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Effect of External Borrowing and Foreign Aid on Economic Growth in Nigeria

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ABSTRACT

This study however, examines the effect of external borrowing and foreign financial aid (foreign grant) in the form of official development assistance (ODA) on the growth of the Nigerian economy over a period of 34 years from 1980 to 2013. Annual time series data was obtained from the Central Bank of Nigeria (CBN) statistical bulletin and Organisation for Economic Cooperation and Development (OECD's online). The study employed Ordinary Least Square technique (OLS) multiple regression model in determining the causal-effect between the variables under study. The test for Unit Root was conducted using Augmented Dickey-Fuller (ADF), Johansen Co-integration test was used to determine the long-runn relationship between the variables and Error Correction Method (ECM) was adopted to help us determine the speed of adjust. The results show that while external debt has a positive and significant effect on economic growth, foreign aid in conformity with the a priori expectation is positively related to GDP as well but statistically insignificant. This implies that foreign aid is beneficial to Nigeria but has not been much felt. Hence bulk of such funds (foreign aid) are been channelled to meeting recurrent or consumption expenditure needs of the country at the expense of productive investments.

Key words: External debt, Official development assistance, Economic growth.

1.0 INTRODUCTION

Most developing countries of the world are regarded as being poor not because they don't have the resources but because bulk of their resources (income) are being channelled to meeting the consumption needs of their people with little or nothing left for savings. Hence low savings rate brings about low investments rate and low investments rate results to low growth rate. Therefore, poverty at the beginning through low savings, low investments and low growth leads to poverty again (poverty trap). For this reason, developing countries are left with no option than to result to external borrowings and foreign assistance (foreign aid) to bridge the saving- investment gap with the intention to achieving economic growth and poverty reduction.

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Official development assistance (ODA), more commonly known as foreign aid, consists of resource transfers from the public sector, in the form of grants and loans at concessional financial terms, to developing countries. Many studies in the empirical literature on the effectiveness of foreign aid have tried to assess if aid reaches its main objective, defined as the promotion of economic development and welfare of developing countries (Sandrina, 2005). On the other hand, the act of borrowing creates debt. Debt therefore, refers to the resources of money in use in an organization which is not contributed by its owners and does not in any other way belong to them, it is a liability represented by a financial instrument of other formal equivalent (Udoka and Ogege, 2012).

Recent years have seen a surge in calls for more ODA to developing countries in order to eliminate poverty. Developed countries, international organizations and other Philanthropists have all made renewed pleas for a massive infusion of development aid to developing countries including Nigeria. Experts who argued in favour of more aid are of the view that injecting more foreign aid would materially benefit the people of the recipient country (Okon, 2012). Developing countries like Nigeria are indeed characterized by low level of income, high level of unemployment, very low industrial capacity utilization, and high poverty level just to mention a few of the various economic problems these countries are often faced with. In addressing these problems, foreign aid has been suggested as a veritable option for augmenting the saving-investment gap. While some countries that have benefited from foreign assistance at one time or the other have grown such that they have become aid donors (South Korea, North Korea, China etc.), majority of countries in Africa like Nigeria have remained backward. Nigeria has continued to benefit from all sorts of foreign assistance and in fact still collect at least as much as the amount collected in the early 1980s, yet socio-economic development has remained dismal (Fasanya and Onakoya, 2012).

Aside foreign aid, external borrowing has also over the years attracted much concern as an important aspect of any country's macroeconomic policy framework. A developing country wishing to mobilize capital resources to foster economic development may at one time or the other resort to borrowing (internally or externally) to supplement domestic savings. Soludo (2003), reacting to this, opined that countries borrow for two broad reasons: macroeconomic reasons [higher investment, higher consumption (education and health)] or to finance transitory balance of payments deficits [to lower nominal interest rates abroad, lack of domestic long-term credit, or to circumvent hard budget constraints]. This implies that economy indulges in debt to boost economic growth and reduce poverty. He is also of the opinion that once an initial stock of debt grows to a certain threshold, servicing them becomes a burden, and countries find themselves on the wrong side of the debt-laffer curve, with debt crowding out investment and growth. This seems to be the position of Nigeria today because investment, which will accordingly result to high-speed growth with a positive effect on poverty, is moving sporadically in both positive and negative directions.

Sanusi (2003) opined that an escalating debt profile presents serious obstacles to a nation's path to economic growth and development. The cost of servicing public debt (domestic and external) may expand beyond the capacity of the economy to cope, thereby impacting negatively on the ability to achieve the desired fiscal and monetary policy objectives.

However, whether or not external debt would be beneficial to the borrowing nation depends on whether the borrowed money is used in the productive segments of the economy or for consumption (Ezenwa, 2012).

