



Impact of Banks' Size and Efficiency in Financing Real Sector Growth in Nigerian Economy

Helen Andow Afang Ph.D

Department of Business Administration, Kaduna State University.
haandow@gmail.com;

Abstract: In spite of the implementation of several banking sector reforms, the real sector of the Nigerian Economy is still bedevilled with inadequate access to finance especially from the deposit money banks that hold about 90% of the total financial sector assets. Nominal interest rate is high causing many firms to avoid bank-borrowing. These myriad financing challenges facing the real sector call for the assessment of finance-growth nexus in Nigeria. In this regard, this study examined the long run relationship between some selected financial development indicators and real sector growth in Nigeria over the period 1970-2014. Based on the nature of the study, correlational research design was adopted while secondary data were mainly employed. Johansen and Juselius (1990) approach to cointegration and Vector Error Correction Modelling (VECM) was used to determine the extent of the relationship between the variables. The findings of the study revealed that in the long-run and liquid liabilities of deposit money banks exert statistically significant and negative influence on real sector growth, conversely, credit to the private sector, level of investment and interest rate spread exert statistically significant and positive influence. The policy implications are these; financial reforms and policies should focus on formulating policies that liberalise the interest rate and enhance financial intermediation will result in high economic growth, moreover, government should direct their borrowing towards encouraging and financing entrepreneurs which prove to increase investment and in turn real sector growth.

Keywords: Size, Efficiency, Financing, Real sector

1.0 Introduction

An economy is usually compartmentalized into four distinct but interrelated sectors. These are the real, external, fiscal or government and financial sectors (CBN, 2013). The Real sector (consisting of agriculture, manufacturing industry, building and construction and services) is strategic

for a variety of reasons. First, it produces and distributes tangible goods (as well as invigorate the service sector) required to satisfy aggregate demand in the economy. Its performance is therefore, a gauge and an indirect measure of the standard of living of the people. Secondly, its performance can be used to measure the effectiveness of

macroeconomic policies. Government policies can only be adjudged successful if they impact positively on the production and distribution of goods and services which raise the welfare of the citizenry. Thirdly, a vibrant real sector, particularly the agricultural and manufacturing activities, create more linkages in the economy than any other sector (Oluitan, 2014) and, thus, reduces the pressures on the external sector. Lastly, the relevance of the real sector is manifested in its capacity building role as well as in its high employment and income generating potentials.

The real sector invigorates the service sector; hence its importance cannot be over emphasized. The capital intense nature of manufacturing and related activities like processing, agriculture etc has made financing needs of the real sector one of the major obstacles to its growth. Though capital and money markets exists to service its financing needs, size of these markets are mostly inadequate to meet the financing needs of the real sector. Banks are major and preferred means of obtaining financing for the sector (Watanabe, 2015).

The banking institution occupies a vital position in the stability of the nation's economy. It plays essential roles on deposit mobilization, credit allocation, payment and settlement system as well as monetary policy implementation. In performing these functions, it must be emphasized that banks in turn promote their own performance and health (Adegbite, 2016). In other words, deposit money banks usually mobilize savings and extend loans and advances to their numerous customers bearing in mind, the three principles guiding their

operations, which are profitability, liquidity and safety.

In the last two decades, a vast movement of concentration and restructuring of the banking sector has characterized almost all developed countries and many developing countries including Nigeria. In this field, merger operations of banks supported by economic policy makers and managers of banks have imposed a new scale of size-based banks. They constitute a specific response to the decrease in profitability charged by firms on traditional intermediation activities and the erosion of their charter values induced by deregulation and increased competition from both banking and non-banking institutions (World Bank, 2016). Also, there is an obligation for banks to grow at the same rate as large companies they are funding. But more importantly, it is expected that through these acquisitions – mergers, banks will be able to achieve better cost structures benefiting from economies of scale and scope provided by their size and therefore improving the efficiency of their production (World Bank, 2016).

