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Investment Financing for Economic Growth in Nigeria

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Abstract
The study is an attempt to examine the relationship between investment financing and economic growth in Nigeria from 1980 to 2010, secondary data were used for the estimation and analysis with econometrics tool of Ordinary Least Squares (OLS) and E-views7.0 was used for the test of data and estimation. From the Augmented Dickey-Fuller (ADF) Test for Stationarity the data were found to be stationary and fit for use. The result clearly shown that investment financing has a positive and strong relationship with economic growth in Nigeria, from the findings some of the problems of investment financing in Nigeria that were identified are the issues of Inadequate macroeconomic framework and policy inconsistencies, Low level of domestic savings, and Low return on investment. Therefore, the research recommended that government should pursue strong macroeconomic policies, improve economic efficiency, and increase public investment towards human capital development and improve infrastructures in the country to enhance productivity and efficiency.
Keywords: Financing, Investment, Efficiency, Capital, Accumulation

I INTRODUCTION

One of the cardinal economic objectives of the developing countries, including Nigeria is to achieve high economic growth that will lead to rapid economic development and reduce poverty. From whatever theoretical angle that one may look at it, economic growth indicates the ability of an economy to increase production of goods and services with the stock of capital and other factors of production within the economy. It is therefore, assumed that a high level of capital accumulation, with the right combination of other factors of production will bring about higher output growth [1].

Economic growth is theoretically and empirically established to be dependent on capital accumulation or investment. Investment in a board sense refers to both investment in machines and human capital in the form of quality education and training. The controversy as to whether an economy may experience economic growth without experiencing any increase in investment or increase in investment without economic growth has been traced to the classification or categorization of investment [2].

Capital accumulation without the appropriate human capital as well as other supporting factors like good macroeconomic environment and policy may not result in economic growth. Also an economy may experience economic growth without any visible increase in investment if it has idle or unutilized capacity which it now utilize to increase output [2].

Finance is the process of channeling funds in the form of credit, loans or investible capital to those economic entities that need them most or can put them in most productive use. The importance of finance in any area of human endeavor cannot be overemphasized as no reasonable investment can take place without funds.

Empirical evidence from the literature reveals that there is a strong relationship between the financial development of any country and its economic performance. There is also the common notion that the scarcity of long term finance in developing countries is the major impediment to higher investments and output growth in these economies [3].

By implication therefore, the stimulation of sustained economic growth requires a balance between investment in physical and financial assets, human and social capital, as well as national and environmental capital. In Nigeria, opinions are divided on whether finance is a constraint to investment for economic growth.

The ratio of money supply to GDP suggests that capital is not the problem, while the ratio of banking system credits to the private sector to GDP suggest otherwise. Empirical evidence however, suggests that various factors affect the availability of investible fund in Nigeria, including: funds mobilization or aggregate savings, high bank lending rates, inflationary expectations, institutional factors (the risk premium, banks cost of funds,) appropriate capital, public sectors deposits, regulatory and monetary policies, the level of economic activities, and the structure and efficiency of the financial system.

One other question that is often asked is, whether there is a relationship between investment and growth? Therefore, the paper seeks to examine the impact of investment financing on economic growth in Nigeria, to achieve this, the paper is subdivided into 6 parts, the introduction, conceptual review, methodology, presentation of results and findings, conclusion and recommendations.

II CONCEPTUAL REVIEW ON INVESTMENT AND GROWTH

Investment can be broadly defined as the acquisition of an asset with the aim of receiving a return. It could also mean the production of capital goods; goods which are not consumed but instead used in future production.

Examples include a rail road, or factory, clearing land, or putting oneself through college. There are several motives for investment. As has been referred to above, the basic motive is profit or return [4].

According to Keynes' theory, this motive depends on the expected Marginal Efficiency of Capital (MEC) in relation to the expected rate of interest. The difference between the realized marginal efficiency of capital and the rate of interest is the opportunity cost of investment. The theory assumes that the expected return on investment is intrinsically volatile in view of the uncertainty that accompanies the main determinants of investment returns. But this is especially as far as private investment is concerned.