2.0 LITERATURE REVIEW

2.1 CONCEPTUAL FRAMEWORK

Establishment of an aid system was one of the principles of the Breton Woods system in 1914. The system believes that there should be a free capital market, which allows an unrestricted inflow of foreign aid. Based on this principle, a Marshall Aid Assistance of about $17.5 billion was granted Western Europe to resuscitate her ruined economy due to the World War11. Since then, the aid system has remained a durable phenomenon of the international economic system (Todaro, 1977) as cited in (Funso and Dare, 2010). However, the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD) defines Foreign Aid as ODA. And according to the DAC, ODA are those flows provided by official agencies to countries and each transaction of which is administered with the promotion of the economic development and welfare of developing countries as its main objective and is concessional in character and conveys a grant element of at least 25%. The conceptualisations of aid above clearly depict that aid is not the same thing as loan. While aid is more comprehensive and encompassing, loan is embedded in aid. It is usually one of the total packages of aid. Aid may serve one or more functions: it may be given as a signal of diplomatic approval, or to strengthen a military ally, to reward a government for behaviour desired by the donor, to extend the donor's cultural influence, to provide infrastructure needed by the donor for resource extraction from the recipient country, or to gain other kinds of commercial access.

Debt (loan) be it internal or external are classified into two i.e productive debt and dead weight debt. When a loan is obtained to enable the nation purchase some sort of assets, the debt is said to be productive e.g money borrowed for acquiring factories, electricity, refineries etc. However, debt undertaken to finance war and expenses on current expenditures are dead weight debts. When a country obtains a loan from abroad, it means that the country can import from abroad goods and services to the value of the loan without at the same time having to export anything in exchange. When capital and interest have to be repaid, the same country will have to get the burden of exporting goods and service without receiving any imports in exchange. These two types of debt, however, require that the borrowers' future savings must cover the interest and principal payment (debt servicing). Therefore, debt finance investment need to be productive and well manage enough to earn a rate of return higher than the cost of debt servicing (Ajayi and Oke, 2012).

Nigeria in her desperate quest for money to finance economic growth accepted foreign loans under stringent conditions. But these conditions such as devaluation, amongst others hardly improved Nigeria's ability to pay the loan and resulted to what could be termed as external debt crisis (Umaru, Hamidu & Musa, 2013).

2.1.1 SOURCES OF FOREIGN AID/ EXTERNAL DEBT

a. **The Paris club of creditors**

This is an informal group of creditor nations whose objective is to find workable solutions to payment problems faced by debtor nations. The Paris Club has 19 permanent members, including most of the western European and Scandinavian nations, the United States of America, the United Kingdom and Japan. The Paris Club stresses the informal nature of its existence and deems itself a "non-institution." As an informal group, it has no official statutes and no formal inception date, although its first meeting with a debtor nation was in 1956, with Argentina. The members of the Paris Club meet each month which may include negotiations with one or more debtor countries that have met the Club's pre-conditions for debt negotiation. The main conditions a debtor nation has to meet are that it should have a demonstrated need for debt relief and should be committed to implementing economic reform, which in effect means that it must already have a current program with the International Monetary Fund (IMF) supported by a conditional arrangement.

b. The London club of creditors

This is an informal group of private creditors on the international stage, and is similar to the Paris club of public lenders. The first meeting of the club took place in 1976 in response to Zaire's debt payment problems. The club is also the organisation responsible for rescheduling debt payments made by countries to commercial banks. They mainly grant uninsured and unguaranteed loans.

c. Multilateral creditors

These are international institutions such as: African Development Bank, International Bank for Reconstruction and Development, International Finance Corporation, International Development Association, European Economic Community.

d. Bilateral creditors

These creditors usually grant loans for development purposes. Members are the European Union, the United States of America, the East European countries and Japan.

e. Promissory Note creditors

These creditors grant uninsured trade loans, resulting mainly from trade arrears. In 1982 and 1983, Nigeria had trade arrears and was financed by promissory notes.

2.1.2 FORMS OF FOREIGN AID/ EXTERNAL DEBT

a. Project Aid

Project aid is dominated by funds channelled to interventions in sectors such as health, education, rural development including agriculture, transport and power, housing, and water supply and sanitation. However, small amounts of project aid are channelled to industrial, mining, trade and cultural projects (Riddell, 2007) as cited in (Conchesta, 2008). Many ODA funded development projects aim at achieving specific outputs by providing resources, skills and systems which the recipient country needs.

b. Programme Aid

Programme aid is defined by OECD as financial contributions not linked to specific activities. The programme aid is divided into two forms, the balance of payments (BOP) support and the budget support. Under the budget support, aid funds are provided to boost aggregate revenue and increase overall spending. Aid funds channelled to ministries of finance are termed as General Budget Support (GBS) while those channelled to particular sectors are termed as Sector Budget Support (SBS). Under the GBS, donors provide funds for implementation of development and poverty alleviating strategies paying attention to the capacity of the recipient governments to use funds efficiently.

c. Technical Assistance

Technical Assistance (TA) includes the provision of skills, knowledge know-how and advice. For many decades, technical assistance has also been provided in form of teaching staff mainly in primary and secondary education in developing countries. Furthermore, more specialised trainers have continually performed skills training functions to meet their needs and to achieve their immediate objectives.

