Journal of Agricultural, Food and Environmental Sciences Vol 76 No 4 (2022) 27-37
DOI

CREDIT RISK IN AGRICULTURE IN NORTH MACEDONIA: MACROECONOMIC PERSPECTIVES

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ABSTRACT

Loans play an important role in agriculture development to maintain the farm liquidity through short-term financing of current assets, and to improve farm investment activities to increase agricultural productivity and profitability. Although the state has established various mechanisms to improve access to commercial credits in agriculture, the absorption of credits by this sector is still very low. The weak credit activity of banks in agriculture, among other things, is owed to the high credit risk of banks in financing this sector. Credit risk management is one of the basic activities of the banks to create and maintain a quality loan portfolio that will enable the smooth functioning of the bank. As a result, banks often tighten credit conditions for agricultural producers. Hence, the main aim of the paper is to investigate the credit risk in agriculture from the banks' perspective by i) assessing the exposure of banks to credit risk in agriculture, and ii) investigating banks' behaviour in crediting the agriculture sector. Taking into account the importance of agriculture for the national economy, the results indicate the need to improve lending in agriculture with mechanisms for reducing the bank's credit risk in financing agriculture, especially for smallholders, but also to understand that both sectors, the banking and agricultural sector, are very important for the national economy. If the state provides conditions for the development of the banking sector, it will also provide foundations for ensuring development in agriculture in general.

Key words: Credit risk, agriculture, bank system, trend analysis, North Macedonia.

INTRODUCTION

Agriculture faces different risk factors unlike other sectors, and commercial banks should take them into account when analyzing credit risk. These include production risk that arises from the unpredictable nature of agricultural production due to weather, diseases, pests, etc. (Hardaker et al., 2004), market risk that arises due to the unpredictable competitiveness of input and output markets (Novickytė, 2019) such as the uncertainty during the purchase of agricultural products and their market price, the irregularity in the collection of claims, etc., institutional risk due to the changing government policies, the influence of external international policies on domestic politics, etc. (Jankelova et al., 2017), and financial risk that occurs during the selection of strategies for the financing of the agricultural production (Simonovska, 2014).

Banks' credit risk includes the risk of loss for the bank, due to the inability of its clients to settle their obligations in the agreed amount and/or within the agreed terms, (Decision on the credit risk management methodology of the National Bank of the Republic of North Macedonia, Official Gazette of the Republic of Macedonia No. 50/13, 157/13, 223/152018).

Banks strive to maintain control over their claims and reduce or avoid losses in their operations through credit risk management, which can directly impact the survival and prosperity of banks, and indirectly on the stability of the entire economy (Madžova, 2010; Petrevski, 2008).

The credit market in agriculture in the Republic of North Macedonia is still inefficient to ensure agricultural development. On the one hand, the credit supply is not completely dimensioned according to the needs of farmers, and on the other hand, farmers face various constraints to access loans. Loans play an important role in agricultural development: first of all, for maintaining their liquidity through short-term financing of current assets, and second, for improving their investment activity to increase agricultural productivity and profitability.

Taking into account the importance of agriculture for the national economy, the improvement of crediting in agriculture emerges as one of the most important issues of national interest. In this regard, there are various studies by domestic authors that consider the issue of lending in agriculture (Simonovska et al., 2014; Simonovska et al., 2017; Simonovska et al., 2019; Simonovska and Janeska Stamenkovska, 2020; Janeska Stamenkovska and Simonovska, 2021), in which more attention is devoted to the perspective and challenges of farmers in the agricultural credit market. There is a lack of research that will provide insights from the banks' perspective regarding lending in agriculture. Such studies, as a supplement to the studies carried out so far, would contribute to understanding the two contracting parties in the loan agreement.

Hence, the main aim of the paper is to investigate the credit risk in agriculture from the banks' perspective by i) assessing the exposure of banks to credit risk in agriculture, and ii) investigating banks' behavior in crediting the agriculture sector.

The following section briefly describes the theoretical framework, followed by a description of the empirical approach. The results are then presented, followed by a short discussion and conclusions.

MATERIALS AND METHODS

Theoretical framework

The study lays upon three groups of theoretical perspectives, such as (Figure 1): i) bank system and crediting, including theories of bank behavior and credit services in agriculture), ii) credit risk in banking, including types of credit risk, and iii) agriculture and credit risk, including credit risk management in agriculture.

