

DEPOSIT MONEY BANKS' CREDIT AND NIGERIAN ECONOMIC GROWTH AND DEVELOPMENT (1981-2015)

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Abstract

This paper evaluated the effects of DMBs credit on economic growth and development in Nigeria (1981-2015). Theories of financial liberalisation holds that economic growth in a developing economy rest on an efficient financial sector that pools domestic savings and mobilizes foreign capital for productive investments. The specific objectives of the study are to: examine the the relationship between DMBs' credit to private sector and the real Gross Domestic Product (RGDP) in Nigeria; access the relationship between DMBs' credit and infrastructural development in Nigeria and ; to determine the relationship between DMSs' total credit and real GDP in Nigeria. The study adopted multiple regression approach on an annual time series data spanning from 1981 to 2015 and estimated single equation models using Ordinary Least Square (OLS) regression framework. The study also investigated the stochastic nature of the time series by conducting stationarity test using Augmented Dicker-Fuller (ADF) test. The existence of longrun relationship between economic growth (proxied by RGDP), economic development and DMBs credit using Philip-Qualiris cointegration framework was also conducted successfully. The findings of the study indicate that total credit by DMBs to all sectors of the economy is positively and significantly related with economic growth and development. However, while DMBs credit to private sector drives growth, DMBs credit to public sector frustrates growth due to crowding out effect. The paper recommends that DMBs should be encouraged to direct their credit to priority sectors of the economy. Secondly, government should reduce its domestic borrowing in order not to crowd out private sector borrowing. The paper concludes that DMBs credit is a key driver of economic growth and development in Nigeria.

Introduction

Economic growth and economic development are the centre piece of governance and economic policy. Being the major indicators of economic progress, most macroeconomic policy objectives are focused on economic growth and/or other indicators of economic development such as higher standard of living, low unemployment and high income per capita (Jhingan, 1990; Sloman, 2006). Economic growth is the process by which national income or output is increased. It is the increase in the amount of goods and services produced by an economy overtime. Economic development on the other hand is the process of increasing real per capita income and engineering substantial positive transformations in the various sectors of the economy (Jhingan, 2006). The positive

change, which take place improve the general well-being of the people and ensure a sustained rise in the standard of living of the masses (King & Levine, 1993).

Over the last two decades the determinants of economic growth and development have attracted increasing attention in both theoretical and applied research. Yet, the process underling economic performance is inadequately conceptualised and poorly understood, something which can be partly attributed to the lack of a generalized or unifying theory and the myopic way conventional economics approach the issue (Artelaris, Antonios, Mark & Edwin, 2007; Casu, Girardone & Molyneux, 2004; Capasso, 2008).

Artelaris, Antonios, Mark and Edwin (2007) further argued that economic growth in a developing economy rest on an efficient financial sector that pools domestic saving and mobilizes foreign capital for productive investments. In the developing countries, industries need more funds to increase their investment so that they can meet market demand for produced goods and services. A significant number of empirical studies have attempted to investigate the link between financial sector development and the economic growth. The neoclassical theory and endogenous growth theory observed that savings impacts economic growth through capital accumulation and investment (Solow, 1956; Stiglitz & Hirofumi, 1969). Some literature argue that, economic growth just follow finance development through the supply of financial service such as distribution of Deposit Money Banks' (DMBs) credit that come from growth of financial institutions and markets (McKinnon-Shaw, 1973; King & Levine, 1993; Laima & Oleksandra, 2014).

On the contrary, some researchers argue that the growth of modern financial institutions is a result of the demand of financial services that come from investors and savers (Robinson, 1952; Sunde, 2013). According to Patrick (1966), Nabila and Zakir (2014), the relationship is bi-directional causality between financial deepening measured by the volume of DMBs' credit and economic growth. However, some other researchers argue that banking sector development does not contribute to growth – some argue that it even hampers growth. They related these disappointing results to financial repression, weak institutions and the ineffective allocation of financial resources. However, these arguments seems not to be true since when we experience financial crisis, economic growth tend to slow down in many countries. The problem with all these studies is that they focus on the size of the banking sector rather than on bank DMBs' credit (Lucas, 1988; Mohamed, 2008; Keho, 2010; Khan & Shenhadji, 2003).

A growing body of work in advanced economies have shown that DMBs' credit is one of the greatest drivers of economic growth and development. Thus, most countries with well functioning financial system and large volume of DMB credit are characterised with substantial and sustained growth as well as economic development (Nabila & Zakir, 2014; Sunde, 2013; King & Levine, 1993).

The basic role of banks and other financial institutions in an economy is to mobilize surplus funds from income holders as their savings and channel them to others who need it on interest. Thus the banks convert the savings into loanable funds. These loanable funds are channelled to investors who borrow to meet the financial need of their businesses (King & Levine, 1993; Casu, Girardone & Molyneux, 2004; Mester, 2003).

African countries in general and Nigeria in particular have lagged behind in terms of growth when compared with Western and Asian countries (Easterly & Levine, 1997; Collier, Hoeffler & Soderbom, 2004). There are a number of reasons attributed to this predicament. The 2009 NEPAD-OECD African Investment Initiative on deepening African Financial Markets for Growth and Investment indicates that African countries have largely relied on commodity prices and external finance to support growth. These channels, however, are highly vulnerable to a downturn as

witnessed during the global financial crisis (Dahou, Omar & Pfister, 2009). At the height of the crisis, Nigerian economy witnessed substantial decline in economic growth due to liquidity strain and DMBs' credit crunch.