d. Humanitarian Aid or Emergency Aid

The definition of humanitarian aid is defined according to its purpose, that is, ''to save lives, alleviate suffering and enable those suffering to maintain (or retain) their human dignity during and in the aftermath of natural disasters and man-made crisis''. Humanitarian aid has been successful in most cases in achieving its tangible outcomes such as saving lives, providing food to the hungry; healthcare and medicines to those vulnerable to acute disease in emergencies; and water, sanitation and shelter to those whose homes have been destroyed. However, the sustained internal conflicts in war prone areas reduce resources to meet development objectives as more resources are directed to meet humanitarian needs.

e. Food Aid

Food aid comprises of programme food aid and humanitarian food aid. Programme food aid may relieve the foreign exchange constraint to the import of the necessary intermediate inputs or by providing fiscal resources through counterpart funds generated by the local sale of programme food aid (Barret, 1998) as cited in (Conchesta, 2008). These resources can be

used by the recipient country to invest in agricultural research and extension and improvement of rural infrastructure in particular. However, programme food aid may have Dutch disease effects on domestic food producers and thus hurting the food sector's competitiveness in the world markets.

2.2 THEORATICAL FRAMEWORK

2.2.1 DEBTCUM-GROWTH MODEL

This model states that in order for debt accumulation to be sustainable, growth rate of external debt must not be higher than that of domestic output, export or tax revenues. In other words the ratio of external debt stock to domestic output should either remain constant or decline over time (Darryl, 2011). This theory considers external debt as a substitute for domestic savings and investment and therefore domestic savings and investment are crowded out as a result (Krugman,1988; Alesina and Tabellini, 1990) as cited in (Udoka and Ogege, 2012). This thinking is that the returns from investing in a country are seen as being subjected to a high marginal tax by creditors and this may discourage domestic and foreign investors.

2.2.2 THRESHOLD SCHOOL OF THOUGHT (Debt-laffer Curve)

Flores, Fullerton and Olivas (2007) posit that if the stock of external debt is small, such that from the origin to point 'A', then it is expected that the debtor country will be able to meet the forthcoming debt repayment in full without a problem. Under this situation the marginal expected debt repayment with relation to the debt stock is one. However, after this point the expected debt repayment expands at a lower rate in relation to the debt accumulation. A country under this level of debt stock is expected to have some difficulties in meeting the debt repayment; this can be seen from the marginal expected debt repayment of between 0 and 1 exclusive. The risk of inability to service the debt increases with the increase in debt stock. The risk may vary from country to country according to the level of their debt's interest rate. At point B, the expected debt repayment reaches its maximum saturated point and then starts falling, at this point and beyond the marginal impact of debt is negative. A country under this situation is totally unable to service the debts and most of the time declared to be in debt crisis. On extending the debt laffer curve to show the contribution of external debt on economic growth on a country. This shows the non linear relationship of external debt and economic growth as supported by Pattillo, C. et al (2002). A reasonable level of external debt actually has a positive impact on economic growth while excessive debt stock is destructive. As debt stock increases with time growth decreases and it can sometimes reaches a negative level of economic growth. Combining points A and B, we can see that as debt increases, creditors' expectations of being paid are distorted. Hence, it is easily seen that when the expected payment of the debt increases proportionally less than the debt stock, the distortions are such that extra amounts of debt start decelerating the GDP growth rate. Moreover, if the debt accumulation achieves higher levels such that the debtor starts diminishing or failing to make its regular amortizations, any extra debt increment will be translated into negative contributions to the GDP growth rate.

2.2.3 PROFLIGACY THEORY

This theory attempts to correct the weakness of growth-cum debt theory by focussing on the institutional arrangement under which a loan was contracted. This theory recognises that the debt crises arose from weak institutions and policies that have wasted resources through unbridled official corruption and damaged living standards and development. This policies led to distortions in relative prices and encouraged capital flights as seen in substantial liquid funds of private citizens of debtor countries in foreign banks (Nyong, 2005) as cited in (Udoka and Ogege, 2012).

2.2.4 HARROD-DOMAR MODEL

The Harrod-Domar model was developed independently by Sir Roy Harrod in 1939 and Evsey Domar in 1946. It is a growth model which states that the rate of economic growth in an economy is dependent on the level of saving and the capital output ratio. If there is a high level of saving in a country, it provides funds for firms to borrow and invest. Investment can increase the capital stock of an economy and generate economic growth through the increase in production of goods and services. The capital output ratio measures the productivity of the investment that takes place. If capital output ratio decreases the economy will be more productive, so higher amounts of output is generated from fewer inputs. This again, leads to higher economic growth. The model suggests that if developing countries want to achieve economic growth, governments need to encourage saving, and support technological advancements to decrease the economy's capital output ratio.

2.2.5 THE TWO GAP MODEL

The standard model used to justify aid was the 'two gap model' of Chenery and Strout (1966). In this model the first gap is between the amount of investment necessary to attain a certain rate of growth and the available domestic savings (the saving gap). The second gap is the trade gap or foreign exchange gap. This occurs when there is a gap between import requirements for a given level of production and foreign exchange earnings. Even though the saving investment gap would be small, a larger trade gap would undermine productive investment due to limited imports of capital goods needed for investment. It is argued that at any moment in time one gap is binding in aid recipient countries thus foreign aid is required to fill that gap. The 'two gap model' supports the hypothesis of investment-limited growth based on the Harrod-Domar model which assumes a specific amount of investment to increase growth (Conchesta, 2008).

