# Analysis of Bank and Non-Bank Domestic Savings on Capital Formation

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***Abstract***
*The study investigates the influence of capital formation in Bank and Non-Bank domestic saving in Nigeria. The researchers employed trend analysis and advanced econometrics tests to ascertain the impact of capital formation and economic growth in Nigeria. The variables used in the analysis were subjected to unit root test to determine whether the variables are stationary or not. The model was subjected to co-integration test to determine the long run relationship between capital formation, and economic growth in Nigeria for the period of 2006-2018. The Granger causality test was also used to determine the causality between capital formation, and economic growth in Nigeria for the period of 2008-2016. Findings revealed that none of the models was stationary at level but were all stationary at first difference. The results also show that there is a long run significant relationship that exists between the variables examined and there is a causal relationship between capital formation by bank and non-bank financial institutions through domestic savings in Nigeria within the period under study. The result also revealed a negative non-significant relationship between domestic savings and capital formation in Nigeria. The study recommends that policy formulators in Nigeria need to enact some investors' friendly policies that will encourage, promote and attract more capital inflows (be it official or private inflows) and to provide a conducive and enabling environment for the gross fixed capital formation to thrive. There is need to play down on speculative businesses and to invest in the real sectors of the economy.*

***Keywords:*** *Capital formation, Domestic Investment, Economic Growth.*

## 1.0 INTRODUCTION

Capital formation is analogous to an increase in the physical capital stock of a nation with investment insocial and economic infrastructures. Gross fixed capital formation can be classified as gross private domestic investment and gross public domestic investment. The gross public investment includes investment by government and/or public enterprises. Gross domestic investment is equivalent to gross fixed capital formation plus net changes in the level of inventories. Capital formation perhaps leads to the production of tangible goods (i.e., plants, tools and machine) and intangible goods (i.e., qualitative and high standard of education, health, scientific tradition and research) in a country.

A simple analysis of the capital formation statistics from the Central Bank of Nigerian shows that the nominal investment in capital formation is going down and has fallen in real terms. The investment could be social or soft in outlook (housing, health and education), while

others are infrastructural or hard (transport, power and water), and yet others are purely economic, which the private sector undertakes for private capital accumulation (Orji, & Peter, 2010; Seng, 2014). It is worth noting that fixed assets in national accounts have a broader coverage than fixed assets in business accounts. Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year. The range of fixed assets included in statistical measurement is defined by the purpose of using them. A vehicle, for example, is a fixed asset, but vehicles are included in GFCF only if they are used in work activities, i.e. if they fall within the scope of "production". A car for personal use only is not normally included. The boundaries are not always easy to define, however, since vehicles may be used both for personal purposes and for work purposes; a conventional rule is usually applied in that case. Non-produced assets (e.g. land except the value of land improvements, subsoil assets, mineral reserves, natural resources such as water, primary forests) are excluded from the official measure of GFCF (Seng, 2014; Ugwuegbe, & Uruakpa, 2013).

While it is not possible to measure the value of the total fixed capital stock very accurately, it is possible to obtain a reliable measure of the trend in net additions to the stock of fixed capital, since the purchase prices of investment goods are recorded. GFCF time series data is often used to analyse the trends in investment activity over time, deflating or reflating the series using a price index. But it is also used to obtain alternative measures of the fixed capital stock. This stock could be measured at surveyed "book value", but the problem here is that the book values are often a mixture of valuations such as historical cost, current replacement cost and current sale value/scrap value. In other words, there is no uniform valuation (Ugwuegbe, & Uruakpa, 2013).

This study is anchored on Schumpeter's theory of economic growth and development. Schumpeter is among the classical economist that explain the theory of economic growth and development. His theory is hinged on four features namely: Circular flow, Role of entrepreneur, cyclical process or business cycle and End of capitalism. On the circular flow, he argues that the economic activity produces itself continuously at a constant rate through time. Circular flow is based upon a state of perfectly competitive equilibrium in which coasts are equal to receipts and prices to average costs. According to Schumpeter (2011; 1934), an entrepreneur or innovator is the key figure in the society in the process of development. He occupies the central place in the development process because he initiates development in a society and carries it forward. Schumpeter (2011; 1934) argued that if profit increases that the per capita output will keep growing. Hence, “there is, therefore, no prior ceiling to the level of per capita income in a capitalist society. Nevertheless, the economic success of capitalism will eventually lead to its decay”. The progress of capitalism makes industrialists and merchants economically powerful and they begin to dominate in the political field (Breschi, Malerba and Orsenigo, 2000).

