European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.10, No.12, 2018

The Impact of Macroeconomic Factors on the Yield of Loan Portfolio of Microfinance Institutions in Macedonia

Vjolca Hasani Limani, Ph.D. candidate
Faculty of Economics, University of Tetova, Macedonia
Address: University of Tetova (Rectorate), Str. Ilindenska n.n. 1200 Tetovo, Macedonia

This research study has not received any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. There is no conflict of interest to declare.

Abstract
The profitability of financial institutions, especially those who lend to small and medium enterprises, is studied by many authors, attempting to find and analyze the factors that affect the portfolio of financial institutions. This research paper analyzes the impact of different macroeconomic factors on the profitability of microfinance institutions in Macedonia. Relying on some economic practices and theory, we have set our hypothesis, which says that inflation rates, GDP, interest rates and credits, show their significant effects and are positively correlated with the bank portfolio (microfinance institutions, MFI-s). The results are derived through multiple regressions using the OLS method, based on the official data collected by some institutions, such as the Central Bank of Macedonia, the World Bank, domestic commercial banks and private saving houses.Our objective is to find which model will display the most accurate result; thus we analyze three econometric models: the linear model, the exponential model without restriction and the exponential model with restriction (partial ratio transformation). All results confirm the null hypothesis about the important and positive impact of macroeconomic indicators, through regression analysis, while the F test proves that the exponential model with restriction of GDP (ratio transformation) shows the most exact result for this study. Part of this research paper is the matrix which shows a positive correlation of variables considered on the model. Our results are compared with other studies from different countries and authors, confirming the null hypothesis about Macedonia. We can confirm that our results about Macedonia do not differ much from the results of countries at the same stage of economic development. We can see a significant relation between these variables, but the impact is not large enough and this effect is based on bank policies that avoid macroeconomic risks; therefore, in case of facing with inflation, banks respond by increasing the effective interest rate.
Keywords: Microfinance; yield portfolio; microfinance institutions; macroeconomic factors; Macedonia.
JEL Classifications: F62; F65; G10; G20; G21.

1. Introduction

While studying economic theories and economic practices from various countries we were able to make our assumptions, about various macro and micro economic factors that create interdependence between them. It is a fact that every change of a factor or more factors, could affect the other indicators of an economy. So is the case of interdependence between the macroeconomic indicators and profitability of banks.

The main objective of this research paper is to study how the yield of gross loan portfolio of microfinance institutions depends on the changes of macroeconomic factors, knowing that these factors are not under the control of banking and microfinance institution's management. Thus, we aim to analyze the impact of macroeconomic indicators on the profitability of banks, observed under the prism of microfinance institutions.

Based on the above-mentioned assumptions, we can assume the null hypothesis, which says that macroeconomic indicators have a significant positive impact on the yield of loan portfolio of microfinance institutions.

In the meanwhile, we consulted other authors who have studied this issue in other countries of the region and the world. Then, we analyzed the implementation of microfinance in Macedonia and the impact of the macroeconomic factors in the bank's portfolio, as microfinance institutions in the country.

In the end, we analyze the hypothesis through econometric models and explain the results by comparing it with the results in other countries.

1.1. Literature review

In the last decade, the banking sector has experienced some significant transformations. Internal and external factors have affected the finance sector and the performance of banks a lot. However, the bank remained the most important source of financing of economic activities in general, but also in some different market segments. Furthermore, the profitability of the banking sector contributes to the stability of the financial market. The study of bank performance indicators has encouraged academic researchers, has increased the interest of bank management, as well as financial markets and regulatory interests (Athanasoglou, Brissimis & Delis, 2008).

External factors that affect the bank’s performance usually are beyond the control of financial institutions or

banks, because of the statewide character of the factors (Ongore & Kusa, 2013). According to Karkrah and Ameyaw (2010), macroeconomic variables comprise the bulk of external indicators of the profit of a bank on most of the conducted studies. (Haron S., 2004), has concluded that, the most common external factors that were identified, among others, include competition, market, size, inflation, GDP growth and interest rate. On the other hand, (Shefeeni, 2015) also says that macroeconomic environment should be taken into consideration because it plays a critical role for the overall finance sector and the banking sector.