2.2.6 THE THREE GAP MODEL

This model is a combination of the savings-investment gap, trade gap and fiscal gap. The fiscal gap which is often called "a structural deficit" by budget watchers- means that normal revenue growth is not high enough to finance the normal growth of expenditures over the long term. Hence to compliment government budget, there is need for external resources to bridge this gap.

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2.3 EMPIRICAL REVIEW

Conchesta (2008) used a single equation model to examine the impact of foreign aid on economic growth in Tanzania over the period 1990 to 2004. In his analysis; while foreign aid was disaggregated in terms of government development expenditures and recurrent expenditures other combined variables include net national savings, export growth and total debt service. The study reveals that foreign aid and total debt service have a negative impact on GDP growth for the case of Tanzania. On the other hand, while, export growth and net national savings have shown a positive impact on GDP growth as it was expected because they increase the country's capacity to invest, government development and recurrent expenditures of foreign aid resources have shown a negative impact. This implies that development expenditures made by the government were not enough or not productive enough to impact on GDP growth positively. In other words, the overall aid and aid for development expenditures have shown to have more negative impact in the 1990s than in the early 2000s.

Fasanya & Onakoya (2012), analyzes the impact of foreign aid on economic growth in Nigeria during the period of 1970-2010. The empirical analysis rests on the neo-classical modelling analytical framework and combined several procedures in modern econometric analysis/estimation techniques. Their findings show that aid flows has significant impact on economic growth in Nigeria: domestic investment increased in response to aid flows and population growth has no significant effect on aid flows. Aid flows also provides free resources to increase domestic investment, thus confirming the aid-policy growth hypothesis. Therefore, donor governments should be aware of the political situations in recipient countries, and work with international bodies to ensure as much stability as possible.

Okon (2012), tried to look at a long-term perspective on development aid and human development in Nigeria. This study employs two-stage least squares estimation to analyzing data from 1960 to 2010. The result shows that there is a negative relationship between development aid and human development, implying that aid tends to worsen human development in Nigeria. As such Nigerian government should put in place an appropriate policy measures that would monitor the maximum and effective utilization of foreign aid. Donors should provide information on future aid disbursements in order to reduce the uncertainty associated with aid flows and improve fiscal planning.

Bakare (2011), examined the extent of the impact of foreign aid on economic growth in Nigeria by employing standard statistical method, Vector Autoregressive Model (VAR) to determine the sources of shock to growth in Nigeria and treated foreign aid as an endogenous variable. The study found a negative relationship between foreign aid and output growth, which imply that foreign aid tend to worsen output growth in Nigeria rather than improving it.

Bashir (2013), examined the impact exacted by foreign assistance in the form of official development assistance (ODA) and foreign direct investment (FDI) on real growth in Nigeria

over the period 1980 to 2011. Using the Two-Gap model and various econometric techniques which include Augmented Dickey Fuller (ADF) test, Granger causality test, Johansen co-integration test and Error Correction Method (ECM), empirical results reveal that there is Granger no-causality between any pair of the variables. Findings of the study also established a negative relationship between FDI and real growth as ODA exacts no impact on real growth in the country. Funso and Dare (2012), opined that the misuse of foreign loan has grievous effect on the economy of the recipient countries. Therefore leadership become critical both in terms of political will and ability to mobilise resources for the attainment of national objectives. Hence, leaders in the third world countries should transit from ineptitude to competence; moral corruption to moral decency; parochialism to purposeful leadership that serves and not to oppress the people. Alesina and Weder (2002) found that while Scandinavian donors do reward less corrupt countries, the United States appears to favour democratic nations but seems to pay no attention to the quality of government of recipient countries. They concluded that corrupt countries do not receive less aid.

Subhayu, Sajal and Javed (2013), examined the effects of ODA grants, concessional ODA loans, and private offshore bank loans on growth rates of 131 developing nations over 1996-2010 in a unified way. Their results show a non-linearity in all three relationships, suggesting that at low (high) levels grants are better (worse) than loans (concessional or private). Burnside and Dollar (2000) in their investigation of the relationship between foreign aid, economic policy and growth of per capital GDP found that aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies but with little effect in the presence of poor policies.

A study conducted by Ajayi and Oke (2012) on the effect of external debt on economic growth and development of Nigeria using the ordinary least square regression technique revealed that external debt impacted positively on the growth and development of Nigeria within the period under review. A similar study by Ishola, Olaleye, Ajayi and Giwa (2013) for the period 1980 – 2010 using O.L.S regression technique shows that external debt does not in any way help the Nigerian economy. Udoka and Ogege (2012) opined that the rate of development of the Nigerian economy relies strongly on the contribution of total debt-stock, debt service payment and political instability.

