Impact of Banking Sector Development on Economic Growth: Another Look at the Evidence from Nigeria

Abdulsalam Abubakar, Department of Economics, Umaru Musa Yar’adua University, Katsina State, Nigeria
Ibrahim Musa Gani, Department of Economics, Isah Kaita College of Education, Dutsinma Katsina State, Nigeria

ABSTRACT
Despite the implementation of several banking sector reforms, the real sector in Nigeria is still finding it difficult to access financial resources especially from the commercial banks that hold about 90% of the total financial sector assets. Nominal interest rate is high causing many firms to avoid bank-borrowing. Other formidable financing challenges are concentration of bank credit to the oil and gas, communication and general commerce sectors to the disadvantage of the core real sectors, banks are also more disposed to financing government financial need as almost 50% of their assets are tied up in government debt. These myriad financing challenges facing the real sector call for the reassessment of finance-growth nexus in Nigeria. In this regard, this study re-examined the long run relationship between financial development indicators and economic growth in Nigeria over the period 1970-2010. Using the Johansen and Juselius (1990) approach to cointegration and Vector Error Correction Modelling (VEC). The findings of the study revealed that in the long-run, liquid liabilities of commercial banks and trade openness exert significant positive influence on economic growth, conversely, credit to the private sector, interest rate spread and government expenditure exert significant negative influence. The findings implied that, credit to the private sector is marred by the identified problems and government borrowing and high interest rate are crowding out investment and growth. The policy implications are these; financial reforms in Nigeria should focus more on deepening the sector in terms of financial instruments so that firms can have alternatives to banks’ credit which proved to be inefficient and detrimental to growth, moreover, government should inculcate fiscal discipline so as to reduce excessive borrowing from the financial sector and thereby crowding out private investment.

Key Words: Banking Sector Development, Real Sector, Economic Growth, Nigeria

Introduction
Financial intermediation is the process through which financial institutions transfer financial resources from surplus units of the economy to deficit ones. However, for financial institutions to discharge this role effectively, they have to be developed in terms of liquidity, variety of financial assets and efficiency in credit allocation. Rajan and Zingales (2002) concisely reasoned that a developed financial sector should reflect the ease with which entrepreneurs with sound projects can obtain financial resources, and the confidence with which investors anticipate adequate returns. The system should also be able to gauge, subdivide, and spread difficult risks, letting them rest where they can best be borne and should be able to do all these at low cost. With this, more savings, investment and high productivity will be ensured and hence economic growth.

However, despite these potentials of financial development in influencing economic growth, economists and policy makers seemed to have neglected it, until when Schumpeter ([1911] 1952) observed that financial markets (banks in particular) play a significant role in the growth of the real economy by channelling funds from savers to borrowers in an efficient way to facilitate investment in physical capital, spur innovation and the ‘creative destruction process’. He contends that entrepreneurs require credit in order to finance the adoption of new production techniques and banks are viewed as key agents in facilitating these financial intermediating activities and promoting economic development. Therefore, the creation of credit through the banking system was an essential source of entrepreneurs’ capability to drive real growth by finding and employing new combinations of factor use (Allen and Ndikumana, 1998; Blum, et al., 2002).

The notable early works on finance and development along the Schumpeterian lines include Gurley and Shaw (1955) and Goldsmith (1969). They argue that development of a financial system is crucially important in stimulating economic growth and that under-developed financial systems retard economic growth. The policy implication of this viewpoint is that it is important to formulate policies aimed at expanding the financial system in order to foster growth. However, this view had little impact on development policy making in the
early post-war decades, partly because it was not presented in a formal and logical manner, and somewhat because of the dominant influence of the Keynesian doctrine and its financial repression tendencies (Ang, 2007).

The works of McKinnon (1973) and Shaw (1973) marked the first formal and logical argument for the role of financial development in economic growth, in separate works, both argued that economic growth is severely hindered in a repressed financial system by the low level of savings rather than by the lack of investment opportunities. Their central argument is that, interest rate ceiling, directed credit policies and high reserve requirement; lead to low savings, credit rationing and low investment. According to their models financial saving responds positively to the real rate of interest on deposits as well as the real rate of growth in output, on the other hand, investment is negatively related to the effective real rate of interest on loans, but positively related to the growth rate of the economy (Blum, et al., 2002). This way an increase in saving relative to the real economic activity leads to an increase in the level of financial intermediation and consequently leads to an increase in investment, thus any control of nominal interest rate is an attempt to slow capital accumulation because it leads to a reduction in the real rate of return on bank deposits which discourages saving (Ayadi, Adegbite and Ayadi, 2008). Based on this financial liberalization policy was suggested by McKinnon (1973) and Shaw (1973), in order to attain economic growth. Although many criticisms were levelled against financial liberalization especially in economies characterized by inflation and excessive fiscal deficits, many developing countries embraced it particularly after the international financial crisis of Latin America in the early 1980s.

