Credit Risk Management in Banks in Northern Macedonia

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Abstract— Credit risk is one of the most significant risks that occurs in banking. Credit risk usually refers to the probability of loss if the borrower becomes unable to repay the debt. It increases with the possibility that the borrower may become unable to meet its obligations. Credit risk management is a practice of mitigating losses by ensuring the adequacy of the bank's capital and reserves to cover loan losses at any time. Credit risk management involves deliberate management and minimization by taking various measures by reviewing the processes of risk identification, measurement, monitoring, control and mitigation in order to ensure a clear understanding of the nature of the risk and its consequences. The analytical and comparative method are basic in the research of the credit risk issue and based on the perceived conditions they are performed and give conclusions for successful credit risk management of the banks in the Republic of Northern Macedonia.

Index Terms— capital, losses, measurement, monitoring, mitigation, user.

1 Introduction

Credit risk as stated by Brock (2021) is the possibility of loss arising from the inability of the borrower to repay the loan or meet its contractual obligations. Credit risk traditionally refers to the risk that the lender will not receive the principal and interest of the loan, resulting in disruption of cash flows and increased collection costs. When a lender faces increased credit risk, it can be mitigated through a higher coupon rate, which provides greater cash flows.

Credit risk is a particular problem when a large number of loans are concentrated on a small number of clients, as the failure of any of these clients can seriously disrupt the lender's cash flow. A similar risk arises when there is a large proportion of loans granted to customers in a particular country, and that country suffers disruptions that lead to non-payment of loans taken. (https://www.accountingtools.com)

The purpose of the research in this paper is credit risk analysis and management in all its phases in the banking system of the Republic of Northern Macedonia. (RSM) The paper examines the size of the credit risk of the banks from RSM and the need for successful management, the impact of credit risk on the price formation, ie the interest rate on bank loans, analyzes the instruments for securing loans that serve as coverage to eliminate or reduce credit risk, and the need to determine the capital required to cover potential credit losses is recognized.

The paper examines in detail the credit risk management process which consists of five stages: (1) risk identification; (2) risk measurement; (3) risk monitoring; (4) risk control; (5), reducing or eliminating the risk.

In the paper, a special subject of research is the credit risk in the banking operations of the Republic of Northern Macedonia with emphasis on the volume, dynamics and structure of non-performing loans by sectors, as well as the volume and trend of transition from regular to non-performing loans.

The credit risk analysis in the banking system of RSM covers the period 2011-2020, focusing on the banks' strategy for managing their credit risks, the quality of credit placements, the policies and procedures that banks apply for credit risk management.

2 Literature Review

The Basel Committee on Bank Supervision (2000) simply defines credit risk as "the possibility that the borrower of the bank or the contracting party may not be able to settle its obligations within the agreed deadlines."

According to the Credit Risk Management Decision of the National Bank of the Republic of Macedonia (2013), "credit risk is a risk of loss for the bank, due to the inability of its client to settle its obligations to it, in the agreed amount and / or agreed deadlines.

According to Bessis (2015), credit risk has the following three forms: (1) risk of non-payment, (2) exposure risk, (3) credit risk recovery. The ***risk of non-payment*** of the loan arises when the debtor does not fully or partially fulfill its contractual credit obligations and when the market value of the loan falls below the value at which it was approved. ***Credit exposure risk*** is generated by the uncertainty of the bank, how much credit it will approve in the future taken as a whole and / or per individual client, ie individual business sector. This dimension of risk is expressed in conditions when there are open credit lines, revolving loans or when it comes to credit derivatives, so the size of the risk will depend on the volume of credit

exposure of customers at a given time or market movements, not activities of the bank. ***The credit risk recovery*** is conditioned by the type of pledge with which the loan was secured, as well as by its real condition and market value. Even if the loan is not repaid on time or is not repaid at all, and it is secured with a mortgage that easily converts into money, then it can be noted that the risk of repaying the loan is small and the loss is negligible.

