

Is Capital Flight Healthy For Nigerian Economic Growth? An Econometric Investigation

Vincent A. Onodugo¹, Ijeoma E. Kalu², Oluchukwu F. Anowor³, Nnaemeka O. Ukwenni⁴

Abstract

Capital flight has been one of the unresolved, perturbing and persistent macroeconomic problems plaguing Nigeria for the past four decades. Consequently, capital flight raises large and important issues for political economy; and policies to reduce them raise profound political questions. This study is a deliberate attempt, using time series data from 1970 to 2010, to investigate the impact of capital flight on economic growth in Nigeria employing econometric approach. The results show that all explanatory variables (CAPFLGT, INTD, TBAL, MfgOutput/GDP) except the exchange rate (EXR) and Domestic Political Climate (DPC) were statistically significant having passed the rule of thumb and conventional t-criteria. Also, the explanatory variables as indicated by the adjusted coefficient of determination (R^2) show that greater proportion of the total variations in RGDP was brought about by variations in the regressors. The test carried out on speed of adjustment (which tests the speed of response of RGDP to changes in net Capital Flight) proves that RGDP has a very low speed of response to the changes in the net capital flight, which implies that net capital flight has a low multipliers effect to the changes in RGDP in Nigeria, having multiplier effect of -0.000043unit; it however has a long-run impact on the aggregate growth of the economy with the mean lag of 7.27 units and median lag of 5.38 units respectively. The value of Durbin-Watson Statistic (DW) shows that there is no presence of autocorrelation; hence the model produced a parsimonious result. The result also shows that there is no endogeneity problem and that the variables, from the econometric tests carried out, were significant. The study recommends the need for policies which stimulate economic growth since increase in economic growth reduces capital flight. Also, there is dire need for governments of various nations to partner with anti-graft agencies to ensure that all channels through which people launder money abroad are stopped.

Keywords: Speed of adjustment, Domestic risks, Investment, Expropriation, Devaluation, Capital formation, Exchange Rate, Budget deficit.

1. Introduction

The growing rate of capital flight in the past four to five decades has been one of the unresolved, perturbing and persistent macroeconomic problems in Africa in general, and Nigeria in particular. The size of capital flight in developing countries especially Nigeria, as it seems to be a household name due to its frequent occurrence and dominance in the economy, is assuming a serious dimension and posing huge threat to sustainable economic growth and development. It is believed that capital flight particularly from Nigeria has been substantial and is more severe than it is elsewhere in other Sub-Saharan African countries. Chang and Cumby (1991) as supported by Ayadi (2008) believe that net capital outflows from Sub-Saharan Africa was estimated at US\$40 billion between 1976 and 1987 and this figure is identical to flows from some Latin American countries such as Argentina, Brazil, Venezuela, etc. Capital flight from Nigeria alone is estimated

¹Department of Management, University of Nigeria, Enugu Campus, Nigeria

²Department of Economics, Faculty of Social Sciences, University of Port Harcourt, Nigeria

³Department of Economics, Faculty of Social Sciences, University of Port Harcourt, Nigeria

⁴Department of Economics, Federal University, Lokoja, Nigeria

to be about US\$17.5 billion, with US\$11 billion in outflows between 1985 and 1987 alone (Hermes and Lensink, 1990). Ojo (1992) makes a huge cumulative estimate of capital flight from Nigeria of more than US\$35.9 billion between 1975 and 1991 alone.

The adverse effects of Capital flight to the domestic economy of Nigeria, nay, the entire sub-Saharan Africa, are legion. First, it generally strips the Nigerian economy of critical financial resources that could have been utilized for building capital formation, infrastructural development and investment. Available evidence by the World Bank Doing Business (2010) survey suggests that the cost of doing business is generally high in most Nigerian states. The reason for this is that due to paucity of funds to develop critical infrastructure by the government, individual business firms spend a great part of their capital on providing infrastructure which translates to high cost of production and un-competitiveness. Second, the persistent capital erosion through flight exacerbates the debt problem of most African countries. Massive debt accumulation by countries stem from the need to raise funds to develop the needed infrastructure that will fast track economic development. When one compares the debt profile of most of these countries vis-à-vis the amount of capital flight, you discover that if the holes from where these capital escapes are plugged that there wouldn't have been any need to borrow in the first instance. Boyce and Ndukumana (2001), corroborates this by rightly asserting that matching the volume of capital flight and the associated interest that could have accrued were it rightly invested alongside the debt profile leaves SSA a net creditor to the world economy. More disturbing is the evidence by Pastor (1990) that 43% of the debt by developing countries escapes and round trips as capital flight which inflicts cyclical poverty and pervasive corruption. Third, the non-repatriation of earnings on foreign assets stunts growth as it aggravates foreign exchange shortage that limit the import of capital goods necessary for development and results to unfavourable balance of payments.