In the context of growth, the accelerator principle suggests that increases in output lead to increases in investment. This principle relates investment to GDP. It follows from the fact that the demand for machinery and factories is a derived one. Thus, if the demand for the goods that capital equipment produced rises and the existing industrial capacity cannot meet this demand, if production were to be increased, then new plant and equipment would be required. While new capital equipment is being built and installed, investment expenditure has taken place. If the desired stock of capital good increases, there will be an investment depend on changes in final demand, and hence changes in GDP. In this vein, the accelerator principle explains why a slowdown in growth of GDP can lead to negative growth in subsequent period through a fall in investment spending.

As result of the restrictive assumptions of the accelerator model, Hall and Jorgenson in [4] formulated the neoclassical approach. In this theory, the desired or optimal level of investment stock depends on the level of output and on the user cost of capital which in turn depends on the price of capital goods, the real rate of interest and the depreciation rate. The difference between the current and desired capital stock is created by lags in decision making and delivery, giving rise to the change in the capital stock.

The deficiencies in this theory relate to the inconsistency of the assumptions of perfect competition and exogenously determined output. The assumption of static was inappropriate. These necessitated the formulation of an alternative theory by [5]. The theory, referred to as Tobin's Q theory, emphasizes the relationship between the increase in the value of the firm due to the installation of additional capital and its replacement cost. Investment, therefore, is a function of the difference between the market value of the additional unit of capital and its replacement cost. This ratio (known as marginal Q) may differ from unity due to delivery lags, adjustment and installation costs. On account of measurement problems, marginal Q is proxy by the ratio of the market value of the entire capital stock to its replacement cost (the average Q ratio) Tobin's Q theory has been criticized on the following grounds.

The marginal and average Q will systematically differ if firms enjoy economies of scale or market power or are unable to sell all they want; The assumption of increasing installation cost in unrealistic; The cost of additions to an individual firm's capital stock is likely to be proportional or even less than proportional to the volume of investment because of the indivisibility of many investment projects and Disinvestment is more costly than positive investment as capital goods are often firm specific and so have little resale value.

To deal with this point, [6] suggests that investment can be considered irreversible in an extreme situation. This implies that investment decision can be viewed from the perspectives of reversibility and irreversibility. While under conditions of certainty, irreversibility creates a wedge between the cost of capital and its marginal contribution to profit, under uncertainty (where irreversibility has important implications for investment decisions) irreversible investment can be adversely affected by risk factors [7]. This means that under uncertainty, firms acquiring additional capital presently stand the risk of being stuck with excess capacity in the future that cannot be costlessly eliminated. This notion amplifies the importance of uncertainty in investment decision making. The problem of uncertainty is more severe in developing countries where transformations inherent in development such as the establishment of new firms and new industries and the absorption of new technologies heighten uncertainty [8].

The disequilibrium approach of [9] and [10] view investment as a function of both profitability and demand for output. This approach suggests that investment decisions have two stages viz: The decision to expand the level of production capacity; and the decision about the capital intensity of the additional capacity [9]. The first stage depends on the expected degree of capacity utilization in the economy which provides an indicator of demand conditions; while second stage depends on relative prices such as the cost of capital and labour. The implication of this dichotomy is that while factor proportions are assumed variable before the investment, and fixed after it, investment decisions take place under conditions in which firms may be facing current and expected future sales constraints.

The disequilibrium model, however, has been criticized for the simplicity of its assumptions regarding expectations and its inability to explain price rigidities.

The coordination failure model states that total investment depends on the inability of individual agents to successfully coordinate their investment decision in a decentralized economic system. Coordination problems derive principally from shortcomings in markets for information and risk sharing. Both types of problems exist in all economies but the consequences tend to be worse in developing economies. For example, in developing economies, information problems such as poor accounting standards; and a dearth of banks and other

institutions to monitor corporate performance mean that bond and equity markets are often weak or entirely absent. Also, limited market mechanism for sharing risk (firms often cannot buy insurance for the most serious risks they face) as a result of lower wealth levels in developing economies make households and firms more vulnerable. Monopolistic competition and increasing returns to scale are common causes of coordination failure.

Against this background, the return on investment depends on the overall level of economic activities which in turn is positively affected by the volume of aggregate investment. Financial constraints on investment are gaining prominence in the literature.