According to Kanu, Ozurumba, and Anyanwu 2014, it has been acknowledged that the value of fixed assets is almost impossible to measure accurately, because of the difficulty of obtaining a standard valuation for all assets. By implication, it is also almost impossible to obtain a reliable measure of the aggregate rate of profit on physical capital invested, i.e. the rate of return. Arguably though, the data to provide an "indicator" of the trend over time; using mathematical models one can estimate that the true rate is most likely to lie within certain quantitative limits. Nowadays; fixed assets purchased may include substantial used assets traded on second-hand markets, the most significant items being road vehicles, planes, and industrial machinery. Worldwide, this growing trade is worth hundreds of billions of dollars. Often it is brought from Europe, North America and Japan, where fixed assets are on average scrapped more quickly. Statistical treatment of the trade in second-hand fixed assets varies among different countries. Increasingly an attempt is made in many countries to

identify the trade in secondhand assets separately if it occurs on a quantitatively significant scale (for example, vehicles) (Kanu, Ozurumba, & Anyanwu 2014).

Bakare (2011) used OLS Multiple Regression analytical method in the economy of Nigeria to examine the relationship between capital formation and economic growth. The test proved that the growth rate of national income positively, related to savings and capital formation. Tang and Chau (2009) conducted a study based on the relationship between savings and growth in Malaysia by using nonparametric co-integration test and DOLS method. They found that savings and economic growth are cointegrated and positively related in the long run so the study indicates savings is an engine to economic growth through its impact on capital formation. Orji and Peter (2010) in their study, looked at the relationship between FPI, Capital Formation and Growth in Nigeria, using the two-stage least squares.

The purpose of this study is to investigate the impact of Bank and non-bank financial institutions domestic savings on capital formation in Nigeria. The specific objectives include to determine the impact of loans and advances of Deposit Money Banks on the growth and development of the Nigerian economy; ascertain whether Finance Companies Domestic Credits have significant impact on the growth and development of the Nigerian economy; investigate whether Insurance Companies' Total Investments have significant impact on the growth and development of the Nigerian economy; ascertain the effect of Microfinance Bank Total Loans and advances on the growth and development of the Nigerian economy; and make appropriate recommendations where necessary.

The study also formulated relevant hypotheses related to the various objectives of the study. These hypotheses, anchored on the objectives of the study, constitute a cornerstone of this study.

From the foregoing the following Hypotheses have been formulated.

The activities of banks and non-bank financial institutions do not have significant impact on the capital formation in Nigeria.

Loans and advances of Deposit Money Banks do not impact significantly on the growth and development of the Nigerian economy.

Finance Companies Domestic Credits have no significant impact on the level of capital formation in Nigerian economy.

The study therefore examines the volume of loans, advances and other investments extended by the selected financial institutions for the period 2006 - 2018 towards the growth and development of the Nigerian economy. Accordingly, such variables as Deposit Money Banks Total Loans and Advances, microfinance banks, total loans and advances, finances companies, Domestic credit, Insurance companies, total investments were used to determine their relationship with the Real Gross Domestic Product in Nigeria.

## III METHODOLOGY

The research design that is adapted for the study is Ex Post Facto Research Design. The variables used for the analysis are a real gross domestic product (RGDP) known as the dependent variable in the model and the independent variables: capital formation captured by gross fixed capital formation, government expenditure (GEX), and Saving (SAV). The variable used in the analysis was subject to unit root test to determine whether the variables were stationary or not. The model was subjected to co-integration test to determine the long run relationship method of estimation. The study finds that the long run impact of capital formation and foreign private investment on economic growth is larger than their short- run impact. The research utilizes secondary data annual time series for the variables identified above. The data was from the sources such as; Central Bank of Nigeria (CBN) statistical Bulletins, Nigeria Stock Exchange (NSE), and World Bank Database for the data relating to

real gross domestic product, fixed capital formation, government expenditure and domestic savings.

