IMPACT OF CAPITAL FLIGHT ON GROSS FIXED CAPITAL FORMATION IN NIGERIA

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ABSTRACT: Capital flight remains a controversial issue which its impact yields no good to any economy in which it is taking place. The main aim of the study was to investigate the nature of the relationship existing between capital flight and gross fixed capital formation in Nigeria. We used the World Bank residual approach to measure capital flight. Data from 1981 to 2020 was sourced from Central Bank of Nigeria Statistical Bulletin. The study relied on an autoregressive distributed lag model for analysis. Our empirical analysis revealed that a negative relationship exists between gross fixed capital formation and capital flight in Nigeria. We therefore suggest reducing interest rate as this will encourage investors to access more credit facilities and increase domestic investment which will help to reduce the menace of capital flight in the country.

KEYWORDS: Capital flight, Gross fixed capital formation, ARDL.

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INTRODUCTION

Developing countries such as Nigeria are challenged by capital flight. This is consequent upon the fact the phenomenon has severe implications on economic growth resulting in a fall in investment due to scarce capital occasioned by persistent capital flight. The sluggish growth and persistent balance of payment disequilibrium (deficit) prevalent in most developing countries including Nigeria has been attributed to capital flight. “Capital flight has truncating consequences, it poses severe constraints for growth and development by reducing growth potential, eroding or narrowing productive capacities of the economy, and slows investment and adversely redistributes income” (Ajayi & Ndikumana, 2014).

Capital flight drains economy investible funds which are as a result of low savings. While Domestic savings is the major source through which capital formation is made available, when there is shortage of foreign aid, and there is insufficient savings, the economy will resort to continuous borrowing to finance her projects. The worst aspect of Nigerian situation is that the borrowed funds are mismanaged and not properly utilized for capital projects that will enhance growth; rather, borrowed funds are siphoned by political office holders and pushed abroad, and this persistent practice has notably handicapped the availability of capital to private sectors, gross fixed capital formation and other macroeconomic variables that influence growth and development. A glance at capital flight and gross fixed capital formation, as illustrated in the Figure 1 below, will buttress the fact above.

![Figure 1: Capital flight, and gross fixed capital formation in Nigeria from 1981-2019](image)

From the figure above, capital flight and gross fixed capital formation do not increase or decrease proportionately. This implies that when capital flight is rising, investment will be falling. When investment is decreasing, it will negatively affect other key macroeconomic variables and ripple down to low economic activities. So capital flight needs urgent attention if our economy will achieve its expected objectives. This pitiable performance of investment
and other economic indicators can be attributed to certain economic factors such as exchange rate, budget deficit and political factors, but the graph above shows capital flight to have played an important role in increasing the problem of deficiency in capital formation in Nigeria.

Based on various works of literature, capital flight lacks a generally accepted definition, even though its activities have been identified since the seventeenth century. Ajayi and Ndikumana (2014) said that, “This controversy surrounding definition of the term is partly due to lack of universally accepted definition and also partly due to the way it is being applied for the developed and emerging economies of the world. On this ground, most economists and financial analysts tried to identify capital emanating from advanced or developed countries as foreign direct investment while the same activity is termed ‘capital flight’ when it is undertaken by residents of developing (poor) countries.”

The federal government of Nigeria has made several efforts to curb the increasing rate of capital flight. The government enacted laws and established agencies such as The Economic and Financial Crime Commission Act of 2004 (EFCC), the Independent Corrupt Practices and other Related Offences Commission (ICPC), the Banks and Other Financial Institutions Act of 1991, the Advanced Fee Fraud and other Fraud Related Offences Act of 1995 and the Money Laundering Act of 1995, etc. Although these strategies and acts have been existing, yet, every year, Nigeria continues to record a rising rate of capital flight in Nigeria.