According to the Basel Committee on Bank Supervision (2000), the main reasons for credit risk can be divided into two groups. The ***first group*** of reasons refers to the state and is expressed as: (1) limited institutional capacity, (2) inadequate credit policies, (3), variable interest rates, (4) inadequate central bank control. The ***second group*** of reasons for the occurrence of credit risk refers to the banks and is expressed as: (1) bad credit risk management of the bank, (2) inadequate internal regulations of the bank, (3) poor securing of loans, (4) poor credit assessment, (5) the impact of the government bodies on the credit operations of the bank, (6) inadequate information of the bank.

Credit risk can occur as a result of poor cash flows of the borrower due to which he can not pay interest and principal (installment), rising interest rates in cases of variable interest rates on loans, changes in market conditions, decline of business and the like (Ayayi, 2012).

Credit risk management according to Kotsaftis (2010), is realized as a lending process that includes (1) assessment of the loan given by the bank and covers the activities for (2), management of the loan portfolio that the bank has approved. The credit risk management process also includes (3) the decision-making activities and (4) the choice of the manner of covering the possible risk. The credit risk measurement is performed on the basis of (1) analysis of the information that the bank has submitted with the loan application, (2) the provided commercial and financial information of the loan applicant. Based on this information, the application is scored and then, in accordance with the bank rules, a decision is made on the credit risk which is assessed as low, medium or high credit risk to which the bank may be exposed. An illustration of credit risk measurement is shown in Figure 1.

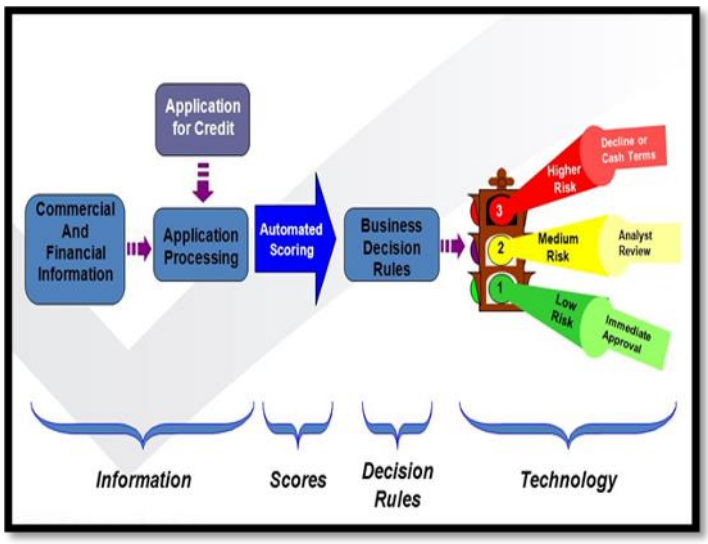

Figure (1): Credit Risk Evaluation
Source: Kotsaftis, L., (2010), The Credit Cycle, 1st Credit Risk Management Conference, ICAP Bulgaria DataBank, https://slideplayer.com › slide, 15

The bank assesses the assessment of the level of credit risk based on the credit risk indicators, the monitoring of loan repayments, the management of the bank's approved loan portfolio. This is done on the basis of the documents that the borrower submits to the bank as proof of his creditworthiness. An illustration of a credit risk assessment is shown in Figure 2.

