
THE IMPACT OF THE PRIVATE SECTOR CREDITS ON THE ECONOMIC GROWTH IN THE REPUBLIC OF NORTH MACEDONIA

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Abstract: The subject of this paper is the impact of lending activity, respectively loans to the private sector as the main pillar of macroeconomic parameters and their relationship to economic growth in the Republic of North Macedonia. The analysis takes into account the data for the period 1996-2018. Hence, the purpose of this paper is to examine the impact of private sector lending in the Republic of North Macedonia on its economic growth. The research relies on multiple regression analysis, where lending is an important part of economic activity and adds a significant contribution to economic growth indicators, primarily gross domestic product per capita. Consequently, the impact of real interest rates and the unemployment rate on economic activity is taken into account, and the impact of several other control variables is also examined. The assumption is that lending activity is a significant determinant of economic growth, with a positive impact. In accordance with the obtained results, it is confirmed that loans to the private sector have a positive impact on economic activity, primarily economic growth in the Republic of North Macedonia. Our findings show rapid growth of loans to the private sector until the Great Economic Crisis, where they are subsequently highly positively linearly related to economic growth in the country.

Keywords: credit activity, gross domestic product per capita, economic growth.

1. INTRODUCTION

The past period, especially the period of the Great Economic Crisis of 2008, has clearly shown the importance of the financial sector in creating a more favorable macroeconomic environment, as well as in stimulating economic activity. Increasing capital distribution accelerates growth, leading to long-term economic growth. After the Great Depression, the financial / banking sector was involved in a reform process aimed at restoring confidence in the financial sector and the role of lending as an important variable in increasing economic activity. Numerous studies clearly confirm the relationship between the financial sector and economic growth and confirm that they are highly correlated. Credit activity in a country is a key factor of its national economy as well as overall economic growth. Capital redistribution, deregulation, globalization, and technology development have made them key determinants of economic growth. As in any successful economic country in the world, as well as in the Republic of North Macedonia, through the deductive approach to analyze economic growth, we note the basic factors of a stable economy, such as: the growth of foreign capital in the country, the system of banking stability, technical-technological innovations and legal-political stability. Credit activity is related to the process of growth, development, evolution and stagnation of a country's economic well-being, so this topic is important because the impact of financial inputs reflects the real economic situation where the respective national economy is located.

2. REVIEW OF RELEVANT EMPIRICAL LITERATURE

The impact of lending on economic activity, especially on economic growth has been the subject of research by many authors around the world, especially in the last 50 years. If we look at the evolution of the research subject's approach, the variables, methodologies and results obtained confirm that financial activity has a positive impact on economic activity according to some authors, while on the other hand some research confirms that they have the opposite effect on economic activity. This further stimulates our interest and the interest of many authors to make this topic a research object - above all empirical research. The role of financial institutions is based on the allocation of resources for the needs of the population and the development programs of corporate units in a country. Schumpeter (1911) in development theory explains that bank loans play a key role in economic growth, ie they are defined as the total amount of loans / funds provided by commercial banks for the needs of individuals, business organizations, industries and government. Antoshin (2017) on the empirical relationship between credit growth, economic recovery and banking profitability in Europe after the Great Depression, suggests that the recovery in the post-financial crisis in Europe was weaker than the previous recovery. According to their research, the dynamics of bank loans had a positive but moderate effect on economic activity, large customer deposits and high cost of capital are indicators of continued lending, while high non-performing loan rates are indicators of weakening lending,