An assessment of the National Accounts of Nigeria indicates that the real sector constitutes over 60.0 per cent to the gross domestic product (GDP), but attracts less than 37.0 per cent of total credit (Adewunmi, 2016). Emecheta and Ibe (2015) asserted that agriculture which contributes over 40.0 per cent of the GDP attracts less than 2.0 per cent of total credit while the share of manufacturing in total credit to the economy fell sharply, from 16.9 per cent in 2006 to 10.6 per cent in 2007, before rising to 12.6 per cent in both 2008 and

2009 while Manufacturing average share was 13.2 per cent and had the highest credit allocation. Adegbite (2016) further agreed that agriculture and manufacturing attracts an average total credit of 18.7 percent and 19.6 percent respectively for the period of 2010 to the third quarter of 2015.

Despite the strategic importance of the real sector, and the size of the deposit money banks as reflected by its deposits and capital base given the stronger banks that emerged after the consolidation and other reforms which is expected to enhance its efficiency in credit allocation, has not impacted positively on the real economy as much as anticipated. This was not reflected in the flow of credit to the real economy, as the growth rate of credit fell during the periods 2006 and 2014 and while actual credit did not reflect the proportionate contribution of the sector to the GDP (Ajayi, 2015). Also, credit flow from the deposit money banks to the real economy has been grossly inadequate in addition to high interest rates, high cost of energy and stringent government policies. Thus, Nigeria's banking sector is still characterized by a high degree of fragmentation and low levels of financial intermediation (Umejiaku, 2014).

The capital intensive nature of the real sector has imposed frequent funds requirements. The "Mega banks" that emerged after Nigerian Banking reform would suggest availability of credit/fund to the vital sector. Though funding enhances the sector's growth, but the reality of the Nigerian context is that the real sector is bedevilled with scarcity of loanable funds for growth and expansion of the sector.

It is against this background of financing issues and challenges identified here that this study is aimed at filling this gap by examining finance – growth relationship using size and efficiency of deposit money banks in financing real sector growth in Nigerian economy using a different econometric tool, the Johansen and Juselius (1990) cointegration approach as against the correlation coefficient and regression analysis mostly used in the literature.

2.0 Literature Review

2.1 Financial intermediation and Economic growth

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 (Ayadi, Adegbite & Ayadi, 2015). 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 (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, Federmair, Fink & Haiss, 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 underdeveloped financial systems retard economic growth (Adegbite, 2016). 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, 2015).

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, Federmair, Fink & Haiss, 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 & Ayadi, 2015).

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 & Muoghalu, 2015).

2.1 An Overview of the banking sector reform

Notable phases of banking sector reforms have taken place in Nigeria. The first occurred during 1986 to 1993, when the banking industry was deregulated in order to allow for substantial private sector participation. 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). The second phase was the re-regulation era of 1993-1998, following the deep financial distress. The third phase was initiated in 1999 with the return of liberalization and the adoption of the universal banking model. The fourth phase commenced in 2004 with banking sector consolidation as a major component and was meant to correct the structural and operational weaknesses that constrained the banks from efficiently playing the catalytic role of financial intermediation. Following from the exercise, the aggregate capital of the consolidated banks rose by 439.4 per cent between 2003 and 2009, while deposit level rose by 241.8 per cent (Mamman & Hashim, 2014).

It is expected that the size of the deposit money banks as reflected by its deposits and capital base will enhance their efficiency (as proxied by liquid liabilities and interest rate spread respectively) and credit availability to the real sector (as proxied by private credit) given the stronger banks that emerged after the consolidation and other reforms is expected to enhance its efficiency in credit allocation. A developed financial sector should reflect the ease with which entrepreneurs with sound projects can obtain financial resources, and the investors should anticipate adequate returns (Agbada & Osuji, 2015). 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 (Adegbaju & Olokoyo, 2015). With this, more savings, investment and high productivity will be ensured and hence economic growth.

2.2 Related Empirical Literature

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 showed 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 mobilization and allocation from banks, so banks are merely responding to the needs of the real sector.

Similar results were found by Güray and Şafaklı (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 liberalization 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 liberalization 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.

Nigeria which has had financial liberalization 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 a non-parametric statistical tool, the correlation coefficient established that a moderate positive relationship exists between aggregate deposit money banks credit over time and Nigeria's corresponding GDP.

