

## THE IMPACT OF INSECURITY ON FOREIGN DIRECT INVESTMENTS: EVIDENCE FOR NIGERIA

Mika'ilu Abubakar<sup>1</sup>, Saidu Tanko<sup>2</sup> & Aisha Mohammed Abubakar<sup>2</sup>

<sup>1</sup>Department of Economics, Usmanu Danfodiyo University, Sokoto.

<sup>2</sup>Department of Economics, Sokoto State University, Sokoto.

Corresponding Author's email: mikabakr@yahoo.co.uk



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### ABSTRACT

*The consequences of insecurity and terrorist activities are not limited to physical injuries, loss of lives and destruction of assets, it also affect the economy directly and indirectly and via second round effect. Insecurity raises tension, it creates confidence crisis and generally retards safety assurances of lives and properties. Experiences in countries like Pakistan and Liberia shows that terrorism did not only discourage FDI inflows but also encourages FDI outflows. Nigeria in the last decade has been fighting an increasing ceaseless war especially against militants in the Niger Delta and boko haram terrorist group in the northern part of the country. This was at a time when the country has become one of the most preferred investment destinations on the African continent. This study primarily investigates the impact of insecurity on foreign direct investment outflow in Nigeria over the period 2005-2015, by employing time series analysis. Our major variables of choice include FDI outflows (dependent variable) and Defense and Security Vote (DSV) as independent variable. Economic growth (GDP), exchange rate (ER) and trade openness were incorporated into our model as control variables. Our result revealed that there exist a long-run relationship between FDI outflow (FDI-O) and DSV – the proxy for insecurity. The study also revealed that causality run from DSV to FDI-O.*

**Keywords:** Insecurity, Foreign Direct Investment Outflow

### 1. Introduction

One of the immediate side effects of insecurity is that it creates crisis of confidence along with uncertainties on the safety and security of lives and properties at all levels. In terms of commercial activities, insecurity destroy investor confidence, it encourages mass exodus of local and foreign companies and immediately retards the inflows of foreign capital meant for investment (Khalil and Musa, 2014). Apart from destroying physical

infrastructure and diverting government expenditure, insecurity also slows down domestic and international business activities of a country (Rasheed and Muhammad, 2012).

The term terrorism (insecurity) can be defined as any act of violence that involves threats such as kidnapping, intimidations, as well as killing of innocent people and destruction of properties carried out by a group of people with common interest and

objectives in order to achieve their targets (Mandela, 1989). In view of this definition, the message is that at any point in time where the security of lives and properties is under serious threat, the second round effect of that is immediately translated on the size of national investment and on the economy as a whole. This is because it is presumed that whatever undermines investment will directly or indirectly undermine productivity; and whatever undermines productivity would also undermine national output and the growth potentials of that economy. This concept is further clarified in the work of Azgum and Ozbe (2011), they opined that a country could have all the required social and economic factors that attract foreign investors from population size, availability of market, cheap labour and input resources and a long list of others; for as long as there is no investor confidence on the safety and security of capital, not only will it discourage FDI inflows, but will also encourage local companies to migrate, increase unemployment and poverty rates as well as retard the general quality of life.

Although Nigeria has fought many battles since independence, the memorable ones include the civil war (1967-1970), *maitatsine* in Kano (during the 1980s) and Niger-Delta militancy (between 2007 and 2011). But on a comparative scale in terms of confidence crisis and uncertainties on the security and safety of lives and properties, the period 2009-2014 was absolutely unmatched. Ever since the activities of boko haram rose to a boiling point from 2009 to date, even the security personnel could not defend themselves.

Apart from human lives lost and the destruction of assets and properties of higher commercial values, the growing activities of insurgents in the country had also turned the country into a very risky investment destination. Today in Nigeria apart from the

public sector, foreign companies are the biggest employer of labour especially in communication, construction, oil and gas and a long list of others. With reference to the flows of FDI on the African continent, between 1970 and 1990, Nigeria accounts for 30% of FDI inflows in Africa which placed the country at the top of the pinnacle on investment attraction and considered one of the most preferred investment destinations on the continent. In 2007 however, FDI inflows to Nigeria dropped to 16% and subsequently increased to 70% in 2009 which was the year the activities of *boko haram* attracted the world's attention.

