

## Commercial Bank Credit Accessibility and Sectoral Output Performance in a Deregulated Financial Market Economy: Empirical Evidence from Nigeria

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### Abstract

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*This study investigated the impact of commercial bank credit accessibility and sectoral output performance in Nigerian economy for the period which spanned between 1986 and 2010. An augmented growth model was estimated via the Ordinary Least Square (OLS) techniques to ascertain the relationship between various commercial bank credits and sectoral output growth. The variables were tested for stationarity and co-integration analysis was also carried out using the Augmented Dickey-Fuller test. Also error correction test was performed. The study found that the various commercial bank credit supply and other included variables has a long run relationship with sectoral output performance i.e agricultural, manufacturing and services sector output and the main demand for credit facility in Nigeria is the manufacturing sector. The study also reveal that commercial bank credit has direct and insignificant impact on sectoral output performance but cumulative supply and demand for credit in the previous period has direct and significant impact on the growth of agriculture, manufacturing and the services sectors output. This finding confirms to the apriori expectation. This was attributed to the vital importance of credit facility as an input in the production process and persistent inflow to the manufacturing, Agriculture and services sectors have the capacity to induce the growth and development of the sectors. Total government expenditure has inverse and insignificant impact on sectoral output performance. The inverse nature of this variable indicates that there is a crowding out effect of government expenditure in the Nigeria manufacturing, agricultural, and services sectors while expansionary monetary policy in the previous period has direct and significant impact on the sector output performance. The implication of this is that consistent expansion of monetary policy which engenders supply and demand for commercial bank credit by the manufacturer, Farmer and services provider promote the sectors productivity. Human capital investment and interest rate has direct and insignificant impact on the sector output performance while inflationary rate has inverse and insignificant impact on the various sector performances. This implies that macroeconomic instability reduces sectoral output performance. The general lesson that emerges from this study is that continuous credit accessibility in a deregulated financial market economy has the capacity to induced the nation sectoral output performance which will promote economic growth and development when adequate monetary and fiscal policy are put in place to encourage the demand and supply of commercial bank credit to the real sector of the economy.*

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**Key word:** Financial Market, Manufacturing, Agriculture, Services, Credit, Output, Commercial bank

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## ***Introduction***

Rapid and sustained output growth of the domestic economy of Nigeria has since the political independence in 1960 been of paramount importance to successive governments in the country. Consequently, governments have since implemented several national development plans and programmes aimed at boosting productivity, as well as, diversifying the domestic economic base. The infrastructural and capital resources required for the attainment of these objectives have however been scarce. This has necessitated the intervention of commercial bank credit in the economy through the provision of the required huge capital outlay necessary for large-scale production in heavy industries and for the provision of other credit facilities for the growth of the economy.

Commercial bank credit to various economic agents which is regarded as bank loans and advances aid in financial intermediation between deficit unit and surplus which enhanced productivity, leads to large scale and enhance backward and forward impact on economic growth. Schumpeter (1911) strongly support financed lead growth hypothesis, which hypothesises that financial sector play a key role in channeling savings into productive investment, particularly in the formal sectors of the economy. Were, Nzomoi and Rutto (2012) asserted that commercial bank sector is the key conduit for financial intermediation in the economy.

The vital role of commercial bank credit in generating growth with in an economy has been widely acknowledge for instance Schumpeter (1932) established that banking sector facilitate technological innovation through their intermediary role. His emphasis was that efficient allocation of savings through identification and funding of entrepreneur with best chances of successfully implementing innovative product and production are tools to achieve real economic performance.

Nwanyanwu (2012) noted that the banking sector help to make credit available by mobilizing surplus fund from depositor who have no immediate needs of such money and channel it in form of credit to investors who have brilliant ideals on how to create additional wealth in the economy but lack the necessary capital to execute the ideals. The study further reveals that the role of credit in an economy has been recognized as credit are obtained by economic agents to enable them meet operating expenses. For instance business firm obtained credit to buy machinery and equipment, farmers obtained credit to purchase farm input such as fertilizers, seeds, farm buildings and the government obtained credit to meant various king of government expenditure either recurrent or capital expenditure.

However, acknowledging the role of commercial bank credit in an economy various banking reformed has been established by the monetary authority in Nigeria in enhancing credit accessibility. The overall intentions of these reforms have been to ensure financial stability so as to influence the growth of the economy and also enhance bank to play critical role of financial intermediation in provision and accessibility of credit in the Nigerian economy. These various reforms have led to the improvement in banking services to economic units. Available information from Central Bank of Nigeria reveals that the total loans and advances to the Nigerian economy as at 1986 was N15701.6 million immediately after deregulation of the Nigerian Banking sector it increase to N31306.2 million in 1991. It further increase to N144569.2 million, N508302.2 million, N1976711 million and N9611990 million in 1995, 2000, 2005 and 2010 respectively.

However, Hashim (2012) postulated that despite series of bank reformed aimed at strengthening the bank ability to efficient services delivery and branch networking, and funding the real sector so that the Nigerian economy can become more vibrant and very dynamic problems still lingers on such as inefficient in allocating funds to the real sector, lack of long-dated funding, decline in domestic credit by the banking sector to the private sector, high concentration of loans to few sectors and mismatch of liquidity in the Nigeria economy.

Abubakar and Gani (2013) asserted that despite the implementation of several banking sector reforms, the real sector in Nigeria is still finding it difficult to access financial resources especially from the commercial banks that hold about 90% of the total financial sector assets and also nominal interest rate is high causing many firms to avoid bank-borrowing. Other formidable financing challenges are concentration of bank credit to the oil and gas, communication and general commerce sectors to the disadvantage of the core real sectors such as agriculture and the manufacturing sector, banks are also more disposed to financing government financial need as almost 50% of their assets are tied up in government debt. These myriad financing challenges facing the real sector call for the reassessment of finance-growth nexus in Nigeria real sector performance.

Behind this views lie the more fundamental question: for example, what is the nature of commercial bank credit in the Nigerian economy, does bank credit has a significant impact on Nigeria economic growth with particular reference to agriculture, manufacturing, and services sector output. The sectoral analysis is important given the fact that the differential impact and access to commercial bank credit has implication for employment, inflation, inequality of income and poverty reduction which is of crucial significance in a typical emerging economy like Nigeria. Therefore this study intends to examine the impact of commercial bank credit on sectoral output performance in the Nigerian economy. The rest of the study is divided into the following sections. Section 2 is the literature review, section 3 is profile of commercial bank credit in Nigeria, section 4 is theoretical framework, section 5 is methodology of the study, section 6 is discussion of empirical results and section 7 is conclusion and policy recommendations.

### ***Literature Reviews***

The supply-leading hypothesis believes that the activities of the financial institutions serve as a useful tool for increasing the productive capacity of the economy. They argue that countries with better-developed financial system tend to grow faster. The importance of financial institutions in generating growth within the economy has been widely discussed in the literature. Early economists such as Schumpeter (1911) identified banks' role in facilitating technological innovation through their intermediary role. He believed that efficient allocation of savings through identification and funding of entrepreneurs with the best chances of successfully implementing innovative products and production processes are tools to achieve this objective. Several scholars thereafter (Mckinnon 1973, Shaw 1973, Fry 1988, King and Levine 1993) have supported the above postulation about the importance of banks to the growth of the economy.

Commercial banks perform many functions. They satisfy the financial needs of the sectors such as agriculture, industry, trade, communication, so they play very significant role in a process of economic social needs. The functions performed by banks, since recently, are becoming customer-centered and are widening their functions. Generally, the functions of commercial banks are divided into two categories: primary functions and the secondary functions.

Commercial banks perform various primary functions; some of them are given below:

- Commercial banks accept various types of deposits from public especially from its clients, including saving account deposits, recurring account deposits, and fixed deposits. These deposits are payable after a certain time period
- Commercial banks provide loans and advances of various forms, including an overdraft facility, cash credit, bill discounting, etc. They also give demand and demand and term loans to all types of clients against proper security.
- Credit creation is most significant function of commercial banks. While sanctioning a loan to a customer, they do not provide cash to the borrower. Instead, they open a deposit account from which the borrower can withdraw. In other words, while sanctioning a loan, they automatically create deposits, known as a credit creation from commercial banks.