The empirical literature on capital flight matter in Nigeria is diverse. Studies exist on capital flight determinants, on the mechanisms and channels through which the phenomenon is fueled, of its effects on economic development and growth, of its impacts on poverty and inequality, including its influence on tax revenues, and on external debt. Further investigations were made to ascertain the effect of capital flight on agricultural productivity, and the financial system. For instance, Usman and Arene (2014) studied the effects of capital flight and its macro-economic determinants on Agricultural growth in Nigeria. Determinants of capital flight and its impact on the Nigerian economic growth and development include studies carried out by Ajayi (1997), Okoli and Akujuobi (2009), Bakere (2011), Omviodiviokiti (2002), Gosarova (2009), Obidike et al. (2015), Adedayo and Ayodele (2016), Igwema et al. (2018), Musibau (2017), Akani (2016), and Orji et al. (2020), while Adekunle (2012), Alfa et al. (2019), Effiom et al. (2020) and Ojabo (2021) established the asymmetric relationship between capital flight and domestic investment. The studies reviewed above applied mythologies such as autoregressive distributed lag, ordinary least square, error correction and nonlinear auto regressive distributed lag model for their analyses.

This study seeks to add to existing studies like that of Effiom, Achu and Edet (2020) that establish the asymmetric relationship between capital flight and investment in Nigeria but will differ by concentrating on ascertaining the linear relationship between capital flight and gross fixed capital formation in Nigeria while using inflation rate and interest rate as control variables to avoid omission of important variable. Against this backdrop, it becomes relevant to establish the nature of linear relationship between capital flight and gross fixed capital formation in Nigeria. Following the introduction as Section One, literature review is captured in Section Two, and methodology is in Section Three. Section Four provides data presentation and results discussion. Section Five contains the summary, conclusion and policy recommendation.
LITERATURE REVIEW

Theoretical Review

There is this belief that capital flight drains an economy’s investible resources and transfers the same to another country. This movement of resources negatively affects both private and public investments. Considering the private investment aspect, capital flight leads to a fall in savings which affects banks’ ability to mobilize and create credit. This consequently results in a reduction in domestic investment. Ajayi (1997) noted that capital flight has a negative effect on tax base and reduces revenue accrued to the government, which invariably exerts a negative influence on public investment. Furthermore, if reduction in tax base is allowed to persist for a long time with its negative repercussions evidently seen in decline in government revenue, this may force the government through the central bank to print more money. This inevitably prompts an inflationary tendency on the economy and compels investors to move their investment abroad so as to escape devaluation of the real worth of their assets fueled by inflation surge in the home country. Thus, according to the postulation of portfolio selection theory, these investors might be rationally induced to seek investment opportunities elsewhere outside the domestic economy.

Undoubtedly also, an increase in capital flight increases fear, uncertainty and doubts on the ability of the government to finance fiscal deficits and fund her budget deficit. This mounts inflationary tensions and pressure and increases the tendency for the splitting of domestic assets held by the private sector. As a result of this, private investment falls. A persistent budget deficit plugs in debt unsustainability which causes the domestic debt to be rising. As observed by Ndiaye (2014) with regards to domestic debt, debt unsustainability might generate risk of bankruptcy on the part of private firms, leading to total fall in private domestic investment. On the part of the government, rising and unsustainable public debt may build no confidence in government securities. The issuance of government securities, such as bonds, tends to elicit a negative response from the financial markets. This phenomenon supports the debt-driven capital flight thesis, which posits that the issuance of external debt can lead to capital flight. This occurs as the domestic currency depreciates, affecting the repayment of external debt. The heightened demand for foreign currency, driven by the need to repay the debt, exacerbates the impact on the domestic economy. In summary, the issuance of government securities can trigger adverse reactions in financial markets, reinforcing the idea that external debt may result in capital flight as it weakens the domestic currency during the process of debt repayment.

EMPIRICAL REVIEW

Empirical studies revealed that capital flight negatively impacts domestic investment and hence promotes uncertainties in the economy. Important empirical studies are summarized as follows:

In studying the nexus between capital flight (CAPF) and domestic investment (DI) in Nigeria, Abbah, Idanyingi and Chukwuemeka (2021) used time series data to examine the relationship existing between domestic real investment and capital flight in Nigeria. Applying an OLS method and granger causality test, they observed that capital flight explains about 44.4% variation in domestic investment over the period under review. This suggested that the
domestic economy should be improved and positioned to be more attractive for both foreign and local investors through creating wider avenues of domestic financial assets.