The paper is to investigate how FDI outflow from Nigeria was affected by security challenges in the last decade. To achieve this, the paper is divided into five sections: the next section provides a review of the literature on insecurity and FDI. Section three is devoted to data and methodology. While the fourth section presents the results of the analysis, the fifth section concludes the paper.

## 2. Literature Review

A survey of the literature on the effect of insecurity on FDI report divergent views. Ensuring security of lives and property in a country plays a dominant role in the development of any nation because investors are only willing to take risks in healthy and peaceful conditions to ensure high and safe rates of returns to investment. This is necessary because foreign direct investment is viewed as an important engine of development (Enders and Sandler (2008). Looking at the economic consequences of terrorism on developed and developing countries Enders and Sandler (2008) suggest that terrorist incidents have economic consequences by diverting foreign direct investment (FDI) and if a developing country loses abundant FDI, which is a significant source of savings, then it may also experience

reduced economic growth. However, Wagner (2006) argued that foreign investor sentiment is not always dictated by common sense. He explained that the lure of profit and desire to form trade partnerships is often a stronger motivational force than perceived political risk as a deterrent to foreign investment. Therefore, foreign investors may not be discouraged by the rate of terrorist attacks.

Using cointegration and Granger causality, Rasheed and Tahir (2012) examined the impact of terrorism on FDI in Pakistan between 2003 and 2011. The results reveal an inverse relationship because the variables of interest show no cointegration. Hence, they argued that as terrorism increases, FDI is adversely affected which is largely attributable to loss in investor confidence. On causal analysis, the authors revealed that the causal relationship is bi-directional. Here, the question lies in the fact that the authors did not provide reasons for how reductions in FDI can Granger-cause increase in terrorism and vice versa; could it have been that a decrease in foreign investment can lead to increased terrorism? The paper would have benefited from answering these questions. Still on Pakistan for the period 2000-2013, Hussain *et al.* (2014) report similar findings as Rasheed and Tahir (2012). They revealed a negative relationship between the numbers of terrorist attacks with net inflow of FDI using simple OLS analysis. They suggest that an increase in terrorist attacks causes FDI to reduce by 78%. Therefore, conclude that if the occurrence of terrorist attacks is checked, FDI will boost the economic growth of Pakistan.

For Nigeria, Nnamdi *et al.* (2015) reported that there has been an increasing incidence of attacks by Boko Haram militants which has drastically affected the development of the economy, the Northern Nigeria in particular. Between 2009 and 2014, 150 attacks with over 5000 deaths have been recorded across the affected states in the north. The figures

reported here are arguably larger. Also, the authors have ignored the issues of kidnappings and missing persons in their research. In another study on Nigeria, Oladimeji and Oresanwo (2014) conducted an empirical research on the impact of terrorism on international business using a sample of 150 respondents. The study used both primary and secondary data and found that there is a significant difference between foreign direct investment and terrorism such that a 1% change in terrorism causes a change in foreign investment flow by 49%. Contrary to expectations, the relationship appeared positive.

In a different study by Kang and Lee (2007), the role of terrorism on FDI for 83 countries using dynamic panel estimation for the period 1980 – 2002 is investigated. They found a significant negative relationship between FDI and number of terrorists. They revealed that increase in terrorism deters FDI stock by 0.3% – 0.6%. Similarly, studying the relationships among FDI, aid and terrorism, Bandyopadhyay *et al.* (2013) constructed a theoretical model using dynamic panel estimation to investigate this for 78 developing countries for the period 1984-2008. They found that both domestic and transnational terrorism depress FDI. This is because terrorism raises the cost of doing business and reduces output from a given set of inputs; foreign investors will therefore want to withdraw their resources from the affected economy. For a 1-point standard deviation increase in terrorists' incidence, the negative effect of domestic terrorism on FDI is greater than that of transnational terrorism. This is likely because greater number of incidents is relatively attributed to domestic terrorism. Also, the authors found that one incident of transnational terrorism causes far more adverse effect on FDI than does one incident of domestic terrorism. They conclude that aid

is generally good for curbing the adverse effects of terrorism on FDI.

