Financial Sector Development-Economic Growth Nexus: Empirical Evidence from Nigeria

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Abstract

There has been controversy whether financial sector development constitutes a potentially important mechanism for long run economic growth. Thus, the study empirically examines the financial sector development-economic growth nexus in Nigeria. In doing this, the study employed the cointegration/Error Correction Mechanism (ECM) with annual dataset covering the period, 1980-2009. Five variables, namely; ratios of broad money stock to GDP, private sector credit to GDP, market capitalization-GDP, banks deposit liability to GDP and Prime interest rate were used to proxy financial sector development while real gross domestic product proxy growth. The empirical results show that there is a positive effect of financial sector development on economic growth in Nigeria. However, credits to private sector and financial sector depth are ineffective and fail to accelerate growth. This signifies the effect of government borrowings, the problem of huge non-performing loans, and a deficient legal system on the private sector. These inefficiently and severely limit the contribution of Nigeria's financial sector development to economic growth. To sustain and enhance the existing relationship between financial sector development and economic growth in Nigeria, there is need to adequately deepen the financial system through innovations, adequate and effective regulation and supervision, a sound and efficient legal system, efficient mobilization of funds and making such funds available for productive investment and improved services.

Keywords: Financial Sector Development, Economic Growth, Nigerian Economy, Cointegration, Error Correction Mechanism.

JEL Classification: C50, D53, O43, O50

I. Introduction

It is widely acknowledged that financial development is a multidimensional concept and constitutes a potentially important mechanism for long run economic growth. It plays fundamental roles in the development and growth of the economy. The effectiveness and efficiency in performing these roles, particularly the intermediation between the surplus and deficit units of the economy, depend largely on the level of development of the financial system.
The success of the financial system all over the world in providing its developmental roles has been predicated on the initiation of financial sector reforms such as the introduction of market-based procedures for monetary control, the promotion of competition in the financial sector, and the relaxation of restrictions on capital flows. The aim of initiating these reforms is to create a more efficient and stable system, which will facilitate optimum performance in the economy. This means providing a foundation for implementing effective stabilization policies and successfully mobilizing capital and putting it to effective use, which leads to achieving higher rates of economic growth (Johnston and Sundararajan, 1999). Many countries have experienced successful financial sector reforms which have been accompanied by improvements in economic growth and efficiency of the financial system, while other countries have faced financial crises and disruptions to economic growth.

Given the financial crisis experienced since 1986, many emerging economies, including Nigeria, embraced financial sector reforms (Iganiga, 2010). However, the Nigeria's financial system is not effectively providing its development roles as such and is currently not in a position to fulfill its potential as a propeller of economic growth and development. The formal financial system is relatively shallow and a relatively low level of credit to the private sector. A parallel World Bank review of financing for Rural Micro and Small-Scale Enterprises has also revealed that the absence of efficiently operating rural financial markets in Nigeria has become a serious constraint on sustainable rural development. In sum, both the formal and informal financial sectors in Nigeria are not currently in a position to effectively support a strong expansion of the real sector and maximize their contribution to economic growth and development. Also, in spite of the reforms, Nigeria's major productive sectors have considerably shrunk in size since the 1980s. Poverty is deep, severe and pervasive, with about 70% of the population living below poverty line. Poverty is also becoming entrenched in Nigeria—with the threat that the children of the poor are also likely to end up poor. Income distribution is so skewed that the country is one of the most unequal societies in the world, with 50% of the population having only 8% of the national income (Soludo et al, 2007). This is contrary to the aim of financial sector development.

Studying the relationship between financial development and economic growth is critical for Nigeria, considering that it is a country whose financial industry has witnessed many reforms in a relatively short time. Hence the study is an attempt to investigate whether financial sectors' development have had any impact in stimulating economic growth in Nigeria. It therefore contributes to the literature on the nexus between financial development and economic growth. In doing this, the paper is organized into five sections. Following this introduction is section two, that contains the theoretical/empirical review, section three discusses econometric methodology, section four presents empirical results and analysis and, section five presents conclusion with policy implications.

II. Theoretical/Literature Review

There are numerous studies that support the relationship between financial development and economic growth, both theoretically and empirically. The theoretical underpinnings of this relationship can be traced back to the work of Bagehot (1873), Schumpeter (1911), Hicks (1969) and more recently, to McKinnon (1973), Shaw (1973) and their disciples (Mathieson, 1980; Fry, 1978; Galbis, 1977). These are the people who did ground breaking work on the relationship between financial development and economic growth. Schumpeter (1911) discusses the finance-growth relationship as a supply leading relationship where the financial sector leads economic growth by successfully identifying profitable projects that could be funded. This should not be surprising because it is argued that a well functioning financial system would spur technological improvements because it has the ability to select and finance businesses that are expected to be successful. Hicks (1969) and Bagehot (1873) also argued that industrialization in England was mainly financed by funds from the financial sector which was at the time developing in leaps and bounds.