economies seemingly learned to live with less bank borrowing. Drobyshevsky et al (2017) through the VAR model follow the guidelines and the extent to which interest rates can affect economic growth. Estimates of the econometric effectiveness of Central Bank interest rates in Russia provide evidence that interest rate policy is partially effective in the aftermath of the Great Depression. Adeleke and Awodumi (2018) through the ARDL model focus on research on the short-term and long-term effects of determinants on bank lending in Nigeria for the period 1970 to 2015. This study confirms that the exchange rate, money supply, net foreign liabilities and real GDP have a positive long-term impact on bank loans to the private sector, while the effect on the overall price level is negative. In the proper context of short-term research, the effect of money supply, net foreign liabilities and required reserves on bank loans to the private sector is positive, while inflation has a negative impact. Yamunah, Sanil and Tang (2019) explore the factors influencing non-performing loans in Malaysia for the period 2009 to 2018. Three main factors were taken into account in the survey, namely inflation, unemployment and interest rates, where data were provided by all banks in Malaysia, the results showed the stability of the respective survey, ie inflation, unemployment and interest rates had an impact on the growth of non-performing loans. The Great Financial Crisis has shown that bank conditions become essential for the transmission of monetary policy, firstly, it has a macroeconomic effect because all banks limit the supply of credit and secondly, the heterogeneity of banking conditions (such as financing or capitalization) reduce credit supply and hinder the transition of monetary policy (Albertazzi et al., 2020). Petkovski and Kjosevski (2014) investigated the impact of the banking sector on the economic growth of 16 transition economies from Central and Southeast Europe using a dynamic panel of the generalized method of moments (GMM). The results show that loans to the private sector and interest rate margins are negatively correlated with economic growth, while almost quasi-money relations are positively correlated with economic growth. Demetriades and Rousseau (2016) on the non-monotonous relationship between financial development and economic growth concluded that financial depth is no longer a significant determinant of long-term growth, ie financial growth is under the jurisdiction of banks to regulate and supervise, where the high level of the financial development sector may not be beneficial to economic growth.

3. METHODOLOGY

For the needs of this research, the annual data of the National Bank of the Republic of North Macedonia (NBRNM) and the World Bank (WB), for the period from 1996 to 2018 (a total of 23 observations) are used. The research is based on multiple regression analysis, using statistical software (Eviews), where the primary focus is on the impact of private sector domestic loans on gross domestic product per capita in Northern Macedonia, with several additional considerations control variables. In addition to the real interest rates and the unemployment rate, the impact of several other control variables was examined, such as foreign direct investment, inflation rate, budget balance, economic crisis, etc., but because they are statistically insignificant, they are not included in the model.

In order to describe the relationship between the variables, the model is described according to the hypotheses:

H0: Private sector loans do not affect the GDP growth per capita in the Republic of North Macedonia;

H1: Private sector loans affect the GDP growth per capita in the Republic of North Macedonia.

In mathematical form the econometric model is as follows:

$$\log(BDP_{PC}) = \beta_0 + \beta_1 DCPS + \beta_2 KS_{REALNI} + \beta_3 NEVRAB \quad (1)$$

Where,

BDP_{pc} - GDP per capita (real, 2010, USD)

DCPS - Private sector domestic loans (% of GDP)

KS_{realni} - Real interest rates (%)

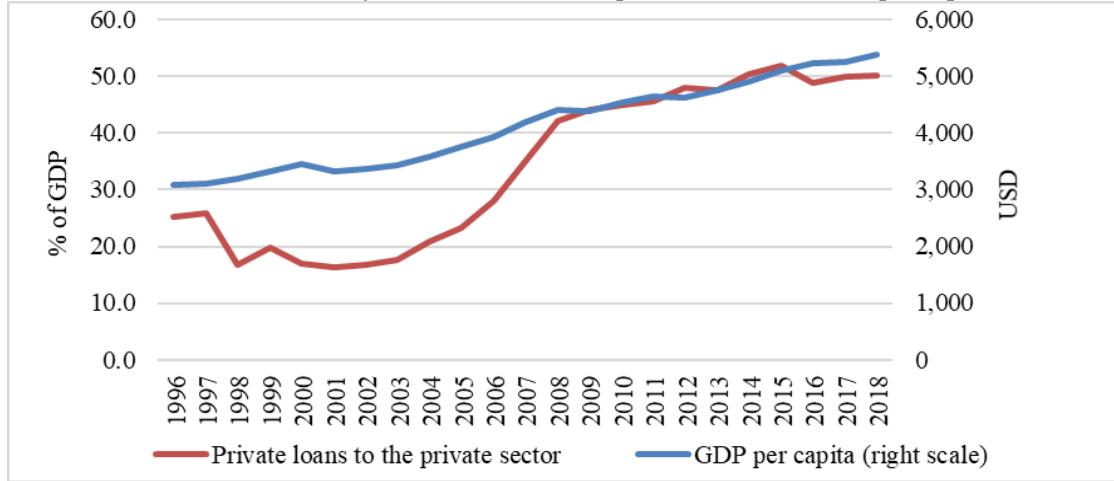
NEVRAB - Unemployment rate (in%)