### 3. Data and Methodology

The aim of this paper is to investigate the effects of insecurity on foreign direct investment dynamics. The study uses annual data for the period 2005 to 2015. Data for all variables were collected from the statistical bulletin of the Central Bank of Nigeria.

**Table 3.1: Description of Data**

| Variable Name                     | Variable Label | Proxy                             |
|-----------------------------------|----------------|-----------------------------------|
| Foreign direct investment outflow | FDI-O          | Foreign direct investment outflow |
| Defense security vote             | DSV            | Insecurity                        |
| Gross domestic product            | GDP            | Economic growth                   |
| Exchange rate                     | ER             | Exchange rate dynamics            |
| Trade openness                    | TO             | Level of economy's liberalization |

Table 3.1 indicates symbol and proxy used for the variables. The following model is used to identify the effect of insecurity on FDI-O:

$$\text{Functional model: } FDI - O = f(DSV, GDP, ER, TO) \quad (3.1)$$

$$\text{Econometric model: } FDI - O_t = \beta_0 + \beta_1 DSV_t + \beta_2 GDP_t + \beta_3 ER_t + \beta_4 TO_t + \varepsilon_t \quad (3.2)$$

There can be both short-run and long-run relationships between time series. Correlation coefficients are used for examining short-run co-movements and multi-collinearity among the variables. If correlation coefficient is greater than 0.8, it indicates that multi-collinearity exists. The population correlation coefficient,  $\rho$ , ( $-1 < \rho < 1$ ) measures the degree of linear association between two variables.

As an essential step of Vector Error Correction Model, Augmented Dickey - Fuller (ADF) (1979, 1981) test has been applied. It is based on the simple logic that non-stationary process has infinite memory as it does not show decay in a shock that takes place in the process. Therefore, it behaves like AR (1) process with  $\rho = 1$ . Dickey Fuller test is designed to examine if  $\rho = 1$ . The complete model with deterministic terms such as intercepts and trends is shown in equation (3.3):

$$\Delta y_t = \alpha + \pi + \sum_{i=1}^m \delta y_{t-1} + \Delta \beta_i Y_{t-1} + \varepsilon_t \quad (3.3)$$

The ADF unit root test is based on the null hypothesis  $H_0$ :  $Y_t$  is not I (0). If the calculated ADF O-statistic is less than the critical value, then the null hypothesis is rejected; otherwise accepted. If the variable is non-stationary at level, the ADF test will be performed at the first difference. In the second step, the Johansen's cointegration test (Johansen and Juselius, 1990) has been applied to check whether the long run equilibrium relationship exists between the variables. The Johansen approach to cointegration test is based on two test statistics, viz., trace statistic, and maximum Eigen value statistic. The trace statistic can be specified as:

$$\text{Trace } (r, k) = -T \sum_{i=r+1}^k \ln(1 - \lambda_i) \quad (3.4)$$

Where  $\lambda_i$  is the  $i^{\text{th}}$  largest Eigen value of matrix  $\Pi$ , and  $T$  is the number of observations. In the trace test, the null hypothesis is that the number of distinct cointegrating vector(s) is less than or equal to the number of cointegration relations ( $r$ ). The maximum eigenvalue test examines the null hypothesis

of exactly  $r$  cointegrating relations against the alternative of  $r + 1$  cointegrating relations with the test statistic:

$$\lambda_{\max}(r, r+1) = -T \ln(1 - \lambda_{r+1}) \quad (3.5)$$

At the end, the Granger Causality test (Engle and Granger, 1987) has been used to find out the direction of causality between the variables. To test for Granger Causality, the following bi-variate regression model can be used:

$$y_t = \alpha_0 + \sum_{i=1}^m \alpha_i Y_{t-i} + \sum_{j=1}^n \beta_j X_{t-1} + \varepsilon_t \quad (3.6)$$

$$x_t = \omega_0 + \sum_{i=1}^m \gamma_i Y_{t-i} + \sum_{j=1}^n \theta_j X_{t-1} + \varepsilon_t \quad (3.7)$$