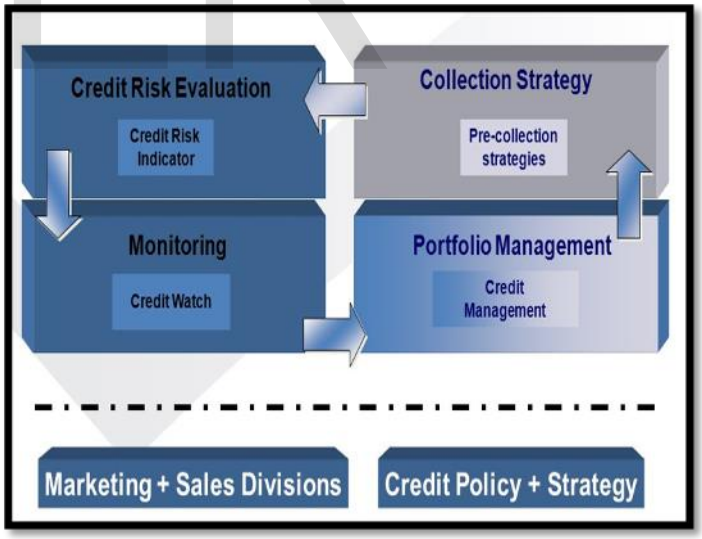

Figure (2): Credit Cycle Management
Source: Kotsaftis, L., (2010), The Credit Cycle, 1st Credit Risk Management Conference, ICAP Bulgaria DataBank, https://slideplayer.com › slide, 17

The purpose of measuring credit risk is to quantify possible potential losses from lending activities. The amount of losses can not be determined with certainty, but it needs to be estimated. There are two basic approaches to defining credit losses and quantifying credit risk (Spuchľáková, Valaškováb, Adamkoc, 2015): (1) Absolute credit risk methods - approach

known as default mode. (2) Credit risk measurement through discrete models.

According to the Credit limit Meaning in the Cambridge English Dictionary (2018) the credit limit is the maximum amount that can be obtained by a certain loan applicant. Credit limits are set by banks based on information they have from loan applicants. When determining the credit limit, banks take into account the credit rating of the borrower, personal income, loan repayment history and other factors.

3 Methodology

The analysis of the credit risk management of the banks in the Republic of Northern Macedonia uses the data from the reports of the National Bank on the risks in the banking system of the Republic of Macedonia, from the annual reports of the banks in the Republic of Macedonia and from other sources. This paper presents data on the volume, dynamics and structure of non-performing loans by sectors, as well as the volume and trend of loans from regular to non-performing status.

The research in this study is performed using qualitative research methods and techniques. The paper uses: (1) Comparative method in order to compare the credit risk exposure of banks in the Republic of Macedonia, (2), In parallel with the comparative method, the statistical and analytical research method are applied, (3) Finally, with with the help of the synthesis method, a complete overview of the analyzed issues is given, (4) In the function of the analysis, information and data from domestic and foreign literature, scientific papers, statistical publications of the National Bank, annual reports and interviews with the management services are used. with risks.

The information on the analysis of the credit exposure of the banks in the Republic of Northern Macedonia conducted in this paper is extracted from the database of the National Bank of Northern Macedonia which refers to the data and indicators for the banking system of the Republic of Macedonia. (https://www.nbrm.mk, 2021). The sample includes data on loan beneficiaries expressed as (1) Non-financial corporations and other clients, (2) Financial institutions and government, (3) Individuals, and (4) Sole proprietors. (1) Households and (2) enterprises are processed as a separate sample for using loans from banks. Both samples of the research process data for the period from 2011 to 2021.

This study uses quantitative analysis to assess the credit exposure practices of banks in the Republic of Northern Macedonia. In this perspective, the dynamics of the credit exposure of banks is calculated and analyzed, ie the growth rates in the specified period, the structure of the credit exposure of banks, as well as credit exposure by individual borrowers such as households and enterprises.

Growth rates refer to the percentage change in the credit exposure of banks in a certain period of time and represent the complex annual growth rate of loans granted by beneficiary banks. According to Chen (2021 Growth rates are used to (1) express the annual change in percentage, (2) to estimate bank performance and to forecast future performance, (3) are calculated by dividing the difference between final and initial (4) The compound annual growth rate (CAGR) is a variation of the growth rate often used to assess the performance of banks' credit exposure.

The structure of credit exposure is expressed as a percentage share of individual borrowers in the total amount of loans provided by banks to borrowers.

