



Opportunities to Improve Loaning Processes of Commercial Banks of Uzbekistan

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ABSTRACT

Loans from commercial banks are an important source of financing the costs of technical and technological re-equipment of enterprises in the real sector of the economy and ensuring the continuity of their production activities. Loans from commercial banks are also an important factor in improving the welfare of the population. In turn, the full satisfaction of the demand for loans by real sector enterprises and the population creates the need to improve the lending practices of commercial banks. The article identifies current issues related to improving the lending practices of commercial banks in Uzbekistan and develops scientific proposals to address them.

CCS CONCEPTS

• commercial bank; • credit; • interest rate; • refinancing rate; • inflation; • risk; • reserve; • income.;

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1 INTRODUCTION

In the Banking Reform Strategy of the Republic of Uzbekistan for 2020-2025, improving the quality of loan portfolio management, adherence to a moderate increase in lending are recognized as priorities for reforming the country's banking system [1]. This, in turn, creates the need to improve the lending practices of commercial banks.

At present, there are a number of pressing issues related to improving the lending practices of commercial banks in Uzbekistan. In particular, the level of reserve allocations to cover loan losses in large commercial banks is significantly higher than the normative level of this indicator. In addition, the amount of overdue debt on loans issued by commercial banks is large. As of October 1, 2021, the share of problem loans in the total volume of loans issued by commercial banks of Uzbekistan amounted to 5.8% [2].

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2 LITERATURE REVIEW

According to J. Sinki, the analysis of the cash flow of the borrower is a necessary condition for reducing credit risk, and the analysis should provide clear answers to the following questions:

- Is the client's net profit sufficient to pay the current portion of his long-term debts?
- Exactly how much money does the company receive?
- How does the company finance its operations?
- What actions of the management or what external influences determine the current state of the company [3].

According to V. Usoskin [5], G.S. Panova, in order to expand the lending capacity of commercial banks, first of all, it is necessary to ensure the adequacy of their deposit base; secondly, in relation to the part of deposits focused on credit operations, the introduction of limits, based on the experience of German banking practice, is important. In Germany, 60% of time deposits and 10% of transactional deposits are directed to credit operations [4].

The study conducted by N. Yuldoshev stated that the reduction in the cost of banking products can help lower the interest rate on loans. This benefit is relative to the total amount of the loan. [14]

A. Safi and A. Mian's study shows that households have a greater degree of control over their own financial risks than firms. This means that they are more likely to default on their debts than firms. [7], [8].

According to Isakov [9], Burkhanov A. [10] in order to improve the lending practices of commercial banks, the level of reserve allocations to cover losses from loans, the moderate level of overdue loans and the allowable marginal rate of overdue loans should be reflected in the credit policy of banks.

3 ANALYSIS AND RESULTS

According to the Instruction of the Central Bank of the Republic of Uzbekistan "On the classification of asset quality in commercial banks and the order of formation and use of reserves to cover potential losses on assets", reserve allocations will be formed for five categories of loans:

- standard loans - 1%;
- substandard loans - 10%;
- unsatisfactory loans - 25%;
- doubtful loans - 50%;
- bad loans - 100% [11].

As can be seen from Figure 1, the introduction of quarantine measures in 2020 due to the coronavirus pandemic, including delays in payments on loans to individuals and legal entities by commercial banks, has had a negative impact on the lending practices of commercial banks, including the National Bank. In 2020, there was a sharp increase in the level of reserve allocations to cover losses