Egbetunde (2012), using the granger causality test on public debt and economic growth in Nigeria for the period 1970 – 2010 suggest that improvement in economic activities call for borrowing to enhance on-going development processes in the economy. This is due to the fact that his result reveals that there exist bi-directional causality between external debt and economic growth as well as domestic debt and economic growth. On the other hand, the results from a similar study carried out by Amassoma (2011) for the period 1970 – 2009 using the same granger causality test show that there exist a bi-directional causality between domestic debt and economic growth which implies that both domestic debt and economic growth leads to one another. However, the result of the causality between external debt and

economic growth show a uni-directional causality from economic growth to external debt and not vice-versa. This implies that it is economic growth that leads to external debt and not the other way round. Umaru, Hamidu & Musa (2013), investigated the impact of external debt and domestic debt on economic growth in Nigeria between 1970 – 2010 through the application of the O.L.S method. While the causality test revealed a bi-directional causation between external debt and GDP, no causation existed between domestic debt and GDP as well as no causation between external debt and domestic debt. The O.L.S method also revealed that external debt possessed a negative impact on economic growth while domestic debt has impacted positively. They opined that government should rely more on domestic debt in stimulating growth rather than external debt.

2.4 SUMMARY OF REVIEW OF RELATED LITERATURE

Having carried out a thorough examination on the impact of foreign aid and/or external debt on economic growth of developing countries of which Nigeria is a part, we observed in the works of Conchesta (2008), Fasanya & Onakoya (2012), Okon (2012), Bakare (2011) and Bashir (2013) that no attempt was made to split grant and loan components from foreign aid (ODA) as both were aggregated as ODA. The implication of this is an overriding effect of grant on loan and vice versa on economic growth, hence, the need for the segregation which this study has addressed. In addition to our observation is also the failure of most of the literatures to satisfy some of the basic conditions required for the application of time series regression analysis. In other to resolve the above limitations, it is expedient that these steps (basic conditions) which are prerequisite for the analysis of time series data be followed. The steps are the first order test which includes: unit root test, co-integration test, the error correction model and the second order test which comprises of the normality test, serial correlation and test for heteroscedasticity. This study however, distinguishes itself from existing literatures in this area by satisfying these conditions in its analysis to come out with a more robust and reliable result. The absence of these basic conditions are evidence in the following works: Umaru et al (2013), assumed that only external debt and domestic debt affect GDP without the inclusion of control variable(s) thereby creating room for the sum of the error term not to be equal to zero. Both Umaru et al (2013) and Bashir (2013) tested for unit root (ie stationarity) without testing for co-integration to allow for the determination of the existence of long run relationship between the variables. Simple regression analysis and the VAR model were used in the works of Conchesta (2008) and Bakare (2011) respectively but without conducting both the first order test and the second order test. Shortcomings in the works of Amassoma (2011), Ishola et al.(2013) and Ajayi and Oke (2012) have been corrected in the works of Udoka and Ogege (2012) but failed to take cognisance of the second order test. Hence no attempt was made to test for the presence or absence of auto-correlation.

3.0 METHODOLOGY

3.1 NATURE AND SOURCES OF DATA

A need to have a better understanding of this study leads us to the consultation of a number of related materials. Most of the required data of this work were obtained from CBN statistical bulletin, published articles, and journals. While the data source for ODA allocation is the OECD's (online). Thus, this study relies heavily on secondary data.

3.2 MODEL DEVELOPMENT

This work adopted and modified the econometric model of Udoka and Ogege (2012) as follows:

$(L)GDP=b_0 + b_1 FR(L) + b_2DSK(L) + b_3FRINV(L) + b_4DSP(L) + b_5OPEN(L) + b_6POL(L) +\mu t$ where :

FR= foreign reserve
DSK= total debt stock
FRINV= foreign investment
DSP= debt service payment
OPEN= openness of the economy (total trade/GDP ratio)
POL= political instability
μ = stochastic error term

Following the literatures and modelling approach of Udoka and Ogege (2012), we can specify the growth model in a functional form as:

GDP =f(EXD, FAD, EXRG, FRS)

3.3 MODEL SPECIFICATION

This study seeks to examine the effect of external debt and foreign aid on the growth of the Nigerian economy for a period of 1980 to 2013. And to achieve this, a log form of OLS regression model will be adopted.

GDP =f(EXD, FAD, FRS, EXRG).....(1)

Explicitly the above equation can be stated thus:

$GDP = a + b_1EXD + b_2FAD + b_3FRS + b_4 EXRG + \mu t$.....(2)

Where:

GDP = Gross domestic product
EXD = External debt
FAD = Foreign aid
EXRG = Exchange rate regime
FRS = Foreign reserve
μt =Error term

It is believed that a log form of a multiple regression helps to improve on the linearity of the model and also to avoid heteroskedasticity. The log form model is stated thus:

$Log(GDP) = a + b_1 Log(EXD) + b_2 Log(FAD) + b_3 Log(FRS) + b_4 EXRG + \mu t$.....(3)

Theoretically the coefficient will take the following outcome:

$.b_1, b_2, b_3, b_4 > 0$

3.3.1 TEST FOR BEST REGRESSION

To determine if the above model is the best model to explain the relationship, the following conditions must be met:

1. R^2 must be high at least above 60%
2. There will be no serial autocorrelation in the model
3. The residual must be normally distributed
4. There will be no heteroskedasticity in the model, in other words the model must be homoskedastic

When all this condition is met, the model will be regarded as the best regression model to explain the effect of external debt and foreign aid on the growth of the Nigerian economy.