Empirically many works are being carried out on this area. Among them are; Rousseau and Watchel (2005) which examined the finance - growth hypothesis with data ranging from 1960 to 2003 and revealed that the relationship disappeared over the period of 1985-89 for the coefficient of M3 as a percentage of GDP and during 1990-94 for the coefficient on private sector credit. It was at this time that numerous developing states, especially in Latin America, went through rapid financial liberalization and opening to world economic market. Their findings suggest that in the absence of stable financial institutions, financial liberalization may be counter productive. Similarly, Rousseau and Sylla (1999) examined the historical role of finance in the U.S from 1790-1850 and found a strong support for finance led growth. In addition, Rousseau (1999) investigates the Meiji era of Japan (1868-1884) and shows that the financial sector was instrumental in boosting Japan's explosive growth prior to the First World War. King and Levine (1993) and, Levine and Zervos (1996) examined the nexus between economic growth and finance by estimating cross country regressions and they found that initial financial development level is a close predictor of the subsequent economic growth. They therefore concluded that finance causes growth. Liang(2007) examined banking sector development and growth in China with reference to quality of legal institutions, employing a panel data set covering 29 provinces over the period of 1990-2001 and concluded that without an effective and well-developed legal system, banking sector development only partially contributed to China's economic growth. Also, Ahmed and Malik(2009) in their study examined the relationship between the financial sector and growth, using a panel data for 35 developing countries over the period 1970-2003 and concluded that financial development affects per capita mainly through its role in efficient resources.

These are contrary to DeGregorio and Guidotti (1995) which showed evidence for a negative relationship between financial development and growth in twelve Latin American countries during the period from 1950 to 1985. Similarly, Boyreau-Debray(2003) work on the Chinese financial development and growth revealed that credit extended by the banking sector at the state level has a negative impact on provincial economic growth.

Empirical studies on Nigerian finance-growth dynamics are not only scanty in number but restricted in scope in terms of the measure of financial development. Ndebbio (2004), using an ordinary least square regression framework, finds that financial sector development weakly affect per capita growth of output. He attributed the result to shallow finance and the absence of well functioning capital markets. Similarly, Nnanna (2004) using ordinary least square regression technique, found that financial sector development did not significantly affect per capita growth of output. In the same vein, Nzotta and Okereke (2009), in their study using two stages least analytical framework for a period starting from 1986 t0 2007, observed that financial deepening did not support economic growth in Nigeria. However, Olofin and Afangideh (2009) in their of study financial structure and economic growth in Nigeria, using three stage least square estimation technique on a data spanning 1970 to 2005, discovered that a developed financial system alleviates growth financing constraints by increasing bank credit and investment activities with resultant rise in output. This show that developed financial system indirectly affect growth through investment. In addition to the existing literature on finance and economic growth, this study sets to investigate the path of finance-growth nexus in Nigeria.

Also exploring causality between financial sector development and economic growth, studies abound. Xu (2000), using a VAR analysis, rejects the hypothesis that finance simply follows growth. That expansion of financial institutions can foster economic growth by increasing savings and borrowing options and the reallocation of capital. Similarly, Chritopoulous and Tsionas (2004), using a panel data, show that causality runs from finance to growth. However, Jung (1986) and Demetriades and Hussein (1996), using time-series analysis, found that causality runs both ways, especially for developing economies. Arestis and Demetriades (1997), using time series analysis, concluded that the evidence of a bidirectional causality relationship between financial development and economic growth. This upheld Murinde and Eng (1994) work in the case of Singapore. In the same vein, Luintel and Khan (1999) and Pradhan(2009) investigated the finance-growth nexus in a multivariate VAR model, found a bidirectional causality between financial development and economic growth in all their sample countries and India respectively.

However, the previous studies carried out have not clearly resolved the issue as most of them observed that financial sector development did not promote economic growth while others support the view that financial sector development did promote economic growth. A closer examination of these previous studies reveals that conscious effort was not made to explore various proxies of financial development as most of them used only the ratio of broad money to national income or ratio of domestic/private credit to national income. The intention of this paper is explore the relationship between various proxies of financial sector development and Nigeria's economic growth and, not to come up with a novel estimation technique but to use the technique that has already been employed in other countries to test the same relationship in Nigeria.

Given the objective of this study, cointegration technique developed by Engle-Granger (1987) is employed to estimate the short-run and long-run relationship between financial development and economic growth in Nigeria.

III. Econometric methodology

In this study, cointegration technique developed by Engle-Granger (1987) is being used to estimate the short-run and long-run relationship between financial development and economic growth in Nigeria. In this section, we discussed the data set and the details of econometric technique.

