

BANK OF ALBANIA

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: THE ALBANIAN CASE

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ABSTRACT

This paper examines the causal relationship between financial development and economic growth for the Albanian economy using the Granger causality test for five different proxies for financial development. For the non-stationary and non-cointegrated series, the VAR model has been constructed and later, the above test has been applied. For non-stationary series but with a cointegrating relationship, the Granger-causality test has been applied after the construction of the vector error correction model (VECM). The empirical findings of the study show that there is a positive relation between all indicators measuring the financial development and economic growth in the long term. While in the short term, this relation is quite vague since different indicators provide different results. The data used in this paper belong to the period 1996-2007.

1. INTRODUCTION

The fundamental question in economic growth that has preoccupied researchers is: Why do countries grow at different rates? The empirical growth literature has come up with numerous explanations of cross-country differences in growth, including human and capital resources, the degree of macroeconomic stability, institutional and educational development, legal system effectiveness, international trade, and ethnic and religious diversity, etc.

One critical factor that has begun to receive considerable attention more recently is the role of financial markets in the growth process. The positive link between financial depth and economic growth is fairly obvious. More developed countries, without exception, have more developed financial markets. Therefore, it would seem that policies to develop the financial sector would be expected to raise economic growth. Indeed, the role of financial development is considered to be the key to economic development and growth.

The purpose of this paper is to examine the relationship between the financial system development and economic growth in Albania.

The structure of this paper is as follows: Section 2 makes a summary of the literature on the financial development and economic growth. Section 3 explains some of the alternative measures of financial development. Section 4 presents the evolution of the financial system and economic growth in Albania. Section 5 introduces the methodology used and discusses the results obtained for the case of Albania. Finally, the conclusions are provided.

2. THEORETICAL BACKGROUND

In the theoretical Arrow-Debreu world, which is built upon unrealistic assumptions, there is no need for financial intermediation. However, it becomes essential once imperfections or frictions are introduced in the model and the latter approaches the real

world, which is characterized by the economic exchange. Since the models are merely a simplified reality, no general theoretical model can fully explain why financial intermediaries exist (Khan and Senhadji, 2000). Since financial intermediation facilitates the allocation of goods and services across time and space, it is essential to assess the relationship between financial development and economic growth.

Patrick (1966) identified two possible causal relationships between financial development and economic growth. The first – called “demand following” – views the demand for financial services as dependent upon the growth of real output and upon the commercialization and modernization of economic sectors. Thus, the creation of modern financial institutions, their financial assets and liabilities are a response to the demand for these services by investors in the real economy (Patrick, 1966). On this view, the more rapid the growth of real national income, the greater will be the demand by enterprises for external funds and therefore financial intermediation, since in most situations firms will be less able to finance expansion from internally. For the same reason, with a given aggregate growth rate, the greater the variance in the growth rates among different countries, the greater will be the need for financial intermediation to transfer saving to fast-growing countries from slow-growing countries. The financial system can thus support and sustain the leading sectors in the process of growth. In this case, an expansion of the financial system is induced as a consequence of real economic growth.

The second causal relationship between financial development and economic growth is termed “supply leading” by Patrick (1966). It refers to the transfer of resources from the low-growth sectors to the high-growth sectors, promoting and stimulating growth. This implies that the creation of financial institutions and their services occurs in advance of demand for them. Thus the availability of financial services stimulates the demand for these services.

The emergence of new economic theories proposed by Romer (1986, 1990) has given a new impetus to the relationship between growth and financial development, as these models postulate that

savings behaviour directly influences not only equilibrium income levels but also growth rates (Greenwood and Jovanovic, (1990) and Bencivenga and Smith, (1991)). Thus financial markets can have a strong impact on real economic activity.

Indeed, Hermes (1994) argues and financial liberalization theory and the new growth theories basically assume that financial development leads to economic growth. On the other hand, Murinde and Eng (1994) and Luintel and Khan (1999) argue that a number of growth models show a two-way relationship between financial development and economic growth.

Levine (1997), after reviewing many studies on the relationship between financial development and economic growth for individual or broad cross-country level concluded that the functioning of financial markets is important for economic growth. According to the survey results provided by Levine, countries with larger banks and more active stock markets grow faster. Furthermore, the consolidation of the banking and insurance markets provide a stimulus for developing other industries and firms further.

There are mainly three approaches in testing for the correlation between financial development and economic growth. One approach is to test the hypothesis on a group of countries by using the panel data techniques (King and Levine, (1993)). Another approach is to present micro-level evidence that measures this correlation. Rajan and Zingales (1996) analyzed the correlation between the performance and the growth of firms and the financial market developments, while Demirgüç-Kunt and Maksimovic (1996) argued that the firms accessing developed stock-markets are characterized by high growth rates.

The third approach is to test the hypothesis for a particular country using time series techniques (Rousseau and Watchel (1998), Neausser and Kungler (1998)), which is also the approach used in this paper.

