# Does banking sector development promote economic growth? An empirical analysis for asmall transition economy of Albania

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***Abstract***

*Financial markets, instruments, and institutions are the main components of the financial system. In Albania due to the absence of the stock market, the financial system is bank-based, and the development of the banking sector becomes quite acute because of its important role as financial intermediation onthe economy.The aim of this paper is to examine whether the banking sector plays a growth-supporting role in transition economies such as Albania. The empirical investigation was carried out using a VAR approach and Granger causality test for2002Q4-2016Q4 time interval. Impulse-response function is applied to examine the interrelationship between variables in the VAR model.The proxy to measure the development in the banking sector are the bank credit to the private sector, interest margin and ratio of quasi-money. The research results show that interest rate margin is significant and positively related to economic growth and credit to private sector negatively related to economic growth, and impulse-response function show that one shock to interest margin has a positive effect toGDP from the first lag, and after that, the trend is declining.*

***Key words:*** *banking sector development, economic growth, credit to theprivate sector, interest margin, ratio of quasi-money, Albania.*

***JEL classification: E44, G21***

## 1. Introduction

The relationship between financial development and economic growth is fundamental for the economy and until now this relation is ambiguous.In the literature, there are two approaches that study the causality between finance-growth nexus. The first one that is known as the supply heading hypothesis suppose that financial development drives the economic growth(McKinnon, 1973; King & Levine, 1993) and the latter, demand-following hypothesisthat is supported by many authors argue that economic growth increases the demand for financial services(Gurley & Shaw, 1967; Harrison, Sussman, & Zeira, 1999).

Although,apart from two hypotheses Samargandi, Fidrmuc, & Ghosh (2015) investigate that the finance-growth nexus is inverted U-shaped and deep finance can influence negatively the growth in developing countries.But, according to EBRD Transition Report of 2006(EBRD, 2006), is found that financial sectors development have a significant effect on growth in transition countries since their financial systems are underdeveloped and in order to encourage the growth of these systems and to achieve sustainable growth itis necessary toundertake polices thatrelymostlyon the competitiveness of business and improvement of the financial sector. Althoughincentives to foster the development of the capital market and non-banking financial institution in transition countries, the banking system has a major influence on country's economy and policies that support the development of a banking system can spur long-term growth(European Bank for Reconstruction and Development, 2018).

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Albanian as a transition country, in the early 1990s, was transformed from a centralizedinto a free market economy and part of this transition process was the reforming ofthe banking systemthat creates the first step towards financial development (Cani & Hadëri, 2002). The main feature was the abolition of the mono-bank system and the establishmentof a two-tier system, the central and secondary banks.At the beginning, there were three secondary banks with state capital that faced adverse selection and hazard moral problemsbecause the government was interested to give credit to themselves or to favor specific sectors of the economy by setting artificially low-interest rates (Vika, 2009).But, the privatization of the state banks brought a financial system development, which was accompanied by an expansion of the banking network, improvement of the legislation and the payment system. It also contributed to increasing the level of lending as well as the technology and banking service development by increasing other banking services(Bushati, 2008).

Banks with private capital solve adverse selection and hazard moral problems and focus on lending at sectors that are more profitable(Papavangjeli& Leka2016). In this way,efficient financial marketschannel funds to profitable investment by increasing the quality of investments that enhance economic growth. In Albania, banks are the main channel to provide capital inflow for individuals and business that occupy 36.5% of GDP at the end of 2017 (BoA, 2017). Although Albania financial system is still going under a lot of changes it is relatively new and is dominated by banks as financial intermediation.

Only a few studies examine the linkage between financial development and economic growth in Albania and due to lack of studies the aim of this paper is to investigate whether the banking system promotes economic growth. The contribution of this paper is to fill the empirical gap in the literature of finance and growth, specifically focusing on the banking sector of Albania.The VAR model and Granger Causality is used to examine the effect and efficiency of the banking sector on growthduring the period 2002Q4-2016Q4.The main indicators of financial development of the banking sector are the ratio of quasi-money, credit to the private sector and interest margin. The results of this study show that the banking system in Albania does not allocate fund in an efficient way, in which the banking system does not cause economic growth but only specific indicators can cause growth.