If all the coefficients of  $x$  in the first regression equation of  $y$ , i.e.  $\beta_i$  for  $i = 1, \dots, n$  are significant, then the null hypothesis that  $x$  does not cause  $y$  is rejected.

#### 4. Results

First, descriptive statistics like Skewness, Kurtosis, Jarque-Bera Statistic, and Probability Value are calculated for all five variables. The results are presented in Table 4.1.

**Table 4.1: Descriptive Statistics of Variables**

|             | FDI-O  | DSV    | GDP    | ER     | TO     |
|-------------|--------|--------|--------|--------|--------|
| Skewness    | 1.08   | 2.65   | 0.58   | -0.88  | 0.57   |
| Kurtosis    | 2.68   | 12.09  | 2.65   | 2.91   | 2.26   |
| Jarque-Bera | 50.80  | 15.58  | 19.30  | 32.68  | 57.28  |
| Probability | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 |

From Table 4.1, it is clear that all variables except ER are positively skewed. Kurtosis values revealed that DVS follow Leptokurtic distribution; FDI-O, GDP, ER and TO follow Platykurtic distribution. Jarque-Bera statistic tests the null hypothesis that data follow normal distribution. By using probability values of Jarque-Bera statistics, null hypothesis is rejected for all variables even at 1% level of significance. This shows randomness of the variables.

Correlation analysis results between FDI-O and the explanatory variables are reported in Table 4.2. It indicates that except for ER all the variables are highly positively correlated with FDI-O. On the flip side though, these very high correlations also give the signal of multicollinearity among the variables.

**Table 4.2: Pair-wise Pearson Coefficient Correlation**

|     | FDI-O | DSV  | GDP  | ER   | TO   |
|-----|-------|------|------|------|------|
| FDI | 1.00  | 0.88 | 0.84 | 0.44 | 0.91 |

The result of ADF unit root test is reported in Table 4.3. The null hypothesis of no unit roots for all the variables except TO are not rejected at their level values in both the models (i.e. constant and constant & trend). After taking the first difference again, ADF test statistics are compared with critical values, and found that null hypothesis of unit root are rejected for all variables. For TO the significant level became more robust at 1%.

**Table 4.3: Results of Unit Root Test**

| Variables | Level Values    |                  | First Difference |                  |
|-----------|-----------------|------------------|------------------|------------------|
|           | Constant        | Constant & Trend | Constant         | Constant & Trend |
|           | ADF Test Values | ADF Test Values  | ADF Test Values  | ADF Test Values  |
| FDI       | 3.646512        | 0.557808         | -6.17785***      | -7.29449***      |
| DSV       | -0.72821        | -1.9118          | -15.1027***      | -15.0804***      |
| GDP       | 5.853275        | 3.37149          | -6.91757***      | -15.36092***     |
| ER        | 2.892092        | 1.502587         | -5.43735***      | -6.068685***     |
| TO        | -1.22174        | -3.86585**       | -10.0131***      | -10.02126***     |

Note: \*\* and \*\*\* indicates ADF test value is significant at 5% and 1% level of significance respectively

In the next step, the cointegration between non-stationary variables has been tested by the Johansen's Trace and Maximum Eigenvalue tests. The results of these tests are shown in Table 4.4. At  $r < 5$ , first time hypothesis of no cointegration is not rejected. Therefore, both the tests indicate that five cointegrating vectors exist at 5% level of significance.