**Model Specification**

**R**GDP = F (GFCF, GEX, SAV)-------- (1)

*Where: RGDP = Real Gross Domestic Product, GFCF = Gross Fixed Capital Formation, GEX = Government expenditure, SAV = Domestic savings.*

The relationship is structurally expressed as follows:

$RGDPt = P_0 + P_1GFCFt + P_2GEXt + P_3SAV + U_t$ - - - - (2)

*Where; $fi_0$ = Constant term, $f_1$, . $fi_3$ =*

*Regression coefficient and Ut = Error Term a with a priori expectation that the variables of interest will exert positive and significant effect.*

## IV RESULTS AND DISCUSSION

The Augmented Dickey-Fuller (ADF) was employed to test for the existence of unit roots in the data using trend and intercept. The results are presented in table one below:

**Table 1: Augmented Dickey-Fuller Unit Root Test Trend and Intercept @ Levels**

| Series | ADF Test Statistic | 5% critical values | 10% critical values | Order | Remarks |
|---|---|---|---|---|---|
| LRGDP | -1.433594 | -3.552973 | -3.209642 | 0 | Not Stationary |
| | | | | | |
| LGFCF | -3.287902 | -3.552973 | -3.209642 | 0 | Not Stationary |
| LGEX | -0.330000 | -3.552973 | -3.209642 | 0 | Not Stationary |
| LSAV | -1.946480 | -3.552973 | -3.209642 | 0 | Not Stationary |

**Table 2: augmented Dickey-Fuller Unit Root Test, Trend and Intercept @ 1st Difference**

| Series | ADF Test Statistic | 5% critical values | 10% critical values | Order | Remarks |
|---|---|---|---|---|---|
| LRGDP | -6.228408 | -3.548490 | -3.207094 | 1 | Stationary |
| | | | | | |
| LGFCF | -4.092495 | -3.548490 | -3.207094 | 1 | Stationary |
| LGEX | -3.681068 | -3.548490 | -3.207094 | 1 | Stationary |
| LSAV | -4.039659 | -3.548490 | -3.207094 | 1 | Stationary |

Table 1 shows that RGDP, GFCF, GEX, and SAV are not stationary at levels. Considering the time series using Augmented-Dickey Fuller at trend and intercept, all the calculated statistics are less than the critical values at both the 10% and 5% level of significance integrated of order one. However, at 5% level of significance, all the variables became stationary at first difference since their t-test is greater than the Critical value at 5% level of significance. Since the result is significant, we, therefore, proceed to conduct a cointegration test to ascertain if there exists a long-run relationship between the variables under consideration. It should be further noted that proper examination of the cointegration test, Error Correction Model (ECM) and Granger causality test cannot be conducted without first carrying a unit root test. According to Pasaran and Pasaran (1998) and Pesaran & Shin (2001), if variables are stationary at level normal OLS can be used to estimate the parameters, but if series are not stationary at level but are stationary at same order, I(1) and is cointegrated we can go ahead and estimate their parameter estimate with an ECM result.

**Table 3. Johansen co-integration test**

| **Series: LOG(RGDP) LOG(DIN) LOG(GFCF) LOG(FDI) LOG(SAV) LOG(GEX)** | | | | |
|---|---|---|---|---|
| Lags interval (in first differences): 1 to 1 | | | | |
| | | | | |
| Unrestricted Co-integration Rank Test (Trace) | | | | |
| Hypothesized | | Trace | 0.05 | |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
| | | | | |
| None * | 0.596346 | 108.7602 | 95.75366 | 0.0047 |
| At most 1 * | 0.580214 | 77.00833 | 69.81889 | 0.0119 |
| At most 2 | 0.447395 | 46.62800 | 47.85613 | 0.0649 |
| At most 3 | 0.361792 | 25.86911 | 29.79707 | 0.1327 |
| At most 4 | 0.247786 | 10.15094 | 15.49471 | 0.2693 |
| At most 5 | 0.005278 | 0.185223 | 3.841466 | 0.6669 |
| Trace test indicates 2 co-integrating eqn(s) at the 0.05 level | | | | |
| * denotes rejection of the hypothesis at the 0.05 level | | | | |
| **MacKinnon-Haug-Michelis (1999) p-values | | | | |