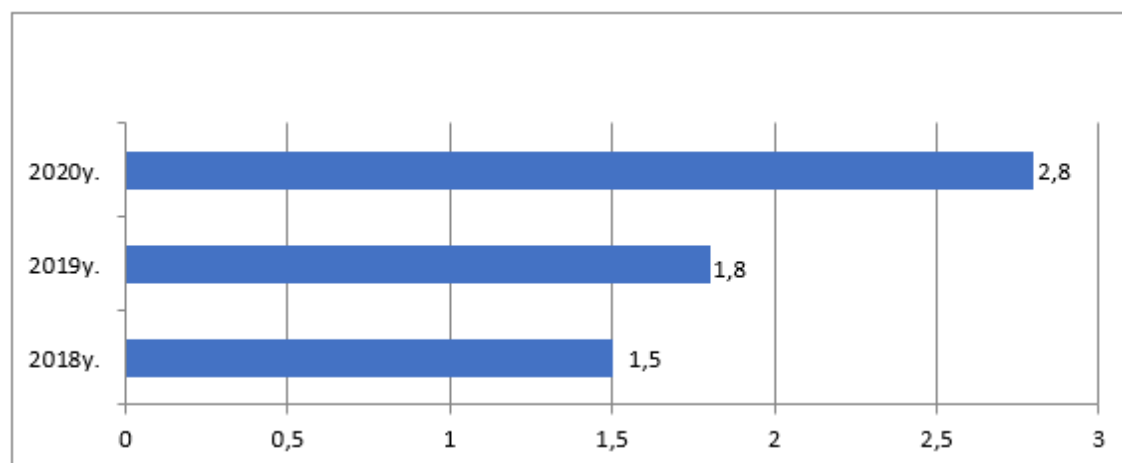


Figure 1: The level of reserve allocations in the National Bank for Foreign Economic Activity to cover loan losses in relation to gross loans, as a percentage [12]

Table 1: Describing the profitability of loans of the National Bank for Foreign Economic Activity of the Republic of Uzbekistan indicators [13]

Indicators	2018	2019	2020
The rate of return on loans	3,2	4,6	6,0
The share of interest income from loans in gross income	47,9	59,8	55,4
The growth rate of loans	272,4	134,7	118,1
The growth rate of interest income from loans	193,1	194,1	156,8

from loans formed by the National Bank for Foreign Economic Activity compared to 2019, compared to gross loans.[6]

Another indicator that characterizes the lending practices of commercial banks is the rate of return on loans. To calculate this figure, the amount of interest income from loans is divided by the amount of loans and the result obtained is multiplied by 100 percent.

The data in Table 1 show that in 2018-2020, the yield rate of National Bank for Foreign Economic Activity loans had an upward trend. This is a positive situation in terms of ensuring the profitability of loans. [12]

As can be seen from the data in Table 1, the share of interest income from loans in the National Bank for Foreign Economic Activity in gross income in 2020 decreased significantly compared to 2019. This decrease is explained by the increase in the share of interest-free income in gross income during this period. The share of interest-free income in the total income of the National Bank for Foreign Economic Activity in 2020 increased by 2.8 percentage points compared to 2019. This is a negative situation in terms of ensuring the profitability of commercial bank loans.

Based on the objectives of the study, the following factors were selected for the multifactor econometric model:

- * as a result factor - loans from commercial banks, trillion. sum - (Y),
- * influencing factors;
- - average annual interest rate on loans of commercial banks in the national currency, % - (X1);

- - Central bank refinancing rate, % - (X2);
- - inflation rate, % - (X3);
- - Deposits of commercial banks, trillion. sum - (X4);
- - capital of commercial banks, trillion. sum - (X5).

Since the units of measurement of the data to be included in a multi-factor econometric model are different, we logarithm them and perform descriptive statistics on the factors. The results of the descriptive statistics are presented in Table 2.

