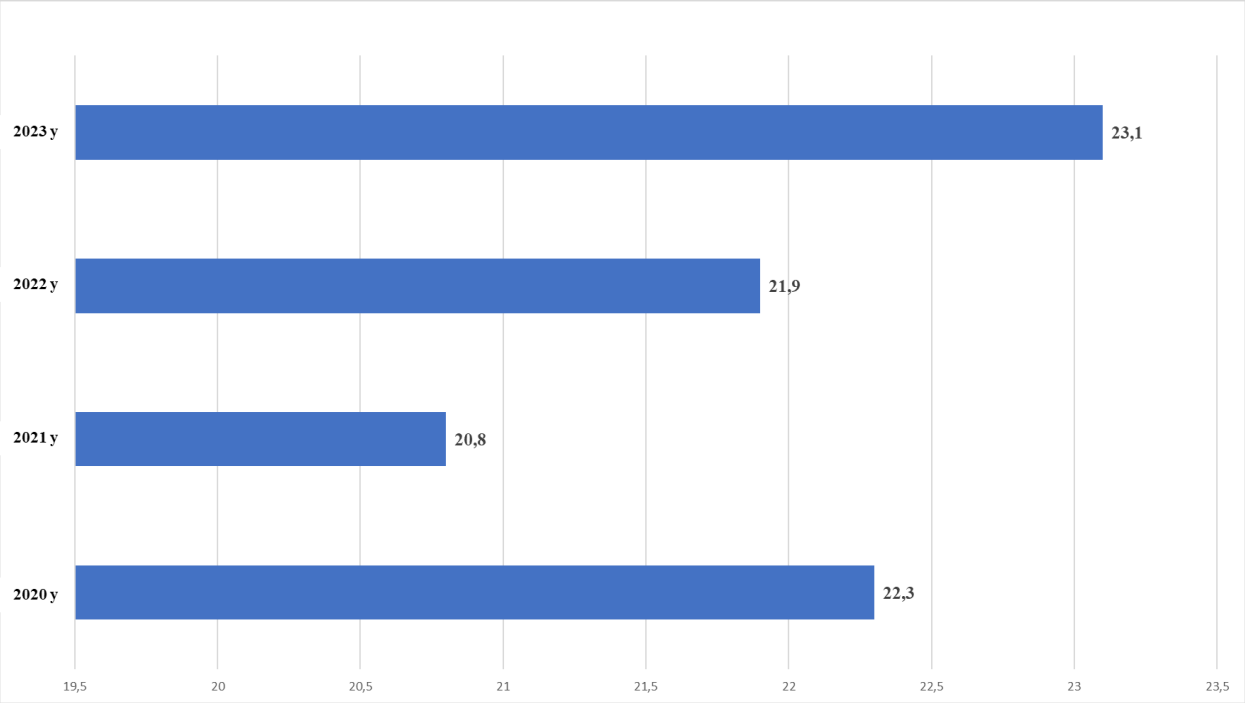


Figure 2. The average annual interest rate of loans provided to small business entities in national currency by banks of Uzbekistan, %

The data from Figure 2 shows that the average annual interest rate of loans provided to small business entities in national currency by our republic's commercial banks has shown a rising trend from 2021 to 2023. This is considered a negative situation from the perspective of improving the lending practices for small business entities. Because the interest rate of loans is considered their cost. Therefore, a high interest rate on loans hinders the level of utilization of commercial bank loans by small business entities.

It should be noted that in our republic, high inflation and the Central Bank's high refinancing rate are causing the interest rates on loans provided to small business entities in national currency by banks to be high.

We conducted an econometric analysis of the lending practices for small business entities using the example of the ATB "Turonbank" of the Republic of Uzbekistan. In the constructed multiple econometric model, the dependent variable is the loans provided to small businesses, billion soums (Y), and the influencing factors are the average annual interest rate of loans provided to small businesses, % (X1), problematic debt on loans provided to small businesses, billion soums (X2), the bank's regulatory capital, billion soums (X3), the bank's deposits, billion soums (X4), loans obtained from other banks, billion soums (X5), and the Central Bank's refinancing rate, % (X6).