3.3.2 UNIT ROOT TEST

The first step involves testing the order of integration of the individual series under consideration. Researchers have developed several procedures for the test of order of integration. The most popular ones are Augmented Dickey-Fuller (ADF) test due to Dickey and Fuller (1979, 1981) and Phillip- Perron due to Phillips and Perron (1988). Augmented Dickey-Fuller test relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favour of the alternative hypothesis of stationarity. The tests are conducted with and without a deterministic trend (t) for each of the series. The general form of ADF test is estimated by the following equation:

$$\Delta y_t = \alpha^0 + \alpha^1 y^{t-1} + \sum_{i=1}^{n} \alpha \Delta y_i + \varepsilon^t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} \sum_{i=1}^{n} \alpha_1 \Delta y_i + \delta_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (5)$$

where :

y is a time series, t is a linear time trend, Δ is the first difference operator, α0 is a constant, n is the optimum number of lags in the dependent variable and ε is the random error term; the difference between equation (4) and (5) is that the first equation included just a drift. However, the second equation includes both drift and linear time trend.

3.3.3 CO-INTEGRATION TEST

The second step in this time series analysis is to test for the presence or otherwise of co-integration between the series of same order of integration through forming a co-integration equation. The basic idea behind co-integration is that if in the long- run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary (Hall and Henry, 1989). A lack of co-

integration suggests that such variable have no long-run relationship: in principal they can wander arbitrarily far away from each other (Dickey et al, 1991). We employ the maximum-likelihood test procedure established by Johansen and Juselius (1990) and Johansen (1991). Specifically, if Yt is a vector of n stochastic variables, then there exists a P-lag vector auto regression with Gaussian errors of the following form: Johansen's methodology takes its starting point in the Vector Autoregression (VAR) of order P given by

$Y_t = \mu + \Delta_1 y_{t-1} + \ldots\ldots\ldots\ldots\ldots + \Delta p\, y_{t-1} + \varepsilon_t$ .....(6)

Where Y_t is an nx1 vector of variables that are integrated of order commonly denoted (1) and ε_t is an nx1 vector of innovations. This VAR can be rewritten as

$$\Delta y_t = \mu + n_{t-1} + \sum_{i=1}^{p-1} \tau_i \Delta y_{t-1} + \varepsilon_t \quad \ldots\ldots\ldots (7)$$

Where

$$\Pi = \sum_{i-1}^{p} A_{i-1}$$

And

$$\tau_i = - \sum_{j=i+1}^{p} Aj$$

To determine the number of co-integration vectors, Johansen (1988, 1989) and Johansen and Juselius (1990) suggested two statistical test, the first one is the trace test (λ trace). It tests the null hypothesis that the number of distinct co-integrating vector is less than or equal to q against a general unrestricted alternatives q= r. The test is calculated as follows:

$$\lambda \,\text{trace}(r) = -T \sum_{i=r+1} \text{In}\ (1-\lambda_i\ )$$

Where T is the number of usable observations and λ1,s are the estimated eigenvalue from the matrix.

3.3.4 ERROR CORRECTION MECHANISM

After testing for the co-integration relationship and co-integration is proven to exist between the variables, then the third step will require the construction of an ECM to model the dynamics of the relationship. The reason behind ECM is to determine the speed of adjustment from the

short-run disequilibrium to the long run equilibrium state. The greater the co-efficient of ECM, the higher the speed of adjustment from the short-run disequilibrium to long-run equilibrium.

$$GDP_t = \propto_0 + \sum_{i=1}^{n} \propto_{1t} GDP_{t-1} + \sum_{i=1}^{x} \propto_{2t} EXD_{t-1} + \sum_{i=1}^{f} \propto_{3t} FAD_{t-1} + \sum_{i=1}^{s} \propto_{4t} FRS_{t-1} + \sum_{i=1}^{r} \propto_{5t} EXRG_{t-1} + \delta 1 ECM_{t-1} + \varepsilon t \dots\dots\dots\dots\dots\dots\dots\dots (8)$$

Where:

GDPt is Gross Domestic Product at time t. The term ECT_{t-1} is the error correction term derived from the long-run co-integrating relationship in the equation. We note that the estimate δ1 can be interpreted as the speed of adjustment from short-run disequilibrium to long-run equilibrium. According to Johansen and Juselius (1987), the existence of co-integration implies the existence of the causality relationship between the variables.