A study conducted by Fadare (2010) explore the effect of banking sector reforms on economic growth in Nigeria over the period 1999 - 2009. Using the ordinary least square regression technique, he found that interest rate margins, parallel market premiums, total banking sector 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, Fafchamps 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 indicate 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.

Examining the impact of credit to private sector (CPS) on the real sector of Nigeria with a view to assess the significant contribution of CPS to real sector growth in Nigeria, Hashim and Mamman (2014) using multiple regression (total assets and the growth of the real sector (proxy by the Gross Domestic Product [GDP]), broad money supply [M2] and CPS) and based on the coefficient of determination (R square), the study revealed a 96.1% variation between the CPS and real sector growth in Nigeria. The study concluded that there is a statistically significant impact of credit to private sector on the real sector of Nigeria. Moreover, Emecheta and Ibe (2015) investigates the impact of bank credit on economic growth in

Nigeria applying the reduced form of vector autoregressive (VAR) technique using time series data from 1960 to 2011. Current gross domestic product (GDP) is the dependent variable and proxy for economic growth while bank credit to the private sector (CPS) to GDP ratio and broad money (M2) to GDP ratio were proxies for financial indicator and financial depth respectively. A major finding of the study is there is a significant positive relationship between bank credit to the private sector, broad money and economic growth.

2.3 Theoretical literature

There is vast literature generally on finance economic relationship, these literatures 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. 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 mobilize 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 & Ndikumana, 1998; King & Levine, 1993). This study is anchored on the demand-following hypothesis.

2.3.1 Demand-following Hypothesis

The above realities prompted some economists to come up with the demand-following hypothesis pioneered by Robinson (1952). The proponents of the demand-following hypothesis postulate that economic growth is a causal factor for financial development. According to them, growth in the real sector stimulates the financial sector (Gurley & Shaw, 1967). Robinson (1952), states that economic activities propel banks to finance enterprises, thus, where enterprises lead, finance follows. Similar view is held by some researchers including Goldsmith (1969), Lucas (1988), Muhsin and Eric (2000) and Favara (2003).

In a subsequent research, Demetriades and Hussein (1996) investigate 16 less developed countries between 1960 and 1990 with the aid of time series technique. They uncover a long run relationship for indicators of financial development and per capita GDP in 13 countries. However, they find bi-directional causality in six countries and reverse causality in six countries while South Africa showed no evidence of causation between the variables. Similar views are expressed by Odedokun (1998), Demetriades and Andrianova (2004), Shan and Jianhong (2006), recent researches on the finance and growth nexus report broken link. Demetriades and James (2011) in a study of eighteen Sub-Saharan African countries reports that the link between credit and growth is altogether absent while finance does not lead growth in the long run. Similar views are reported by Estrada, Park and Kamayandi (2010) and Kumar (2011).

This hypothesis regards financial development as endogenously determined by the real economy or its needs, meaning that as the economy grows 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, Federmaier, Fink & Haiss, 2002), thus, it cannot be generalised to highly regulated economies.

3.0 Methodology

This study adopts correlational research design which by implication involves the use of inferential statistics considering the objective of the study and the nature of data. The dependent variable for the study will be the measure of the real sector growth, that is, the real GDP. The independent variables of this study are four selected financial development indicators in the banking sector. They are as follows: Liquid liabilities (RLG), Private credit (RCG), Interest Rate Spread (IRS) and Level of investment (GFCF).

The study is basically secondary in nature. The study used annual time series data covering the period from 1970 to 2014, which is obtained from the statistical bulletin of the Central Bank of Nigeria. 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;

- i. 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. The augmented Dickey-Fuller (ADF) and the Phillips and Perron (PP) stationarity tests are performed. These tests are conducted on the variables in level and first differences.
- ii. 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).
- iii. 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.