The structure of this paper is organized into4 sections.Section 2continues with the literature review. Section 3describes the methodology and empirical analyses. The conclusionis given in the final part of the paper.

## 2. Literature Review

There is a long debate about the relationship between financial development and economic growth. Empirical evidence over time has come to the different conclusion on this relation from these studies such as; positive, negative and no impact.In the cases of developed economies, the study by Arestis, Demetriades, &Luintel (2001) which was focused in five countries such as; Germany, the United States, Japan, the United Kingdom, and France by using time series data examine that banking sector has a positive effect in economic growth. On the other hand,Owen & Temesvary (2014) investigate that finance-growth is heterogeneous across countries and types of bank lenders. In some countries, foreign banks fulfill the demand for a loan that the domestic financial system does not provide or on other countries foreign banks may interfere to develop the domestic financial system. Therefore, countries with the well-developed stock market and the degree of the rule of law, affect the productivity of bank lending in encouraging growth.

King&Levine (1993) find a positive relationship between each of financial development indicators and economic growth. Their study was based on cross-country evidence using data on 80 countries to analyze the effect of financial sector development on real per capita GDP growth, with four indicators: the ratio of liquid liabilities to GDP, the importance of deposit banks relative to the central bank in allocating domestic credit, the ratio of credit to private firms divided by total credit and ratio of credit to private firms divided by GDP.Also, Demetriades&Hussein (1996) study causality between financial development and economic growth in 16 developing countries. The result shows thatin many countries is evident bi-directionality and some others reverse causality.Christopoulos&Tsionas (2004)based the study in 10 developing countries, by using data over the period 1970-2000 via panel unit root tests and panel cointegration analysis to investigate the long-run relationship between financial depth and economic growth and find that in long run causality runs from financial development to growth and there is no evidence of bi-directional causality.Kenourgios&Samitas (2007) study the relation between finance and growth in a transition country as Poland by using Johansen cointegration procedure and suggest that in the long-run, credit to the private sector has been the main force of Polish economic growth. However, Koivu (2002) examine the link between the banking sector and real GDP growth in transition economies using a fixed-effects panel model and data from 25 countries for the period 1993-2000 and conclude that credit to the private sector and interest rate margin are negatively related to economic growth. At the same line,Petkovski & Kjosevski (2014) argue that the contribution of the banking sector on economic growth is rather limited, only the ratio of quasi-money showa positive effect on growth for 16 transition countries in Central and South Eastern Europe span from 1991-2011.The main reason for these results is that the financial system of these countries is underdeveloped, and they have a high level of non-performing loans that restrict the financial depth (Caporale, Rault, Sova, & Sova, 2014).

For Albania,Dushku (2010) investigate the relationship between financial development and economic growth using the Granger causality test and the VECM mechanism. The data used in the paper are quarterly for the period 1996-2007.Financial development is measured by five indicators such as the ratio of domestic credit to GDP, theratio of private sector credit to GDP, theratio of theprivate sector to total domestic credit, theratio of M2 to GDP, and the ratio of banking deposits to GDP. The study shows a bi-directional relationship between financial indicators and economic growth in the long run. For the short run, this relation is not clear because different indicators of financial development provide different results.However, Musta (2016) asserts that credit to the private sector hasa negative effect on growth due to the high level of non-performing loans and the low quality of the financial environment in the financial sector.

As it can be seen numerous empirical studies provide mixed conclusions about the role of financial sector development on economic growth. However, only a few studies (Drakos 2002; Koivu 2002; Kenourgios&Samitas 2007) have focused ona small transition economy that concludes in a positive relationship between several financial indicators and economic growth. Finally, countries that have effective financial systems andwell-functioning financial intermediaries have a significant impact on economic growth.