There has been substantial DMBs credit growth in Nigeria since the bank reform of 2004. This reform has since made the minimum capital base of National and international banks in Nigeria to be N25billion and N50billion respectively(CBN, 2004 & 2010). These reforms, in addition to strengthening Nigerian banks were aimed at increasing the capacity of DBMs to lend to the different sectors of the economy. However, DMBs' credit to the private sector has been quite dispropornal over the past years. DMBs' credit distribution was tilted towards commercial credit while the flow of DMBs' credit to priority sector like agriculture and manufacturing is no doubt low. However, if DMBs' credit drives growth through priority investments, neglect of any sector may have serious implication for growth.

The liquidity strains in the banking industry always limit the growth of the industrial sector of the country which in turn affects growth prospects of the country. The 1990/91 and 2007/08 recessions, which seemed contemporaneously to have been distinguished by the large, and perhaps initiating, role played by reduced bank credit has lead to a renewed interest on the role of DMBs' credit on economic growth and macroeconomic fluctuation (Capasso, 2008; Bencivenga & Smith, 1991). Obstfeld, (1994) also noted that statements by government policymakers and the outpouring of research on the role of DMBs' credit in macroeconomic fluctuations over the past decades generally indicated that banks' capital shortfalls, whether due to regulatory changes or loan losses, reduced banks' credit and were highly correlated with reduced output.

This suggests that as an economy becomes large, there is increasing need for increased and targeted DMB credit to critical sectors of the economy, including households. However, available data from the CNB shows that the ratio of DMB credit to RGDP has been declining since 2007. For example while RGDP growth rate was 8.2%, 6.3% and 4.2% in 2006, 2008 and 2012 respectively, the DMB credit as percentage of GDP stood at 17.9% and 16.8% in 2007 and 2011(CBN, 2014).

The recent downturn in the Nigerian financial market and how it affects the real sector of the economy have generated a lot of controversies and further research needs to be carried out on the nature of relationship between DMBs' credit and economic growth and development in order to ascertain the link between financial development growth and development. The major question is, does the level of economic growth experienced over the years commensurate with level of DMBs' credits . Again, what is the structure and direction of DMBs' credits. The nature of the relationship between DMBs' credit and economic growth and the direction of causality relationship still remain unresolved in Nigeria. It is against this background that this paper seeks to examine the effect of DMBs' credit on economic growth and development in Nigeria over a period of thirty-five years. The specific objectives of this paper are to: examine the the relationship between DMBs' credit to private sector and the real Gross Domestic Product (RGDP) in Nigeria; determine the relationship between DMBs' total credit and real GDP in Nigeria and to access the relationship between DMBs' credit and infrastructural development in Nigeria.

The following research questions guide this paper: Is there a significant relationship between DMBs' credit to private sector and RGDP in Nigeria? What is the nature of relationship between DMBs' total credit and real GDP in Nigeria? Is there any significant relationship between DMBs' credit and infrastructural development in Nigeria?

The remainder of the paper is divided as follows; section two deals on conceptual, theoretical and empirical studies; section three presents the methodology of the study while sections four and five features data analysis and results; and conclusion and recommendations respectively.

Review of Related Literature

Conceptual and Theoretical Framework

Credit may mean different things to different professions. For example, in Financial management credit is defined as a legal contract where one party receives resource or wealth from another party and promises to repay him on a future date along with interest. In simple terms, a credit is an agreement of postponed payments of goods bought or loan. With the issuance of a credit, a debt is formed (Nwanyanwu, 2010).

In banking, credit is defined as the amount of money available to be borrowed by an individual or a company which must be paid back to the lender at some point in the future. (Faure, 2010). In this paper, credit is thus conceptualised as the amount of money obtained by firms, governments or households from financial institutions (i.e. DMBs) with the promise to pay back at an agreed future date with or without interest(Okaro,2014; Anyanwaokoro,2008).

Spencer (2013) noted that credit implies a promise by one party to pay another for money borrowed or goods and services received. Credit cannot be divorced from the banking sector as DMBs serve as a conduit for funds to be received in form of deposits from the surplus spending unit of the economy and passed on to the deficit spending units who need funds for productive purposes. DMBs are therefore debtors to the depositors of funds and creditors to the borrowers of funds. Bank credit is the borrowing capacity provided to an individual, government, firm or organization by the banking system in the form of credits.

Credit channels savings into productive investment thereby encouraging economic growth. Thus, the availability of credit allows the role of intermediation to be carried out, which is important for the growth of an economy. Finance literature provides support for the argument that countries with better/efficient financial systems grow faster while inefficient financial systems bear the risk of bank failure (Kasekende 2008). Banks accept deposit from individuals and institutions thus transferring funds from the surplus sector to the deficit sector of the economy(Mishkin 2007).