[11] Suggests that at the micro level, firms may face binding financial constraints in domestic capital markets because interest rates are controlled or subjected to endogenous credit rationing. Restrictive monetary and credit policies affect investment in two ways. They increase the real cost of bank credit and by raising interest rates, increase the opportunity cost of retained earnings. Both mechanisms raise the user cost of capital and lead to a reduction in investment. Asymmetric information, adverse selection and incentive effects may make interest Asymmetric information relates to a situation in which parties to a transaction do not have the same information. Thus, agreements are reached to the advantage of the party with more information. The acquisition of information, therefore, becomes critical to investment. Similarly, the adverse selection principle says that those who are most desperate to buy insurance for example are those at risk, so charging a high price for insurance will discourage those at less risk from buying insurance at all. In the case of credit, if interest rates reflect high demand for loans, marginal discriminate against marginal borrowers. Incentive or subsidies also cause distortions in the market. Under these conditions, creditors prefer credit rationing and qualitative constraints to reliance on the market as most of them are unable to manage their risks due to inadequate information or the effect of adverse selection.

Many empirical studies have been conducted show the role of investment in economic growth. In his paper [12], tries to find the role of investment in economic growth and development by deriving an accounting relationship between the rate of economic growth and representing the rate, allocation and efficiency of investment. His analysis shows that investment plays greater role in a country's growth if it is used efficiently to increase the output. On the other hand if investment is made inefficiency it results in lower rate of growth of output.

[13] In their analysis of fixed investment and economic growth used Granger Sims Causality framework for 101 countries. Their findings show that growth has more causal effect on subsequent capital formation rather than capital formation on subsequent growth and fixed investment does not have a key role in economic growth.

[14] Studied the role of capital formation in china's economy as well as in the five major sectors: agriculture, industry, construction, transportation and commerce. He found rate of return of capital in 1980 as 0.16, 0.20, 0.17, 0.26, 0.04 and 0.02 for aggregate economy, agriculture, industry, construction, transportation and commerce respectively. His analysis shows that from 1952 to 1985 China's aggregate income grew by an average rate of 0.06 and capital growth rate increased by 0.076. During this period capital growth rate contributed in the growth of economy by an average rate of 0.045.

[15] Used a simple growth model to test the effects of private and public investment separately on economic growth for 24 developing countries. Their findings show that private and public investments have different effects on the long-run rate of economic growth. Private and public investment plays larger and more important role in economic growth than public investment.

[16] Studied that effect of domestic capital formation and foreign assistance on the rate of economic growth for 58 developing countries. Their results do not show any great effects of domestic capital formation and foreign assistance on per capita rate of growth during the years of 1970-1980.

[17] Used unit root and co-integration techniques to determine the long run relationship between GDP and investment for 90 countries using data from World Bank for the period 1960-1992. In the first step of our analysis they found GDP and investment integrated of different orders for 33 countries. Second step our analysis shows no co-integration between GDP and investment for 25 countries and 25 co-integration for 25 countries with both variables of order I(1).

The other 7 countries with both variables of order 1(0) are in long run relation and do not need co-integration test. To determine the direction of causal effect between GDP and investment they used Granger causality test as the third step of our analysis. They found causality in the short run for 10, unidirectional causality from GDP to investment for 18 and from investment to GDP for 10 countries. The causality from GDP to investment is positive for 11 countries and from investment to GDP for 6 countries. Bi-directional causality is mostly positive between the two variables.

[18] Analyzing the impact of investment on growth in Nigeria. Using data for the 1970-94 periods, he found that there is a 10 percent rise in Gross National Product (GNP) in the short-run. He also found that, in the long-run, there is a 10 percent increase in per capita GNP. With these findings, he concluded that per capita GNP is highly economic growth and rapid development, it must pursue policies that will increase both the public and

private investment, Aggregate investment in any economy comprises both the public and private investments. Although the prime motive of the public sector investment may be different from that of the private sector, they face the same challenges in financing their investment requirements.