(Athanasoglou, Delis & Staikouras, 2006), have analyzed the effects of several determinants on banks profitability in Southeast Europe, over the period of 1998 – 2002. The study reveals a significant effect of inflation on profitability, meanwhile bank's profitability were not affected by real GDP per capita.

In her study about the impact of macro factors on microfinance institutions, (Vanroose A, 2008) concludes that inflation can enhance the microfinance market, but the nature of microfinance institutions is risk-averse, which creates a negative impact on the yield loan portfolio.

According to a study on the performance of Islamic banks, macroeconomic indicators such as inflation and GDP, clearly affect the performance of banking sector. The more favorable the macroeconomic environment is, the more indicates the ability to stimulate profitability. Inflation and GDP have a significant positive correlation with the profitability of Islamic banks (Ghazali, 2008). (Azeez & Gamage, 2013), have analyzed the role and impact of bank specifics, industry specifics and macroeconomic factors, on net interest margin of Sri Lankan commercial banks, over a period of 1999 – 2011. They came up with a result, which signifies that inflation has a positive impact on profitability, and GDP growth has a negative impact on the profitability of commercial banks.

On her study about performance of microfinance institutions in Central and Eastern Europe (Hartarska V, 2005) measures GDP and inflation, suggesting that economic and specific institutional factors should be taken into consideration, when we evaluate the performance of microfinance institutions, because size of the economy impacts positively while inflation has negative impact.

(Ahlin, Lin & Maio, 2011), predicted a linear regression by four key macroeconomic variables. They found some strong macroeconomic indicators that predict the MFI performance. When economic growth is higher, they can cover costs better, given that a macroeconomic growth can lead to MFI growth, in the meanwhile an unanticipated inflation lowers real rates of return for an MFI.

When we study the impact of interest rates on the profitability of bank's portfolio, we must be aware about the case of microfinance institutions lending to SMEs, because must be taken into consideration the added risk faced by banks as a result of the size of these enterprises. This is also supported by two researchers, (Ayay & Sene, 2010). According to them, profitability of high-risk portfolio will limit the income generated from microcredit operations, therefore will reduce the amount of loanable funds. This will lead to credit rationing and eventually disable the quality services to these clients, thus will generate a negative impact on financial results and financial sustainability of microfinance institutions.

(Borio, Gambacorta & Hofmann, 2015), have concluded that higher interest rate can contribute on boosting the bank profitability. The correlation between the level of interest rates and the steepness of the yield curve and ROA is positive.

According to the study of (Doçi E., 2017), about the role and impact of macroeconomic indicators on microfinance institutions conducted in Albania, it is confirmed that macroeconomic factors have different effects on the portfolio of microfinance institutions. It has been confirmed a positive correlation between GDP and bank profitability, meanwhile a negative impact on the bank's portfolio have shown inflation and real interest rates.

With an aim to give our contribution on these discussions about profitability of the banking portfolio, we will analyze which of the macroeconomic factors are risking the profitability of the microfinance institutions in Macedonia, and their effect on the level of lending groups with greater potential risk, such as small and medium enterprises. Our results are compared with several studies from other countries in order to verify the obtained results from this paper.

1.2. Microfinance and microfinance institutions in Macedonia

Microfinance institutions are banking institutions that offer small-amount loans, mainly to small and medium enterprises (SMEs) and families, without any collateral or in some cases, symbolical collateral is included. The business environment in Macedonia is undeveloped because the country is among the developing countries that are still in a stage of transition, including the economic aspect.

Microfinance in the Republic of Macedonia is not regulated by law; however microfinance lending, micro-credit for SMEs and microfinance institutions are regulated under the Law for banks and banking system of the state. Commercial Banks in most cases play the role of microfinance institutions since the vast majority of them have established special credit lines for small and medium-sized enterprises (SMEs). According to the Statistical Office of Macedonia, SMEs have about 99% of the total number of active enterprises and absorb about 68% of the total working force of Macedonia.

Over the past years, there have been some efforts to apply the microfinance system in the country, to facilitate

the access to finance for small businesses and the poor, but we are witnesses to the fact that these efforts have not been successful, or have not been implemented properly. Therefore, taking into consideration these facts, we assume that microfinance and microfinance institutions are not sufficiently developed in the country.