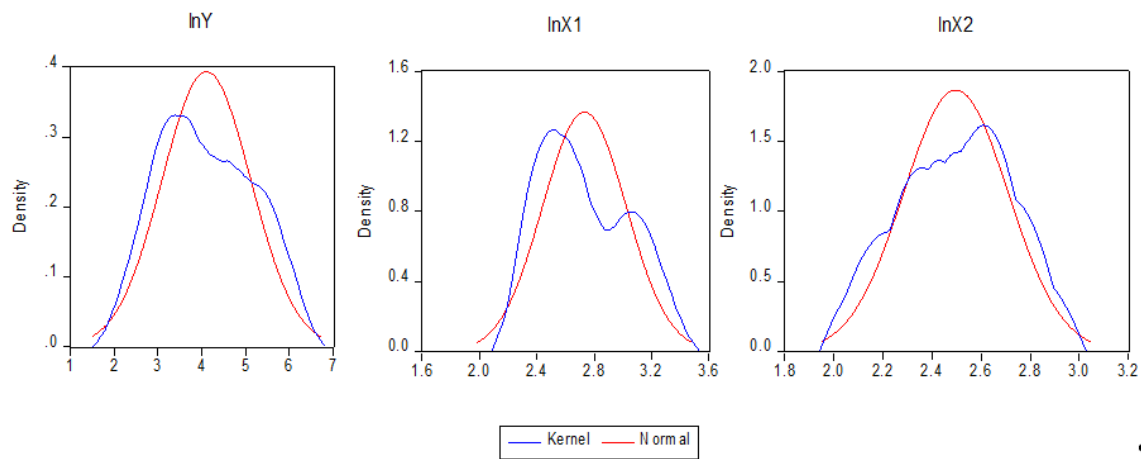
From the table data it is possible to see the mean value (mean), median (maximum), maximum and minimum values (maximum, minimum) of each factor. In addition, the standard deviation of each factor (std. Dev. (Standard Deviation) - the standard deviation coefficient indicates how much each variable deviates from the mean) is given.

The calculation of the bond densities between the factors showed that there is a dense bond between a number of influencing factors (lnX3 and lnX4, lnX4 and lnX5). Therefore, we do not include these factors in the multi-factor econometric model. Factors lnX1 and lnX2 are included in the multifactor econometric model. Graphs of factor distribution are shown in Figure 2 below.

As can be seen from Figure 2, almost all factors are subject to the law of normal distribution. Because the asymmetry coefficients of the lnY and lnX1 factors are positive, the "right domain" in their graphs is longer than the "left domain" and because the asymmetry coefficient of the lnX2 factor is positive, the "left domain" is longer than the "right domain" and the distribution graph shifts to the right.

Table 2: Descriptive statistics on loans issued by commercial banks of the Republic and the factors influencing it

	LN _Y	LN _{X1}	LN _{X2}	LN _{X3}	LN _{X4}	LN _{X5}
Mean	4.105769	2.732419	2.497505	2.161823	3.755886	2.563136
Median	3.858458	2.583820	2.484907	1.987029	3.685040	2.147417
Maximum	5.599162	3.186353	2.772589	2.721295	4.742320	4.067316
Minimum	2.753661	2.433613	2.197225	1.722767	2.856470	1.609438
Standard Deviation	1.014146	0.291664	0.213495	0.407803	0.627099	0.907689
Skewness	0.207380	0.470703	-0.171611	0.366121	0.181074	0.679827
Kurtosis	1.601591	1.526471	1.780302	1.423741	1.786046	1.908550
Jarque-Bera	0.886489	1.273972	0.668943	1.258654	0.668681	1.266634
Probability	0.641950	0.528884	0.715716	0.532950	0.715810	0.530828
Sum	41.05769	27.32419	24.97505	21.61823	37.55886	25.63136
Sum of Standard Deviation	9.256434	0.765611	0.410223	1.496730	3.539279	7.415094
Observations	10	10	10	10	10	10

**Figure 2: Graphs of normal distribution functions of factors**

These shifts mainly reflect changes in the dynamics of the factors being studied. In some years, some factors had a sharp increase, while in others the changes were not significant. In general, all the factors studied are subject to the law of normal distribution.

A graph of the normal distribution of the resulting factor is shown in Figure 3.

The Jacques-Bera test is used to verify that the resulting factor (ln_Y) obeys the law of normal distribution. This criterion is a statistical test that checks the errors of observations with normal distribution moments of the third moment (asymmetry) and the fourth moment (excess) to the normal distribution and and. The relationship of each factor to the outcome factor is shown in Figure 4 below.

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Visually in the graphs in Figure 4, it can also be said that there is a correct relationship between the resulting factor (ln_Y) and the influencing factors (ln_{X1}) and (ln_{X2}).

This will be the basis for creating a multi-factor econometric model for these two factors and loans from commercial banks.

In general, the multifactor econometric model looks like this:

$$y = a_0 + a_1x_1 + a_2x_2 + \dots + a_nx_n + \varepsilon \quad (1)$$

where y – resultant factor, x_i – influencing factors, ε – the random error.