Figure 1. Theoretical framework

The banking system is a part of the financial system in which banks participate in their operations. The basic role of the banking system is to enable entities with excess financial assets to invest these assets and transfer them to entities lacking financial assets, with the ultimate goal of making a profit (Rose and Hudgins, 2013). However, banking entities invest their available financial resources only in entities that have sustained plans for new projects.

Financial institutions face different risks, such as i) credit risks; ii) risks related to liquidity; iii) risks related to interest rates; iv) risks related to foreign currencies; v) operational risks (i.e. mistakes and fraud by personnel); vi) technological risks (i.e. power and equipment failures leading to data loss); vii) product innovation risks (i.e. new failed products); viii) reputational risks (i.e. involvement or association with undesirable business practices - ethnic discrimination, money laundering, loans for environmentally unfounded projects, excessive loans); ix) competitive risks, and x) regulatory risks (i.e. sanctions for violating regulatory norms). However, the two most important risks are interest and credit risks. Problems in these areas often lead to liquidity crises and bank failures.

Credit risk is defined differently in banking theory and practice depending on the range of credit products and the credit portfolio affected by different types of risk. Most often, credit risk in the financial literature is defined as the probability of financial loss resulting from the inability of the credit user to fulfill his credit obligations towards the credit agreement (Adamko et al., 2014). Banking analysts consider that credit risk is one of the most important factors affecting the profits of banks and other financial institutions, because any delay or non-payment of the annuity for the loan reduces the profit of the financial institutions, and thus their value, i.e. the value of the capital of their owners (Madžova, 2010). Therefore, financial institutions pay particular attention to credit risk management.

Credit risk comes in different forms. The forms of credit risk depend on the nature of credit operations, the development of banking products, the development of the capital market, the development of the country, and the appropriate environment for the realization of credit activities, etc. Credit risk can also occur as a result of weak banks’ risk diversification (Simonovska et al., 2019) i.e. if they finance only a few economic sectors only or by placing a large number of loans or large amounts of loans to a smaller number of users (Mažova, 2010).

The credit risk analysis is performed according to the economic activity of the companies, the length of the production cycle, as well as the level of the systematic risk associated with the economic activity, especially the impact of economic events on their operations (Arsov, 2008; Petrevski, 2008). When analyzing the creditworthiness of companies, financial institutions consider a range of information about the state of the companies, such as (Madžova, 2010): they review their financial statements and financial situation, check their credit history, analyze the external environment and market conditions that would affect the future capacity of the companies to deal with such future situations. Also, after approving the loan, the financial institutions require the companies to continuously submit their financial reports during the repayment of the loan in order to be able to react promptly to possible negative changes in the financial results by taking corrective measures toward such customers (Petrevski, 2008; Madzova, 2010).

Hence, it can be concluded that the credit risk of companies is more predictable than that of individuals, but the amount of credit taken out by companies is much higher, so the risk of possible losses for financial institutions is higher if there is a non-payment of the loan.

If the specifics of agricultural production are taken into account, where the structure mostly includes individual agricultural producers, who are not registered as legal entities (companies), then the additional credit risk for the financial institutions that they undertake to finance this sector can be ascertained. Other reasons for the high credit risk in agriculture are the dependence of production on climatic factors, the uncertain market of agricultural products, the instability of the prices of agricultural products, etc.

It is fact that there is a limited supply of agricultural loans and unfavorable credit conditions in the country, especially for small unregistered agricultural holdings. But it is also known that the capital market and financial infrastructure are underdeveloped. However, banks are business entities whose main objective is to maximize the owners' capital. Therefore, in order to increase profit and reduce risk, they need to successfully manage risk, especially credit risk. On the other hand, credit exposure in different sectors of the economy can contribute to the diversification of the bank's risk, if the credit risk is not very high.

Different theories can help in drawing conclusions about the behavior of financial institutions in the current market conditions and their share of lending in agriculture. Some of them are related to the method and policy of financial institutions in the creation of capital, another part refers to the credit commitment of financial institutions, rationalization of credit, security, and customer relations, while the rest deal with the institutional setting and interaction of the banking sector with other sectors, including the agricultural sector.