Though they are subject to certain regulations by the regulatory authorities, financial intermediaries still determine the rules for allocating funds, and as such they play a significant role in determining the type of investment activities, the level of job creation and the distribution of income (Gross, 2001). The availability of credit function positively allows the fruition of this role and is also important for the growth of the economy.

Economic growth is the process by which national income or output is increased. According to Robert and Benjamin (2004), it is the increase in the amount of goods and services produced by an economy over time. The concept of economic growth is also viewed as an increase in the net national product in a given period of time (Dewett, 2005). He explained that economic growth is generally referred to as a quantitative change in economic variables, normally persisting over successive periods. Todaro and Smith (2006) defined economic growth as a steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income. It is conventionally measured as the per cent rate of increase in real gross domestic product or real GDP. That is, an economy is said to be growing if there is a sustained increase in the actual output of goods and services per head (Robert and Benjamin, 2004). Growth is usually calculated in real terms (i.e. inflation adjusted terms) in order to net out effect of inflation on the price of the goods and services produced. In economics, economic growth typically refers to growth of potential output (i.e. production at full employment) which is measured by growth in aggregate demand or observed output (Case & Fair, 2006; Robert & Benjamin, 2004).

Schumpeter (2005) must have adhered more firmly to the view that financial intermediaries facilitate economic development. Analyzing the nature of cyclical processes in “Business Cycles: A Theoretical, Historical, and Statistical Analysis of Capitalist Process”, he underlined that the interrelation between the supply of bank loans and innovations had a fundamental meaning for the comprehension of “capitalist engine” running.

Processes in the real economy were considered to be first-priority and the development of financial sector was their consequence. Such idea found capacious expression in the words of Reinhart (2012) who asserted that enterprise leads finance. These scientific views largely explain the absence of outstanding works dedicated to the finance-growth nexus in the 1930s and 1940s. It is noteworthy that those years were characterized by an accelerated appearance of the neoclassical synthesis on the leading positions in economics and economic policy. In the theories of the first followers of J. Keynes the financial system plays an important but not the primary role. Therefore, it is quite clear that the common wisdom was that financial development was a by-product of economic growth rather than a force spurring it (Levine, 2005). McKinnon (1973) and Shaw (1973), proposed a model of financial liberation as against the dominant theoretical schools of financial repression advocates as at the time. Both Ronald McKinnon and Edward Shaw contradicted Keynes (1936) and Tobin (1965), by arguing in favour of interest rate liberalization and abolition of other financial repression policy measures. Their basic model comprises financial intermediaries, savers and investors. It is an inside money model, because loans to the private sector are backed by the internal debt of the private sector. The nominal interest rate is fixed, holding the real rate below its equilibrium level.

Their analyses- (sometimes referred to as the Complementarity Hypothesis)- concluded that alleviating financial restrictions in such countries (mainly by allowing market forces to determine real interest rates) can exert a positive effect on growth rates as interest rates rise toward their competitive market equilibrium. The early hypotheses of McKinnon and Shaw assumed that liberalization, which would be associated with higher real interest rates - as controls on these are lifted - would stimulate saving. The underlying assumption is, of course, that saving is responsive to interest rates. Higher savings rates would finance higher level of investment, leading to higher economic growth and development.

Empirical Review: Oluitan (2012) investigated the significance of real bank credit in stimulating real output growth in the case of Nigeria. Utilising Engle Granger and Johansen based ECM method the study observed that credit Granger causes output. In testing the factors that mobilise credit, it finds that exports in general are negatively related to credit. However, while oil exports are negatively related to credit, non-oil export has positive relationship with credit. Credit is also positively linked to capital inflows and imports. These findings suggest that bank credit is inextricably linked to the opening of the economy to international trade and capital flows in non-oil. Korkmaz (2015) investigated whether domestic credits created by banking sector have any effect on macro-economic variables such as inflation and economic growth for 10 chosen European countries using panel data analysis. Annual data for 2006-2012 were used. As a result of panel data analysis, it was proved that domestic credits created by banking sector for 10 European countries did not affect inflation but did affect economic growth. This finding supports the theoretical argument of McKinnon and Shaw.

Khan & Senhadji (2015) also examined the relationship between financial development and economic growth for 159 countries over the period 1960-2012 using cross-sectional data. To address the problem of potential endogeneity in the underlying relationship, the two-stage least

squares (2SLS) was employed. The study found that financial development has a positive and statistically significant effect on economic growth.

Ikenna (2012) has employed time series data from 1970-2009 on an Autoregressive Distributed Lag (ARDL) – Based Test Model to test for the long and short run impact of financial deregulation and the possibility of a credit crunch in the real sector. The results suggest that deregulating the Nigerian financial system had an adverse boomerang effect on the credits allocated to the real sectors in the long run, and in the short run financial liberalization was in all insignificant and negative. Ikenna also concludes that Deposit Money Banks (DMBs) in Nigeria have a strong discriminatory credit behaviour towards the real sector (agriculture and manufacturing) and the SMEs as credit crunch is found to be present in these sectors both in the short and long run. Ahmed (2008) employed the fully modified OLS (FMOLS) to estimate long bank credit-growth relationship. The ratio of private sector credit to GDP and domestic credit to GDP were the indicators of bank credit used, while financial openness was used as a proxy for financial liberalization. The study found that bank credit exerted a negative impact on economic growth when private credit was used, while the relationship was positive but insignificant when domestic credit was employed.