Along with primary functions, commercial banks perform several secondary functions, including many agency functions or general utility functions. The secondary functions of commercial banks can be divided into agency functions and utility functions.

Njanike (2009) asserted that bank loan is a debt, which entails the redistribution of the financial assets between the lender and the borrower. The bank loan is commonly referred to the borrower who got an amount of money from the lender, and need to pay back, known as the principal. In addition, the banks normally charge a fee from the borrower, which is the interest on the debt. In unstable economic environments interest rates charged by banks are fast overtaken by inflation and borrowers find it difficult to repay loans as real incomes fall, insider loans increase and over concentration in certain portfolios increases giving a rise to credit risk.

Commercial Bank credit policy provides all the credit management, it establishes objective, standards and parameters to be followed by bank employees responsible for the provision and processing of loans and management. If the credit policy is correctly formulated, carried out and well understood at all levels of the bank, it allows management to maintain proper standards of the bank loans to avoid unnecessary risks and correctly assess the opportunities for business development (Lapteva, 2009). Thus the corner stone of credit risk management is the establishment of a framework that defines corporate priorities, loan approval process, credit risk rating system, risk-adjusted pricing system, loan-review mechanism and comprehensive reporting system (Arunkumar and Kotreshwar, 2005).

Bhusal (2012) evaluate the impact of policy reforms on financial development and economic growth in Nepal by employing the annual data spanning from 1965 to 2009. Based on the Augmented Dickey Fuller test and exogenous break test they examine the impact of policy reforms. The results shown that all variables except domestic credit are non-stationary at the level, when time series properties of variables that help to detect the impact of policy reforms are examined with a structural break, only economic growth experienced a shock, growing positively after the liberalization. Similarly, domestic credit provided by banks experienced negative growth, and it decreased in pace after policy reforms, which implies that the role of government declined after the liberalization. However, there is no impact of policy reforms on some of the indicators. Some problems in the banking sector, such as inadequate expansion of commercial banks and their branches in the rural non-monetized sector, non-performing loans that discouraged credit allocation, and so on, may be the reasons policy reforms for financial development were ineffective.

Avinash and Mitchell-Ryan (2009) assess the impact of the sectoral Distribution of commercial bank credit on Economic growth and development in Trinidad and Tobago. They noted that in Trinidad and Tobago, commercial bank credit plays an important role in the way in which businesses and individuals finance economic transactions. They asserted that the credit channel of the monetary transmission mechanisms, which states that credit influences economic growth through its impact on capital investment. They employs a vector error correction model to firstly assess the relationship between credit and investment, and secondly to determine the casual directionality of the relationship (if any). The model found that overall, credit and growth tends to demonstrate a demand following' relationship. However, further analysis revealed a 'supply leading' relationship between credit and growth within key sectors of the nonoil economy.

Bynoe, Howard and Moore (2008) attempted to identify the determinants of credit booms in the Caribbean and to establish whether or not those credit booms led to sustained economic growth in the region. The authors utilized panel data to establish the main causes of credit booms in the region. They identified three key groups of variables that made some contribution to the development of credit booms; macroeconomic developments, macroeconomic policy and external shocks. In the case of the Caribbean, it was established that macroeconomic developments were one of the main contributors to credit booms.

The authors established that loose monetary policy and liberalization of the capital account play a significant role in the development of credit booms. More importantly, the authors concluded that credit booms can be detrimental to an economy, particularly when such booms finance high risk investments. They note that, while a “vibrant financial system can have a positive impact on long run economic growth” it is important to distinguish between a vibrant system and a credit boom which can be detrimental to the growth of an economy.

Ayadi, Arbak, Ben-Naceur and De Groen (2013) explore the relationship between financial sector development and economic growth across the Mediterranean, using a sample of northern and southern Mediterranean countries for the years 1985-2009. The authors included several variables to measure the development of the financial sector to account both for quantity and quality effects. The results indicate that credit to the private sector and bank deposits are negatively associated with growth, which confirms deficiencies in credit allocation in the region and suggests weak financial regulation and supervision.

Were, Nzomoi and Rutto (2012) investigates the impact of access to bank credit on the economic performance of key economic sectors using sectoral panel data for Kenya. They find that a positive and significant impact of credit on sectoral gross domestic product measured as real value added. However, the magnitude of the impact is smaller once factors such as the labour employed and past economic performance of the sectors are taken into account. They also noted that the overall, provision of private sector credit to key economic sectors of the economy holds great potential to promoting sectoral economic growth. 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 needed for the realization of the high economic growth path envisaged under vision 2030. Consequently, policies towards deepening of the financial sector and reducing the cost of credit which is currently considered to be high are important. Such policies should, however, be accompanied with other complementary strategies that enhance productivity and consequently growth of key sectors of economy such as manufacturing and agriculture.

Obilor (2013) evaluating the impact of commercial banks' credit to agricultural sector under the Agricultural Credit Guarantee Scheme Fund in Nigeria. He noted that until the mid-seventies, agriculture was the primary foreign exchange earner for Nigeria. Now it has lost its prime position to the mineral sector. Of these factors, inadequate capital is considered as the single most important factor affecting the performance of the sector. The study empirically examined the impact of Agricultural Credit Guarantee Scheme Fund, agricultural product prices, government fund allocation and commercial banks' credit to agricultural sector on agricultural productivity. The results revealed that joint action of commercial banks credit to the agricultural sector, agricultural credit guarantee loan by purpose, government financial allocation to agricultural sector and agricultural products prices are significant factors that can influence agricultural production in Nigeria. He recommended that farmers should be encouraged to be applying for loans from the participating banks to enhance their agricultural activities and productivity.

Tomola, Adebisi and Olawale (2010) investigate the effect of bank lending and economic growth on the manufacturing output in Nigeria. Times series data covering a period of 36 years were employed and tested with the co-integration and vector error correction model (VECM) techniques.

The findings of the study show that manufacturing capacity utilization and bank lending rates significantly affect manufacturing output in Nigeria. They noted that concerted effort by the government, manufacturers and the lending institutions need to reviewing the lending and growth policies and provide appropriate macroeconomic environment, in order to encourage investment-friendly lending and borrowing by the financial institutions.

Abubakar and Gani (2013) examined the long run relationship between financial development indicators and economic growth in Nigeria over the period 1970-2010. Using the Johansen and Juselius (1990) approach to cointegration and Vector Error Correction Modelling (VECM). The findings of the study revealed that in the long-run, liquid liabilities of commercial banks and trade openness exert significant positive influence on economic growth, conversely, credit to the private sector, interest rate spread and government expenditure exert significant negative influence. The findings implied that, credit to the private sector is marred by the identified problems and government borrowing and high interest rate are crowding out investment and growth. They recommended that financial reforms in Nigeria should focus more on deepening the sector in terms of financial instruments so that firms can have alternatives to banks' credit which proved to be inefficient and detrimental to growth, moreover, government should inculcate fiscal discipline so as to reduce excessive borrowing from the financial sector and thereby crowding out private investment.

However, Oluitan (2012) 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. The findings suggest that bank credit is inextricably linked to the opening of the economy to international trade and capital flows in non-oil.

Nwanyanwu (2009) examined the role of bank credit in economic growth of Nigeria. Based on the finding of the study, it was observed that bank credit has not impacted significantly on the growth of the Nigerian economy. This is attributed to the fact that banks exhibit apathy in lending to the private sector for productive purposes e.g. agricultural sector, as they prefer to lend to the short-term end of the market, e.g. commerce, which attracts quick and high rate of turnover. As a result of this, the volume of loan actually given to investors is insignificant. She recommended that banks should be willing to give both short and long-term loans for productive purposes, as this will eventually lead to economic growth also that the regulatory body such as Central Bank of Nigeria (CBN) should adopt a direct credit control that will be beneficial to the productive sector of the economy e.g. agriculture and manufacturing sectors.