It is against this background that respective governments and monetary authorities of developing countries put in place various structures and pursued designated policies and programs aimed to enhance the efficiency and effectiveness with which the financial intermediaries, namely banks and other financial institutions, carry out their financial intermediation function; and to align same with the dictates of growth and development of their economies (Ezirim and Muoghalu, 2002).

In pursuit of the above policies and programs, Nigeria implemented the Structural Adjustment Program (SAP) in 1986, and the Central Bank of Nigeria (CBN) deregulated the financial sector, new banks proliferated, largely driven by attractive arbitrage opportunities in the foreign exchange market (Hesse, 2007). Moreover, recently the CBN executed a financial sector consolidation and recapitalization policy aimed at raising the capital base of financial institutions for effective intermediation. However, relative to the pre-deregulated period, financial intermediation never took off and even declined in the 1980s and 1990s. Deposits in financial institutions and credit to the private sector, both relative to GDP decreased over the period 1986 to 1992. The increased number of banks and financial capital in the financial sector was thus channelled into arbitrage and rent-seeking activities rather than financial intermediation, for instance, at least half of the banking system’s assets are tied up in government debt and only about half of the increase in deposits experienced in recent years has gone into private sector lending (King, 2003). Thus, Nigeria’s financial sector is still characterized by a high degree of fragmentation and low levels of financial intermediation (Hesse, 2007).

More so as observed by King (2003), the Nigerian financial sector serves mainly larger, well-connected companies; private small and medium-enterprises (SMEs), though normally do have access to bank loans; they try as hard as they can to avoid borrowing, because the high level of interest rates is unaffordable relative to their mostly tight profit margins. While it is generally observed that the Nigerian financial sector provides little long-term lending, the fact is that most businesses have no desire for long-term indebtedness at the rates they would have to pay for it. These signify inefficiencies in the financial intermediation process. These financing issues and challenges identified here, called for re-examining the finance-growth relationship in Nigeria using a more sophisticated econometric tool as against the correlation coefficient and regression analysis mostly used in the literature (e.g. Azege, 2004; Fadare, 2010). This study is aimed at filling this gap by examining this relationship using the Johansen and Juselius (1990) cointegration approach.

**Literature Review**

There is vast literature generally on finance-economic relationship, these literature follow many strands of arguments with varying and often contradicting views. This resulted in the formation of four major hypotheses in the finance-growth literature. In order to shed more light on these hypotheses, the study categorised the literature in to theoretical and empirical literatures.

**Theoretical Literature**

As stated earlier, the possible link between the financial sector and the real sector received less attention from economists until the early twentieth century when the German economist Schumpeter ([1911] 1952) observed that, the financial market,
especially the banks play a significant role in the growth of the real economy. He argued that, banks mobilise and channel funds efficiently which, provide the necessary credit to entrepreneurs to finance investment in physical capital, adopt new production techniques thereby spurring technological innovation and setting stage for the creative destruction process, all these sum up to economic growth (Allen and Ndikumana, 1998; King and Levine, 1993). This view implied that financial development causes economic growth, thus, Schumpeter was the pioneer of the supply-leading hypothesis of the finance-growth relationship. However, his analysis lacks any analytical basis.

The supply-leading hypothesis was logically argued out by McKinnon (1973) and Shaw (1973) in their financial repression theory. They argued that economic growth is hindered in a repressed financial system which is, characterised by interest rate ceiling, directed credit policies and high reserve requirement. According to the duo, this phenomenon lead to low level of saving, credit rationing and low investment. Therefore, they proposed financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings. The crux of the matter is this, an increase in saving relative to real economic activity leads to an increase in financial intermediation which in turn leads to an increase in productive investment and economic growth (Ayadi, Adegbite and Ayadi, 2008). The policy implication of this viewpoint is that formulating policies that liberalise the financial system and enhance financial intermediation will result in high economic growth. However, the failure to record any meaningful success by most of developing countries who implemented these policies raises many questions on the viability of this hypothesis.

Nigeria being the case study of this study is not an exception to this, this is because the financial sector was liberalised through the adjustment programme implemented in 1986, yet the financial sector failed in its primary function of financial intermediation and promoting the growth of the real economy. Confirming this Hesse (2007) reported that relative to the pre-deregulated period, financial intermediation never took off and even declined in the 1980s and 1990s and that Nigeria’s financial sector was still characterized by a high degree of fragmentation and low levels of financial intermediation up to 2004. The above realities prompted some economists to come up with the demand-following hypothesis pioneered by Robinson (1952) he asserts that where finance follows growth leads. This hypothesis regards financial development as endogenously determined by the real economy or its needs, meaning that as the economy growths the demand for financial services and assets emanate. In this regard all a country needs to do is to promote economic growth and financial development will automatically follow. Nevertheless, this view is regarded as a temporary situation that may persist only under special circumstances, such as transition to a market economy (Blum, Federmair, Fink and Haiss, 2002), thus, it cannot be generalised to highly regulated economies.