3.1 Model Specification

Accordingly, the VECM for this study is specified below:

$$\begin{aligned} \Delta \ln(GDP)_t = & \beta_0 + \sum_{i=1}^p \beta_1 \Delta \ln(GDP)_{t-i} + \sum_{i=1}^p \beta_2 \Delta \ln(RCG)_{t-i} \\ & + \sum_{i=1}^p \beta_3 \Delta \ln(RLG)_{t-i} + \sum_{i=1}^p \beta_5 \Delta \ln(GFCF)_{t-i} \\ & + \sum_{i=1}^p \beta_6 \Delta (IRS)_{t-i} + \delta ECT + \eta_t \end{aligned}$$

Where Δ 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, GFCF= gross fixed capital formation. IRS is the interest rate spread which is not logged because it is a rate, ECT is the error correction term and δ is its coefficient and finally η 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.

VECM is employed for this study because it provides both short-run and long-run relationship between the dependent and independent variables; it creates stationarity of a variable even when they are non-stationary through a combination of the stochastic equations under cointegration (Adewunmi, 2016).

4.0 Data Analysis and Result

Discussion

4.1.1 Stationarity Test of Variables

Data

The test type in this study is Augmented Dickey-Fuller test suggested by Dickey and Fuller (1979) and the Phillips-Perron test recommended by Phillips and Perron (1988) have been used to test

the stationarity of the variables. From these tests, if the ADF is greater than the critical value at defined percentage, usually between 1 and 5 then the time series data is stationary otherwise it is not. 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 appendix.

The result 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).

4.1.2 Johansen's Cointegration Tests

Johansen and Juselius (1990) procedures uses two tests to determine the number of cointegration vectors: The Maximum Eigenvalue test and the Trace test. The Maximum Eigenvalue statistic tests the null hypothesis of r cointegrating relations against the alternative of $r+1$ cointegrating relations for $r = 0, 1, 2, \dots, n-1$. In some cases, Trace and Maximum Eigenvalue statistics may yield different results and indicates that

in this case the results of trace test should be preferred (Alexander, 2015).

Both lag length selection criterion, that is the AIC and SBC revealed that the

optimal lag length for the models is one (see Appendix); hence it is used in the subsequent cointegration test and VECM.

Table 4.1.2: Johansen's Cointegration Tests Result

Hypothesized No. of CE(s)	Trace Statistic	5%Critical Values	Max-Eigen Statistic	5%Critical Values
None * ($r = 0$)	126.0735*	125.6154	48.02579*	46.23142
At most 1 ($r \leq 1$)	78.04776	95.75366	26.16539	40.07757
At most 2 ($r \leq 2$)	51.88237	69.81889	20.74444	33.87687
At most 3 ($r \leq 3$)	31.13792	47.85613	13.56351	27.58434
At most 4 ($r \leq 4$)	17.57442	29.79707	10.86512	21.13162

Max-Eigen and Trace Statistic tests indicate 1 cointegrating equation at 5% level. * denotes rejection of the hypothesis at the 5% level of significance.

The Johansens' cointegration test results are given in Table 4.2; The Trace Test indicates the existence of one cointegrating equation at the 5% significance level. This cointegrating equation means that one linear combination exists between the variables that force these indices to have a relationship over the entire time period. The Maximum Eigenvalue Test also shows one cointegrating equations at the 5% level confirming the Trace Test. Therefore, the trace test and the maxEigen test revealed that there is one cointegration equation at 5% level of

significance, or $r = 1$; thus the study concludes that the variables in the model have a long-run equilibrium relationship.

4.1.3 Vector Error Correction Model

If cointegration exists a longrun equilibrium relationship is said to exist between the Variables, VECM is applied in order to examine the short run properties and the adjustment to the longrun of the cointegrated series. In case of no cointegration VECM is no longer required. Table 4.3 summarizes the VECM results for the MGDP model.

