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Loan portfolio of banks and economic growth

Gonxhe Osmani[1], Etem Iseni[1]

[1*]Department of Finance, Faculty of Economics, University of Tetova, RNM
[*]Contact e-mail: gonxhe.osmani@unite.edu.mk

Abstract

Economic growth is the main element which helps to improve the stability of an economy and the standard of living in a country. There are many factors that have impact on economic growth which can be divided into factors that impact aggregate demand and factors that affect aggregate supply. Factors that affect economic growth can be mentioned as above: exchange rate, interest rate, real wages, banking system, investments, technological development etc.

This study is focused on the analysis of banking system as main participant in the financial system of the Republic of North Macedonia where around 90% of financial system is consisted by banks. The main objective of the paper is to describe, compare, analyze and measure the impact of the loan portfolio of banking sector in Macedonia in economic growth. To make the model we are based on quarterly data which are taken for the period from the last quarter of 2004 to the second quarter of 2018.

For data processing we use econometric model, concretely the simple linear regression model where obtained results help us to come to conclusion that the growth on the loan portfolio of banks has positive impact on economic growth. But we also need to highlight that the positive relationship between these two variables isn't so strong, where we can say that loan portfolio isn't the main factor that has the higher impact on economic growth.

Keywords: Loan portfolio, economic growth, banking system, linear regression

1. Introduction

Banks are the main component of the financial system of the Republic of North Macedonia. Banks offer different types of services but loans are the most important function of the activity of a bank. Growth on the level of loans has an impact on lower interest rates, high investments, and higher aggregate demand and as a result of this growth on GDP. This is the reason why this paper is focused on the loan portfolio of banks and their impact on the economic growth.
Beside the loans there will be analysed the GDP as a main indicator for economic growth of a country. Gross Domestic Product (GDP) is defined as a market value of all the final goods and services that are produced in a country in a certain period of time.

The Republic of North Macedonia is one of the countries with lowest rates of economic growth, where the economic growth is mostly dependent from the service and the industry. There are lots of papers that illustrate the impact of financial system on the economic growth and how much is important its impact on economic growth. In Macedonia this problem is analyzed by Petkovski and Kjojevski (2014) which have analyzed the impact of the credits given to private sector on economic growth in countries in transition from Central Europe and South East Europe. They came in a conclusion that credits given to private sector and the interest margin of the banks are negatively correlated with economic growth. Lazarov (2017) comes in conclusion that the disadvantages of the financial sector have an impact on growing the expenses for finance and with that they have a negative impact on the level of the given credits to the private sector and with that they also have a negative impact on economic growth of a country. Nikoloska (2009) comes to conclusion that there is positive relation between private loans to GDP and GDP, the size of that relationship ranges from 0.36% to 1.5% of GDP increase when private loans / GDP grow by 1%.

There are a lot of papers written by the authors outside Macedonia where we can mention Kokaveshi (2015) that comes to conclusion that credits given to businesses have positive impact on economic growth, compared with the credits given to private persons. Vazakidis and Adamopulos (2009) use the method of vector error correction model (VECM) and they come to the conclusion that 1% growth on the level of given credits impacts on GDP growth for 0.14% and 1% growth on productivity of banks impacts on GDP growth for 32%. Liu (2011) compares the relationship of financial development and economic growth in short term and in long term aspect. He comes to conclusion that in short term there is a positive impact of financial development on economic growth. But, in long term the relationship of these two variables is not so strong.

The loan portfolio will be analyzed comparing the growth of the loan portfolio between quarters, for the period from the last quarter of 2014 till the second quarter of the 2018. The loan portfolio is divided into four main groups, loans given to: other financial institutions, nonfinancial institutions which contain public nonfinancial institutions and others, other residents which contain households and nonprofit institutions and local self-government.

