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FINANCIAL DEEPENNING AND ECONOMIC GROWTH

EVIDENCE FROM NIGERIA

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Abstract

This paper is an attempt to investigate the relationship between financial deepening and economic growth in Nigeria from 1980 to 2010. Two measures of financial deepening were used in the study. They include money supply proxied by M2, total commercial banks loans. GDP was used as proxy for economic growth. . In line with the objectives of this paper, Johansen Co-integration and Vector Error Correction Mechanism (VECM) were used to analyze the relationship among the variables in both the long run and the short run respectively. Granger causality test was also employed to test direction of causality among the variables. The result shows that there is long run and short run positive relationship among the variables. The paper concludes with the recommendation that there is the need for policies that will encourage increased participation in the financial sector of the country.

Key Words: Financial deepening, economic growth, money supply, VECM

INTRODUCTION

The Motivation

The relationship between financial deepening and economic growth has long been investigated in the literatures. This is because of its role in promoting economic growth, alleviating poverty, and reducing inequality. Financial development is vital for economic growth, and poverty reduction (Quartey, 2008). Also, idle funds are channeled through financial markets to where they are put to active uses in form of investment (Greenwood and Jovanovic, 1990). Hence, countries with well-developed and efficient financial sector will be associated with sustainable economic growth. Over the years, the relationship between financial deepening and economic growth has generated great interest and debate in the literature. The debate has been on the

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direction of causality between economic growth and financial development. The first view says that development in the financial system results in a faster economic growth. For instance, King and Levine (1993) found out that development in financial sector is very important to the growth process of a nation. Also, Kirkpatrick (2000) noted that a well-developed financial sector mobilizes and allocates resources, thereby contributing to economic growth. The second view postulates that the direction of causality is from economic growth to financial deepening. It says that financial deepening is a consequence of economic growth and not a cause (Levine, 2005). The argument is based on the fact that the development in the real sector of the economy induces more demand for financial services. This in turn leads to the creation of new financial institutions (Demetriades & Hussein, 1996). The third view suggests a bi-directional causal relationship between financial deepening and economic growth. There is a mutually causal relationship between economic growth and financial development. Financial development leads to economic growth, and increased economic activities in turn lead to financial development (Luintel and Khan, 1999). Financial deepening leads to economic growth and this, in turn, causes feedback and brings about further financial deepening (Blackburn & Hung, 1998). On the contrary, there is also another argument that suggests that there is no causal relationship between financial deepening and economic growth. This means that they are independent of each other Lucas (1988).

Over the recent years, financial sectors in developing countries have experienced a rapid development. There have been increased activities in the banking sector as well as in the equity market. However, financial systems in developing economies are still generally shallow to bring about the needed growth (IMF, 2012).The Nigerian financial sector has experienced different reform since 1986. Prior to the reform, the sector was highly regulated with little private sector involvement. The financial sector could not contribute meaningfully to the growth of the economy. The introduction of the Structural Adjustment Programme (SAP) in 1986 began a new face in the sector. This led to increased private participation and a massive inflow of new actors into the financial sector. The banking sector for instance received a great boost as the number of commercial banks which stood at 56 in1986 increasedto120 in 1992. However, many of the banks could not last because they were weak due to weak capitalization and poor management quality. By 2003, the number of the commercial banks available has reduced to 89.Out of these, ten banks accounted for about 50 percent of the total industry's assets and liabilities (Soludo, 2004). This therefore led to another reform in the sector with minimum capital requirement of ₦25 billion. This led to the emergence of fewer banks but with improved minimum capital requirement of ₦25 billion each.

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Also, the Nigerian capital market has grown considerably over the years as reflected in the increase market capitalization which improved from 1.6 billion in 1980 to 1.3 trillion in 2003, 5.1 trillion 2006 to 6.9 trillion in 2013 (Okoye, Nwisienyi, and Eze,2013). Also, there was entry of new kind of financial institutions like finance houses, bureau de change, Community banks, and entry of a great variety of new financial instruments (Umoh, 2004). However, despite the development in the financial sector, the economy showed no marked improvement (Adekunle, Adedipe, and Oluseyi 2013). It is in the light of the above that this paper seeks to examine the relationship between financial deepening and economic growth in Nigeria.

