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## RESEARCH ARTICLE

### IMPACT OF DEPOSIT MONEY BANKS ON CAPITAL FORMATION IN NIGERIA: 1980-2015

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#### ABSTRACT

Over the years the downturn of capital formation and domestic investment have resulted in growth instability in Nigeria as such this study examines the impact of Deposit money bank activities on capital formation in the Nigerian economy. To achieve this, a model was formulated to empirically examine the impact of commercial banks on capital formation in Nigeria. The explanatory variables were bank savings (BS), liquidity ratio (LR) and deposit rate (DR). The variables were subjected to unit root test and they were all stationary at first difference I(1) except Deposit Rate (DR) which was stationary at level "I(0)". Since the Variables were not all stationary at level the ARDL co-integration test and error correction mechanism were used to determine the long-run and short-run relationship between the variables. The variables were found to be co-integrated and the ECM was statistically significant indicating presence of short run mechanism. The result obtained showed that BS had a positive but insignificant relationship with GFCF. The conclusion and recommendation made was that the economy financial policies makers, managers and implementers should reassess and strengthen existing policies and their implementation to ensure steady flow of investible capital for continuous growth in the economy.

**Key words:** Capital; Deposit, Savings, Lending; Economy; Financial.

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#### INTRODUCTION

Financial literature suggests that financial sector development leads to economic growth. This is in consequence of the sector's basic function of resource mobilization and allocation. In the main, resource allocation takes the form of credit provision and expansion, to facilitate economic activities, raise the level of investment and further capital accumulation. Khan and Senhadji, (2000) consider bank credit to be an important determinant of economic development. The literature supports the argument that countries with efficient credit systems grow faster while inefficient credit systems bear the risk of bank failure (Kasekende, 2008). As an indicator of the level of investment in the economy, capital formation promotes production and the speed of economic activity. It plays an important role in actualizing the production potential of the economy and results in technical progress (Pathania, 2013). Economic theories have shown that capital formation plays these roles irrespective of the model of economic development. As such it determines the domestic capacity to produce. Inadequate capital formation is therefore a major constraint to economic development. For these reasons, factors that determine growth of capital formation have always attracted policy attention.

In recognition of the crucial role of capital formation, government has embarked on structural, institutional and policy reforms to enhance the functioning of the economy in a manner that will enhance capital formation. The relationship between commercial bank activities and capital formation has well been document in literature. Contributors to that high theory include Hirschman, Lewis, Myrdal, Nurkse, Rosenstein Rodan, Sevitorsky and Streeten (Anthony & David, 2013). Capital formation is a component of Gross Domestic product by income together with consumption and net exports and services as an indicator of the level of investment in the economy. The concept means that society does not apply the whole of its current production activity to the needs and immediate desire of consumption but directs some part of it to the creation of capital goods (Jhingan, 2005). Capital formation promotes production and determines the speed of economic growth and development. It play important role in increasing the production potential of the economy and brings about balanced growth of different sector of the economy that results in technical progress (Pathania, 2013). Economic theories have shown that capital formation plays critical role in the model of economic development and determine the National capacity to produce. This means that inadequate capital formation is a major constraint to economic development. Therefore factors that determine growth of capital formation should be given adequate attention. Nigeria is a developing country that requires steady increase in capital stock to achieve her developmental plans. Over the years Nigerian government

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recognized the important of capital formation and embarked on structural, institutional and policy reforms to enhance the smooth functioning of the economy that will enhance capital formation; instances include: the liberalization of the economy in the last quarter of 2006, financial sector reforms such as the internationalization of Nigeria capital market and the recapitalization of the financial institutions. There are other macroeconomic reforms such as overheads in the business environments. The extents to which these have affected the growth of capital formation remain a matter of concern to scholars. An examination of CBN Reports shows that Nigerian Gross fixed capital formation was 11.63%, 10.23%, 8.15%, 10.48% and 11.02% of Gross Domestic Product between 2010-2015, compared with 43% in Mauritania in 2014, 32% in India, and 58% in Bhutan. This means that, poor capital formation is one reason that led to the failure in achieving the various Nigeria development plans.

**Statement of the Problem:** In recent time, there has been an increasing concern on the role of capital formation on economic growth and hence the capital formation has been the focus of economic policies and policy makers have committed tremendous resources to get the benefits it provides for the economy. Capital formation provides the axis for stock formation activities and it is often cited as a barometer of business direction. An active capital formation may be relied upon to measure changes in the general level of Banking activities and loans (Khan and Senhadji 2000). Financial institution is one of the main avenues investors invest their hard earned currency in anticipation of good returns or yield but it has been argued that most Nigerian businesses lack long term capital. The business sector in Nigeria has been relying on short term financing such as overdraft to finance even long term capital. Based on the maturity, marching concept in such financing becomes risky. Firms need to acquire source for new capital to foster investment and productivity (Handley, Powers and Lema, (2011). Deducing from the extensive studies on the theoretical expectations on the role of capital formations on economic growth which have formed the core of normative economics, the capital market is expected to contribute to economic growth through the transmission mechanism of saving mobilization, creation of liquidity, risk diversification, improved dissemination and acquisition of information, provision of long-term non-debt financial capital which enables companies to avoid over reliance on debt financing, and enhanced incentives for corporate control amongst others. Since the inception of the global economic crunch in addition to a number of causing factors the impact of capital formation has remained rather passive. The federal government effort at revamping it has still not yielded enough result. The core objective of this study is to examine the role of deposit money banks on capital formation in Nigeria. The study covers the period between 1980 and 2015. The study period is selected to allow an inept analysis of key issues and to examine the pre and post SAP period. Hence this study is divided into four sections; section one is introduction, section two contains literature review, while section is methodology and section four deals with recommendations and conclusion.