Capital flight as defined by most scholars (Chang & Cumby, 1990; Ajayi, 1992; Cooper & Hardt, 2000; Grigoryev & Kosarev, 2000; Ndukumana & Boyce, 2002; Nyong, 2003; Le & Rishi 2007; Forgha, 2008; and Skare & Sinkovic, 2013) is a net illegal outflow of capital, which inhibits economic development and growth, from the countries of origin. Capital flight is clearly not the same meaning as capital export, which consists of conveyance of capital in the full accordance with the law. While capital export is a normal economic phenomenon, which does not harm significantly the economy from the global perspective (capital finds its optimal allocation); capital flight presents a danger and leads to the impoverishment of the economy, worsening the possibility of investments and prospects for further development of the economy. Further, capital export, which is subject of course to regulation and not posing danger to the domestic economy can foster export growth and generation of employment in addition to the provision of solution to other national economic problems (Kosarev, 2000; Grigoryev and Kosarev, 2000). Cooper and Hardt (2000), opine that the key motivation behind capital flight is the nursing of fear that the flow of financial assets resulting from the holder's perception that capital is subjected to inordinate level of risk due to devaluation, hyperinflation, political turmoil, or expropriation if retained at home in domestic currencies. Other drivers of capital flight according to Ajayi (2005) as cited by Ayadi (2008) include varying risk perception, exchange rate misalignment, financial sector constraints and repression, fiscal deficits, weak institutions, macroeconomic policy distortions, corruption and extraordinary access to government funds among others. Therefore capital flight is the movement of capital from a resource-scare developing country to avoid social control or losses due to higher domestic risks and uncertainties (Beja, 2006). In other words, it is the movement of capital usually through illegal means from developing to developed countries.

Capital flight is seen therefore to have taken various forms, including false bottom suit cases stocked with cash or travelers checks (currency smuggling), trade taking (over invoicing of imports and under invoicing of exports), electronic fund transfers from private banking services, declaring of non-existing foreign debts and commission and agents' fees or kickbacks in foreign contracts fees. Other components of capital flight include overseas investments emanating from illegal activities like drug trafficking, corruption, illicit activities particularly those related to tax evasion and exchange rate controls (Ayadi, 2008). This is consistent with the view held by Cuddington (1986); Husted and Melvin (1990) that the acquisitions of such foreign assets occur in response to political or/and economic crisis in the developing countries. This is

abnormal because one expects capital to flow from resource surplus countries to capital scarce countries as suggested by the capital arbitrage theory, theory of the firm and the product cycle theory (Nyong, 2003). To (Nyong, 2003) also, such abnormal capital outflows are responses to political pressures at home coupled with domestic economic policy distortions such as heavier taxes, capital control, and overvaluation of the exchange rates.

2. Literature Review

Conceptual Issues

Capital flight is rather a slippery concept: several interpretations have been given of what exactly is the term. Usually, capital flight is related to the existence of high uncertainty and risk with respect to returns on domestically held assets. It is sometimes argued that capital outflows based on these considerations should be viewed as abnormal and should therefore be distinguished from normal capital outflows since normal outflows are based on consideration of portfolio diversification of residents or activities of domestic commercial banks aiming at acquiring foreign deposits holding (see Deppler and Williamson, 1987). Yet, when measuring capital flight, it appears to be very difficult to, empirically, distinguish between normal and abnormal capital outflows.

It may come, therefore, as no surprise that several different capital flight measures are available in the existing literature. Inevitably, these measures lead to differences in capital flight estimates. However, the investment diversion thesis, debt- driven capital flight thesis, tax - depressing thesis and austerity generating thesis can be distinguished in the literature.

