

# Deposit Money Banks and Economic Growth in Nigeria

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**Abstract:** *This paper examines the effect of deposit money banks intermediation role on economic growth and development in Nigeria. The main objective of the research was to ascertain the extent to which sectorial credit allocation by deposit money banks have influenced growth in the economy. Time series data covering the period 1973-2011 for deposits money banks credits in Nigeria and per capita gross domestic product were analyzed within the framework of Engle-Granger Representation Theorem; the approach estimated a co-integrating regression using the ordinary least square estimator, and then investigated the presence of a co-integration relation by examining the stationarity of the estimated residual series. The findings indicate that credit allocation to the production sector is significantly promoting economic activity. The implication that can be drawn from this study is that to ensure that the banking system performs its role of credit allocation effectively it must channel funds into productive investment and more productive uses; deposit money banks should act as efficient financial intermediaries devoted to allocating resources to the most productive uses.*

**Key words:** *deposit money banks, economic growth, per capita gross domestic product, Central Bank of Nigeria (CBN)*

**JEL codes:** *E02, E50, E51, E52, E58*

## Introduction

One of the most striking features of institutional credit in Nigeria in the last decade, for example, has been the significant increase in deposit money banks' direct lending to government for building up infrastructural facilities, program backing and meeting recurrent expenditure. However, during the last decade, the incidence of non-performing loans has increased, which indicates that most of the banks' credit may have gone into the wrong hands. Most of the banks' customers could not pay back large proportions of banks' loans.

This has revealed, to some extent, the insincerity of purpose and inefficient credit management in some of the banks. The Nigerian socioeconomic environment or

political economy has not helped matters. Political instability, incessant policy changes, industrial unrest, energy crisis, etc., all have impact on the operators of the Nigerian economy and hence economic growth. One cannot help but wonder whether the bank credit irrespective, of wherever channeled, would give rise to the finance that stimulates growth effect which would propel the economy forward and bring about economic growth.

The main objective of the proposed research is to examine broadly how deposit-taking banks have impacted on economic growth in Nigeria. More specifically, it will determine the extent to which sectorial allocation of credits by deposit-taking financial institutions affect economic growth and development in Nigeria.

## **1 Literature Review**

Deposit taking banks play an important function in the development and growth of a nation. The principal role carried out by deposit money banks is to ensure there is adequate flow of money to service deficit sectors of the economy and facilitate the movement of funds amongst economic units. This movement referred to as financial intermediation is usually from units of surplus to units of deficits/needs (Ufot, 2004). Supply of finance can retard economic development if it is repressed or stimulate it if it is liberalized.

The finance stimulates growth thesis was first developed and institutionalized in the studies of Goldsmith (1969), McKinnon (1973) and Shaw (1973) where they established the importance of financial markets in economic development. In their respective works they looked at the stages of economic growth across a sample of countries and concluded that the level of financial services offered by financial intermediaries in these countries were responsible for the level of growth in their economy.

Some early works of econometric research into credit extension by financial institutions and economic growth made use of cross-country regressions using real average GDP as the dependent variable for a particular time, while various measures of the financial system development combined with several control variables were used as independent variables. Some of the first empirical research using econometrics to test economic growth can be arranged into different sequences and can be divided into before and after (Barro 1991). In carrying out his research he did not test, neither did he combine variables of financial intermediation.

His research was followed by King and Levine (1993; 1993) in their respective studies two years later, further research adopted Barro's methodology by comparing (i) Gross domestic product to liquid liabilities; (ii) deposit taking institutions domestic assets to central bank domestic assets (iii) loans advanced to private companies divided by loans advanced to central and local government plus loans advanced to public and private companies; (iv) loans advanced to

private companies divided by Gross domestic Product. Their sample was drawn from eighty nations and they examined the period range from 1960 to 1989. The major outcome of their research is that financial intermediation is a fundamental determinant of economic growth and development.

With the issue of endogeneity taken into consideration by King and Levine, Levine (1997) in another subsequent study adopted legal measures as instrumental variables in removing the exogenous part of banking development. He examined forty-three nations from the time range 1976 to 1993. The outcome of his study showed that intermediation from loans advanced by commercial banks and other deposit-taking institutions had a significant relationship with economic growth in the long run.