In the multi-factor econometric model (1), the “least squares method” is used to determine the unknown parameters.

We use the EViews program to calculate the unknown parameters of a multifactor econometric model based on loans from commercial banks. The results of the calculations are given in Table 3 below.

Using the data in Table 3, we provide an analytical view of the multifactor econometric model for loans issued by commercial

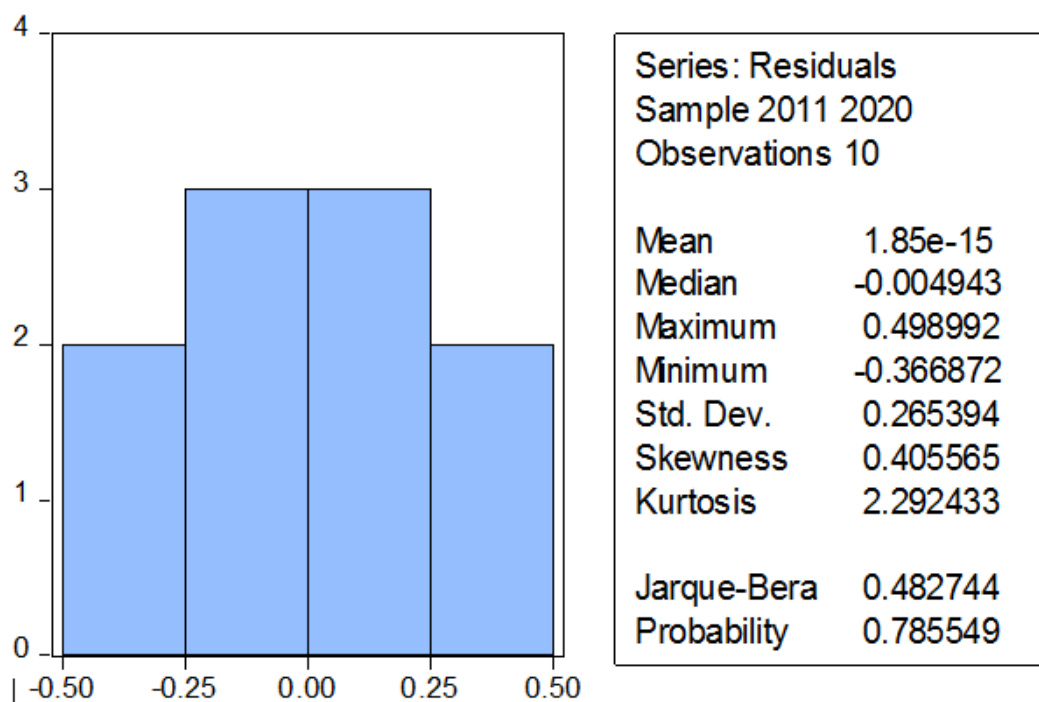


Figure 3: Check that the resulting factor obeys the law of normal distribution

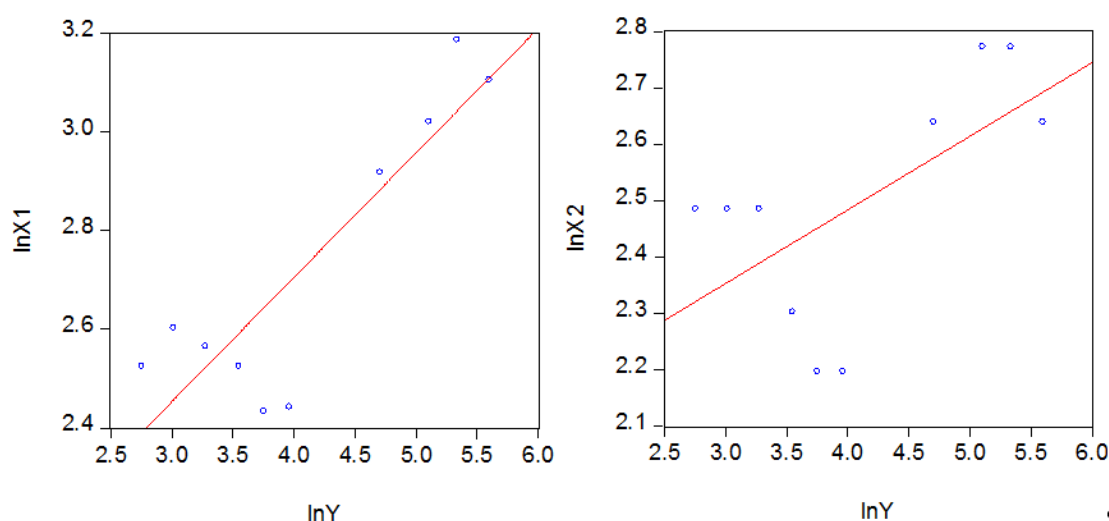


Figure 4: Relationships between outcome factor (lnY) and influencing factors (lnX1 and lnX2)

banks:

$$\ln \hat{Y} = -1,1348 + 6,0107 \ln X1 - 4,4778 \ln X2 \quad (2)$$

(1,2106)(0,8034)(1,0976)

The calculated multi-factor econometric model (2) shows that while the average annual interest rate (lnX1) on loans of commercial banks in national currency increases by an average of one percent, loans issued by commercial banks (lnY) increase by an average of

6.0107%. While the central bank's refinancing rate (lnX2) increased by an average of one percent, lending by commercial banks (lnY) decreased by an average of 4.4778 percent.

4 DISCUSSION

Fisher's F-test is used to examine the statistical significance or adequacy (suitability) of the multifactor econometric model (2) for loans issued by commercial banks. The value of Fisher's calculated

Table 3: Parameters of the multifactor econometric model calculated on loans issued by commercial banks

Dependent Variable: lnY				
Method: Least Squares				
Date: 10/17/21 Time: 23:42				
Sample: 2011 2020				
Included observations: 10				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN1	6.010767	0.803430	7.481386	0.0001
LN2	-4.477801	1.097595	-4.079648	0.0047
C	-1.134837	1.210615	-0.937406	0.3798
R-squared	0.931517	Mean dependent var		4.105769
Adjusted R-squared	0.911950	S.D. dependent var		1.014146
S.E. of regression	0.300929	Akaike info criterion		0.679441
Sumsquaredresid	0.633908	Schwarz criterion		0.770216
