

Domestic Investment, Foreign Direct Investment and Macroeconomic Stability in Nigeria



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ABSTRACT: This study examines the relationship between the two major investment components (domestic investment and foreign direct investment) and macroeconomic stability in Nigeria. In order to capture the macroeconomic stability, some selected macroeconomic variables are presented, namely: real GDP growth rate (RGDPgr), trade openness (TOP), exchange rate (EXR), inflation rate (INFR), interest rate (INTR), private sector credit (PSC) which represent domestic variables and world oil price (WOP) which represent foreign variable. The study employs Johansen cointegration and Vector Autoregressive model as the estimation techniques. Findings from the study reveals that there is no long-run relationship between the selected macroeconomic variables and the two investment variables. The study also reveals that shocks and fluctuations from real GDP growth rate (RGDPgr), private sector credit (PSC), inflation rate (INFR), interest rate (INTR), exchange rate (EXR) and world oil price (WOP) strongly and significantly affect domestic investment in Nigeria; while the shocks and instabilities arising from real GDP growth rate (RGDPgr), inflation rate (INFR), interest rate (INTR), exchange rate (EXR), trade openness (TOP) and world oil price (WOP) majorly and significantly affect foreign direct investment in Nigeria during the period under review. The study therefore recommends that Nigerian government should provide stability measures in all the aforementioned macroeconomic indicators, as this will attract a higher level of FDI and this will create an enabling business environment for domestic investment to operate.

KEYWORDS: Domestic Investment, Foreign Direct Investment, Macroeconomic Stability, Johansen Cointegration, Vector Autoregressive

1. INTRODUCTION

Domestic investments are regarded as investment in the companies and products of someone's own country rather than those in foreign countries. Domestic investments are vital tools for innovation, economic growth and poverty reduction. Countries who have wider and well-organized domestic investment often exhibit strong economic growth, provide more job opportunities, generate more revenue and enhance the living standard of the poor through increasing their incomes. There is a broad consensus as regard to the need for promoting domestic investment development and increasing its share of total investment for long-term growth.

Foreign direct investment according to the United Nation refers to investment in enterprise located in one country and effectively being controlled by the residents of another country. FDI inflows play a vital role in host countries as it stimulates technology spill-over, enhances human capital formation, brings about foreign trade integration, helps create a more competitive business environment and strengthen enterprise development (Chakrabarti, 2001). Foreign direct investment may influence growth in two ways: First, it enhances total investment by attracting higher level of domestic investment and second, through the interaction of more advanced technology with the hosts human capital (Borensztein, De Gregorio and Lee, 1998)

Macroeconomic stability plays an important role in providing an enabling environment that would make domestic investment and foreign direct investment to thrive in contributing to an economic growth of a country. Akinlo (2004), posited that for any country to enjoy the full benefits of domestic investment and foreign direct investment, the country must first strengthen its macroeconomic indicators as this will determine the enhancement of domestic investment and attractiveness of foreign direct investments into the country. Broad consensus has revealed that both domestic investment and foreign direct investment can only thrive in a country where there is macroeconomic stability and low investment risk in terms of stable price, low interest rate, stable exchange rate and high GDP (Akinlo, 2004 and Asongu, 2018).

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Over the years, Nigerian government has strived so hard in improving the economic growth of the country through the enhancement of domestic investment and encouragement of the inflows of foreign direct investment. Different macroeconomic and institutional policy steps have been taken by each of the Nigerian government administration, part of which is the reduction in the regulatory constraints in order to attract foreign investors. In addition, Nigerian government has spent heavily on national defense and security in order to create business enabling environment for both domestic and foreign direct investment.

Despite all these business-friendly policies made by the federal government of Nigeria to boost domestic investment and attract foreign direct investment, the growth of domestic investment and inflows of foreign direct investment and their contributions to GDP has been very low and inconsistent. Domestic investment declined from 10.1 percent of GDP in 2013 to 9.6 percent in 2015. Thereafter, it declined continuously to 8.6 percent for three consecutive years (2016-2018) (Asongu, 2018). In addition, foreign investors still consider investing in Nigerian economy as highly risky due to a high level of macroeconomic disequilibrium arising from inflictions on some macroeconomic fundamentals. For examples, the rate of dwindling oil price which is as a result of decline in the global oil price is worrisome. This situation has impacted negatively on our foreign reserve thereby causing drastic decline in the GDP growth rate (Asongu, 2018).

