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ON THE RATIO OF NON-PERFORMING LOANS TO AVERAGE LOAN RATES IN CONSIDERING THE ISSUE OF BANKING RISKS

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Abstract:

Banking activities are of constant interest from researchers and practitioners. The basis of this interest is the role and importance of banks in the economic activities of various economic agents and the life of the population. At the same time, special attention is paid to banking risks, where we highlight credit risks. Based on this, the paper examines the dynamics of the ratio of non-performing loans to loan rates on average on the banking system for a number of individual countries. Graphs and diagrams of such analysis are provided, which allows you to understand the progress of this study.

Key words: Analysis, Ratio, Bank, Credit, Non-performing loans, Credit risks, Credit rates.

Introduction

Lending is one of the main functions in the activities of banks [1]-[6]. This process allows the bank to obtain the necessary profit for its sustainable operation and development. At the same time, this is one of the sources that allow business entities of various forms of ownership or the population to obtain the necessary financial resources. Therefore, this topic is constantly in the focus of various studies. Its relevance ultimately determines the practical significance and the need for new research.

One of the problems of lending is the possible increase in so-called problem or non-performing loans [7], [8]. These are those loans that are not returned to the bank or their

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repayment occurs in violation of predetermined deadlines. As a result, the bank receives less potential profit from the lending process or may even lose part of its credit resources. Thus, this confirms the relevance of the chosen research topic and the need to disclose it taking into account the analysis of various factors.

To analyze the effectiveness of the lending process using banking resources, you can consider various indicators of banking activity as a whole. Such research can be carried out both on the basis of standard classical approaches [9]-[11], and those that are used in other areas of analysis, but have an original structure for studying data [12]-[19]. This also expands the scope of the analysis and provides a basis for obtaining additional information.

Thus, the main goal of this work is the ability to consider the issue on banking risks through the prism of individual indicators of banking activity. In this case, special attention is paid to credit risks. To detail this goal, a critical analysis of individual literature sources was also carried out.

Related works

In their study, B. Imbierowicz and C. Rauch consider the relationship between liquidity risk and credit risk [20]. For these purposes, US banks are studied in the period 1998-2010. The authors showed that these indicators do not have an economically significant relationship [20]. However, such analysis provides new insight into the emergence and development of relevant risks.

A. Temirov explores the essence of credit risks, the reasons for their occurrence and ways to reduce them [21]. At the same time, the work examines in detail the task of managing the loan portfolio of banks, as a basis for reducing credit risk. As a result, the author offers a number of recommendations to prevent the occurrence of problem loans and reduce credit risks.

A. S. Serrano conducts a comprehensive empirical analysis to study the impact of problem loans on bank lending [22]. The study looked at data from Europe. For these purposes, the data used consists of information on specific banks and country aggregates based on a sample of 75 banks in the period 2014-2018. The paper notes that banks with a higher reduction in the level of non-performing loans tend to lend more to real economy. This is important in determining the strategy for the development of banking activities as a whole.

T. Khemraj and S. Pasha, using data from Guyana as an example, analyze the determinants of non-performing loans [23]. To do this, the authors use methods of econometric analysis. In particular, the work uses a fixed effect model. The authors show that the real effective exchange

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rate has a significant positive effect on non-performing loans [23]. At the same time, GDP growth is inversely proportional to the number of non-performing loans. All this helps to understand the nature of problem loans and develop a strategy to counter their accumulation.

S. Tanasković and M. Jandrić also consider factors influencing the occurrence of problem loans [24]. Selected CEEC and SEE countries are reviewed here for the period 2006-2013. For the analysis, the authors use the method of a static panel model with the logarithm of the share of non-performing loans in total loans as the dependent variable [24]. The work notes that there is a negative relationship between GDP growth and an increase in the share of non-performing loans. It is also noted that the inflation rate is considered statistically insignificant [24].

Thus, we see different directions on the chosen research topic and an analysis of various factors in assessing changes in the volume of problem loans.