Table 4.1.3: Results of the VECM for the MGDG model

Results of the VECM for the MGDG model					
Dependent Variables	D(LGDP)	D(LRCG)	D(LRLG)	D(LGFCF)	D(IRS)
Independent Variables	Coefficients (t-statistics in parenthesis)				
<i>ECT_{t-1}</i>	-0.010211	-0.015978	-0.009544	-0.006731	-0.139587
	[-1.95007]	[-1.88925]	[-1.11893]	[-1.43473]	[-1.98956]
D(LGDP(-1))	0.712117	-0.248238	-0.503025	-0.084042	-4.295853
	[1.01478]	[-0.34165]	[-0.68645]	[-0.20852]	[-0.71269]
D(LRCG(-1))	-0.689037	0.839380	0.379128	0.116638	3.150481
	[-1.46907]	[1.72844]	[0.77408]	[0.43299]	[0.78200]
D(LRLG(-1))	1.381248	-1.070239	-0.843328	-0.168116	-7.207765
	[1.93307]	[-1.44661]	[-1.13024]	[-0.40966]	[-1.17438]
D(LGFCF(-1))	-0.124801	0.346760	0.236263	0.238816	-0.991248
	[-0.43895]	[1.17793]	[0.79578]	[1.46252]	[-0.40589]
D(IRS(-1))	-0.018185	0.032262	0.007415	0.012370	-0.306556
	[-0.83456]	[1.43001]	[0.32586]	[0.98850]	[-1.63792]
Constant	-0.009019	0.085988	0.156574	0.066253	2.161990
	[-0.05096]	[0.46927]	[0.84724]	[0.65183]	[1.42225]
R-squared	0.645686	0.197087	0.104594	0.370941	0.414780
F-statistic	0.639489	0.920494	0.438046	2.211288	2.657847

The presence of cointegration between variables suggests a long term relationship among the variables under consideration. Since VECM is based on VAR, similar models were also specified for all the variables in the study (that is, a model is made on each variable as a dependent variable). But for the purpose of this study, the model for the GDP as the dependent variable (as indicated in chapter three) is interpreted and discussed below.

The results in table 4.3 indicated that the growth in the real sector of the Nigerian

economy is predicated by the variables GDP, RCG, RLG, TGE, IRS, GFCF and TTR with a coefficient of determination of 64.5% ($R^2 = 0.645686$). Thus, implying that these variables significantly account for 64.5% variation in real sector growth in Nigeria for the period under study (1970-2014). The remaining 44.5% is as a result of other factors outside the model which were depicted as U_t (error term).

The LRLG and LTTR are statistically significant and LRCG, LTGE, IRS and

LGFCF are statistically insignificant to the GDP in the short run according to the coefficients and t values shown.

The coefficients are interpreted as follows:

- i. The private credit LRCG has a negative coefficient of -0.689037 and its statistically insignificant that is, a 1% increase in the LRCG leads to a 0.69% decrease in the LGDP in the short run.
- ii. The interest rate spread IRS has a negative coefficient of -0.018185 and its statistically insignificant, that is, a 1% increase in IRS leads to 0.02% decrease in the LGDP in the short run.
- iii. The level of investment LGFCF also has a negative coefficient of -0.124801 and its statistically insignificant, that is, a 1% increase in GFCF leads to 0.12% increase in the LGDP in the short run.

Moreover, The LRLG have positive relationship. The appreciations of the GDP are related to increasing LRLG, thus, the estimated model was able to produce a consistent result. Thus, 1% appreciation of the LRLG is likely to increase GDP by 1.38% and this estimate was significant. The ECT coefficients indicate the adjustment to the long run as well as long run causality are discussed below.

The apriori expectation is they are supposed to have negative and

significant coefficients. However, the result indicates that the GDP, RCG and IRS models have negative and significant coefficients; indicating that the adjustment to the long run is taking place in these models.

The coefficients are interpreted as follows:

- i. The GDP model has a negative ECT coefficient of -0.010211 and its statistically significant as indicated by the t value, that is, the estimated coefficient indicates that about 1.0 per cent of the disequilibrium is corrected between 1 year, indicating that the adjustment to the long run is taking place in these model.
- ii. The RCG Model has a negative ECT coefficient of -0.015978 and its statistically significant that is, about 1.6 per cent of the disequilibrium is corrected between 1 year, indicating that the adjustment to the long run is taking place in these model.
- iii. The interest rate spread IRS Model has a negative coefficient of -0.018185 and its statistically significant, that is, about 1.8 per cent of the disequilibrium is corrected between 1 year, indicating that the adjustment to the long run is taking place in these model.

This is contrary to the GFCF and RLG models which have correct sign but are statistically not significant.