## 3. Research Model, Methodology and Empirical Analysis

The model that is used to evaluate the effect of banking sector developmenton economic growth is based on the study by De Gregorio &Guidotti (1995), who reexamines the relationship between financial development and economic growth. As the more accurate indicator for financial development they used credit to the private sector to

GDPbecause is more directly related to investment and economic growth. Therefore, financial intermediation has a positive influence on growth through channeling funds to efficient investment, rather than the volume of investment. In this way, economic growth is a production function of financial development.The equation below shows the model used for the study.

$$\text{GDP growth} = \beta_0 + \beta_1 \text{credit to the private sector}_t + \beta_2 \text{interest margin}_t + \beta_3 \text{the ratio of quasi-money}_t + \varepsilon_t$$

Where: $\beta_0$ =intercept, $\varepsilon_t$ = error term, while $\beta_1, \beta_2, \beta_3$ are coefficient

Economic growth is the dependent variable measured bythe GDP growth rate. Most analyses consider GDP as an important indicator of economic growth because of the changing in financial development effect GDP. In the analyzes of bankactivity to measure thesize of banking intermediation and their efficiency are used indicators such as theratio of quasi-money, bank credit to the private sector and interest margin. The most important indicator of banking development is quasi-money which measures thedegree of money in the economy. The ratio of quasi-money (RQM) which is anindicatorof banking development in developing countries where banks are the main financial intermediation. Credit to the private sector is the more appropriate indicator of the degree of financial intermediation that accrues by the banking system. The advantage of this indicator is that it includes the credit granted to the private sector and households and it excludes credit to the government. In developing countries where the financial development accrues thought banking system, credit is a better proxy.The last indicator is interesting margin measured by thespread between a bank's interest lending and borrowing rate.

### 3.2 Data, Data Specification and Hypothesis for Research

In this paper, there are used four variables to identify if banking sector development promotes economic growth by using time series data from 2002Q4-2016Q4. The variables are GDP growth, interest margin(IM), theratio of quasi-money, and credit to the private sector. The data for interest margin (IM) and theratio of quasi-money (RQM) are obtained from the International Monetary Fund (IMF). Credit to theprivate sector (CP)and real GDP growth rate data are obtained from quarterly reports of BoA(Bank of Albania).The summary of statistics for variables used in the study is presented in table 1.

Table 1 – Descriptive statistics

| | GROWTH | CP | IM | RQM |
|---|---|---|---|---|
| Mean | 0.870186 | 27.68741 | 6.745575 | 26.14571 |
| Median | 0.842972 | 34.61591 | 6.698293 | 26.02121 |
| Maximum | 4.756652 | 39.05905 | 9.589634 | 29.68488 |
| Minimum | -2.818827 | 5.969532 | 4.208886 | 19.54216 |
| Std. Dev. | 1.750322 | 11.73821 | 1.389245 | 2.391076 |
| Skewness | -0.227352 | -0.801540 | 0.286540 | -0.504400 |
| Kurtosis | 2.564360 | 1.994240 | 2.052626 | 2.806370 |
| Jarque-Bera | 0.941778 | 8.505866 | 2.911601 | 2.506030 |
| Probability | 0.624447 | 0.014222 | 0.233214 | 0.285642 |
| Sum | 49.60060 | 1578.182 | 384.4978 | 1490.306 |
| Sum Sq. Dev. | 171.5631 | 7715.986 | 108.0801 | 320.1656 |
| Observations | 57 | 57 | 57 | 57 |

The distribution of all variables, save for interest margin (IM) is negatively skewed. Additionally, all variables have low and positive kurtosis which means that their distribution is relatively flat and distributed a normal.

The hypothesis of this study is to identify which indicator of banking sector promote economic growth.

Hypothesis 1: Interest margin has a significant and negative relationship with economic growth.

Hypothesis 2: Credit to theprivate sector and theratio of quasi-moneyhas a significant and negative relationship with economic growth.

In this paper is used aVAR approach to identify the effects of banking development on economic growth. The theory was conceptualized by Sims (1980)which estimated the six variables without using thetheoretical part in his work macroeconomics and reality. This model is appropriate because consider all variables exogenous and measure the relation between macroeconomic and financial data. All variables are tested for seasonality and no one has seasonality. After the theoretical part of the VAR model which was carried out by Sims,Hassan, Sanchez, &Yu(2011) tested the VAR model by using six variables proxies for financial development. The study was conducted in six geographic regions to find therole of financial development in economic growth.
The standard VAR model is specified as:

$$Y_t = C + \sum_{S=1}^{m} A_S Y_{t-s} + e_t$$

Where:$Y_t$*is a 4 x 1 column vector for four variables (Real GDP, CP, IM, RQM)*

*C is a 4 x 1 matrix for constant,* $A_S$ *is a 4 x4 matrix for coefficient, m is a lag length for this study is 4based on selected criteria.* $e_t$ *is a 4 x 1 column vector of errors.*

It is assumed that error in the standard form has individually serial uncorrelation.
The reduced form of the VAR model contains four equations when each of the currentvariables expressed as a function of past values of other variables. Current GDP growth as a function of past values of GDP, credit to the private sector, interest margin and M2.

