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Banking Sector Development and Economic Growth in Lebanon

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Abstract

We study the causality direction between banking sector development and economic growth in Lebanon over the period 1992-2011. Firstly, using Granger Causality tests, we find a one-way causality running from economic growth to banking sector measures such as deposit growth and credit to local private sector. Conversely, credit provided by banks to the resident private sector, and the banking sector size, efficiency, and concentration do not impact significantly economic growth. These results provide support for the demand-following hypothesis regarding the link between financial sector and economic development in Lebanon. Finally, regression estimates using OLS method confirm the above results.

Keywords: Financial Development, Economic Growth, Granger Causality.

1. Introduction

The causality relationship between economic growth and financial development has been a controversial issue. The debate is centred on whether the financial development leads economic growth or vice versa. Some economists believe in the importance of the financial system for economic growth. Others believe that economic development creates demand for financial services, and the financial system responds to this demand.

From a much earlier time, Schumpeter (1911) argued that efficient financial system plays an important role in helping a nation's economy to grow, and well-functioning banks spur technological innovation by offering funding to entrepreneurs who successfully implement innovative products and production processes, and identify and fund productive investments, and all this stimulate future growth. Nevertheless, more recent economists have been dubious about the role of financial sector in economic growth. For instance, Robinson (1952) stated that economic growth creates demand for financial instruments and that enterprises lead and finance follows, so the relationship starts from growth to finance.

In the late 1980s, the Endogenous Growth Theory emerged and paved the way for new theories exploring the link between economic growth and financial sector development. Under the basic endogenous growth model, the development of financial sector might affect economic growth in three ways. First, it can increase the productivity of investments. Second, an efficient financial sector reduces transaction costs and thus increases the share of savings channelled into productive investments. Third, financial sector development can either promote or decline savings (Pagano, 1993).

A more efficient financial sector is more likely to direct a country's scarce resources to their most productive use. As this occurs, economic growth could reach its full potential. Besides, since the primary task of financial intermediaries is to channel funds to the most profitable investments they

identify, then efficient financial markets improve the quality of investments which eventually enhances economic growth. Finally, a well-developed financial system could improve the efficiency of financing decisions and favouring a better allocation of resources and consequently, accelerate economic growth.

In many countries, banks are the most important financial intermediaries and play an important role in bridging savings and investments, Lebanon is an example. The Lebanese economy is service-oriented and based mostly on financial services, trade and tourism. Agriculture, Industry and Services represent 5.1%, 15.9% and 79% of the Gross Domestic Product respectively (the World Bank, 2010). The banking sector represents an overwhelming component of the financial sector and consequently, a major pillar of the Lebanese economy, with a size (i.e. assets) equalled to 360% of GDP by the end of 2011. We note here that by the end of 2011, assets and deposits of Lebanese commercial banks reached \$140 billion and \$124 billion respectively (Source: the Central Bank of Lebanon).

Banks are the main channel for capital inflows into Lebanon, the main lenders to individuals and businesses (where claims on the resident private sector reached \$34 billion or 88% of GDP by the end of 2011), and play an important role in financing the government (where claims on the public sector reached about \$29 billion or 75% of GDP also by the end of 2011).

The Lebanese banking sector is characterised by its conservative practices, which allowed it to withstand the international financial crisis of 2007-08, in addition to past and current local and regional turbulences. The banking sector in Lebanon proved to be the most resilient in the MENA region during those crises and remained very attractive to capital flows as evidenced by the high growth rate of deposits. For instance, this rate was 7.08% in 2006, 11.71% in 2007, 15.06% in 2008, 22.24% in 2009, 11.52% in 2010, and 9.21% in 2011.

This paper will examine the link between development of banking sector of Lebanon and economic development. Unlike the majority of studies, we will not tackle the Lebanese financial market in our analysis since it is very limited in terms of market capitalisation, trading volumes, liquidity, and the number of listed companies. By the end of 2011, financial market capitalisation reached \$16.4 billion, with 11 listed companies on the Beirut Stock Exchange. Besides, during 2011 the trading volume reached \$496 million with 74.8 million shares traded only. Consequently, financial markets in Lebanon play a moderate role in developing economic activities compared to the banking sector.