Oduola (2019) used secondary data sourced from the Central Bank of Nigeria statistical bulletin and International Country Risk Guide (ICRG) employed on ARDL and VECM methodology to analyze the impact of capital flight on domestic investment during military and civilian regimes in Nigeria. Their analysis revealed that capital flight impacts negatively and significantly on Nigerian domestic investment in the long run. They concluded that capital movement out of the economy is potentially reducing domestic investment in the long run.

Orji, Ogbuabor, Kama and Orji (2020) employed data sourced from the Central Bank of Nigeria statistical bulletin ranging from 1981 to 2017 to analyze the relationship existing between capital flight and Nigerian economic growth. They applied ARDL bounds test methodology and observed that capital flight has a reduction effect on economic growth through reduction in domestic investment in both the short and long run.

Effiom, Uche, Otei and Effiong (2020) employed the NARDL to determine the existence or otherwise of symmetry in the response of Nigerian public sector investment (Governments investment) to Nigerian capital flight. Their conclusion indicated that for a long period of time, the asymmetric effect of capital flight has persisted on Federal Government investment in Nigeria.

Adekunle (2012) undertook empirical research on the problem of capital flight on domestic investment using ordinary least squares and vector error correction procedure to estimate the significance of the relationship between capital flight and domestic investment in Nigeria. He observed that the low level of domestic investment in the country is as a result of high capital flight persistent in the country. He recommended that policies that will encourage autonomous investment by both the private and public sectors should be effectively used to reduce capital flight.

**METHODOLOGY**

**Sources of Data**

In this study, we used time series secondary data sourced from the Central Bank of Nigeria statistical bulletin (2020) and World Bank development indicator website.

**Measuring Nigerian Capital Flight**

This study adopted the residual (broad) method to measure capital flight. The residual approach has the following variants: World Bank (1985), Morgan Guarantee (1986), Erbe (1985), Cline (1995), and Collier et al. (2001; 2004). World Bank’s (1985) broad approach is an indirect measure of capital flight which compares the sources of capital inflows (i.e., net increases in external debt and the net inflow of foreign investment) with the uses of these inflows (i.e., the current account deficit and additions to foreign reserves). This approach was used by Almounsor (2017) to estimate capital flight from Saudi Arabia. Algebraically, this method is expressed as follows:
KFr = ∆ED + FDI – CAD – ∆FR \hspace{1cm} (3.1)

where KFr is capital flight, ∆ denotes change, ED is stock of gross external debt reported in the World Bank or IMF data, FDI is the net foreign investment inflows, CAD is the current account deficit/surplus and FR is the stock of official foreign reserves. This broadest approach to capital flight measurement has the advantage in that it incorporates all the reported and unreported build-up of foreign capital for both public and private sectors.

Analytical Framework of the Model

The choice and rationale for selecting the model is predicated on the fact that any improvement in the economy is enhanced by the performance of previous state economic variables. The ARDL model has also been chosen because of its numerous advantages, which are as follows: Firstly, it is applicable irrespective of whether the individual regressors are \( I(0) \) or \( I(1) \) order of integration. Secondly, the model (ARDL) automatically selects a sufficient number of lags to capture the entire data generating process from general to specific framework. Thirdly, the ARDL model yields superior estimate cointegration coefficient, and diagnostic tests of the estimated equation which are more reliable. However, the ARDL model was adopted because capital flight entails the spillover of the past regime into the current set. This is a typical autoregressive phenomenon and the model wants to capture this effect in the lag structure. Fourthly, through simple linear transformation, the ARDL model can derive a dynamic error correction model (ECM). The ECM also helps us to measure the short run relationship among variables. Finally, the model is a more appropriate measure in the case of a smaller sample. Since the sample size of our study is limited to 39 observations, it provides more motivation to appropriately apply the ARDL approach for analysis and it used some diagnostic tests such as normality test, autocorrelation test, heteroskedasticity test, Akaike information criteria test, and diagnostics test.

