



EFFECT OF EXCHANGE RATE AND INTEREST RATE ON FDI AND ITS RELATIONSHIP WITH ECONOMIC GROWTH IN NIGERIA

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Abstract:

This research work focuses on examining the effect of exchange rate and interest rate on FDI and its relationship with economic growth of a developing economy focusing on Nigeria as a case study. An attempt is made to postulate a model based on the assumption that exchange rate and interest rate affect the inflow of FDI and in turn the growth of Nigerian economy. A simple econometric modeling patterned after the Autoregressive Distributed Lag model construct (ARDL) approach was applied to time series annual Nigerian data for a period covering forty eight years. The result revealed that there exist a strong positive relationship between FDI flows and economic growth represented by the GDP. The macro economic variables used in the study showed expected pattern as predicted in literature. The interest rate with negative sign as a priori expected implies that in Nigeria FDIs occurs irrespective of whether or not the interest rate is moving as expected. The result of the exchange rate condition of the country a priori postulated to be positive was confirmed to comply with expectation. The conclusion of the study is that irrespective of how we view FDI, it is still germane to the economic development of a developing country and on the basis of the findings it is recommended that a positive step should be taken.

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1. Introduction

"Please come and invest in my country" Nelson Mandela, 1993; *"We need private capital"* Fernando Henrique Cardoso, 1995; *"Who would have thought that we, so doctrinaire, we who fought foreign investment would one day view foreign investment as an urgent need?"* Fidel Castrol, 1993 (Indra de Soysa 1999). These are some of the few quotes by world leaders giving credence to Foreign Direct Investment and its importance to any economy most especially the developing economy. The vigor with which the Federal government is pursuing attracting foreign investors into the country since the inception of the administration leaves no doubt on the issue of economic growth and development being attached to the success to be achieved through Foreign Direct Investment.

Economic growth and development has always remained an ultimate concern to both the government and the citizenry as a result of its perceived implication on the people and the country in taking its rightful position in the global circle. To back up this claim Adegbite and Ayadi (2010) corroborated that FDI assist in filling the domestic revenue generation gap in a developing economy and thereby been able to generate sufficient fund to meet their expenditure needs. To this extent, the government and the people often strive to employ the right policy that will not only ensure stability but also enhances the growth of the economy. To achieve improved living condition the nation must work very hard to generate sufficient income to ameliorate the per capital income of its citizenry and as well as set apart some of the income for future use. This objective can only be achieved through investment and given the low level of capital formation in less developed countries, thus one of the ways of doing this is to rely primarily on foreign direct investment as a source of external finance to stimulate their economy.

However, the process of globalization marked by a rapid increase in the internationalization of production is a subject of intense interest to scholars in several academic fields. While most economists view the issue of foreign capital as a blessing for LDC, many sociologists and political scientist consider it as a curse seeing it as a manifestation of an exploitative capitalist world system (Amin 1990; Bornchier and Chase-Dunn 1985; Frank 1969; Wallerstein 1974)

The debate between Firebaugh (1996) and Dixon and Boswell (1996a, 1996b) on the influence of foreign investment on economic growth tend to heat up this topic. It is in the light of this imbroglio that this work seeks to know the effect of exchange and interest rate policy on Foreign Investment and the relationship it has with the economy of Nigeria. Specifically the work attempt to investigate the effect that exchange rate and

interest rate exert on attracting FDI and thereby on the development and growth of Nigeria economy.

1.1 Organization of the Paper

The study is organized into five sections. Section one covers the introduction to the study, attempt to state the problem and the objectives which the study aims to achieve. Section two attempts to review the literature on the study and the theories that back up the work. Section three discusses the methodological technique adopted to analyse the study as well as describe the various variables and the model to be used. Section four is devoted to analysis, interpretation and discussion of the various data collected for use in the study. Section five summarizes, conclude and provide policy recommendations.

2. Review of Literature

In the bid to attract foreign direct investment, countries especially the developing countries employ different policy measures to boost their economies through FDI attraction with the thinking that export of capital by the MNC's promotes economic growth by creating industries, transferring technology and fostering a modern perspective in the local population. Others are of the opinion that foreign investment is expected to increase the rate of investment from domestic sources as a result of spillover effect.