The remaining of the paper is as follows. Section 2 presents an overview on the literature on the link between economic growth and financial sector development. The empirical methodology is explained in section 3. The exploited data set is presented in section 4. Finally, section 5 includes the empirical findings of the paper.

2. Literature Review

Does financial sector development promote economic growth, or does economic growth propel financial sector development? The potential directions of causality between financial sector development and economic growth are known as supply-leading and demand-following hypotheses.

The supply-leading hypothesis assumes a causal relationship from financial sector development to economic growth, which means that the establishment of financial institutions and markets, increases the supply of financial services and that leads to economic growth. The existence of well-functioning financial intermediations in channelling the limited resources from surplus units to deficit units provides an efficient allocation of these resources and leads other economic sectors into a growth process. Among many others, McKinnon (1973), King and Levine (1993a, b), Neusser and Kugler (1998) and Levine et al. (2000) support the supply-leading phenomenon.

On the other hand, the demand-following hypothesis suggests a causal relationship that runs from economic growth to financial development. The increasing demand for financial services provokes an expansion in the financial sector. So, this hypothesis states that high economic growth creates demand for financial instruments and arrangements and the financial markets response to these

demands. Among many others, Gurley and Shaw (1967), Jung (1986), and Harrison et al. (1999) support this hypothesis.

Apart from these two competing hypotheses, Patrick (1966) proposes a third hypothesis called the “feedback hypothesis”. This hypothesis suggests a two-way causal relationship between financial sector development and economic growth. This hypothesis claims that a country with a well-developed financial system could promote high economic growth through technological changes, and product and service innovations. This in turn, creates high demand for financial arrangements and instruments. As financial intermediaries’ response to these demands, these changes will stimulate a higher economic growth. Therefore, both financial development and economic growth are positively and mutually dependent and their relationship leads to this feedback causality. Luintel and Khan (1999) and Rachdi and Ben Mbarek (2011), among others support this view.

A growing body of studies at the firm-level, industry-level, country-level and cross-country comparisons examined the link between financial sector development and economic growth. The majority of those studies suggest that there is a significant and positive relationship between economic growth and financial sector development, and countries with developed banking sector and dynamic stock markets grow faster than countries with lagged financial system.

Goldsmith (1969) was the first to show empirically the existence of a positive relationship between financial development and economic growth, and provides the earliest evidence that development of financing accelerates economic growth. According to the Goldsmith’s (1969) work, the evolution of domestic financial markets leads to a high level of capital accumulation efficiency, and the positive correlation between financial development and growth is mainly due to the efficient use of capital stock. McKinnon (1973) and Shaw (1973) demonstrate the importance of financial liberalisation in promoting savings and investment, and admit the significance of financial development in promoting economic growth through high capital productivity. Greenwood and Jovanovic (1990) model the dynamic interactions between financial sector development and economic growth and tested the causality between them. They find that an expanded system of financial intermediation is able to allocate more capital to efficient investments and promote economic growth.

King and Levine (1993a) studied cross-country data for 80 countries and found a strong positive relation between financial development and economic growth. They state that financial intermediaries are likely to push capital accumulation and the growth of economic factors’ productivity, leading to economic growth. King and Levine (1993b) studied a sample of 70 countries and examined the impact of financial development on economic growth, capital accumulation and economic factors’ productivity and found a strong link between financial development and growth.

Demetriades and Hussein (1996) examined 16 countries and showed that finance is a leading sector in the process of economic development. They also find bidirectional causality between financial development and economic growth, mainly in developing countries. Odedokun (1996) analysed 71 developing countries and showed that financial intermediation promote economic growth, in the majority of those countries.

Rousseau and Wachtel (1998) examined five OECD member countries during their rapid industrialisation era (between 1871 and 1929). They find strong evidence for one-way causality from finance to growth. Levine and Zervos (1998) investigated the correlation between several measures of stock market (liquidity, size, volatility, and integration with world capital markets) with economic growth. They provided evidence regarding the linkages between stock markets and long-run economic growth.

Levine et al. (2000) and Beck et al. (2000) evaluate the role of financial development in motivating economic growth, and find that higher banking sector development implies higher economic growth and total factor productivity growth. Leahy et al. (2001) used OECD countries data and showed that stock market and financial institutions development are correlated with economic growth. Arestis et al. (2001) applied time series model to five developed economies and showed that both banking sector and stock market development could imply subsequent economic growth. Spiegel (2001) examined the relationship between financial development indicators and economic growth and

indicate that financial development indicators are correlated with total productivity growth and physical and human capital accumulation.