It is apparent that the debate on the direction of causality between economic growth and financial development remains. It is the bi-

directional relationship between economic growth and financial development that motivates this study.

3. ALTERNATIVE INDICATORS OF FINANCIAL DEVELOPMENT

One of the most important issues in assessing the relationship between financial development and economic growth is how to obtain a satisfactory empirical measure of financial development. Since financial development is defined as a process that involves the interaction of many activities and institutions to mark an improvement in quantity, quality, and efficiency of financial intermediary services, its measuring from a single proxy is impossible. The five most commonly used proxies for financial development are: the ratio of M2 to income, the ratio of banking deposit liabilities to income, the ratio of private sector credit to income, the share of private sector credit in domestic credit, and the ratio of domestic credit to income.

The most commonly used measure of financial development is the ratio of broad money or M2 to the level of nominal income. This simple indicator measures the degree of monetization in the economy. The monetization variable is designed to show the real size of the financial sector of a growing economy in which money provides valuable payment and saving services. The “narrow money” stock best reflects the payment services function, and “broad money” the savings function.

In some cases, narrow money is classified as a poor indicator of the extent of financial development. For example, De Gregorio and Guidotti (1995) criticize the use of narrow money to income ratio as a proxy for financial development. In their study, they conclude that a high level of monetization is most likely the result of financial underdevelopment, while a low level of monetization is the result of a high degree of soundness and consolidation in financial markets. They suggest the use of a less liquid monetary aggregate (M2/GDP and M3/GDP) as a proxy for financial development.

In this study, the M2/GDP ratio¹ will be used as one measure of financial development in Albania, since M3 depends largely on other indicators rather than on the financial development. Worth noting is that the time series in Albania are generally short, causing our analysis to focus on a given number of observations. The Albanian GDP reached 52 percent as at year-end 2007 from 30 percent in 1994. This indicator has maintained an upward trend, except for some more marked fluctuations during 1994-1997 reflecting the economic and political situation in that period.

Another indicator that measures the quality of financial development is the ratio of bank deposit liabilities to income (Demetriades and Hussein (1996), Luintel and Khan (1999)). In developing countries, a considerable portion of the broad money stock is currency held outside the banking system. In order to obtain a more representative measure of financial development, currency in circulation should be excluded from the broad money stock. One such proxy is the ratio of bank deposit liabilities to income.

The performance of this indicator in Albania can be viewed in three periods. The first period is characterized by their instant growth to 49 percent of GDP in 1999 from 29 percent in early 1995. In the second period, the ratio of bank deposit to total GDP declined, with the largest fall in 2002 by 45 percent of GDP, which corresponds to the withdrawal of deposits. The third period is characterized by a positive trend of the ratio of bank deposits to GDP. As at year-end 2007, it reached 63 percent.

The ratio of domestic credit to income can be used as a third proxy for financial development (Odedokun, 1989). This represents the domestic assets of the financial sector, which is the major item on the asset side of the consolidated balance sheet of the financial sector. Theoretically, it is expected to increase in response to improved price signalling, represented primarily by the establishment of positive real interest rates.

In Albania, this proxy has experienced considerable growth from an average of 5.7 percent of GDP during 1994-1996 to 61 percent of GDP as at year-end 2007. In order to obtain a more direct

measure of financial intermediation, the private sector credit ratio is also employed as a fourth measure of financial development. It is assumed that credit provided to the private sector generates increases in investment and productivity to a much larger extent than do credit to the public sector.

In the case of Albania, the ratio of private sector credit to GDP was very low during 1994-2001, nearly 3.5 percent of GDP. During 2002-2007, it averaged 14 percent. As at year-end 2007, it reached its peak with 27 percent of GDP.

The fifth proxy for financial development is the share of the private sector credit in the domestic credit. According to Lynch (1996), this indicator may capture the aspect of domestic asset distribution of an economy. The share of the credit given to the private sector in the domestic credit may reflect another aspect of the financial sector and can be used as a proxy for financial development.

In the case of Albania this proxy has been volatile during the years. From 40 percent of total domestic credit in early 1996, it declined to an average of 8 percent during 1997-2001. In 2002-2007, it maintained an upward trend with the share of the private sector credit in the total domestic credit averaging 27 percent. As at year-end 2007, private sector credit accounted for nearly half (45 percent) of total domestic credit to the Albanian economy.

4. FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN ALBANIA

Prior 1990, the banking sector and the Albanian economy was a completely centralized system. There was a one-tier banking system, which consisted of the Albanian State Bank – the monetary and lending authority; the General Directorate of Savings Cash Offices and Insurance, which collected the public savings and acted as a property insurance provider; and the Agricultural Bank, which provided funds to the agricultural sector. In a study on the performance of the banking system, Cani and Hadëri (2002) have identified several serious deficiencies that characterized the Albanian

banking system prior 1990: i) limited financial intermediation, there was a limited range of products and services where banks played the role of recording transactions among producing enterprises; ii) lack of risk assessment and credit risk management; iii) the banking and economic units' accounting system was inconsistent with the international accounting standards and it focused on the recording and monitoring of the process, hence "ignoring" the financial analysis process; iv) substantial lack of experience in international and modern banking governance and management practices.