### Literature Review and Theoretical Framework

**Concept of Deposit Money Bank:** A deposit money bank is a financial institution which performs the functions of accepting deposits from the general public and giving loans for investment with the aim of earning profit. In fact, commercial

banks, as their name suggests, are profit-seeking institutions, i.e., they do banking business to earn profit (Blinder and Alan 2009). They generally finance trade and commerce with short-term loans. They charge high rate of interest from the borrowers but pay much less rate of interest to their depositors with the result that the difference between the two rates of interest becomes the main source of profit of the banks. Most of the Indian joint stock Banks are Commercial Banks such as Punjab National Bank, Allahabad Bank, Canara Bank, Andhra Bank, Bank of Baroda, etc. (Bruno et al 2010). The two most distinctive features of a commercial bank are borrowing and lending, i.e., acceptance of deposits and lending of money to projects to earn interest (profit). In short, banks borrow to lend. The rate of interest offered by the banks to depositors is called the borrowing rate while the rate at which banks lend out is called lending rate. According to Cardoso (2012) the difference between the rates is called 'spread' which is appropriated by the banks. Mind, all financial institutions are not commercial banks because only those which perform dual functions of (i) accepting deposits and (ii) giving loans are termed as commercial banks. For example post offices are not bank because they do not give loans. Functions of commercial banks are classified in to two main categories—(A) Primary functions and (B) Secondary functions.

### Concept and sources Capital formation

Formation of capital is determined by increase in the volume of real savings, mobilization of savings and investment savings. This means capital formation is monetary phenomenon. The major factor that determines capital formation according to Easterly and Fischer (2013) are as follows;

**Increase in National Income:** the first important step is to increase the national output or income which will tend to raise the income of the people. This can be done by utilizing the existing techniques and employing resources more efficiently, by utilizing unused resources productively and increased division of labour.

**Savings Drives:** Savings drives will also help solve the problem of augmenting savings. They require concerted efforts in the form of propaganda and social education. Savings is a matter of habit which can be inculcated by propaganda. People can be persuaded to save in their own interest or in the interest of the family, for imparting education to their children, for marrying them, for building a house or as a safeguard against old age, sickness or emergency. Similarly, issuing savings certificates in the form of government bonds and annuities carrying a high rate of interest may be helpful in mobilizing savings. Further incentive to savings can be in the form of business gifts, lottery prizes and tax exemption on the purchase of government bonds.

**Establishment of Financial Institutions:** It is common knowledge that much of the unspent current income is hoarded in cash; jewels, gold, etc., by the people in underdeveloped countries. Therefore, the need is to establish financial institutions where small savers can safely deposit their money with confidence. The setting up of a well-developed capital and money market by the central bank can give further impetus in this direction. In order to stimulate small savings among the masses, attention should be paid to the starting of life insurance, compulsory provident fund, provident fund-cum-pension-cum, life insurance schemes, opening up of savings

banks and mobile banks in rural areas, and promoting savings through cooperative societies, including the establishment of service cooperatives and strong apex institutions like the central and state cooperative banks. Such agencies will not only permit small amounts of saving to be handled and invested conveniently but will allow the owners of savings to retain liquidity individually and finance long-term investment collectively.

**Rural Savings:** Another important measure is to encourage rural savings for local needs which are understood and approved of by the savers. Government securities might be attached to particular development projects in rural areas. These rural debentures should as far as possible be for specific projects of development in which the villager is interested in different degrees, according as they are of direct benefit to him, or to those with whom he shares fellowship of interest because of their belonging to his district or region or state. The guiding policy should therefore, be to link rural savings with local development projects. In this way, mobilization of rural savings might lead to more rapid development. Such voluntary savings can even lead to that "critical minimum" which is so essential for a "take-off".

**Gold Hoards:** Another method is the mobilization of gold hoards. This is a useful, though a neglected method of capital formation. The government should issue gold certificates carrying a high rate of interest in lieu of the gold surrendered by the public (Gordon 2013).

**Perpetuation of Income Inequalities:** This is also regarded as one of the measures to achieve high rates of saving and investment. Since the mass of the people have a low marginal propensity to save in underdeveloped countries, it is the higher income groups with a high marginal propensity to save that can do saving and investment for capital formation. This had been one of the major sources of capital formation in 18th century England and early 20th century Japan. But widening of income inequalities is not feasible under the prevailing political climate in underdeveloped countries. Moreover, it is not definite that the wealthy classes may utilize their savings for productive investments, as was done by the British entrepreneurs of the 18th century. Rather the tendency is to spend on conspicuous consumption re-inforced by the international demonstration effect. In some of the African and Latin American countries where the governments are not watchful, the declining influence of the wealthy classes has led to the flight of domestic capital into the safe vaults of banks in developed countries (Gordon 2013).