Akpan sun and Babalola (2012) examine the relationship between banking sector credit and economic growth in Nigeria over the period 1970-2008. The causal links between the pairs of variables of interest were established using Granger causality test while a Two-Stage Least Squares (TSLS) estimation technique was used for the regression models. The results of Granger causality test show evidence of unidirectional causal relationship from GDP to private sector credit (PSC) and from industrial production index (IND) to GDP. Estimated regression models indicate that private sector credit impacts positively on economic growth over the period of coverage of the study. However, lending (interest) rate impedes economic growth. The study recommends the need for more financial market development that favours more credit to the private sector with minimal interest rate to stimulate economic growth.

### ***Profile Of Commercial Bank Loan And Advanced (Credit) To The Nigerian Economy***

The banking system credit (loan and advanced) to the private sector as a ratio of gross domestic product is a very major indicator of financial development. It defined the degrees of financial intermediation in an economy because it comprises all the credit given by the banking system to the private sector.

Pill and Pradhan (1995) examined four indicators of financial development namely: base money, real interest rate, bank credit to the private sector and broad money and concluded that private sector credit is the only indicator that directly correlated with financial development. This section examines the structure and share of commercial bank credit to the agriculture, manufacturing, services sectors and the general economy as shown in tables in the appendix.

Figure 1 in the appendix reveals that the share of commercial bank loan and advanced to the economy shows a fluctuation value from 1986 to 2010 with an average value of 14.89% with the maximum value of 37.77% in 2009 while the least value was 0.97% in 1990. The fluctuational value recorded by the total credit share in GDP is as a result of various monetary policy by the monetary authority to regulate the supply of money by bank to the public and private sector in order to stemmed inflation in the Nigerian economy. The average value indicates that there is poor financial development in the Nigerian economy despite the various reforms to restructure the sector and facilitate credit accessibility by the private sector. This have make the sector to function inefficiently and unable to rising up to the challenges of building a strong, virile and competitive sector that would be able to meet the saving/investment needs of the surging business world.

The commercial bank loan and advanced to the agricultural sector share in total loan and advance to the Nigeria economy show a dynamic value for the period under review with an average of 15.77%. The maximum value was 162.36% in 1990 while the least value was 1.36% in 2008 as shown in figure 2 in the appendix. The commercial bank loan and advanced to the manufacturing sector share in total credit average 37.82% and the maximum value was 303.21% in 1990 while the least was 10.13% in 2007. The table shows that the manufacturing sector shares a significant proportion of commercial bank credit in the Nigeria economy. The commercial bank loan and advanced to the services sector have an average of 8.08% with maximum value of 71.92% in 1990. Comparatively, using the average credit allocation to the sector, the manufacturing sector received the highest credit allocation in Nigerian economy follow by the agricultural sector while the services sector received the least and also the various economic sectors receives the highest share of total credit in the year 1990.

The commercial bank loan and advanced to the agricultural sector share in agricultural output also show a dynamic value for the period under review with an average of 3.39%. The maximum value was 6.56% in 1986 immediately after the deregulation of the Nigeria financial market which allowed the market forces to determine the demand and supply of loan in the economy. The least value was 0.83% in 2006. The table also shows that value of credit to agriculture was insignificant and this can be attributed to the stringent policy put in place by bank in assessing agricultural loan and the asymmetric information which characterized the sector by the peasant farmers.

The commercial bank loan and advanced to the manufacturing sector average 83.13% and the maximum value was 167.15% in 2009 while the least was 53.48% in 1989. The table shows that the manufacturing sector shares a significant proportion of commercial bank credit in the Nigeria economy. The commercial bank loan and advanced to the services sector have an average of 11.16% with maximum value of 73.74% in 2010. Comparatively, the manufacturing sector dominates the credit allocation in Nigerian economy follow by the services sector and the agricultural sector.

### ***Theoretical Framework***

There are different transmission channels through which monetary policy affects economic activities and these channels of transmissions have been broadly examined under the monetarist schools of thought. The monetarist postulates that change in the money supply leads directly to a change in the real magnitude of money. Describing this transmission mechanism, (Friedman and Schwartz. 1963) as reported in Onyeiwu (2012) say that an expansive open market operations by the Central Bank, increases stock of money, which also leads to an increase in Commercial Bank reserves and ability to create credit and hence increase money supply through the multiplier effect.

In order to reduce the quantity of money in their portfolios, the bank and non-bank organizations purchase securities with characteristics of the type sold by the Central Bank, thus stimulating activities in the real sector.

Credit is an important aspect of financial intermediation that provides funds to those economic entities that can put them into the most productive use. Theoretical studies have established the relationship that exists between financial intermediation and economic growth which is hypothesis under the finance led growth theory. For instance, Schumpeter (1934), Goldsmith (1969), McKinnon (1973) and Shaw (1973), in their studies, strongly emphasized the role of financial intermediation in economic growth.

In the same vein, Greenwood and Jovanovich (1990) observed that financial development can lead to rapid growth. In a related study, Bencivenga and Smith (1991) explained that development of banks and efficient financial intermediation contributes to economic growth by channeling savings to high productive activities and reduction of liquidity risks. They therefore concluded that financial intermediation leads to growth. Based on this assertion, this study examines the extent to which intermediation or credit to agricultural, manufacturing and services sectors of the economy has influenced the sectors performance. This means that a financial institution can effect economic growth by efficiently carrying out its functions, among which is the provision of credit.

Adebola and Dahalan (2013) postulated that the effect of financial development on economic growth is analyzed within standard growth accounting framework. Similar to Khan (2000), Koubi (2008) Bolbol, Fatheldin and Mohammed (2005) and Caporale et al. (2004), we assume capital stock is provided by two sectors- banking sector and stock markets. This can be written as:

$$K_t = K_{st} + K_{bt} \text{-----} (1)$$

$K_t$ ,  $K_{st}$ ,  $K_{bt}$  are total capital stock, stock market indicator and banking sector indicator, respectively. We adopt an augmented Solow production function (Solow, 1956) that makes output a function of stocks of capital, labour, human capital and technology (see Mankiw, Romer and Weil, 1992). In a Cobb–Douglas production function framework, this is specified as:

$$Y_t = A_t K_{st}^\alpha K_{bt}^\lambda L_t^\beta H_t^\gamma \text{-----}(2)$$

$Y$  is the flow of output,  $L$  is labour,  $H$  is human capital stock, and  $A$  is technology. According to Mankiw et al. (1992),  $A = a + \varepsilon$  in which technology is broken into constant  $a$  and country specific deviation  $\varepsilon$  Mankiw et al. (1992) successfully dump the effect of technology into the regression error term. Taking logarithm and differentiating (2) results into:

$$Y_t = \alpha_t + \pi K_{st} + \lambda K_{bt} + \beta l_t + \gamma h_t + U_t \text{-----}(3)$$

where the lower case letters represent the growth rates of output, stock market, banking sector, labour and human capital, and  $\pi$ ,  $\lambda$ ,  $\beta$  and  $\gamma$  are coefficients of stock market, banking sector, labour and human skill capital, respectively. We are concentrating on the impact of capital on income. Therefore an adaptation is necessary. Adapting this model to focus on the relationship between financial development and economic growth, it has to be augmented in consonance with Beck and Levine (2004) and Levine and Zervos (1996, 1998); we remove labour from the equation. This is rational because human capital is more representative of human skills than labour. Hence we are left with the following equation:

$$Y_t = \alpha_t + \pi K_{st} + \lambda K_{bt} + \gamma h_t + U_t \text{-----} (3)$$

This is the simple conditioning information set as described by Beck and Levine (2004). It represents the basic elements that affect the income growth.

They are initial income (as this is not a cross sectional study, we ignore the possible effect of initial income in this study), stock market development, banking sector development, and the human capital development.