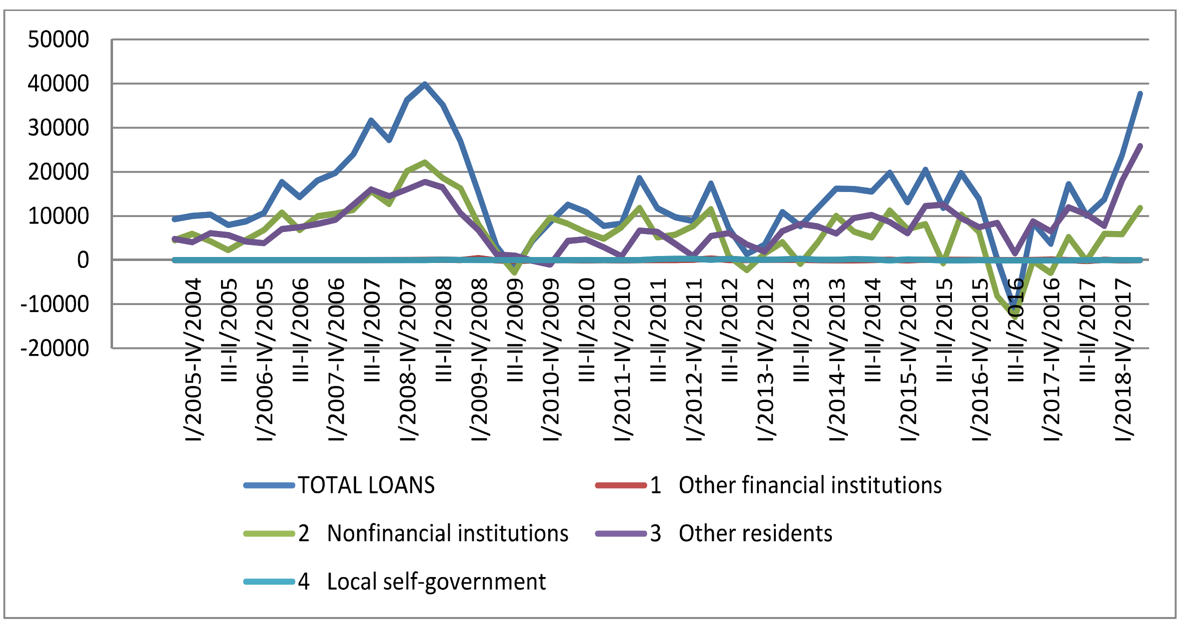

Figure 1. Publication of author, Loan Portfolio of Banks

Source: Central Bank of Macedonia

The higher curve on the graphic represents the total value of the loan portfolio of the banks. Higher participation on the overall loan portfolio have the loans given to nonfinancial institutions and other residents, on the other hand loans given for local self-government and other financial institutions is at the lowest rate which is so many near to zero. From the graphic we can see that the highest level of the total level of given loans is in 2008, and after that there is a sharp decrease on the level of the given loans. The total level of loans reaches it minimum on the third quarter of 2019 with very low growth on the level of given loans.

The decrease of loans given in 2008 is a result of the financial crises which showed its effect in the economy of the Republic of North Macedonia also. Increasing the care of banks during the issuance of the loans and the continuity of the restrictive monetary policy on the first quarter of 2009 made the level of the total given loans on the second quarter to have reduction on the level of the given loans comparing to the first quarter for 0,4% (Central Bank, 2009: pg.17). Crises had very negative effect on the level of loans, which made that the level of given loans at the ending of the period hasn't reached anymore the level that was before 2008.

There is another deeper decline besides that of 2009 between the quarters in 2016. This decline is a result of a change on the decision of the Council of the Central Bank. On their decision for changing and completion of the decision for leadership with credit risk on 17.12.2015 is written that banks are obligated to clear all the credits from their loan portfolio, for which the bank for more than two years had made correction of the value and with that had allocated reserves of 100% of the value.

2. Methodology and data

Methodology that will be used on the paper is consisted of four main methods: descriptive, comparative, analytic and statistical methods.
First, we have graphically described, compared and analyzed the trend of the loan portfolio of banks with the aim to explain the factors that had an impact on the biggest ups and downs of the curves of the loan portfolio.
Then we do the analysis of the link between loan portfolio of the banks and the economic growth, where for data processing we use SPSS application software. Data processing is done with the help of simple linear regression model to measure the impact of the independent variable which in this case is loan portfolio of banks on the dependent variable which on this case is GDP.
The equation for calculating the linear regression is as below:

$$Y = a + bX \tag{1}$$

Source: stat.yale.edu

Y - Represents the dependent variable, which in this case measures the economic growth with the help of GDP.

a and b are parameters.

a - shows the intercept of the model. If X is equal to zero, then Y is equal to a.

b - is the regression coefficient and the parameter of the independent variable.