Empirical approach

Various secondary sources of data were used in the paper, including publications, such as books and scientific papers so as to review definitions and theories related to the research topic. Furthermore, for the analysis of the level of the credit risk of the banks during financing in agriculture, tertiary sources of data were also used, i.e. databases from the audit reports of the National Bank of the Republic of North Macedonia on the risks in the banking system in the country, which are available at the bank's website. Data were analyzed by quarters and related to a longer period of time, from December 31, 2004, to March 31, 2022. Data were analyzed by using descriptive statistics, and trend analysis. Comparative analysis of credit risk in different sectors provided a cross-sector analysis.

In addition, we have evaluated banks' behavior towards individual farmers with an online survey between financial institutions. The survey was conducted in the period from December 11-18, 2020. A total of nine financial institutions responded to the questionnaire, i.e. seven out of thirteen commercial banks and two out of four savings banks. For this purpose, a questionnaire was compiled with a total of 21 questions, mostly closed-type. Data were analyzed by using descriptive statistics.

RESULTS AND DISCUSSION

Overview of the banking sector in the country

In the Republic of North Macedonia, according to the latest data as of 31.12.2021 (NBRM, 2022a), there are fifteen deposit institutions, i.e. thirteen banks and two savings houses (which are licensed by the NBRM). In addition, two other savings houses operate and are regulated by the Ministry of Finance. Foreign shareholders prevail in the capital structure of the banking sector mostly from the European Union prevail (56%), namely: Greece (21.7%), Slovenia (14.3%), Turkey (14.0%), and Austria (10.7%) (NBRM, 2022a). The thirteen operating banks differ according to their size (Figure 2), as follows (NBRM, 2022a): i) group of large banks with assets greater than 44.1 billion MKD as of 31.12.2021 – this group includes five banks; ii) group of medium-sized banks with assets between 11 and 44.1 billion MKD on 31.12.2021 - this group also includes five banks, and iii) group of small banks with assets less than 11 billion MKD on 31.12.2021 – this group includes three banks. The banking network is spread across almost all cities in the country and consists of 388 business units, and close to half (or 43.6%) of the total number of business units are concentrated in the Skopje Region (NBRM, 2022b), where access to banking services is the easiest, measured by the number of inhabitants per business unit.

Macedonian banks work on the principle of the traditional business model, that is, on collecting deposits and approving loans. Household deposits are the most significant source of funding for banks, which account for around 50% of the total liabilities of the banking system. The assets are dominated by the loans of the non-financial sector (more than 50%), within which the participation of household loans is higher (about 30%), compared to the loans of non-financial companies (about 27%).

The structure of the banks' total income also corresponds to the traditional business model. For example, net interest income (with a share of about 60%) is the most significant in the structure of total income. About one-third (or 35%) of the total income comes from net interest income from operations with households, while 22% is the share of net interest income from operations with companies. The expenses at the level of the banking system are dominated by the expenses for employees (with a share of about 30%), followed by general and administrative expenses (about 27%).

The solvency of the banking system is at a historically relatively high level during most of 2021. The profitability of the banking system in 2021 is solid and most indicators in this segment are higher compared to last year (NBRM, 2022b). The productivity of the banking system is improving due to the improved qualification structure of employees in the banking sector. The participation of employees with a minimum of higher education has increased and currently amounts to 85.3% of the total number of employees in the banking system.

Credit risk levels in the country

Credit risk exposure indicators remained at a relatively low historical level. The quality of the banks' credit portfolio was well-maintained during 2021 and 2022, despite the uncertainties related to the covid-19 virus pandemic and the economic risks caused by systematic risk as a result of the conflict in the Eastern European block. The rate of non-performing loans decreased to a historically low level of 3.2%, which is lower compared to the pre-pandemic period. The non-performing loans of companies decreased by 5% compared to 2020 due to the accelerated growth of credit support by banks.

In the corporate credit portfolio, non-performing loans show different trends in different economic sectors. A more pronounced increase was observed among companies that were most affected by the covid-19 pandemic, such as those in the catering services, cultural and artistic life, as well as in the food industry. On the other hand, a decrease in non-performing loans was observed in the of agricultural sector, including hunting and forestry.