Following the collapse of communism in early 90s, Albania entered a transitory phase which was accompanied by a number of social and economic changes². Albania's agricultural cooperative and state farm land were rapidly privatized and small household businesses were established, being mainly concentrated in the goods' market. As far as financial intermediation is concerned, it was at very low levels -i.e. hardly existent.

1992 brought about a fundamental change in the banking system –as part of the financial system– through the approval of Law "On the Bank of Albania" and Law "On the Banking System in the Republic of Albania". This change brought about the introduction of the two-tier banking system and laid down the institutional and legal basis for a free market structure and initiative-based banking system.

A two-tier banking structure implies the concentration of the monetary authority at the first level –with the Bank of Albania being mandated as the responsible authority– and the concentration of commercial functions at the second level. At the moment when the two-tier banking structure was established, the second level consisted of three banks: Savings Bank, National Commercial Bank and Agricultural Commercial Bank.

By the end of 1996 five other banks were licensed, two of which Greek capital-owned, one bank owned by the Government of Kosovo and two other joint venture banks of the Albanian Government with an Italian bank and an Arabic one. Despite these developments, the system continued to suffer the deficiencies inherited from the previous regime, both in the legal and regulatory aspect.

In parallel with the formal banking system, a consolidated informal system was being established during this period in Albania, which consisted of individuals or unlicensed firms collecting deposits from the public, granting credit or getting involved in foreign exchange. Public participation in this informal structure was high given the very high interest rates being offered. The gradual accumulation of a number of problems and the lack of timely and properly addressing of these problems gave rise to the establishment and fast growing of this informal structure which burst in 1997.

Following the pyramid crisis in 1997, which affected both the economic and social aspect of Albania, the financial system entered another development stage. At present, the Albanian financial system consists of 16 banks, 7 non-bank financial institutions³ and 10 insurance companies. In addition to the increased number of banks, the Albanian banking system has witnessed the privatization of the National Commercial Bank, the Savings Bank and other restructuring. The American Bank of Albania has recently merged with the Italian-Albanian Bank. Domestic-owned commercial banks, albeit few in number, have witnessed rapid growth rates. Table 1 shows some of the main indicators of the Albanian banking system during 1999-2007.

The growth of bank lending, as a percentage of GDP and total assets, constitutes one of the basic features during this period. Despite their growth in terms of number and activity, we note that Albanian banks lack specialization in a certain area, such as investment banks, savings banks or commercial banks. With very few differences among them, all banking institutions cover almost the same activities, hence making their division harder.

Table 1 Main growth indicators, 1999– 2007

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of banks	13.00	13	13	14	15	16	17	17	17
State-owned banks	2.00	1	1	1	1	0	0	0	0
Public and private-owned banks	2.00	2	2	2	2	2	2	0	0
Private banks	9.00	10	10	11	12	14	17	17	17
Assets	249,485	270,834	319,338	339,305	373,635	426,440	496,561	624,279	742,855

Assets/GDP	49.20	50.20	53.50	51.60	50.20	51.90	59.30	69.65	76.66
Assets' growth		8.56	17.91	6.25	10.12	14.13	16.44	25.72	18.99
Assets' growth/GDP		2.03	6.57	-3.55	-2.71	3.39	14.26	17.45	10.07
Credit	224,290	238,659	258,954	283,829	302,606	331,932	390,953	473,001	589,795
Credit/GDP	44.23	44.24	43.38	43.16	40.66	40.40	46.69	52.77	60.87
Credit/Assets	89.90	88.12	81.09	83.65	80.99	77.84	78.73	75.77	79.40
Credit growth	13.84	6.41	8.50	9.61	6.62	9.69	17.78	20.99	24.69
Credit growth/GDP		0.01	-1.93	-0.51	-5.81	-0.64	15.57	13.03	15.34
Credit growth/Assets		-1.98	-7.98	3.16	-3.18	-3.89	1.15	-3.77	4.79
Deposits	214,363	233,087	277,649	289,006	331,426	375,843	437,548	511,015	606,216
Deposits/GDP	42.27	43.20	46.52	43.95	44.53	45.74	52.25	57.01	62.56
Deposits/Assets	85.92	86.06	86.95	85.18	88.70	88.13	88.12	81.86	81.61
Deposits' growth		8.73	19.12	4.09	14.68	13.40	16.42	16.79	18.63
Deposits' growth/GDP		2.20	7.67	-5.51	1.32	2.72	14.23	9.11	9.73
Deposits' growth/Assets		0.16	1.03	-2.03	4.14	-0.64	-0.02	-7.10	-0.31

Source: Bank of Albania and author's own estimations

4.1. MACROECONOMIC INDICATORS AND COMPARISON WITH OTHER COUNTRIES

Economic growth is one of the basic proxies for the economic development of a country and one of the key indicators of social development. A stable macroeconomic situation provides the basis for the development of the banking and financial system.