Koivu (2002) find that the efficiency of the banking sector accelerates economic growth in the transition economies. Drakos (2002) examined also the relation between financial sector and economic development in 21 transition economies and showed that imperfect competition in banking sectors lowers economic growth and deepen business cycles.

Calderon and Liu (2003) study a large sample of 109 developing and industrial countries and found that: (1) financial development leads to economic growth in all countries; (2) financial deepening stimulates economic growth and, simultaneously, economic growth propels financial development; (3) financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries, which implies that the developing countries have more room for financial and economic improvement; and (4) the longer the sampling interval, the larger the effect of financial development on economic growth, which suggests that it takes time for financial deepening to impact the real economy.

On the other hand, many other studies found evidence of demand-following relationship. For instance, Harrison et al. (1999) argue that economic growth increases banking activity and profits and promotes the entry of more banks. Liang and Reichert (2006) found a strong evidence of Grange causality between output and financial sector development suggesting that Granger causality runs from economic development to financial sector development. Finally, Rachdi and Ben Mbarek (2011) found a long-term relationship between financial development and growth for the OECD and MENA countries. They also found that the causality is bi-directional for the OECD countries and unidirectional (from economic growth to financial sector development) for the MENA countries.

3. Methodology

The GDP growth model is based on a causality that runs from financial sector development to economic growth. This model is based upon the neoclassical one-sector production where financial sector development is an input, along with other variables, and is represented by the following equation:

$$Y_t = \beta_0 + \beta_1 F_t + \beta_2 X_t + e \quad (1)$$

where, Y represents the economic growth, F is a measure of the level of financial sector development, X represents a vector of other factors, and t represents an annual time series.

Equation (1) can be estimated using the Ordinary Least Squares method. The possible presence of a first-order serial correlation will be detected through Durbin-Watson statistic and corrected (when existed) by including an autoregressive term (i.e. lag dependent variable) in the estimation equations.

4. Data

4.1. Source of Data

The data used in this paper are extracted from 2 sources. The macroeconomic variables are obtained from the IMF database (The World Economic Outlook Database), and the banking sector variables are obtained from the central bank of Lebanon database. The study covers the period 1992-2011 (i.e. 20 years).

4.2. Variables Specification

Economic growth in Lebanon (the explained variable) will be represented by 2 variables: (1) the growth rate of local currency gross domestic product at current prices (GDPG), and (2) the growth rate of local currency gross domestic product per capita at current prices (GDPPC). On the other hand, the banking sector development is represented by the following explanatory variables.

5. Empirical Results

5.1. Granger Causality Tests

Before implementing the regression estimates previously explained, we will perform a Granger Causality test between economic growth and banking sector development in Lebanon, and we test the following 2 null hypotheses:

H1: F does not Granger cause Y . If the estimation results reject this null hypothesis, then it supports Granger causality running from banking sector development to economic growth (Supply-leading relationship).

H2: Y does not Granger cause F . If the estimation results reject this null hypothesis, then it supports Granger causality running from economic growth to banking sector development (Demand-following relationship).

Table 3 presents the results of Granger Causality tests for GDPG with banking sector measures, and Table 4 presents the results of Granger Causality tests of GDPPC with banking sector measures. The results for the 2 dependent variables are almost identical.

None of the banking sector development measures seems to Granger Cause economic development in Lebanon. This suggest that neither the size, nor credit to private sector, nor deposits growth, nor banking efficiency (represented by IRS) Granger Cause economic growth in Lebanon. Therefore, we do not reject H1.