4. DATA ANALYSIS AND INTERPRETATION

In this section we presented the result of the econometric analysis adopted in this work. The first step in this analysis was to test for stationarity using ADF test. The result of this test is shown below:

Table 4.1 ADF result at level

Variables	ADF Statistic	1%	5%	10%	Lag	Order of integration
GDP	-0.629078	-3.6496	-2.9558	-2.6164	2	Non-stationary
EXDEBT	-2.363265	-3.6496	-2.9558	-2.6164	2	Non-stationary
GRANT(FAD)	-1.232372	-3.6496	-2.9558	-2.6164	2	Non-stationary
FRS	-0.208860	-3.6496	-2.9558	-2.6164	2	Non-stationary
EXR	-0.106291	-3.6496	-2.9558	-2.6164	2	Non-stationary

Source: Researchers' E-View result

The result in the table above reveals that all the variables in the model are non-stationary at level. Based on this we difference the variables to see their outcome.

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Table 4.2 ADF result at first difference

Variables	ADF Statistic	1%	5%	10%	Lag	Order of integration
GDP	-4.224580	-3.6496	-2.9558	-2.6164	2	I(1)
EXDEBT	-3.887477	-3.6496	-2.9558	-2.6164	2	I(1)
GRANT(FAD)	-4.735719	-3.6496	-2.9558	-2.6164	2	I(1)
FRS	-3.791085	-3.6496	-2.9558	-2.6164	2	I(1)
EXR	-3.622933	-3.6496	-2.9558	-2.6164	2	I(1)

Source: Researchers' E-View result

The result of the ADF test shown in tables 4.2 above, indicates that all the variables are integrated of same order one i.e I(1). In other words the result shows that GDP, EXDEBT, GRANT (FAD), FRS and EXR are stationary at 5% level of significance. And so, having established stationarity among the variables, we proceed to co-integration with a view to determining the number of co-integrating equation in the model.

Table 4.3 Result of Johanson co-integration test

Eigenvalue	Likelihood ratio	5% critical value	1% critical value	Hypothesized no. Of CE(s)
0.925755	189.8346	68.52	76.07	None **
0.833040	106.6224	47.21	54.46	At most 1 **
0.623561	49.34234	29.68	35.65	At most 2 **
0.431609	18.07832	15.41	20.04	At most 3 *
1.67E-06	5.35E-05	3.76	6.65	At most 4

Source: Researchers' E-View result

The result of the co-integration analysis from table 4.3 above indicates that at most three (3) co-integrating equation exist at 5% level of significance. This however implies that there is a long run relationship between GDP, EXDEBT, GRANT (FAD), FRS and EXR in the model. Having established co-integration in the model, we move on to estimating the Error Correction Model (ECM) which enables us to see the short run dynamics of the model. The ECM will identify the speed of adjustment from short run disequilibrium to long run equilibrium.

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Table 4.4 The result of short run dynamics of the model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.585946	0.631435	13.59752	0.0000
LOG(EXDEBT)	0.091126	0.065398	1.393404	0.1749
EXR	0.007842	0.002878	2.724659	0.0112
LOG(FRS)	0.214138	0.095573	2.240582	0.0335
LOG(GRANT)	0.229862	0.087633	2.623012	0.0142
ECM(-1)	-0.221123	0.132974	5.430562	0.0000

Source: Researchers' E-View result

The result of ECM shown in table 4.4 reveals that in the short run while total external debt has a positive and insignificant relationship with economic growth in Nigeria, total grant has a positive and significant relationship. Exchange rate and foreign reserve which are used as control variables was seen to have positive and significant impact on economic growth in Nigeria. The coefficient of the ECM(-1) on the other hand indicates that 22.11% of the disequilibrium in the short run will be corrected annually. In other words, 22.11% of the disequilibrium in the short run will be corrected in the long run. The significant result in the ECM implies that the speed of adjustment will be fast.

Table 4.5 The result of long run regression model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.545540	0.920112	8.200678	0.0000
LOG(EXDEBT)	0.208210	0.088162	2.361667	0.0251
LOG(GRANT)	0.127577	0.118018	1.080999	0.2886
LOG(FRS)	0.228857	0.127847	1.790087	0.0839
EXR	0.010281	0.004336	2.371085	0.0246
R- squared	0.930658	Durbin-Watson stat	0.594798	
F-statistic	97.30352	Prob(F-statistic)	0.000000	

Source: Researchers' E-View result

The result of the long run model shown in table 4.5 above reveals that the coefficient of EXDEBT is 0.208210 with a probability value of 0.0251, which is less than 0.05 indicating that

external debt in the long run has a positive and significant impact on the growth of the Nigerian economy. On the other hand, GRANT and FRS have coefficient of 0.127577 and 0.228857 with a probability value of 0.2886 and 0.0839 respectively which are both greater than 0.05, hence indicating a positive and insignificant impact on the growth of the Nigerian economy for the period under review. The coefficient of EXR which was also used as one of the control variable is 0.010281 with a probability value of 0.000000 which is also less than 0.05, hence indicating that EXR has a positive and significant impact on economic growth in Nigeria.

The result in the table above also shows that R-squared value is 0.930658, which implies that 93.06% of the variation in GDP is explained in the model leaving only less than 7% to the error term. This also means that the line of best fit was highly fitted. Hence, this model is the best model to explain the relationship between the variables under consideration.
Durbin-Watson statistic value of 0.594798 shows the likely presence of autocorrelation in the model. The result of F-statistic is 97.30352 and the probability of F-statistic is 0.00000 which implies that the overall regression is statistically significant. This also means that all the independent variable taking together will impact significantly on the growth of the Nigerian economy.