In an attempt to achieve this objective of attracting FDI government of most developing economy adopts policies on exchange rate and interest rate that they believe would assist them. However, this position was challenged by Amin and Frank (1974 and 1979) who argued that even if they succeeded in this bid the ownership of capital determines the effect it would have on the underdeveloped economy as an economy controlled by foreign interests would not develop organically. It would grow in a disarticulated manner and the economy would also stagnate. This is the view also shared by Javorcik (2004). Bornschieer and Chase-Dunn (1985) are of the opinion that instead of the FDI boosting the growth of an economy, it recapitalizes developing economies by extracting their economic surplus which is an exploitative thesis brought up against FDI. The position of this school of thought is that if FDI is less productive than domestic capital and if it displaces domestic investment, then it adversely affects economic growth. The larger the FDI's portion in a country's capital mix the slower the growth will be.

This work therefore intends to affirm which of the argument is true in Nigeria case to justify government policy on exchange rate and interest rate.

2.1 Review of Empirical Studies

A large number of empirical studies on the role of FDI in host countries suggest that FDI is an important source of capital which complements domestic private investment and is usually associated with new job opportunities, enhancement of technology transfer and boosts overall economic growth in host countries. However, macroeconomic variables such as foreign exchange rate and interest rate have not constituted an important dimension in the analysis of economic growth as far as the traditional school of thought is concerned. Recent empirical research work has however revealed that there is relationship between these macroeconomic variables and economic growth.

In a model developed by Polterovich and Popov (2006), they demonstrated how exchange rate disequilibrium in the presence of foreign trade externalities could lead to acceleration of growth. The survey of literature of Aghion, Angeletos, Barnerjee and Manova (2004) as cited by Polterovich and Popov (2006) reported a negative relationship between exchange rate volatility and growth.

However, empirical evidences showed that fluctuations in real exchange rate are crucial in explaining the volatility in open economies. Carkovic, Maria and Levine (2003) argue that this volatility is much more harmful for developing countries than for developed economies so that fixed exchange rate regime is preferable for developing economies. Ghosh and Wolf (1997) in their work examining the sample of 136 countries over the period of 1960-1989 find no relationship between observed exchange rate variability and economic growth. Whereas, Balasubramanyam, Venkataraman, Mohammed and Sapsford (1996) in their own investigation reported a positive association between a degree of exchange rates flexibility and economic growth so in essence exchange rate volatility is not in the interest of a developing economy.

De Mello (1999) attempted to find support for an FDI-led growth hypothesis when time series analysis and panel data estimation for a sample of 32 OECD and non-OECD countries covering the period 1970-1990 were made. He estimates the impact of FDI on capital accumulation and output growth in the recipient economy. Whereas, Nair-Reichert and Weinhold (2001) in the work apply mixed fixed and random estimation to examine the relationship between FDI and growth in developing countries and discovered that there is a causal link between FDI and growth. When Ericsson and Irandoust (2001) examined the causal effects between FDI growth and output growth for the four OECD countries applying a multi-country framework to data from Denmark, Finland, Norway and Sweden they could not detect any causal relationship between FDI and output growth. They then suggested that the specific

dynamics and nature of FDI entering these countries could be responsible for these no-causality results.

On whether FDI affect economic growth in Nigeria the empirical reports has not been unanimous, for example Keke, Olomola, and Saibu (2003) in their research work investigated the effect of Foreign Private Investment on economic growth of Nigeria between 1970-2000 using cointegration and error correction mechanism to ascertain whether causality runs between economic growth and foreign capital inflows in the Nigerian economy. The result of their work revealed that causality runs in both directions from economic growth to foreign capital inflows and that foreign private investment could contribute significantly to growth of Nigeria economy. This result is in line the submission of Chete (1998) who examined the determinants of foreign direct investment in Nigeria using an error correction model he found out that in the short run, FDI is sensitive to real growth and lending rates; the inflation rate and the level of public investment an political instability. He therefore suggested the need to moderate the rate of domestic inflation through the implementation of monetary and fiscal policies and the need to ensure political stability.

In a recent work by Omankhanlen (2011) using time series data covering the period between 1980-2009 to determine the impact of FDI on Nigeria economy and the effect two major macroeconomic variables vis a vis inflation and exchange rate has in attracting FDI. The result revealed that FDI has positive effect though not statistically significant on GDP implying that the inflow of FDI into the economy during the time period covered does not have contribute meaningfully to the growth of the economy. The result further showed that although inflation did not have a major effect on FDI inflow, foreign exchange rate had great effect in attracting FDI into the country during the same period covered.