Tahir, Shehzadi, Ali and Ullah (2015) examined the association among bank credit to private sector and economic growth in Pakistan. Economic growth was taken as dependent variable, while bank credit to private sector, interest rate, inflation, investment to GDP and government consumptions were taken as independent variables. Utilising secondary data from 1973 to 2013 and error correction model (ECM) the study finds that bank credit had extensive relationship with economic progression. The analysis show that there is significant negative impact of bank credit on economic growth in Pakistan. However, problem associated with bank credit facility is the constraint and regulation imposed by the regulatory authority on the percentage of credit to be given to the Entrepreneurs. In all, the outcome of empirical investigation has been mixed. It does appear that the effect of credit on the economy will depend on the country characteristics and economic fundamentals. This makes it imperative to study the impact of DMBs' credit on Nigerian economic performance.

Research Methodology

This paper adopted descriptive and quantitative research technique based on ex-post facto research design. The choice of ex post facto design, descriptive and quantitative techniques are in line since the study is interested in obtaining quantitative estimates of the effects of DMBs' credit on Nigerian economic growth and development.

In analyzing the data, the paper employed ordinary least square (OLS) techniques as a means of estimating the effects of independent variables on the dependent variable. This technique is preferred because it produces the best linear unbiased (BLU) estimators. Prior to the estimation of the regression, standard statistical/econometric analysis such as the unit root test and cointegration test were performed on the time series data to ensure that spurious or nonsense regression results were not generated; as well as establish whether or not long run relationship existed between the variables in the models.

Model Specification

Following Cerna (2009) and Carporale, Howello and Soliman (2005), the model for this study is specified thus:

$$\text{Model 1: } RGDP = F(CREDPR, CREDP, FDI, TOTCRED) \dots \dots \dots (1)$$

Where; RGDP= real GrossDomestic Product; CREDPR= DMBs’ credit to private sector; CREDP= DMBs’ credit to public sector; FDI = Foreign direct investment inflows; TOTCRED =DMBs’ total credit to the economy.

F= mapping rule which expresses functional relationship.

Transforming equation 1 into log form and expressing in econometric form yields: $LNRGDP = \alpha_0 + \alpha_1LNCREDPR + \alpha_2LNCREDP + \alpha_3LNFDI + \alpha_4LNTOTCRED + U \dots(2)$

Where α_0 is the constant, α_1 to α_4 are the coefficients of the independent variables, U is the error term LN stands for natural logarithm (usually read as ‘lin’).

Model 2: To capture the effects of DBMs’ credit on infrastructural development, another model is specified in its logarithmic and econometric form as follows:

$LNINFRAS = \beta_0 + \beta_1LNCREDPR + \beta_2LNCREDP + \beta_3LNFDI + \beta_4LNTOTCRED + \varepsilon \dots(3)$

Where $INFRAS$ = infrastructural development, β_0 is the intercept term, β_1 to β_4 are the coefficients of the independent variables and ε is the error term

Data Analysis and Results

Data Presentation

Table 4.1 Data for evaluating the effects of DMB’s Credit on Nigerian economic growth and development(1981-2015).

YEAR	RGDP	Credit Private Sector	Credit to public sector	Foreign direct investment	Total credit to all sectors	Expenditure on Infrastructure
1981	94.33	8.57	0.3	542327289.1	8.88	0.16
1982	101.01	10.67	0.4	430611256.5	11.04	0.18
1983	110.06	11.67	0.6	364434580.2	12.26	0.16
1984	116.27	12.46	0.6	189164784.9	13.04	0.2
1985	134.59	13.07	0.6	485581320.9	13.62	0.25
1986	134.60	15.25	0.5	193214907.5	15.76	0.26
1987	193.13	21.08	0.6	610552091.5	21.73	0.65
1988	263.29	27.33	0.8	378667097.7	28.10	1.14
1989	382.26	30.40	0.8	1884249739	31.25	1.27
1990	472.65	33.55	1.2	587882970.6	34.71	1.36
1991	545.67	41.35	1.0	712373362.5	42.35	1.09
1992	875.34	58.12	1.2	896641282.5	59.36	2.62
1993	1,089.68	127.12	17.4	1345368587	144.52	5.95
1994	1,399.70	143.42	38.9	1959219858	182.32	2.73