According to Valdes (1999), inclusion of additional variables into the policy conditioning information set should be based on how effective they can proxy technology'. In other words, instead of dumping technology entirely into the error term altogether it should be proxy by an appropriate combination of variables. With assumption that  $\varepsilon = z + \mu$

$$Y_t = \alpha_t + \pi K_{st} + \lambda K_{bt} + \gamma h_t + \delta z_t + U_t \text{-----} (3)$$

$Z_t$  is vector of other important variables that include macroeconomic stability indicators such as broad money, interest rate, inflation rate, government expenditure which are employed as control variables. Since this study aimed to examine the impact of credit on Nigeria sectorial economic performance and the growth of the Nigerian economy the model for this study is re-specified below with modification:

$$\text{ECONOMIC GROWTH } f(\text{BANK, HUMAN, GVT, INT, INF, MS}) \text{-----} (4)$$

ECONOMIC GROWTH is proxy for real GDP, BANK is bank credit to private sector i.e bank loan and advanced to the economic sector; HUMAN is proxy by number of student enrollment in the secondary school; INT is interest rate; GVT total government expenditure; MS broad money supply and INF is inflation rate.

## Methodology

### Sources of Data

The study employs annual time series data covering the period 1986 -2010. This period is chosen as it corresponds to the period where Nigeria financial market was liberalized and consistent data on the relevant variables are available. More importantly, this period witnessed tremendous bank reformed to enhance financial mobility. Data for the study was obtained from Central Bank of Nigeria (CBN) statistical Bulletin and CBN Annual Report and Statement of Accounts various issues.

### The Empirical Model

Equation 4 is modified by including the error team. Because we are interested in the sectorial analysis, we modeled the output equations for agricultural, manufacturing and services sectors. The equations for each sector reflect the peculiar characteristic of each and this is reflected in equation 5 through 7 and 8 which is the aggregate output which constitute the empirical model.

**Agricultural output equation:** Agricultural output equation is hypothesized to responses to factors in the theoretical model of Eq 4. Total government expenditure is represented by government expenditure on the sector.

$$GDP_A = X_0 + X_1 TBC_A + X_2 GVT_A + X_3 INT + X_4 HUM + X_5 INF + X_6 MS + U_t \text{-----} (5)$$

Where:

$GDP_A$  = Agricultural Sector Output

$TBC_A$  = Total Bank Credit to Agricultural Sector

$GVT_A$  = Total Government Expenditure on Agriculture

INT = Interest Rate

HUN = Human Capital

INF = Inflationary Rate

$MS_2$  = Broad Money supply

$U_t$  = Error Team

**Manufacturing sector output equation:** Agricultural output equation is hypotheses to responses to factors in the theoretical model of Eq 4.: Total government expenditure is represented by government expenditure on the manufacturing sector.

$$GDP_M = X_0 + X_1 TBC_M + X_2 GVT_M + X_3 INT + X_4 HUM + X_5 INF + X_6 MS + U_t \text{-----} (6)$$

Where:

- GDP<sub>M</sub> = Manufacturing Sector Output
- TBC<sub>M</sub> = Total Bank Credit to the Manufacturing Sector
- GVT<sub>M</sub> = Total Government Expenditure on Manufacturing Sector
- INT = Interest Rate
- HUN = Human Capital
- INF = Inflationary Rate
- MS<sub>2</sub> = Broad Money Supply
- U<sub>t</sub> = Error Team

**Services sector output equation:** services sector output equation is hypothesized to responses to factors in the theoretical model of Eq 4: Total government expenditure in this sector is proxy by government expenditure on transport and communication.

$$GDP_S = X_0 + X_1 TBC_S + X_2 GVT + X_3 INT + X_4 HUM + X_5 INF + X_6 MS + U_t \text{-----} (7)$$

Where:

- GDP<sub>S</sub> = Services Sector Output
- TBC<sub>S</sub> = Total Bank Credit to the Services Sector
- GVT = Total Government Expenditure on Services Sector Proxy by Government Expenditure on Transport and Communication.
- INT = Interest Rate
- HUN = Human Capital
- INF = Inflationary Rate
- MS<sub>2</sub> = Broad Money Supply
- U<sub>t</sub> = Error Team

**Estimation Techniques**

The estimation procedure adopted in this study is in three sequences.

➤ To stem the problem of spurious regression, it is important that the time series properties of the data set employed in estimation of equation is ascertained. It might seem reasonable to test for the presence of a unit root in the series using the most general of the models as.

$$\Delta y_t = \alpha_0 + \gamma y_t + \alpha_2 t + \sum \beta_j \Delta y_{t-1} + e_t \text{-----} (9)$$

Where y is the series t is (trend factor); α<sub>0</sub> is the constant term, e<sub>t</sub> is the stochastic error term, β is the lag length. The Augmented DickeyFuller (ADF) unit root test is employed to test the integration level in order to determine the order of integration of the variables.

➤ If the data set indicates integration property of the order 1 (1) for the employed variable, there we proceed to test for co-integration among the variables employing Johansen and Juselius (1988, 1991) and Juselius (1990, 1992, 1994) to ascertain the co-integration among the estimating variables.

➤ Assume the variable tested above are co integrated, we then estimate the ECM (Error Correction Model), which incorporates the full short run dynamic model;

$$Y_t = \alpha + \beta y_t + \xi_t \text{-----} (10)$$

Therefore

$$\Delta y_t = U_{t-1} + \sum \beta \Delta x_{t-1} + \sum \alpha_i \Delta y_{t-1} + \epsilon_t \text{-----} (11)$$

Here,  $Ut-1$  is the one period lagged value of the error term from co-integrating regression, while  $\Delta$  denotes the first differences operator.

### ***Results and Discussion***

In this section, we undertake empirical investigation regarding the influence of commercial bank credit on Nigeria economic performance in line with the economy sectorial output other cooperating variables on Nigeria economic growth which spanned between 1986 to 2012 using co-integration and error correction technique to determine the relationship between the dependent and independent variables.

### ***Statistical Properties of Data Series***

The time series properties of the variables were explored to determine the order of integration of each variable in the model. Standard procedure in the time series literature suggests that the researcher should check for unit roots in each series before estimating any equations. If a unit root exists in any variable, then that particular series is considered to be non-stationary. Estimation based on non-stationary variables may lead to spurious results with high coefficient of determination ( $R^2$ ). ( $R^2$  explains how much of the variances in the dependent variable is accounted for by the regression model from the sample) and t-statistics, but without any lucid economic meaning and inconsistent parameter estimator. The stationary test was performed to avoid spurious regression problems normally associated with time series econometric modeling.

The Augmented Dickey Fuller (ADF) test for estimating unit roots was applied in this study. The result of ADF testing is presented in table 3 below:

**Table 3: Augmented Dickey Fuller (ADF) test (Constant and Trend Included)**

<b>Variables</b>	<b>ADF calculated value at Level</b>	<b>ADF calculated value at 1<sup>ST</sup> Difference</b>	<b>ADF calculated value At 2<sup>nd</sup> difference</b>	<b>McKinnon 5% Critical value</b>	<b>Order of integration</b>
L GDP <sub>A</sub>	-2.1806	-3.4131	-	-2.9850	1(1)
LGDP <sub>M</sub>	-0.8926	-3.1229	-	2.9627	1(1)
LGDP <sub>S</sub>	-0.4168	-2.6400	-6.0742	2.9907	1(2)
LTGE <sub>A</sub>	-1.2277	-7.9868	-	-2.9627	1(1)
LTGE <sub>M</sub>	-0.7751	-7.4142	-	-2.9627	1(1)
LTGE <sub>S</sub>	-1.3047	-8.0271	-	-2.9627	1(1)
LTBC <sub>A</sub>	-1.1813	-8.5163	-	-2.9627	1(1)
LTBC <sub>M</sub>	-0.2578	-4.0970	-	-	1(1)
LTBC <sub>S</sub>	-1.7988	-3.1241	-	-3.1003	1(1)
LHUM	-0.1174	-9.0769	-	-2.9627	1(1)
LMS	-0.5731	-9.7574	-	-2.9627	1(1)
LINT	-4.7395	-	-	-2.9798	1(0)
LINF	-3.9637	-	-	-2.9798	1(0)

**Sources:** Authors Computation.

In the table above, Time series of the variables i.e LGDP<sub>A</sub>, LGDP<sub>M</sub>, LTBC<sub>S</sub>, LTBC<sub>A</sub>, LTBC<sub>M</sub>, LTGE<sub>A</sub>, LTGE<sub>M</sub>, LTGE<sub>S</sub>, HUM, and MS were non-stationary in levels I (0) since the ADF value of each variable at level is less than the McKinnon 5% critical values but become stationary after first differencing, or integrated of order one, I(1).