Under the Johansen Co-integration Test, there is one co-integrating equation. In Johansen's Method, the trace statistic determines whether co-integrated variables exist. As can be seen from the trace statistics, here only the absolute values of RGDP are greater than 5% critical values (i.e. GDP [108.7602 > 95.75366], also its Eigenvalue is greater than 5% level of significance, signifying the presence of long-run relationship among the variables employed in the analysis. In other words, the null hypothesis of no co-integration among the variables is rejected since at least two variables in the five equations at 5% were statistically significant. The test result shows the existence of a long-run equilibrium relationship among the variables.

**Vector Error Correction Mechanism (VECM)**

The presence of long-run equilibrium relationship among the variables as found from the Johansen co-integration led to the application of VECM. With this approach, both the long-run equilibrium and short- run dynamic relationships associated with variables under study is established.

**Table 4: VECM Model (Standard errors in ( ) & t-statistics in [ ])**

| Co-integrating Eqn: | CointEq1 | |
|---|---|---|
| LOG(RGDP(-1)) | 1.000000 | |
| | | |
| LOG(GFCF(-1)) | 0.090846 | |
| | (0.14272) | |
| | [ 0.63656] | |
| LOG(SAV(-1)) | -0.325163 | |
| | (0.08823) | |
| | [-3.68522] | |
| LOG(GEX(-1)) | -0.716175 | |
| | (0.09741) | |
| | [-7.35195] | |
| C | -2.795600 | |
| Error Correction: | D(LOG(GD P)) | D(LOG(GFC F)) |
| CointEq1 | -0.428541 | -0.163049 |
| | (0.10580) | (0.29740) |
| | [-4.05030] | [-0.54825] |
| D(LOG(GDP(-1))) | 0.443340 | 0.919901 |
| | (0.14415) | (0.40519) |
| | [ 3.07546] | [ 2.27029] |
| D(LOG(GDP(-2))) | 0.423483 | -0.088102 |
| | (0.17245) | (0.48473) |
| | [ 2.45568] | [-0.18176] |
| D(LOG(GFCF(-1))) | -0.060799 | 0.027314 |
| | (0.07179) | (0.20178) |
| | [-0.84693] | [ 0.13537] |
| D(LOG(GFCF(-2))) | 0.114072 | -0.303354 |
| | (0.06387) | (0.17953) |
| | [ 1.78595] | [-1.68970] |
| D(LOG(SAV(-1))) | 0.558821 | 0.406984 |
| | (0.10406) | (0.29249) |
| | [5.37019] | [ 1.39143] |
| D(LOG(SAV(-2))) | 0.166225 | 0.172094 |
| | (0.10602) | (0.29801) |
| | [ 1.56783] | [ 0.57748] |
| D(LOG(GEX(-1))) | 0.227626 | 0.226474 |
| | (0.10564) | (0.29693) |
| | [2.15480] | [ 0.76273] |
| D(LOG(GEX(-2))) | -0.131125 | 0.142340 |
| | (0.08930) | (0.25100) |
| | [-1.46841] | [ 0.56710] |
| C | 0.083969 | -0.151113 |
| | (0.03932) | (0.11052) |
| | [ 2.13558] | [-1.36730] |
| R-squared | 0.695744 | 0.482853 |

R-Squared = 0.695744, F-Statistics = 60.97888, Prob (F-Statistic) = 0.0000

The model, however, revealed the opposite showing that gross fixed capital formation negatively relates with economic growth in Nigeria and does not have any significant impact

on economic growth in Nigeria, this is also revealed by the t-test above.