1995	2,907.36	180.00	100.1	1079271551	280.10	4.41
1996	4,032.30	238.60	261.9	1593459222	500.50	3.16
1997	4,189.25	316.21	299.1	1539445718	615.31	4.14
1998	3,989.45	351.96	487.9	1051326217	839.86	8.68
1999	4,679.21	431.17	714.5	1004916719	1,145.64	27.76
2000	6,713.57	530.37	352.2	1140137660	882.57	22.26
2001	6,895.20	764.96	374.4	1190632024	1,139.37	45.94
2002	7,795.76	930.49	499.5	1874042130	1,429.94	42.96
2003	9,913.52	1,096.54	527.4	2005390033	1,623.96	88.53
2004	11,411.07	1,421.66	585.0	1874033035	2,006.62	47.53
2005	14,610.88	1,838.39	588.5	4982533943	2,426.89	47.98
2006	18,564.59	2,290.62	632.8	4854416867	2,923.38	61.77
2007	20,657.32	3,680.09	600.5	6034971231	4,280.60	146.59
2008	24,296.33	6,941.38	605.0	8196606673	7,546.40	248.35
2009	24,794.24	9,147.42	687.8	8554840769	9,835.17	401.17
2010	54,612.26	10,157.02	718.7	6026232041	10,875.76	534.54
2011	57,511.04	10,660.07	725.5	8841113287	11,385.56	269.27
2012	59,929.89	14,649.28	816.3	7069934205	15,465.57	196.8
2013	63,218.72	15,751.84	768.7	5562873606	16,520.52	251.8
2014	67,152.79	17,128.98	732.0	4655849170	17,861.02	150.98
2015	69,023.93	18,674.15	896.5	3467894345	19,570.60	167.8

Source: CBN Statistical Bulletin (2015) and World Bank Economic Outlook (2015)

Data Analysis Based on Stationarity and Cointegration Test

Prior to the estimation of the model of this study, the time series properties of the series such as stationarity and cointegration are investigated. The results of the stationarity and cointegration are presented in the following sub-sections.

Unit Root Test

Being that financial time series are known to exhibit random walk, we tested all the time series used in this study against the null hypothesis of no unit root. The unit root test for stationary is applied using Augmented Dickey – Fuller (ADF) test (Dickey&Fuller, 1981). Each unit root test

is performed with the assumption that the time series has intercept and trend. Thus, the following hypothesis was set for the test:

$$H_0 : \delta = 0 \quad (\text{there is unit root})$$

$$H_1 : \delta \neq 0 \quad (\text{there is no unit root})$$

Where $\delta = 1 - \rho$

Decision Rule: reject the null hypothesis if the ADF statistic is greater than the MacKinnon critical value at 5% level of significance.

The result of the stationarity test presented in Table 4.2a indicates that all variables are integrated of order one {i.e. I(1)} except INFRAS and FDI which are integrated of order zero {i.e. I(0)}. Put differently, INFRAS and FDI are stationary at level. This result corroborates Clement and Hendry (1999) conclusion that financial time series data are integrated processes or realization of nonstationary processes.

Table 4.2a Summary of Unit Root Test

S/N	Variable	Test Statistic @		Test Statistics @ Difference		The Nature Of The Random Walk	Order Of Integration
		Level	Critical	ADF	Critical		
1	CREDP	- 1.06	-2.95	-4.8	-2.95	Intercept	I (1)
2	INFRAS	-5.08	-2.95	-	-	Intercept	I(0)
3	FDI	-4.51	-3.55	-	-	Trend	I(0)
4	CREDPR	-2.6	-3.55	-4.45	-3.55	Trend	I(1)
5	TOTCRE D	-1.55	-2.95	-3.68	-2.95	Constant	I(1)
6	RGDP	-2.22	-3.55	-5.07	-3.55	Trend	I(1)

Source: ADF stationarity test using EVIEW 7.

Cointegration Test

Given that the specified model for this study is a single equation model, we employ Phillips-Ouliaris residual-based tests for cointegration. This is simply, unit root tests applied to the residuals obtained from a static OLS cointegrating regression. Under the assumption that the series are not cointegrated, the residuals are unit root nonstationary. Therefore, the test of the null hypothesis of no cointegration against the alternative of cointegration is constructed by computing a unit root test of the null of residual nonstationarity against the alternative of residual stationarity. The result is presented in Table 4.2b

Table 4.2b shows that there are three cointegrating equations including the RGDP and INFRAS equations. Therefore, for our models, we reject the null hypothesis of no cointegration. This implies that there is longrun equilibrium relationship between RGDP and its explanatory variables as hypothesised in this study. Given that the variables in our model are cointegrated, we proceed to estimate the research model specified in chapter three.

Table 4.2b: Phillips-Ouliaris Residual Based Cointegration Test

Date: 08/07/16 Time: 16:46							
Series: CREDP CREDPR FDI TOTCRED INFRAS							
RGDP							
Sample (adjusted): 1981 2015							
Included observations: 35 after adjustments							
Null hypothesis: Series are not cointegrated							
Cointegrating equation deterministics: C @TREND							
@TREND^2							
Automatic lags specification based on Schwarz criterion (maxlag=6)							
Dependent	tau-	Prob.*	z-statistic	Prob.*			
	statistic						
CREDP	-3.903266	0.7604	-20.38226	0.7773			
	-		-				
	33.33548*		53.3012**				
INFRAS	*	0.0507	*	0.0000			
CREDPR	-5.000883	0.3273	-27.79906	0.3204			
	-		-				
	48.93805*		53.0583**				
RGDP	*	0.0203	*	0.0004			
FDI	-5.935660	0.1026	-33.00474	0.0956			
			-				
			39.91364*				
TOTCRED	-29.84593*	0.0630	*	0.0200			
*MacKinnon (1996) p-values.							
Warning: p-values may not be accurate for fewer than 35 observations.							
Intermediate Results:							
	OIR	PGR	INF	UNEM	RGDP	DOP	PDI
Rho – 1	-0.679409	-0.877110	-0.926635	-0.768611	-1.100158	-0.997121	-0.737534
Rho S.E.	0.174062	0.262968	0.185294	0.185742	0.185347	0.205765	0.182801
Residual variance	0.078097	6.80E-05	1.162809	0.015941	0.103508	0.017263	0.029412
Long-run residual variance	0.078097	0.000320	1.162809	0.015941	0.103508	0.017263	0.029412
Number of lags	0	2	0	0	0	0	0
Number of observations	30	28	30	30	30	30	30
Number of stochastic trends**	7	7	7	7	7	7	7
**Number of stochastic trends in asymptotic distribution							