Numerous empirical studies, for instance Uwabamwen and Ogremudia (2016), Apergis, Katrakilidis and Tabakis (2006), Agrawal (2015) have investigated the relationship among domestic investment, foreign direct investment and growth, emphasis of these research works have always been on how domestic investment and foreign direct investment affect economic growth or how the two investment components affect some other macroeconomic variables. Even, Ndubusi (2017), Obidike and Uma (2013) who took pain to investigate the impact of macroeconomic variables on investment, only examined the impacts on foreign direct investment without consideration for domestic investment. Very scanty research works have been done on how economic growth and some macroeconomic fundamentals affect domestic investment and foreign direct investment. This paper therefore attempted to fill this gap by investigating on how foreign and domestic macroeconomic fundamentals affect the two prominent investment components (i.e domestic and foreign direct investment) in Nigeria.

The remaining aspect of the paper include section two which discusses a brief review of literature, section three captures the research method while section four presents the discussion of findings. Section five discusses the conclusion and policy recommendation of the study.

2. LITERATURE REVIEW

Uwabamwen and Ogiemudia (2016) investigated the impact of foreign direct investment on economic growth in Nigeria with annual time series data spanning the period 1999 to 2013. By employing Error Correction model as their estimation techniques, results in the study confirm that foreign direct investment has both immediate and time lag effect on Nigeria economy in the short-run but has a non-significant negative impact on the Nigeria economy in the long-run.

Agrawal (2015) examined the relationship between foreign direct investment and economic growth in Brazil, Russia, India, China and South Africa which comprise of the five BRICS economies. Using cointegration and causality estimation techniques to analyze the data between 1989 and 2012, their findings revealed the presence of long-run equilibrium relationship between FDI and economic growth. Results from causality test equally confirmed that there is long-run causality running from FDI to economic growth.

Ndubusi (2017) examined the impact of macroeconomic variables on foreign direct investment in Nigeria within the period of 1981 to 2014. The study employed VECM granger causality test as the estimation technique which revealed that there is a long-run unidirectional causality between FDI and real GDP but causality does not run from any direction in the short-run. Also, the results confirm that there is bidirectional causality between FDI exchange rate but there is no causal relationship in the short-run. The study also revealed that there is unidirectional causality from inflation proxied by consumer price index to FDI in the short-run.

Obidike and Uma (2013) examined the impact of macroeconomic variables on foreign direct investment in Nigeria for the periods, spanning between 1975 and 2009. By employing Johansen Cointegration test as the estimation techniques, the study revealed that there is a long-run relationship between some selected macroeconomic variables and FDI. The study further showed that the selected macroeconomic variables have significant impact on FDI.

Apergis, Katrakilidis and Tabakis (2006) analyzed the dynamic relationship between FDI inflows and domestic investment for a panel of thirty African countries. The study revealed that the inflows of FDI crowd in domestic investment in a univariate model, but FDI inflows crowd out domestic investment in a multivariate model. Also, Agosin and Machado (2005) investigated the crowding out and crowding in effects of FDI inflows on domestic investment for twelve developing countries of Latin America,

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Africa and Asia. The study revealed that FDI displaced domestic investment in Latin America but was independent in Africa and Asia.

Bayraktar and Fofark (2011) examined the capital accumulation in sub-Saharan Africa involving income-group and sector differences with a sample of twenty-five SSA countries during structural adjustment era with data set from 1980-2004. The study employed regression analysis to estimate empirical specifications of private capital in the primary industry and service sectors. The results indicated that the level of GDP per capita, quality of governance and public capital stock were found to be positive and significantly influence the private capital accumulation, reflecting the complementary effects between public and private investments.