Model Specification

The functional form of the model is specified thus:

\[
GFCF = f(CPF, INTR, INF) \hspace{1cm} (3.2)
\]

CPF = Capital flight calculated as the sum of net increase in external debt, net inflow of foreign direct investment, current account balance and net foreign reserves.

GFFC = Gross fixed Capital Formation; INFR and INTR are proxy for inflation rate and interest rate respectively which serve as control variables. We specify it in mathematical forms and econometric form by introducing idiosyncratic terms as the equations below:

\[
GFCF_t = \beta_0 + \beta_1 GFCF_{t-1} + \beta_2 CPF + \beta_3 INF + \beta_4 INTR + \mu_t \ldots \hspace{1cm} (3.3)
\]

In Equation 3.3 above, \( \beta_0 \) is the intercept depicting gross fixed capital formation when the explanatory variables are all equal to zero. \( \beta_1 \) to \( \beta_4 \) are all attached to the explanatory variables which will give their impact on the dependent variable, \( \mu_t \) = iid stochastic term which is included in the model to capture the influence of other variables not included in the model.
The ARDL model is stated in the Equation (3.4) below:

$$GFCF_t = \sum_{i=1}^{p} \alpha_i GFCF_{t-i} + \sum_{j=0}^{q} \beta_j CPF_{t-j} + \sum_{j=0}^{q} \phi_j INTR_{t-j} + \sum_{j=0}^{q} \phi_j INFR_{t-j} + \epsilon_t, \quad \ldots \ldots (3.4)$$

Firstly, we determined the stationarity properties of variables of the model by employing the Augmented Dickey-Fuller (ADF) unit root and Phillip-Perron (PP) unit root tests to ensure adequacy at 1% and 5% level of significance. The unit root test is expressed in the equation below:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \sum_{j=0}^{k} \alpha_j \Delta Y_{t-j} + \mu_t, \quad \ldots \ldots (3.5)$$

where $\Delta$ is the first difference operator, $\mu_t$ is a random error term that is iid, $k = \text{no of the variable}$. The unit root test is then carried out under the null hypothesis “$\alpha = 0$ against the alternative hypothesis of $\alpha < 0$.”

**Cointegrated Equation**

The conditional ARDL $(p, q)$ model bounds test for cointegration is specified as follows:

$$\Delta GFCF_t = \sum_{i=1}^{p} \alpha_i \Delta GFCF_{t-i} + \sum_{j=0}^{q} \beta_j \Delta CPF_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INTR_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INFR_{t-j}$$

$$\sum_{i=1}^{p} \alpha_i \Delta GFCF_{t-i} + \sum_{j=0}^{q} \beta_j \Delta CPF_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INTR_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INFR_{t-j} + \epsilon_t, \quad \ldots \ldots (3.6)$$

The above equation is based on the null hypothesis that the coefficient equation is equal to zero in the long run while the alternative is the opposite, as stated below:

$$H_0 : \beta_j = \alpha_j = Y_k = 0$$

$$H_1 : \beta_j \neq \alpha_j \neq Y_k \neq 0$$

We specify the short run form of the model if and only if the null hypothesis is not rejected (i.e., there is no cointegration), as specified in Equation 3.6 above. But if we reject the null hypothesis and accept the alternative, indicating the presence of cointegration, we proceed to specify the error correction model (ECM) as shown below:

$$\Delta GFCF_t = \sum_{i=1}^{p} \alpha_i \Delta GFCF_{t-i} + \sum_{j=0}^{q} \beta_j \Delta CPF_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INTR_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INFR_{t-j}$$

$$\sum_{i=1}^{p} \alpha_i \Delta GFCF_{t-i} + \sum_{j=0}^{q} \beta_j \Delta CPF_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INTR_{t-j} + \sum_{j=0}^{q} \beta_j \Delta INFR_{t-j} + \Psi \text{ECT}_{t-1} + \epsilon_t, \quad \ldots \ldots (3.7)$$