After the estimated standard VAR model, in the paper is usedGranger (1969) to identify the causalrelationship between banking development and economic growth. Granger Causality provides a useful way of describing the relationship between two or more variables. In this study by using Granger, it is possible to examine if banking development which is measured by three proxy such as interest margin, credit to the private sector and quasi-money cause economic growth.

Before applying the VARmodel, all variables are tested by using unit roots. Table 2 presents results of Augmented Dickey-Fuller (ADF) at the level and first difference. All variables are in percentage. Credit to the private sector as a percentage of GDP. The ratio of quasi money (M2-M1) as a percentage of GDP. According to the results ofthe test, all variables are stationary at first difference, excluding interest margin that is stationary in level

Table 2 –Augmented Dickey-FullerTests

| Variables | Augmented Dickey-Fuller | |
|---|---|---|
| | Level | First difference |
| GDP growth | -2.045209 | -12.77516 |
| Domestic credit to private sector (CP) | 1.815434 | -3.946753*** |
| Ratio of quasi money (RQM) | -1.012255 | -5.497990*** |
| Interest margin ($i_{lending}$-$i_{deposit}$) | -3.252267** | -7.150037 |

Note:1%,5% and 10% constant ADF critical values -3.4, -2.88 and -2.57
***, **, ** indicates stationary at 1%,5%,10% respectively.

VAR model is a stochastic process model used to capture the interrelationship among multiple time series in which each variable is explained by its past values and past value of others variables(Holden, 1995). This study uses this model to estimate the relationship between credit to the private sector, interest margin, the ratio of quasi money andGDP growth in Albania. In total VAR system, there are four regression models, in which GDP growth, credit to the private sector, interest margin, ratio of quasi money are dependent variables.

Table 3- Vector Autoregression Estimation Results
Sample (adjusted): 2003Q4-2016Q4
Included observations: 53 after adjustments
Coefficient and t-statistics in []

| | D(GROWTH) | D(CP) | IM | D(RQM) |
|---|---|---|---|---|
| D(GROWTH(-1)) | -0.81381 | -0.06856 | 0.105201 | -0.17608 |
| | [-6.97179] | [-1.20765] | [ 0.85534] | **[-2.08558]** |
| D(GROWTH(-2)) | -0.9672 | 0.026292 | 0.082816 | 0.036133 |
| | [-11.3663] | [ 0.63526] | [ 0.92367] | [ 0.58709] |
| D(GROWTH(-3)) | -0.70284 | -0.01419 | 0.123183 | -0.01902 |
| | [-5.80134] | [-0.24082] | [ 0.96500] | [-0.21703] |
| D(CP(-1)) | -0.71936 | 0.257144 | 0.772529 | 0.014478 |
| | **[-2.16353]** | [ 1.59008] | [ 2.20513] | [ 0.06021] |
| D(CP(-2)) | -0.23678 | 0.309689 | -0.03732 | -0.27756 |
| | [-0.70706] | [ 1.90134] | [-0.10578] | [-1.14596] |
| D(CP(-3)) | 0.214544 | -0.04664 | -0.54511 | 0.254071 |
| | [ 0.70572] | [-0.31545] | [-1.70178] | [ 1.15552] |
| IM(-1) | 0.010772 | 0.045481 | 0.683557 | -0.03179 |
| | [ 0.07303] | [ 0.63393] | [ 4.39809] | [-0.29798] |
| IM(-2) | 0.392438 | 0.058776 | -0.08588 | -0.10649 |
| | **[ 2.15138]** | [ 0.66248] | [-0.44685] | [-0.80717] |
| IM(-3) | -0.01712 | 0.062032 | -0.02234 | 0.153701 |
| | [-0.10112] | [ 0.75319] | [-0.12523] | [ 1.25501] |
| D(RQM(-1)) | 0.313237 | 0.001799 | 0.042324 | 0.309974 |
| | [ 1.43525] | [ 0.01694] | [ 0.18405] | [ 1.96376] |
| D(RQM(-2)) | -0.14117 | 0.092529 | -0.17434 | 0.208476 |
| | [-0.64468] | [ 0.86876] | [-0.75559] | [ 1.31632] |
| D(RQM(-3)) | 0.133691 | -0.1191 | -0.15515 | -0.04521 |
| | [ 0.63367] | [-1.16062] | [-0.69792] | [-0.29626] |
| C | -1.49931 | -0.26024 | 2.430325 | -0.05311 |

