Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue 7, July 2021: 4558- 4567

Research Article

Econometric Analysis Of The Effectiveness Of Long-Term Loans Of Commercial Banks

Karaliev Turaboy[1], Usmonov Bahodir Suvonkul ogli[2]

ABSTRACT

Today, long-term loans provided by commercial banks make a significant contribution to the stability of the economy. Long-term loans are also a point of economic growth in the country. Scientific research shows that strategies aimed at increasing the competitiveness of the banking system can only be achieved through the development of means of technical re-equipment of the industry through long-term lending and thus the implementation of investment processes. To date, issues such as the justification and effectiveness of long-term loans and the development of optimal decision-making mechanisms in the field of long-term lending remain unresolved, indicating that there are many tasks to be performed by commercial banks in the future. The complexity and urgency of solving these problems stem from the fact that each long-term credit transaction has its characteristics, so an individual approach is required to justify its effectiveness, taking into account the solvency of the borrower and the changing conditions of the credit market. In this paper, the effectiveness of long-term loans has been studied in detail through econometric analysis and conclusions have been drawn. The relationship of scientists and experts to this issue is studied and an author's approach is given. Based on the research, scientific conclusions have been made.

Keywords: Long-term Loans, Interest Approach, Margin Assessment, Income Background, Resource Industry

INTRODUCTION

Credit plays an important role as a means of regulating the economy. Firstly, it should be emphasized that it is well recognized from the experience of human society development that economic and social stability cannot be achieved in a society without the establishment of credit relations.

Growth trends in economic activity in the country are also reflected in banking. In particular, loans from commercial banks play a significant role in the GDP growth of the Republic of Uzbekistan. As of January 1, 2020, the ratio of credit investments to GDP was 41.3 percent[10].

There are still several disadvantages associated with the development of long-term lending by commercial banks in developing countries, which are reflected in: high credit risks, relatively low profitability of enterprises, lack of necessary financial resources, lack of long-term resources, flexibility in debt repayment the absence of which does not allow borrowers to adapt

[1]Candidate of Economic Sciences, Professor, Department of Banking and Auditing, Tashkent institute of finance, Tashkent. Uzbekistan. Mail: turaboy.karaliyev@bk.ru ORCID: 0000000189187286
[2]Senior Lecturer, Tashkent State Institute of Arts and Culture, Tashkent. Uzbekistan. Mail: usmonovbaxodir@mail.ru ORCID: 0000000327822496

to changes in their financial capabilities, which leads to a deterioration in customer performance.
Where there is money, there is borrowing and lending, which is usually done by banks. The textbook "Banking", edited by well-known economists of our country Yo. Abdullaev, describe a loan as follows: "A loan is a loan to borrow and return temporarily vacant funds of their owners on the condition of payment by others for a certain period.” [1].
Theoretical and practical aspects of ways to increase the efficiency of long-term loans of commercial banks have been studied by foreign economists. In particular, Romanian economists Gheorghe Zamana and George Georgescua discussed the Challenges of bank lending. The scholars' research in this area is devoted to the analysis of some problems in short, medium and long-term bank loans in Romania. Several economic and social criteria, as well as various types of loans, are considered and analyzed. However, one of the aspects that the study focused on was the extent to which the financial and economic impact of the international crisis after its accession to the European Union and long-term loans was considered [2].
In a study by Fouopi Djiogap and Augustin Ngomsi, the factors that determine a bank’s long-term lending are considered in the example of the Central African Economic and Monetary Community (CAEMC). The study examines the factors influencing the allocation of long-term loans by banks in Central Africa. The main aspects of banks' attention to the overall banking level and macroeconomic determinants of long-term lending behavior are analyzed. In this regard, several panel models in long-term lending practices by banks have been considered. The results of the study are based on a large database of about 100 commercial banks in 35 Central African countries [3].
Howard Bodenhor researched “Short-Term Loans And Long-Term Relationships: Relationship Lending In Early America”. According to the researcher, using credit records on loan agreements of commercial banks in the United States, this article shows that firms that establish extended relationships with banks receive three main benefits. First, firms with expanded relationships face lower credit costs. With the end of the bank-borrower relationship, credit costs decrease. Second, long-term customers are asked to provide fewer personal guarantees. Third-party warranties are an effective alternative to collateral under certain circumstances, requiring fewer guarantees from long-term customers. Long-term bank customers are more likely to reconsider loan terms during a credit crisis. Firms that do not have access to public debt markets rely on bank credit, and access to permanent access during a credit crisis is important for small, non-transparent firms [4].
Hüther Michael, Voigtländer Michael, Haas Heide, Deschermeier Philipp conducted a research paper on “The importance of long-term financing by banks: Advantages and future challenges” [14]. expressed their views on the rules of long-term lending in the economy. In their view, in the face of long-term lending, commercial banks can reduce inflation risk by setting large interest rates. Otherwise, the material interests of the bank, which is a commercial organization, maybe seriously damaged [5].
According to the well-known Russian economist II Nekrasov, “long-term loans of commercial banks are an independent economic category, which has a direct impact on economic processes and is a key factor in development. In order to implement the investment process, increase the fixed capital of the organization, to assess its effectiveness, it is necessary to have a period of time corresponding to the long-term lending period [6]. According to the author, long-term lending is a substitute for investment for businesses. The opinion of the scientist is reasonable, that in economic development, long-term loans are a very necessary component in the replenishment of fixed capital and technical modernization of economic entities.