Enterprises in Macedonia usually finance their business activities and/or investments, with their own capital, some of them are trying to find funds by borrowing from friends and family and sometimes through loans from financial institutions.

Some lending terms and conditions are different from bank to bank, depending on their lending policies, but typical conditions for SME lending in Macedonian Banks are as follows warranty, mortgage (accepted mostly in Skopje), equipment, personal guarantee (accepted only by some banks for loans under €5,000), interest rates (10% - 18%) higher for micro loans and cheaper for large amounts) and the credit processing time varies from 3 to 15 days (recently declining).

According to the Central Bank of the Republic of Macedonia, at the end of 2012 in Macedonia were operating 17 commercial banks, of which four banks are categorized as large banks, eight are in the group of medium-sized banks and five small banks, also there are four saving houses registered as microfinance institutions. The banks categorization is made based on the amount of main assets. This extensive banking network increases competition and brings financial services closer to enterprises (Hasani, Veseli & Veseli, 2016).

A study conducted by (Hadzimustafa & Cipusheva, 2012) about microfinance in Macedonia, resulted with a low use of financial services by the poor and households. However, people, especially young people, find it important that some microfinance institutions can offer money for starting small businesses, for self-employment or entrepreneurship.

2. Methodology

The main purpose of this study is to test our assumptions about the behavior impact of some macroeconomic factors in the yield of loan portfolio of microfinance institutions. This research is based on theoretical macroeconomic facts and has been confirmed by several authors. Different authors have used different testing methods but when the article studies one country, the most frequently used models are multiple regression empirical models. Their studies, mentioned at the beginning of the article, have given some interesting results about this topic.

In our study, we use different econometric models, in order to verify our hypothesis and to extract the best model, which will give us a more exact result about the real situation of microfinance institutions in Macedonia.

We tested our multiple regression models through Ordinary Least Squares (OLS). For better results we have considered a period from 2005 to 2015 and we have used the software program STATA in order to test the mentioned models.

Based on theoretical framework, it is confirmed that these factors have a positive impact on increasing the bank's portfolio, so we have set the null hypothesis as follows:

H0: Macroeconomic indicators have a significant positive impact on the yield of loan portfolio of microfinance institutions.

The whole procedure of hypothesis testing consists of a variety of models. Firstly, we use the linear multiple regression model to see the overall independence and significance of variables in the model. Then we use the exponential model that corrects the problems of first model and gives a more trustful result.

In the third and fourth model, we avoid multicollinearity of variables using models with ratio transformation and give a final and trustful result to confirm the hypothesis. The methodology includes t tests and the F-statistical test for overall significance of the model. We have included the correlation matrix which shows how the variables considered on the model are related to each other.

2.1. Data collection

The data were gathered mostly from institutional sources, reports, publications and banking statistics. The dataset about interest rates and GDP per capita are from the official reports of Central Bank of Macedonia (National Bank, 2017). The data about inflation and GDP were gathered from the World Bank database reports (World Bank, 2017). The data about loans and profitability of the portfolio were gathered from the annual reports of commercial banks and saving houses of Macedonia. Here are included saving houses, large banks, medium-sized and small banks. Knowing that the information about 'Credit activity' and profitability of the banks were not published by the Central Bank of Macedonia, we took the responsibility to analyze every annual report about "Credit activity" published by the banks of Macedonia, for a period of time 2005 – 2015. The collected information was then processed in Ms. Excel tables and functions, in order to get the necessary data for the study (Annual Reports from commercial banks and saving houses of Macedonia, period of time 2005-2015).

We want to emphasize that the data from the Commercial Bank of Macedonia (Commercial Bank of R.M.) are not included, due to the lack of public annual reports by the bank. For the same reasons (lack of data), there is not included a small amount data for credits granted by some small banks of the country.

2.2. Limitations of the study

This study is done based on authors work and dedication, in order to show the most accurate result, that will be useful for other researchers, students and other interested individuals or institutions. We have explained every step of our research, trying to give as much information as we can. It is worth to mention the problem we have faced with the dataset, on the part of credits that have been given to households and unemployed. In order to assemble the information, we had to look every annual report of microfinance institutions operating in Macedonia. We want to emphasize that the result may not show the real situation of banks portfolio, only because in the process of collecting information we may not have included some information about credits in particular small banks. Those banks are mentioned above in the section of data collection.