Bayai and Nyangara (2013) examined the determinants of domestic investment after the introduction of the multi-currency system in Zimbabwe for the period of 2006 to 2011. The study employed correlation and multiple regressions. The study identified political risk, interest rate, GDP, debt servicing and trade terms as key determinants of private investment over the study period.

3. RESEARCH METHOD

i Theoretical framework

The framework of this research work depends on the theory of flexible accelerator which was propounded by Chanery (1952) and Koyck (1954). This theory states that an increase in the rate of output of a firm will require a proportionate increase in its capital stock. The capital stock refers to the desired of optimum capital stock, K_t . Let's assume that capital-output ratio is constant V , the optimum capital stock is a constant property of output, so that in any period t ,

$$K_t = VY_t \dots \dots \dots 1$$

Where K_t is the optimal capital stock in period t , V (the accelerator) is a positive constant and Y is output in period t .

Any change in output will lead to a change in the capital stock, thus

$$K_t - K_{t-1} = V(Y_t - Y_{t-1}) \dots \dots \dots 2$$

Note that change in capital is equal to investment i.e

$$\Delta K = I \dots \dots \dots 3$$

Therefore:

$$I = K_t - K_{t-1} \dots \dots \dots 4$$

$$I_t = V(Y_t - Y_{t-1}) \dots \dots \dots 5$$

Where $\Delta Y_t = Y_t - Y_{t-1}$ and I_t is the net investment

ii Model Specification

Based on the theoretical proposition of flexible accelerator theory which was originated by Chanery (1952) and Koyck (1954), the model for this study is therefore specified in two equations as follows:

$$\Delta DI_t = \sum_{k=0}^p \theta_k \Delta EXR_t + \sum_{k=0}^p \alpha_k \Delta TOP_{,t} + \sum_{k=0}^p \gamma_k \Delta GDPgr_t + \sum_{k=0}^p \mu_k \Delta INFR_t + \sum_{k=0}^p \pi_k \Delta INTR_t + \sum_{k=0}^p \beta_k \Delta PSC_t + \sum_{k=0}^p \varepsilon_k \Delta WOP_t + \varepsilon_t \dots \dots \dots 6$$

$$\Delta FDI_t = \sum_{k=0}^p \theta_k \Delta EXR_t + \sum_{k=0}^p \alpha_k \Delta TOP_{,t} + \sum_{k=0}^p \gamma_k \Delta GDPgr_t + \sum_{k=0}^p \mu_k \Delta INFR_t + \sum_{k=0}^p \pi_k \Delta INTR_t + \sum_{k=0}^p \beta_k \Delta PSC_t + \sum_{k=0}^p \varepsilon_k \Delta WOP_t + \varepsilon_t \dots \dots \dots 7$$

Where:

DI is the Domestic Investment

FDI is the Foreign Direct Investment

EXR is the Exchange Rate

TOP is the Trade Openness (Export plus Import divided by the GDP)

RGDPgr is the Real Gross Domestic Product growth rate

INFR is the Inflation Rate

INTR is the Interest Rate

PSC is the Private Sector Credit

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WOP is the World Oil Price

ε_t is the Vector error term

iii Sources of Data

The data for this study consists of quarterly secondary data and spans through the period of 1980Q1 to 2018Q4. Data on trade openness and private sector credit are sourced from Central Bank of Nigeria statistical bulletin. Data on domestic investment, foreign direct investment, exchange rate, Real GDP growth rate, inflation rate and interest rate are sourced from World Bank data base, while data on World Oil Price is sourced from IMF world economic outlook statistical bulletin.

4. RESULTS AND DISCUSSION

i Unit Root Test Results

This part tested individual characteristics of the variables. This was done through the unit root test which was used to examine the stationarity of the series. Specifically, Philip-Peron unit root test was used to ascertain the order of integration of variables. The Philip-Peron unit root test result is presented in the table 1 below:

Table 1: Philip-Perron Unit Root Test

Variables	Philip-Perron Unit Root Test		
	T-statistics	P-value	Order of Integration
DI	-3.645911	0.0095	I(1)
FDI	-3.647316	0.0095	I(1)
EXR	-4.109648	0.0029	I(1)
TOP	-9.788395	0.0000	I(1)
GDPgr	-4.545586	0.0009	I(1)
INFR	-6.895555	0.0000	I(1)
INTR	-5.947880	0.0000	I(1)
PSC	-4.094601	0.0000	I(1)
WOP	-6.656590	0.0000	I(1)

Source: Author's Computation

(***) refers to the statistical significance at 1%. Each model includes trend and constant term.