**Table 4.4: Results of Johansen's Cointegration Test**

| $H_0$      | Trace Test | 5% Critical Value | Maximum Eigenvalues Test | 5% Critical Value |
|------------|------------|-------------------|--------------------------|-------------------|
| $r = 0$    | 393.6571*  | 197.3709          | 119.5208*                | 58.43354          |
| $r \leq 1$ | 274.1363*  | 159.5297          | 76.30895*                | 52.36261          |
| $r \leq 2$ | 197.8273*  | 125.6154          | 67.21131*                | 46.23142          |
| $r \leq 3$ | 130.6160*  | 95.75366          | 52.23492*                | 40.07757          |
| $r \leq 4$ | 78.38109*  | 69.81889          | 36.99501*                | 33.87687          |
| $r \leq 5$ | 41.38607   | 47.85613          | 21.53232                 | 27.58434          |
| $r \leq 6$ | 19.85375   | 29.79707          | 13.52732                 | 21.13162          |
| $r \leq 7$ | 6.326431   | 15.49471          | 6.109237                 | 14.26460          |
| $r \leq 8$ | 0.217194   | 3.841466          | 0.217194                 | 3.841466          |

Note: \* indicates that test values are significant at 5% level of significance. Trace test and Maximum eigenvalue test indicates 5 cointegrating equations at the 0.05 level

Now, the pair-wise Granger Causality test is performed between all possible pairs of variables to determine the direction of causality. Only rejected hypotheses are reported in Table 4.5. The results show that both ER and DSV Granger causes FDI-O.

**Table 4.5: Results of Granger Causality Tests**

| Null Hypothesis                  | F-Statistics | Probability | Decision |
|----------------------------------|--------------|-------------|----------|
| DSV does not Granger cause FDI-O | 2.98946      | 0.0033      | Reject   |
| ER does not Granger cause FDI-O  | 2.44532      | 0.0148      | Reject   |

## 5. Conclusion and Recommendations

This paper investigated the effect of insecurity on FDI outflow in Nigeria by using annual data for the period 2005 to 2014. The empirical

analysis found three interesting results. First, all the variables – FDI, insecurity (DSV), GDP, ER and TO are  $I(2)$ . However, ER is  $I(1)$  at 5%.

Second, there exists a long-run equilibrium relation between FDI and all the independent variables. Third, it provides evidence of causality running from both insecurity and exchanger rate to FDI outflow.

The Policy implications are as follows: Nigeria is likely to continue experiencing mass exodus of foreign investors for as long as the incidents of terrorism grow day by day. This will however add to the problems of unemployment and idleness in the country. The problems of unemployment and idleness would however provide the enabling environment for resentment and recruitment of the unemployed into the bandwagon of insurgency; thereby growing and strengthening of the vicious circle of terrorism.

On exchange rate; foreign investors are always sensitive to currency volatility because it affects their net earnings especially if the local currency is appreciating. But stability is important; it is an anchor for expectations, it reduces speculations and enhances market confidence. The Naira has been fluctuating and unstable during the last two decades. In December 2014, it reached an all-time low of ₦220 to a dollar after revolving around 180,

187 and 198 during August, October and November 2014 (CBN, 2015). The implication is that in the absence of stability, the Nigerian economic environment is very likely to chase out foreign investors which will also produce the second round effects on unemployment and idleness in the economy.

On recommendations, the Nigerian government should immediately employ the necessary measures to address the problem of insecurity in the country. This will help along the restoration of confidence of foreign investors to continue with their business ventures in Nigeria. By so doing, it is a job security to employees in the country and a potential source of FDI inflows, employment and economic growth for Nigeria. Secondly, the academicians and other relevant stakeholders should partner with economic regulators in research particularly towards identifying the major sources of naira volatility and the way forward. If the naira is stable; it will promote quality planning, enhances market confidence and reduce speculation. In the absence of instability of the naira; Nigeria is likely to remain the most preferred investment destination in Africa.

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