Dynamics of non-performing loans in relation to average loan rates for banking systems of individual countries

This subsection discusses several examples using real data. The choice of appropriate parameters is associated with their direct impact on the possibility of credit risk and other banking risks.

In Fig. 1 presents data on the Indonesian banking system.

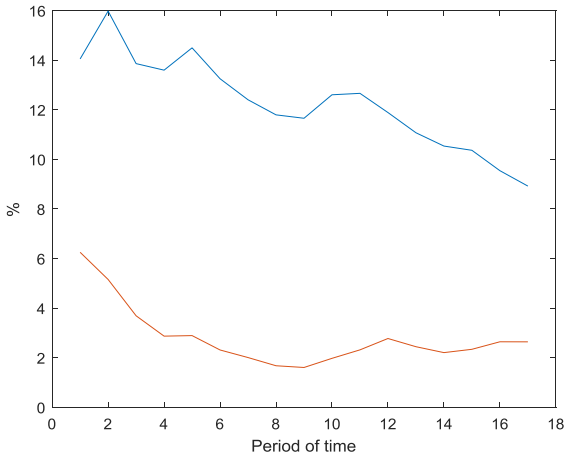

Figure 1: Indonesian Banking System Data

Hereinafter, blue indicates the dynamics of loan interest rates, and red indicates the share of problem loans in the total volume of loans issued.

Data in Fig. 1 cover the period 2005-2021. In general, one can note co-directional dynamics in the data under study. However, if the dynamics of interest rates has a constant

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downward trend, then the share of problem loans, after a decrease, will stabilize at a certain level.

In this case, it should be noted that a decrease in interest rates leads to a decrease in the volume of non-performing loans. However, this effect is temporary. This is determined by the fact that the volume of problem loans does not further decrease, although the level of reduction in interest rates is significant. Therefore, it is impossible to talk about a close connection in the ratio of the volume of problem loans and the level of interest rates using data from the Indonesian banking system as an example. In this regard, it is advisable to consider in more detail the dynamics of such co-directed changes in the data under study.

The following presents the dynamics of changes in the volume of problem loans and the dynamics of interest rates on loans in the Georgian banking system. These data cover the period 2003-2021. Like the previous ones, this and subsequent data were taken from the website https://investing.com.

Shown in Fig. 2, the data dynamics differ from those shown in Fig. 1. However, the co-direction of the dynamics of changes in the volume of problem loans and the dynamics of interest rates from a certain point in time is the same. At the same time, in the last two years we have observed the opposite direction for the analyzed data series.

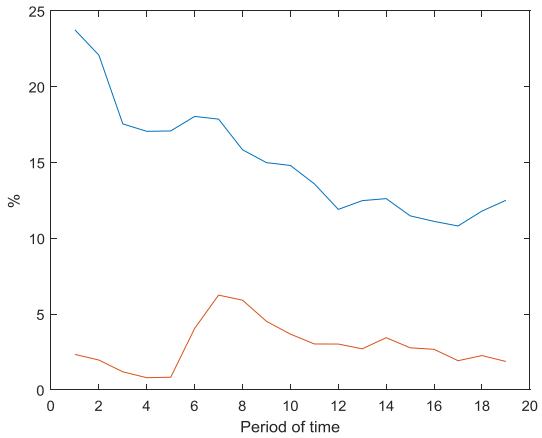

Figure 2: Data on the banking system of Georgia

From the data in Fig. 2 shows that at the beginning of the study period, with a decrease in the interest rate on loans, the dynamics of the volume of problem loans is multidirectional. Moreover, such dynamics were even positive and the value of the volume of problem loans increased.

ISSN (E): 2181-4570 ResearchBib Impact Factor: 6,4 / 2023 SJIF(2023)-3,778 Volume-2, Issue-1

Then it should be noted that as the interest rate on loans decreases, the level of problem loans decreases. However, such a decrease is much smaller compared to the reduction in loan rates.

Thus, in the Georgian banking system as a whole, there is no sustained positive effect of reducing problem loans from lowering interest rates on loans.