Taking a glance at the performance of economic growth in Albania, we note that it has been around 6 percent in the recent years. Despite the more reduced level of poverty, one fifth of the Albanian population still lives in poverty and about 3 percent lives in extreme poverty⁴.

In comparison to other regional countries, real GDP growth in Albania shows similar rates. Table 2 shows the GDP growth rates in South-Eastern and Central Europe, the Baltic countries and the Euro area countries.

Table 2 Real GDP growth

	Real GDP growth						
	2005	2006	2007				2008
			Q1	Q2	Q3	Q1-Q4 ⁵	
Albania	5.6	5.0	...	...	...	5.5	6.0
Bosnia and Herzegovina	4.3	6.2	...	...	...	5.7	5.8

Bulgaria	6.2	6.1	6.2	6.5	4.5	6.0	5.7
Kosovo	-1.0	2.6	...	...	...	2.8	...
Macedonia	4.1	3.2	7.0	4.0	...	4.3	4.1
Moldova	7.5	4.0	...	...	...	5.0	7.0
Montenegro	4.2	8.1	6.6	6.9	7.1	7.0	6.0
Romania	4.4	7.7	6.0	5.6	5.7	5.7	5.3
Serbia	6.2	5.7	8.1	7.5	7.2	7.2	6.0
Average ⁶	4.6	5.4	6.8	6.1	6.1	5.5	5.7
Central Europe ⁷	4.8	5.9	6.7	6.5	6.1	5.8	5.0
Baltic countries ⁸	9.6	10.3	9.6	8.7	9.7	9.0	6.4
Euro zone	1.6	2.9	3.2	2.5	2.7	2.6	1.8

Source: Mihaljek, D (2008)

According to the data provided in Table 2, we note that Albania, as part of South-Eastern Europe, features higher growth rates than in Central Europe countries but lower than in the Baltic countries.

As regards the performance of consumer prices as measured by their annual change, we note that South-East European (SEE) countries, including Albania, have higher inflation rates (in average terms) than Central European countries. Compared to the Baltic countries, SEE countries have lower inflation rates. However, worth taking into account is the fact that the Baltic countries are characterized by higher real growth rates than SEE countries'.

Table 3 shows the inflation rates for the period 2005-2007 and the forecast for 2008.

Table 3 Consumer Price Performance

	Consumer Price Performance								
	2005	2006	2007					2008	
			Q1	Q2	Q3	Q4	Average	Forecast	Deviation from MC ⁹
Albania	2.4	2.4	2.7	2.0	4.4	3.0	2.9	3	-0.4
Bosnia and Herzegovina	3.0	6.2	0.7	0.0	1.6	3.0	0.9	2.5	-0.8
Bulgaria	5	7.3	4.1	5.6	13.1	12.5	8.4	7.7	4.3
Kosovo	-1.4	0.6	0.7	1.1	6.5	10.5	4.4	...	3.2
Macedonia	0.5	3.2	0.8	1.3	3.6	4.6	1.9	2.5	-0.9
Moldavia	11.9	12.7	10.9	10.3	14.1	13.3	12.6	11.4	8.0
Montenegro	2.4	3.0	2.4	1.6	6.5	7.7	4.2	3.0	-0.4
Romania	9.0	6.6	3.7	3.8	6.5	9.1	7.0	6.5	3.1
Serbia	16.1	11.8	5.7	4.7	6.5	9.1	7.0	6.5	3.1
Average ¹⁰	5.4	6.0	3.6	3.4	6.7	7.8	5.2	5.4	2.1
Central Europe ¹¹	2.6	2.9	3.7	4.0	3.6	5.0	3.8	4.3	0.9
Baltic Countries ¹²	4.5	4.9	6.3	6.5	8.6	10.6	7.5	8.4	5.0
Maastricht Criteria	2.5	2.9	...	...	...	...	2.8	3.4	...

Source: Mihaljek, D (2008)

5. EMPIRICAL MODEL

This session presents the empirical analysis for the bi-relationship testing between economic growth and financial development in Albania. First, general information is provided on the required and available data and next the methodology used and the results obtained are provided.

5.1 DATA

In accordance with the economic theory we have used five proxies for the financial development (FD): the ratio of domestic credit to GDP, LDCGDP; ratio of private sector credit to GDP, LPCGDP; ratio of private sector credit to total domestic credit LPCDC; ratio of M2 to GDP, LM2GDP; and the ratio of banking deposits to GDP, LBDGDP. As a proxy for economic growth (EG) we have used the changes in real GDP per capita, DRGDP. The data¹³ are expressed as logarithms, of quarterly frequency and cover the period 1996-2007. The source of the data is the Bank of Albania and INSTAT (Statistics Institute).