Table 3: Granger Causality tests for GDPG (at current prices) growth (Lag 2)

Null Hypothesis	Observations	F-Statistic	Probability
ASSETS does not Granger Cause GDPG	19	0.82595	0.4581
GDPG does not Granger Cause ASSETS		2.07341	0.1627
CREDIT does not Granger Cause GDPG	19	2.14119	0.1544
GDPG does not Granger Cause CREDIT		3.86139	0.0462
DEPG does not Granger Cause GDPG	18	1.85666	0.1953
GDPG does not Granger Cause DEPG		3.32131	0.0684
IRS does not Granger Cause GDPG	19	0.11941	0.8883
GDPG does not Granger Cause IRS		0.45805	0.6417

On the other hand, the results of Granger Causality models reveal that growth in economic activities in Lebanon (represented by GDPG and GDPPC) increases both lending to resident private sector and deposits flowing into the banking sector, with higher impact on CREDIT (significant at 5%) than DEPG (Significant at 10%). As for the other 2 variables (ASSETS and IRS), economic developments do not seem to Granger Cause the size of the banking sector nor its efficiency.

Overall, we find empirical evidence of Granger Causality between economic growth and banking sector development that runs from economic growth to banking sector development. This is evidence of a demand-following relationship, and that the development of economic activities in Lebanon results in more inflows of deposits into its banks, which allows them to provide more credit to local private sector. This leads us to reject H2.

Table 4: Granger Causality tests for GDPPC (at current prices) growth (Lag 2)

Null Hypothesis	Observations	F-Statistic	Probability
ASSETS does not Granger Cause GDPPC	19	0.76749	0.4827
GDPPC does not Granger Cause ASSETS		2.17839	0.1501
CREDIT does not Granger Cause GDPPC	19	2.01616	0.1700
GDPPC does not Granger Cause CREDIT		3.85744	0.0463
DEPG does not Granger Cause GDPPC	18	2.17510	0.1532
GDPPC does not Granger Cause DEPG		3.06262	0.0813
IRS does not Granger Cause GDPPC	19	0.11951	0.8883
GDPPC does not Granger Cause IRS		0.44898	0.6472

5.2. Regression Estimates

We proceed in this section by examining the effect of banking sector measures on economic growth using OLS estimates. Table 5 presents the regression estimates for GDPG, and Table 6 presents the regression estimates for GDPPC. We include several models in each table in order to: (1) avoid the multicollinearity among regressors, (2) test the impact of different combinations of explanatory variables, and (3) to minimise the number of included explanatory variable to preserve a sufficient number of degrees of freedom.

In Tables 4 and 5, the Durbin-Watson statistics range between 1.95 and 2.05 after correcting for serial correlations with one-year lag dependent variable. Thus, the models and the coefficient estimates are free of serial correlation. Additionally, all models have high explanatory power with adjusted R-squared ranging between 52% and 97% for GDPG and between 45% and 97% for GDPPC. Besides, the F-Statistics and Prob(F-statistics) show the significance of these models. Turning to the individual explanatory variables, we observe the following results.

The size of the banking sector does not have any significant impact on economic growth measures (both GDPG and GDPPC), which means that the large size of the Lebanese banking sector relative to domestic economy does not add value to its economy, despite the fact that the majority of its assets are invested locally. Therefore, a large banking sector is not necessary to represent an added value for local economy, and that depends indeed on the lending and investment policies of that sector.

Both CREDIT and CREDIT(-1) do not impact significantly the development of economic activities, with even surprising negative sign captured by CREDIT in all models. This may suggest that credit provided by banks do not target sufficiently the productive sectors (such as industry and agriculture), and they expand in other businesses such as consumption/personal loans that do not increase national output through exports for instance. Conversely, this could have the opposite impact by increasing imports (to meet the local demand driven by bank credit). We note here that the business sector in Lebanon is formed of a majority of (family-owned) small and medium enterprises that lack transparency and characterised by high level of information asymmetry. This fact represents an obstacle for banks to expand in this business area.