The decrease in the number of non-performing loans can also be observed in the size of banks. In the first reporting period (December 31, 2004), non-performing loans amounted to 17.9% among large banks, 11.2% among medium-sized banks, and 22.5% among small banks. Today this situation has changed a lot for the better. Thus, in the last reporting period (March 31, 2022), non-performing loans comprise only 3.3% of large banks, 2.1% of medium-sized banks, and 3.4% of small banks. All banks, especially small banks, have improved their credit portfolio. Medium-sized banks have the least non-performing loans throughout the period.

The improvement in the rate of non-performing loans was supported by the intensified activities of the banks for the collection of "bad" loans and by the accelerated credit growth, in conditions where during the period there was still a certain realization of the credit risk (NBRM, 2022b). The results of the stress testing confirm the resilience of the banking sector to simulated credit risk shocks (NBRM, 2022b). Possible risks to the credit portfolio for the next period are driven by increased geopolitical risks and disrupted supply and production chains.

Overview of the agricultural credit market in the country

Three out of a total of thirteen commercial banks, as well as three out of a total of four savings banks, have a direct offer in agriculture financed from their own capital. In addition to its own credit offers, the private banking sector, with funds from the Development Bank of North Macedonia, also provides loans through the Agricultural Credit Discount Fund (ACDF) at discounted interest rates.

The purpose of the ACDF is to improve access to credit for small unregistered agricultural holdings (Development Bank, 2022a). The main task of this credit line is to improve and develop the production capabilities of agricultural holdings (individual producers and companies). Six out of thirteen commercial banks offer loans through ACDF. The credit conditions are set by the financial institutions (banks and savings houses) that place the credit because they take the risk (Simonovska and Janeska-Stamenkovska, 2020). Therefore, it can be noted that the credit conditions are different at different banks and savings houses. All credit conditions (for example, the interest rate, the type of loan security, the value of the loan, the grace period, the type of annuity repayment, etc.) imposed by financial institutions are aimed at protecting financial institutions from credit risk.

In addition to the ACDF credit line, the Development Bank also offers its own credit line for agriculture (Development Bank, 2022b). For this loan, agricultural producers apply directly to the Development Bank, which assumes the credit risk at its own expense. The price for this loan is quite favorable, that is, the annual interest rate is 2% and is of a fixed nature. However, unlike ACDF, beneficiaries of these loans cannot be natural persons, i.e. individual agricultural holdings, because according to the Law on the Macedonian Bank for Development Support (Official Gazette of the Republic of Macedonia No. 105/09 of 21.8.2009), this bank can give loans directly only to legal entities registered in the Central Registry of the Republic of North Macedonia. The purpose of this credit line is to improve and develop the production capabilities of micro, small, and medium-sized enterprises whose main activity is the production, and processing of agricultural products or their export. However, the utilization of these products is low due to the farmers' lack of information about these services, and on the other hand, because the bank is looking for prospective projects to support.

Credit risk in agriculture in the country

Credit exposure in agriculture in the initial period of the analysis has a very large share in the total credit exposure of the non-financial sector, especially from the second quarter of 2005 to the third quarter of 2007. It represents the smallest share in the past period, not because of the reduced credit exposure of agriculture, but because of the increased credit exposure of the entire non-financial sector (Figure 2).

Figure 2. Credit exposure of companies, in million MKD (2004-2022)

On the contrary, the credit exposure in agriculture is very high, i.e. the highest in the past period. The maximum share is 4%, and it was achieved only in the first quarters of 2006 and 2007. But it must be taken into account that this situation is due to the low representation in lending to other non-financial entities. Credit exposure in agriculture in the first quarter of 2022 is twice as high as in the periods when the maximum participation of agricultural credit exposure in that of the non-financial sector was registered. Considering the food sector, credit exposure of the food industry shows a decreasing trend, but it is still much greater than that of agriculture. Analyzing the level of the credit risk of financial institutions when financing individual farmers, results indicate a lower degree of indebtedness, but if it is compared to the other individual unregistered entities, the total credit exposure of individual farmers amounts to 36.2% of the total credit exposure of the individual entities in the last reporting period (March 31, 2022) (Figure 3). This participation is significantly large in relation to the participation of other businesses registered as sole proprietors but also compared to agricultural companies. In contrast to the developments in recent years, the credit exposure in agriculture among individual farmers amounts to 57.3% showing a considerable share in the total credit exposure of the non-financial sector in the initial period of the analysis, especially in the first quarter of 2007.