Since the ADF value of each variable at first difference is greater than the McKinnon 5% critical values while LINT and LINP are stationary at level Since the ADF value of each variable at level is greater than the McKinnon 5% critical values. However, the variable LGDP<sub>s</sub> is stationary at second order difference 1(2) since the ADF value of the variable at second order difference is greater than the McKinnon 5% critical values.

### Co-integration Test Result

Since the unit root test shows that the variables are stationary at level 1(0), first order difference 1(1) and second order difference 2(1), we therefore test for co-integration among these variables by employing the Engle and Granger two steps method. The ECM will enable the derivation of both short run and long run properties of the model which other estimation techniques lacked except lags are enforced into them. Iganiga and Unemhahn (2011) asserted that co-integration established that stationarity of the residual generated from running a statistic regression at level of the regressors (independent variables) on the regressed (dependent variable). Hence the need to subject the residuals generated from their long run statistic regression to Augmented Dickey-Fuller test to see if they are stationary. The stationary of the residual is potent evidence that there is evidence of convergence to long run equilibrium among the integrated variables.

The regression of the variables is done at levels and the residual series thereafter obtained for ADF tests. The result of the ADF co-integration test is presented as following:

**Table 3: Co-integration Residual Stationary Test Result for Agricultural Output Equation.**

ADF	Test statistic	5% critical value
	-3.9574	-2.9798

**Source:** computed by the authors.

The co-integration residual stationary test result for agricultural output equation presented in table 3 above suggests that, the ADF coefficient is significant at 0.05 significance level. The absolute value of ADF test statistic of 3.9574 is greater than the critical value of 2.9798 at 0.05 level of significance and the critical value of 2.6290 of 0.1 percent significance level. This implies that there is presence of co-integration among the variables i.e there is long run relationship among the explanatory variables and agricultural output.

**Table 4: Co-integration Residual Stationary Test Result for Manufacturing Output Equation.**

ADF	Test statistic	5% critical value	10% critical value
	-3.0612	-2.9591	-2.6181

**Source:** computed by the authors.

The co-integration residual stationary test result for manufacturing output equation presented in table 4 above suggests that, the ADF coefficient is significant at 0.05 significance level. The absolute value of ADF test statistic of 3.0612 is greater than the critical value of 2.9591 at 0.05 level of significance and the critical value of 2.6181 of 0.1 percent significance level. This implies that there is presence of co-integration among the variables i.e there is long run relationship among the explanatory variables and manufacturing output.

**Table 5: Co-integration Residual Stationary Test Result for services sector Output Equation.**

ADF	Test statistic	5% critical value	10% critical value
	-3.8969	-3.1801	-2.7349

**Source:** computed by the authors.

The co-integration residual stationary test result for services sector output equation presented in table 5 above suggests that, the ADF coefficient is significant at 0.05 significance level. The absolute value of ADF test statistic of 3.8969 is greater than the critical value of 3.1801 at 0.05 level of significance and the critical value of 2.7349 of 0.1 percent significance level. This implies that there is presence of co-integration among the variables i.e there is long run relationship among the explanatory variables and services sector output.

Conclusively, the test statistics reject the null hypothesis of no co-integration in favour of the co-integration relationships between the variables. These result shows that the dependent and independent variables are both co-integrated and have long-run relationships.

### Presentation of Regression Result

Given the fact that the variables of the three equations are co-integrated, the next step is the estimation of the short-run dynamics within the vector error correction model in order to capture the speed of adjustment to equilibrium in the case of any shock to any of the independent variables. Adopting the general to the specific framework, an over parameterized error correction model of agricultural, manufacturing and services sector output equation were estimated. In the general to specific modeling, up to three lags were used in some of the explanatory variables and then eliminated the insignificant variables from general form of ECM equation (Henry, 1995). As such the parsimonious equations were obtained.

The result obtained from the parsimonious estimation of the equations is present as follows.

**Table 7: Parsimonious Error-Correction Model of Agricultural Sector Output Equation (DLGDPA) by OLS**

Regressor	Coefficient	Std Error	T-statistic	Probability.
C	0.7692	0.4610	1.6683	0.1160
D(LTBC <sub>A</sub> )	0.0518	0.0810	0.6391	0.5324
D (LTBC <sub>A</sub> (-1))	0.2109	0.0757	2.7874	0.0138
D (LTGE <sub>A</sub> (-2))	0.1642	0.0540	3.0391	0.0083
D(LMS)	0.0044	0.0981	0.0448	0.9649
D(LMS(-1))	0.4577	0.0866	5.2875	0.0001
D(LHUM)	0.0118	0.0302	0.3912	0.7011
D(LINF)	-0.0919	0.0457	-2.0121	0.0625
D(LINT)	0.2692	0.2625	1.0252	0.3216
ECM(-1)	-0.8633	0.1395	-6.1869	0.00000

$$R^2 = 0.6940$$

$$R^{-2} = 0.5700$$

$$F - \text{Statistic} = 24.943$$

$$\text{Prob} (F - \text{Statistic}) = 0.0000$$

$$D.W \text{ Statistic} = 1.7618$$

**Sources:** Authors computation.

From table 7, it could be observed that total bank credit to agriculture  $D(TBC_A)$  assumes its apriori predicted sign of positive. This shows that a positive change in  $D(TBC_A)$  variable will lead to positive change in growth of agricultural sector output. Precisely a one per cent point increase in  $(TBC_A)$  will lead to 0.7692 per cent increase in Nigeria agricultural output. The coefficient of  $(TBC_A)$  is not significant at 0.05 significance level with a very high probability value of 0.5324. The implication of this finding is that total bank credit to agriculture in the current period has no significant effect agricultural performance. However, one period lag of the variable has the theoretical expected positive sign. This implies that a one per cent increase in a year period lag of  $TBC_A$  will lead to 0.2109 per cent increase in Nigeria agricultural output. The coefficient value of  $TBC_A$  is significant at 0.05 significance level, which is confirmed by low probability value of 0.0138. The positive natures of this variable indicate that this variable have the tendency to induced the growth of Nigeria agricultural sector performance given the vital importance of credit facility to agricultural business facilitation and overall economic development.

The coefficient of total government expenditure on agriculture  $(TGE_{A-1})$  is 0.1642. This implies that a one percent increase in  $(TGE_A)$  will result in a 0.1642 percent increase in Nigeria agricultural output in two period lag. This variable was found to be statistically significant at 0.05 percent levels of significance judging from the low probability value estimate of 0.0083. The implication of this finding is that expansionary fiscal policy would promote the output of agricultural sector of the Nigerian economy. It also shows that there is no crowding out effect of government expenditure in the agricultural sector. Yaqub (2011) asserted that this is due to non-direct involvement of government in agricultural production in Nigeria but provide the enabling environment through policies and provision of infrastructure for the sector.

The estimated coefficient of broad money (MS) was found to be 0.0044. Thus, a direct relationship with agricultural output was established. This is consistent with the apriori expectation. The variable is not significant at 0.05 per cent levels of significance due to the high value of the probability of 0.9649. This result indicates that MS does not induce the growth of agricultural sector output. However, in one year period lag the coefficient of MS was 0.4577. This implies that one year period lag in increase in broad money will leads to 0.4577 increases in agricultural output. The variable is also significant at 0.05 per cent levels of significance due to the low value of the probability of 0.0001. The implication of this is that consistent expansion of monetary policy which encourages supply and demand of commercial bank credit has the capacity to promote agricultural output performance all things being equal.