Loglikelihood	-0.397203	Hannan-Quinn criter.		0.579860
F-statistic	47.60759	Durbin-Watson stat		1.977763
Prob(F-statistic)	0.000084			

F-test is compared to its value in the table. If $F_{\text{calculate}} > F_{\text{table}}$, then the multifactor econometric model (2) is said to be statistically significant, and the resulting indicator can be used to forecast loans (lnY) issued by commercial banks for future periods.

Hence, we find the tabular value of the F-test to verify the statistical significance of the (2) multifactor econometric model constructed on loans issued by commercial banks. To do this, we calculate the values according to the degrees of freedom $k_1 = m$ and $k_2 = n - m - 1$ as well as the degree of significance α . Depending on the degree of significance $\alpha = 0.05$ and the degree of freedom $k_1 = 2$ and $k_2 = 10 - 2 - 1 = 7$, the table value of the F-test is equal to $F_{\text{table}} = 4.74$. Since the calculated value of F-test is $F_{\text{calculate}} = 47.6076$ and the table value is equal to $F_{\text{table}} = 4.74$ and because the condition $F_{\text{calculate}} > F_{\text{table}}$ is met (2) the multifactor econometric model can be considered statistically significant and the loans (lnY) issued by commercial banks to future periods can be used in forecasting.

Student's t-Test is used to verify the reliability of the (2) calculated parameters of the multifactor econometric model drawn up on loans issued by commercial banks. By comparing the calculated ($t_{\text{calculate}}$) and table (t_{table}) values of the Student's t-Test, we accept or reject the H_0 hypothesis. To do this, we find the table value of the t-test based on the conditions of selected probability of reliability (α) and degree of freedom (d.f. = $n - m - 1$). Here, n - the number of observations, m - the number of factors.

Where there the probability of reliability is $\alpha = 0.05$ and degree of freedom is d.f. = $10 - 2 - 1 = 7$, the table value of the t-test is equal to $t_{\text{table}} = 2.3646$.