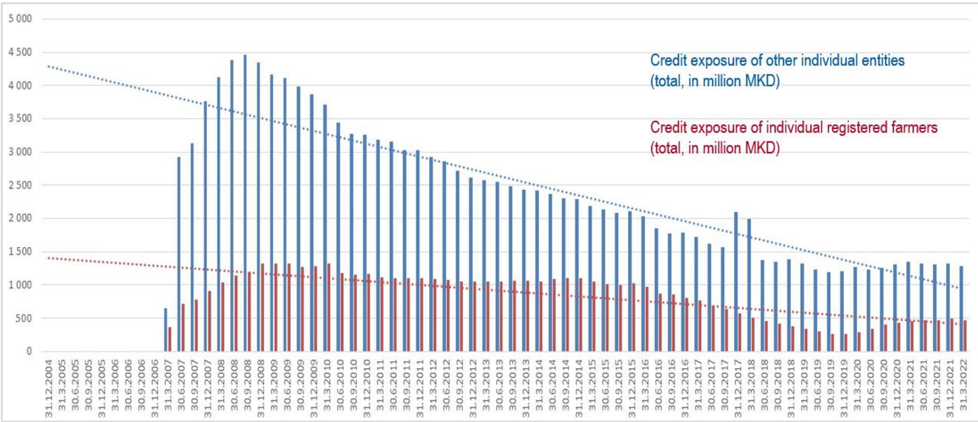

Figure 3. Credit exposure of individual entities, in million MKD (2004-2022)

Financial institutions consider the agricultural sector to be very risky. Figure 4 shows the indicators of the credit risk of the non-financial companies, including agricultural companies, in the period 2017-2021, (NBRM, 2022a). It can be observed that financial institutions' exposure to credit in the agricultural sector, together with hunting and forestry, is the smallest compared to the other sectors. For reference, in the last reporting period of 2021 (December 31, 2021), the share of credit exposure to the agricultural companies is only 2.3%. The riskiest sector is the wholesale and retail trade. On the other hand, Figure 4 also shows that the share of non-performing loans in total loans is the highest in the agricultural sector, in contrast to other sectors.

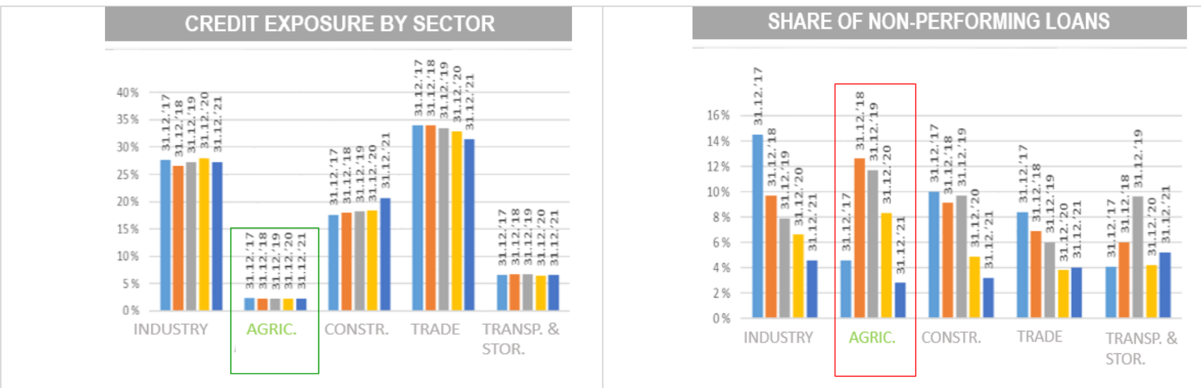

Figure 4. Comparison of credit risk between different economic sectors

Banks' behavior in financing agriculture

Financial institutions offer different credit programs in agriculture, and the credit conditions differ depending on who offers the loan - whether a bank or a savings bank, as well as how financial institutions provide the means to finance the loan - whether from their own sources or from external sources (for example, through credit lines such as ZKDF, through support from international funds, etc.).