In supporting the theory of financial intermediation and economic growth, Odedokun (1996) used a different approach in his study of this hypothesis by using time regression analysis; his work examined 71 countries using a different time range, from 1960 to 1980. His findings revealed that financial intermediation roughly accounts for eighty-five percent of the growth of the nations. He also found that the level of economic development of each the nations examined was dependent on the level of financial intermediation of the countries and regions examined.

Using a bigger sample size of about one hundred and nine nations, Calderon and Liu (2003) analyzed a larger number of nations from 1960 to 1994. Using the decomposition test of Geweke in their study, they arrived at the following results: a) the level of financial growth stimulates economic development and growth; b) that there is a relationship between the Granger causality from the level of financial intermediation to economic growth and the Granger causality from economic growth to financial development; c) the level or stage of financial intermediation is a major factor that causes the casual relationship in emerging nations than in developed nations; d) the more the duration of the sampling interval, the bigger it influences financial development and economic growth; e) that the level of financial intermediation stimulates economic growth when capital accumulation and productivity growth is increased in a faster manner with capital accumulation having a stronger influence on economic growth.

In another related but different research Christopoulos and Tsionas (2004) examined data from ten emerging nations from 1970 to 2000. The outcome of their research which employed a sample of ten developing countries from 1970 to 2000, indicated that long-run causality exist between financial intermediation and economic growth but that there is no evidence of bi-directional causality. However, they do not find any short-run causality between financial intermediation and economic growth. They however, posited that government regulation when it is geared towards achieving a better financial system will

influence growth at slower rate in the short run but will lead to economic growth in the long run.

However, Fink, Haiss and Mantler (2005) in their research outcome with respect to time frame discovered a significant relationship with financial intermediation and economic growth in eleven emerging nations from 1990-2001. The study found out that growth was stimulated via the productive sector in these emerging nations. The study further pointed out that growth in the financial system development would only influence short-run growth in the economy instead of a long-run growth. The study used loan advances from banks, securities market capitalization and balance of debt instruments divided by Gross Domestic Product. In another study of the finance leads growth hypothesis Majid and Said (2010) employed a battery of time-series techniques, empirically examined the short and long-run finance growth nexus during the post-1997 financial turmoil in Malaysia and Indonesia. Based on the Autoregressive Distributed Lag (ARDL) models, the study documents a long-run equilibrium between economic growth, finance depth and inflation.

In another study which sampled Middle Eastern countries by Barakat and Waller (2010) they came out with a result consistent with the hypothesis that a well-functioning banking system is vital in enhancing economic growth in an economy. Using findings of the recent World Bank Enterprise Survey to provide further evidence on the relationship between financial development and economic growth, by incorporating the impact of internal finance, Ghimire and Giorgioni (2013) in their study found a positive impact of banks financing on the long-term growth.

That finance does not cause growth is found in the research of De Gregorio and Guidotti (1995) and Demetriades and Hussein (1996) respectively. In researching the impact of finance on economic growth De Gregorio and Guidotti (1995) carried out a study on 98 different nations using lending to private sector as the independent variable from the period 1960 to 1985. Their findings was that not all the growth in the observed countries were stimulated by finance as various factors like time periods, regions and the amount of income were major influences in growth.

They opined that it is the efficiency and not volume of financial investment in the financial intermediation process that influences growth and development. In quite a few countries, for example Latin America, they found a negative correlation between growth and credit extension by financial intermediaries due to financial liberalization in the early 1970s and 1980s and the lack of effective regulation. They therefore concluded that finance stimulates growth cannot be universally applied to all countries.

The most critical opinion on the relevance of financial intermediation stimulating economic growth is formalized in the works of Shan (2005) and Zang and Kim (2007) using time-series, two-panel analysis and cross sectional analysis in their studies of both 11 developed and 12 emerging economies spanning across a period of 1985 to 1998. Their result evidenced little and negative correlation between financial intermediation and economic growth and development respectively.

The research aims at filling the gap in these literatures reviewed by examining at a more precise and closer country microeconomic level; one of the major financial intermediaries involved in deposit mobilization widely referred to as commercial banks in Nigeria and their relevance towards enhancing economic growth in an underdeveloped economy like Nigeria.

## 2 Methodology and Data

Economic growth in the model is proxied by per capita Gross Domestic Product ( $L_nPGDP$ ), which represents the dependent variable. Financial intermediation by deposit money banks is proxied by credit extension to Production ( $L_nPD$ ), General Commerce ( $L_nGC$ ), Services ( $L_nSV$ ) and Other ( $L_nOT$ ) sectors in the Nigerian economy, which denotes the independent variable in model two.  $L_n$  is a natural logarithm.