MATERIALS AND METHODS

There are specific rules for credit and lending, which are expressed in special principles [15]. These are:

- loan repayment;
- loan maturity;
- loan security;
- purpose of the loan;
- loan repayment;
- differential approach.

The principle of credit efficiency means that not only the loan amount and interest are repaid to the bank, but also the efficiency of the sector, industry, enterprise, which is lent or financed from it. Therefore, before allocating or issuing a loan, it is necessary to calculate the probability that the loan will be effective. For example, if the investment in the project is effective, then it is necessary to allocate funds for this project.

Credit efficiency (Ks) is directly related to production and its sales volume (R_h) and can be defined as follows:

$$K_s = \frac{R_h}{K_h} \qquad (1)$$

Here:

K_h - is the average size of the loan.

If an enterprise attracts fewer credit resources and sells more products for one sum, then the efficiency of the loan will be so high.

In order to ensure the effectiveness of credit, in the practice of Western countries, a new rule of lending for us, that is, the rule "5-C" is applied. Based on this, the activity of the enterprise for each "C" is analyzed and the enterprise is given a loan only if the activity meets the requirements. As a rule, the letters "C" represent the following aspects:

- C1 (Character) - the reputation of the borrower in the market, to determine its status;
- C2 (capacity) - the ability of the borrower to complete the work started, earn the appropriate income and repay bank loans;
- C3 (capital) - sufficient capital of the borrower;
- C4 (conditions) - conditions for the development of this business;
- C5 (collateral) - collateral (guarantee, surety, insurance policy, inventory, etc.).

U.S. economists have also suggested the introduction of "2 C's."

- C (country) - state faculty;
- C (currency) - the currency of the country and its exchange rate.

For commercial banks, these 5 elements help them overcome the risk threshold when they assume a credible responsibility for assessing the amount of risk accepted by shareholders. If they cross this line, their regulators, board of directors and shareholders will try to regulate them. Thus, the loss of regulated banks usually does not exceed half a percent.

However, there is an observation that the entrepreneurial potential of a society is not limited to those who have the opportunity. Perhaps the entrepreneurial nature of a society depends on who participates in it and how it values those who are relevant and successful as lenders. It means that the development of society requires the financial institution to adhere to the science of underwriting, and lenders must be familiar with the “art” of the business.

Leading banking scholars and bankers abroad offer the following PARSER and CAMPARI elements to ensure credit efficiency:
PARSER:
P (person) - information about the borrower and his reputation;
A (amount) - justification of the requested loan amount;
R (repayment) - the ability to repay the loan;
C (security) - assessment of credit collateral;
E (expediency) - the purpose of the loan;
R (remuneration) - bank profit (interest rate).
CAMPARI:
C (character) - the reputation of the borrower and information about him;
A (ability) - the ability to repay the loan;
M (means) - the need for credit and the amount of profit;
P (purpose) - the purpose of the loan;
A (amount) - the amount of credit;
R (repayment terms) - loan repayment period;
I (insurance) - insurance of loans[7].

RESULTS

The banking system plays an important role in the economy. This role is performed by performing various tasks legally assigned to the banking system. Among them, the lending function, which includes short-term and long-term lending, plays an important role. At the same time as performing these functions, commercial banks will also have their revenues. The main purpose of commercial banks is to make a profit.