2.3. Explanation of variables

The dependent variable is named PoIM for Yield of Loan Portfolio of Institutions of Microfinance. Other indicators of this study are considered as independent variables as follows: GDP for Gross Domestic Product; IR for Real interest rate; In for Inflation rate; Cr for Credits granted to SME-s from microfinance institutions.

Empirical testing and result discussion

In order to analyze econometric models and to prove which model is the best in the study of the determining factors of yield of loan bank portfolios, we firstly analyzed the linear regression model as follows.

Linear econometric model:

$$PoIM = \beta_0 + \beta_1\ GDP + \beta_2\ IR + \beta_3\ In + \beta_4\ Cr + \mu \quad (1)$$

At the first sight, this model gives us some positive signs about our hypothesis, saying that macroeconomic indicators do have positive impact on the portfolio of microfinance institutions.

This model has small values of t statistics and high values of standard error. The *R*-squared value is 0.95, which implies a 'goodness of fit' of variables, namely the independent variables explain 95% of the dependent variable, which on this case is the portfolio of microfinance institutions. The *F* test value is 30.1, and is greater than the critical value, 4.5 on 95% confidence interval. Comparing the critical values of t statistics in the confidence interval 95%, which is 1.9, we can conclude that the values of *t* statistics are higher than the critical value, except for real interest rate. The *t* statistics value of the real interest rate signifies that the variable is not significant in this model, while theoretically it is a very important variable. In addition, the second problem we have noticed is the presence of multicollinearity of the variables, which is shown by the high value of *R*-squared and the negative correlation of the GDP. We see a negative correlation between the GDP and yield of bank portfolio.

Table 1. Hypothesis testing – linear econometric model

PoIM	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Kr	.135356	.057046	2.37	0.055	-.0042321	.2749441
GDP	-4486.478	2111.213	-2.13	0.078	-9652.431	679.4749
IR	14980.04	15050.02	1.00	0.358	-21846.02	51806.1
In	4335.984	1823.888	2.38	0.055	-126.91	8798.87

Source: Author calculations on STATA, based on datasets

The model confirms that these macroeconomic indicators taken into consideration, have a significant positive impact on portfolio of microfinance institutions in Macedonia, but the above mentioned problems compels us to use another model, in order to achieve the best result, with a minimum standard error.

We decided to use another econometric model and according to (Gujarati, 2004) the basic econometric exponential model is shown as follows:

$$Y_i = B_1 X_i^{B_2} e^{u_i}$$

In this case, we have adapted our model through logarithm in a log-log model, where the data are expressed as absolute values. Now the nonlinear model is adapted as a linear model in variables and parameters.

The multiple regression analysis has shown these results:

$$LnPoIM = \beta_0 + \beta_1\ GDP + \beta_2\ IR + \beta_3\ In + \beta_4 LnCr + \mu \quad (2)$$

$$LnPoIM = -7.0998 - 0.0144GDP + 0.1168\ IR + 0.0187In + 1.2152LnCr + \mu$$

The result proves that banks portfolio is affected by macroeconomic factors, which have been set as independent variables. This result corresponds to the results obtained from studies in different countries, conducted by multiple authors that were mentioned at the beginning. According to that, turns out that if there will not be any change to the indicators, the yield portfolio will decrease by 7%. We can notice here the positive correlation between bank's portfolios, credit, interest rate and inflation, while a negative correlation with the GDP rate. An increase of the interest rate by 1% will affect the growth of the yield portfolio 0.11% on average values, while credit growth by 1% will affect the growth of the yield portfolio 1.21% on average value. Rising inflation by 1% increases the portfolio yield by 0.01%. This means, in a case of facing with inflation, banks respond by increasing the effective interest rate, thus they compensate the potential loss charging their clients.