Initially, we will conduct descriptive statistics based on the performance indicators of ATB "Turonbank" for the years 2019-2024 on a quarterly basis (24 observations) to carry out econometric research (since the measurement units of the variables are different, we will bring them to a single measurement unit by logarithmizing). The results of the descriptive statistics are presented in the following Table 2.

Table 2 Descriptive statistics by factors

	LNY	LNX1	LNX2	LNX3	LNX4	LNX5	LNX6
Mean	6.269811	2.928069	2.172695	7.285039	7.656533	8.295593	2.697088
Median	6.291084	3.008079	1.619339	7.346777	7.694931	8.450033	2.673554
Maximum	6.761920	3.198673	5.568726	7.972604	7.953635	8.712645	2.833213
Minimum	5.577841	2.140066	0.587787	6.773424	7.159447	7.100440	2.602690
Std. Dev.	0.322071	0.298750	1.640270	0.398558	0.238836	0.423521	0.073200

Skewness	-0.362681	-1.546887	1.284132	0.313378	-0.884368	-1.523309	0.452457
Kurtosis	2.334521	4.263559	3.287717	2.063711	2.781139	4.469912	1.823464
Jarque-Bera	7.969011	11.16802	6.678759	5.269461	6.176325	11.44253	7.203106
Probability	0.016002	0.003757	0.035459	0.040078	0.030301	0.003276	0.022355
Sum	150.4755	70.27365	52.14468	174.8409	183.7568	199.0942	64.73011
Sum Sq. Dev.	2.385791	2.052782	61.88120	3.653518	1.311978	4.125503	0.123241
Observations	24	24	24	24	24	24	24

From the data in Table 2, we can see the average value (mean), median, maximum, and minimum values of each factor. Additionally, the standard deviation (std. dev. (Standard Deviation) - the standard deviation coefficient shows how much each variable deviates from the average value) values for each factor are provided.

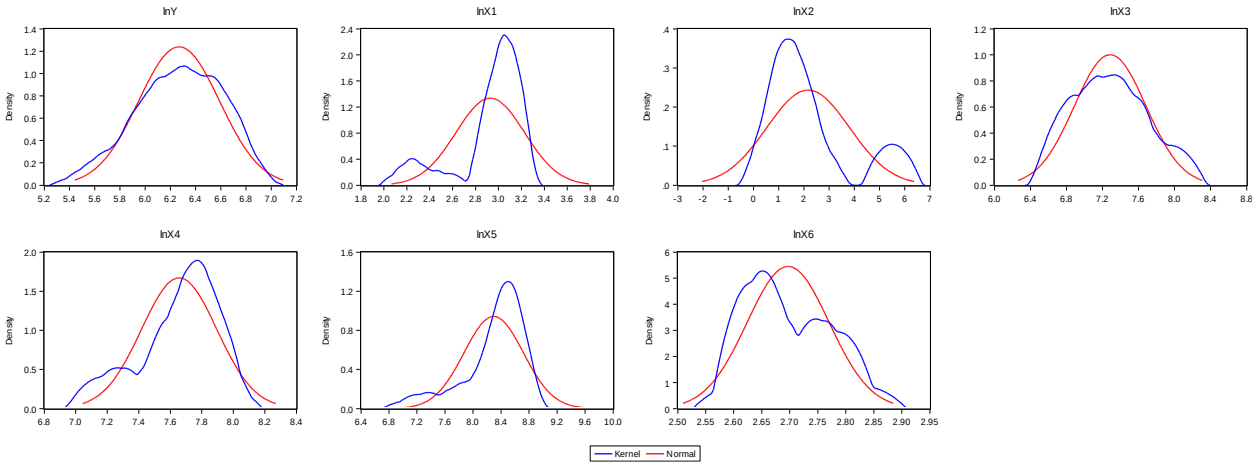


Figure 3. Graphs of the normal distribution functions of the factors

From Figure 3, it can be seen that all factors follow the law of normal distribution.