In the table 2 above, the results show that all the variables are non-stationary at levels, but are stationary at their first difference, at 1% level of significance. This implies that all the variables are integrated of order one i.e I(1) and any shock or disturbance to the variables will die out over time.

ii Johansen Cointegration Test

Following the results of unit root test that depicted that all variables are stationary at their first difference, it is therefore pertinent to establish the cointegrating relationship among the variables. The motives behind knowing the cointegration among the variables is to ascertain the appropriateness in the use of Vector Autoregressive (VAR) or otherwise, Vector Error Correction Mechanism (VECM). Based on the postulation of Sims (1980), VECM can be used when there is cointegrating relationship among the variables, but if there is no long-run relationship among the variables then, Vector Autoregressive (VAR) model is fit to use because it gives consistent estimates in such situation. The Johansen cointegration test is therefore presented in the table 2 below:

Table 2: Johansen Cointegration Test

Maximum Rank	Eigenvalue	Trace Statistics	5% Critical Value
0	0.919991	191.1566	197.3709
1	0.859532	149.7599	159.5297
2	0.815383	112.0626	125.6154
3	0.738570	91.9311	95.75366
4	0.570132	64.97553	69.81889
5	0.353136	35.42580	47.85613
6	0.288913	20.17914	29.79707
7	0.209490	8.245532	15.49471

Source: Author's Computation

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The results of Johansen cointegration test in the table 2 above depicted that the values of all vectors in the trace statistics are less than the critical values at 5% level of significance. This implies that the null hypothesis of no cointegration is accepted for this study and it means that there is no long-run relationship among all the variables during the period under review.

iii Vector Autoregressive Impulse Response Function and Variance Decomposition

In as much as the exact long-run relationship cannot be established in the Johansen cointegration test among the selected variables, it is therefore fit to say that the employment of Vector Autoregressive model in this study is appropriate and justifiable, Sim (1980). Both the VAR impulse response functions and variance decomposition are presented in the figures and tables below respectively.

Figure 1: Response of Domestic Investment to some Selected Macroeconomic Variables