Source: Cointegration resulted estimated by the researchers using Eview 7

Long Run Coefficients

To obtain the long run coefficients, we estimated the model specified in section 3.4 of chapter 3 using OLS. The result is summarised in Table 4.2c. As shown in Table 4.2c RGDP is a positive function of credit to private sector. If credit to private sector increases by 1%, RGDP will rise by 3.95%. Also, total credit and FDI have positive relationship with RGDP. The result shows that total credit and FDI doubles, the RGDP will increase by 81.2% and 6.7% respectively.

The results however indicate that the RGDP is negatively related with credit to public sector. This means that increase following by the public sector dampens growth and development in Nigeria. To be specific, 1% increase in public sector credit may reduce growth by 6.2%. The R² of 0.99 suggest that the explanatory variables explains 99% of the variations in real GDP. this shows that the model is robust. The robustness of the model is also corroborated by minimal of the regression model of 0.247 and Durbin Watson coefficient of 1.79. By the rule of thumb, DW of approximately 2 suggests absence of autocorrelation. Thus, the model is robust and the estimates being unbiased are fit for inference.

Table 4.2c: Summary of Long Run Coefficients of the Model: Dependent variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic
LNCREDPR	0.0395***	0.0136	2.9046
LNCREDP	-0.0616***	0.0020	-3.0613
LNFDI	0.0666	0.1052	0.6333
LNTOTCRED	0.8119***	0.3112	2.6085
C	1.4578	2.0722	0.7035
R ² = 0.99 F-statistics=672.43			DW=1.79
S.E. of regression=0.247			

Source: regression result estimated using EVIEW 7

Model 2 is summarised in equation form as follows*:

$$INFRAS = -4.977 - 0.118CREDPR + 0.152CREDP + 0.094FDI + 0.370TOTCRED$$

(4.733) (0.053) (0.229) (0.021) (01.153)

R² = 0.96 F-statistics = 171.88 DW = 2.20

*Standard errors are shown in brackets underneath the coefficients.

As shown above, credit to private sector has negative impact on infrastructural development. If credit to private sector doubles, infrastructural development decreases by 11.8%. However, credit to public sector and FDI improves infrastructural development by 15% and 9% respectively. In the same vein, total credit is positively related to infrastructural development. If total credit increases by 1%, infrastructural development may increases by 37%. However, it is only credit to private sector and FDI that have significant impact on infrastructural development. The R², F-statistics and DW of the estimated model are 0.96, 171.88 and 2.20 respectively.

Evaluation Based on Statistical Criteria.

The robustness of the hypothesized model and the validity of the research hypotheses are evaluated based on the following statistical criteria.

1. The Individual t-test

The individual t-test evaluates the individual statistical significance of the variables in the model. An explanatory variable is said to have a significant effect on RGDP (for model 1) and INFRAS (for model 2) if the p-value of the estimated parameter is greater than 0.05. That is, a variable has significant effect on unemployment if and only if: $prob\left(\hat{\beta}_i\right) \geq 0.05$. The t-test is summarized in

Table 4.2d Summary of Individual t-test

Model 1: Dependent/Predicted Variable					
s/n	Explanatory Variable	Parameter Estimates	Reported t-statistics	p-value	Remark
1	Credit to private sector CREDPR	0.0395	2.9046	0.0113	Significant
2	Credit to public sector CREDP	-0.0616	-3.0613	0.0016	Significant
3	FDI	0.0666	0.6333	0.5314	Not Significant
4	Total credit TOTCRED	0.8119	2.6085	0.0126	Significant
Model 2: Dependent Variable: INFRAS					
1	Credit to private sector CREDPR	-0.118411	-2.242669	0.0459	Significant
2	Credit to public sector CREDP	0.151797	0.661002	0.5138	Not Significant
3	FDI	0.094292	4.392470	0.0076	Significant
4	Total credit TOTCRED	0.370493	-0.321393	0.7502	Not Significant

Source: computed by the Researchers from the regression result

Table 4.2d shows that all the parameter estimates except FDI (for model 1), CREDP and Total credit (for model 2) are significant. This suggests that there is significant positive relationship between RGDP and credit to private sector and total credit and significant negative relationship between RGDP and credit to public sector. Also, for model 2, there is significant negative relationship between INFRAS and credit to private sector as well as significant positive relationship between INFRAS and FDI. However, the positive relationship between INFRAS and total credit is not significant over the study period.