Table 3 Partial and pair correlation coefficients between factors matrix

Covariance Analysis: Ordinary

Date: 03/09/25 Time: 01:17

Sample: 2019Q1 2024Q4

Included observations: 24

Correlation

t-Statistic

Probability	lnY	lnX1	lnX2	lnX3	lnX4	lnX5	lnX6
lnY	1.000000						
lnX1	-0.720739	1.000000					
	5.570488						
	0.0000						
lnX2	-0.786934	0.373259	1.000000				
	-5.892534	1.887125					
	0.0000	0.0724					
lnX3	0.664709	0.372840	0.307450	1.000000			
	4.209437	1.884667	1.515469				
	0.0007	0.0728	0.1439				

lnX4	0.875773	0.593054	0.551851	0.634682	1.000000		
	7.345670	3.509335	3.103827	3.852253			
	0.0000	0.0020	0.0052	0.0009			
lnX5	0.500368	0.652808	0.453422	0.614773	0.343488	1.000000	
	2.710672	4.042045	2.386116	3.563816	1.365385		
	0.0128	0.0005	0.0261	0.0016	0.1251		
lnX6	0.645058	-0.427857	-0.589650	-0.062318	-0.591813	-0.440010	1.000000
	4.177654	-2.220319	-3.424343	-0.292866	-3.443660	-2.298272	
	0.0009	0.0370	0.0024	0.7724	0.0023	0.0314	

From this Table 3, it can be seen that the partial correlation coefficients indicate the density of relationships between the result factor (lnY) and the influencing factors (lnXi). Thus, the partial correlation coefficients show the existence of various relationships between the result factor – the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and the influencing factors (lnXi).

For example, the density of the relationship between the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and the average annual interest rate on loans granted to small businesses (lnX1) is equal to -0.7207. This indicates a strong inverse relationship between these two factors. Similarly, there is also a strong inverse relationship between the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and the problematic debt on loans granted to small businesses (lnX2), meaning that the value of the partial correlation coefficient between them is -0.7869. There is a higher than average relationship between the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and the bank's regulatory capital (lnX3). The correlation coefficient between these factors is equal to 0.6647. There is also a strong relationship between the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and the bank's deposits (lnX4). The correlation coefficient between these factors is equal to 0.8758. There is an average relationship between the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and loans obtained from other banks (lnX5). The correlation coefficient between these factors is equal to 0.5004. Additionally, there is a higher than average relationship between the volume of loans granted to small businesses by ATB "Turonbank" (lnY) and the refinancing rate of the Central Bank (lnX6). The correlation coefficient between these factors is equal to 0.6450.

Table 4 Measuring the effect of multicollinearity among influencing factors Variance Inflation Factors

Date: 03/09/25 Time: 01:20

Sample: 2019Q1 2024Q4

Included observations: 24

Variable	Coefficient Variance	Centered VIF
lnX1	0.060593	2.146550
lnX2	0.001816	1.939536
lnX3	0.083206	5.246211
lnX4	0.304577	6.896058
lnX5	0.071749	5.108255
lnX6	2.110013	4.487631

C	33.94940	NA

If there is multicollinearity among the influencing factors, then Centered VIF>10 will occur. From Table 3, it can be seen that the VIF coefficients of all influencing factors are less than 10. This indicates that, similar to the correlation analysis among the factors, there is no multicollinearity among the influencing factors.

The tests for autocorrelation and partial autocorrelation among the factors also corresponded to the results obtained above. That is, there is no autocorrelation in the time series being studied. This is evident from all observations, as it can be seen that the p-values of all residuals are less than 0.05.