3.1 Data

To analyze the nexus between financial development and economic growth, we used annual data set of Nigeria from 1980-2009. Annual real gross domestic product is used as a proxy to economic growth (Real GDP). This is because of unavailability of quarterly data for GDP. And for financial development indicators, we used proxies such as; market capitalization-GDP ratio (SMCY), broad money stock-GDP ratio(BM2Y), credit to private sector-GDP ratio(CRPSY), prime interest rate(IRS) and deposit liability-GDP ratio(LLY). The data are obtained from Central Bank Nigeria Statistical bulletin and Nigeria Securities and Exchange Commission.

In view of the foregoing, the functional relationship between financial development and economic growth that incorporates various proxies of financial sector development (explanatory variables) for estimation purpose is specified as follows:

$$RGDP_t = a_o + b_1CRPSY_t + C_2BM2Y_t + d_3SMCY_t + e_4IRS_t + f_5LLY_t + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots (I)$$

3.2 Estimation Technique

In analyzing relationship between financial development and economic growth we anchored on model specified by Liang(2007), which was slightly modified. Before the above function is estimated, both dependent and independent variables are subjected to some statistical tests such as stationary test. The Unit root test (evaluated by Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) statistics) is used to find out the stationary of any time series. If the time series are non-stationary, cointegration and Error Correction Model (ECM) are recommended to investigate the relationship between non-stationary variables. Since the regression analysis done in a conventional way will produce nonsense results. The Cointegration tests are performed to test the presence of a long-term equilibrium relationship among the variables. If the variables are cointegrated, then there is a long-term equilibrium relationship between the variables. Of course in the short run, there may exist the disequilibrium. Therefore, the error term in the equation can be treated as the "equilibrium error". To avoid this, Engle and Granger (1987) provided a remedy to correct the problem by suggesting that cointegrated series be represented by an error correction model (ECM). The ECM integrate short-run dynamic with the long-run equilibrium without losing long-run information.

IV. Empirical Results and analysis

Table 4.1: Results of Unit Root Stationarity Test

Variables		Augmented Dickey Fuller test(ADF)		Philips- Perron test(PP)	
		Level	First Difference	Level	First Difference
Log(RGDP)		-0.365017	-5.717698*	-0.365017	--5.717698*
Log(CRPSY)		-0.651190	-4.670463*	-0.939337	--4.670463*
Log(BM2Y)		-1.399849	-4.392163*	-1.661380	-4.392163*
Log(SMCY)		-0.637742	-5.106490*	-0.637742	-5.106490*
Log(IRS)		-2.254004	-5.401994*	-2.254004	-5.401994*
Log(LLY)		-0.702136	--3.908021*	-1.189542	-3.908021*
Critical Values	1%	-3.679322	-3.689194	-3.679322	-3.689194
	5%	-2.967767	-2.971853	-2.967767	-2.971853
	10%	-2.622989	-2.625121	-2.622989	-2.625121

Notes: * indicates significant at one percent or a rejection of the null of no unit root at the one percent level
** indicates significant at five percent or a rejection of the null of no unit root at the five percent level
*** indicates significant at ten percent or a rejection of the null of no unit root at the ten percent level
MacKinnon (1996) one sided p-values

The results of the Unit root tests were performed on all the variables using both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) statistics. The null hypothesis of a unit root cannot be rejected at the 1percent level for any of the variables at the levels. This shows that all the variables at their levels are non-stationary. But each of the variables became stationary after differencing. The results of these tests are presented in table 4.1.

Table 4.2: Results of the Johansen Co-integration Test

Panel A.	**TRACE TEST**			
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value (0.05)	Prob.**
None *	0.936213	207.5736	95.75366	0.0000
At most 1 *	0.930813	136.0164	69.81889	0.0000
At most 2 *	0.708133	66.57171	47.85613	0.0004
At most 3 *	0.564816	34.55379	29.79707	0.0131
At most 4	0.343646	12.92217	15.49471	0.1177
At most 5	0.073138	1.974723	3.841466	0.1599
Panel B.	**MAXIMUM EIGENVALUE**			
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Critical Value (0.05)	Prob.**
None *	0.936213	71.55718	40.07757	0.0000
At most 1 *	0.930813	69.44468	33.87687	0.0000
At most 2 *	0.708133	32.01792	27.58434	0.0126
At most 3 *	0.564816	21.63162	21.13162	0.0425
At most 4	0.343646	10.94745	14.26460	0.1569
At most 5	0.073138	1.974723	3.841466	0.1599
Trace test indicates 4 cointegrating eqn(s) at the 0.05 level Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values.				