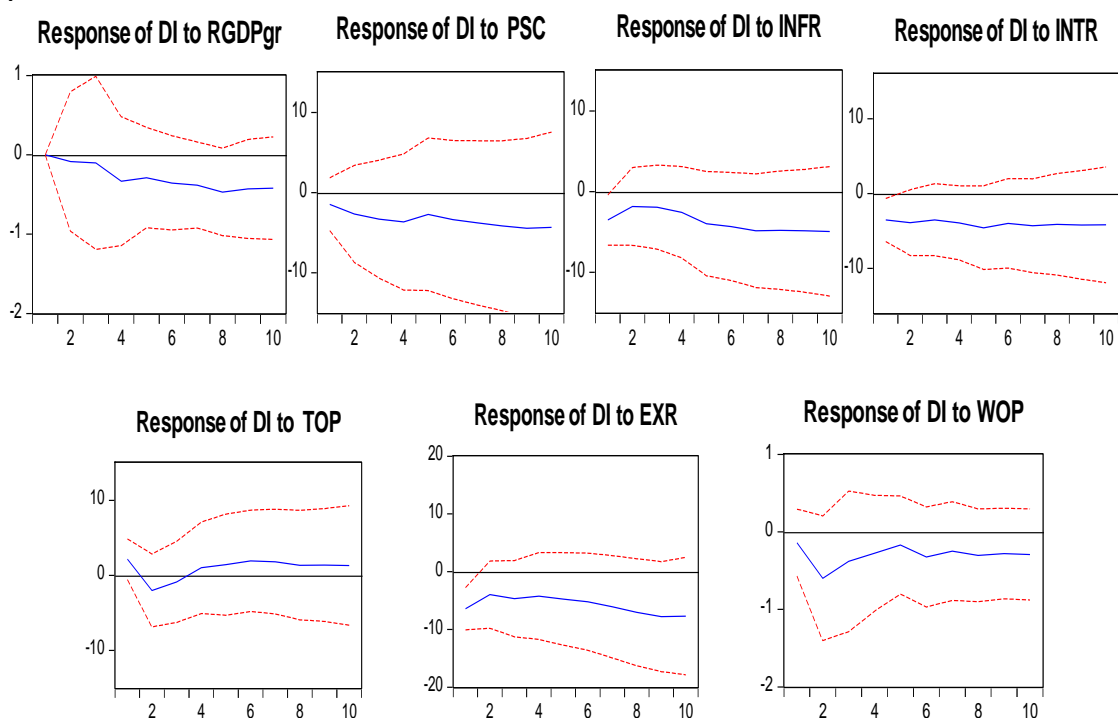


Table 3: Variance Decomposition of Domestic Investment with respect to some Selected Macroeconomic Variables.

Period	S.E	RGDPgr	PSC	INFR	INTR	TOP	EXR	WOP
3	2.770652	0.353184	0.854334	0.834785	0.369563	0.102511	0.298142	0.641272
6	2.857481	0.321219	0.812886	0.751568	0.355112	0.341921	0.279472	0.592148
9	2.913119	0.208937	0.616414	0.410708	0.282090	0.384402	0.244770	0.413419
12	2.926496	0.160498	0.248484	0.037362	0.144173	0.461416	0.198894	0.243142

Source: Author's Computation

Figure 1 above showed the response of domestic investment to some selected macroeconomic variables in Nigeria. Also, in a bid to complement the result of impulse response function in figure 1 above, table 3 showed the variance decomposition of domestic investment with respect to some selected macroeconomic variables in Nigeria. Result from the figure 1 revealed that the response of domestic investment (DI) to a standard deviation shock from real GDP growth rate (RGDPgr), private sector credit (PSC), inflation rate (INFR), interest rate (INTR), exchange rate (EXR) and world oil price (WOP) is negative and significant in Nigeria. This result equally aligned with the result of variance decomposition in table 3, in which the shock from RGDPgr, PSC, INFR, INTR, EXR, and WOP explained about 35%, 85%, 83%, 36%, 29% and 64% variation in domestic investment (DI) in the third quarter respectively. But the innovative power decreased significantly to about 16%, 24%, 3%, 14%, 19% and 24% respectively during the 12th quarter. However, the case is different for trade openness (TOP) as the shock from it exerted positive and significant effect on domestic investment (DI) in Nigeria. This result also conformed to the result of variance decomposition shown in the table 3, in which the shock from TOP explained about 10% variation in domestic investment (DI) during the 3rd quarter, but the proportionate explanation power increased significantly to about 46% in the 12th quarter.

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Figure 2: Response of Foreign Direct Investment (FDI) to some Selected Macroeconomic Variables.