**Increasing Profits:** Professor Lewis is of the view that the ratio of savings to national income is a function not just of inequality, but precisely, of the ratio of profits to national income. He maintains that voluntary savings form a significantly large share of national income only where inequality of income distribution is such that profits are a relatively large share of national income. If there is unequal distribution of income and the society's upper level incomes accrue to the landlords or traders, there is little chance of providing voluntary savings to finance investments (Fielding, 2013)

**Concept of Economic Growth:** Economic growth is an increase in a nation's capacity to produce goods and services (www.google.com, 2012). That is, economic growth is the increase in the value of goods and services produced by an

economy. Economic growth includes the rate of which new investment and new resources could be brought into productive use by the population (Machin, 2012). Gregorio (2016) defines economic growth as any increase in the Gross National Product (GNP) or Gross Domestic Product (GDP), but for several reasons this is a rather misleading use of the term. In "Economics" "economic growth" or economic growth theory" typically refers to growth of potential output i.e. production at full employment" rather than growth of aggregate demand. "Balanced growth" is an important consideration for a community or region. If the economy of a community or region depends heavily on one industry, it will feel the effects of the peaks and valley of the business cycle of the industry. By encouraging the industry to expend into a number of different geographic formations or attracting different industries into the community or regions, the "boom" and "burst" cycle can be managed. Through this diversification, the impact of a single event in one formation or industry on the local economy can be made less dramatic (Gbosi, 2014). In general, economic growth and population growth rates are very close that the margin cannot induce the required structural transformation and economic diversification. The Nigerian economy has grossly underperformed relative to her enormous resource endowment and her peer nations.

**Concept of Interest Rate:** Interest rate is defined as the reward for the sacrifice involve in holding rather than consuming wealth. It is also defined as the price for obtaining honourable funds and a return forgoing liquidity. If individual optimize a stream or real consumption over time and assuming existence of only two periods. Future and present, the real interest rate can be defined as the relative price between future and present real consumption. Interest rate has an important allocative influence on economic activities. By affecting the vital operating cost of a business, impact on the level of investment. Fisher (1985) were indeed in unison that the interest rate is critical determinant of the level of investment. The critical factor influencing the actual amount of borrowing is the existence of the benefit to be received in relation to the cost of borrowing. The extent of the demand by the investors are limited in practice by the amount of the nation's savings and market expectations of profits. If the rate of interest is very low, money will be back from real sector in the hope that higher rates of interest may be obtained at a later date. If however rate of interest are high, savings will be encouraged and the extend of the demand will rise though not with a very sharp pace, since it is not practicable to reduce spending below certain level.

## Theoretical Review

**Tobins Neoclassical Theory of Capital Formation:** Tobin in his famous article "liquidity preference as behavior towards risk" formulated the risk aversion theory of liquidity preference based on portfolio selection. This theory removes two major defects of the Keynesian theory of liquidity preference. One Keynes's liquidity preference function depend on the inelasticity of expectation of future interest rate; and two, individuals hold either money or bonds. Tobin's has removed the two defects. His theory does not depend on elasticity of expectation of future interest rate but precedes on the assumption that expected value of capital gain or loss from holding interest bearing aspects is always seen. Moreover, it explains that an individual's portfolio hold money and bonds rather than one at a time. Tobin started his portfolio selection

model of liquidity preference with this presumption that an individual's assets holder has a portfolio of money and bonds. Money neither brings any return nor imposes any risk on him. But bonds yield interest and also bring income. However, income from bonds is uncertain because it involves a risk, capital gains or losses. The greater the investment in bonds, the greater the risk of capital from them. An investor can bear the risk if he is compensated by an adequate return from bonds (Jhingan, 2005).

**The Capital Asset Pricing Model:** The CAPM builds on the model of portfolio choice developed by Harry (1952). In Markowitz's model, an investor selects a portfolio at time  $t-1$  that produces a stochastic return at  $t$ . The model assumes investors are risk averse and, when choosing among portfolios, they care only about the mean and variance of their one-period investment return. As a result, investors choose "mean variance-efficient" portfolios, in the sense that the portfolios 1) minimize the variance of portfolio return, given expected return, and 2) maximize expected return, given variance. Thus, the Markowitz approach is often called a "mean variance model." The portfolio model provides an algebraic condition on asset weights in mean variance-efficient portfolios. The CAPM turns this algebraic statement into a testable prediction about the relation between risk and expected return by identifying a portfolio that must be efficient if asset prices are to clear the market of all assets. Sharpe (1964) and Lintner (1965) add two key assumptions to the Markowitz model to identify a portfolio that must be mean-variance-efficient. The first assumption is *complete agreement*: given market clearing asset prices at  $t_{-1}$ , investors agree on the joint distribution of asset returns from  $t_{-1}$  to  $t$ . And this distribution is the true one—that is, it is the distribution from which the returns we use to test the model are drawn. The second assumption is that there is *borrowing and lending at a risk-free rate*, which is the same for all investors and does not depend on the amount borrowed or lent.