In the next stage, we will construct a multiple econometric model based on the volume of loans granted to small businesses by ATB "Turonbank". Generally, a multiple econometric model has the following form:

$$\ln y = \ln \beta_0 + \beta_1 \ln x_1 + \beta_2 \ln x_2 + ... + \beta_n \ln x_n + \varepsilon, \quad (1)$$

here y is the result factor, is the influencing factors, is the random error.

In determining the unknown parameters in the multiple econometric model (3), the "least squares method" is used. We use the EViews program to calculate the unknown parameters of the multiple econometric model. The results of the calculations are presented in the following Table 5.

Table 5

Calculated parameters of the multiple econometric model

Dependent Variable: lnY

Method: Least Squares

Date: 01/28/25 Time: 12:09

Sample: 2012 2024

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnX1	-0,188710	0,036156	-5,219360	0.0000***
lnX2	-0,096490	0,038617	-2,498560	0.0137***
lnX3	0,385703	0,108455	3,556341	0.0021***
lnX4	0,365000	0,151885	2,403150	0.0165***
lnX5	0,513396	0,247861	2,071310	0.0586**
lnX6	-0,494830	0,252588	-1,959050	0.0626**
C	4,092488	5,826611	0,702379	0.4919
R-squared	0.939130	Mean dependent var		6.269811
Adjusted R-squared	0.928259	S.D. dependent var		0.322071
S.E. of regression	0.037145	Akaike info criterion		-0.228123
Sum squared resid	0.008279	Schwarz criterion		-0.571722
Log likelihood	39.38749	Hannan-Quinn criter.		-0.319280
F-statistic	115.8084	Durbin-Watson stat		1.947258
Prob(F-statistic)	0.000000			

Note: *** - at 0.05 significance, ** - at 0.1 significance.

Using the data from Table 5, we present the analytical form of the multiple econometric model:

$$\ln \hat{y} = \ln(4{,}092) - 0{,}189 \ln X_1 - 0{,}096 \ln X_2 + 0{,}386 \ln X_3 + \\ + 0{,}365 \ln X_4 + 0{,}513 \ln X_5 - 0{,}495 \ln X_6 \quad (2)$$

The calculated (2) multiple econometric model shows that if the average annual interest rate (lnX1) on loans granted to small businesses increases by one percent, the volume of loans granted to small businesses by ATB "Turonbank" (lnY) may decrease by an average of 0.189 percent. An average one percent increase in problematic debt (lnX2) on loans granted to small businesses leads to an average decrease of 0.096 percent in the volume of loans granted to small businesses by ATB "Turonbank" (lnY). An average one percent increase in the regulatory capital of ATB "Turonbank" (lnX3) may lead to an average increase of 0.386 percent in the volume of loans granted to small businesses (lnY). An average one percent increase in the bank's deposits (lnX4) may lead to an average increase of 0.365 percent in the volume of loans granted to small businesses (lnY). An average one percent increase in loans obtained from other banks (lnX5) may lead to an average increase of 0.513 percent in the volume of loans granted to small businesses (lnY). Additionally, if the refinancing rate of the Central Bank (lnX6) increases by one percent, it is observed that the volume of loans granted to small businesses by ATB "Turonbank" (lnY) may decrease by an average of 0.495 percent.

To check the quality of the multiple econometric model (4), we will check the coefficient of determination. The coefficient of determination indicates what percentage of the dependent variable is made up of the factors included in the model. The calculated coefficient of determination (R2 - R-squared) is equal to 0.9391. This indicates that 93.91 percent of the volume of loans granted to small businesses by ATB "Turonbank" (lnY) is made up of the factors included in the (4) multiple econometric model. The remaining 6.09 percent (1.0-0.9991) is due to the influence of unaccounted factors.

To check for autocorrelation in the residuals of the multiple econometric model (2), we will use the Durbin-Watson (DW) criterion.