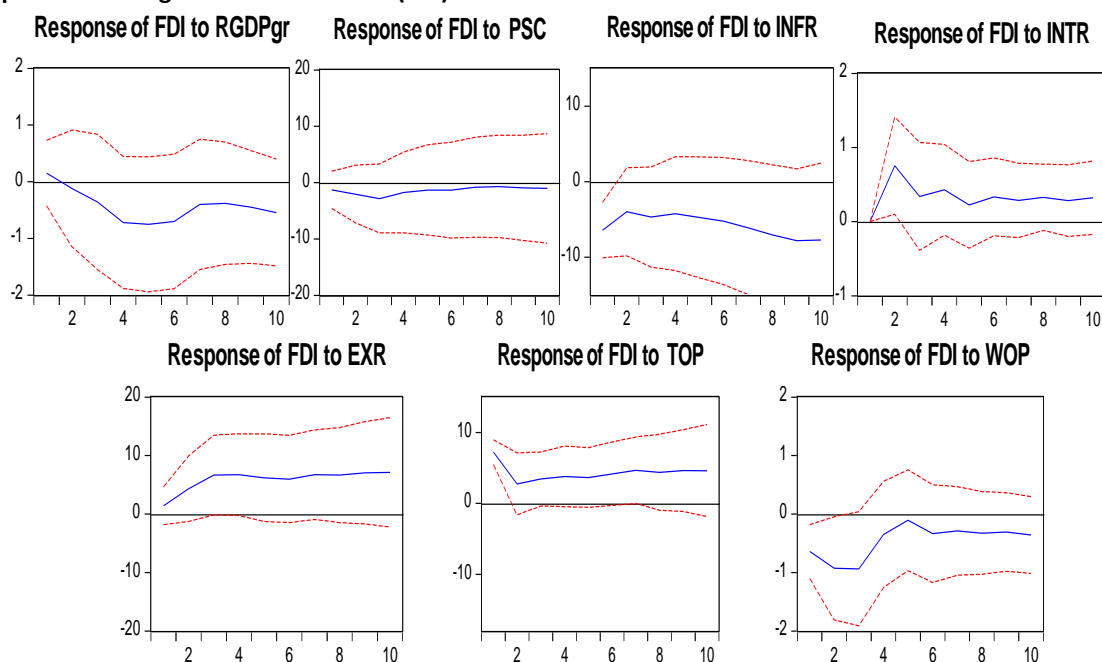


Table 4: Variance Decomposition of Foreign Direct Investment (FDI) with Respect to some Selected Macroeconomic Variables

Period	S.E	RGDPgr	PSC	INFR	INTR	TOP	EXR	WOP
3	1.791286	0.731402	0.086646	0.501894	0.341201	0.178421	0.249862	0.532141
6	1.813688	0.592456	0.062128	0.321412	0.481965	0.192401	0.432146	0.201984
9	1.827282	0.246214	0.030068	0.301421	0.564192	0.354112	0.312414	0.214921
12	1.830596	0.162481	0.030177	0.124021	0.710614	0.563401	0.483410	0.200141

Source: Author's computation

Figure 2 above depicted the response of foreign direct investment (FDI) to the shocks from some selected macroeconomic variables in Nigeria. Results from the figure confirmed that the response of FDI to a standard deviation shock from RGDPgr, PSC, INFR and WOP is negative and significant in Nigeria. This result is consistent with the result of variance decomposition in table 4, in which the shock from RGDPgr, PSC, INFR and WOP accounted for about 73%, 8%, 50% and 53% variation in FDI respectively during the 3rd quarter in Nigeria, but the innovative power decreased significantly to about 16%, 3%, 12% and 20% respectively during the 12th quarter in Nigeria. The result is totally different in the case of INTR, TOP and EXR as the response of FDI to a standard deviation shock from these macroeconomic variables is positive and significant in Nigeria. The result is equally in agreement with the variance decomposition results in which the shocks from INTR, TOP and EXR explained about 34%, 17% and 24% variation in FDI respectively in the 3rd quarter, but the proportionate explanation power increased significantly to about 71%, 56% and 48% respectively during the 12th quarter.

iv Discussion of Findings

In a bid to avoid spurious regression in this study, the order of integration of the variables were tested using Philip-Peron unit root test. The result confirmed that all the variables are stationary after their first difference which indicates that any disturbance or shock to the variables will not be sustained for a long period of time. This result is equally a justification for all the variables to have satisfied the requirement for Johansen cointegration. The results of Johansen cointegration revealed that there is no co-movement between the macroeconomic variables and the two investment variables (i.e domestic investment and foreign direct investment) in the long-run during the period under review in Nigeria. The evidence of no long-run relationship in the Johansen cointegration test further confirmed the justification and appropriateness in the use of Vector Autoregressive (VAR) test in this study (Sims, 1980).