A 1% growth of GDP, will affect the reduction of banks portfolio yield by 0.01%. This means that banks in

Macedonia do not relate their profitability with economic development of the country. In addition, they are not affected by cyclical changes of economy. This negative correlation to GDP may not appear normal at the first glance, but it is not the only case, same result was also observed in several other countries. This corresponds to the study conducted by (Athanasoglou, Delis & Staikouras, 2006), stating that inflation has had a strong effect on profitability, but the opposite has happened with GDP. Even (Azeez & Gamage, 2013) discussed the impact of specific macro-economic variables in the profitability of banks in Sri Lanka, but it resulted that inflation has shown a positive impact on profitability, while a growth of GDP has given negative impact.

In addition, this result coincides with the results obtained in a study conducted in Brazil, which shows a significant impact of economic indicators such as inflation, interest, loan activities and economic activity in the bank's yield portfolio (Rover, Favero & Tommazia, 2013).

Table 2. Hypothesis testing – Exponential model

LnPoIM	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
LnKr	1.215203	.1658179	7.33	0.00	.8094617	.620945
GDP	-.0144595	.0091688	-1.58	0.166	-.0368948	.0079758
IR	.1168094	.0395267	2.96	0.025	.0200911	.2135277
In	.0187547	.0068897	2.72	0.035	.0018963	.0356131
_cons	-7.099851	3.380354	-2.10	0.080	-15.37128	1.171578

Source: Author calculations on STATA, based on datasets

In order to verify the 'goodness of fit' of the data we observe the value of *R*-squared, which shows a data fitting by 98%. It means that the indicators known as independent variables explain 98% of the dependent variable, while a low standard error indicates a high precision. According to $F = 111.23$, *t* statistic values and values from the statistical table, we can say that their values are higher than the corresponding critical values and may conclude that our hypothesis is acceptable.

In the above-analyzed models, we can see that GDP has a negative value therefore it means that we have negative correlation with the yield of portfolio of microfinance institutions in Macedonia. Even the t statistics value of GDP, show us that GDP is irrelevant or not significant in the model, although it is theoretically predicted to have a great significance. This phenomenon is also observed in other studies that were related to various countries mentioned above.

To find out the cause of multicollinearity we assume it is possible that GDP has positive relation with one of the independent variables of the model. Regression between GDP and other independent variables, demonstrated us an interdependent relation of GDP and inflation rate, so below we will build two exponential models. In the first exponential model we will remove the independent variable (inflation) and will check over the reaction of other variables in the econometric model.

Econometric model restricted on inflation rate:

$$LnPoIM/In = \beta_0 + \beta_1\ GDP/In + \beta_2\ IR/In + \beta_3\ LnCr/In + \mu \quad (3.1)$$

$$LnPoIM/In = -0.4149 + 0.0812\,GDP/In + 0.1347\ IR/In + 0.8604\ LnCr/In + \mu$$

The *R*-squared of this model is 0.99 and *F* test is 638, the result shows a positive correlation between independent variables such as credit and interest rates, with the bank's portfolio, keeping a constant inflation, but this is not the case with GDP. We assume that the reason for this situation is a relation and interdependence between these two indicators. Theoretically, an increase of the GDP also has an impact on the increase of inflation rate; therefore, inflation appears dependent on GDP. Thus, a relationship between variables gives us a mixed effect on the portfolio of microfinance institutions; therefore, the GDP/inflation rate, in this case is negative.

Table 3.1. The exponential model restricted on inflation rate (ratio transformation)

LnPoIn	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
LnCrIn	.8604155	.0342236	25.14	0.000	.7515007	.9693303
IRIn	.1347212	.0691923	1.95	0.147	-.0854796	.354922
GDPIn	-.0812116	.0630987	-1.29	0.288	-.28202	.1195967
cons	-.4149435	.3897479	-1.06	0.365	-1.655295	.8254083

Source: Author calculations on STATA, based on datasets

The *t* statistic values of interest rates and GDP, makes the variables look like irrelevant variables, thus we decide to give up on this model and test the model with restriction on GDP.

The presence of multicollinearity in models with restriction is proved by the huge value of *R*-squared and the negative GDP; therefore, we consider it necessary to improve the model by a restriction of the independent variable (GDP).

Therefore, we will analyze this issue below, applying the exponential model with restriction. In this model will be analyzed the effects of macroeconomic indicators, by removing or keeping constant the independent variable, GDP.