The sample period that will be examined for the study covers annual data from 1973 to 2011 extracted from the Central Bank of Nigeria (CBN) statistical bulletin and the National Bureau of Statistics (NBS). The methodology provides a support to supply-leading hypothesis (finance development led growth).

### Economic growth and Sectorial allocation of credits by deposit money banks

$$LnPGDP = f(LnPD, LnGC, LnSV, LnOT)$$

$$LnPGDP_t = C + b_1LnPD_t + b_2LnGC_t + b_3LnSV_t + b_4LnOT_t + e_t \quad (1)$$

Where:

$f$  = the functional notation

$C$  = constant

$e_t$  = is a zero mean, constant variance, non-autocorrelated error term.

If a cointegration relation is found in equation (1) then a short run dynamic error correction model (ECM) can be considered as equation (2).

$$\begin{aligned} \Delta LnPGDP_t = C + \sum b'_{1i} \Delta LnPD_{t-i} + \sum b'_{2i} \Delta LnGC_{t-i} + \sum b'_{3i} \Delta LnSV_{t-i} \\ + \sum b'_{4i} LnOT_{t-i} - \delta EC_{t-i} + u_i \end{aligned} \quad (2)$$

Where EC is the error correction term that is  $e_{t-i}$  from the estimated co-integration equation (1).

Econometric methods incorporating properties of time-series data (co-integration techniques) will be employed by the researcher in data analysis. Spurious regression associated with less efficient and inconsistent Ordinary Least Squares (OLS) parametric estimates may result if non-stationary variables are not co-integrated (Engle and Granger 1987).

Thus the data analysis technique will be patterned on the Engle-Granger Representation Theorem (Engle and Granger 1987). Following Abeyasinghe and Tan (1999) studies, in small samples, the OLS estimator may still be the best choice for estimating a co-integrating regression. The Engle-Granger approach proposes an estimation of a co-integrating regression using the OLS estimator, and then investigate the presence of a co-integration relation by examining the stationarity of the estimated residual series, series  $e^{\wedge}_{sub t}$ .

The variables in equation (1) are said to be co-integrated, if the residual series is stationary, which can be performed by using conventionally used unit root equations like DF, ADF and PP (without constant and time trend) (Engle and Granger, 1987). Haung (2002) found that the Engle and Granger's (1987) ADF test led to the highest and most stable powers for typical finite sample sizes overall.

### 3 Results

#### Unit Root Test I

Table 1 below shows the ADF test of stationarity for PGDP, GENS, PROD, SERV and OTHERS. The stationarity test results show that time series data on PGDP, GENS, PROD, SERV and OTHERS for Nigeria spanning from 1973 to 2011 are non-stationary. This means all the variables were stationary at first difference, i.e. I(1) series.

**Table 1** Unit root test result using the ADF procedure

<b>Variable</b>	<b>ADF Test Statistic</b>	<b>Critical Value (5%)</b>	<b>Order of Integration</b>	<b>Lag Length</b>
PGDP	-4.134718	-3.5386	I(1)	1
GENS	-5.489303	-3.5386	I(1)	1
OTHERS	-3.616821	-3.5386	I(1)	1
PROD	-4.832335	-3.5386	I(1)	1
SERV	-398.4659	-3.5386	I(1)	1

**Source:** Author's computation using E-Views

## Cointegration Test

The unrestricted cointegration rank test in table 2 shows that there are 5 cointegrating equations at the chosen level of significance of 5%. While at 1%, 4 equations cointegrated. This tells us that in the long run there is the tendency for the variables to be at equilibrium. Although because of the non-stationary nature of the time series data for all five variables, only short run forecasts can be made with such results. Hence a cointegration test is carried out to ascertain if at the 5 percent level of significance, one or more variables will move together in the long run. The necessary condition to run the error correction mechanism is the existence of at least one cointegrating equation.