5.2 METHODOLOGY

Bi-relationship testing between financial development and economic growth is based on the Granger-causality test results.

According to Granger's 1969 approach, a variable Y is caused by a variable X if Y can be predicted better from past values of both Y and X than from past values of Y alone. For a simple bivariate model, we can test if X is Granger-causing Y by estimating Equation (1) and then test the null hypothesis in Equation (2) by using the standard Wald test.

$$Y_t = \alpha + \sum_{j=1}^p \gamma_{11j} Y_{t-j} + \sum_{j=1}^p \gamma_{12j} X_{t-j} + \varepsilon_t \quad (1)$$

$$H_0: \gamma_{12j} = 0 \text{ for } j=1, \dots, p \quad (2)$$

$H_1: \gamma_{12j} \neq 0$: for at least one j ,

where α is a constant and ε_t is a white noise process.

Variable X is said to Granger-cause variable Y if we reject the null hypothesis (2), where γ_{12} is the vector of the coefficients of the lagged values of the variable X . Similarly, we can test if Y causes X by replacing Y for X in the equation.

The first step is to estimate a simple bi-variate VAR model, using a proxy for FD and the proxy for the EG. If both variables are found out to be $I(1)$, we test for a cointegrating relationship between these variables. If there is no cointegrating relationship, we make the variables stationary by first differencing and test for non-causality in a VAR context. Finally, for non-stationary variables and a cointegrated relationship, we estimate a VEC model (*vector error correction*) and again test for Granger non-causality in this context.

The VAR model is:

$$\Delta EG_t = \delta_1 + \lambda_{11,1} \Delta FD_{t-1} + \lambda_{12,1} \Delta FD_{t-2} \dots + \lambda_{1p-1,1} \Delta FD_{t-(p-1)} + \lambda_{11,2} \Delta EG_{t-1} + \dots + \lambda_{12,2} \Delta EG_{t-2} + \dots + \lambda_{1p-1,2} \Delta EG_{t-(p-1)} + \phi_{t1} \quad (3)$$

$$\Delta FD_t = \delta_2 + \lambda_{21,1} \Delta FD_{t-1} + \lambda_{22,1} \Delta FD_{t-2} \dots + \lambda_{2p-1,1} \Delta FD_{t-(p-1)} + \beta_{21,2} \Delta EG_{t-1} + \lambda_{22,2} \Delta EG_{t-2} + \dots + \lambda_{2p-1,2} \Delta EG_{t-(p-1)} + \phi_{t2} \quad (4)$$

where p is the order of the VAR, δ -is the constant term, and ϕ denotes the model residuals.

A vector error correction model (VECM) restricts the long-run behaviour of the endogenous variables to converge to their cointegrating relationships. Cointegration is known as an error correction term since the deviations from the long-run equilibrium are adjusted by the short-run dynamics of variables.

In this case, the VECM is:

$$\Delta EG_t = \alpha_1 + \beta_{11.1} \Delta FD_{t-1} + \beta_{12.1} \Delta FD_{t-2} + \beta_{1p-1.1} \Delta FD_{t-(p-1)} + \beta_{11.2} \Delta EG_{t-1} + \beta_{12.2} \Delta EG_{t-2} + \dots + \beta_{1p-1.2} \Delta EG_{t-(p-1)} + \delta_1 EC_{t-1} + \varepsilon_{t1} \quad (5)$$

$$\Delta FD_t = \alpha_2 + \beta_{21.1} \Delta FD_{t-1} + \beta_{22.1} \Delta FD_{t-2} + \beta_{2p-1.1} \Delta FD_{t-(p-1)} + \beta_{21.2} \Delta EG_{t-1} + \beta_{22.2} \Delta EG_{t-2} + \dots + \beta_{2p-1.2} \Delta EG_{t-(p-1)} + \delta_2 EC_{t-1} + \varepsilon_{t2} \quad (6)$$

where EC is the error correction term, p is the order of the VAR (vector autoregression), which translates into a lag of $p-1$ in the VECM, while the short-run dynamic adjustments are captured by nonzero values for the β . In this model, the sources of causation can be investigated using three different tests. The first one is a joint test applied to the lags of the coefficients of each variable separately in each equation above using a Wald test. The second test is a t-test on the coefficient of the lagged error correction term δ for each equation, which is in fact a weak exogeneity test. A significant coefficient for the error correction term indicates a long-run relationship between the variables. The last test is a joint test applied to the sum of each explanatory variable.

5.3 EMPIRICAL RESULTS

Table 4 represents the unit root test results¹⁴ for each variable. In applying the unit root tests, the Dickey-Fuller approach is used.