The credit risk is very high for financial institutions when placing loans in agriculture, so the credit conditions are tighter for this sector. Although the agricultural credit market has seen development in the last decade due to the mechanisms established by the state to overcome challenges in financing agriculture, access to credit is still unfavorable for agricultural producers, especially for small individual farmers that represent the majority of the structure of Macedonian agriculture.

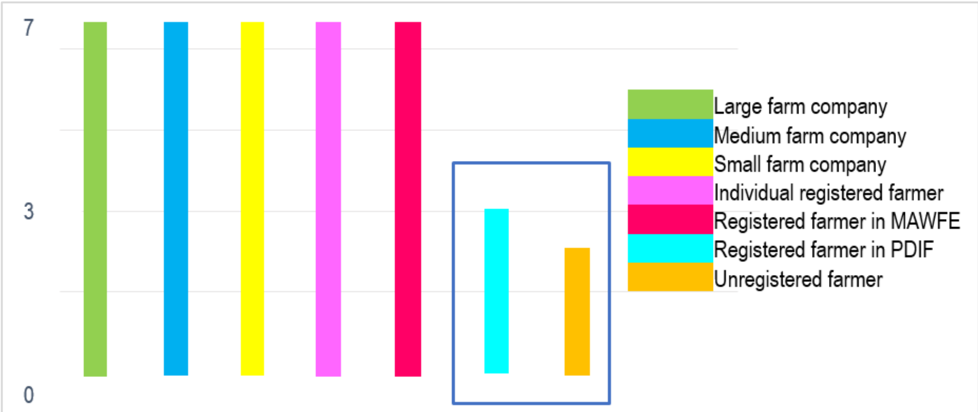

Figure 5. Eligible clients for the sample of financial institutions

One of the main factors affecting the high credit risk in agriculture is the legal status of agricultural producers, that is, whether the farm is a legal entity (a company) or it is run as an individual farm (Figure 5). If it is an individual farm, then it cannot use the direct credit offer of the Development Bank intended for the agro-food industry. Also, the commercial credit offer from the banks and savings houses' own capital will have a higher price, i.e. a higher interest rate due to the additional credit risk faced by the financial institution and the additional costs for approving the credit request and managing the client.

The banking sector acts in the direction of reducing its credit risk, that is, as Petreski (2008) points out, in the direction of protection against non-fulfillment of contractual relations with the client, in this case, it is the agricultural producer. This increases the administrative costs for the bank. According to the review by Arsov (2008), the optimization of risk and return allows financial institutions to choose the most profitable customers and sectors of operation, and these are not always the customers from the agricultural sector, except for the agricultural companies.

In the literature, but also confirmed by domestic authors (Simonovska, 2014; Simonovska et al., 2014; Simonovska et al., 2017; Simonovska et al., 2019; Janeska Stamenkovska and Simonovska, 2021), agricultural companies do not differ from other enterprises in the economy in their hierarchical structure, nor in their access to capital and the way of making appropriate decisions. This means that the banking sector acts toward these customers in the same way as it would toward other customers from the wider industry.

In contrast to them, financial institutions are less interested in cooperating with unregistered or registered individual farms, due to the high risk, so they tighten the credit conditions, except in the part of the annuity repayment method. The strictest conditions are in the part of the regularity of the annuity repayment. It should not be forgotten that, as pointed out by Koch and MacDonald (2014), the main goal of risk management in banking is to avoid bank insolvency and to maximize the rate of return on capital through risk correction.

Figure 6 shows the limiting factors of banks to finance farmers. High-impact factors on banks' behavior to lend money to farmers include the low creditworthiness by farmers, high exposure to the risk of agricultural production, and lack of financial reporting by farms.