Investment in Human capital proxy by enrollment in secondary school (HUM) has a very significant strong impact on agriculture productivity. However in the result above the impact is not significant such that one percent increase in HUM will leads to 0.0118 percent increase in agricultural output. The non-significant of this variable might be attributed to migration of trained agricultural labour to other sector of the economy in search of relatively higher wage returns and non-availability of necessary tools and machine with which trained workers can put in their knowledge to boost agricultural productivity.

The inflationary rate (INF) variable coefficient bears a positive sign. This is not consistent with the apriori expectation. This implies that there is direct relationship between inflationary rate and Nigeria agricultural output. The value of the coefficient is 0.0919. This implies that a one per cent increase in inflationary rate will lead to 0.0919 per cent increase in agricultural output. The coefficient value of the variable is significant at 0.1 significance level which is confirmed by the probability value of 0.0625. The non-robustness of this variable is an indication that macroeconomic instability reduces agricultural output.

The result also shows that interest rate (INT) has positive sign, which is not consistent with the appriori expectation. The coefficient of this variable is not significant at 0.05 significance level. The magnitude of the coefficient is 0.2692, and by implication, one per cent increase in interest rate will lead to 0.2692 per cent increase in agricultural performance. The positive nature of this variable is as a result of conceptionary interest rate for agriculture which has the ability to promote agricultural output.

The result shows that the coefficient of error correction mechanism (ECM) is negative -0.09833 and significant at 0.05 per cent critical level as evident by the low probability value of 0.0000. This shows that about 98 per cent disequilibria in Nigeria's agricultural output in the previous year are corrected for in the current year. The significance of the ECM is an indication and a confirmation of the existence of a long run equilibrium relationship between agricultural output and all the explanatory.

The overall goodness of the model as shown by the adjusted coefficient of determination is 0.05700, which shows that about 57 percent of the variation experienced in the agricultural output of Nigeria for the period being investigated may be explained by the independent variables included in our model.

The F-statistic which measures the joint statistical influence of the explanatory variables in explaining the dependent variable was found to be statistically significant at 0.05 percent level. The F-statistic figure of 6940 shows that the explanatory variables are important determinant of Nigeria agricultural output.

The value of Durbin Watson statistic is 1.7618 for the model. This implies that there is absence of autocorrelation among the explanatory variables in the model.

**Table 8: Parsimonious Error-Correction Model of Manufacturing Sector Output Equation (DLGDP<sub>M</sub>) by OLS**

Regressor	Coefficient	Std Error	T-statistic	Probability.
C	0.7635	0.4776	1.5986	0.1308
D(LTBC <sub>M</sub> )	0.3876	0.2915	1.3299	0.2034
D(LTBC <sub>M</sub> (-1))	0.87011	0.0180	4.8601	0.0000
D(LTGE <sub>M</sub> (-1))	-0.0050	0.0723	-0.0698	0.9453
D(LMS)	-0.0081	0.0730	-0.1110	0.9131
D(LMS(-1))	0.0253	0.0809	0.3122	0.7592
D(LHUM)	0.0466	0.0264	1.7663	0.0977
D(LINF)	-0.02847	0.0337	-0.8461	0.418
D(LINT)	0.0540	0.0170	3.2330	0.0140
ECM(-1)	-0.7894	0.2222	-3.5521	0.0029

$$R^2 = 0.7826$$

$$R^2 = 0.7236$$

$$F - \text{Statistic} = 20.0181$$

$$\text{Prob}(F - \text{Statistic}) = 0.0000$$

$$\text{D.W Statistic} = 1.9631$$

**Sources:** Authors computation.

From table 8, it could be observed that total bank credit to manufacturing sector D(TBC<sub>M</sub>) assumes its appriori predicted sign of positive. This shows that a positive change in D(TBC<sub>M</sub>) variable will lead to positive change in growth of manufacturing sector output. Precisely a one per cent point increase in (TBC<sub>M</sub>) will lead to 0.7635 per cent increase in Nigeria manufacturing sector output. The coefficient of (TBC<sub>M</sub>) is not significant at 0.05 significance level with a very high probability value of 0.2034.

The implication of this finding is that total bank credit to manufacturing sector in the current period has no significant effect on manufacturing sector performance. However, one period lag of the variable has the theoretical expected positive sign. This implies that a one per cent increase in a year period lag of  $TBC_M$  will lead to 0.87011 per cent increase in Nigeria manufacturing sector output. The coefficient value of  $TBC_M$  is significant at 0.05 significance level, which is confirmed by low probability value of 0.0000. The positive nature of this variable indicates that this variable has the tendency to induce the growth of Nigeria manufacturing sector output given the vital importance of credit facility as an input in manufacturing process and persistent inflow to the manufacturer has the capacity to induce the growth and development of the sector.

The coefficient of total government expenditure on manufacturing sector ( $TGE_{M-1}$ ) is -0.0050. This implies that a one hundred percent increase in ( $TGE_M$ ) will result in a 0.50 percent decrease in Nigeria manufacturing sector output in one period lag. This variable was found to be statistically insignificant at 0.05 percent levels of significance judging from the high probability value estimate of 0.0050. The implication of this finding is that expansionary fiscal policy would stem the growth of manufacturing sector output. The inverse nature of this variable indicates that there is a crowding out effect of government expenditure in the Nigeria manufacturing sector.

The estimated coefficient of broad money supply (MS) was found to be 0.0081. Thus, an inverse relationship exists between broad money supply and manufacturing sector output. This is not consistent with the a priori expectation. The variable is not significant at 0.05 per cent levels of significance due to the high value of the probability of 0.9131. This result indicates that MS does not induce the growth of manufacturing sector. However, in one year period lag the coefficient of MS was 0.0253. This implies that one year period lag increase in broad money supply will lead to 0.0253 increases in manufacturing sector output. The variable is also insignificant at 0.05 per cent levels of significance due to the high value of the probability of 0.7592. The implication of this is that consistent expansion of monetary policy which encourages supply and demand of commercial bank credit by the manufacturer has the capacity to promote manufacturing sector output performance but is not contributing robustly at the point of study.

Investment in Human capital proxy by enrollment in secondary school (HUM) has a very significant strong impact on manufacturing sector output. However in the result above the impact is not significant at 0.05 percent such that one percent increase in HUM will lead to 0.0466 percent increase in manufacturing sector output. The non-significance of this variable might be attributed to poor investment in human capital in Nigeria which leads to poor skill development that is necessary for the sector.

The inflationary rate (INF) variable coefficient bears a negative sign. This is consistent with the a priori expectation. This implies that there is an indirect relationship between inflationary rate and Nigeria manufacturing sector output. The value of the coefficient is -0.0285. This implies that a one per cent increase in inflationary rate will lead to 0.0285 per cent decrease in manufacturing sector output. The coefficient value of the variable is insignificant at 0.05 percent significance level which is confirmed by the probability value of 0.4180. The non-robustness of this variable is an indication that macroeconomic instability reduces manufacturing sector output.

The result also shows that interest rate (INT) has positive sign, which is not consistent with the a priori expectation. The coefficient of this variable is significant at 0.05 percent significance level. The magnitude of the coefficient is 0.0540, and by implication, one per cent increase in interest rate will lead to 0.0540 per cent increase in manufacturing sector performance. The positive and significant nature of this variable is as a result of conceptionary interest rate for manufacturing sector which has the ability to promote the sector output performance.



The result shows that the coefficient of error correction mechanism for manufacturing sector equation (ECM) is negative -0.7894 and significant at 0.05 per cent critical level as evident by the low probability value of 0.0029. This shows that about 79 per cent disequilibria in Nigeria's manufacturing sector output in the previous year are corrected for in the current year. The significance of the ECM is an indication and a confirmation of the existence of a long run equilibrium relationship between manufacturing sector output and all the explanatory.