X - is the independent variable, which in this case is the loan portfolio of banks.

3. Results

With the help of simple linear regression model and the method of small squared we calculated the data taken for the period from the q.4 of 2004 till q.2 of 2018 and we came to results as presented above:

Table 1. The coefficient of determination R^2 for the estimated model in Table 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.575[a]	.331	.318	2.866952839599364
a. Predictors: (Constant), LOANS				

Table 2. Estimated coefficients for the model with their estimated t stats. and p-values, dependent variable is the GDP

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.930	.587		1.585	.119	-.247	2.107
	LOANS	.701	.137	.575	5.121	.000	.427	.976
a. Dependent Variable: GDP								

Source: Author calculations

Depending of the results represented on the table above the equation of the regression takes the form as follows:

$$Y= 0.930+0.701X_1 \qquad (2)$$

From the data presented above we can see that we have a positive coefficient which is in the value of 0.701. The positive coefficient means that there is a positive relationship between the economic growth and the growth of the loan portfolio of the banks. When we interpret the R coefficient we can see that its value is R^2= 0.575, which is closer to 1 we can say that the loan portfolio of the banks has an impact on economic growth. R^2 coefficient which shows how many points get together on the regression line we can see that its value is not so high and is on the level of 0.331. From this result we can say that because R^2=0.331, loan portfolio of banks for the analyzed period from q.4 of 2004 till q.2 of 2018 in North Macedonian economy only 33% influences the changes on the level of GDP, and the other 67% is related to other factors that aren’t taken into consideration into this model.

For that in the end we can say that the loan portfolio of the banks has a positive impact on economic growth because of the positive coefficient, but that isn't the only one factor which has an impact on economic growth because there are a lot of other factors like the interest rates, capital, the investments and many other factors which also have their impact on economic growth.

4. Discussion and Conclusion

The paper has analyzed the movement of the loan portfolio of the banks and the economic growth which is measured by GDP with the usage of the quarterly data taken from the fourth quarter of 2004 till the second quarter of 2018. At the empirical part is measured the impact of the loan portfolio of the banks on economic growth with the help of 54 observations. From the model which is implemented using linear regression with the help of statistical program SPSS25, we have a positive coefficient from where we come to conclusion that there is a positive relationship between the loan portfolio and economic growth. But, beside this positive relation we can say that the loan portfolio of the banks doesn't describe all the changes on the levels of economic growth and that is just one from so many factors that have an impact on the economic growth.
In the next studies we will try to take into account and the other factors that may impact on economic growth for the purpose to have a clever picture of that which factors have higher and which factors have lower impact on economic growth. Also there can be a deeper analyze on the loan portfolio from where we can see which type of loans have higher impact on economic growth, the credit given to private individuals or the credits given to businesses.

References

[1]. Brue, McConell (1999). *Macroeconomic*. Fourteenth edition. USA.
[2]. Casu, Barbara; Giardone, Claudia & Molineux, Phillip (2013). *Hyrje në sektorin bankar*. [Introduction to banking sector. In Albanian]. Skopje.
[3]. Freixas, Xavier dhe Rochet, Jean (1999). *Microeconomics of banking.* Fourth edition. Massachusetts.
[4]. Luboteni, Gazmend (2006*). Bankat dhe afarizmi bankar*. [Banks and banking business. In Albanian]. Pristina.
[5]. Luboteni, Gazmend (2008). *Menaxhmenti bankar*. [Management of banking. In Albanian]. Pristina.
[6]. Mishkin, Frederik (2010). *Економија на пари, банкарство и финансиски пазари*. [Economy of money, banks and financial markets. In Macedonian]. Eight edition. Skopje.
[7]. Mishkin, Frederik & Eakins, Stanley (2015): *Financial markets and institutions.* Eights edition. USA.
[8]. Rose, Peter (1999). *Commercial bank management.* Fourth edition. Boston.
[9]. Roussakis, Emanuel (1997). *Commercial banking in an era of deregulation.* Third edition. USA.
[10]. Trpeski, Lupco (2003). *Пари и банкарство.* [Money and Banking. In Macedonian]. Second edition. Skopje.
[11]. Apere (2016), *The Impact of Microfinance Banks on Economic Growth in Nigeria*. International Journal of Academic Research in Economics and Management Sciences 2016, Vol. 5, No. 4 (pg. 53-61). Retrieved from: http://hrmars.com/hrmars_papers/The_Impact_of_Microfinance_Banks_on_Economic_Growth_in_Nigeria.pdf.

