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LENDING RISKS AS REFLECTED BY INDIVIDUAL BANKING INDICATORS

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Abstract:

Banking activities are one of the objects of study and research in various scientific publications. This is due to the role that banks play in the functioning and development of the country's economy and individual business entities. One area of such consideration is lending risks. This issue is important and relevant, as it allows us to monitor the efficiency of the bank's activities and its sustainability. To study this issue, an analysis of various banking indicators is necessary. This will allow us to understand the continuity of the bank's financial flows and the possibility of lending risks. In this case, it is advisable to know both the dynamics of individual indicators of banking activity and their relationship with each other. Based on this, the work examines the dynamics of various indicators of banking activity and examines their relationship. Such indicators for a number of countries are also considered. For research purposes, we use various statistical methods: from descriptive statistics to complex analysis of explicit and implicit relationships between data. The work presents various graphs, which generally allows you to understand the progress of the study and evaluate the results obtained.

Key words: Risk, Lending, Dynamics, Banking indicators, Time series, Statistical analysis, Comparison, Loan rates

Introduction

Economic development and the continuous functioning of individual business entities are inextricably linked with the attraction of free financial resources [1], [2]. Such resources help to carry out certain activities and fulfill obligations. This is important for any economic agents and allows them to ensure their interaction with each other and the relevant government institutions. Therefore, research of this kind is relevant and significant from both scientific and practical points of view.

Traditionally, attracting the necessary resources is possible through the stock market or bank loan [3], [4]. This is determined by the specific development of each country individually. However, one area of scientific interest is bank lending [5]-[8].

Banks are able not only to accumulate, but also to effectively redistribute available resources by providing loans. As a rule, both attracted funds in the form of deposits and the bank's own resources are used as sources of lending. Therefore, an important aspect of research is to consider possible lending risks. An important aspect of such analysis is the uninterrupted functioning of the bank, the continuous movement of relevant financial flows [5], [8].

The source of consideration of lending risks can be individual indicators of banking activity, which are a generalization of the movement of various financial flows of the bank. For

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these purposes, it is necessary to consider the dynamics of individual indicators of banking dynamics both in their interrelation and from the point of view of individual economies. Various indicators and individual countries can be selected here, as will be defined later. For the purpose of comparing such data, various classical methods and approaches can be used [9]-[15], as well as those that have found application in other areas of research [16]-[21].

Thus, the main goal of this work is to consider the dynamics of a number of indicators of banking activity for different countries from the point of view of a possible study of lending risks. To do this, it is advisable to conduct a brief analysis of studies related to this topic, determine a set of banking indicators for analysis and select individual countries for comparison.

Related work

Given the importance of lending risks, researchers pay attention to various aspects of this issue. Here you can see both theoretical works and studies that present relevant statistical analysis.

N. P. Barsky and A. H. Catanach Jr conduct a comprehensive analysis of risk assessment when making bank lending decisions [22]. The authors consider various aspects in decision making. In this case, special attention is paid to the factors that determine the possibility of occurrence of relevant risks. For the purposes of such analysis, descriptive statistical methods are used, which allow some important conclusions to be drawn.

R. Lenz pays attention to peer-to-peer lending, considering the possible risks [23]. For this purpose, financial intermediation via the Internet based on P2P is analyzed. The work notes that this is the most popular type of crowdfunding, in which an Internet platform collects small amounts of funds from individuals for collective financing [23]. At the same time, it becomes possible to reduce some credit risks. Based on this, the author concludes that it is necessary to develop this type of lending. However, this requires the development and implementation of a special unified European regulatory framework.

T. Chmielewski considers the interrelationship between banking risks, risk preferences and lending [24]. Particular attention is paid to the issues of capital regulation on the behavior of banks. At the same time, the work notes that the possibility of various banking risks may affect the volume of loans issued. Among the factors in the analysis of lending risks, the financial stability of the bank in the implementation of monetary policy stands out. It is also noted that variables reflecting the riskiness of lending and the possible level of its acceptance are significant in the corresponding regression equations [24].

S. Behncke studies the effect of macroprudential policy on bank lending and credit risks [25]. An example of such an analysis is data for Switzerland. The author examines the impact on lending and the possibility of risks arising from two factors: the activation of the countercyclical capital buffer (CCyB) and the limitation of the loan-to-value ratio (LTV) [25]. The work considers the following risk indicator measures: LTV and loan-to-income (LTI) ratios and mortgage growth rates. This allows you to draw the necessary conclusions and make informed decisions regarding bank lending and minimizing relevant risks.

T. Beutler, R. Bichsel, A. Bruhin and J. Danton consider the impact of interest rate risk on bank lending [26]. The paper examines data on Swiss banks. For these purposes, various supervisory information is analyzed. The authors note the impact of weakening bank capital on reducing aggregate loan growth a year after a jump in nominal rates by one percentage point

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[26]. The heterogeneity of loan risks taking into account the activities of various banks was also noted. This must be taken into account when developing global measures to overcome lending risks in the banking system as a whole.