2. Overall Test of Joint Significance of the Main Model: F – TEST

Here, we test the joint significance of all the estimates of the model using f-test of significance. The test proceeds as follows:

Hypotheses: The test is implemented under the following conditions:

$H_0: \beta_0 = \beta_1 = \dots = \beta_4 = 0$: the parameter estimates are not jointly statistically significant

$H_1: \beta_0 \neq \beta_1 \neq \dots \neq \beta_4 \neq 0$: the parameter estimates are jointly statistically significant

The tabulated (critical) f-value is obtained from the f-distribution table for 0.05 level of significance and $(k-1, n-k)$ degree of freedom.

Therefore: $f_{\alpha}(k-1, n-k)$

$f_{0.05}(5-1, 35-5) = f_{0.05}(4, 30) = 2.69$

Where:

$\alpha = 5\%$, n = number of observations (35) and, k = number of parameters (5).

Decision Rule:

If $f_{cal.} > f_{tab.}$, reject H_0 , otherwise accept it.

Decision

Our result shows that, $f_{cal.} (672.43) > f_{tab} (2.69)$, we therefore, reject the null hypothesis and conclude that the parameter estimates are jointly statistically significant at 5% significance level, this result further indicates that the f_{cal} falls outside the critical region as shown in Fig. 4.1

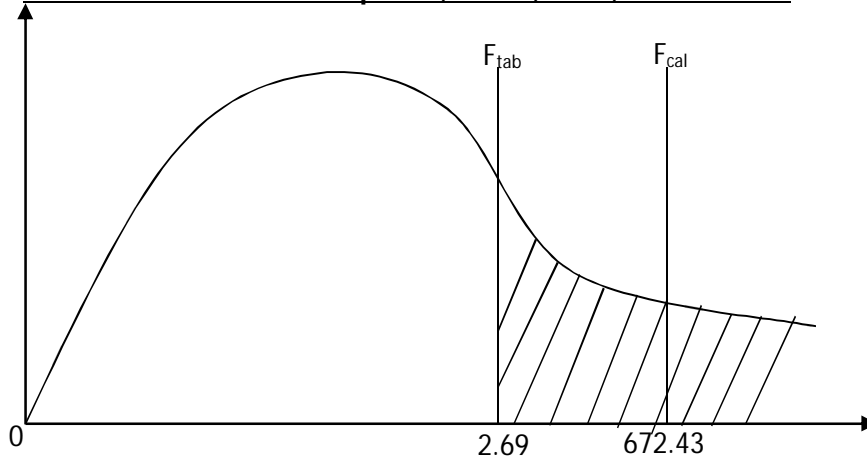


Figure 4.1: F-distribution indicating acceptance and rejection region

Test of Hypotheses

Having established the robustness, predictive power and appropriateness of the model for inferences, we proceed to test the hypotheses of the study. The hypotheses are generally stated in the null and alternate form.

Hypotheses one

H0: DMBs' credit to private sector does not have significant relationship with the real GDP in Nigeria

H1: DMBs' credit to private sector has significant relationship with the real GDP in Nigeria

To test this hypothesis, the long run estimates obtained from the OLS estimation are used. The null and alternative hypothesis are specified as follows:

$$H_0 : \beta_1 = 0$$

$$H_1 : \beta_1 \neq 0$$

Where β_1 is the parameter estimate for RGDP-CREDPR relationship. We reject the null hypothesis iff: the t-statistics of $\beta_1 \leq 0.05$, otherwise, we accept null.

From table 4.2d $prob(\beta_1) = 0.01 < 0.05$. Thus we do not accept the null hypothesis. We therefore reject the null hypothesis and conclude that DMBs' credit to private sector has significant relationship with the real GDP in Nigeria.

Hypothesis Two

H0: DMBs' total credit does not have significant relationship with real GDP in Nigeria

H1: DMBs' total credit has significant relationship with real GDP in Nigeria

To test the above hypothesis, the null and alternative hypotheses are stated as follows:

$$H_0 : \beta_4 = 0$$

$$H_1 : \beta_4 \neq 0$$

Where β_4 is the parameter estimate for RGDP-TOTCRED relationship. We reject the null hypothesis iff: the t-statistics of $\beta_4 < 0.05$, otherwise, we accept null.

From table 4.2d $prob(\beta_4) = 0.01 < 0.05$. Thus we do not accept the null hypothesis. We therefore reject the null hypothesis and conclude that DMBs' total credit has significant relationship with real GDP in Nigeria.

Hypothesis Three

H0: There is no significant relationship between DMbs' credit and infrastructural development in Nigeria.

H1: There is significant relationship between DMbs' credit and infrastructural development in Nigeria.

The above hypothesis is tested using using estimates of model 2. To test the hypothesis, the null and alternative hypotheses are stated as follows:

$$H_0 : \alpha_4 = 0$$

$$H_1 : \alpha_4 \neq 0$$

Where α_4 is the parameter estimate for RGDP-TOTCRED relationship. We reject the null hypothesis iff: the t-statistics of $\alpha_4 < 0.05$, otherwise, we accept null.

From table 4.2d $prob(\alpha_4) = 0.75 > 0.05$. Thus we do not reject the null hypothesis. We therefore accept the null hypothesis and conclude that there is no significant relationship between DMbs' credit and infrastructural development in Nigeria.