Table 4.1.4: The normalized cointegrating equation

Variables	LGDP	LRCG	LRLG	LGFCF	IRS
coefficients	1.00000	-0.55130	0.56209	-0.14702	-0.30298
t- statistics		(6.764)	(6.644)	(3.379)	(6.313)

Since the existence of one cointegrating equation was identified, a stable

equilibrium relationship is present. The results are normalized on the LGDP.

The results indicated The RCG, GFCF and IRS have the expected signs and are statistically significant according to the coefficients and t values shown.

The coefficients are interpreted as follows:

The private credit RCG has a negative coefficient of -0.55130 and its statistically significant that is, a 1% increase in the RCG leads to a 0.5513% increase in the LGDP in the long run. This finding agrees with the hypothesis of German economist Schumpeter ([1911] 1952) and the findings of Allen and Ndikumana (1998) and King and Levine (1993). They 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 economic growth. Similarly, Beck, Cull and Jerome (2005) in their study also observed private credit as a good predictor of economic growth while the recent study by Crowley (2008) also supported this position. The research work by Hashim and Mamman (2014) and Emecheta and Ibe (2015) also concluded that there is a statistically significant impact of credit to private sector on the real sector of Nigeria.

The interest rate spread IRS has a negative coefficient of -0.30298 and its statistically significant, that is, a 1% increase in IRS leads to 0.3030% increase in the LGDP in the long run. This finding agrees with McKinnon and Shaw (1973) and Ayadi, Adegbite and Ayadi (2015), they proposed financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings and 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.

The policy implication of this viewpoint is that formulating policies that liberalise the interest rate and enhance financial intermediation will result in high economic growth. However, in reality, the failure to record any meaningful success by most of developing countries who implemented these policies raises many questions on the viability of this assertion.

The level of investment GFCF also has a negative coefficient of -0.14702 and its statistically significant, that is, a 1% increase in GFCF leads to 0.1470% increase in the LGDP in the longrun. Adegbite (2016) and Adewunmi (2016) establish the importance of Capital formation in generating growth within the economy. They find that a rise of one percentage point in the ratio of Capital formation to GDP increases income per person by at least one-half percent. This they believe happens because Capital formation appears to raise income by motivating the accumulation of physical and human capital; thereby increasing output for given levels of capital. Several other previous studies support this assertion (Arvai, 2005; Duenwald, Gueorguiev & Schaechter, 2005).

Moreover, The LRLG have positive signs and negative relationship with the GDP. The depreciations of the GDP are related to increasing RLG, thus, the estimated model was able to produce a consistent result. Thus, 1% appreciation of the RLG is likely to reduce the GDP by 0.5620%. This finding is contrary to the observations of Hashim and

Mamman (2014) and Emecheta and Ibe (2015), the major finding of their studies is there is a significant positive relationship between liquid liabilities and economic growth. Moreover, it agrees with Aziakpono (2003) that asserted that 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 and reduces the availability of bank credit for intermediation as such reduces economic growth.

5.0 Summary and Policy Implications of the Findings

5.1 Summary of Findings

This study employs the VECM based approach to cointegration to explore the dynamic relationships between financial development of the Nigerian banking sector and real sector growth. The results revealed that the credit to private, government expenditure, level of investment and interest rate spread exert positive influence on real sector growth in the long run. This might be as a result of the fact asserted by McKinnon and Shaw (1973) that financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings and increase in saving and credit availability relative to real economic activity and leads to an increase in financial intermediation which in turn leads to an increase in productive investment and economic growth.

5.2 Policy Implications of findings

The policy implication of these results is this, financial reforms and policies should focus on formulating policies that liberalise the interest rate and enhance financial intermediation will result in high economic growth and government should direct their borrowing towards encouraging and financing entrepreneurship development which prove to increase investment and in turn real sector growth.

5.3 Conclusions

The banking sector in any economy is strategically important to the growth and development of all other sectors in that economy hence, the continuous desire for the banking sector to remain healthy, sound and stable through satisfactory performance.