4 Research Results

The lending activities of the banks in the Republic of Northern Macedonia are aimed at lending to: (1) Non-financial companies and other clients (organizations from separate economic and non-commercial activities), (2) Lending to financial institutions and the state, (3) Lending to physical persons and (4), lending to sole proprietors (in the field of agriculture, trade and other activities). The lending activity of the banks in the Republic of Macedonia is constantly growing.

In the period from 2011 to 2021, the banks had the following credit exposure:

Borrowers	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-financial companies and others	150,5	161,9	166,7	182,7	198,5	194,1	200,9	207,5	216,5	225,5	236,5
Financial institutions	96,5	107,2	113,9	122,1	127,6	131,9	126,2	132,3	168,9	199,9	192,3
Individuals	87,9	93,8	103,9	116,5	131,4	141,9	155,0	170,0	187,7	201,7	216,8
TOTAL	**339,1**	**365,6**	**387,0**	**423,6**	**457,0**	**470,0**	**484,2**	**511,6**	**574,1**	**628,4**	**646,9**

Table (1): Credit exposure of banks in the Republic of Macedonia in the period from 2011 to 2021 (in billions of denars)
Source: National Bank of the Republic of Macedonia, Data and indicators for the banking system of the Republic of Macedonia, Annexes for the years from 2011 to 2021

In the period from 2011 to 2021, the total credit exposure, ie the loans approved by the banks in the Republic of Macedonia increased by 57.5%, being an average annual increase of 5.8%. Within that framework, the highest growth rate was registered at the banks' credit exposure to individuals, amounting to 146.6% or 13.3% on average on annual basis. The increase of

the credit exposure to the financial institutions and the state is 99.2% or 9.0% on average annually, with the non-financial companies and other clients the increase of the credit exposure is 57.1% or 5.2% on average annually, while with the traders individuals decreased by 56.7% or 5.1% on average annually.

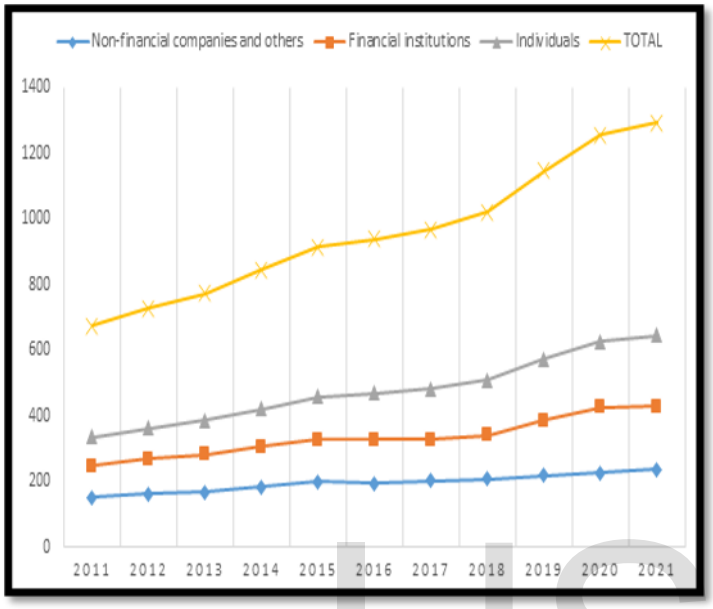

Chart (1): Credit exposure of banks in the Republic of Macedonia in the period from 2011 to 2021

Continuous growth of the credit exposure of the banks in the Republic of Macedonia in all monitored years is registered with the natural persons. The credit indebtedness of non-financial companies and other clients decreased in 2016, while that of financial institutions and the state decreased in 2017. From 2017 to 2021, there is a constant growth of all loan users.