**Empirical Review:** An effective capital formation as it is well known in its role in an economy, promotes growth and increases the rate of development. There have been the growing concerns and controversies on the role of economic growth on capital formation. The relationship between capital stock and economic development has well been document in literature. Contributors to that high theory include Hirschman, Lewis, Myrdal, Nurkse, Rosenstein Rodan, Sevtersky and Streeten (Anthony & David, 2013). Capital formation promotes production and determines the speed of economic growth and development. It play important role in increasing the production potential of the economy and brings about balance growth of different sector of the economy that results in technical progress (Pathania, 2013). While some are in support of a positive link, some on negative link, others do not find any empirical evidence to support their assertion. For instance, Cardoso (2012) found in a cross country study of stock formations and economic growth of 40 countries from 1990 – 2010 and contend that there was a significant correlation between economic growth and formation capitalization. Easterly and Fischer (2013) examined whether there was a strong empirical relationship between capital formation development and long run economic growth. They found a strong correlation between overall stock formation development and long run economic growth. The most important and systematic early contribution on the correlation between capital formation and economic development was the one that came from Joseph Schumpeter, who asserted that

capital formation being a major indicator of financial development promote economic growth by funding entrepreneurs and more importantly, channeling capital efficiently to the entrepreneurs with high return projects. Kadiri (2012) noted that past efforts at providing solution to unemployment problem facing developing nations of the world are often faced with stiff opposition sometime right from beginning. Examining the contributions of bank loans to capital formation in Nigeria using the Binomial Logistic Regression Analysis the result revealed that the sector was unable to achieve this goal due to its inability to obtain adequate business finance for the sector. It was observed that virtually all the Capital formation that were sampled relied on the informal sources of finance to start their business. As a way out, the study suggests the need for the integration of the activities of the formal with that of the informal financial institutions. 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.

Dada (2014) noted that the consistently repeated complaint of Capital formation about their problem regarding access to finance is highly relevant constraint that endangers the development of the sector in Nigeria and investigating the effect of commercial banks' credit on Capital formation development employing Ordinary Least Square (OLS) technique to estimate the multiple regression models. The findings revealed that commercial banks credit to Capital formation and the saving and time deposit of commercial banks exert a positive and significant influence on Capital formation development proxy by wholesale and retail trade output as a component of GDP, while exchange rate and interest rate exhibit adversative effect on Capital formation development. The study concluded that adequate savings should be mobilized from the public by emphasizing more on saving and that government should encourage banks to lend to Capital formation by providing guarantee, interest rate subsidies and other incentives. Afolabi (2013) evaluated the effect of Capital formation and financing on economic growth in Nigeria between 1980 and 2010 the study employed Ordinary Least Square (OLS) method to estimate the multiple regression models. The estimated model results revealed that Capital formation and output proxy by wholesale and retail trade output as a component of gross domestic product and commercial banks' credit to Capital formation exert positive and significant impact on economic development proxy real gross domestic product while lending rate is found to exert negative effects on economic growth. Mohammed (2014) examined the necessity and strategies of re-positioning commercial banks in order to enhance the productive capacities of Capital formation employing the Error Correction Model (ECM) and Co-integration Test the results showed that there was co-integration between re-positioning of commercial banks and capacities of Capital formation to deliver products/services and also there was significant dispersion resulting from lending conditions and macroeconomic variables. He concluded that the previous Global Financial Crisis really brought with it economic hazards leading to Banking Sector Crises. It was recommended that government should relax the conditions for lending offered by the Commercial Banks through the Central

Bank, revitalize the Capital Markets and Prioritize the SME in order to contribute to Economic Growth. Ekpenyong (2015) showed that very little financial supports have been provided by the commercial banks to the Capital formation. The reasons are that small businesses have serious intrinsic structural defects that make them high risk borrowers, and the commercial banks are not structured to supply for the type of credit demanded by the small businesses owing to the nature of their credit evaluation procedures. Oyefusi and Mogbolu (2012) examined the impact of financing small scale enterprises on economic growth using quarterly time series data from 1992 to 2009 the study revealed that loan to small scale entrepreneurs have a positive impact on the economic performance and conclude that access to capital or finance is necessary but not a sufficient condition for successful entrepreneurial development. Imoughele and Ismaila (2013) also investigated the impact of commercial bank credit accessibility and sectoral output performance in Nigerian economy for the period which spanned between 1986 and 2011. An augmented growth model was estimated via the ordinary least square (OLS) techniques. The result found that the various commercial bank credit supplies have a long-run relationship with sectoral output performance in Nigeria.

Chidi and Shadare (2011) investigated the challenges confronting human capital development in small and medium-sized enterprises (Capital formation) in Nigeria. It was found that human capital development in Nigerian Capital formation leaves much to be desired. They recommended the need to address the issues of human capital development in Capital formation and for Capital formation to embrace the investor in people criteria if the desired corporate and national goals are to be realized. Nnanna (2013), acknowledge that small and medium scale enterprises are considered generally as the bedrock of the industrial development of any country. Apart from the numerous goods produced by Capital formation, the provide veritable means of large scale employment, as they are usually labour intensive. They also provide training grounds for entrepreneurs even as they generally rely more on the use of local materials. Moreover, if well managed, the Capital formation can gradually transform into the giant corporations of tomorrow. These contributions thus explain why Government and International Agencies mobilize effort towards the realization of sustainable industrial growth and the creation of mass employment through the rapid growth and development of the small scale enterprises. Okogbue (2014), put forward that, the only way to revitalize, sustain and nature the commercial banks and finance is to complement simultaneously small and medium scale enterprises through designing and building equipment and machine using local materials. Perhaps, this calls for the urgent establishment of mother industry, i.e, the machine tool industry, which is necessary for viable industrial engineering design. What is needed is to design and fabricate necessary equipment, and applying standard quality control measures required in various sectors of the manufacturing industry. Li (2016) introduced the role of the stock formation to the McKinnon-Shaw framework by applying the theory of credit rationing. According to this theory, banks inherently suffer from the problem of imperfect information in the credit formation and cannot achieve efficient capital allocation. On the other hand, equity finance is free from adverse selection and moral hazard effects. Thus, substantial development of an equity formation is a necessary condition for complete financial liberalization.