The study by M. Naili and Y. Lahrichi conducts a critical review of literature sources that are devoted to the problems of credit risk of banks [27]. First of all, the authors note that the credit risk of banks is in the level of non-performing loans (NPL). The paper also discusses the main theories about problem loans and their bank-specific, macroeconomic and industry determinants [27]. The study is based on 69 papers that were published between 1987-2019. However, the authors emphasize that the problem of credit risk remains an unresolved area of research [27].

H. Abdelaziz, B. Rim and H. Helmi consider the relationship between credit risk, liquidity risk and bank profitability [28]. The work examines data for the countries of the Middle East and North Africa (the so-called MENA region). Observations are carried out in the period 2004-2015. For the purpose of the study, the apparent unrelated regression (SUR) method was used. The paper shows that bank profitability is negatively sensitive to an increase in credit risk. At the same time, the profitability of banks significantly reduces the level of credit risks [28].

M. F. Hsieh and C. C. Lee examine the relationship between bank liquidity, regulation and credit risk [29]. It uses data from 3,007 banks from 27 Asian countries over the period 1999–2013. It has been shown that the creation of bank liquidity is positively related to the real output of the economy, as well as to illiquid assets and fixed deposits [29]. At the same time, large banks are able to increase liquid assets and lend to countries with stricter financial rules [29].

We see that studies examine various parameters of banks' activities in the study of credit risks. It all depends on the task at hand and further directions of research. Next, we will present some parameters of banking activities that we examine when considering this issue. Here we only note that we will consider data for the entire banking system, and not for an individual bank.

Analysis of individual indicators of banking activity in the study of lending risk

To conduct our research, we will consider such indicators as the interest rate on loans and the interest rate spread (loan rate minus deposit rate, %).

The first indicator reflects the dynamics of the availability of credit resources and in some way may be one of the indicators of lending risk. This is due to the fact that when the loan rate decreases, the availability of the resource increases. Then there is a possibility that such a resource can be taken by anyone, and its return may be in question.

The second indicator reflects the efficiency of lending and is also in some way one of the indicators of lending risk. A summary of lending risk is the non-performing loan ratio.

We will look at this data for banking systems such as Australia, Canada and China.

All data from the World Development Indicators website (https://databank.worldbank.org/).

In Fig. 1 shows the dynamics of the loan interest rate and the interest rate spread for the Australian banking system in the period 1981-2019.

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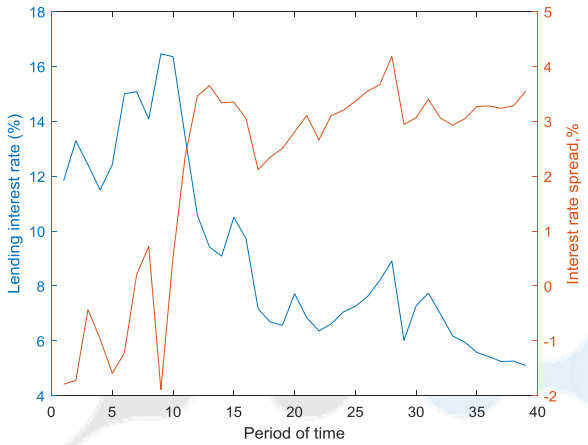

Figure 1: Loan interest rate dynamics and interest rate spreads for the Australian banking system during the period 1981-2019

In Fig. 1 presents 40 values for analysis on the Australian banking system. We can see that at the beginning of the period under study, the dynamics of lending rates increases. This occurs in the period 1981-1990. Then there is a sharp decline in lending rates until the end of the study period. Thus, we can talk about the availability of credit resources, and therefore the possibility of the occurrence of corresponding lending risks.

Changes in the interest rate spread for the Australian banking system as a whole have a positive trend. A sharp jump in this dynamics occurred in 1991. Further, minor changes in the dynamics of the spread are observed. If we compare the dynamics of the spread and interest rates on loans, we can talk about increasing the efficiency of the banking process in this aspect. Nevertheless, this is most likely due to a decrease in deposit rates.

In Fig. 2 shows the dynamics of the loan interest rate and the interest rate spread for the Canadian banking system in the period 1971-2017.

In Fig. 3 shows the dynamics of the loan interest rate and the interest rate spread for the China banking system in the period 1980-2021.