Although at some time intervals this can be tracked. It follows from this that the volume of problem loans in the Georgian banking system, as well as in the Indonesian banking system, is influenced by a number of factors. But it is not recommended to completely discard the dynamics of interest rates as a trigger for the dynamics of problem loans.

A more interesting case of analyzing the relationship between the dynamics of the volume of problem loans and interest rates on loans is the case of the Italian banking system. Here, as before, the volume of problem loans is expressed as a percentage of all loans provided.

In Fig. 3 considers the period 2005-2021. This case is of interest, since Italy is one of the most developed economies.

It should be noted that in this case the level of interest rates on loans is significantly lower than what was considered in previous cases. At the same time, interest rates on loans are reduced throughout the studied interval.

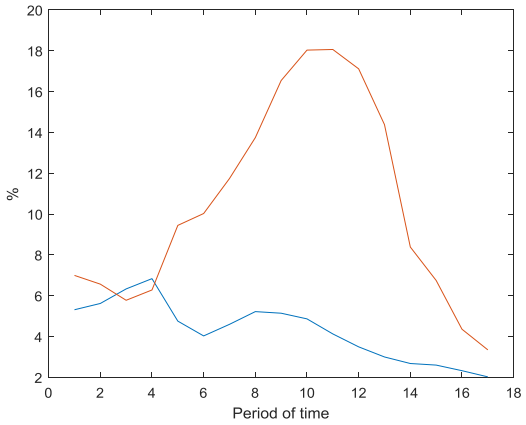

Figure 3: Dynamics of the studied data on the Italian banking system

However, in the middle of the study period, the volume of problem loans increases sharply (see Fig. 3). Then the volume of problem loans in the Italian banking system also declines sharply. In this case, we can note the effect of an excessive reduction in the level of lending rates, which allows anyone to take out credit resources and not have proper grounds for covering it in the future.

ISSN (E): 2181-4570 ResearchBib Impact Factor: 6,4 / 2023 SJIF(2023)-3,778 Volume-2, Issue-1

Consequently, for the Italian banking system there is a negative effect of the relationship between the dynamics of changes in problem loans and the level of interest rates on loans.

Although it should also be emphasized that this effect is episodic. In other words, a number of measures were taken in the Italian banking system that helped reduce the level of problem loans. Another question is how long-lasting this effect will be and how far this effect covers all Italian banks.

To conclude this subsection, we will also consider the dynamics of changes in the relevant indicators for the banking system of Pakistan. These data are presented in Fig. 4 and cover the period 2005-2021.

From the data in Fig. 4 shows that, as in the previous case, in the middle of the period under study there is a surge in dynamics in the volume of problem loans. However, unlike the previous case, such a surge occurs against the backdrop of rising interest rates on loans. Next comes a mutual decline in the dynamics of interest rates and the volume of problem loans in the banking system of Pakistan.

However, at the end of the study period, the banking system of Pakistan again observed a mutual surge in the dynamics of the volume of problem loans and the level of interest rates on loans.

Based on this, it can be assumed that the banking system of Pakistan is characterized by co-directional dynamics in changes in the volume of problem loans and the level of interest rates on loans. Thus, in this particular case, the level of interest rates on loans can serve as some kind of indicator of the dynamics of the volume of problem loans.

In general, we see different trends in changes in the dynamics of the volume of problem loans and the level of interest rates on loans. Everything is largely determined by a number of additional factors and depends on the economic situation in a particular country.

ISSN (E): 2181-4570 ResearchBib Impact Factor: 6,4 / 2023 SJIF(2023)-3,778 Volume-2, Issue-1

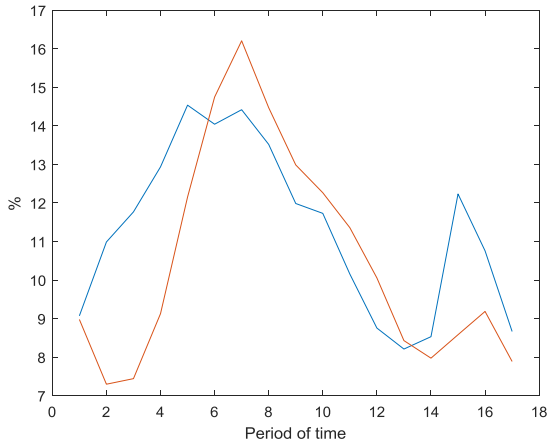

Figure 4: Dynamics of the studied data on the Pakistan banking system

To detail this consideration and more fully disclose the main goal of the study, we will also consider the features of the mutual dynamics of the banking indicators considered in the work related to credit risks.