The mutual dependence or interdependence hypothesis try to balance the two view points above, it postulated that the causality between financial development and economic growth is reciprocal. This view was championed by Patrick (1966) cited in Blum, et al., (2002), this view argues that underdeveloped countries can gain significantly in real terms from developing their financial sectors (supply-leading), whereas in highly developed economies finance becomes increasingly demand-following. Given that many empirical studies (e.g. Esso, 2010) found economic growth to be leading financial development in many developing countries, this hypothesis therefore did not stand the test of time. These contrasting views on the finance-growth nexus lead to the extreme neutrality hypothesis; it contends that financial sector development is not significantly related to real growth. This view is expressed most prominently by Lucas (1988) who observed that the finance-growth relationship is unnecessary over stressed. The neo-classical assumption of perfect information and zero transaction costs form the basis of his argument, in such a situation financial institutions are irrelevant and firms will be indifference as to the source of finance; internal or external (Blum, et al., 2002). The neutrality hypothesis however, has no sound footing as in real life transaction costs can never be zero; firms have to incur cost when borrowing from the financial market and if they excessively use internal financing they will declare fewer dividends and their share price may fall. Moreover, recent financial crises and the collapse of many large corporations are suggestive of the existence of information asymmetry especially in the financial sector. These views and counter views on the finance-growth relationship are pointing to the fact that the issue is still inconclusive and therefore more studies are still needed especially on developing countries. The current study on financial development in the form of banking sector development and output growth in Nigeria is one of such efforts geared towards resolving the issue. At this point it is worth noting that the above hypotheses were more or less based on intuition; they are not based on any growth model, therefore, their analysis is rather one sided. To this end theoretical studies which are based on endogenous growth model are reviewed below.
To begin with, a paradigm was presented by Greenwood and Jovanovic (1990) in which both the extent of financial intermediation and the rate of economic growth are endogenously determined. They showed that financial intermediation promotes growth because it allows a higher rate of return to be earned on capital, and growth in turn provides the means to implement costly financial structures. Thus financial intermediation and economic growth are inextricably linked. Growth provided the wherewithal to develop financial structure, while financial structure in turn allowed for higher growth since investment could be more efficiently undertaken. This finding is consistent with mutual dependence hypothesis. Taking in to account the behaviour of economic agents, Bencivenga and Smith (1991) developed endogenous growth model with multiple assets. They showed that prior to the introduction of financial intermediation, agents who face random future liquidity needs accumulate capital and a liquid, but unproductive asset. However, upon the introduction of financial intermediation the composition of savings shift toward capital, causing intermediation to be growth promoting. They further argued that generally financial intermediaries reduce socially unnecessary capital liquidation, again tending to promote growth. This implied that by enhancing liquidity and mitigating idiosyncratic risk through risk diversification and pooling, the development of financial intermediaries, results in reduction of households’ unproductive reserve of liquid assets, as such funds can be channelled toward illiquid but more productive activities, and therefore financial intermediary development highly contributes to economic growth. This lends credence to the supply-leading hypothesis. Similarly, using endogenous growth model, Pagano (1993), revealed that financial intermediation can affect economic growth positively by acting on the saving rate, on the fraction of saving channelled to investment, or on the social marginal productivity of investment. Nonetheless, he outlined some exceptions in which improvements in risk-sharing and in the household credit market may decrease the saving rate and hence the growth rate, therefore, financial development is too generic a term; to gauge the impact on growth, one must specify the particular financial market concerned. Going by this, the focus of this study on banking sector development in Nigeria is consistent with agreed norm and logical. However, the studies so far ascribe no role to government in the finance-growth relationship; even though government’s fiscal and monetary policies can directly or indirectly affect the financial sector. In this regard, Roubini and Sala-i-Martin (1992) incorporate government behaviours and financial development into an AK-type endogenous growth model to explore the effect of financial repression policies on long-term growth. They argue that government might want to repress the financial sector because it serves as an easy source for financing the budget deficits. According to them, in order to increase the revenue from money creation, governments subject to large income-tax evasion may choose to increase inflation tax by repressing the financial sector and increasing inflation rates. Financial repression will therefore be associated with low growth and high inflation. This supports the supply-leading argument of the financial repression theorists as is the case with majority of other theoretical literature based on the endogenous growth model.