REVIEW OF EXISTING LITERATURES

There have been several works done to address this problem in the literature. Using a panel analysis, King and Levine (1993), studied the relationship between financial development and economic activity in 80 countries over the period 1960 to 1989. They found out that increased financial development has positive effects on some aspects of the real variables. Also, Christopoulos and Tsionas(2004) used dynamic panel and threshold co-integration tests to investigate relationship between financial deepening and economic growth in ten developing countries. Modified Ordinary Least Square regression was used to estimate the long run relationship among the variables. They found a unidirectional causality running from financial deepening to economic growth, but conclude that there is a need for persistent and sustainable financial deepening in those countries so as to foster economic development

Adebiyi (2005) investigates the link between financial deepening and economic growth in Nigeria. He used some stock market indicators such as ratio of turnover to GDP, market capitalization to GDP and a number of securities as proxies for financial deepening. The result indicates that both measures of financial development were statistically significant in explaining economic activities. In another related study, Ajakaiye (2002) used the banking sector credits to the private sector to examine the effect of financial development on real investment in Nigeria between 1981 and 1995. In their result, there was a positive relationship between banking sector credits to the private sector and real sector activities. They conclude with the recommendation that real investment expenditure will increase in the economy if real bank credit to the private sector is increased. Though the relationship between financial deepening and economic growth in Nigeria has long been investigated, there are still gaps to be filled. One of such is that the use of credits to the private sector as proxy for financial deepening does not take into account the banking sector credits to other sectors of the economy. This work fills this gap in the literature by using total banking sector loans rather than loan to the private sector as proxy for financial deepening.

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METHODOLOGY

Sources of Data

This study employed secondary data obtained from the Central Bank of Nigeria Statistical Bulletin (2012). The data spans over 1981 to 2011.

Model Specification

The focus of this study is to evaluate the impact of financial deepening on economic growth. To do that, this work adopts the model used by Rebelo (1991) endogenous growth model developed on the basis of theoretical postulates of McKinnon (1973). Consistent with the objectives of this study, the empirical model is presented in logarithm form below.

$$\boldsymbol{LY_t = \beta_0 + \beta_1 LK_t + \beta_2 LFD1_t + \beta_3 LFD2_t + \varepsilon_t}$$

Where L denotes natural logarithm, Y is the Real GDP, K is the gross capital formation, FD1 is the financial deepening, proxy by the ratio of M2 to GDP, FD2 is the second indicator of financial deepening, proxy by the ratio of total loan to GDP, and ε is the error term. The following are expectedβ_1>0,$\boldsymbol{\beta_2}$>0, and $\boldsymbol{\beta_3}$>0.

Description of variables

Measuring Economic Growth (Y)

Economic Growth is the increase in productive capacity of a country. It is measured as a sustained increase in the real gross domestic product or national income of an economy. Real GDP is used as proxy for economic growth in this paper.

Financial Deepening (FD)

In this paper, we employed measures of financial development for the purpose of testing the sensitivity of our findings. They are the ratio of M2 to GDP, and the second indicator of financial deepening is the ratio of total loan to GDP. The second indicator is chosen because the country is essentially a credit-based society. In a credit-based society, productive economic units rely mainly on borrowing to finance their activities. The usual measure is credit to private sector. However, the public sector has been active in Nigeria, and hence using credit to private sector alone may yield a bias result. Hence, the total credit rather than credit only to the private sector is used in this work

Capital stock (K)

The ratio of gross fixed capital formation to GDP is used as proxy for capital stock (K) in this paper.

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Estimation Technique

This paper uses the Johansen and Juselius (1990) co-integration technique. It shows the relationship between the variables in the long run. The short run dynamics is analyzed through the Vector Error Correction Model (VECM). The first step is to determine the time-series properties of the series. This is done using Augmented Dickey-Fuller (ADF) unit root.

ANALYSIS AND DISCUSSION OF RESULTS

Unit Root Test

Before proceeding to the co-integration analysis, we first check the time-series properties of the series. The selection criterion for lag length is based on the Akaike Information Criterion (AIC). All the variables are in log form. The result is shown in table 1 below

Table 1: Augmented Dickey – Fuller tests Result

Series	Level *I*(0)			First Difference *I*(1)		
	Critical value (5%)	ADF	P-value	Critical value (5%)	ADF	P-value
LGDP	-2.963972	0.378728*	0.9786	-2.967767	-4.057093	0.0040
LGCF	-2.971853	0.629610*	0.9880	-2.971853	-4.782327	0.0007
LM2	-2.971853	-0.281806*	0.9157	-2.971853	-4.441902	0.0016
LTLA	-2.963972	-0.402314*	0.8965	-2.967767	-5.045882	0.0003

*Note: the asterisk * stands for non-rejection of the null hypothesis at the 5% significance level, and MacKinnon (1996) one-sided p-values.*

From the results of the ADF test, it shows that all the series are not stationary at level. They are however stationary at the first difference. We next proceed to the estimation of the co-integration test.

Johansen Co-integration Test Result

Variables will be deemed to be co-integrated if they have a long run relationship between them. The result is presented in table 2 below.