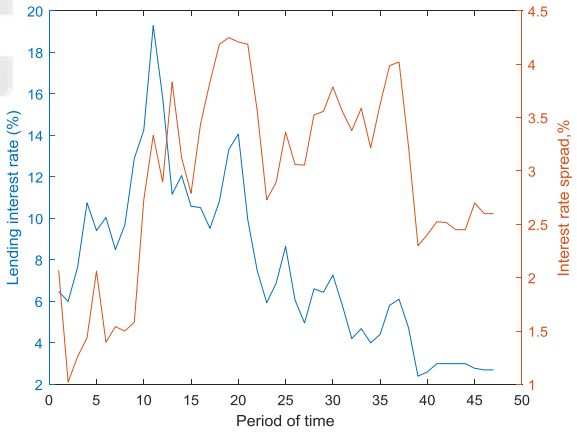

Figure 2: Loan interest rate dynamics and interest rate spreads for the Canadian banking system during the period 1971-2017

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Trends in data for the Canadian banking system echo trends in the corresponding data for the Australian banking system. One of the key differences is the decrease in the interest rate spread across the Canadian banking system, which is typical for the latest time intervals from the time period under study.

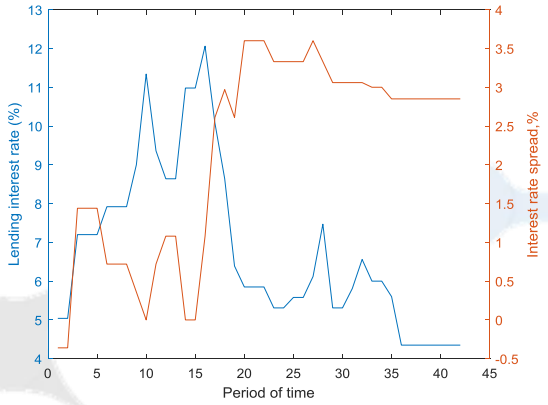

Figure 3: Loan interest rate dynamics and interest rate spreads for the China banking system during the period 1980-2021

Shown in Fig. 3 trends in changes in the studied data on the Chinese banking system differ from those discussed above. Nevertheless, in some periods we also see a coincidence in such trends. A feature of the data dynamics for the Chinese banking system is that at the end of the period under study, both quotes for lending rates and spreads stabilize.

What is common with the previously discussed data is the fact that when loan rates decrease, spread quotes increase. Then the spread stabilizes. On the one hand, we note the effectiveness of the banking process in this aspect, and on the other hand, it should be noted about the influence of deposit rates on such a process.

As noted, one of the key indicators in assessing lending risks is the percentage of non-performing assets of banks. As an example, consider this indicator for the banking systems of Australia and Canada.

In Fig. 4 shows the dynamics of the percentage of non-performing assets for the banking systems of Australia and Canada. The left scale (blue) shows the dynamics of non-performing assets for the Australian banking system in the period 2005-2019. On the right scale (red) is the dynamics of non-performing assets for the Canadian banking system in the period 2005-2017.

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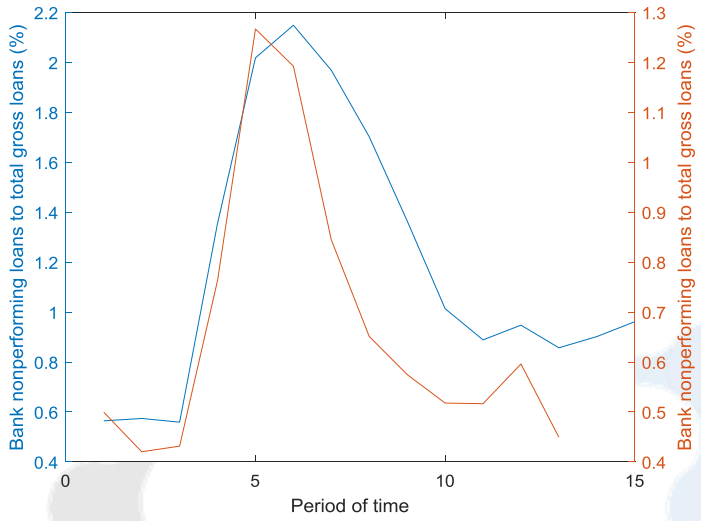

Figure 4: Dynamics of the percentage of non-performing assets for the banking systems of Australia and Canada

Comparing the data Fig. 4 with data Fig. 2 and Fig. 3, it can be noted that an excessive reduction in interest rates on loans tends to lead to an increase in the volume of non-performing loans. Thus, consideration of lending risks in displaying indicators of the banking system is justified.

Conclusion

The article examines and discusses important topics related to the functioning of the banking system. Lending issues and the possibility of certain risks arising are considered. For these purposes, we consider the following indicators: dynamics of interest rates on loans; interest rate spread as the difference between loan and deposit rates; dynamics of the percentage of non-performing assets. The work also presents the various banking systems of Australia, Canada and China. The work notes that various indicators of the banking system are good indicators for considering the possibility of occurrence and forecasting lending risks. This thesis is based on real data, which is displayed in the corresponding graphs.

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