Table 1 Analysis of profitability indicators of commercial banks of the republic[10] (billion sums)

Income and expenses of the banking system	**2017 y**	**2018 y**	**2019 y**	**2020 y**	**2020/2017**
Interest income	7 142	12 915	22 738	33 483	26 341
Interest expense	4 153	7 432	13 969	20 791	16 638
Interest margin	2 989	5 483	8 770	12 692	9 703
Interest-free income	6 253	5 294	8 402	10 526	4 273
Interest-free expenses	1 783	1 199	2 465	3 029	1 246
Operating expenses	3 557	4 846	5 734	6 924	3 367
Interest-free income (loss)	914	-752	203	573	-341
Estimation of possible losses on credit and leasing	1 227	1 753	3 672	6 391	5 164
Estimation of possible losses on other assets	109	155	443	362	253
Net profit (loss) before tax	2 566	2 823	4 856	6 511	3 945
Income tax expense	384	599	1 014	1 344	960
Adjustments on benefits	-4	0	0	0	
Net profit (loss)	2 178	2 223	3 842	5 168	2 990
Profitability indicators of the banking system					
Ratio of net profit to total assets before tax	2,5	1,7	2,0	2,3	-0,2

(ROA)					
Ratio of net profit to total capital before tax (ROE)	23,3	13,0	16,9	10,3	-13,0
The ratio of net interest income to total assets	2,0	2,9	2,9	4,0	2,0
The ratio of net interest income on loans to total loans	3,0	3,7	5,3	5,1	2,1
The ratio of net interest income to total liabilities	2,3	3,3	3,4	4,7	2,4
The ratio of net interest margin to total assets	2,9	3,2	2,9	4,5	1,6

An analysis of the data in the table above shows that the interest income of commercial banks has increased significantly in recent years. In particular, as of December 1, 2021, it amounted to 7142 billion soums, as of December 1, 2020, this figure amounted to 33483 billion soums, an increase of 4.6 times or 26341 billion soums. We can also see that the ratio of net interest income on loans to total loans increased from 2% in 2017 to 5.1% in 2020 and increased by 2.1 units [12].

Fig. 1. Information on income and expenses of the banking system [10] (billion sums)

An analysis of the picture data above shows that in recent years, the income of commercial banks has increased somewhat relative to their expenses. In particular, in 2017, interest expenses amounted to 4153 billion soums, while in 2020 they amounted to 20791 billion soums. But this figure has shown an upward trend over the years.

Depending on the allocation of long-term loans from commercial banks, it is important to study their effectiveness in two main groups and draw conclusions on this basis.

One of the important tasks facing the banking system and statisticians is to determine the volume of long-term loans that have a positive impact on bank income, and at the same time to determine the extent to which the allocated loans affect the growth of bank income.

To carry out this analysis, we consider long-term loans as a factor indicator and the bank's interest income as a result indicator.

Table 2 Dynamics of changes in long-term loans and interest income provided by JSC "Sanoatqurilishbank" (billion sum) [11]

Years	Long-term loan balance (billion soums)	Total interest income (billion soums)
2011	1 498,4	155,2
2012	2 161,9	238,1
2013	3 040,4	346,7
2014	3 944,1	379,6
2015	4 738,0	415,8
2016	7 347,2	480,9
2017	13 075,1	751,0
2018	20 267,2	1 506,4
2019	21 085,9	2 516,1
2020	27 397,3	3 646,2
Total	**106 622,7**	**10 775,9**

The above tables reflect the dynamics of long-term loans and interest income provided by JSC "Sanoatqurilishbank". The table shows that in the analyzed period, bank loans and bank interest income have been growing steadily. This confirms that our economy is growing. Based on the above data, we calculated the effect of loans on interest income in a correlation manner.
Considering long-term loans as an important factor in the growth of bank interest income, we have compiled the following calculation table.
It is known that the correlation coefficient:

$$\rho = \frac{\overline{xy} - \overline{x} * \overline{y}}{\sigma x * \sigma y}$$ is calculated by the formula [8]

Here, $\sigma x = \sqrt{\sum(x^2) - \sum(\overline{x})^2}$; $\sigma y = \sqrt{\sum(y^2) - \sum(\overline{y})^2}$

We have compiled the following calculation table as an important factor in the growth of bank interest income on long-term loans.

Table 3 Calculation of long-term loans is an important factor in the growth of bank income

Years	X	У	XУ	x²	y²
2011	1 498,4	155,2	232587	2245253	24094
2012	2 161,9	238,1	514703	4673689	56683
2013	3 040,4	346,7	1054024	9244084	120181

2014	3 944,1	379,6	1497265	15555677	144115
2015	4 738,0	415,8	1970264	22448679	172925
2016	7 347,2	480,9	3533601	53980873	231310
2017	13 075,1	751,0	9819599	170957252	564027
2018	20 267,2	1 506,4	30531226	410759720	2269346
2019	21 085,9	2 516,1	53054226	444613576	6330780
2020	27 397,3	3 646,2	99895826	750609910	13294757
Total	**104555,3**	**10436,1**	**202103320,3**	**1885088713,7**	**23208218,0**