Although with some adjustments, the research generally follows the approach of Duican, E.R. and Pop, A. (2015), who analyze the same issue in the case of Romania. Namely, in their analysis they use panel data for 8 planning regions in Romania, where they take the total GDP as a dependent variable, and the total loans in absolute terms are an independent variable, using a random effects model, without control of the independent variables. Given that in our case there are no data divided by planning regions, the analysis is at the national level. Additionally, instead of total GDP, GDP per capita is taken into account, and instead of loans in absolute terms, loans are taken as (%) of GDP, in order to better express the level of economic development of the country and the share of loans in the overall economy. Finally, control variables serve to capture relevant factors that also have an impact on the dependent variable, which if excluded would lead to bias in the results obtained.

4. RESULTS

GDP per capita in the Republic of North Macedonia (RNM) recorded continuous growth in the observed period. On the other hand, domestic loans to the private sector in the period until 2001 have a downward trend, followed by a period of accelerated growth until the Great Economic Crisis (Chart 1). Starting from 2008, loans have a stable and moderate growth, following the trend of GDP per capita, with a small decline observed in 2016. The lowest level of loans was registered in 2001 (16.3%), while the highest in 2015 (52%). GDP per capita in 2018 reaches 5,394 USD.

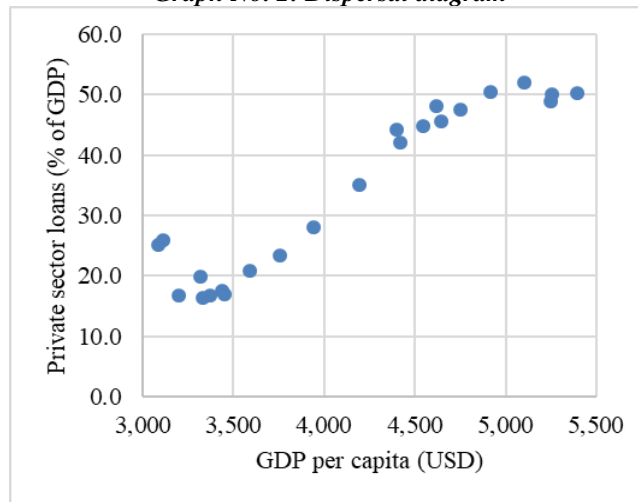
Chart no. 1: The movement of domestic loans to the private sector and GDP per capita in RNM



Source: Illustration of the authors based on data from the NBRNM and WB

GDP per capita and domestic loans to the private sector in RNM in the mentioned period have a high positive linear correlation, ie correlation coefficient which is 0.94, which can be seen from the attached diagram (Chart 2). Although this is not an indicator of their mutual influence, it points to the direction of their causal relationship. The sources of the illustrations in Charts No. 2 and No. 3 are based on data from the NBRNM and WB.

Graph No. 2: Dispersal diagram



The estimated regression model from equation (1) is shown in Table 1. As can be seen from the figure, the model is statistically significant at a significance level of 0.05 and has an adjusted determination coefficient of 0.9586, which means that about 96% of the variations in the dependent variable are explained by the independent variables. In addition, the estimated coefficients are also statistically significant, and are in line with economic logic.

Table 1: Estimated coefficients

Dependent Variable: LOG(BDP_PC)
Method: Least Squares
Sample: 1996 2018
Included observations: 23
White Heteroskedasticity-Consistent Standard Errors & Covariance