**Empirical Literature**

Using the experience of the Southern African Customs Union (SACU) and the (Rand) Common Monetary Area (CMA), Aziakpono (2003) examine whether domestic financial institutions will become irrelevant in such arrangement. He used ratio of private credit to nominal GDP and ratio of liquid liabilities of commercial banks to GDP as measures of financial development and employed Zellner seemingly unrelated regressions estimation (SURE) method, he found that domestic financial intermediation is still relevant in such financially integrated markets, meaning that even in the presence of foreign capital flow, domestic financial institutions still matter for growth. Moreover, the results also indicates that in order for the smaller countries of the union with less developed financial institutions to optimize gains from financial intermediation, they would need to take steps to strengthen their weak financial system and resolve the institutional and structural problems in their economies. This is echoing the financial liberalisation of the financial system.

Conversely, by broadening the financial development indicators to include liquid liabilities, broad money, private credit and domestic credit, each taken as a ratio of the GDP, in a study on eight sub-Saharan African countries for the period 1970-2000, Hakeem (2009) employed a panel data framework, using fixed effect, random effects and maximum likelihood estimation techniques. Although he found that both the stock of human capital and the physical capital are important for growth in the region, financial development was found to have no strong impact on growth which, he attributed to the long period of financial repression in the region. However, both studies do not incorporate channels through which financial development may influence growth this might have accounted for contradictory results.
Mixed results was found by Esso (2010) in a study that re-examine the co-integrating and causal relationship between financial development (ratio of private credit to GDP) and economic growth in the Economic Community of West African States (ECOWAS) over the period 1960-2005. The results show that there is a long-run relationship between financial development and economic growth but with different direction of causality. In Ghana and Mali financial development leads economic growth while growth causes finance in Burkina Faso, Cote d'Ivoire and Sierra Leone, and bidirectional causality is found in Cape Verde and Liberia. The policy implication is that Cape Verde, Ghana and Mali should give policy priority to financial reform while Burkina Faso, Cote d'Ivoire and Sierra Leone should promote economic growth. This negates the view that stage of development determine the causal relationship between financial development as these countries are at the same stage of development, yet they show inconsistent causality, the fact that the study used a single measure of financial development (ratio of private credit to GDP) might have limited the chances of revealing more relationship between finance and development in these countries.

Yet in another regional study that attempt to answer the question; does deregulation of financial markets speed up capital accumulation and growth? Nazmi (2005) uses a general equilibrium model to analyse the impact of deregulation and financial deepening on the real sector. The model suggests that deregulation and a more developed banking sector prompt firms to increase the capital intensity of production, thereby, fostering more rapid growth. Testing the model with data from four Latin America countries from 1960-1995 supported the main result of the model by showing the positive impact of deregulation and financial development on investment. The studies so far reviewed are cross country using either cross sectional or panel data and analytical tools, by this the countries are assumed to be homogenous. However, these broad comparative analyses conducted at the aggregate level are unable to account for the complexity of the financial environment and specific institutional context of each individual country (Ang, 2007). Therefore, time series studies focusing on individual countries are required.

To this end, Kar and Pentecost (2000) examine the causal relationship between financial development and economic growth in Turkey from 1963-1995 using co-integration based on vector error correction methodology (VECM) and Granger causality tests. The results show that when financial development is measured by the money to income ratio the direction of causality runs from financial development to economic growth, but when the bank deposits, private credit and domestic credit ratios are alternatively used to proxy financial development, growth is found to lead financial development. On balance, however, growth seems to lead financial sector development. This implies that Turkey is a transition economy where developed equity market dis-intermediates fund mobilisation and allocation from banks, so banks are merely responding to the needs of the real sector. Similar results was found by Guryay and Şafakli (2007) who examined the relationship between financial development and economic growth in Northern Cyprus from 1986 to 2004 by employing Ordinary Least Square Estimation Method (OLS). The result showed that there is a negligible positive effect of financial development on economic growth. On the other hand Granger causality test showed that financial development does not cause economic growth, whereas economic growth was found to cause development of financial intermediaries.

However, the central argument of the role of financial development in influencing economic growth is that financial liberalisation will deepen the financial sector and thus enhance financial intermediation and growth. Therefore, studies on finance and growth are supposed to take this into consideration. In this regard, Ang and McKibbin, (2007) examine whether financial liberalisation and development leads to economic growth in Malaysia. Using time series data from 1960 to 2001 and co-integration and causality tests, the empirical evidence suggests that financial liberalization has a favourable effect in stimulating financial sector development and that financial depth and economic development are positively related; but contrary to the conventional findings, their results support Robinson's hypothesis that economic growth leads to higher financial depth in the long-run.