Based on the table data, we performed the following calculations:

$$\rho = \frac{\frac{202103320,3}{10} - \frac{104555,3}{10} \times \frac{10436,1}{10}}{\sqrt{\frac{1885088713,7}{10} - \left(\frac{104555,3}{10}\right)^2} \times \sqrt{\frac{23208218,0}{10} - \left(\frac{10436,1}{10}\right)^2}} = 0,942$$

From this analysis, it can be concluded that the growth of the bank's interest income has a very strong correlation with the volume of long-term loans issued by banks. The correlation between the growth of long-term loans and the growth of the bank's interest income is 0,942 which means that each change in the volume of loans is reflected in the interest income of the bank.

The purpose of the analysis of the correlation regression between long-term loans provided by the bank and the growth of the bank's interest income is to determine the amount of credit required for the development of the bank's sustainable income. Determining the amount of credit required will guide banks to properly and optimally shape their lending capacity. In order to provide the economy with the required amount of credit, banks are required to increase their lending capacity. We developed a reciprocal regression equation to analyze the growth of the bank's interest income, the bank's long-term lending.

It is known from the literature on economic statistics that the regression equation is a linear equation, the general equation of which is $\mathbf{y = a_1x + b}$; [9]

Here:

$$a_1 = \frac{n\sum x_i y_i - \sum x_i \sum y_i}{n\sum x_i^2 - \left(\sum x_i\right)^2}$$

$$b = \frac{\sum x_i^2 \sum y_i - \sum x_i \sum x_i y_i}{n\sum x_i^2 - \left(\sum x_i\right)^2}$$

From the data in the calculation table above, we calculate the following.

$$a_1 = \frac{10 \times 202103320,3 - 104555,3 \times 10436,1}{10 \times 202103320,3 - 104555,3^2} = 0,055$$

$$b = \frac{1885088713,7 \times 10436,1 - 104555,3 \times 202103320,3}{10 \times 1885088713,7 - 104555,3^2} = -85,93$$

Analyzing the relationship between long-term loans and the bank's interest income in a regression method, we found that the relationship between them could be governed by the regression equation u = 0,055x-85,93.
In conclusion, there is a strong correlation between the dynamics of changes in the volume of long-term loans of JSC "Sanoatqurilishbank" in 2011-2020 and the amount of interest income of the bank, in which we can see a large share of long-term loans;
Long-term loans have a direct proportion to the interest income of the bank being created and can be used as an important tool in changing the amount of interest income of the bank;
There is a relationship between long-term loans and interest income of the bank, subject to the regression equation y **= 0,055x-85,93** through which it is possible to predict the amount of interest income of the bank by changing the amount of long-term lending by the bank;
There is a strong correlation between the banking system and economic growth rates, as evidenced by the experience of many countries in the development of the national economy in the post-global financial crisis. Economic growth leads to an increase in the income of entities, which in turn stimulates the growth of demand for financial services and the development of the banking system. It also effectively allocates resources through the acceleration of resource capitalization in the banking system and creates the basis for the sustainable development of sectors of the economy.

DISCUSSION

Banks must have a long-term stable source of resources to carry out long-term lending operations. Banks use a variety of methods to solve this problem. In particular, long-term lending to accept time deposits from the population, placing its bonds on the securities market, attracting long-term resources through international credit lines and implementing government programs at the expense of the state budget. In terms of both financing and revenue, state-owned corporate enterprises, which are the bank and its main customers, are highly dependent on various government agencies.
Several theoretical issues related to long-term lending are underdeveloped, as well as the shortcomings and problems of banking practice in this area. Among the theoretical problems, it is a fact that there is a lack of specific scientific research on the nature of long-term credit, which is important for the formation of an appropriate resource base. In addition to scientific research, there were issues of determining the objects of long-term loans of the bank, as well as the criteria for their selection. Additional theoretical research is required on the long-term lending system of banks and the characteristics of its long-term lending to existing enterprises. Further research is needed on issues related to the prospects for the development of long-term bank loans. In the process of writing the article, we can see that the issue of long-term lending has been scientifically studied by leading foreign and Uzbek economists and relevant conclusions have been drawn.

CONCLUSION

Today, the world is developing rapidly, new techniques and innovative technologies are being created. In turn, businesses naturally need high bank loans and choose the financial institution that is most able to meet these needs to implement these innovations and produce competitive products or services under modern requirements and to further expand the scope of activities.