Table 4 ADF Unit Root Test results

Time series	Levels			First differences		
	with constant	with trend constant	without constant without trend	with constant	with trend constant	without constant without trend
	ADF	ADF	ADF	ADF	ADF	ADF
LDCCGDP	0.0942	0.0287	0.9015	0.0000***	0.0000***	0.0000***
LPCGDP	0.9999	0.9857	1.0000	0.0000***	0.0001***	0.2463
LPCDC	0.9281	0.6123	0.9094	0.0000***	0.0001***	0.0000***
LM2GDP	0.0130	0.2556	0.5804	0.0080***	0.0170***	0.0002***
LBDGDP	0.8350	0.6667	0.9539	0.0014***	0.0220***	0.0001***
DRGDP	0.9999	0.0543	0.9994	0.0000***	0.0000***	0.0000***

Note: ***, **, implies that H:0 is rejected and the alternative hypothesis, that the series are stationary at 5; 10 percent significance levels, is accepted.

All of the variables are found out to be non-stationary for the 5 percent level of significance; however their first difference turns these series into stationary ones.

As a second step, we construct the VECM model by running the Johansen and Juselius (1990) approach. As we have a bi-variate model, we have only two possibilities: one cointegrating relationship or no cointegration. The approach proposed by Johansen and Juselius (1990) suggests two test statistics to determine the cointegration rank. The first one is known as the trace statistic and the second one is known as maximum eigenvalue test (max test). Eviews program uses the critical (non-standard) values of MacKinnon-Haug-Michelis (1999), which change very little from the critical values of Johansen and Juselius (1990). After applying this test, we have the following results as shown in Table 5.

Table 5 Cointegration test

	Cointegration test			Results
		Trace test	Max test	
DRGDP- LDCGDP	r=0	24.53***	21.47***	cointegrated
	r=1	3.05	3.05	
DRGDP -LPCGDP	r=0	14.09	12.75	non-cointegrated
	r=1	1.34	1.34	
DRGDP- LPCDC	r=0	35.09***	24.19***	cointegrated
	r=1	10.90	10.90	
DRGDP- LM2GDP	r=0	38.57***	34.51***	cointegrated
	r=1	4.06	4.06	
DRGDP- LBDGDP	r=0	23.19***	22.85***	cointegrated
	r=1	0.34	0.34	

Note: *** the rejection of H:0, which has no cointegrating relationship at 5 percent significance level.

Based on the above results, we cannot find a cointegrating relationship between economic growth and private sector credit to total income (DRGDP-LPCGDP). Furthermore, the relationship between other indicators of financial development and economic growth is found to be positive in each cointegrating vector.

As a final step, we start testing for non-causality between the variables. First, we test for the non-causality between the non-stationary but non-integrated variables. We first difference each series in order to make each variable stationary. The order of VAR

is selected by using the relevant information criteria and adjusted LR statistics. Table 6 indicates the results generated based on the relationship between DRGDP-DLKGDP.

Based on the results generated from this test we find out that it is economic growth what causes the financial development, which in this case has been measured as the ratio of private sector credit to the level of income.

Table 6 Test for the direction of causality, non-stationary, non-cointegrated variables

	Test of non-causality			Direction of causality
	order VAR	direction 1 ¹⁵ probability	direction 2 probability	Economic growth causes financial development
DRGDP-DLKGDP	(2)	0.5389	0.0006***	

Note: *** indicates the rejection of the null hypothesis for the non-causality of the two variables at 5 percent significance level.

The next step is to test for the causality between the cointegrated variables. In a bi-variate VAR, economic growth does not cause financial development and vice versa if all coefficients $\beta_{ii,1}$ (equations 5, 6) are 0.

The Eviews program we use for estimating the VAR provides two statistics χ^2 . One statistic shows the joint significance of all coefficients of the lagged endogenous variables in the equation, which we have termed χ^2 for lagged coefficients. The other statistic –which we have termed χ^2 for all variables, tests the joint significance of all variables affecting the endogenous variable. These two statistics and the results obtained are presented in Table 4. Since there are only two variables in the VAR, the statistics value χ^2 is the same for both tests. Table 4 also presents the *t*-statistic, which shows the significance or insignificance of the cointegrated relationship in the long-run.

Table 7 Test for the direction of causality, cointegrated variables

	T-stat test for EC		χ^2 for lagged coefficients		χ^2 for all variables	
	direction		direction		direction	
	1 EG	2 FD	1 ¹ FD-EG	2 EG-FD	1 FD-EG	2 EG-FD
DRGDP- LDCGDP	-4.71***	2.58**	2.06	0.83	2.06	0.83
Result	Two way causality in the LR; no relationship in the SR					
DRGDP- LPCDC	-3.69***	-4.17***	10.42***	5.22***	10.42***	5.22***
Result	Two way causality in the LR and SR					
DRGDP- LM2GDP	-6.24***	6.72***	0.06	0.04	0.06	0.04
Result	Two way causality in the LR; no relationship in the SR					
DRGDP- LBDGDP	-7.08***	5.06***	4.98	9.33***	4.98***	9.33***
Result	Two way causality in the LR and SR					

Note: *** and ** indicate the significance at the 5 percent and 10 percent levels, respectively.