**Table 2** Johansen Cointegration Test Results  
(Unrestricted Cointegration Rank Test)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical	1 Percent Critical
None**	0.973010	155.6794	68.52	76.07
At most 1**	0.798319	79.82133	47.21	54.46
At most 2**	0.670454	46.19890	29.68	35.65
At most 3**	0.582892	22.88805	15.41	20.04
At most 4**	0.193859	4.525422	3.76	6.65

\*(\*\*) denotes rejection of the hypothesis at the 5%(1%) level  
Trace test indicates 5 cointegrating equation(s) at the 5% level  
Trace test indicates 4 cointegrating equation(s) at the 1% level

**Source:** Author's computation using E-Views

The parsimonious error correction results for the hypothesis revealed that GENS and SERV have a negative relationship with PGDP. At lag 1, PGDP is also negative. An inverse relationship exists between PGDP and GENS. A percentage increase in GENS leads to approximately 1.7 decrease in PGDP.

In the same vein, the results for SERV also suggest an inverse relationship with PGDP. A percentage decrease in SERV likely leads to over 25 percent increase in PGDP. On the other hand, PROD and PGDP results suggest a positive relationship. A percentage increase in PROD may lead to over 30 percent increase in PGDP.

The error correction term took the expected sign being negative and is also statistically significant. The speed of adjustment of the variables to attain equilibrium is approximately 51 percent. An adjusted R squared of 83 percent shows that the regression has a good fit. This means that 83 percent of the variation in PGDP can be explained by the variables in the model assuming all things being equal. The overall model is also statistically significant concluding with the value of the F-statistic of 8.91 and the probability of 0.007. The model has no serial correlation since the value of the Durbin-Watson statistic is approximately 2.



**Table 3** Parsimonious Error Correction Mechanism

Dependent Variable: LOG (PGDP)				
Method: Least Squares				
Date: 06/18/13 Time: 06:40				
Sample(adjusted): 1977 1993				
Included observations: 17 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	321.7558	354.7544	0.906982	0.3994
T	-0.164156	0.183187	-0.896108	0.4047
LOG(PGDP(-1))	-0.349359	0.390176	-0.895387	0.4051
LOG(GENS)	-1.696008	1.395167	-1.215631	0.2698
LOG(OTHERS)	0.877404	0.428722	2.046558	0.0867
LOG(OTHERS(-2))	-0.626427	0.307351	-2.038147	0.0877
LOG(PROD)	0.300393	2.473711	0.121434	0.9073
LOG(PROD(-1))	2.663947	1.908038	1.396171	0.2121
LOG(SERV)	-0.275539	0.692849	-0.397690	0.7046
LOG(SERV(-1))	1.003391	0.689223	1.455829	0.1957
ECM(-1)	-0.511140	0.000282	-0.494329	0.0386
R-squared	0.936882	Mean dependent var		11.84520
Adjusted R-squared	0.831686	S.D. dependent var		0.877799
S.E. of regression	0.360127	Akaike info criterion		1.047942
Sum squared resid	0.778148	Schwarz criterion		1.587080
Log likelihood	2.092491	F-statistic		8.906031
Durbin-Watson stat	2.262071	Prob(F-statistic)		0.007256

**Source:** Author's computation using E-Views

## Conclusions and Recommendations

The study was undertaken to examine the role of financial intermediation by deposit money banks in the economic Growth and Development of Nigeria between the periods of 1973 to 2011. The main objective of the research was to ascertain the extent to which sectorial credit allocation by deposit money banks have influenced growth in the economy. The study sought to examine the link between deposit money bank operations represented by their credit extension to Production, General Commerce, Services and Other major sectors that make up the Nigerian economy and per capita Gross Domestic Product.

The methodology was based on the Ordinary Least Square (OLS) method involving multiple regression analysis. Annual data from the central bank of Nigeria spanning across the period (1973-2011) was used to regress per capita Gross Domestic Product as an index of economic growth on deposit money banks credit to Production, General Commerce, Services and other sectors (PD, GC, SV and OT).



The research asserts the finance stimulates growth thesis. From the analysis of the results, deposit money banks credit to the Production sector was found to be significant and positive on the growth of the Nigeria economy, while credits to General Commerce, Services and Other sectors were found to have a negative relationship and were of no statistical significance in contributing to economic growth which was proxied by the gross domestic product within the sample period.

The implication that can be drawn from this study is that to ensure that the banking system performs its role of credit allocation effectively it must channel funds into productive investments and more productive uses. Deposit money banks should act as efficient financial intermediaries devoted to allocating resources to the most productive uses so as to enhance economic growth. Especially credit allocation to the real sector (production) of the economy, to enhance growth in the Nigerian economy.

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