Judith (2007) in her work investigated whether FDI affects economic growth in Nigeria using regression analysis with data about development obtained from World Development Indicators for the period covering 1965-2004. The result of the analysis of Nigeria shows that the relationship between FDI and economic growth is negative. The implication of this is that FDI takes place in extractive industries and MNCs only invest to exploit the natural resources to export them to their home country. MNCs do not invest in relationships with local producers. So, local producers do not benefit from any spillovers.

From the foregoing all empirical works on the effect of FDI on Nigerian economy has been stream lined to reflect exploitative hypothesis of FDI in Nigeria focusing on different aspect of the economy employing either co integration, regression or granger causality test. This study however intends to bridge the gap by examining the effect of

exchange rate volatility and interest rate variation on the performance of FDI in Nigeria in sustaining the growth of the economy.

2.2 FDI Trends and Performance in Nigeria

Today, the FDI story of Nigeria is dominated by the oil industry. It was not always so. At independence, in 1960, there was a widespread FDI presence in the economy. Policy design thereafter narrowed the scope for FDI and decades of political instability, economic mismanagement and endemic corruption further reduced Nigeria's ability to attract and retain FDI. This was compounded by a relentless deterioration of the country's social conditions and physical infrastructure, in spite of increased public revenues generated by the oil sector.

While oil has played an important role in Nigeria, data show that over 70 per cent of the population lives on less than one dollar a day (this represents a quarter of all Africans living in this condition). The manufacturing sector has hardly progressed and only 3 per cent of agriculture is mechanized.

The return to democracy in 1999 has created the opportunity for economic renewal and an associated broader base of FDI. To reap the benefit from FDI, the Government of Nigeria undertook ambitious measures with a view to improve the investment climate. The reform process also takes into account the potential role that could play the Diaspora (close to 5 million Nigerians live abroad). The policy changes have started bearing fruits and if sustained, they will certainly provide an environment more conducive to private investment and contribute to enhance the attractiveness to FDI of Nigeria's large and growing market.

2.3 FDI Size and Growth

FDI flows to Nigeria have been profoundly affected by the development of the oil sector, its world price and the Government's policies in this area.

In 1970, one year before Nigeria joined the Organization for the Petroleum Exporting Countries (OPEC) FDI flows stood at \$205 million. By 1975 they had reached \$470 million. FDI flows also reacted positively to more attractive fiscal terms for private sector participation in oil and gas that were introduced in 1986. The reduction of the Nigerian National Petroleum Corporation (NNPC) stake in Shell Nigeria and other oil companies from 80 to 60 per cent, which took place in 1989 (mergers and acquisition (M&A) data shows \$1 billion worth of such transactions in 1989 after which FDI inflows to Nigeria have never decreased below \$1 billion per year) also had a positive impact.

In the same way, although there are indications that non-oil FDI is rising the correlation between the level of world oil prices and the FDI inflows to Nigeria is

particularly strong. This is especially the case since the early 2000s, when the rise in oil prices undoubtedly explains most of the sharp increase in FDI.

FDI inflows in sectors other than oil were directly affected by the various private sector policies adopted since 1970s. For instance, FDI inflows fell in the aftermath of the Second Indigenization Decree, which pushed many TNCs to divest. Among those were Citigroup, IBM and Barclays Bank in 1979. Restrictions on the entry of non-oil FDI continued until the late 1980s. In 1989, they were partially reversed, which contributed to the shift in the levels of FDI after that year. However, it was not until 1995 that the National Investment Promotion Act opened virtually all areas of the economy to foreign investors. This was accompanied by the Foreign Exchange Decree, which eased access to foreign exchange for business purposes. More recently, the improved macroeconomic environment and the reforms to the business environment explain the increase in non-oil FDI.

Between 1970 and the mid – 1990s, Nigeria as the primary destination of FDI inflows to Africa accounted for more than 30 per cent of all FDI inflows to the continent. This is largely a result of its oil attractiveness. However, in 2007, notwithstanding the booming oil industry, Nigeria accounted for only about 16 per cent of total FDI inflows to Africa. Its leading role in terms of attracting FDI started eroding due to the surge of FDI inflows to other oil rich countries, such as Angola and Sudan. Another factor is the improved FDI performance of other large African countries such as Egypt and South Africa, which were successful in attracting FDI in diverse sectors of their economies.