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Table 2: Results for co-integration test

Variables LGCF LGDP LM2 LTLA							
Hypothesized No. of CE(s)	Eigenvalue	TRACE Statistic	0.05 Critical Value	Max-Eigen Statistic		0.05 Critical Value	Trace Statistic	Max-Eigen Statistic
None *	0.675824	65.00465	47.85613	65.00465	0.675824	27.58434	27.58434
At most 1	0.500700*	33.46349	29.79707	33.46349	0.500700	21.13162	21.13162
At most 2	0.261567	14.01612	15.49471	14.01612	0.261567	14.26460	14.26460
At most 3	0.179097*	5.525816	3.841466	5.525816	0.179097*	3.841466	3.841466

** denotes rejection of the hypothesis at the 0.05 level*

Trace test indicates 2 co-integrating eqn(s) at the 0.05 level,

Max- eigenvalue test indicates 1 co-integrating eqn(s) at the 0.05 level

The trace test indicates two co-integrating equations. Also, the Maximal-Eigen value tests identified one co-integrating relationship at 5% level of significance. Based on the Maximal-Eigen value test result, there is evidence of the significant long-run relationship among the variables. The presence of at least one co-integrating equation necessitates the analysis of the VECM. The VECM consists of two parts: long-run co-integrating coefficients (used to derive the long-run co-integrating relationship), and the short-run coefficients (for the short-run analysis). The result is presented table 3 below.

Long-run Relationship

Table 3: Normalized Co-integration Coefficients

Variables	LGDP	LGCF	LM2_GDP	TLA
Coefficients	1.0000	1.066357	2.350462	1.333674
		(0.23246)	(0.35421)	(0.20790)
		[-4.58732]	[6.63580]	[-6.41495]

Standard errors in ( ) & t-statistics in [ ]

The result shows there is positive long run relationship between economic growth and all the variables in the model. It shows that the ratio of total loan advance (TLA) to GDP, ratio of money supply(M2) to GDP, and the share of gross fixed capital formation to GDP (K) have the expected positive sign and exert statistically significant effect on real GDP in the long-run. The constant is also positive and statistically significant. The positive and statistically significant effect of the ratio of total loan advance (TLA) to GDP is also consistent with the predictions of the endogenous growth theorists

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Short run Relationship

The table below shows the results of short run relationship among the variables. The coefficients of the one-period lagged differences in the table can be interpreted as the short-run parameters representing the short-run impact of gross capital formation, the two indicators of financial deepening on economic growth. The result is presented below.

Table 4: Short-run coefficients

Error Correction	Dependent Variable: D(LGDP)	
	Coefficient	t-value
D(LGCF)	0.029464	[-0.23559]
D(LM2_GDP)	0.166041	[-0.54798]
D(LRUR(-1))	0.162725	[-0.76031]

The result shows there is positive short-run relationship between economic growth and all the variables in the model. It shows that the ratio of total loan advance(TLA) to GDP, ratio of money supply(M2) to GDP, and the share of gross fixed capital formation to GDP (K) have the expected positive sign. This shows that financial deepening, as proxied by total loan advance, has a positive effect on economic growth in the short-run.

Granger Causality Tests

From the empirical results of VECM, it can be concluded that, there exist a long run and a short run relationship between financial development and economic growth in Nigeria. Hence, we proceed to test for the direction of causality between them. According to Engel and Granger (1987), the presence of co-integrating equations shows that there may be causality among the variables. The result is presented below:

Table 5: Results of the Granger Causality/Block Erogeneity Wald Tests

Equation	LGDP	LGCF	LM2_GDP	LTLA
Excluded				
LGDP		3.717511	0.946934	3.082124
		0.0059	0.6228	0.2142
LGCF	0.215926		0.082939	3.039440
	0.8977		0.9594	0.2188
LM2_GDP	2.999674	2.075676		8.860141
	0.0032	0.3542		0.0119
LTLA	2.645697	0.645185	0.184445	
	0.2664	0.7243	0.9119	

NB: The numbers in parenthesis show the P-values for the corresponding Chi-square statistics

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The result shows a unidirectional causality running from economic growth to gross capital formation. Also, a unidirectional causality exists from financial deepening, proxied by the ratio of broad money supply, to economic growth. This shows that it is financial deepening that granger causes economic growth, and not the reverse. There is also a unidirectional causality between the two measures of financial deepening, running from the ratio of money supply to GDP per capita to total loan advance (TLA). There is no causality between economic growth and total loan advances (TLA).

CONCLUSION AND RECOMMENDATION

This paper is an attempt to investigate the relationship between financial deepening and economic growth in Nigeria from 1980 to 2010. Two measures of financial deepening were used in the study. They include money supply proxied by M2, total commercial banks loans. GDP was used as proxy for economic growth.