Borrowers	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-financial companies and others	6,6	7,6	2,9	9,6	8,6	-2,2	3,5	3,2	4,3	8,6	4,9
Financial institutions	9,3	11,0	6,3	7,2	4,5	3,3	-4,3	5,6	27.7	18.3	-3,8
Individuals	5,6	6,6	10,7	12,0	12,9	8,0	9,2	9,7	10,4	7,5	7,5
TOTAL	**6,9**	**8,1**	**6,8**	**9,4**	**13,4**	**2,1**	**3,1**	**5,7**	**12,2**	**9,5**	**2,4**

Table (2): Growth rates of credit exposure of banks in the Republic of Macedonia in certain sectors in the period 2011-until 2021 (in%)

Source: National Bank of the Republic of Macedonia, Data and indicators for the banking system of the Republic of Macedonia, Annexes for the years from 2011 to 2021

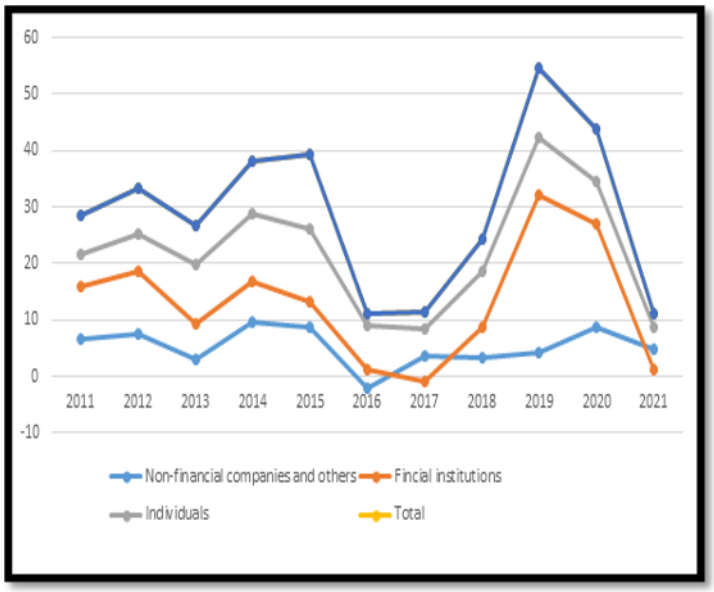

Chart (2): Movement of credit exposure growth rates of banks in the Republic of Macedonia in the period 2011 to 2021 (in%)

The movements of the credit exposure of the banks in the Republic of Macedonia in the analyzed period were largely conditioned by the change in the existing regulation adopted by the National Bank of the Republic of Macedonia, according to which the banks were obliged to "clear" the loan portfolios from the so-called non-performing loans and they were realized with different rates of growth or decline in the individual years.

The movements in the credit exposure of individual borrowers, in the period from 2011 to 2021, led to changes in the structure of borrowers, so that the share of nonfinancial companies decreased from 44.5% in 2011 to 36, 6% in 2021. An increase was registered at the financial institutions, which increased from 28.8% in 2011 to 20.8% in 2021. The share of individuals increased from 26.3% in 2011 to 33.6% in 2021.

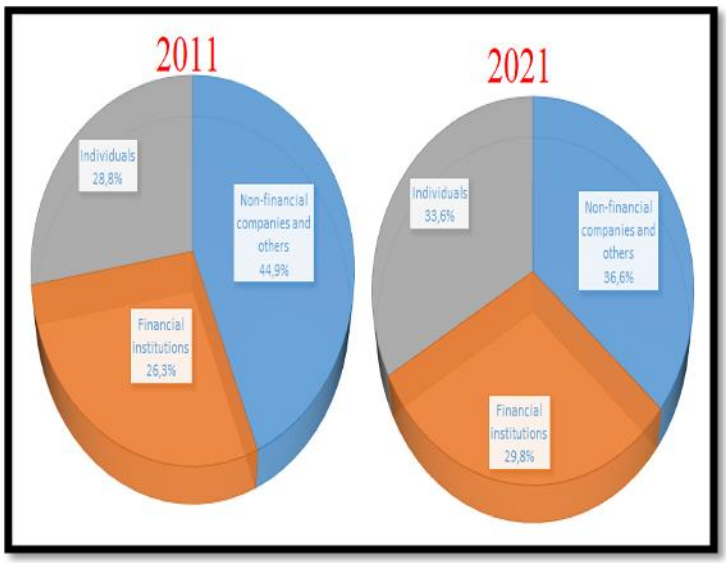

Chart (3): Credit exposure structure of banks in the Republic of Macedonia by loan beneficiaries in 2011 and 2021