The variables in Equation 3.7 are as defined in equation 3.2. The $\text{ECT}$ in the equation is the error correction terms for model, the coefficient of $\text{ECT}$ ($\Psi$) measures the speed of adjustment and $\Delta$ is the 1st difference operator.
Results and Discussions

Unit Root Test

The Augmented Dickey Fuller (ADF) and Phillip Perron (PP) unit roots tests are presented below, based on the null hypothesis that “the variable being studied has a unit root against the alternative that it does not have unit root.” To select the appropriate lag length, we relied on Akaike information criteria. Thus, the optimum lag length for ADF and PP were 9 and 3 respectively. The decision rule is to “reject the null hypothesis if the ADF and PP statistic value is greater than the critical value at 1% and 5% level of significance.” These results are presented in Table 4.1 below.

Table 4.1 below shows that variables are integrated of different order (i.e., $I(0)$ and $I(1)$). Gross fixed capital formation (GFCF), inflation rate (INFR) and capital flight (CPF) were stationary at level $I(0)$, since their ADF and PP values were less than the critical values at 5% level of significance, while interest rate (INTR) was found to be stationary after the first difference since their ADF and PP values were less than the critical values at 5% level of significance. Null hypothesis of no unit root was accepted from INTR at level form but was rejected after the 1st difference. Also, the null hypothesis of no unit root was rejected for GFCF, CPF at level and INFR. Thus, we conclude that the variables under investigation are integrated at level ($I(0)$) and after the first difference ($I(1)$).

![Figure 2: Akaike information criterion](image-url)
Table 4.1: Unit Roots Test Result

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level</th>
<th>1st Difference</th>
<th>Critical Values</th>
<th>Order of integration</th>
<th>Prop Value</th>
<th>Level</th>
<th>1st Difference</th>
<th>Critical Values</th>
<th>Order of integration</th>
<th>Prop Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPF</td>
<td>-3.7514</td>
<td>I(0)</td>
<td>1% - 3.62 5% -2.94** 10% -2.61</td>
<td>0.0070</td>
<td>-3.7514</td>
<td>I(0)</td>
<td>1% - 3.62 5% -2.94** 10% -2.61</td>
<td>0.0070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCFC</td>
<td>-4.0759</td>
<td>I(0)</td>
<td>1% - 3.62 5% -2.95** 10% -2.63</td>
<td>0.0030</td>
<td>-4.0759</td>
<td>I(0)</td>
<td>1% - 3.62 5% -2.95** 10% -2.63</td>
<td>0.0030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFR</td>
<td>-3.1726</td>
<td>I(0)</td>
<td>1% - 3.62 5% -2.94** 10% -2.61</td>
<td>0.0296</td>
<td>-3.1126</td>
<td>I(0)</td>
<td>1% - 3.62 5% -2.94** 10% -2.63</td>
<td>0.0340</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTR</td>
<td>-2.6274</td>
<td>I(1)</td>
<td>1% - 2.64 5% -1.95** 10% -1.61</td>
<td>0.0049</td>
<td>-3.2098</td>
<td>I(1)</td>
<td>1% - 4.23 5% -3.64** 10% -3.20</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Author’s computation. ** shows the variable is stationary at 5% level of significant

(CPF, GCFC and INFR) are I(0) and other variables (INTR) are I(1); this allows the use of ARDL model bound test approach to ascertain the cointegration relationship among the series found to have different orders of integration.

Table 4.2: ARDL Bound test result

Null hypothesis: No long run relationship exists

<table>
<thead>
<tr>
<th>Significance</th>
<th>0/ Bound</th>
<th>1/ Bound</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1%</td>
<td>2.72</td>
<td>3.77</td>
<td>No cointegration</td>
</tr>
<tr>
<td>5%</td>
<td>3.23</td>
<td>4.35</td>
<td>No cointegration</td>
</tr>
<tr>
<td>2.5%</td>
<td>3.69</td>
<td>4.89</td>
<td>No cointegration</td>
</tr>
<tr>
<td>10%</td>
<td>2.72</td>
<td>5.61</td>
<td>No cointegration</td>
</tr>
</tbody>
</table>