From the analysis of in the preceding section, it can be concluded that within the period under review in the long-run, ratio of liquid liabilities to GDP and trade openness has a statistically significant and negative influence on real sector growth and there is a statistically significant positive relationship between real sector growth as represented by GDP and ratio of credit to private sector to GDP; level of investment, total government expenditure and interest rate spread. This has confirmed the assertion by McKinnon and Shaw (1973) that financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings and increase in saving and credit availability relative to real economic activity and leads to an increase in financial intermediation which in turn leads to an increase in productive investment and economic growth.

References

- Adegbaju, A. A., & Olokoyo, F. O. (2015). Recapitalization and banks' performance: A case study of Nigerian banks. *African Economic and Business Review*, 17 (1).
- Adegbite, E. O. (2016). Financial Institutions and Economic Development in Nigeria in Adejuge M.O. A (ed) *Industrialization, Urbanization and Development in Nigeria, 1950 – 2015*. Lagos Concept Publications.
- Adewunmi, W. (2016). Financial Sector Soundness” The Role of Regulatory Authorities in CBN (2016). *Enhancing Financial Sector Soundness in Nigeria*. Abuja.
- Agbada, A. O., & Osuji, C. C (2015). The Efficacy of Liquidity Management and Banking Performance in Nigeria. *International Review of Management and Business Research*, 2(1), 223 – 233.
- Ajayi, M. (2015). Banking sector reforms and consolidation: conceptual framework. *The Bullion*, Central Bank of Nigeria, 39 (2).
- Allen, D. S., & Ndikumana, L. (1998). *Financial Intermediation and Economic Growth in Southern Africa*. Working Paper Series 1998-004, The Federal Reserve Bank of ST. Louis, available On-line: <http://research.stlouisfed.org/wp/1998/98-004.pdf>.
- Ang, E. I. (2015). Credit risk management: Developments over the last 20 years. *Journal of Banking and Finance*, 21, 1721 – 1741.
- Ang, J.B., & McKibbin, W.J. (2007). Financial liberalization, financial sector development and growth: Evidence from Malaysia. *Journal of Development Economics*, 84, 215-233.
- Arvai, Z. (2005). Capital Account Liberalisation, Capital Flow Patterns and Policy Responses in the EU's New Member States. IMF Working Paper, 05/213.
- Ayadi, O. F., Adegbite, E. O., & Ayadi, F. S. (2015). Structural adjustment, financial sector development and economic prosperity in Nigeria. *International Journal of Finance and Economics*, 15, 318-331.
- Azege, M. (2004). The impact of financial intermediation on economic growth: The Nigerian perspective. Research seminar paper presented at University of Lagos, Nigeria.
- Aziakpono, M. (2003). Financial intermediation and economic growth in economic and monetary union: The case of SACU and CMA. *Journal of Economic Studies*, 38(5), 657-677.
- Alexander, M. (2015). Financial Development and Income in North Africa. *International Advances in Economic Research*, 14(4), 422-432.
- Bashir, Z. (2003). The effects of economic reforms on agriculture and agricultural trade in India and Pakistan. (Doctoral Dissertation, Macquarie University (Division of Economic and Financial Studies, Department of Economics), 2003).
- Blum, D., Federmaier, K., Fink, G., & Haiss, P. (2002). The financial-real sector nexus: Theory and empirical evidence. IEF working paper, 43.
- CBN. (2013). *Bank Intermediation in Nigeria: Growth, Competition and Performance of the Banking Industry, 1990 – 2013*. Occasional paper, 48, November, 2013.