Theoretical Literature

There are a number of economic theories on capital flight, the background of which is used to measure the effect of capital flight on the economic growth. However, we therefore focused on some theoretical framework as highlighted by Le & Rishi (2007), Forgha (2008), Skare & Sinkovic (2013), and Dim & Ezenekwe (2014) that appraised and/or criticize capital flight models. These theories as identified in the area of capital flight include:

- (i) The investment diversion thesis
- (ii) Debt- driven capital flight thesis also called debt- overhang thesis
- (iii) Tax - depressing thesis and;
- (iv) Austerity generating thesis.

The Investment Diversion Theory

The Investment Diversion Theory of Capital Flight postulates that due to the macroeconomic and political uncertainties in developing countries, and the simultaneous existence of better investment opportunities in advanced countries, like high foreign interest rates, wide array of financial instruments, political and economic stability, favorable tax climate and secrecy of accounts, some unscrupulous, corrupt leaders and bureaucrats usually siphon scarce capital resources from their countries to advanced countries. They do this either to earn higher returns, safe guard there investment from instability, diversify their assets, or to enjoy confidentiality. These funds are, therefore, not available for investment at home, thereby widening the savings gap, constraining aggregate investment and limping economic growth. As Skare & Sinkovic (2013) noted, investment growth policy enhances and sustains long-term growth but capital flight does the opposite. The liquidity constraint or crowding - out effect may result to depreciation of the domestic currency if the authorities are operating a floating exchange rate system (Ayayi, 1992); attempts to defend the exchange rate at this time leads to loss of international reserves. The investment diversion thesis provides one of the well-known negative consequences of capital flight in the countries involved.

The Debt Driven Capital Flight Thesis

This is the continuation of the investment diversion thesis. This thesis postulates that given the heavy external debt of a country, residents of these countries are motivated to move their resources outside the country to foreign countries. Borrowed money is sold to domestic economic agents who transfer these funds partly or completely abroad. According to this thesis, external debt is one of the propellants or fuel to capital flight. The debt-driven thesis also called debt overhang thesis states that capital flight reduces the incentive to save and invest. The assumption here is that with large foreign debt, there are the expectations of exchange rate devaluation, fiscal crisis, and the propensity of the crowding out of domestic capital and expropriation of assets to pay for the debt. The debt-driven thesis and the investment driven thesis taken together suggest interdependency between capital flight, growth and external debt with the linkages being mutually reinforcing. Capital flight leads to poor growth, which calls for the necessity to borrow in order to promote growth. Further borrowing or indebtedness promotes capital flight, which in turns leads to poor economic growth, and the vicious cycle continues.

The Tax-Depressing Thesis

postulates that capital flight leads to potential revenue loss because wealth held abroad are outside the control of the domestic government and cannot therefore be taxed. The fall in government revenue complicated the task of politico- economic engineering to promote growth and development. The outcome of this is the reduction in debt-servicing capacity of the government. This in turns increases the debt burden, which constrains economic growth and development. Thus, a direct resultant of capital flight is the reduction in revenue generating potential of government.

The Austerity Thesis

The “Austerity Thesis” thesis views the poor in severely indebted situation due to capital flight. They suffer more because they are exposed to excruciating austerity measures by government to pay for debt obligations to international banks that in turns pay interests to flight capital from residents in these countries (Pastor, 1990). Poverty in developing countries reduces them to hewers of wood and drawers of water while perpetrating international inequality and dependency and, widening the gap between the rich countries and poor countries. Furthermore, the tax that the poor may pay is small, which again constrains the ability of government to muster enough resources to promote growth and development with poverty alleviation. Thus, a vicious circle of external debt, capital flight, poor growth, poverty and external debt is created.

Obviously as can be observed from the theories above, capital flight destroys the domestic macroeconomic environment and as well enhances the absence of transparency and accountability. These distortions, as one can observe from the developing economies especially in Africa and Latin America, manifest themselves in weak governance, large government deficits, overvalued exchange rate, high and variable inflation coupled with financial repression,(Ajayi, 1992). Therefore, we can conclude with Glynn and Koenig (1984) as reported in Forgha (2008) that where there is heavy debt, capital flight increases, with capital flight also exacerbating and magnifying the debt problems of these countries.