Coming to our case study, that is Nigeria which has had financial liberalisation in the past, Azege, (2004) empirically investigated the relationship between the level of development of financial intermediaries and economic growth in Nigeria from 1970-2003. Using correlation coefficient he established that a moderate positive relationship exist between aggregate deposit money banks credit over time and Nigeria’s corresponding GDP. However, the finding of this study cannot be reliable because he used a non-parametric statistical tool which neither indicates the magnitude of the relationship nor the direction of causality between finance and growth. Using a more suitable method, Fadare, (2010) explore the effect of banking sector reforms on economic growth in Nigeria over the period 1999 - 2009. Using an ordinary least square regression technique, he found that interest rate margins, parallel market premiums, total banking sector

---

www.borjournals.com

Blue Ocean Research Journals
credit to the private sector, inflation rate, inflation rate lagged by one year, size of banking sector capital and cash reserve ratios account for a very high proportion of the variation in economic growth in Nigeria. Although there is a strong and positive relationship between economic growth and the total banking sector capital other indicators of financial development have wrong signs. This revealed that for financial reform to boost growth there ought to be other conditions, such as macroeconomic stability in terms of stable prices and manageable budget deficit. Even though this study used a variety of financial development indicators, it however, suffered by small sample bias as it covers only ten years.

All along the emphasis has been on the effect of financial development on aggregate output suggesting that all the industries in the real sector are uniformly affected by financial development. This cannot be readily accepted since the industries in the real sector have varying financial needs and attitudes towards sources of finance; hence the need for industry level studies on finance and growth. Responding to this need, Façhamps and Schündeln, (2011) using regression analysis test whether firm expansion is affected by local financial development in Moroccan manufacturing enterprises from 1998 to 2003. The results revealed that local bank availability is robustly associated with faster growth for small and medium-size firms in sectors with growth opportunities. Furthermore, evidence suggests that, access to credit was used by pre-existing firms to mobilize investment funds in order to reduce labour costs. This indicates that financial intermediation enable firms to adopt capital intensive techniques of production. However, using bank availability as the only financial development measure is inadequate as the mere presence of banks does not mean they are mobilising savings and efficiently allocation same to productive investments.

Methodology

Data And Variables Description

The study used annual time series data covering the period from 1970 to 2010, which is obtained from the annual report of the Central Bank of Nigeria. The first indicator of financial development and intermediation in the banking sector is the measure of financial depth and the overall size of the financial intermediation; it is the ratio of liquid liabilities of commercial banks to nominal GDP; liquid liabilities are the sum of demand deposit, savings and time deposits; it provides an alternative to the broad money ratio especially when dealing with developing countries. This is because in developing countries, a large component of the broad money stock is currency held outside the banking sector. Therefore, a rising ratio of broad money to GDP may reflect the more extensive use of currency than an increase in the volume of bank deposits (Aziakpono, 2003). Second indicator is the ratio of private credit to GDP where private credit is the credit extended to the private sector by commercial banks. This ratio indicates the importance of the role played by the financial sector, especially the deposit money banks, in the financing of the economy (Levine, 2003); it also measures the activity of financial intermediaries in one of their primary function of channelling savings to investors. These indicators are commonly referred to and used in the literature (e.g. Aziakpono, 2003; King and Levine, 1993; Hakeem, 2009); this informed the choice of these measures in this study.

In addition to including measures of depth and activity of the banking sector, it is appropriate, to incorporate a measure of efficiency of the banking sector in financial intermediation especially in a country like Nigeria where the operation costs of banks is high. To this end interest rate spread is used; it is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. According to Hesse (2007) interest rate spreads are often used as proxies for the efficiency of financial intermediation; if there are no market frictions and transaction costs, lending and deposit rates would be the same. Financial development does not influence economic growth directly, but rather do so through some channels; the most widely recognised channels are investment/capital accumulation and productivity. The level of investment will be measured by the ratio of gross fixed capital formation to GDP; funds provided by financial intermediaries to firms enable them acquire more physical capital stock thereby leading to capital accumulation. The second channel is investment productivity which is measured by the ratio of the real change of GDP to the real level of total investment. By allocating funds those projects where the marginal product of capital is highest, financial intermediaries increase the productivity of capital, thereby promoting growth. However, this study used the capital accumulation channel because as reported by Rioja and Valev (2003) it is more relevant in developing countries like Nigeria where banks may not have the ability to adequately evaluate and monitor projects to ensure capital is allocated to the most productive projects, moreover, bank credit is largely determined by long term business relationship with bank managers, rather than viability of the proposed projects.