Comparative analysis of the dynamics of the studied data for some countries

The corresponding analysis is based on the wavelet analysis methodology. For these purposes, wavelet coherence estimates are used, which have found proper application in studies of this kind [25]-[28].

In Fig. 5 shows the wavelet coherence estimate for the data in Fig. 1.

It should be noted that the data in Fig. 5 emphasize the absence of a co-directional relationship between the dynamics of the volume of problem loans and the level of interest rates on loans in the Indonesian banking system. This was also emphasized when considering the data in Fig. 1.

Moreover, such connections are absent at the depth of interaction between the data under study. This confirms the fact that a number of other factors influence the dynamics of the volume of problem loans.

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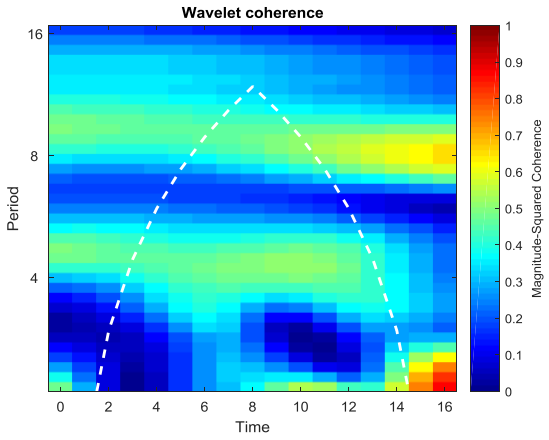

Figure 5: Wavelet coherence estimation for the Indonesian banking system

In Fig. 6 presents wavelet coherence estimates for data on the banking system of Pakistan.

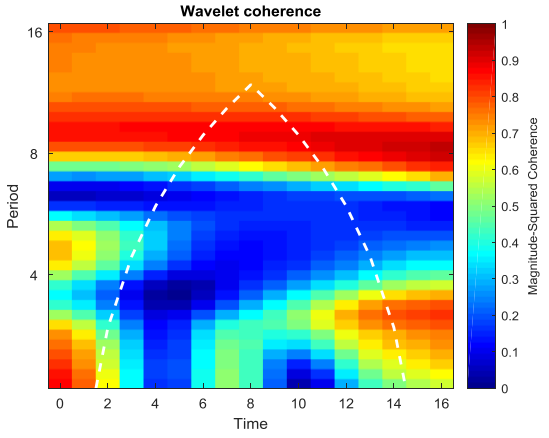

Figure 6: Wavelet coherence estimation for the Pakistan banking system

Here we observe a greater relationship in the dynamics of the parameters under study than in the previous figure. Moreover, such a connection manifests itself, first of all, in the depth of mutual assessment of the data that is being considered. The same was confirmed when analyzing the data in Fig. 4.

The consideration of these two examples is due to the fact that they most fully reflect the trends that are characteristic of the dynamics of the volume of problem loans and the level of interest rates on loans from the point of view of the banking systems of individual countries.

Conclusion

The paper examines trends in the dynamics of the volume of problem loans and the dynamics of interest rates on loans for a number of countries with different levels of economic

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development. Before this, based on a critical analysis of literary sources, the feasibility of conducting such an analysis is justified.

The dynamics of the considered indicators of the banking system are examined using specific examples. The characteristic features of such dynamics for individual banking systems in a number of countries are shown. When detailing such an analysis using wavelet coherence estimates, it was concluded that the level of interest rates has an insignificant effect on the dynamics of the volume of problem loans. At the same time, from the point of view of the Italian banking system, such an influence is significant, but episodic.

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