The Effect of Capital Flight on Economic Growth

The detrimental effects of capital flight on future economic growth have been identified as follow. First, capital that is transferred abroad cannot contribute to domestic investment. This is diminishing possibilities for economic development. Also necessary imports are limited by the foreign exchange drain from the flight itself and the fact that earnings on such flight assets are not repatriated. The rate of capital formation is greatly reduced by capital flight and this adversely affects country’s current and future growth prospects (Lessurd and Williamson, 1987). If flight capital had been invested in the production of domestically produced export goods that could finance imports, the import constraint on growth could have been relaxed. Much of the capital that flees a country is untaxed, this reduces the tax base by shifting wealth and resources beyond government’s reach. Thus, capital flight depresses both budget revenues, which are needed to finance the provision of essential services such as health, education, and the investments needed to meet the Millennium Development Goals (MDGs) and country’s overall growth (Kapoor, 2007). It also worsens the

distribution of income by shifting the tax burden away from capital and onto less mobile factors, especially labour and consumption. Moreover, capital flight may hinder economic growth by increasing the marginal cost of foreign debt. The central argument here is that if capital held abroad by citizens was legally recognized by creditors, this would serve as collateral and the marginal cost of foreign debt would be much lower as a creditor could seize that in case of default by a borrowing country. Also capital flight may negatively contribute to growth by exacerbating the balance of payments problems. Finally, capital flight may reduce growth by destabilizing the financial system as sudden outflows of large resources would call for adjustment in interest and exchange rate policies. (see Ajayi, 1997 and Schneider, 2003).

Capital Flight: Nigerian Studies

Many studies have confirmed the existence of substantially larger capital flight from Nigeria in absolute and relative terms than from sub-Saharan African countries. Using a modified version of the residual method, Morgan Trust (1986) was the first study on capital flight to include Nigeria, along with other developing countries from Asia, Latin America and Africa. The study established the incidence of capital flight from Nigeria in the second half of the 1970s and first half of the 1980s. Using the narrow non-bank definition proposed by Morgan Trust (1986), and asset method; Hermes and Lensink (1990) measured capital flight from Nigeria along with five Sub-Sahara African countries over the period 1976 to 1989. Their measures indicate that Nigeria experienced the largest capital flight of US\$21 billion, representing 60% of combined total for the six countries in the sample. In another study (Ojo, 1992), the cumulating capital flight from 1975 to 1991 was determined to be in excess of US\$35.9 billion, being more than double the total of the other two African countries (Ivory Coast and Morocco) in the sample. Similarly, a cross-country study by Chang and Cumby (1991) on capital flight from 36 Sub-Saharan African countries 1967 to 1987 found Nigeria to be the only country in the group with an absolute level of capital flight greater than those from Latin American countries. Claessens and Naude (1993), using World Bank residual measure to estimate capital flight from 84 countries over the period of 1971 to 1990, concluded that Nigeria had the seventh largest annual average outflows of capital and was sixth in terms of the ratio of capital flight to GDP. Relative to external borrowing, Nyatepe-coo (1994) found capital flight from Nigeria to be in excess of 90% between 1970 and 1992. Similarly, the Ajayi (1997) study of capital flight from 18 severely indebted low-income countries in sub-Saharan Africa over the period 1980 to 1991 found cumulative capital flight as percentage of external debt to be 94% for Nigeria. Boyce and Ndikumana (2001) concluded evidence presented on capital flight indicates that Nigeria is an egregious example of a more widespread phenomenon.

Causes of Capital Flight

Several studies have recently identified a number of factors that encourage capital flight. (See for example, Ajayi (1997), Boyce and Ndikumana (2001), Hermes et al (2002):

Macroeconomic Instability

Macroeconomic factors such as inflation, fiscal balance, economic growth, current account position and exchange rate movements can influence the nature and extent of capital flight. High inflation for instance, make domestic asset holders react to the erosion of the real value of their asset by moving their asset abroad. Most empirical inflation, but such a relationship was not statistically significant for African countries (see Nyoni, 2000; Ndikumana and Boyce 2002).

Exchange Rate Misalignment

Exchange rate encourages capital flight. Where the local currency is overvalued, it leads to real exchange rate appreciation. In order to correct the over valuation, when a currency devaluation is expected, investors usually move their domestic assets and invest in foreign countries, in order to avoid capital loss that will result from devaluation. Empirical evidence about the effects of exchange rate movement on capital flight from Africa is mixed. Whilst Hermes and Lensink (1992) found a strong support for a positive link between real effective exchange rate and capital flight in Nigeria for the period of 1978-88, other studies (Lensink et al 1998; Ng'eno, 2000) found no statistically relationship between the two variables.