Other variables are going to be added to control for the possible effects of other growth determining
factors. These variables include government expenditure and trade openness. Government expenditure is used as an indicator of macroeconomic stability and trade openness is used to represent the accessibility of the economy, they are used in empirical studies (e.g. Atif, et al., 2010; Aziakpono, 2003; Allen and Ndikumana, 1998). Government expenditure can reduce economic growth by the crowding out effect on private investment and the inflationary pressures it can lead to due to the need for monetary financing of fiscal deficits (Allen and Ndikumana, 1998).

Investigation Techniques
To examine the dynamic relation between the variables of this study a cointegration vector-error-correction model (VECM) is used; these techniques are used to establish long-run relationships between variables and an equilibrium relationship is said to exist when the variables in the model are cointegrated. In order to conduct the cointegration test base on VECM the following steps are followed; The first step is the unit root and stationarity test which is necessary in identifying the stationarity status of the variables (i.e. I(0) or I(1)) in order to ascertain their order of integration before cointegration test can be conducted; the variables that are integrated of the same order may be cointegrated. Hence the augmented Dickey- Fuller (ADF) and the Phillips and Perron (PP) tests are performed. These tests are conducted on the variables in level and first differences. The second step involves the determination of lag lengths to be included in the cointegration test and subsequent VECM. The choice of lag length is determined by using the Akaike information criterion (AIC) and Schwartz Bayesian criterion (SBC).

The next step is the cointegration test and in this study the Johansen Full Information Maximum Likelihood (FIML) procedure due to Johansen and Juselius (1990), Johansen (1991) is used. Some of the advantages of the Johansen’s procedure are that it permits the testing of cointegration as a system of equations in one step; do not carry over an error from one step into the rest and it does not require the prior assumption of endogeneity or exogeneity of the variables (Bashir, 2003). The VECM provides a means whereby a proportion of the disequilibrium in the short run is corrected in the long run; thus, error correction mechanism is a means to reconcile the short-run and long-run behaviours of the variables (Gujarati and Porter, 2009). The size of the error correction term indicates the speed of adjustment of any disequilibrium towards a long-run equilibrium state. In addition to this, the VECM also enables the determination of the short and long run Granger causalities between the cointegrated variables; the channels of causality are the coefficients of lagged first-differenced variables and that of the error correction term for short and long run causalities respectively. Accordingly, the VECM for this study is specified below:

$$
\Delta \ln(GDP)_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \ln(GDP)_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta \ln(RCG)_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta \ln(RLG)_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta \ln(TGE)_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta \ln(GFCF)_{t-i} + \sum_{i=1}^{p} \beta_6 \Delta \ln(TTR)_{t-i} + \sum_{i=1}^{p} \beta_7 \Delta (IRS)_{t-i} + \delta ECT_{t-1} + \eta_t
$$

Where $\Delta$ is the difference operator, $p$ is the optimal lag length, $\ln$ is natural logarithm sign, GDP= Real GDP, RCG= ratio of private credit to GDP, RLG= ratio of banking sector liability to GDP, TGE= total government expenditure, GFCF= gross fixed capital formation and TTR= openness or trade. IRS is the interest rate spread which is not logged because it is a rate, ECT is the error correction term and $\delta$ is its coefficient and finally $\eta$ is the error term of the model. Since VECM is based on VAR, similar models were also specified for all the variables in the study.

Results And Discussions
The augmented Dicky-Fuller (ADF) and the Phillips and Perron (PP) tests for unit root and stationarity on all the variables at levels and first difference is presented in Table 1. The Table shows that all the variables have a unit root; implying they are not stationary at their levels. However, the tests showed that the first difference of the variables has no unit root and the null hypothesis was rejected at 5% level of significance, indicating that all the variables are integrated of the same order, that is I(1).

<table>
<thead>
<tr>
<th>Table 1. Stationarity Tests of all the variables at levels and first difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.borjournals.com">www.borjournals.com</a></td>
</tr>
</tbody>
</table>
Levels | First Difference | Stationarity status
---|---|---
LGDP | -2.066 | -5.830 | I(1)
LBMG | -1.754 | -5.755 | I(1)
LRCG | 0.710 | -5.649 | I(1)
LRLG | -1.639 | -6.135 | I(1)
LGFCF | -2.236 | -4.475 | I(1)
LTGE | -2.391 | -7.332 | I(1)
LTTR | -2.046 | -7.003 | I(1)
IRS | -0.786 | -7.558 | I(1)

* denotes rejection of null hypothesis at 1% levels of significance.

Both lag length selection criterion, that is the AIC and SBC revealed that the optimal lag length for the models is one; hence it is used in the subsequent cointegration test and VECM. The Johansens’ cointegration test results are given in Table 2 and both test; the trace test and the max-Eigen test revealed that there is one cointegration equation at 5% level of significance, or r = 1; thus we may conclude that the variables in the model have a long-run equilibrium relationship.