Given its population, Nigeria's recent underperformance in FDI attraction within Africa is becoming more pronounced in the first half of the 1990s, per capita FDI inflows were higher in Nigeria than in any other African country with the exception of Angola and Equatorial Guinea. Thereafter, other African countries began to catch up. In the most recent period (2001–2007), the average per capita FDI inflows to other large African countries and other oil producers in the continent all exceeded those to Nigeria. This indicates that Nigeria is not sharing fully the growing non-oil FDI to the continent.

Nigeria is the dominant recipient of FDI within the Economic Community of West African Countries (ECOWAS) group accounting for more than 70 per cent of the group inflows since 2001, in the 1970s, Nigeria attracted about half of the FDI inflows to the region. The increased Nigeria share since then reflect both the less restrictive conditions for oil FDI and the growing foreign interest for the sector. In terms of absolute FDI stock, Nigeria remains second only to South Africa in the continent with \$63 billion and \$93 billion respectively. In per capita terms, however, its relative underperformance is evident, and while its stock (\$424) is at par with the African average (\$405), it is much smaller than that of other oil-producing countries, and of

South Africa and Egypt. FDI to Nigeria is nonetheless a key contributor to the country's capital accumulation. During 2001–2007 FDI accounted for more than half the gross fixed capital formation (GFCF) compared to an average of around 15 per cent in the rest of Africa, and 12 per cent for developing countries as a group.

3. Research Methodology

This research work focuses on examining the effect of exchange rate and interest rate on FDI and its relationship with economic growth of a developing economy focusing on Nigeria as a case study. This research work adopted simple econometric modeling patterned after the distributed lag model construct. Autoregressive distributed lag (ARDL) approach was used to co integrate the estimated model. The method was applied to time series annual Nigerian data derived from 1960 through 2008. The data were transformed into natural logarithms with the hope of reducing the effect of possible econometric problems; especially serial correlation, heteroscedacity, functional forms and multicollinearity.

3.1 Model Specification

An attempt is made to postulate a model based on the assumption that exchange rate and interest rate affect the inflow of FDI and in turn the growth of Nigerian economy. A simple econometric modeling patterned after the Autoregressive Distributed Lag model construct (ARDL) approach was applied to time series annual Nigerian data for a period covering forty eight years. Autoregressive distributed lag (ARDL) models were commonplace in energy analysis until the 1980s. Then the introduction of unit root and cointegration methods, which found that some regressions may be spurious if the time series properties of variables are not examined, almost dismissed the ARDL model as inappropriate. The 'revival' of ARDL methods came in the late 1990s with the aid of work by Pesaran, Shin and Smith (Pesaran et al., 2001). The ARDL approach involves testing whether a long-run relationship exists among the variables involved in a model.

The model is based on the reasoning that the growth of an economy represented by the GDP is a function of Foreign Direct Investment and some macroeconomics variables such as the exchange rates and interest rate which have direct effect on the FDI and indirect effect on the economic growth and development of a nation as depicted by the following econometric model:

$$GDP = f(FDI) \dots \dots \dots (1)$$

$$FDI = f(EXR, INTR) \dots \dots \dots (2)$$

The Equation can be rewritten to read:

$$\text{GDP} = b_0 + b_1X_1 + E \dots \dots \dots (5)$$

$$\text{FDI} = \beta_0 + \beta_1Y_1 + \beta_2Y_2 + E \dots \dots \dots (6)$$

Where;

GDP= Gross Domestic Product

FDI= Foreign Direct Investment

EXR= Exchange Rate

INTR = Interest Rate

$b_0, b_1, b_2, \beta_0, \beta_1 \dots \dots b_3, \beta_2$ = Beta weights

X_1 = Foreign Direct Investment

Y_1 = Exchange Rate

Y_2 = Interest Rate

E = Errors

The dependent variable is the traditional determinant income which is represented by the real Gross Domestic Product measured in 1990 value.