[12]. Awdeh, A. (2012). *Banking sector development and economic growth in Lebanon.* International Research Journal of Finance and Economics 2012, vol. 100. Pg. (53-62). Research gate. Retrieved from: https://www.researchgate.net/publication/257863335_Banking_Sector_Development_and_Economic_Growth_in_Lebanon.

[13]. Kokaveshi. E (2015). *Credit impact on some key macroeconomic indicators.* University of Tirana, Tirana. Retrieved from: http://www.doktoratura.unitir.edu.al/wp-content/uploads/2015/05/Doktoratura-Ergita-kokaveshi-Fakulteti-Ekonomise-Departamenti-i-Ekonomiksit.pdf.

[14]. Lazarov.D (2017). *Does financial sector constrain economic growth: The case of Macedonia.* Retrieved from: https://docplayer.gr/73443333-Dali-finansiskiot-sektor-e-ogrnichuvachki-faktor-za-ekonomskiot-rast-sluchaj-za-makedonija.html .

[15]. Liu.Y (2011). *Financial Development and Economic Growth: Evidence from China in 1978-2009.* Univeristy of Lebanon. China. Retrieved from: https://lup.lub.lu.se/luur/download?func=downloadFile&recordOId=1977969&fileOId=1977970.

[16]. Linear regression (n.d). Retrieved from: http://www.stat.yale.edu/Courses/1997-98/101/linreg.htm.

[17]. Macedonia GDP growth rate (n.d). *Trading economics.* Retrieved from: https://tradingeconomics.com/macedonia/gdp-growth.

[18]. Monetary and credit aggregates (2019). National Bank of Republic of North Macedona. Retrived from: http://www.nbrm.mk/ns-newsarticle-monetarni-i-kreditni-agregati.nspx.

[19]. Moinescu.B and Codirlasu.A (n.d). *Lending, economic growth and nonperforming loans: empirical evidences from the new EU member states*. Retrieved from: http://finsys.rau.ro/docs/wp-lending_economic_growth.pdf.

[20]. National Bank of Republic of North Macedonia (2009). *Извештај за банкарскиот систем и банкарската супервизија на Република Македонија во првата половина од 2009 година.* Retrieved from: https://www.nbrm.mk/content/Regulativa/Polugodisenzabankarskiotsistemibankarskatasupervizija_2009.pdf.

[21]. National Bank of Republic of North Macedonia (2015). *Одлука за управување со кредитен ризик.* Retrived from: https://www.nbrm.mk/krieditien_rizik.nspx.

[22]. National Bank of Republic of North Macedonia (2019). Retrieved from: http://www.nbrm. mk/ns-newsarticle-kvartalen-izvestaj-statisticki-prilog-2019.nspx

[23]. Nikoloska.B (n.d). Analysis of the role of the banking system in the economic growth: the case of Macedonia. Retrieved from: http://www.nbrm.mk/WBStorage/Files/WebBuilder_BlagicaNikoloska.pdf

[24]. Petkovski.M and Kjosevski.J (2014). *Does banking sector development promote economic growth? An empirical analysis for selected countries in Central and South Eastern Europe*. Economic Research. Volume 27 - Issue1 (pg.55-66). Retrieved from: https://www.tandfonline.com/doi/full/10.1080/1331677X.2014.947107.

[25]. Vazakidis.A and Adamopulos.A (2009). *Financial Development and Economic Growth. An empirical Analysis for Greece.* American Journal of Applied Sciences. Vol.6. (pg. 1410-1417). Research gate. Retrieved from: https://www.researchgate.net/publication/239768719_Financial_Development_and_Economic_Growth_An_Empirical_Analysis_for_Greece.