The normalized cointegrating equation is presented below (t-statistics in parentheses). It revealed that in the long-run, there is a statistically significant negative relationship between economic growth as represented by GDP and ratio of credit to private sector to GDP; total government expenditure and interest rate spread. This has confirmed that high interest rate and excessive government borrowing are making private credit inefficient and detrimental to growth and that public expenditure is crowding out private sector investment. On the other hand, ratio of liquid liabilities to GDP and trade openness has a statistically significant and positive influence on growth. This has shown that financial instruments other than bank credit are playing a better role in financial intermediation in Nigeria; also trade openness is an important determinant of growth.

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Trace Statistic</th>
<th>5% Critical Values</th>
<th>Max-Eigen Statistic</th>
<th>5% Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>None * (r = 0)</td>
<td>126.0735</td>
<td>125.6154</td>
<td>48.02579</td>
<td>46.23142</td>
</tr>
<tr>
<td>At most 1 (r ≤ 1)</td>
<td>78.04776</td>
<td>95.75366</td>
<td>26.16539</td>
<td>40.07757</td>
</tr>
<tr>
<td>At most 2 (r ≤ 2)</td>
<td>51.88237</td>
<td>69.81889</td>
<td>20.74444</td>
<td>33.87687</td>
</tr>
<tr>
<td>At most 3 (r ≤ 3)</td>
<td>31.13792</td>
<td>47.85613</td>
<td>13.56351</td>
<td>27.58434</td>
</tr>
<tr>
<td>At most 4 (r ≤ 4)</td>
<td>17.57442</td>
<td>29.79707</td>
<td>10.86512</td>
<td>21.13162</td>
</tr>
<tr>
<td>At most 5 (r ≤ 5)</td>
<td>6.709291</td>
<td>15.49471</td>
<td>6.623725</td>
<td>14.26460</td>
</tr>
</tbody>
</table>

Max-Eigen and Trace Statistic tests indicate 1 cointegrating equation at 5% level.

* denotes rejection of the hypothesis at the 5% level of significance.
Table 3 below summarizes the VECM results; it shows the short run relationships and the adjustment to the long run. In the short run, the ratio of liquid liabilities to GDP has a positive and statistically significant relationship with GDP at 10%. On the other hand, the ratio of private credit has negative but insignificant relation with GDP. Another significant short run relation is between government expenditure and gross fixed capital formation, where government expenditure positively influences and hence Granger cause gross fixed capital formation in the short run. This means that capital formation in Nigeria is largely due to government investments. However, inefficiency and wastages in government expenditure has resulted in gross fixed capital formation having negative although insignificant influence on growth. The ECT coefficients indicate the adjustment to the long run as well as long run causality; they are supposed to have negative and significant coefficients. However, only the RCG and IRS models have negative and significant coefficients; indicating that the adjustment to the long run is taking place in these models, this is contrary to the GFCF and RLG models which have correct sign but are statistically not significant. The GDP, GFCF and TGE models have positive signs which is contrary to the a priori expectation; this means a shock to these models in the short run is not adjusted towards the long run equilibrium.