| | | | | |
|---|---|---|---|---|
| | -0.99086 | -0.48193 | -1.04402 | -0.71665 |
| | [-1.51314] | [-0.54000] | [ 2.32784] | [-0.07411] |
| @TREND | -0.02187 | -0.0209 | 0.012159 | -0.00465 |
| | -0.01439 | -0.007 | -0.01517 | -0.01041 |
| | [-1.51932] | [-2.98455] | [ 0.80169] | [-0.44616] |

In table 3 are the results of the model run by Eviews, in which there are 53 coefficients that explain the interrelationship between each variable. For the first regression model when GDP growth is thedependent variable, there is a significant relationship at lag (-2) between interest margin and real GDP. This means that this relationship between variables is significant and positive. When interest margin rate increase, real GDP increase but the effect at real GDP will be after six months since there is a log (-2).

Also, there is a significant relationship at lag (-1) at between GDPgrowth and credit to the private sector. This relationship is significant and negatively. When credit to private sector increase, the effect on GDP will be negative and the effect will appear after 3months since there is a lag (-1).

Another significant and negative relationship at lag (-1) is between GDP growth and ratio of quasi money, where the ratio of quasi money is dependent variable and an increase in GDP growth decrease the level of qusi money on the economy. The effect onthe current ratio of quasi money will appear after 3months since there is a lag(-1).

In order to have a VAR model stable, the condition is that all eigenvalues of $A_1$ have modulus less than one. No roots within or on the unit circus(Kunst, 2007). In the plot that is generated by E View 10, all modulesare less than one, that means that the VAR system is stable.

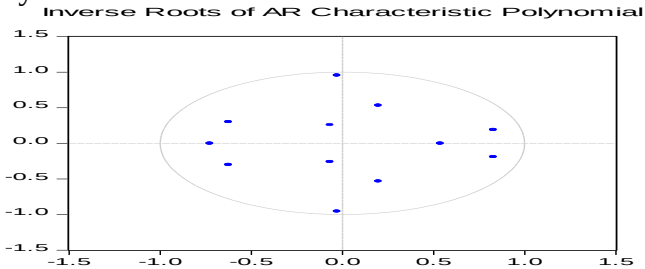


Figure 1- Stability test

Table 4 shows the appropriate lag length for the VAR model used to estimate Granger causality.

Lag 3 is the appropriate measured by different criteria as Hannan -Quinn information criteria, LR test statistics, and Final prediction error.

Table 4- Lag length for VAR model

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -318.997 | NA | 3.405722 | 12.57681 | 12.877 | 12.6919 |
| 1 | -278.523 | 71.60871 | 1.333902 | 11.63549 | 12.53606 | 11.98075 |
| 2 | -244.823 | 54.43724 | 0.685666 | 10.95475 | 12.45570* | 11.53018 |
| 3 | -220.05 | 36.20718* | 0.506734* | 10.61731 | 12.71865 | 11.4229* |
| 4 | -202.628 | 22.78313 | 0.511915 | 10.56260* | 13.26433 | 11.59838 |

The result of Granger causality is shown in table 5. The causality test result shows that the null hypothesis that credit to the private sector and the ratio of quasi-money do not Granger cause growth cannot be rejected. Otherwise, the hypothesis that interest margin does not Granger cause economic growth is rejected because the *p*-value is less

than 5 percent. This means that the interest margin causes economic growth. According to the result, economic growth (EG) cause credit to the private sector.