Discussion of Findings

The thrust of this study is estimation of impact of DMbs credit on economic growth and development in Nigeria. The results suggest that DMbs credit to private sector leads to economic growth. It is not difficult to understand the real way in which the DMbs credit to private sector influences economic growth. When credit grows, consumers can borrow and spend more, and enterprises can borrow and invest more. A rise of consumption and investments creates jobs and leads to a growth of both income and profit.

Furthermore, the expansion of credit influences also the price of assets, thereby increasing their obtained value. The rise of asset prices offers the owner the chance to borrow more, due to the increase of wealth. This cycle of credit expansion leads to increased costs, investments, to the creation of new jobs, to prosperity, followed by a new loan, which produces the sensation of increased wealth, and which makes people feel happier as long as they are moving within the kingdoms of this ring. Financial development can raise economic growth by increasing saving, improving assigned efficiency of loanable funds, and promoting capital accumulation.

These findings corroborates Wa (2005) and Aurangzeb (2012). Wa and Aurangzeb find that credit to private sector drives growth in Macao and Pakistan respectively. However, this study disagrees with the findings of Tahir, Shehzadi, Ali & Ullah (2015). Tahir *et al* (2015) contend that bank credit weakens growth in Pakistan.

The study also reveals that DMbs credit to public sector weakens growth. Although, this finding contradicts the *a priori* expectation, other empirical studies have proven that credit to the public sector is weak in generating growth within the economy because they are prone to waste and politically motivated programmers which may not deliver the best result to the populace (Adams, Andersson, Andersson & Lindmark, 2009; Barros, Managi & Matousek, 2009).

Moreso, credit to public sector can also weaken growth and development through its crowding out effect on investment. One channel of crowding out is a reduction in private investment that occurs because of an increase in government borrowing. If an increase in government spending leads to a deficit that is financed by increased borrowing, then the borrowing can increase interest rates, leading to a reduction in private investment.

The extent to which crowding out occurs depends on the economic situation. If the economy is at capacity or full employment, then the government suddenly increasing its budget deficit (e.g., via

stimulus programs) could create competition with the private sector for scarce funds available for investment, resulting in an increase in interest rates and reduced private investment or consumption. Thus the effect of the stimulus is offset by the effect of crowding out.

Confirming the prevalence of crowding out in the U.S., Leeper, Plante and Traum (2010) noted that there two key factors that drive the investment response to rising government debt: the source of policy changes that give rise to debt growth and distortionary debt financing. In the short run, the effect of government debt is mainly determined by the type of fiscal or monetary policy shock that triggers a debt expansion. Higher government debt can crowd in investment if the debt is generated by a reduction in capital tax rates or by an increase in productive government investment, because both raise the net return to capital. Over a longer horizon, distortionary financing plays an important role in the negative investment response following a debt expansion.

The paper also shows that DMBs credit to private sector retards infrastructural development. This finding is intuitive in that most infrastructural facilities are public or social goods which private sector has little or no incentive to produce. Public good is a good that is both *non-excludable* and *non-rivalrous* in that individuals cannot be effectively excluded from use and where use by one individual does not reduce availability to others. Such goods include street light, public roads and rails, etc. Thus as private sector borrowing rises, funds available to the government to finance infrastructural development reduces and hence infrastructural development suffers.

Although DBMs' credit to public sector has the capacity to improve infrastructural development, the study reveals that it has not not contributed to infrastructural development significantly within the period under study. This suggests that borrowed funds are either spent on recurrent expenditure or misappropriated.

Conclusion

The main objective of this study is to empirically examine the effect of DMBs' credit on economic growth and development in Nigeria. From the findings of the study and the tested hypothesis, we conclude that DMBs credit has significant positive effect on both economic growth and development in Nigeria. In other words, the banking sector, which is the main source of credit to the private sector, is an important channel of financial intermediation through which financial resources can be mobilized for productive investment.

Recommendations

1. Given that DMBs credit to private sector is a catalyst for economic growth and development, bank should continue to give credit to the private sector of the economic as it is contributing significantly for the growth of GDP in Nigeria. In order to consolidate on this success story, better and stronger credit culture should be promoted and sustained; there should be strong and comprehensive legal framework that will continue to aid in monitoring the performance of credit to private sector and recovering debts owed to banks; bank should share among themselves information on bad debt; and preferred sectors like agriculture and manufacturing should befavoured in terms of credit extension.
2. In other to encourage the private sector to borrow and invest in the domestic economy, Nigerian government can follow the path of the United States of America by reducing the money market interest rate. This will encourage borrowing as well as boost business confidence in Nigeria.
3. Given the role of credit to the economy, it may be more beneficial for the Federal Government to discontinue or rather restructure the Treasury Single Account (TSA) regime. The current TSA regime takes lonable fund away from the commercial banks, making it difficult for the private

sector to access credits. If the TSA regime must be continued, then it must be restructured to ensure that while the transaction detail goes to the CBN, the fund remains with the commercial banks that collect them. In this way, there will be more funds available for private sector borrowing.

4. Finally, we recommend that government should reduce its domestic borrowing in order not to crowd out private sector borrowing. Again, government at all levels must ensure that borrowed funds are neither wasted nor looted. Borrowed funds should rather be used to finance productive and capital projects.

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