## Theoretical Framework

This study is theoretically framed by Tobins Neoclassical theory of capital formation. Many economists see a link between fluctuations in investment and fluctuations in the stock formation. The term stocks refer to the shares in the ownership of corporations, and the stock formation is the formation in which these shares are traded. Stock prices tend to be high when firms have many opportunities for profitable investment, since these profit opportunities mean higher future income for the share holders. Thus, stock prices reflect the incentives to invest. The noble prize-Winning economist James Tobin proposed that firms base their investment decisions on the following ratio, which is now called Tobin's  $q$ .  $Q = \text{Formation Value of Installed Capital} / \text{Replacement cost of installed capital}$ . The numerator of Tobin's  $q$  is the value of the economy's capital as determined by the stock formation. The denominator is the price of the capital if it were purchased today. Tobin reasoned that net investment should depend on whether  $q$  is greater or less than 1, if  $q$  is greater than 1, then the stock formation values installed capital at more than its replacement cost. In this managers can raise the formation value of the firms stock by buying more capital conversely, if  $q$  is less than 1, the stock formation values capital at less than its replacement cost. In this case managers will not replace capital as it wears out. Although at first, the  $q$  theory of investment appears quite different from the neoclassical model, in fact the two theories are closely related. Tobin's  $q$  depends on current and future expected projects from installed capital. If the marginal product of capital exceeds the cost of capital, then firms are earning profit on their installed capital. these profit make the rental firms desirable to own, which raises the formation value of these firms, stock, implying a high value of  $q$ . similarly, if the marginal products of capital, then firms are incurring losses on their installed capital, implying a low formation value and a low of  $q$ . Tobin's  $q$  theory provides a simple way of interpreting the role of the stock formation in the economy suppose, for example that the observe a fall in stock price. Because the replacement cost of capital is fairly stable, a fall in the stock formation is usually associated with a fall in Tobin's  $q$ . a fall reflects investors' pessimism about the current or future profitability of capital. According to  $q$  theory, the fall in  $q$  will lead to a fall in investment, which could lower aggregate demand. In essence,  $q$  theory gives a reason to expect fluctuations in the stock formation to be closely tied to fluctuations in output and employment.

## MATERIALS AND METHODS

**Model Specification:** The method/technique of data analysis to be used shall be the ordinary least square (OLS) method of estimation. The justification for choosing the OLS method as the estimation technique was due to the desirable properties its estimate possess called the BLUE properties. These properties ensure good inference making and efficient as well as non-misleading conclusion and recommendations. The choice to use the OLS was also based on the fact that the OLS is among the best estimation method for the linear econometric model. The OLS estimation of the specified model shall be done using Econometric Views (EViews). The estimated model is evaluated using diagnostic and summary statistic, such as  $t$ -statistics, coefficient of multiple determination ( $R^2$ ) adjusted  $R^2$ ,  $f$ -statistic, Durbin Watson ( $d$ ) statistics etc. These set of statistics help us to ascertain the reliability and healthiness of the estimated model. In an attempt to examine the impact of

deposit money bank on capital formation in Nigeria, important macro-economic variables such as gross fixed capital formation, Deposit money banks bank loans, liquidity ratio and interest rate will be considered in the model, also a multiple linear regression model shall be used and the model is adopted from the study of Cologini and Manera (2008). It is thus specified below:

$$GFCF = \beta_0 + \beta_1 BS + \beta_2 LR + \beta_3 DR + \mu \dots \dots \dots (3.1)$$

- Where
- GFCF= Gross Fixed Capital Formation
- BS = Bank Savings
- LR = Liquidity ratio
- DR = Deposit Rate
- $\beta_0$  = Intercept
- $\beta_1, \dots, \beta_3$  = Partial slopes of the linear regression
- $\mu$  = Stochastic error term

Gross Fixed Capital Formation (GFCF) is measured in billions of Naira and it represent as the aggregate amount of Savings and capital accumulated yearly. Bank Savings is also measured in Billions of Naira it represent total funds and credit deposited in the commercial banks. Liquidity ratio is measured in percentage. It refers to the ratio of commercial bank liquidity to total deposit. Deposit rate is also measured in percentage. It refers to the ratio of demand deposit to total deposit. To test for stationarity, the unit root method will be used and will take the form of an Autoregressive model (AR process), with each variable regressed on its own lagged value without an intercept and a deterministic trend. To correct for autocorrelation in the error term, the ADF unit root test will be applied. The model used is:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \epsilon_t \dots \dots \dots 3.2$$

$$\delta = \rho - 1$$

- Where;
- Y represents all the variables under consideration.
- $\delta$  represents the coefficient of the lagged value of Y.
- $\Delta$  is the first difference operator.
- $Y_{t-i}$  represents the lagged terms included
- $\epsilon_t$  represents pure white noise error term.
- The null hypothesis to be tested is such that the variable possess unit root, and as such is non-stationary.
- $H_0 : \delta = 0$  ( $\rho = 1$ ) presence of unit root
- $H_0 : \delta \neq 0$  ( $\rho < 1$ ) no unit root