4.1 NORMALITY TEST

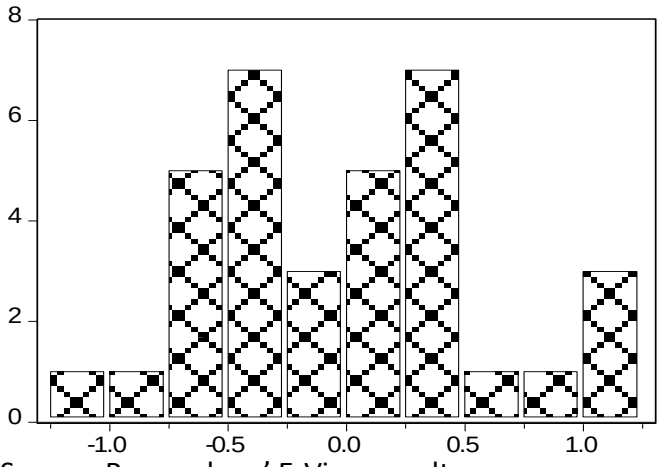
To determine if the regression model is the best regression to explain the relationship between the variables, we started by carrying out a normality test by stating the null and alternative hypothesis as follows:

Ho = The residual is normally distributed

Hi = The residual is not normally distributed

Decision Rule: if the probability value is less than 0.05 reject Ho otherwise accept Ho.

Table 4.6 Result of the normality test



Series: Residuals	
Sample 1980 2013	
Observations 34	
Mean	-2.11E-15
Median	-0.041843
Maximum	1.201951
Minimum	-1.054309
Std. Dev.	0.577567
Skewness	0.362578
Kurtosis	2.364081
Jarque-Bera	1.317844
Probability	0.517409

Source: Researchers' E-View result

The result of the normality test shows a probability value of 0.517409 which is greater than 0.05. Based on this we accept Ho and reject Hi. Hence the residual is normally distributed.

4.2 SERIAL CORRELATION

Ho = There is no serial correlation in the model
Hi = There is serial correlation in the model

Decision Rule: if the probability value is less than 0.05 reject Ho otherwise accept Ho.

Table 4.7 Result of test for serial correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	13.20840	Probability	0.212200
Obs*R-squared	16.81439	Probability	0.176683

Source: Researchers' E-View result

The result of the serial correlation shows a probability value of 0.176683 which is greater than 0.05 indicating the acceptance of Ho. We however conclude that there is no serial correlation in the model.

4.3 HETEROSKEDASTICITY TEST

Ho = There is no heteroskedasticity in the model
Hi = There is heteroskedasticity in the model

Table 4.8 White Heteroskedasticity test

F-statistic	1.839394	Probability	0.116575
Obs*R-squared	12.59759	Probability	0.126466

Source: Researchers' E-View result

The result of the heteroskedasticity test shows a probability value of 0.126466 which is greater than 0.05 indicating the acceptance of Ho. Hence there is no heteroskedasticity in the model rather the model is homoskedastic. We hereby conclude that this is the best model to explain the relationship between the variables.

5. CONCLUSION AND RECOMMENDATIONS

One of the essence of external borrowings and foreign aid (grant) is to bridge the savings-investment gap within the domestic economy thereby stimulating economic growth. However, the primary objective of this study is to determine the effect of external borrowings and foreign

aid on economic growth in Nigeria. The ordinary least square method was used to establish a multiple regression model between the variables under study. The results show that external debt has a positive and significant effect on economic growth in Nigeria. A unit increase in external debt would bring about a 0.208210 unit rise in GDP. This is in line with the a priori expectation. This indicates that external borrowings are beneficial and much felt in Nigeria which corroborate with the findings of Ajayi and Oke (2012). Foreign aid (grant) in conformity with the a priori expectation is positively related to GDP as well but statistically insignificant. The result authenticates the findings of Fasanya & Onakoya (2012) that foreign aid has positive impact on economic growth in Nigeria. However, a unit increase in foreign aid results to 0.127577 unit increase in GDP. Being positive and statistically insignificant suggests that foreign aid is beneficial to Nigeria but have not been much felt. This could be attributed to the fact that bulk of such funds are been channelled to meeting recurrent or consumption expenditure needs of the country at the expense of productive investments that could stimulate growth.

Based on the findings of this study, the following recommendations were made: firstly, policy makers should ensure that external borrowings are well managed by adopting amongst other debt management strategies '' the debt for equity swap programme''. This would go a long way in reducing our debt service burden as repayment of both principal and interests on the debts are re-invested back in the domestic economy thereby causing a chain-investment effect. This programme would also help in diversifying the export base of the Nigerian economy through the creation and development of export oriented industries thus enhancing not only our local skills and technology but improving the value of the naira as well. Secondly, the government apart from maintaining a stable political terrain should put in place sound policies and institutions that would encourage more efficient utilisation of free financial resources as these are some of the criteria considered in the disbursement of foreign aid by donor governments.

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