Table 5: Estimation output for GDPG – OLS method

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.428 (0.326)	-0.333 (0.277)	-0.540* (0.298)	0.056 (0.4714)	-0.224** (0.084)	-0.018 (1.2755)
GDPG(-1)	0.183*** (0.049)	0.167*** (0.055)	0.195*** (0.049)	0.608*** (0.194)	0.175*** (0.047)	0.591*** (0.185)
ASSETS	0.006 (0.062)				-0.026 (0.036)	
CREDIT		-0.061 (0.141)		-0.044 (0.575)		
CREDIT(-1)			0.095 (0.139)			-0.172 (0.594)
CONC5		0.006 (0.003)	0.007* (0.003)		0.005* (0.003)	0.002 (0.016)
DEPG	0.688*** (0.043)	0.688*** (0.042)	0.691*** (0.042)		0.688*** (0.042)	
IRS	0.011 (0.016)	0.007 (0.010)	0.013 (0.011)	0.001 (0.018)		0.005 (0.047)
Adjusted R-squared	0.9718	0.9722	0.9727	0.5226	0.9729	0.4964
F-statistic	132.18	133.92	136.62	7.93	171.79	5.68
Prob(F- statistic)	0.0000	0.0000	0.0000	0.0018	0.0000	0.0054
Durbin-Watson	2.02	2.05	1.97	2.04	1.96	2.01

Notes: Standard error in parentheses. *** Significantly different from zero at the 1% level. ** Significantly different from zero at the 5% level. * Significantly different from zero at the 10% level.

Banking concentration seems to have some impact on economic growth, since CONC5 captured a significant effect (at 10%) in one of the presented models in Tables 5 and 6. This may suggest that an increase in concentration implies rising competition among banks, which pushes them to better serve the economy.

The growth rate of deposits is positively and significantly correlated with both GDPG and GDPPC in every model. Therefore, deposits flowing into the Lebanese banking sector do benefit local economy. The Granger Causality tests presented in the previous section showed that credit to private sector does not accelerate economic growth. Thus, this impact of deposit growth on economic developments could have been transmitted through other channels than credit to private sector, such as credit to public sector or else.

Finally, IRS is not significantly correlated with economic developments, which does not match the findings of Koivu (2002) who found a negative and significant relationship between IRS and economic growth. Therefore, our empirical findings do not show that the efficiency of the banking sector improves economic growth in Lebanon. In other words, the considerable increase in the efficiency of the banking sector over the past two decades that was translated into higher profits and returns for banks may have not been devoted to serve the national economy.

Table 6: Estimation output for GDPPC – OLS method

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.430 (0.330)	-0.309 (0.279)	0.526 (0.303)	0.106 (0.483)	-0.253*** (0.085)	0.094 (1.292)
GDPG(-1)	0.184*** (0.051)	0.163** (0.056)	0.195*** (0.051)	0.583** (0.208)	0.177*** (0.048)	0.571** (0.196)
ASSETS	0.007 (0.063)				-0.020 (0.036)	
CREDIT		-0.082 (0.144)		-0.114 (0.590)		
CREDIT(-1)			0.087 (0.142)			-0.230 (0.605)
CONC5	0.006 (0.003)	0.006 (0.003)	0.007* (0.003)		0.005 (0.003)	0.001 (0.016)
DEPG	0.681*** (0.042)	0.681*** (0.041)	0.685*** (0.042)		0.682*** (0.041)	
IRS	0.009 (0.016)	0.005 (0.010)	0.011 (0.011)	0.001 (0.018)		0.002 (0.048)
Adjusted R-squared	0.9695	0.9702	0.9703	0.4798	0.9709	0.4514
F-statistic	122.05	124.82	125.30	6.84	159.85	4.91
Prob(F- statistic)	0.0000	0.0000	0.0000	0.0035	0.0000	0.0098
Durbin-Watson	1.97	1.96	1.98	2.04	1.95	2.03

Notes: Standard error in parentheses. *** Significantly different from zero at the 1% level. ** Significantly different from zero at the 5% level. * Significantly different from zero at the 10% level.

6. Conclusion

Since the introduction of finance-led growth and growth-led finance hypotheses, the relationship between financial sector development and economic growth has been subject to considerable debate. A controversy involves the causality direction of the financial development and economic growth. While some empirical studies find supporting results for finance-led growth and/or growth-led finance, others provide evidence for the feedback causality relationship. Additionally, some studies found no obvious relationship between financial development measures and economic growth.

This paper used Granger Causality tests and regression analysis to discover the relationship between economic growth and banking sector development in Lebanon over the period 1992-2011. We found that banking sector development does not Granger cause economic growth, whereas causality

runs from economic growth to banking sector measures. This result is evidence of what is known as demand-following relationship. The regression estimates also confirm these results since credit (and lag credit) to private sector, the size of the banking sector, banking concentration, and the efficiency of the banking sector do not improve economic activities in Lebanon.

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