The result obtained from the hypothesis testing of the model is as follows:

$$LnPoIM/GDP = \beta_0 + \beta_1\ In/GDP + \beta_2\ IR/GDP + \beta_3\ LnCr/GDP + \mu \quad (3.2)$$
$$LnPoIM/GDP = -0.4881 + 0.1476\ In/GDP + 0.1313\ IR/GDP + 0.8548\ LnCr/GDP + \mu$$

This result also confirms the impact of macroeconomic indicators in the yield portfolio of microfinance institutions. In this case, we can conclude, if there is a 1% increase in real interest rate, it will affect the increase of the yield of portfolio by 13% on average, when GDP is constant. An increase of inflation rate will also affect the portfolio yield by 14%, while an increase in credits would affect 85% of the portfolio yield. In this model we have a *P-value* closer to zero, the *R*-squared value is 0.998 or 99.8%, indicating that the independent variables explain 99% of the dependent variable, while standard error is zero. The value of *t* statistics and *F* test (*F* = 673), are higher than their critical values, it confirms that the analyzed variables are important and the model is significant. In this case, we say that the multicollinearity effect is avoided and the null hypothesis is accepted.

Table 3.2. The exponential model restricted on GDP (ratio transformation)

lnPoGDP	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lnCrGDP	.8548579	.0241143	35.45	0.000	.7928701	.9168457
IRGDP	.1313872	.0629391	2.09	0.091	-.0304029	.2931772
INGDP	.1476157	.0329661	4.48	0.007	.0628735	.2323579
_cons	-.488108	.2840481	-1.72	0.146	-1.218277	.242061

Source: Author calculations on STATA, based on datasets

After collecting the results from analysis of several models, in order to find the best model, our objective to prove the null hypothesis is actually achieved. To choose which of the two latest models is the best for this study, and to decide whether GDP will be used in the model, below we will estimate the total significance of the model through *F* test formula.

In this case, we have derived these data from the empirical results of the models, to estimate the *F* test: RSS_{ur} = 0.13376 (the unrestricted model); RSS_r = 0.00764 (the restricted model); number of restrictions m = 1; number of observations n = 7; number of parameters k = 4.

$$F = \frac{(RSSr - RSSur)/m}{RSSur/(n-k)}$$

$$F = \frac{(0.00764 - 0.13376)/1}{0.13376/(7-4)} = -2.829$$

The *F* test value is 2,829 but the critical value of $F_{0.05}$ = 9.28 and $F_{0.10}$ = 5.39, we can conclude that GDP variable should be removed from the model. Thus, the best model in this case is the ratio model with restriction of GDP.

In the table below, we have presented the correlation matrix between variables, with an aim to confirm, that macroeconomic indicators in our research have a significant impact on portfolios of microfinance institutions.

Table 4. Correlation matrix among variables

	LnPGDP	LnCrGDP	LnIrGDP	LnInGDP
LnPGDP	1.0000			
LnCrGDP	0.9883	1.0000		
LnIrGDP	0.5626	0.4800	1.0000	
LnInGDP	0.0284	-0.1074	0.3188	1.0000

Source: Author calculations on STATA, based on datasets

4. Discussion and conclusion

This research study was conducted with the intention to analyze the impact of macroeconomic indicators in the yield of loan portfolio or profitability of banks. We have considered financial institutions (banks) that have included microfinance loans in their credit activity and as such, they are considered as microfinance institutions in Macedonia. This is because microfinance in Macedonia is not regulated by special laws, while microfinance and microfinance institutions operate under the Law of banks and banking activities.

From the conducted researches, we conclude that there is a lack of development of microfinance in the country, as well as relatively low use of mechanisms of microfinance for small and medium enterprises.

We have used different econometric models, in order to achieve a more accurate research. All the models have proven our hypothesis, but we wanted to show which model gives results that are more trustful. We have proved that the best model for this study is the ratio model with restriction of GDP, because it avoids the multicollinearity of GDP with inflation. According to the results that we have reached, it is confirmed that macroeconomic indicators, have significant positive impact on the portfolio of microfinance institutions. We conclude that the results obtained in Macedonia do not differ much from the results of countries at the same stage of economic development.