According to the results, there is a positive long-term relationship between all indicators measuring the financial development (FD) and economic growth (EG). While in the short-term, this bi-directional relationship is confirmed for only two indicators: the share of private sector credit in total domestic credit (LPCDC) and the ratio of total banking deposit liabilities to total income (LBDGDP). With respect to the relationship between economic growth and the two indicators of financial development, the ratio of domestic credit to total income (LDCGDP) and the ratio of M2 to total income (LM2GDP), no bi-directional relationship is found in the short-term.

6. CONCLUSIONS

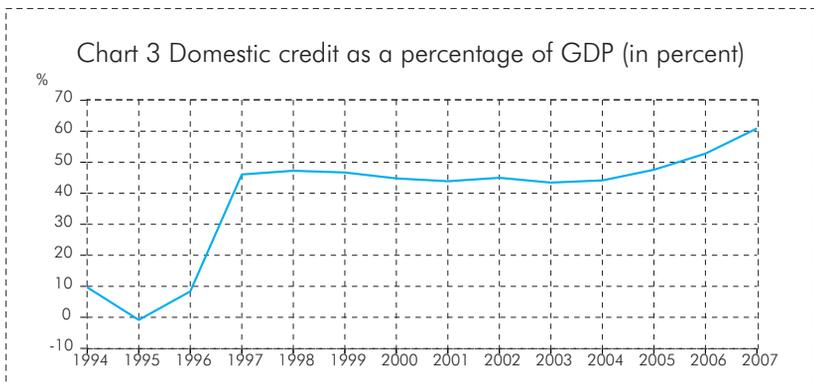
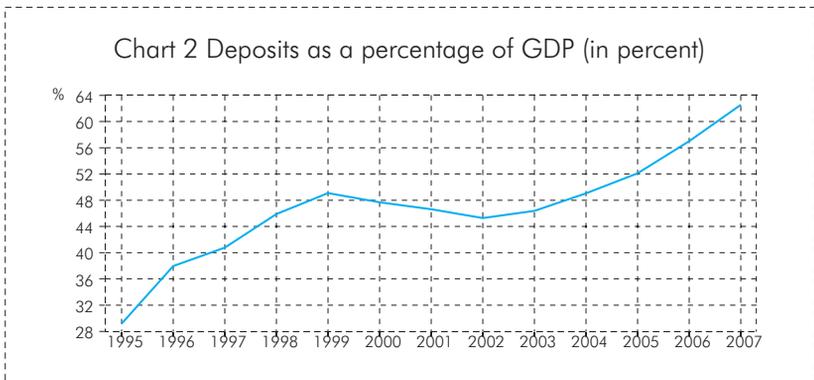
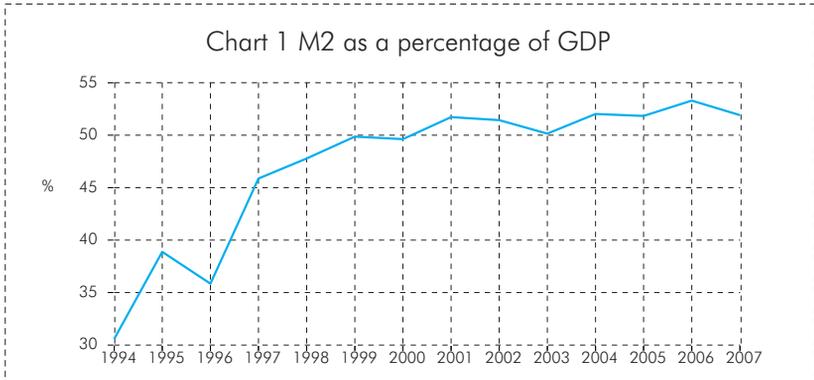
The performance of financial development and financial intermediation plays a key role in the economic activity in all countries, and also in Albania. This paper investigates the bi-directional relationship between financial development and economic growth in Albania for the period 1996-2007. In order to examine the impact of different financial development-related aspects, we use five different indicators that measure the level of financial development. The Granger causality test and the VECM mechanism have been applied for testing this relationship. The empirical results show that there is a bi-directional relationship between all financial indicators