Authors computation using E-view

As shown in the bound test result in Table 4.2, the F-statistic value lies below the lower bound value of the Pesaran test statistic. This implies that the null hypothesis, which states that there is no long run relationship, should be accepted. Thus, there is no long run relationship between the dependent variable (GCFC) and the explanatory variables (CPF, INTR, INFR). Evidently, there is no evidence of cointegration in the model; we therefore estimate the model.
RESULT OF MODEL ESTIMATION

To validate the appropriateness of estimated parameters of the variables included in the model, the study used exact level of significance (p-value) approach in testing the research hypotheses, meaning that any estimated coefficient with corresponding p-value less than or equal to (≤) 0.05 is considered statistically significant. The Table 4.3 below is the results of the ARDL parsimonious result of the model.

Table 4.3: Result of ARDL Parsimonious Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCFC(-1)</td>
<td>0.809700</td>
<td>0.101275</td>
<td>7.995056</td>
<td>0.0000</td>
</tr>
<tr>
<td>CPF</td>
<td>0.974688</td>
<td>0.028720</td>
<td>33.93776</td>
<td>0.0000</td>
</tr>
<tr>
<td>CPF(-1)</td>
<td>-0.823585</td>
<td>0.100338</td>
<td>-8.208079</td>
<td>0.0000</td>
</tr>
<tr>
<td>INFR</td>
<td>0.613793</td>
<td>9.689654</td>
<td>0.063345</td>
<td>0.9499</td>
</tr>
<tr>
<td>INTR</td>
<td>27.21259</td>
<td>34.39983</td>
<td>0.791068</td>
<td>0.4347</td>
</tr>
<tr>
<td>C</td>
<td>-197.3889</td>
<td>614.8419</td>
<td>-0.321040</td>
<td>0.7503</td>
</tr>
</tbody>
</table>

| R-squared  | 0.980214    | Mean dependent var | 3005.587 |
| Adjusted R-squared | 0.977123 | S.D. dependent var | 5536.402 |
| S.E. of regression | 837.3919 | Akaike info criterion | 16.44240 |
| Sum squared resid | 22439205 | Schwarz criterion | 16.7097 |
| Log likelihood | -306.4056 | Hannan-Quinn criter. | 16.53440 |
| F-statistic   | 317.0666   | Durbin-Watson stat | 1.994341 |
| Prob(F-statistic) | 0.000000 |                        |          |

Author’s computation using E-views version 10.

Table 4.3 is the regression results for the short run coefficient of the model. Gross fixed capital formation reinforced itself in the previous year, implying that the investment of the previous year positively affected the current level of investment in the country. As shown in the table above, an increase in gross fixed capital formation (GCFC) of the previous year by one percent will cause gross fixed capital formation of the current year by 109%. The coefficient of capital flight in the current year is positive (0.97468) indicating a positive relationship between gross fixed capital formation and capital flight in the current year, but there was a negative relationship between capital flight and gross fixed capital formation in the previous year with a coefficient (-0.823585) and P-value (0.0000) which is highly significant. The result indicates that a one percent rise in the rate of capital flight of the previous year will trigger an 82% decrease in gross fixed capital formation in Nigeria. This result is consistent with the findings of Lionel, Alfa and Samuel (2019), who empirically investigated the relationship between capital flight and domestic investment from 1980 to 2017. They observed that capital flight has a negative and significant impact on domestic investment in sub Saharan Africa.
Post Estimation Test

The post estimation test that will be analyzed in this section includes the Breusch-Godfrey Serial Correlation LM test followed by Heteroskedasticity test and other diagnostic tests to ensure the absence of mis-specification errors.