The calculated DW value is compared with the DWL and DWU in the table. If DW_calculated < DWL, it is said that autocorrelation exists in the residuals. If DW_calculated > DWU, it is said that there is no autocorrelation in the residuals. The lower boundary value of the Durbin-Watson criterion is DWL = 0.93 and the upper boundary value is DWU = 1.90. DW_calculated = 1.9472. Therefore, since DW_calculated > DWU, it can be concluded that there is no autocorrelation in the residuals of the dependent variable (the volume of loans granted to small businesses by ATB "Turonbank" (lnY)).

The absence of autocorrelation in the residuals of the dependent variable also indicates the possibility of using the previously mentioned (2) multiple econometric model for forecasting.

CONCLUSIONS AND RECOMMENDATIONS

During the research process, we formed the following conclusions regarding the improvement of the lending practices for small business entities:

- There are two systems for financing the activities of small and medium-sized business entities – a system based on the activities of banks and a system based on financial markets, where the first system is significantly more important than the second.
- The presence of serious shortcomings in the scoring model negatively affects the lending practices for small business entities;
- The establishment of good relationships between small and medium enterprises and large enterprises increases their ability to utilize commercial bank loans;
- There is an opportunity to improve the methodology for determining the creditworthiness of small business entities by additionally including profitability ratios, debt service ratios, and creditor turnover ratios in the composition of financial ratios;
- The amount of loans granted to small business entities with legal entity status by commercial banks, as well as the amount of loans granted to individual entrepreneurs, has shown a growth trend in 2021-2023.

- The average annual interest rate on loans provided in national currency to small business entities by commercial banks in our republic has a tendency to increase in 2021-2023, which is considered a negative situation from the perspective of improving the lending practices for small business entities.
- The econometric analysis of the lending practices for small business entities using the example of ATB "Turonbank" shows that,

If the average annual interest rate on loans provided to small businesses (lnX1) increases by one percent, the volume of loans provided to small businesses by ATB "Turonbank" (lnY) may decrease by an average of 0.189 percent. An increase of one percent in problematic debt (lnX2) for loans to small businesses leads to an average decrease of 0.096 percent in the volume of loans (lnY) provided by ATB "Turonbank". An increase of one percent in the regulatory capital (lnX3) of ATB "Turonbank" may lead to an average increase of 0.386 percent in the volume of loans (lnY) provided to small businesses. An increase of one percent in the bank's deposits (lnX4) may lead to an average increase of 0.365 percent in the volume of loans (lnY) provided to small businesses by ATB "Turonbank". An increase of one percent in loans taken from other banks (lnX5) may lead to an average increase of 0.513 percent in the volume of loans (lnY) provided to small businesses by ATB "Turonbank". Additionally, if the refinancing rate of the Central Bank (lnX6) increases by one percent, it is observed that the volume of loans (lnY) provided to small businesses by ATB "Turonbank" decreases by an average of 0.495 percent.

In our opinion, the following measures should be implemented to improve the lending practices of commercial banks in our republic for small business entities:

1. To increase the volume of loans provided to small business entities by commercial banks, first, it is necessary to increase the weight of stable liabilities (time deposits, funds obtained from the sale of the bank's securities, regulatory capital) in the volume of bank liabilities; second, it is necessary to improve the methodology for assessing the creditworthiness of small business entities based on financial ratios; third, it is necessary to ensure a low and stable level of interest rates on loans provided in national currency to small business entities by commercial banks by reducing the refinancing rate of the Central Bank through lowering the inflation rate.

   Scientific research dedicated to inflation has shown that even a relatively insignificant increase in estimates intensifies the uncertainty in inflation dynamics [12].

2. To prevent an increase in the risk levels of loans provided to small business entities by banks, first, it is necessary to ensure a normative level of provisions aimed at covering losses from loans in relation to gross assets (1.0%) by improving the composition of classified loans; second, it is necessary to impose limits on the concentration of loans provided to small business entities according to sector characteristics; third, it is necessary to introduce currency risk hedging instruments into the process of managing currency risks associated with loans provided to small business entities in foreign currencies.

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