From the calculations performed on the multifactor econometric model, it can be seen that the calculated values of the t-test for all factors included in the free limit and the multifactor econometric model are greater than the table value with $\alpha = 0.05$ accuracy ($t_{\text{LN1}} = 7.4814$ and $t_{\text{LN2}} = -4.0796$). This means that all factors are reliable and allow them to participate in a multi-factor econometric model.

We use the Durbin-Watson (DW) statistics test to check for the presence of autocorrelation in the residual factor (lnY) balances on the multifactor econometric model m (2) constructed on loans issued by commercial banks.

The calculate DW value is compared with DWL and DWU in the table. If $DW_{\text{calculate}} < DWL$ is less than DWL, the resulting factor is said to have autocorrelation in the remainder. If $DW_{\text{calculate}} > DWU$ is greater than DWU, it is said that there is no autocorrelation in the resulting factor residues. The lower limit value of the Durbin-Watson test is $DWL = 0.95$ and the upper limit value is $DWU = 1.54$. $DW_{\text{calculate}}$ is equal to 1.9777. Hence, since $DW_{\text{calculate}} > DWU$, there is no autocorrelation in the balances of the resulting factor (loans issued by commercial banks (lnY)).

The absence of autocorrelation in the outcome factor also indicates that (2) the multifactor econometric model described above can be used in forecasting.

(2) The actual, the fitted values of the multifactor econometric model and the differences between them (residual) are shown in Figure 5 below.

As can be seen from Figure 5 (2) the graph of the calculated values of loans issued by commercial banks under the multifactor econometric model is very close to the graph of its actual values, the differences between them are also not very large. This is considered as further evidence that (2) the multifactor econometric model can be used to forecast the volume of loans issued in future periods.

From the calculated (2) multi-factor econometric model, the coefficient MARE (Mean Absolute Relative Error) is calculated to predict the outcome for future periods. If the value of the calculated MARE coefficient is less than 15.0 percent, the model can be used to predict the outcome factor, otherwise it cannot be used. The value of the MARE ratio on loans issued by commercial banks makes up 5.557% (Figure 5). This is less than 15.0 percent, which constitutes 5.557 percent. Therefore, (2) a multifactor econometric model can be used to forecast loans issued by commercial banks.

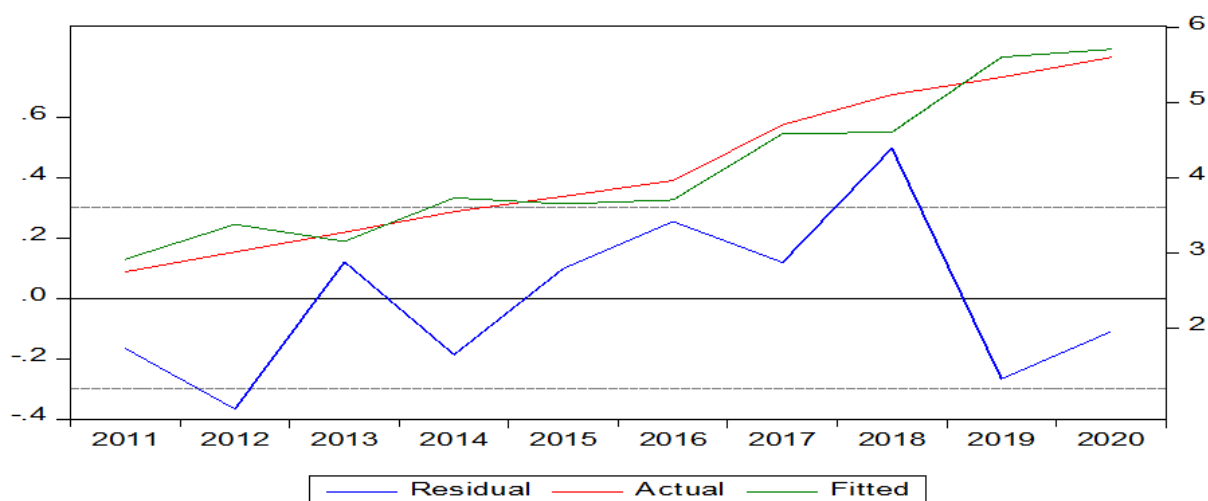


Figure 5: Actual, calculated (fitted) values of loans issued by commercial banks and the difference between them (Residual)