Findings from the result of both VAR-impulse response function and variance decomposition in this study revealed that the responses of both domestic investment (DI) and foreign direct investment (FDI) to a standard deviation shock from real GDP growth rate (RGDPgr) is negative and significant. This is an indication that economic growth appears to be a strong determinant of domestic investment and foreign direct investment in Nigeria and the negative impact implies that the economic downturn and a decrease in the rate of economic growth have been responsible for the cut in the inflows of FDI and private domestic investment in Nigeria (Adigwe, Ezeagba and Francis, 2015)

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In addition, the negative and significant response of domestic investment (DI) to a standard deviation shock from private sector credit (PSC) might be attributed to underdeveloped financial intermediation which has made it difficult for the banks to support domestic investors in Nigeria (Asien and Oriavwote, 2013). However, the response of foreign direct investment (FDI) to the shock from private sector credit (PSC) is negative but insignificant in Nigeria.

Findings from the results of the VAR impulse response function and variance decomposition showed that the response of both domestic investment (DI) and foreign direct investment (FDI) to a standard deviation shock from inflation rate (INFR) is negative and significant in Nigeria. This finding might be hinged on the price distortions caused by the inflationary environment in Nigeria. This finding also aligns with the work of Akinboade (2006) who posited that instability and uncertainty as a result of price distortions caused by the inflationary environment has resulted to a decline in the returns of domestic and foreign direct investment in Nigeria.

Furthermore, findings in this study also revealed that the effect of the shock from interest rate on domestic investment is negative and significant. However, this is quite different in the case of foreign direct investment as its response to a standard deviation shock from interest rate (INTR) is positive and significant. This finding might be linked to the fact that a higher interest rate often increases the demand for investment in the host country by the foreign investors (Gross and Trevino, 1996). Also, the response of foreign direct investment (FDI) to a standard deviation shock from exchange rate (EXR) is positive and significant in Nigeria. This finding might be attributed to the fact that higher exchange rate volatility increases the relative wealth of foreign investors and thereby stimulate FDI inflows into the host country (Cleeve, 2004). But reverse is the case for domestic investment (DI) as its response to a standard deviation shock from exchange rate (EXR) is negative and significant. The reason for this finding might be related to the high volatility of exchange rate which may results to balance of payment crises and current account deficit and later leads to a large cut in domestic investment (Froot and Stein, 1991).

Another very important finding in this study is the response of both domestic investment and foreign direct investment to a standard deviation shock from world oil price (WOP) which is negative and significant. The possible reason for this finding might be connected to the vulnerability of Nigerian economy to the global oil price shock which is as a result of the fluctuation of the international oil prices. This finding is consistent with the report of Umar and Abdulhakeem (2010) who posited that the volatility and uncertainty that are associated with the Nigerian oil earnings have really resulted to unpredictable investment environment for both domestic and foreign investors, the situation which has contributed to a large cut in both domestic and foreign direct investment.

Lastly, finding from the result equally revealed that a standard deviation shock from trade openness (TOP) exerted positive impacts on both domestic and foreign direct investment. Although, the impact of the shock is significant on foreign direct investment (FDI), but insignificant on domestic investment. The positive impact of trade openness (TOP) shock is in agreement with the position of Chakrabarti (2001) who asserted that the higher the level of trade openness, the greater it is geared towards external market which will be more linked to the foreign capital.

5. CONCLUSION AND POLICY RECOMMENDATION

Following the results and findings in this research work, this study concludes as follows: First, there is no co-movement in the long-run between the macroeconomic variables and the two major investment components (i.e domestic investment and foreign direct investment) in Nigeria during the period under review. Second, shocks and fluctuations from real GDP growth rate (RGDPgr), private sector credit (PSC), inflation rate (INFR), interest rate (INTR), exchange rate (EXR) and world oil price (WOP) strongly and significantly affect domestic investment in Nigeria; while the shocks and instabilities arising from real GDP growth rate (RGDPgr), inflation rate (INFR), interest rate (INTR), exchange rate (EXR), trade openness (TOP) and world oil price (WOP) majorly and significantly impact foreign direct investment in Nigeria during the period under review.

In the light of this, this study therefore recommends that Nigerian government should provide stability in all the aforementioned macroeconomic indicators, as this will attract a higher level of FDI and this will create an enabling business environment for domestic investment to operate.

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