- Demetriades, O. P., & James, G. A. (2011). Finance and Growth in Africa: The Broken Link. *Economic Letters*, 113.
- Demetriades, P., & Andrianova, S. (2004). Finance and Growth: What We Know and What We Need to Know. University of Leicester.
- Demetriades, P.O., & Hussein, K. (1996). Does Financial Development Cause Economic Growth? Time Series Evidence from 16 countries. *Journal of Development Economics*, 51, 387-411.
- Dickey, D.A., & Fuller, W.A. (1981). The Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49, 1057- 1072.
- Duenwald, C., Gueorguiev N., & Schaechter, A. (2005). Too much of a Good Thing? Credit Booms in Transition Economies. IMF Working Paper, (05)128.
- Emecheta, B. C., & Ibe, R. C. (2015). Financial liberalization, financial sector development and growth: Evidence from Nigeria. *Journal of Development Economics*, 84, 215-233.
- Estrada, G., Park, D., & Kamayandi, A. (2010). Financial Development and Economic Growth in Asia. ADB Working Paper, 233.
- Ezirim, C. B. & Muoghalu, M. I. (2015). Financial management imperatives of intermediation function of financial institutions: Empirical evidence from Nigeria. *Banks and Bank Systems*. 9(3): 116-131.
- Fadare, R. (2010). Recent banking sector reforms and economic growth in Nigeria. *Middle Eastern Finance and Economics*, 22, 146-160.
- Fafchamps, M., & Schündeln, M. (2011). Local financial development and firm performance: evidence from Morocco. *Journal of Development Economics*, 58, 387-411.
- Favara, G. (2003). An Empirical Reassessment of the Relationship between Finance and Growth. IMF Working Paper, (03)123.
- Goldsmith, R. W. (1969). *Financial Structure and Development*. New Haven, CT: Yale U Press.
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics*. 5th ed. New York: McGraw-Hill Higher education.
- Gurley, J. G., & Shaw, E. S. (1955). *Financial Aspects of Economic Development*. *American Economic Review*, 45(4), 515-38.
- Gürüyay, E., & Şafaklı, O. V. (2007). Financial development and economic growth: Evidence from Northern Cyprus. *International Research Journal of Finance and Economics*, 8, 57-62.
- Hesse, H. (2007). Financial intermediation in the pre-consolidated banking sector in Nigeria. World Bank Policy Research Working paper, 4267.
- Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration- With applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2), 169-210.
- Kar, M., & Pentecost, E. J. (2000). Financial development and economic growth in Turkey:

- Further evidence on causality issue. Loughborough University economic research paper, 00(27).
- King, R. G., & Levine, R. (1993). Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economics*, 108, 717-737.
- Kumar, R. R. (2011). Do Remittances, Exports and Financial Development Matter for Economic Growth? A Case Study of Pakistan Using Bounds Approach. *Journal of International Academic Research*, 11(1), 203-234.
- Mamman, A., & Hashim, Y. A. (2014). Private sector credit and the real sector of Nigeria. *International Journal of Management and Social Research (IJMSR)*, 3(5), 101-111.
- Mckinnon, R. I. (1973). *Money and Capital in Economic Development*. Brookings Institution, Washington D.C.
- Muhsin, K., & Eric J. P. (2000). *Financial Development and Economic Growth in Turkey: Further Evidence on the Causality Issue*. Centre for International, Financial and Economics Research Department of Economics Loughborough University.
- Odedokun, M. O. (1998). *Financial Intermediation and Economic Growth in Developing Countries*. Faculty of Commerce, University of Swaziland, Swaziland.
- Oluitan, R. (2014). Trade liberalisation, financial development and economic growth: Evidence from Nigeria. *Journal of International Academic Research*, 19(2), 30-37.
- Phillips, P.C.B., & Perron, P. (1988). Testing for a Unit Root in Time Series Regression, *Biometrika*, 75, 335-346.
- Rajan, R. G. & Zingales, L. (2002). The great reversals: The politics of financial development in the twentieth century. A draft of paper submitted to, *Journal of Financial Economics*.
- Robinson, J. (1952). The generalisation of the general theory, in the rate of interest, and other Essays. (2nd ed.). London: Macmillan.
- Schumpeter, J. A. ([1911] 1952). *Theory of economic development*. Cambridge: Harvard University Press.
- Shaw, E. S. (1973). *Financial deepening in economic development*. New York: Oxford University Press.
- Umejiaku, R. I. (2014). Financial Reform and Financial Development in Nigeria. *Journal of International Business and Management*, 5(9), 102-110.
- Watanabe, W. (2015). Prudential Regulation and the “credit crunch”: Evidence from Japan. *Journal of Money, Credit and Banking*, 49 (2-3), 639 – 665.
- World Bank. (2016). *World Development Indicators*. Washington D.C.