Long-term loans provided by commercial banks make a significant contribution to market stabilization and, at the same time, to the stability of the economy. Also, long-term loans from commercial banks are a point of economic growth in the country. However, as a result of new financial market rules such as Basel III and Solvency II, the long-term financing market is relatively shrinking, which can be explained by the fact that banks are being given incentives to provide more short-term loans. Other financial intermediaries, such as non-bank credit institutions or various funds, can hardly cover this difference. Although alternative financial intermediaries increase their lending due to regulatory advantages, they are unable to overcome the long-term financing shortage due to lack of experience and incentives. Therefore, the rules need to be adjusted and adapted to make the banking sector more stable.

As a result of our research, it became clear that in our national banking system it is necessary to try to organize the level of customer service within the framework of internationally recognized banking services. Also, the following proposals have been developed by commercial banks for long-term lending to customers:

1. It is necessary to reduce the refinancing rate of the Central Bank in order to optimize the interest rates of commercial banks,;
2. Regular analysis of the effectiveness of long-term loans to increase the profitability of banks' loan portfolios;
3. Effective credit, investment and deposit policies should be pursued in order to increase the profits of commercial banks and achieve optimal use of assets and liabilities;
4. Optimization of interest rates on mortgage loans is a low-interest rate. The low-interest rate is mainly used on the condition of paying off debts faster and gives good results.

CONFLICT OF INTERESTS AND CONTRIBUTION OF AUTHORS

The authors declare the absence of apparent and potential conflicts of interest related to this article's publication and report on each author's contribution.

SOURCE OF FINANCING

No funding was required for this research.

LIST OF REFERENCES

1. Abdullayev Yo., Qoraliyev T., Toshmurodov Sh., Abdullayeva S. Bank ishi. O‘quv qo‘llanma –T.: “IQTISOD-MOLIYA”, 2010-yil, -532 bet.
2. Gheorghe Zamana, George Georgescua. Challenges of bank lending in Romaniaon short, medium and longer. Procedia Economics and Finance 22 (2015) 88 – 94. 2212-5671 © 2015. The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license http://creativecommons.org/licenses/by-nc-nd/4.0/). Selection and/or peer-review under responsibility of the Scientific Committee of ESPERA 2014 doi: 10.1016/S2212-5671(15)00230-0 https://ideas.repec.org/p/pra/mprapa/60271.html.
3. Fouopi Djiogap, Augustin Ngomsi. Determinants of Bank Long-term Lending Behavior in the Central African Economic and Monetary Community (CEMAC). Review of Economics & Finance Submitted on 05/Jan./2012 Article ID: 1923-7529-2012-02-107-08 Constant, Fouopi Djiogap and Augustin Ngomsi. https://ideas.repec.org/a/bap/journl/120210.html

4. Howard Bodenhor. Relationship Lending in Early America Howard Bodenhorn NBER Historical Paper No. 137 December 2001 JEL No. N2, G2 Development of the American Economy.
5. Hüther, Michael; Voigtländer, Michael; Haas, Heide; Deschermeier, Philipp (2015) : The importance of long-term financing by banks: Advantages and future challenges, IW-Analysen, No. 102, ISBN 978-3-602-45566-9, Institut der deutschen Wirtschaft (IW), Köln, http://nbn-resolving.de/urn:nbn:de:101:1-201503232995
6. Некрасов И.И. “Организация инвестиционного кредитования в коммерческом банке” Автореферат диссертации на соискание ученой степени кандидата экономических наук. Москва, ул.Б.Семеновская 11, стр.12.
7. https://zahiro.files.wordpress.com/2014/11/topic-6.pdf Bank Malaysia маълумотлари асосида тайёрланди.
8. Т.Х.Адиров., Э.Н.Маъмуров., “Эҳтимоллар назарияси ва математик статистикадан масалалар ва уларни ечишга доир кўрсатмалар”. Т : “Иқтисод молия” 2007 й. 80 б.
9. Э.Маъмуров., Т.Адиров. “Эҳтимоллар назарияси ва математик статистика”. Ўқув қўлланма.Т:2005й, 106 бет.
10. www.cbu.uz
11. www.sqb.uz
12. Sharma, Deepti, and Mamta Ranga. 2014. Impact of saving deposits of commercial banks on GDP. Indian Journal of Applied Research 4: 95–97
13. Tabash, Mosab I., and Raj S. Dhankar. 2014. The flow of Islamic finance and economic growth: An empirical evidence of Middle East. Journal of Finance and Accounting 2: 11–19
14. Mushtaq, Saba. 2016. Causality between bank’s major activities and economic growth: Evidences from Pakistan. Financial Innovations 2: 1–11.
15. Fullana, Olga, Javier Ruiz, and David Toscano. 2020. Stock market bubbles and monetary policy effectiveness. The European Journal of Finance, 1–13.