The decision rule will be such that if the absolute ADF statistic is greater than the absolute critical values, the null hypothesis will be rejected. In the case of non-stationarity of any variable, ARDL bound test of co-integration by Pesaran (2001) will be carried out. The ARDL approach to co-integration is recommended in cases where the variables have different order of integration that is I(0) and I(1). The ARDL co-integration model for this study is specified as follows;

$$\Delta GFCF_t = \alpha_0 + \sum_{j=1}^m \alpha_{1j} \Delta GFCF_{t-j} + \sum_{j=1}^m \alpha_{2j} \Delta BS_{t-j} + \sum_{j=1}^m \alpha_{3j} \Delta LR_{t-j} + \sum_{j=1}^m \alpha_{4j} \Delta DR_{t-j} + \theta_0 GFCF_{t-1} + \theta_1 BS_{t-1} + \theta_2 LR_{t-1} + \theta_3 DR_{t-1} + U_t$$

The ARDL procedure involves two stages. In the first stage, the null hypothesis of no co-integration ( $H_0: \theta_1 = \theta_2 = \theta_3 = \theta_4 = 0$ ) is tested against the alternative hypothesis of co-integration ( $H_1: \theta_1 \neq 0, \theta_2 \neq 0, \theta_3 \neq 0, \theta_4 \neq 0$ ). Testing co-integration relationship is

based on the F-statistic. Since the asymptotic distribution of this F-statistic is non-standard irrespective of whether the variables are I(0) or I(1), Narayan (2005) tabulated two sets of critical values which are appropriate for the studies with small sample size ranging from 30 to 80 observations. In this sense, one set assumes that all variables are I(0) and other set assumes that all variables are I(1). This provides a bound covering all possible classifications of the variables. If the calculated F-statistic lies above the upper level of the bound, the  $H_0$  is rejected, supporting co-integration relationship. If the calculated F-statistic lies below the lower level of the bound, then the  $H_0$  cannot be rejected, indicating lack of co-integration.

**Data requirement, Sources and measurement**

There are basically two major sources from which data could be obtained for the purpose of research work and these include Primary and Secondary Sources. However for this study, we used Secondary Data. The Secondary Data was sourced from the Central Bank of Nigeria (CBN) statistical bulletin and National Bureau of Statistic (NBS) publication.

**Data Presentation and Analysis**

The result presented in this section are based on all test stated in chapter three. All results to be analyzed in this chapter are computed using Microfit 5.0 and Eviews 9.0 statistical software packages. The data used is presented in the appendix. The unit root test as stated earlier is the generalized augmented dickey fuller. All the variables were variables were regressed on trend and intercept to determine if they have trend, it was discovered that the four variables have trend and intercept, hence the unit root test involve trend and intercept. The result is presented below:

**Table 1. Unit Root Stationarity Result**

Time Series	ADF Statistics	Critical Value	Stationary Status
GFCF	-7.460302	-4.26274(1%)	I(1)
		-3.55297(5%)	
		-3.20964(10%)	
BL	-8.382534	-4.26274(1%)	I(1)
		-3.55297 (5%)	
		-3.20964(10%)	
LR	-6.009893	-4.26274(1%)	I(1)
		-3.55297 (5%)	
		-3.20964(10%)	
DR	-4.611492	-4.26274(1%)	I(0)
		-3.55297 (5%)	
		-3.20964(10%)	

**The critical values for rejection of hypothesis of unit root were from MacKinnon (1991) as reported in eviews**

The four variables (GFCF, BL, LR, and DR) underwent unit root test using the Augmented Dickey-Fuller (ADF) test. As is the case most times, all three variables were found to be non-stationary at levels except DR which was stationary at levels. The remaining three variables (GFCF, LR and BL) were found to be stationary after first difference.

**Cointegration and Error Correction Mechanism:** Due to the non-stationarity of time series, the cointegration test was done using the ARDL Bound test equation stated in chapter three. This became necessary to avoid a spurious regression result. Using the ARDL Bound test with critical value from Narayan



(2005), the variables were cointegrated at 1per cent level of significance since the Wald F- statistics is greater than the critical lower and upper bound (see Table 2).

**Table 2. ARDL Bound test of Co-integration**

Wald test	Probability of Wald test	Lower bound	Upper bound
9.909172	0.0001	3.74	5.06

Source: Lower and Upper bound extracted from Narayan (2005)

**Table 3. Error Correction Mechanism**

Dependent Variable:  $\Delta GFCF_t$

Independent Variables	Coefficient	Standard Error	t-Statistic
Constant Intercept	5568.693	2093.481	2.660017
$\Delta BS_t$	0.001366	0.001114	1.226426
$\Delta LR_t$	3589.985	1392.158	2.578720
$\Delta DR_t$	-1384.911	457.0171	-3.030327
ECM ( $\mu_{t-1}$ )	-0.111929	0.035809	-3.125736

Source: Author's Computation 2016

Since the variables were found to be cointegrated implying that they have longrun equilibrium relationship, it is necessary to test for shortrun relationship. From Table 4.1.3, the ECM parameter is negative (-) and significant which is -0.111929, this shows that 11per cent disequilibrium in the previous period is being corrected to restore equilibrium in the current period.