We can see a significant relation between these variables, but the impact is not large enough. For example, an increase in real interest rate will affect the increase of the yield of loan portfolio by 13% but an increase of

inflation rate will also affect the loan portfolio yield by 14%. We conclude that this effect is based on bank policies that avoid macroeconomic risks; therefore, in case of facing with inflation, banks respond by increasing the effective interest rate, compensating in this way the potential loss charging their clients and in the meantime, the yield of loan portfolio remains safe. We have also concluded that microfinance institutions in Macedonia do not relate their profitability only with the economic development of the country; in addition, they are not affected by cyclical changes of economy. Credits remained the most effective factor, as we can conclude that an increase in credits would affect 85% of the loan portfolio yield of microfinance institutions.

References

1. Ahlin, Lin & Maio, 2011. Where Does Microfinance Flourish? Microfinance Institution Performance in Macroeconomic Context. *Journal of Development Economics,* 95(2), pp. 105-120.
2. Athanasoglou, Brissimis & Delis, 2008. Bank specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money,* 18(2), pp. 121-136.
3. Athanasoglou, Delis & Staikouras, 2006. *"Determinants of Banking Profitability in the South Eastern European Region",* Athens: Bank of Greece,Working Paper 06/47.
4. Ayay & Sene, 2010. "What drives Microfinance Institution's Financial Sustainability". *Journal of Developing Areas,* 44(1), pp. 316:203-324.
5. Azeez & Gamage, 2013. The Determinants of Net Interest Margins of Commercial Banks in Sri Lanka. *Vidyadaskar University Journal of Commerce,* Volume 18, pp. 1-16.
6. Borio, Gambacorta & Hofmann, 2015. *The Influence of Monetary Policy on Bank Profitability,* s.l.: Bank for International Settlments, Working paper No. 514.
7. Doçi E., 2017. "Microfinance the Role and Impact on Macroeconomic Indicators of the Country. Case study:Albania". *Mediterranean Journal of Social Sciences,* 8(1), pp. 161-168.
8. Ghazali, 2008. *The Bank-specific and Macroeconomic Determinants of Islamic Bank Profitability: Some International Evidence".* Malaya: Faculty of Business and Accountancy, University of Malaya.
9. Gujarati, 2004. *"Basic Econometrics, Fourth Edition".* 4 ed. s.l.:The Mc Graw-Hill Companies.
10. Hadzimustafa & Cipusheva, 2012. Microfinance as a Poverty Reduction Tool. *CEA Journal of Economics,* 7(2), pp. 37-52.
11. Haron S., 2004. Determinants of Islamic Bank Profitability. *Global Journal of FInance and Economics,* March, 1(1), pp. 1-22.
12. Hartarska V, 2005. Governance and Performance of Microfinance Institutions in Central and Easter Europe and the Newly Independent States. *World Development,* 33(10), pp. 1627-1643.
13. Hasani, Veseli & Veseli, 2016. *"Financing of Small and Medium Enterprises".* Bodrum, ISRES Publishing, pp. 917: 914-920.
14. National Bank, R. o. M., 2017. *"Basic Economic Indicators of Republic of Macedonia".* [Online] Available at: http://www.nbrm.mk/osnovni_ekonomski_pokazateli.nspx [Accessed 12 March 2017].
15. Ongore & Kusa, 2013. "Determinants of Financial Performance of Commercial Banks in Kenya". *International Journal of Economics and Financial Issues,* 3(1), pp. pp. 237-252.
16. Rover, Favero & Tommazia, 2013. "Financial and Macroeconomic Determinants of Profitability: Empirical Evidence from the Brazilian Banking Sector". *Advances in Scientific and Applied Accounting,* 6(2), pp. 171:156-177.
17. Shefeeni, 2015. "The Macroeconomic Determinants of Profitability among Commercial Banks in Namibia". *Journal of Emerging Issues in Economics, Fiance and Banking,* 4(1), pp. 1416:1414-1431.
18. Vanroose A, 2008. What Macro Factors Make Microfinance Institutions Reach Out?. *Savings and Development,* 32(3), pp. 153-174.
19. World Bank, D. B., 2017. *"World Developmnet Indicators".* [Online] Available at: http://databank.worldbank.org [Accessed 1 March 2017].