The credit exposure of banks, households and enterprises is shown according to the data given in Table 3 is as follows:

Borrowers	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Households	87,9	96,4	106,4	118,8	133,5	143,7	157,1	170,0	187,6	201,7	188,5
Enterprises	150,5	161,9	166,7	118,6	133,5	143,7	157,1	207,5	216,5	201,7	236,5
TOTAL	**238,4**	**258,4**	**273,1**	**302,5**	**332,0**	**337,8**	**358,0**	**377,5**	**404,0**	**427,1**	**425,0**

Table (3): Credit exposure of banks to households and enterprises in the period from 2011 to 2021 (in millions of denars)
Source: National Bank of the Republic of Macedonia, Data and indicators for the banking system of the Republic of Macedonia, Annexes for the years from 2011 to 2021

From the data from Table 3 it can be seen that in the period from 2012 to 2021, household loans grew by 114.4% or 19.4% on average per year, and loans to enterprises grew at a rate of 57.1% or 5.2% on average per year. The growth of banks' credit exposure to households and enterprises is continuous with different dynamics, with the dynamics of growth of loans to households being faster by approximately four times. The growth would have been even greater if the banks had not shown great caution in lending to corporate sector entities, which is always explained by the banks with insufficient quality projects that companies offer for obtaining loans by banks.

This growth dynamics of lending to households and enterprises has led to changes in the structure of banks' credit exposure, with a significant increase in household loans from 36.9% in 2011 to 44.4% in 2021. (Chart 4)

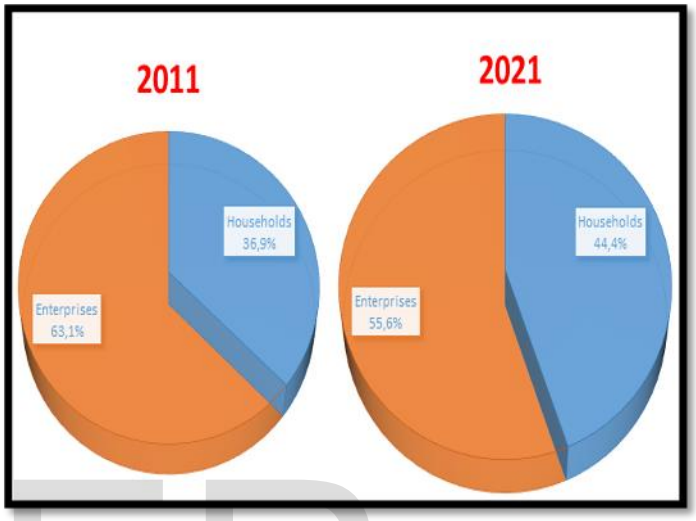

Chart (4): Credit exposure structure of banks in the Republic of Macedonia to households and enterprises in 2011 and 2021

5 Discussion

The purpose of risk management is to minimize potential losses that may arise from banking activities. To protect itself from possible losses, the bank establishes a risk management strategy and processes, which correspond to the nature, size and complexity of the financial activities it performs. The credit risk management process begins with identifying the risk. Credit risk identification is of great importance in the whole process of credit risk management because it enables timely taking of corrective measures in order to eliminate existing or potential risks, usually by changing credit policies and procedures.

Banks' capacities for absorption of losses from non-performing loans are reflected, above all, in the size of the allocated impairment and the allocated special reserves to cover possible losses from their operations. According to the data presented in the balance sheets of banks, the amount of impairment and special reserves of banks is high, which shows a significant limitation of the negative effects of possible non-collection of non-performing loans. This indicates a satisfactory capacity of the banking system to absorb the expected credit losses and at the same time mitigates the level of the undertaken credit risk.