The model written above will be regressed to know the collective effect of all determinants of the independent variable on the income of the nation. Thereafter holding down others, the effect of each determinant and the relationship it has with the dependent variable and FDI will be measured using ordinary least squared (OLS) method. Income represented by the real GDP is the most commonly used determinant to measure the growth of an economy and is expected to have a positive relation with gross fixed capital formation and foreign investment in line with Keynesian investment theory.

4. Data Analysis, Result Presentation and Interpretation

The model earlier stated is estimated, analyzed and interpreted to investigate the effect of exchange rate and interest rate on FDI and its relationship with economic growth of Nigeria using simple econometric model.

The time series property of the data on the variables used in the model was investigated by carrying out a Phillips-Peron Unit Root test on the variable. Multicollinearity is not present and the problem of auto correlation is corrected by including an auto regressive term.

4.1 Test of Hypotheses

Hypothesis: There are no significant relation between exchange rate and interest rate and the FDI been attracted to the economy.

The result of the effect of each determinant microeconomic variables and the relation it has with dependent variable showed that interest rate is revealed to be negatively related to the dependent variables.

Table 1: Regression Result Showing Relationship of Macroeconomic Variables with the GDP

Variables	Co-efficient	Beta Coefficient	t-statistics	Prob.	F- Statistics	Sig
FDI	8897.805		.758	.452	111.968	.000
Exchange Rate	1809.334	.916	13.145	.000		
Interest Rate	-168.329	.010	-.141	.888		

Source: Author's Computation 2008

$$FDI = 8897.81 + -168.329 INTR + 1809.334EXR$$

From Table 1, the beta coefficient -168.329 and t-value of -.141 (0.888) were not significant at 10% level of confidence revealing less than ten percent contribution of interest rate to FDI attraction. The negative sign confirms the a priori expectation as postulated in the literature.

Exchange rate is another variable postulated to be positive in literature and the beta coefficient result of 1809.334 and t-value of 13.145 (.000) is highly significant at 1% level of confidence revealing that exchange rate contribute about ninety nine percent to FDI attraction to the economy.

4.2 Summary and Implication of Findings

The study was aimed at investigating the effect of exchange rate and interest rate on Foreign Direct Investment and the growth of the economy of Nigeria. The result of the data analysis revealed that there is a strong positive relationship between Foreign Direct Investment and the economic growth. This showed that the inflows of FDI reasonably affect the level of growth of the economy with the level of correlation and the positive sign between the two variables in line with the work of Keke et al (2003).

The selected macro-economic variables used in the test showed expected pattern as predicted in literature. The interest rate however, with negative sign as a priori expected since lower interest rate would encourage FDI ceteris paribus revealed that the observed level of encouragement was not seen to be significant. Conventionally it was expected that FDI performance would ginger the trends of interest rate movement, but the result indicated otherwise. This implies that in Nigeria FDIs occurs irrespective of whether or not the country is growing as expected. These also suggest behaviour along the line of exploitable benefit hypotheses.

The result of the exchange rate condition of the country a priori postulated to be positive was confirmed to comply with expectation but the implication of the behavior here in Nigeria seems to be in line with the tenets of exploitable hypotheses and profitable alternative hypotheses.

Certain behavior patterns are observed in the light of these results. One of such is that MNCs invest in developing countries in order to exploit certain benefits which present themselves in these economies such as changes in exchange rates that depreciate the host currency. They occur in response to the need to exploit benefits associated with persistent rise in domestic prices of goods and services. They occur as they want to operate in markets that appear to be more profitable than their congested home markets.

5. Conclusion and Recommendations

The conclusion of the study is that irrespective of how we view FDI, it is still germane to the economic development of a developing country and on the basis of the foregoing findings, the following recommendations are made.

A positive step should be taken to encourage indigenous companies to understudy and learn the process and strategies of the MNCs. In doing this, the government should utilize to advantage the employment and labour policies by making sure that indigenous hands are trained to occupy responsible positions. By so doing Nigerians will learn to do things by herself and competently hold the forte.

Efforts should also be made the government to do something about the exchange rate condition of the country by avoiding acts that can undermine healthy economic objectives of the Nation such as the CBN coming harder on the penalties on the erring banks that operate in the foreign exchange market outside its directives. The idea of making huge gains from the FOREX market should be jettisoned. Government interest should be to make the market more viable and economically patriotic.

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