3.0. Methodology

Secondary data were used in this research and these secondary data were from Central Bank of Nigeria and Nigeria Bureau of Statistic. In an attempt to establish the relationship between economic growth and investment financing in Nigeria, the researcher adopted a multiple regression model and a similar model was adopted in a recent studies by [13] which tested the causality between the fixed investment and the growth rate. The model was modified to meet the objectives of the study and to show the relationship between economic growth and investment financing in Nigeria. Thus:

RGDP =f (LR, CPS, EXCHR, INV, M2)……..(1)

From the equation (1) above Real Gross Domestic Product (RGDP) is a function of lending rate (LR), Credit to private sector (CPS), Exchange Rate (EXCHR), Investment (INV) and Money Supply (M2). This equation above is transformed to econometric model we have:

$RGDP = \propto + \beta_1 LR + \beta_2 CPS + \beta_3 EXCHR + \beta_4 INV + \beta_5 M2 + \mu$ …… (2)

From equation the Real Gross Domestic Product (RGDP) is the dependent variable, while independent variables are Lending Rate (LR), Credit to Private Sector (CPS), Exchange Rate (EXCHR), Investment (INV) and Money Supply (M2). From the model also, α is the constant, β_1, β_2, β_3, β_4, and β_5 are the parameters while μ is the error term.

The a priori expressions of the multiple regression model is that $\beta_1 > 0$; $\beta_2 > 0$; $\beta_3 > 0$; $\beta_4 > 0$; $\beta_5 > 0$. A positive sign is expected of the coefficients of the explanatory variables, that is positive relationship between Real Gross Domestic Product (RGDP) the dependent variable and independent variables which are Lending Rate (LR), Credit to Private Sector (CPS), Exchange Rate (EXCHR), Investment (INV) and Money Supply (M2).

The data analysis technique used is Ordinary Least Square Method (OLS). The data collected were analysis using the E-view software 7.0.

4.0 Presentation of Data and Analysis

Table (4.1) in appendix I show the statistical data used for the analysis of the study, the data presented are the explanatory variables (Lending Rate (LR), Credit to Private Sector (CPS), Exchange Rate (EXCHR), Investment (INV) and Money Supply (M2) and the dependent variable (Real Gross Domestic Product (RGDP).

Table I Data for regression

YEAR	RGDP	LR	CPS	EXCHR	INV	M2
1980	31546.8	7.50	7457.8	0.55	10841.2	16100.0
1981	205222.1	7.75	9670.5	0.61	12215.0	16161.7
1982	199685.3	10.25	11611.4	0.67	10922.0	18093.6
1982	185598.1	10.00	12237.8	0.72	8135.0	20879.1
1984	183563.0	12.50	12895.3	0.76	5417.0	23370.0
1985	201036.3	9.25	14139.0	0.89	5573.0	26.277.6
1986	205971.4	10.50	18299.9	2.02	7323.0	27.389.8
1987	204806.5	17.50	21892.5	4.02	10661.1	29994.60
1988	219875.6	16.50	25472.5	4.54	12383.7	42780.30
1989	236729.6	26.80	29643.9	7.39	18414.1	46678.90
1990	267550.0	25.50	35436.6	8.04	30626.8	64932.50
1991	265379.1	20.01	42079.0	9.91	35423.9	86152.50
1992	271365.5	29.80	79958.9	17.30	58640.3	128283.70
1993	274833.3	36.09	95529.7	22.05	80948.1	192458.6
1994	275450.6	21.00	151000.3	21.89	85021.8	267759.5
1995	281407.4	20.18	211358.6	21.89	114390.0	315669.5
1996	293745.4	19.74	260613.5	21.89	172100.0	368762.3
1997	302022.5	13.54	319512.2	21.89	205550.0	413196.8
1998	310890.1	18.29	372574.1	21.89	192990.0	531513.4
1999	312183.5	21.32	455205.2	92.69	177450.0	699733.7
2000	329178.7	17.98	596001.5	102.11	268895.0	1036080
2001	356994.3	18.29	854999.3	111.94	392249.0	1315869
2002	433203.5	24.40	955762.1	120.97	191853.9	1599495
2003	477533.0	20.48	1211993.4	129.36	198322.2	1985192
2004	527576.0	19.15	1534447.8	133.50	349258.3	2263588
2005	561931.4	17.85	2007355.8	132.15	283822.3	2626455
2006	595821.6	17.26	2650821.5	128.65	189383.3	3654788
2007	634251.1	16.49	5056720.9	117.96	192983.4	5809826.5
2008	672202.6	16.08	8059548.9	130.75	394829.2	9167067.6
2009	716949.7	15.80	10206086.7	158.50	343838.3	10767377.8
2010	851734.8	18.68	13489670.7	153.13	547831.3	11142000.7

Source: 1. CBN, Nigeria's statistical bulletin 2010.
2. CBN, Annual Report and Statement of Account (various issues).