**Granger Causality Test**

With this test, the pair-wise relationships between the estimated variables are ascertained. Thus, the table is presented below:

**Table 5: Granger Causality Test**

| | Obs | F-Statistic | Prob. |
|---|---|---|---|
| LOG(GFCF) does not Granger Cause | | | |
| LOG(RGDP) | 36 | 1.30100 | 0.2872 |
| LOG(RGDP) does not Granger Cause LOG(GFCF) | | 4.61320 | 0.0061 |

Using 5% level of significance at 95% degrees of freedom, the tabulated F-value is 2.76. Since the calculated F-value (60.97) is greater than the tabulated F-value at 5% level of significance; we reject the null hypothesis and conclude that capital formation has a significant impact on Economic Growth of Nigeria within the sample period.

**Discussion of Findings**

On the other hand, the second model revealed a negative non-significant relationship between economic growth and capital formation in Nigeria. This finding does not conform to stylized fact that capital formation leads to economic growth anywhere in the world. The study is contrary to the findings of Bakare (2011), Orji and Peter (2010), and Ugwuegbe & Urakpa (2013) that finds a positive significant relationship between economic growth and capital formation in Nigeria. But however, conform to the findings of Kanu, Ozurumba, and Anyanwu (2014) who finds a negative relationship between economic growth capital formations in Nigeria.

On the long run relationship. The research revealed a significant long-run relationship among the variables under examination. The result as indicated by the trace statistics of the Johansen co-integrating equation shows that there exists a long-run equilibrium relationship gross domestic product (LRGDP) and the explanatory variables: (LGEX, LSAV, and gross fixed capital formation (LGFCF) within the period under review. The findings also collaborated with many of the empirical work reviewed earlier in the discussion. The study by Orji and Peter (2010) on the relationship between foreign private investment, capital formation and economic growth in Nigeria using a two-stage least square (2SLS) method of estimation. The study finds that the long run impact of capital formation and foreign private investment on economic growth is larger than their short-run impact. There is thus, a long-run equilibrium relationship between the variables as the error correction term was significant, but the speed of adjustment was found to be small in both models.

## V CONCLUSION AND RECOMMENDATIONS

The general objective of this study is to evaluate the link existing among capital formation and economic growth while the specific objectives are to; ascertain if there is long run significant relationship that exists among capital formation and economic growth in Nigeria within 1980 and 2016 and to find out if there is significant causal relationship between, capital formation and economic growth within the period under study.

The study employed ex-post facto research design using Nigeria's data obtained from Central Bank of Nigeria (CBN) (19802016). The empirical results were on Augmented Dickey-Fuller test. In the second step, Johansen Co-integration Test was conducted. The presence of long-

run equilibrium found led to the use of Vector Error Correction Mechanism (VECM). It was found that domestic investment and capital formation cause the growth of the economic growth in Nigeria within the period under study. It is therefore imperative to conclude from the findings that capital formation did not have a significant impact on Nigeria economic growth. The findings could not find the statistically significant influence of capital formation on the economic growth in Nigeria.

The researchers noted that, if Nigeria economy will make a meaningful progress, there is need to increase capital formation in the domestic economy, encourage industrialization, promote agricultural output drastically and above all draft developmental document that addresses how the country will achieve sustainable high level of economic growth.

**Recommendations**

**1.** The federal government of Nigeria should reprioritize her needs. They should spend more on capital expenditures as against the current trend of 68.32 **%** allocations to recurrent and capital expenditures respectively. Efforts must be made to mobilize the desired level of gross national savings that could be big enough to attract foreign direct investments This is very vital as FDI will help to complement our domestic savings.

**2.** Policy formulators in Nigeria need to enact some investor-friendly policies that will encourage, promote and attract more capital inflows (Be it official or private inflows) and to provide a conducive and enabling environment for the gross fixed capital formation to thrive. There is need to play down on speculative businesses and to invest in the real sectors of the economy.

**3.** There is also the need to reduce the level of capital flight out of the country. Inflows should be tied to specific, relevant and purposeful projects. This will help to create employment opportunities in the long run. Prudence and proper accountability should be the watchword in the management of accruals from official capital inflows and transfers. Such monies are expected to be channeled into productive ventures by the governments in power and not for profligacy.

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