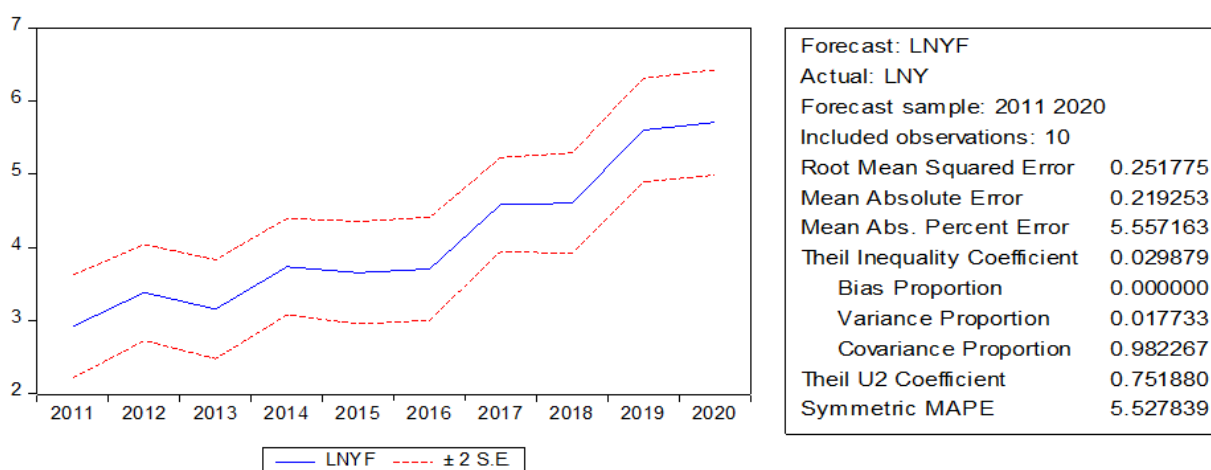


Figure 6: Indicators of the use of the calculated model in the forecast

5 CONCLUSION

The introduction of quarantine measures in 2020 due to the coronavirus pandemic, including delays in the payment of loans to individuals and legal entities by commercial banks, has had a negative impact on the lending practices of commercial banks, including the National Bank for Foreign Economic Activity.

The fact that the level of return on loans of the National Bank for Foreign Economic Activity in 2018–2020 has a tendency to increase is a positive situation in terms of ensuring the profitability of loans.

During the analyzed period, the National Bank for Foreign Economic Activity did not provide a correlation between the growth rate of loans in commercial banks and the growth rate of interest income from loans.

In our opinion, in order to improve the lending practices of commercial banks of Uzbekistan, the following measures should be taken:

1. In order to improve the procedure for assessing the creditworthiness of companies, first of all, in addition to the composition of financial ratios profit margin ratio, debt service ratio and creditor's turnover ratio should be included; secondly, in addition to assessing the creditworthiness of companies, taking into account the advanced foreign experience, it is necessary to use the quick liquidity ratio and financial margin ratio.

At present, commercial banks in Uzbekistan use three coefficients to assess the creditworthiness of companies: liquidity ratio, coverage ratio and financial autonomy ratio. These ratios do not allow companies to assess profits, level of debt service and creditor indebtedness.

Referring to foreign experience, for example, commercial banks of the US use indicators belonging to four groups in assessing the creditworthiness of legal entities to credit loans:

- liquidity indicators;
- capital turnover;
- attracted funds;
- profit indicators.

2. In order to ensure a low and stable level of reserve allocations to cover loan losses in commercial banks, first of all, it is necessary to create reserves for only 3 categories of classified loans (substandard, doubtful, bad loans), ensuring compliance with the requirements of the Basel standard; secondly, the credit policy of banks should set the maximum allowable level of overdue loans at 5% of gross loans and exclude at least 2% of the bank's balance sheet as overdue loans reach this level; third, it is necessary to ensure the balance between the growth rate of classified loans and the growth rate of stocks on loans.

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