The overall goodness of the model as shown by the adjusted coefficient of determination is 0.7236, which shows that about 72 percent of the variation experienced in the manufacturing sector output of Nigeria for the period being investigated may be explained by the independent variables included in our model.

The F-statistic which measures the joint statistical influence of the explanatory variables in explaining the dependent variable was found to be statistically significant at 0.05 percent level. The F-statistic figure of 20.0181 shows that the explanatory variables are important determinant of Nigeria manufacturing sector.

The value of Durbin Watson statistic is 1.9631 for the model. This implies that there is absence of autocorrelation among the explanatory variables in the model.

**Table 9: Parsimonious Error-Correction Model of Services Sector Output Equation (DLGDP<sub>s</sub>) by OLS**

Regressor	Coefficient	Std Error	T-statistic	Probability.
C	0.8887	0.1080	8.2298	0.0144
D (LTBC <sub>s</sub> (-1))	0.3862	0.0471	8.2037	0.0145
D (LTGE <sub>s</sub> )	-0.0097	0.0377	-0.2583	0.8203
D(LMS(-1))	0.2148	0.0198	10.8530	0.0084
D(LHUM)	0.0222	0.0281	0.7920	0.5114
D(LINT)	0.0562	0.0789	0.7119	0.5504
D(LINF)	-0.0106	0.0155	-0.6796	0.5669
ECM(-1)	-0.4602	0.1557	-2.9551	0.0018

$$R^2 = 0.7200$$

$$R^{-2} = 0.6298$$

$$F - \text{Statistic} = 65.8872$$

$$\text{Prob (F - Statistic)} = 0.0000$$

$$D.W \text{ Statistic} = 2.0914$$

**Sources:** Authors computation.

From table 9, it could be observed that total bank credit to services sector D(TBC<sub>s</sub>) assumes its a priori predicted sign of positive. This shows that a positive change in D(TBC<sub>s</sub>) variable will lead to positive change in growth of services sector output. Precisely a one per cent point increase in (TBC<sub>s</sub>) will lead to 0.3862 cent increase in Nigeria services sector output in the previous one year. The coefficient of (TBC<sub>s</sub>) is significant at 0.05 significance level with a very low probability value of 0.0145. The coefficient of total government expenditure on services sector (TGE<sub>s</sub>) is -0.0097. This implies that a one hundred percent increase in (TGE<sub>s</sub>) will result in 0.01450 percent decrease in Nigeria services sector output. This variable was found to be statistically insignificant at 0.05 percent levels of significance judging from the high probability value estimate of 0.8203. The implication of this finding is that expansionary fiscal policy would stem the growth of services sector output. The inverse nature of this variable indicates that there is a crowding out effect of government expenditure in the Nigeria services sector.

The estimated coefficient of broad money supply (MS) was found to be 0.2148. Thus, a direct relationship exists between broad money supply and services sector output. This is consistent with the apriori expectation. The variable is significant at 0.05 per cent levels of significance due to the low value of the probability 0.0084. This result indicates that MS induce the growth of services sector in Nigeria. The implication of this is that expansion of monetary policy which encourages supply and demand of commercial bank credit to the services sector has the capacity to promote services sector output performance.

Investment in Human capital proxy by enrollment in secondary school (HUM) has a positive sign. Which implies direct relationship exist between human capital and the services sector output. However, the impact is not significant at 0.05 percent such that one percent increase in HUM will leads to 0.0222 percent increase in services sector output. The non-significant of this variable might be attributed to poor investment in human capital in Nigeria.

The inflationary rate (INF) variable coefficient bears a negative sign. This is consistent with the apriori expectation. This implies that there is an indirect relationship between inflationary rate and Nigeria services sector output. The value of the coefficient is -0.0106. This implies that a one per cent increase in inflationary rate will lead to 0.0106 per cent decrease in services sector output. The coefficient value of the variable is insignificant at 0.05 percent significance level which is confirmed by the probability value of 0.5669. The non-robustness and inverse nature of this variable is an indication that macroeconomic instability reduces manufacturing sector output.

The result also shows that interest rate (INT) has positive sign, which is not consistent with the apriori expectation. The coefficient of this variable is insignificant at 0.05 percent significance level. The magnitude of the coefficient is 0.0562, and by implication, one per cent increase in interest rate will lead to 0.0562 per cent increase in services sector performance.

The result shows that the coefficient of error correction mechanism for services sector output equation (ECM) is negative -0.4602 and significant at 0.05 per cent critical level as evident by the low probability value of 0.0081. This shows that about 46 per cent disequilibria in Nigeria's services sector output in the previous year are corrected for in the current year. The significance of the ECM is an indication and a confirmation of the existence of a long run equilibrium relationship between services sector output and all the explanatory.

The overall goodness of the model as shown by the adjusted coefficient of determination is 0.6298, which shows that about 63 percent of the variation experienced in the services sector output of Nigeria for the period being investigated may be explained by the independent variables included in our model.

The F-statistic which measures the joint statistical influence of the explanatory variables in explaining the dependent variable was found to be statistically significant at 0.05 percent level. The F-statistic figure of 65.8872 shows that the explanatory variables are important determinant of Nigeria services sector output performance.

The value of Durbin Watson statistic is 2.0914 for the model. This implies that there is absence of autocorrelation among the explanatory variables in the model.

### ***Conclusion and Recommendations***

This study has investigated the impact of commercial bank credit accessibility and sectorial output performance in Nigerian economy for the period which spanned between 1986 and 2012. An augmented growth model was estimated via the Ordinary Least Square (OLS) techniques to ascertain the relationship between various commercial bank credits and the sectoral output growth.

The variables were tested for stationarity and co-integration analysis was also carried out using the Augmented Dickey-Fuller method. Also error correction test was performed. The study found that the various commercial credit supply and other included variable has a long run relationship with sectoral output performance i.e agricultural, manufacturing and services sector output and the main demand for credit facility in Nigeria is the manufacturing sector. The study also reveal that commercial bank credit has direct and insignificant impact on sectorial output performance but cumulative supply and demand for credit in the previous period has direct and significant impact on the growth of agriculture, manufacturing and the services sectors output. This finding confirms to the apriori expectation. This was attributed to the vital importance of credit facility as an input in the production process and persistent inflow to the manufacturing. Agriculture and services sectors have the capacity to induce the growth and development of the sectors.

Total government expenditure has inverse and insignificant impact on sectoral output performance. The inverse nature of this variable indicates that there is a crowding out effect of government expenditure in the Nigeria manufacturing, agricultural, and services sectors while expansionary monetary policy in the previous period has direct and significant impact on the sector output performance. The implication of this is that consistent expansion of monetary policy which engenders supply and demand of commercial bank credit by the manufacturer, Farmer and services promote the sectors productivity.

Human capital and interest rate has direct and insignificant impact on the sector output performance while inflationary rate has inverse and insignificant impact on the various sector performances. This implies that macroeconomic instability reduces sectoral output performance.

Conclusively, the general lesson that emerges from this study is that continuous credit accessibility in a deregulated financial market economy has the capacity to induced the nation sectoral output performance which will promote economic growth and development when adequate monetary and fiscal policy are put in place to encourage the demand and supply of commercial bank credit to the real sector of the economy.

Based on the findings in this study and to induce credit accessibility and sectoral output performance, the following recommendations are advocated:

There is need for government to consciously improve the business environment by provision of necessary infrastructure, which will lower the cost of doing business in Nigeria. The recent privatization of electric power holding company may be a step in the right direction if there is an improvement in the services provided.

There is need for proper financial market development. The financial sector should be deregulated. This would enable the sector to function properly, thus rising up to the challenge of building a strong, virile and competitive sector that would be able to meet the demand and supply of credit facility.

The monetary authority should put in place adequate policies towards deepening of the financial sector and reducing the cost of credit. Such policies should, however, be accompanied with other complementary strategies that enhance productivity and consequently growth of key sectors of economy such as manufacturing, agriculture and services.