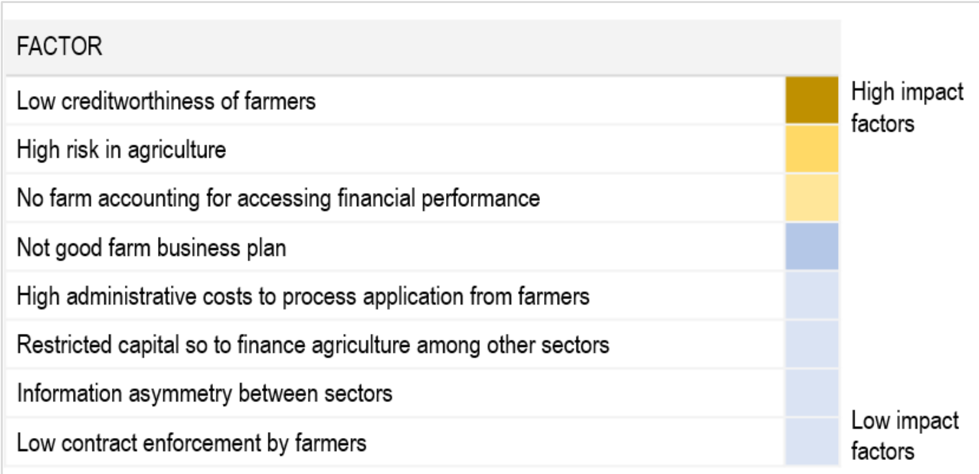

Figure 6. Limiting factors of banks to finance farmers

In addition, Figure 7 shows the most common reasons for banks rejecting loan applications from farmers. The bad credit history of farms, low farm financial capacity, and lack of collateral of farms are among the major reasons why loan applications are rejected.

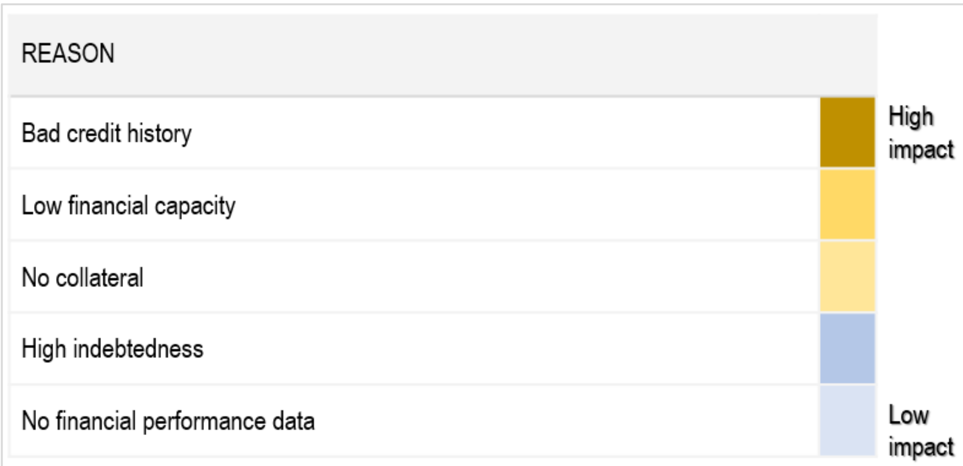

Figure 7. Most common reasons for banks rejecting loan applications from farmers

CONCLUSION

The purpose of the paper was to investigate the perspective of the banking sector in the process of financing the agricultural sector, with special reference to credit risk, as the most significant factor affecting the credit exposure of banks in agriculture.

Financial institutions consider the agricultural sector very risky, and the credit exposure of these institutions to agriculture is the smallest compared to other sectors in the economy. For agricultural companies, credit exposure is low, but the highest in the latest period. As for the individual farmers that are registered, the share of credit exposure is significantly high if compared to the share of other businesses registered as sole proprietors. The highest credit risk for banking institutions is if they place loans to individual farmers that are not registered. The strictest conditions of banking institutions are in the regularity of annuity repayment. The main goal of risk management in banking is to avoid bank insolvency and to maximize the rate of return on capital through risk correction.

The banking sector in the country usually collects deposits that it then lends to customers, and this behavior is most consistent with the Financial Intermediation Theory of Banking (Werner, 2016). This shows another reason why banks' performance in agriculture is weaker, and that is because banks try to protect their customers (depositors).

The mechanisms established to improve the cooperation between these two sectors, such as the ACDF and the Guarantee Scheme, work in the direction of the development of the agricultural credit market, but much work remains to be done. As Petreski (2008) outlined, the development of the financial market in a country very often determines the attitude of financial institutions toward credit risk.

Taking into account the importance of agriculture for the national economy, the results indicate the need to improve lending in agriculture with mechanisms for reducing the bank's credit risk in financing agriculture, especially for small unregistered individual farms, but also to understand that both sectors, the banking and agricultural sector, are very important for the national economy. If the state provides conditions for the development of the banking sector, it will also provide foundations for ensuring development in agriculture in general.

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