Table 5- Pair-wise Granger causality test

| Direction of causality | Lag | Probability | Decision |
|---|---|---|---|
| Credit to the private sector does not Granger cause EG | 3 | 0.0690 | Accepted |
| Interest margin does not Granger cause EG | 3 | 0.0236 | **Rejected** |
| The ratio of quasi-money does not Granger cause EG | 3 | 0.4212 | Accepted |

In order to see the effect of banking development on economic growth, it is important to investigate the impulse-response functionswhich is a shock to a VAR model. A unit shock is applied to each variable which does affect itself and other endogenous variables in the system due to the dynamic lag structure. The response of all variables is investigated in 10 periods means 2.5 years. Figure 2 shows the impulse-response functions for the GDP growth. Based on the plots, a shock to any indicators of banking development have a various effect on economic growth. A shock to credit to the private sector has a positive effect in GDP only after four quarters. After four lag there is a positive trend. For interest margin, the effect to real GDP has a positive trend from the first lags, and after that,the trend is decreasing. The impulseresponse function of GDP growth to the ratio of quasi money is related positively and a shock to the ratio of quasi money has a positive reaction to real GDP.

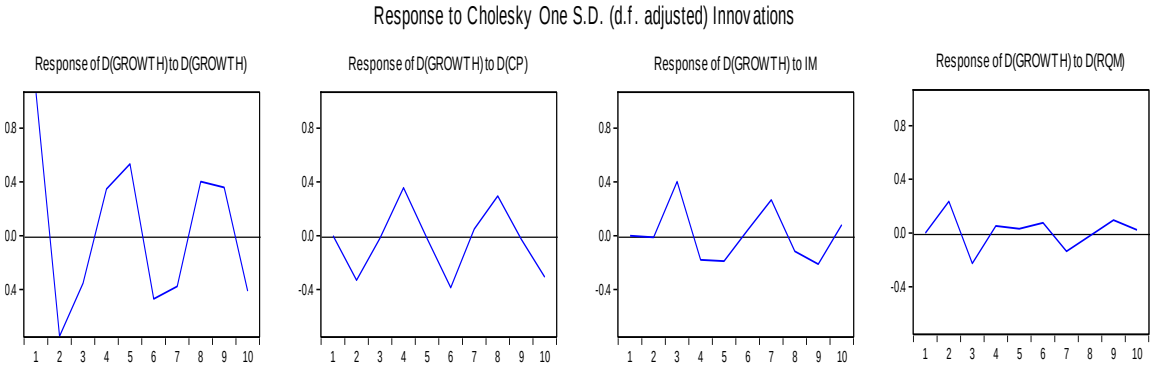


Figure 2-Impulse response function of economic growth to banking development.

In this study, the VAR resultsindicate that interest margin has a positive and significant effect on GDP, which means an increase in interest margin, increase GDP after six months. This result is contradicted with earlier studies by Petkovski and Kjosevski (2014), and Koivu (2002) which conducted that in transition economy the relationship between interest margin and economic growth is negative and significant. According to Kalluci (2010) banks that operate in Albania tend to increase the intermediation margins due to the fact that they face higher operating costs, which means by operation in more geographical areas and opening new branches will increase operating cost. In the other hand, an increase in operating cost, increase interest margin. Interest margin is a significant factor for developing countries which means that to have an efficient banking sector the spread between lending and the deposit rate will decrease. In Albania,the high level of interest margin means that the banking sector is not operating in an efficient way.

The credit to the private sector infuence negativly the economic growth and the ratio of quasi-money do not affect economic growth.The result of the Granger causality test

shows that in Albania there is not a bi-directional causality between banking development and economic growth, but only interest margin causes economic growth.

The results of this study show that the banking system in Albania does not allocate fund in an efficient way, in which the banking system does not cause economic growth but only specific indicators can cause growth. In order to have a positive relationship between banking development and economic growth, the policymakers must be oriented towards the factors that influence interest margin, which means that to have an efficient banking system the spread between margin would be lower. In this case, to have an impact of credit to the private sector to economic growth will be implemented by BoA that policy rate on banking lending decrease and in this way will increase investment and increasing economic growth.

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