In line with the objectives of this paper, Johansen Co-integration and Vector Error Correction Mechanism (VECM) were used to analyze the relationship among the variables in both the long run and the short run respectively. Granger causality test was also employed to test direction of causality among the variables. The result shows that there is long run and short run positive relationship among the variables. Both measures of financial deepening have a positive relationship with economic growth in the long run and short run. This provides strong support for the theoretical argument that financial deepening shares a robust relation with economic growth. The result also shows that there is a unidirectional causality from financial deepening, proxied by the broad money supply, to economic growth. This shows that it is financial deepening granger causes economic growth, and not the reverse. However, there is no causality between economic growth and total loan advances (TLA).

Given the result of this work, this paper concludes with the recommendation that there is the need for policies that will encourage increased participation in the financial sector of the country. This can be done by reducing the bottlenecks that hinder access to loans by the public. Such bottlenecks include strict collateral securities on loans, high interest rate, etc. This paper concludes with a suggestion for further research.

A further research can look at total bank deposits relative to GDP as proxy for financial deepening. An increase in commercial bank deposits relative to GDP may be an indication of an increase in financial inclusion in the country.

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REFERENCES

Adebiyi, M. A. (2005). Capital Market Performance and the Nigerian Economic Growth. In Fakiiyesi and Akano (eds) Issues in Money, Finance and Economic Management in Nigeria. University of Lagos Press

Ajakaiye, D. O (2002), Banking Sector Reforms and Economic Performance in Nigeria, In H. Stein, O. Ajakaiye and P. Lewis (eds) Deregulation and Banking Crisis in Nigeria: A Comparative Study. Palgrave Macmillan, New York.

Blackburn, K. and V.T.Y. Hung (1998), a theory of growth, financial development and trade, Economical, Vol. 65, pp. 107–124

Central Bank of Nigeria (2011), CBN Annual Report and Statement of Account available at www.cenbank.org

Christopoulos, Dk and Tsionas, Eg (2004) "Financial development and economic growth: Evidence from panel unit root and co-integration tests, *Journal of Development Economics*, 73: 55-74.

Demetriades, P. and K. Hussein (1996) Does Financial Development Cause Economic Growth? Time Series Evidence from 16 Countries, Journal of Development Economics, Vol. 51, No.2 pp.387-411

Engle, R.F. & Granger, C.W.J (1987). Co-integration and Error Correction: Representation ,Estimation and Testing. Econometrica 55: 251-76

Greenwood, J., and B. Jovanovic (1990). „Financial Development, Growth and the distribution of income" Journal of Political Economy,98(5):1076-107

IMF Annual Report 2012: Working Together to Support Global Recovery:*www.imf.org/external/pubs/ft/ar/2012/eng. Last accessed: September 2014.*

Johansen, S. and Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Application to the Demand for

Money.Oxford Bulletin of Economics and Statistics 52: 169-210

King R.G and Levine R. (1993) "financial entrepreneurship and growth: theory and evidence journal of monetary economics, 32(3): 513-542

Kirkpatrick, C. (2000). Financial Development, Economic Growth and Poverty Reduction. MahboobUlHaqMemorial Lecture at 16th AGM of PSDE, January

Levine, R. (2005), "Finance and Growth: Theory and Evidence" in P. Aghion and S. N.Durlauf (eds.), Handbook of Economic Growth, Vol. 1A, North-Holland, Amsterdam, 865-934

Lucas, R.E. (1988) "On the mechanics of Economic Development," Journal of Monetary Economics. 22: 3-42

Luintel, Kul, and Khan, Mosahid (1999), A Quantitative Reassessment of the Finance-Growth Nexus: Evidence from a Multivariate VAR, journal of Development Economics 60: 381- 405

McKinnon, R. I (1973), Money and Capital in Economic Development, Washington D.C, the Brookings Institution

Okoye, V. O., Nwisienyi, K. J. and Eze, O. R. (2013), "Capital Market and Industrial Sector Development in Nigeria: A Theoretical Analysis", Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 4(1): 20-30

Quartey, P. and F. Prah, 2008, financial development and economic growth in Ghana: Is there a causal link. African Finance Journal, Vol. 10, pp. 28–54.

Rebelo, S. 1991, Long-run policy analysis and long-run growth. Journal of Political Economy. Vol, 99, pp. 500-521.

Soludo C. C. (2004)"Consolidating The Nigerian Banking Industry To Meet The Development Challenges Of The 21st Century" And Address by the CBN Governor at the special meeting of the Bankers' Committee on July 6 2004, CBN Headquarters Abuja

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