4.1 Results of Stationarity Test

Table II

Result of Augmented Dickey-Fuller (ADF) Test for Stationarity

VARIABLES	ADF STATISTIC	1% Critical Value	5% Critical Value	DIFFERENCE
RGDP	5.432041	-3.6752	-2.9665	1ST
LR	5.930097	-3.6852	-2.9705	2ND
CPS	5.278954	-3.6752	-2.9665	1ST
EXCHR	5.862866	-3.6959	-2.9750	3RD
INV	5.645654	-3.6852	-2.9705	2ND
M2	4.982861	-3.6959	-2.9750	3RD

Source: computation from table 4.1E-views software 7.0)

From the Table 4.3.1, the Real Gross Domestic Product in Nigeria is stationary at first difference with ADF statistic value of 5.432041 at 1 percent, Lending Rate is stationary at second difference with ADF value of 5.930097 at 1 percent and Credit to Private Sector is stationary at first difference with ADF value of 5.278954 at 1 percent.

Similarly, Exchange Rate is stationary at third difference with ADF value of 5.862866 at 1 percent; Investment is stationary at second difference with ADF value of 5.645654 at 1 percent, 5 percent and Money Supply is stationary at third difference with ADF value of 4.982861 at 1 percent, 5 percent and 10 percent. Therefore data is fit to be used for regression estimation and for economic analysis and inference.

4.2 Presentation of Regression Results

Table III
Data Estimation Results

VARIABLES	COFFICIENT	STANDARD ERROR	T-STATISTICAL	PROB.
C	153995.2	30426.93	5.061148	0.0000
LR	3140.928	1601.151	1.961669	0.0610
CPS	0.005571	0.021842	0.255082	0.0007
EXCHR	1435.167	456.5193	3.143716	0.0043
INV	0.040843	0.159933	0.255377	0.0305
M2	0.026783	0.024432	0.2834	0.2834
R-SQUARE	093			
ADJ R-SQUARE	0.92			
F-STATISTIC	69.34263			
D-W STATISTIC	1.78927			
PROB	0.00000000			

Source: computation using E-views package

4.3 Interpretation and Discussion of Results

The growth and investment financing equation given the R-square of 0.93 suggests that investment financing has a strong and positive relationship on Real Gross Domestic Product and the Adjusted R-square of 92 percent shows that the model in use is capable of determining the total variation in dependent variable. The function shows that 93 percent variation the dependent variable can be accountable by the change in the independent variables.

Similarly, The F-statistic suggest that the model employed in the study is statistically significant given the value as 69.34263, meaning at 5 percent level of significant, the equation in use is statistically significant that means, useful in explaining a unit change in Real Gross Domestic Product in Nigeria. The result indicates that Lending Rate and Money Supply are positively and insignificantly related to gross domestic product, from the result the a prior expectation of Lending Rate and Money Supply were proved to be true being positively signed. The result also indicates the Credit to Private Sector, Exchange Rate and Investment have a positive relationship with gross domestic product and they are statistically significant in determine the variation in economic growth in Nigeria. Credit to Private Sector, Exchange Rate and Investment were positively signed confirming the aprior expectation of the model. And this implies that Credit to Private Sector, Exchange Rate and Investment are determinants of economic growth in Nigeria and variation in these economic variables have effect on GDP in Nigeria.

5.0 Conclusion and Recommendations

In conclusion, the study was attempt to examine the relationship between investment financing and economic growth in Nigeria from 1980 to 2010, from the findings it is noted that investment financing has a positive and strong relationship with economic growth in Nigeria. From the research findings the major constraints of investment in Nigeria are Inadequate macroeconomic framework and policy inconsistencies, Low level of domestic savings, and Low return on investment. Therefore, government should pursue strong macroeconomic policies, improve economic efficiency, and increase public investment towards human capital development and improve infrastructures in the country to enhance productivity and efficiency.

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