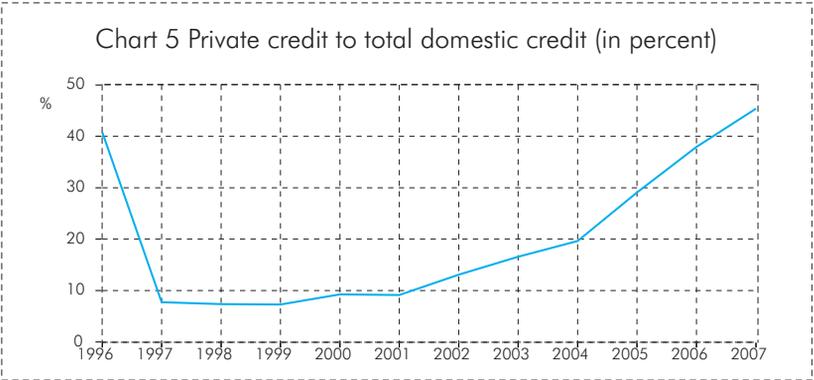
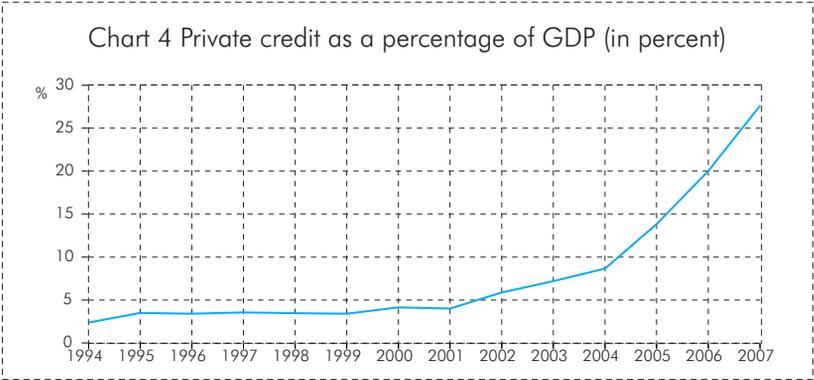
and economic growth, hence supporting the “supply-leading” and “demand-following” phenomena in the long-run. For the short-run, we obtain different results using different proxies for financial developments; hence the relationship between them is not clearly established.

However, the abovementioned model has some restraints. The first relates to the poor data quality, in particular on the real growth, number of population and the number of observations. The number of years under investigation is only 11, which is relatively small compared to the years various authors consider in their papers (15-25 years).

Second, the model does not investigate the relationship between economic growth and international finance, and the relationship between financial development, growth of productivity and capital accumulation, which would trigger further research in this area.

ANNEX 1





ANNEX 2 DESCRIPTION OF DATA

M1 aggregate – includes currency outside banks and residents' demand deposits in Lek. Period of data 1994-2007. Source: Bank of Albania.

M2 aggregate – includes M1 and residents' time deposits in Lek in deposit-accepting banks. Period of data 1994-2007. Source: Bank of Albania.

M3 aggregate – includes M2 and residents' foreign currency deposits in deposit-accepting banks. Period of data 1994-2007. Source: Bank of Albania.

Domestic credit – represents total credit to economy from deposit-accepting banks. This indicator includes all banks' claims on the public sector, private enterprises and households. These claims are expressed as pure loans and other debt instruments that have not been used yet. The data are in million of Lek. Period of data 1996-2007. Source: Bank of Albania.

Private credit – represents total claims of deposits-accepting banks on private commercial and industrial entities and households. These claims are expressed as credit and other debt instruments. Period of data 1996-2007. Source: Bank of Albania.

Total deposits – represents total (demand and time) deposits of the banking system. Period of data 1995-2007. Source: Bank of Albania.

Real economic growth – represents the GDP change per capita at constant prices. Period of data 1995-2007. Source: INSTAT.

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ENDNOTES

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The views expressed in this paper are those of the author and do not necessarily represent those of the Bank of Albania.

¹ The charts on the data are provided in Annex 1.

² World Bank Report No. 34627, 2005.

³ Non-bank financial institutions are companies or institutions that operate as financial intermediaries, but which do not accept deposits and do not include pension funds and insurance companies.

⁴ IMF, Country Report no. 286, 2006.

⁵ Estimations and projections.

⁶ Arithmetic average of the listed countries.

⁷ Czech Republic, Hungary, Poland, Slovenia and Slovakia.

⁸ Estonia, Latvia and Lithuania.

⁹ Deviation from the Maastricht Criteria.

¹⁰ Arithmetic average of the listed countries.

¹¹ Czech Republic, Hungary, Poland, Slovenia and Slovakia.

¹² Estonia, Latvia and Lithuania.

¹³ You may find a detailed description of the data in Annex 2.

¹⁴ Based on the critical values used by the Eviews program.

¹⁵ First direction implies that financial development does not cause economic growth; second direction implies that economic growth does not cause financial development.

¹⁶ FD-EG direction implies that we test that EG does not cause FD, while EG-FD implies that we test that FD does not cause EG, i.e. $H:0$ is of no Granger causality.

LR implies the long-run; the SR implies the short-run

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