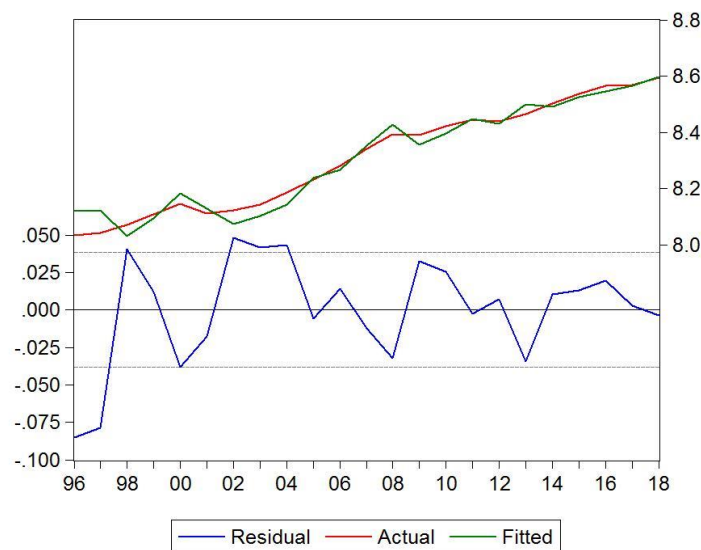
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.393749	0.092544	90.69976	0.0000
DCPS	0.006831	0.001061	6.438755	0.0000
KS_REALNI	-0.014740	0.003295	-4.473282	0.0003
NEVRAB	-0.005592	0.001809	-3.090766	0.0060

R-squared	0.964251	Mean dependent var	8.309979
Adjusted R-squared	0.958606	S.D. dependent var	0.188790
S.E. of regression	0.038410	Akaike info criterion	-3.524222
Sum squared resid	0.028031	Schwarz criterion	-3.326745
Log likelihood	44.52855	Hannan-Quinn criter.	-3.474557
F-statistic	170.8274	Durbin-Watson stat	1.269343
Prob(F-statistic)	0.000000		

Source: Authors' own calculations based on data from the NBRNM and WB

Regarding the robustness of the evaluated model, diagnostic tests were performed in relation to the assumptions of the classical linear regression model. These tests showed that the model is precisely specified, with no multicollinearity between the independent variables, while the residuals are normally adjusted and are not correlated with each other. However, the White test for constant variance of random error showed a moderate level of heteroskedasticity in the model, which is a kind of limitation. Therefore, in order to reduce the effects that this disturbance would have on the significance of the coefficients, their standard errors were corrected by applying an appropriate consistency method. The violation of the assumption for constant variance of the random error is visible from Chart 3, which shows the first part of the observed period, which was accompanied by some political instability that could be the cause of such a disorder. Additionally, Graph 3 shows that the estimated model well explains the dependent variable, especially in the post-crisis period.

Graph 3: Residuals, real and estimated values from the econometric model



The diagnostic tests we used for the model specification are the Ramsey RESET test, for the correlation coefficient between the independent variables we used the VIF (Variance Inflation Factors), for the constant variance of random error we used the White test, for autocorrelation - Durbin-Watson statistics and Serial Correlation LM test, and for normal residual layout - Jarque-Bera test. From the aspect of interpreting the obtained results, taking into account that the dependent variable is expressed in logarithms, i.e. it is about the so-called "log-lin" model, the estimated coefficients are multiplied by 100 and they show the difference in percentage of the dependent variable, per unit of growth of independent variables. Thus, according to the obtained results, if the domestic lending to the private sector increases by 1 percentage point, GDP per capita will increase by an average of 0.68%, if all other factors remain unchanged. Based on the conclusion, the alternative hypothesis (H1) is fully confirmed. On the other hand, increasing the real interest rates and the unemployment rate by 1 percentage point would lead to a decrease in GDP per capita by an average of 1.47% and 0.56%, respectively, *ceteris paribus*.

5. CONCLUSIONS

Based on the conducted research, it can be concluded that lending to the private sector in the Republic of North Macedonia has a positive impact on economic growth. Namely, the findings obtained based on the estimated regression model indicate that increasing the rate of domestic loans to the private sector by 1 percentage point would lead to GDP growth per capita by an average of 0.68%, *ceteris paribus*. A statistical analysis of the trend of credit activity and economic growth followed by certain control variables (real interest rate and unemployment rate), where the latter result in a negative impact on economic growth provided all other factors remain unchanged. The research refers to the period from 1996 to 2018, using a regression model, estimated by the method of least squares. The economic growth gap and the accelerated credit growth after the Great Economic Crisis overlap with the long-term linear relationship between them, primarily as a reason for the macroeconomic environment, the recovery of the economy and the inflow of capital. Hence, we can conclude that the obtained results are in accordance with the economic logic and intuition, whereby the alternative assumption that private sector loans affect GDP growth per capita in the Republic of North Macedonia is fully confirmed.

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