## REGRESSION RESULT

Dependent Variable: GFCF

Independent Variables	Coefficient	Standard Error	t-Statistic
Constant Intercept	-62462.42	17761.16	-3.516798
BS	0.002521	0.001290	11.95425
LR	11824.59	945.7305	12.50313
DR	-1022.967	837.2071	-1.221881
$R^2$	0.966097	F Statistic	294.4617
Adjusted $R^2$	0.962817	D-W Statistic	1.961688

Source: Author's Computation

## DISCUSSION OF RESULTS

From the result in Table 4.1.4 the following interpretation can be inferred; a unit increase in bank savings on the average holding other independent variables constant will lead to 0,002521 unit increase in GFCF. This shows that bank savings have a positive impact on Gross fixed capital formation. This result fulfils a priori expectation and is consistent with other results on bank lending and capital formation in Nigeria e.g Breshin (2004), Hope (2001). In the same vein, suggest that a unit increase in liquidity ratio on the average holding other independent variables constant will lead to 11824.95 unit increase in GFCF. This shows that liquidity ratio has a positive impact on GFCF. This result fulfils a priori expectation and is consistent with other results on liquidity ratio and capital formation in Nigeria e.g Awe and Ogungbenle (2009) Also, a unit increase in deposit rate on the average holding other independent variables constant will lead to 1022.967 unit decrease in GFCF. This shows that deposit rate has a negative impact on capital formation. This result conforms to a priori expectation. The *R-Squared* show that the model is a good fit with 0.966097 (97%) change in GFCF accounted for by change in the independent variables. This implies that 97 per cent of the change in GFCF was explained by changes in the

independent variables. The *Adjusted R<sup>2</sup>* is given as 0.962817 (96 per cent). This means that precisely 96 percent of the variations in the growth rate of the GFCF in Nigeria are accounted for by the included variables, after the co-efficient of determination ( $R^2$ ) has been adjusted to make it insensitive to the number of included variables.

## Hypothesis Decision

The *F-statistic* supports this position with its result showing that the model is significant and well specified. From the F-distribution table with 5per cent and degree of freedom ( $v_1 = k - 1 = 4 - 1 = 3$  and  $n - k = 35 - 4 = 31$ ) at 5 per cent level of significance, the critical F value 2.92 was obtained. This value is less than the calculated value of 294.5, leading us to *reject the null hypothesis of insignificant model* implying that the independent variables are significant explanatory factors of the GFCF in the long run. The variables were subjected to unit root test and they were all stationary at first difference I(1) except DR which was stationary at level "I(0)". Since the Variables Were not all stationary at level the ARDL co-integration test and error correction mechanism were used to determine the long-run and short-run relationship between the variables. The variables were found to be co-integrated and the ECM was statistically significant indicating short run mechanism. The OLS result obtained showed the major findings which are; BS had a positive relationship with gross fixed capital formation (GFCF), with the relationship being statistically significant. Liquidity Ratio has a positive and significant relationship with gross fixed capital formation (GFCF). Deposit Rate has a negative and insignificant relationship with gross fixed capital formation (GFCF). This result confirms the apriori expectation, and supports the position of the economists who are of the opinion that Deposit money banks are the major determinant of capital formation in an economy e.g Muhammed (2014), Pathania, (2013) and Quartey(2013) all arrived at the same conclusion.

## Conclusion and Recommendation

From the findings, it is very evident that commercial banks activities have a significant impact on capital formation in Nigeria. Bank savings and liquidity ratio have a significant impact on capital formation in Nigeria while Deposit rate has an insignificant impact on capital formation over the period investigated. Capital formation information is essential to the growth of any nation as it exposed and brings to the notice of the public the possible investment opportunity that potential investors can invest in. This study reveals that there is a linkage between commercial bank and capital formation vis-à-vibank savings, liquidity ratio and deposit rate.

**Based on the conclusion made, the following are the recommendations:**

- Policies that will set the Deposit rate to a level at which it will encourage investment and increase in production level could be institutionalized such that the excesses produced could be exported if well monitored and which may thus lead to a reduction in inflation.
- The government should capitalize on the desire of Nigerians to invest in short term instruments to capture and regulate the financial sector to achieve the desired objective. Thus, more rewarding interest may be

attached in this regard to such instrument when it is due necessary.

- Government should improve basic infrastructures such as communication and information network. This will enhance transactions between parties of the formation (issuing house, stock brokers, investors etc)