### Table 3. Results of the VECM for the MGDP model

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT(_{t-1})</td>
<td>0.01021</td>
<td>-0.015978</td>
<td>-0.009544</td>
<td>-0.006731</td>
<td>0.002587</td>
<td>0.008688</td>
<td>-0.139587</td>
</tr>
<tr>
<td></td>
<td>[1.25007]</td>
<td>[-1.88925]</td>
<td>[-1.11893]</td>
<td>[-1.43473]</td>
<td>[0.42826]</td>
<td>[1.23429]</td>
<td>[-1.98956]</td>
</tr>
<tr>
<td>D(LGD(-1))</td>
<td>0.712117</td>
<td>-0.248238</td>
<td>-0.503025</td>
<td>-0.084042</td>
<td>-0.731143</td>
<td>-0.357746</td>
<td>-4.295853</td>
</tr>
<tr>
<td></td>
<td>[1.01478]</td>
<td>[-0.34165]</td>
<td>[-0.68645]</td>
<td>[-0.20852]</td>
<td>[-1.40683]</td>
<td>[-0.59158]</td>
<td>[-0.71269]</td>
</tr>
<tr>
<td>D(LRCG(-1))</td>
<td>-0.689037</td>
<td>0.839380</td>
<td>0.379128</td>
<td>0.116638</td>
<td>-0.463276</td>
<td>-0.771351</td>
<td>3.150481</td>
</tr>
<tr>
<td></td>
<td>[-1.46907]</td>
<td>[1.72844]</td>
<td>[0.77408]</td>
<td>[0.43299]</td>
<td>[-1.33541]</td>
<td>[-1.90841]</td>
<td>[0.78200]</td>
</tr>
<tr>
<td>D(LRLG(-1))</td>
<td>1.381248</td>
<td>-1.070239</td>
<td>-0.843328</td>
<td>-0.168116</td>
<td>-0.102904</td>
<td>0.660332</td>
<td>-7.207765</td>
</tr>
<tr>
<td></td>
<td>[1.93307]</td>
<td>[-1.44661]</td>
<td>[-1.13024]</td>
<td>[-0.40966]</td>
<td>[-0.19471]</td>
<td>[1.07241]</td>
<td>[-1.17438]</td>
</tr>
<tr>
<td>D(LGFCF(-1))</td>
<td>-0.124801</td>
<td>0.346760</td>
<td>0.236263</td>
<td>0.238816</td>
<td>0.006024</td>
<td>0.346408</td>
<td>-0.991248</td>
</tr>
<tr>
<td></td>
<td>[-0.43895]</td>
<td>[1.17793]</td>
<td>[0.79578]</td>
<td>[1.46252]</td>
<td>[0.02865]</td>
<td>[1.41386]</td>
<td>[-0.40589]</td>
</tr>
<tr>
<td>D(LTGE(-1))</td>
<td>-0.249292</td>
<td>0.379985</td>
<td>0.430175</td>
<td>0.460556</td>
<td>-0.108736</td>
<td>0.408886</td>
<td>1.538168</td>
</tr>
<tr>
<td></td>
<td>[-0.93029]</td>
<td>[1.36952]</td>
<td>[1.53727]</td>
<td>[2.99248]</td>
<td>[-0.54860]</td>
<td>[1.77054]</td>
<td>[0.66826]</td>
</tr>
<tr>
<td>D(LTTR(-1))</td>
<td>0.242971</td>
<td>-0.302187</td>
<td>-0.280474</td>
<td>-0.039623</td>
<td>0.043238</td>
<td>-0.210905</td>
<td>-4.005606</td>
</tr>
<tr>
<td></td>
<td>[1.14864]</td>
<td>[-1.37976]</td>
<td>[-1.26976]</td>
<td>[-0.32615]</td>
<td>[0.27635]</td>
<td>[-1.15701]</td>
<td>[-2.20461]</td>
</tr>
<tr>
<td>D(IRS(-1))</td>
<td>-0.018185</td>
<td>0.032262</td>
<td>0.007415</td>
<td>0.012370</td>
<td>-0.02576</td>
<td>-0.002517</td>
<td>-0.306556</td>
</tr>
<tr>
<td></td>
<td>[-0.83456]</td>
<td>[1.43001]</td>
<td>[0.32586]</td>
<td>[0.98850]</td>
<td>[-1.59833]</td>
<td>[-0.13406]</td>
<td>[-1.63792]</td>
</tr>
<tr>
<td>C</td>
<td>-0.009019</td>
<td>0.085988</td>
<td>0.156574</td>
<td>0.066253</td>
<td>0.390953</td>
<td>0.200126</td>
<td>2.161990</td>
</tr>
<tr>
<td></td>
<td>[-0.05096]</td>
<td>[0.46927]</td>
<td>[0.84724]</td>
<td>[0.65183]</td>
<td>[2.98667]</td>
<td>[1.31224]</td>
<td>[1.42225]</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.145686</td>
<td>0.197087</td>
<td>0.104594</td>
<td>0.370941</td>
<td>0.194378</td>
<td>0.396303</td>
<td>0.414780</td>
</tr>
<tr>
<td>F-statistic</td>
<td>0.639489</td>
<td>0.920494</td>
<td>0.438046</td>
<td>2.211288</td>
<td>0.904789</td>
<td>2.461729</td>
<td>2.657847</td>
</tr>
</tbody>
</table>

### Conclusions And Policy Implications

This study employs the VECM based approach to cointegration to explore the dynamic relationships between financial development in the Nigerian banking sector and growth. The results revealed that the credit to private, government expenditure and interest rate spread exert negative influence on growth in the long run. This might be as a result of the fact that, private credit in Nigeria is marred by high interest rate, lop-sidedness in credit allocation in favour of few sectors and the willingness of banks to commit a substantial part of their funds to financing government through the purchase of treasury bills. The policy implication of these
results is this, financial reforms and policies should focus on how to narrow the gap between savings and lending rates, banks should also be encouraged to lend to the entire economy as against favouring some specific sectors and government should avoid excessive deficit and borrowing from the private sector, which prove to be crowding out private investment. On the other hand liquid liabilities and trade openness are found to have a positive long run equilibrium relationship with growth. This implies that, financing instruments other than bank credit are playing a significant role in promoting growth; hence the need to deepen the financial sector such that entrepreneurs are provided with financing options apart from bank credit which is marred by the problems identified earlier.

Bibliography