Table 4.5: Coefficients Diagnostic Test Results for Model One

<table>
<thead>
<tr>
<th>Diagnostic Test</th>
<th>$X^2$ statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Godfrey Serial Correlation LM Test</td>
<td>0.183650</td>
<td>0.8332</td>
</tr>
<tr>
<td>Breusch-Pagan-Godfrey Heteroskedasticity Test</td>
<td>2.285658</td>
<td>0.0703</td>
</tr>
<tr>
<td>Jarque–Bera test</td>
<td>0.308008</td>
<td>0.8573</td>
</tr>
</tbody>
</table>

Author’s Computation

The results presented in Tables 4.5 and 4.6 indicate a greater probability of the $F$-statistics which is above 0.05. Hence, we cannot accept $H_0$; we therefore conclude that there is no serial correlation in the models. The null hypothesis of homoscedasticity was accepted since the $P$-value of the Obs*R-square is higher than 0.05; this implies that the variance of the error term is constant. Also, the Jarque-Bera statistic showed that the error term is normally distributed since the Jarque-Bera statistic is not significant at 5% level; we therefore conclude the residual is normally distributed.

Finally, we test the stability of the model. To achieve this, we employed the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) test proposed by Borensztein et al. (1994). Pesaran and Shin (1999) also applied it to determine the stability of the long run. CUSUM test was carried out to ascertain the stability of the short run models. The result as shown in Figures 3 and 4 reveal that the blue line lies significantly in between the dotted red lines and this proves that the model is stable. The result is presented in Figure 3 and 4 below.
Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) Test for Model of the Study

Fig. 3: CUSUM Graph

Fig. 4: CUSUM Squares Graph
DISCUSSION OF RESULTS

The result in Table 3 shows that an increase in gross fixed capital formation (GCFC) of the previous year by one percent will cause gross fixed capital formation of the current year by 109%, implying that gross fixed capital formation reinforces itself. The coefficient of capital flight in the current year is positive (0.97468), indicating a positive relationship between gross fixed capital formation and capital flight in the current year, but there is a negative relationship between capital flight and gross fixed capital formation in the previous year with a coefficient (-0.823585) and P-value (0.0000) which is highly significant. The result indicates that a one percent rise in the rate of in capital flight of the previous year will trigger an 82% decrease in gross fixed capital formation in Nigeria. This result is consistent with the findings of Lionel, Alfa and Samuel (2019), who empirically investigated the relationship between capital flight and domestic investment from 1980 to 2017. They observed that capital flight has a negative and significant impact on domestic investment in sub-Saharan Africa. Also, Adekunle (2012) found that capital flight has an inverse relationship with domestic investment in Nigeria, thus validating the result of this study.

However, our study found that in the long run, an increase in capital flight certainly triggers a decrease in the level of investment in Nigeria. Although the current impact of capital flight on gross fixed capital formation is positive, it is not in line with economic theory to believe that draining investable capital would increase investment or capital formation in the same country where it emanates. So the positive impact of such capital movement is expected to be felt in the foreign countries where it moved to.

CONCLUSION AND RECOMMENDATION

The study concentrated on determining the difference between capital flight and gross fixed capital formation in Nigeria. The variables included in the model of the study were stationary at level and after the first difference, which gave credence to the adoption of the ARDL model. Considering the bound test result, no evidence of cointegration among variables of the model was found. The findings of the study however revealed that capital flight has a negative and statistically significant impact on gross fixed capital formation in Nigeria.

The study therefore recommends the use of appropriate policy measures that will reduce capital flight as this will help to improve domestic investment in the country. Such policies include reducing interest rates which will encourage investors to access more credit facilities. Also, the government should create an enabling environment that will aid investment to thrive in the country.
REFERENCES


Bakare, A.S (2011). the determinants and roles of capital flight in the growth process of Nigerian economy. vector autoregressive model approach. British Journal Management Economics. 1(2). pp. 100-113


Effiong, L., Uche, E., Otei A. and Effiong, A.F (2020). Asymmetric effects of capital flight on domestic investment in Nigeria: evidence from non-linear autoregressive distributed Lag Model Review 15(1) 15e80. https://doi.org/10.21203/rs.3.rs-113386/v1


UNCTAD.(2016).,,Trade,,Mis invoicing,in,,Primary,,Commodities,in,,Developing,,Countries: ,,The,cases,of,,Chile,,Côted’Ivoire,,Nigeria,,South,Africa,and,Zambia,,(Vol,,Dece mber),,,Geneva,,UNCTAD.