The Central bank of Nigeria should adopt direct credit control, where preferred sectors like agriculture, manufacturing and services sectors should be favoured in terms of granting credits.

Banks should be willing to give both short and long-term loans for productive purposes, as this will eventually lead to economic growth.

Better and stronger credit culture should be promoted and sustained. There should be strong and comprehensive legal framework that will aid in monitoring the performance of credit to private sector and recovering debts owed to banks.

Commercial banks, and other credit institutions should improve upon their loan procedures, so as to facilitate more by farmers, manufacturer and services provider access to their credit facilities.

Lastly, beneficiaries should be closely monitored to ensure that the loans are used for the purposes. Stakeholders in agricultural, manufacturing and services sector mostly the government should put a mechanism to ensure effective implementation of credit collected by the sectors. This will check the incessant cases of loan diversion.

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**Appendix: Profile Of Commercial Bank Loan and Advanced (Credit) To the Nigerian Economy.****Fig 1: Credit Financial Development In Nigerian Economy**

<b>YEAR1</b>	<b>Real Gross Domestic Product(#, M)2</b>	<b>Total comm. Bank credit.(#, M)3</b>	<b>TCB/GDP3 % 2</b>
1986	69147	15701.6	22.70757
1987	105222.8	17531.9	16.66169
1988	139085.3	19561.3	14.06425
1989	216797.5	22008	10.15141
1990	267550	2600.1	0.971818
1991	312139.7	31306.2	10.02955
1992	532613.8	42736.8	8.023975
1993	683869.8	65665.3	9.602018
1994	899863.2	94183.9	10.46647
1995	1933212	144569.6	7.478207
1996	2702719	169437.1	6.269135
1997	2801973	365550.5	13.04618
1998	2708430	272895.5	10.07578
1999	3194015	322764.9	10.1053
2000	4582127	508302.2	11.09315
2001	4725086	796164.4	16.84973
2002	6912381	954628.8	13.81042
2003	8487032	1210033	14.25744
2004	11411067	1519243	13.31377
2005	14572239	1976711	13.56491
2006	18564595	2524298	13.59738
2007	20657318	4813489	23.30162
2008	24296329	7799400	32.10115
2009	24794239	9365676	37.7736
2010	29205783	9611990	32.91126

**Sources:** Central Bank of Nigeria Statistical Bulletin (2010).

**Fig 2: Structure of Nigeria Commercial Bank Credit to Agriculture, Manufacturing and Services Sectors Share in Total Credit.**

YEAR	Com. Bank Credit to Agriculture (#, M)1	Com. Bank Credit to Manufacturing (#, M)2	Com. Bank Credit to services sector (#, M)3	Total comm. Bank credit.(#, M)4	1 % of 4	2 % of 4	3 % of 4
1986	1830.3	4475.2	1795.6	15701.6	11.65677	28.50155	11.43578
1987	2427.1	4961.2	2135.4	17531.9	13.84391	28.29813	12.18008
1988	3066.7	6078	1336	19561.3	15.67738	31.07155	6.829812
1989	3470.5	6671.7	1500.8	22008	15.76927	30.31489	6.819338
1990	4221.4	7883.7	1869.9	2600.1	162.3553	303.2076	71.91646
1991	5012.7	10911.3	2107.6	31306.2	16.01184	34.85348	6.732213
1992	6978.9	15403.9	2764.2	42736.8	16.32995	36.04364	6.467962
1993	10753	23110.6	4419.3	65665.3	16.37547	35.19454	6.730039
1994	17757.7	34823.2	0	94183.9	18.85428	36.97362	0
1995	25278.7	59090.7	0	144569.6	17.48549	40.87353	0
1996	33264.1	72238.1	0	169437.1	19.63212	42.63417	0
1997	27939.3	82823.1	0	365550.5	7.643075	22.65709	0
1998	27180.7	96732.7	0	272895.5	9.960113	35.44679	0
1999	31045.7	115759.9	0	322764.9	9.618673	35.86508	0
2000	41028.9	141294.8	0	508302.2	8.071753	27.7974	0
2001	55846.1	206889	0	796164.4	7.014393	25.98571	0
2002	59849.7	233474.7	0	954628.8	6.269421	24.45712	0
2003	62102.8	294309.6	0	1210033	5.132322	24.32244	0
2004	67738.6	332113.7	0	1519243	4.458708	21.86048	0
2005	48561.5	352038.3	0	1976711	2.456682	17.80929	0
2006	49393.4	445792.6	0	2524298	1.956718	17.66006	0
2007	149578.9	487576	0	4813489	3.107495	10.12937	0
2008	106353.8	932799.5	1889842	7799400	1.363615	11.95989	24.2306
2009	135701.3	1023467	2088257	9365676	1.448922	10.92785	22.29692
2010	176688.3	1023962	2529289	9611990	1.838207	10.65296	26.31389

**Sources:** Central Bank of Nigeria Statistical Bulletin (2010).

**Fig 3: Structure of Financial Credit Development in Nigeria Agriculture, Manufacturing and Services Sectors**

EAR	Comm. Bank credit to Agric (#, M)2	Comm. Bank credit to Manu (#, M)3	Comm. Bank credit to Services(#, M)4	Manu GDP (#, M)5	Agric GDP (#, M)6	Services GDP (#, M)7	2 % of 6	3 % of 5	4 % 7
1986	1830.3	4475.2	1795.6	6591.12	27887.45	13455.85	6.563167	67.89741	13.34438
1987	2427.1	4961.2	2135.4	7468.45	39204.22	14550.52	6.190915	66.42878	14.67576
1988	3066.7	6078	1336	11017.78	57924.38	16745.33	5.294316	55.16538	7.978344
1989	3470.5	6671.7	1500.8	12475.51	69713	21265.53	4.978268	53.47837	7.05743
1990	4221.4	7883.7	1869.9	14702.4	84344.61	27425.6	5.004943	53.62186	6.818082
1991	5012.7	10911.3	2107.6	19356	97464.06	31355.45	5.143127	56.37167	6.721639
1992	6978.9	15403.9	2764.2	27004.01	145225.3	44227.32	4.805569	57.04301	6.249983
1993	10753	23110.6	4419.3	38987.14	231832.7	60863.26	4.638259	59.2775	7.261031
1994	17757.7	34823.2	0	62897.69	349244.9	98336.16	5.084599	55.36483	0
1995	25278.7	59090.7	0	105289.6	619806.8	151822.9	4.07848	56.12207	0
1996	33264.1	72238.1	0	132897.1	841457.1	194941.2	3.953155	54.35643	0
1997	27939.3	82823.1	0	144107	953549.4	221391.9	2.930032	57.47336	0
1998	27180.7	96732.7	0	141496.4	1057584	299450.1	2.570075	68.36405	0
1999	31045.7	115759.9	0	150946.5	1127693	373576.2	2.753027	76.68935	0
2000	41028.9	141294.8	0	168037	1192910	471814.6	3.439396	84.08552	0
2001	55846.1	206889	0	199079.3	1594896	572666.2	3.501552	103.9229	0
2002	59849.7	233474.7	0	236825.5	3357063	692179.5	1.782799	98.58511	0
2003	62102.8	294309.6	0	287739.4	3624579	843690.5	1.713379	102.2834	0
2004	67738.6	332113.7	0	349316.3	3903759	1246724	1.735215	95.07535	0
2005	48561.5	352038.3	0	412706.6	4773198	1620112	1.017379	85.2999	0
2006	49393.4	445792.6	0	478524.1	5940237	2143487	0.831506	93.1599	0
2007	149578.9	487576	0	520883	6757868	2502832	2.213404	93.60566	0
2008	106353.8	932799.5	1889842	585573	7981397	2785655	1.332521	159.2969	67.84192
2009	135701.3	1023467	2088257	612308.9	9186306	3106820	1.477213	167.1489	67.21528
2010	176688.3	1023962	2529289	647822.8	10273652	3430112	1.71982	158.062	73.7378

Sources: Central Bank of Nigeria Statistical Bulletin (2010).