Table 4.2 represents the Trace and the Maximum Eigenvalue statistics for the model. The null hypothesis of the absence of a cointegrating relation among the variables is rejected at the 5 percent level for both statistics. The Trace statistics indicates that there are five cointegrating equations while the Maximum Eigenvalue statistics also indicates five cointegrating equation. The existence of Cointegration is indicative of a long run relationship between real output and the financial development variables and is consistent with the finance-led theories.

Table 4.3: Error Correction Representation of Financial Development and Growth

Dependent Variable: D(LOG(RGDP)) Method: Least Squares Method: Least Squares Error Correction Model Sample (adjusted): 1984 2009				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009719	0.023649	0.410946	0.6866
D(LOG(RGDP(-1)))	0.302538	0.150827	2.005859	0.0621
D(LOG(RGDP(-2)))	0.491322	0.183469	2.677956	0.0165
D(LOG(CRPSY))	-0.777826	0.240479	-3.234488	0.0052
D(LOG(BM2Y))	0.490582	0.272848	1.798004	0.0911
D(LOG(BM2Y(-2)))	1.182702	0.378025	3.128638	0.0065
D(LOG(SMCY))	0.322409	0.114574	2.813970	0.0125
D(LOG(IRS))	0.259629	0.126620	2.050464	0.0571
D(LOG(IRS(-1)))	-0.466039	0.150256	-3.101626	0.0069
D(LOG(CLLBY(-2)))	-0.884644	0.333806	-2.650174	0.0175
ECM(-1)	-0.961957	0.211504	-4.548178	0.0003
R-squared =0.773214, BG=0.308954 (0.7391), RESET=0.456167 (0.5097), ARCH (1) = 1.248996 (0.2748), Adjusted R-squared=0.631473, F-statistic=5.455119 (0.001414). Values in bracket are probability values.				

For the regression as shown in table 4.3, we test our model specification error with the Ramsey RESET Test and the serial correlation with Breusch-Godfrey Serial Correlation LM Test(BG). The results of the tests suggest that the model specification is free of error, and there exists no evidence of second serial correlation in the regression result.

The estimations in table 4.3 reveal that the financial sector development indictors are consistent with the apriori expectation except banking sector widening, credit to private sector-GDP ratio (CRPSY), interest rate(IRS) and the size or depth of the banking sector(CLLBY). The interest rate variable though not properly signed, shows that investors are concerned about their rates of returns on investment in the current year and cost of the fund in the long-run. However, this result is worrisome since CRPSY and CLLBY negatively affects Nigeria's economic growth, which signifies that the large amount of government borrowings crowd out the private sector, the problem of huge non-performing loans as a result of investment inefficiency, and a deficient legal system, these, inefficiently and severely limits the contribution of Nigeria's financial sector development to economic growth. This result is also consistent with our theoretical analyses. However, the capital market development, market capitalization-GDP ratio(SMCY), interest rate(IRS) and broad money supply-GDP ratio(BM2SY) are the stimulator of the Nigerian economy since they are positively and significantly correlated with economic growth in the long-run, indicating that enhancing financial sector will enhance Nigeria's growth. This is contrary to Nnanna(2004), Nzotta and Okereke(2009), DeGregorio and Guidotti (1995) and, Boyreau-Debray(2003). The significant of Error correction Term(ECT) also confirms the short-run cointegration relationship between financial sector development and economic growth. The coefficient indicates the velocity of adjustment to the long-run equilibrium after a short-run shock. This shows that economic growth in Nigeria adjusts speedily to financial sector development.

V. Conclusion

Recent theoretical and empirical evidence show that a country's financial sector development stimulates economic growth. In this paper, Liang (2007) type of model is introduced to analyze the relationship between financial sector development and economic growth in Nigeria but with a slight modification, using annual time series data over the period of review, 1980-2009.

The Empirical results reveal that the financial sector development indicators; stock market capitalization-GDP ratio (SMCY), interest rate (IRS) and broad money stock-GDP ratio(BM2Y) effectively stimulate Nigerian economic growth. The adjustment coefficient shows that economic growth in Nigeria adjusts speedily to financial sector development. However, credits to private sector and financial sector depth variables are ineffective and fail to accelerate growth. This signifies the effect of government borrowings, the problem of huge non-performing loans, and a deficient legal system on the private sector. These inefficiently and severely limit the contribution of financial sector development to stimulating economic growth in Nigeria.

To sustain and enhance the existing relationship between financial sector development and economic growth in Nigeria, there is need to adequately deepen the financial system through innovations, adequate and effective regulation and supervision, a sound and efficient legal system, efficient mobilization of funds and making such funds available for productive investment, and improved services. Without the aforementioned, Nigeria's financial sector development will partially contribute to economic growth. In this sense, further strengthening of Nigeria's financial systems is essential and critical for Nigeria's sustainable growth.

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