Pointer	Date	Total household exposure	Total exposure to companies and other clients
Coverage of non-performing loans with the total calculated impairment and special reserve	**31.12.2011**	100,2%	113,6%
	31.12.2020	123,0%	116,0%
Coverage of non-performing loans with calculated impairment and special reserve for non-performing loans	**31.12.2011**	59,7%	78,0%
	31.12.2020	73,2%	77,9%

Table (4): Coverage of non-performing loans with calculated impairment and special reserve with banks in the Republic of Macedonia in the period from 2011 to 2020

Source : National Bank of Republic of Macedonia, Raport за ризиците во банкарскиот систем на Република Македонија од 2012 до 2020 година, Анекси

In addition to the adequate coverage of regular loans with separate impairment, it should be noted the high share of loans for which certain collateral is established (86.1% of total regular loans to nonfinancial entities), which "mitigates" the level of credit risk taken from banks and can also serve as a potential (secondary) source of collection. Banks 'securities lending policies provide greater credit security, but on the other hand, can be a limiting factor in expanding banks' lending activity and make it more difficult for customers to access the necessary sources of financing.

6 Conclusion

Credit risk occurs wherever there is a debt-credit relationship between a bank and its customers. Credit risk is manifested in three dimensions: default risk, exposure risk and loan repayment risk. Its timely identification, measurement, control, monitoring and reduction is the basis for successful operation. of the bank. Failure to fulfill the obligations of the borrower within the agreed deadlines with the bank, brings the bank in a position to have negative effects on its financial result and its capital. Credit risk causes consequences for the bank which are expressed as loss of reserves, capital, insolvency, even bankruptcy

Banks in the process of credit risk management face problems related to insufficient monitoring of economic, legal, political and other circumstances that can lead to lower credit rating of banks, inadequate risk determination and excessive growth of lending activity. Banks implement various practices to reduce credit risk. Limits are usually introduced, appropriate financial instruments are secured and the loan portfolio is diversified.

Credit risk management in banks means taking measures and activities to identify existing or potential credit risks to which the bank is exposed, implementing strategies and prudently designed credit policies, developing and implementing effective lending procedures and monitoring credit collection processes. .

In the banks in the Republic of Macedonia, a process of continuous risk management is realized through identification, measurement and evaluation, control and monitoring of the same, in order to eliminate or minimize their impact on the bank's operations. Risk management, and to that extent credit credit, is based on the risk management strategy and established risk management policies of the banks, respecting the credit risk exposure limits in accordance with the legislation and the internal risk exposure limits.

References

[1] Basel Committee on Banking Supervision: Principles for the Management of Credit Risk, Basel, Basel, 2000 година;
[2] Bessis J., Risk Management in Banking, Risk Management in Banking, 4th Edition , John Wiley & Sons, 2015 година;
[3] Brock, T., (2021), Credit Risk Definition - Investopediahttps://www.investopedia.com ›, 1
[4] Chen, J., (2021), Growth Rates Definition - Investopedia, https://www.investopedia.com ›, 1
[5] Credit risk definition - AccountingTools, (2021), https://www.accountingtools.com ›, 1
[6] Credit Limit | meaning in the Cambridge English Dictionary, https://dictionary.cambridge.org › dictionary › credit-limit
[7] Kotsaftis, L., (2010), The Credit Cycle, 1st Credit Risk Management Conference, ICAP Bulgaria DataBank, https://slideplayer.com › slide, 5
[8] Народна банка на Република Македонија - Одлуката за управување со кредитниот ризик, „Службен весник на Република Македоинија“ бр. 50/2013, (https://www.nbrm.mk,2021)
[9] Народна банка на Република Македонија, Податоци и показатели за банкарскиот систем на Република Македонија, Анекси за годините од 2012 до 2021 година, (https://www.nbrm.mk, 2021)
[10] Spuchľáková E., Valašková K, Adamko A, (2015), „The Credit Risk and its Measurement“, Hedging and Monitoring, International Conference on Applied Economics, ICOAE 2015, 2-4 Kazan, Russia