## REFERENCES

- Afolabi, P. 2013. Capital and Economic Growth: The Non-Linear Relationship, Evidence from CIS Countries. <http://kse.org.ua/uploads/file/Pypko.pdf>
- Anthony, J. C. and David E. 2013. *Monetary Economics: Theory, Policy and Institutions*. Onitsha: Hybrid Publishers.
- Awe, O. and Ogungbenle, I. 2009. On the causal relationship between Finance and income in Nigeria, *The Journal of Finance and Development* 13(1): 113–122.
- Blinder, A. and Alan S. 2009. *Economic Policy and the Capital formation* Academic Press: New York.
- Breshin J. C, 2004. Capital formation and bank lending- *Nigerian Journal of Economic Management* Vol. 1 No2.
- Bruno, I. Michael, P. and Jeffrey D. Sachs 2010. *Economics of Worldwide capital formation* Harvard University Press: Cambridge, MA.
- Cardoso, M. 2012. Capital formation: A Guide to Concepts and Methods. The World Bank, Washington D.C.
- Chidi, S.O, and Shadare, O. 2011. The impact of foreign private investment (FPI) on capital formation in Nigeria, 1980-2004: An empirical analysis; A university of Lagos publication.
- Cologini, I., and Manera O.O. 2008. On the causal relationship between Capital formation and finance for industrial- ized countries, *The Journal of Finance and Development* 13(1): 113–122.
- Dada, V. S. 2014. "Relationship between Capital and Economic Growth" Reserve Bank of Fiji Working Paper 2004/04
- Easterly, W and S Fischer 2013. 'Inflation and capital formation', *Journal of Money, Credit and Banking*, 33, 160-78.
- Ekpenyong, R. 2015. The role of Commercial bank in the capital process *American Economic Review*, 1. 78(2), 276-283.
- Fielding, P. 2013. Capital and the Growth Maximizing Rate of Inflation for Ghana *Modern Economy*, No. 1, 180-194.
- Gbosi, A.N. 2014. *Contemporary Macroeconomic Problems and Stabilization Policies in Nigeria*, Antovic Ventures, Port Harcourt.
- Gordon D. 2013. "The concept and measurement of poverty and capital formation" in eds C Pantazis, D Gordon and R Levitas, "*Poverty and social exclusion in Britain*", Policy Press.
- Gregorio, J. 2016. "Inflation, Growth, and Central Banks: Theory and Evidence," *World Bank Policy Research Working Paper 1575*, Policy Research Department, Macroeconomics and Growth Division.
- Handley, O.W. Powers, E. T. and Lema I. 2011. Inflation, capital formation and bank credit Revisited. *Economic Review*, Federal Reserve Bank of Kansas City. Qtr III.
- Harry, P. 1952. Portfolio and investment analysis: The Non-Linear Relationship, Evidence from CIS Countries. <http://kse.org.ua/uploads/file/Pypko.pdf>
- Hope, A. 2001. "Bank lending and Capital Formation in Nigeria; *Journal of Research in National Development*; Volume 5 No.2 (2007)
- Imoughele, S. and Ismaila, S. 2013. "commercial bank credit and sectorial performance", *World Development*, 33, 851-865.
- Jinghan, M. L. 2005. *Macroeconomic Theory* 2<sup>nd</sup> edition, VilfrandaPublisher. India
- Kadiri, O. T. 2012. Does inflation matters for growth Japan and world economy 13(1) 405 - 428.
- Kasekende, 2008. Financial analysis of credit and risk ,” *IMF Staff Papers*, Vol. 69, No. 6.
- Khan, M. S. and A. S. Senhadji 2000. "Threshold Effects in the Relationship between capital and Growth,” *IMF Staff Papers*, Vol. 48, No. 1.
- Li, M. 2016. Capital formation and economic growth: threshold effects and transmission mechanisms. Department of Economics, University of Alberta. <http://economics.ca/2006/papers/0176.pdf>
- Lintner, J. 1965. Capital and Growth in Industrial Countries, *Economic Policy*. Wesley Publisher. New-Jersey. U.S.A.
- Machin S, 2012. "commercial banks and capital formation" in eds. W Salverda, B Nolan and T M Smeeding, "*The Oxford Handbook of Economic Inequality*", Oxford University Press.
- Muhammed, G. 2014. "capital and Economic Growth: Evidence from Nigeria" *Asian Pacific Development Journal* Vol. 8. No.1. pp 123-135.
- Narayan, A. 2005. "The Relationship Between Health Care Expenditure and Health Outcomes". *European Journal of Health economics*, 7, 7-18
- Nnanna. M. E 2013. Analysis of SMEs and industrial development in Nigeria; African Development Bank Working Paper, 02/69, Abuja:
- Okogbue, S.A., 2014. Capital, Inflation and Economic Growth: Empirical Evidence. *World Applied Sciences Journal*. Dubai, UAE. pp. 1058-1063.
- Olukayode, J., Somoye, I. 2007. "The impact of finance on entrepreneurship in Nigeria", *Journal of Human Behavior in the Social Environment*, Volume 16, Issue 1-2.
- Oyefusi, I. O and Mogbolu, A. A. 2012. "Social Capital and Banking sector: toward an ecologically-grounded model of Threshold effects", *Journal of Financial economics*, Volume 16, Issue 1-2.
- Pathania, R. 2013. "Growth, capital formation and Inflationary Finance," *Journal of Political Economy*, 73, pp. 97-109.
- Pesaran, C. M. 2001. Investigating cointegration in Economics Models and Gross - spectral method, "Econometrical, Vol. 37, Pp. 424-435.
- Quartey, Y. A. 2013. "Capital and Growth: An Estimate of the Threshold Level of Inflation in Ghana," *State Bank of Ghana – Research Bulletin*, Vol.1, No. 1-2, pp. 35-44.
- Sharp, W. 1964. Diversification, Growth and Investment in Industrial Countries, *Economic Policy Review*. Texas. U.S.A.
- [www.google.com/Wikipedia/economic\\_growth&\\_development](http://www.google.com/Wikipedia/economic_growth&_development) .2012. Accessed on December 4<sup>th</sup> 2016.