Budget Deficit

Budget deficit reflecting the extent of government public sector borrowing requirement, may also encourage capital flight. Increased budget deficit raises expectations of domestic economic agents regarding future tax increases to meet the government debt repayment obligations, thereby resulting in capital flight. Empirical evidence on the effect of fiscal balance on capital flight from Africa is also mixed. For instance, Ndikumama and Boyce (2002) found a negative and statistically significant relationship between budget surplus and capital flight in cross-sectional regression but a positive and statistically significant relationship in panel data regression.

Rising Foreign Real Interest Rates

Rising foreign real interest rates facilitates capital flight by changing the relative returns in investment, as foreign real interest rate rises, public sector foreign liability increases. Also, private sector liability increases as national output falls. Most resident who expect increase in taxes divert their investment abroad. In addition, in some of these countries, secret bank accounts are permitted. People from developing countries put their money there, where it is considered safe since their government cannot have access to the accounts held abroad (Ajayi, 1995).

Political Instability

Lack of confidence in the domestic political system, coupled with weak governance institution may lead to capital flight. Political instability often breeds macroeconomic instability, including economic mismanagement, directly unproductive rent-seeking economic activities and illicit diversion of public funds. These together with weakness in the institutions for protecting property rights and incessant political unrest and associated general sense of insecurity to life and property tend to encourage capital flight. Available empirical evidence shows that political freedom tend to reduce the incidence of capita flight (Hermes and Lensink 2000, Lensink et al,2000).

Declining Terms of Trade

Declining terms of trade leads to a contraction in economic activities. This occurs when there is a reduction in investment, exchange rate over valuation and thus the fears of expected devaluation. Consequently, there is macroeconomic disequilibrium which is manifested in balance of payments problems, fiscal deficit, and decline in investment. This usually forces the government to change its programmes since declining terms of trade leads to a fall in government revenue and government can no longer meet its obligations without an increase in taxes. As such investors anticipate higher taxes and therefore they divert their investment abroad, (Gordon and Levine, 1989).

3. Model Specification

Model I

This model is employed in this study in order to analysis the impact of capital flight on economic growth in Nigeria. It is specified thus:

$$RGDP= f (CAPFLGT, EXR, INTD, TBAL, MfgOutput/GDP, DPC) \dots\dots\dots (1)$$

For easy estimation and computation, (1) is transformed into (2)

$$RGDP=\alpha_0+\alpha_1CAPFLGT+\alpha_2EXR+\alpha_3INTD+\alpha_4TBAL+\alpha_5MFGQ/GDP+\alpha_6DPC+U \dots\dots\dots (2)$$

Where,

CAPFLIGHT is the total yearly estimated amount of capital flight in million US dollars.

EXR is the yearly average of exchange rate of one US dollar in Naira.

RGDP is the growth of the economy as measured by the Real GDP: the higher the level of growth in the economy and hence the opportunities for domestic investments, the less the incentives to engage in capital flight. (Ajayi 1992: 55).

TBAL is the trade balance in million US dollars. A bigger external sector is associated with more transactions with foreigners and, hence, with more opportunities to circumvent foreign exchange restrictions plus more funds to deposit in international banks abroad. In other words, increase in import is expected to trigger capital flight. This variable therefore is expected to have a positive sign.

INTD is the difference between foreign interest rate and domestic interest rate in the domestic economy.

DPC is the index of political climate (1 = during military; 0 = civilian rule (see also Onwioduokit, 2001)

Mfg Output/GDP is manufacturing Output as ratio of Gross Domestic Product (GDP).

U_t is the random error term.

MODEL II

Nevertheless, this model seeks to find an answer to the actual magnitude and trends of capital flight and macroeconomic stability in Nigeria within the period under study.

Speed of Adjustment of Capital Flight

Following the Koyck transformation, we derive the median and mean lag respectively as shown below as model II:

a. Median lag of the capital flight: $\left[-\frac{\log 2}{\log \lambda_i} \right] \dots\dots\dots(1)$

Where, λ_i is the long run multiplier of instrument target. This tells length of time required for first half or 50% of the total change in the capital flight following a unit sustained change in capital flight instruments. For a high speed of adjustment we expect λ_i to be low.

b. Mean lag of the instrument target: $\left[-\frac{\lambda_i}{1 - \lambda_i} \right] \dots\dots\dots(2)$

This is the weighted average of all the lags involved or lag-weighted of time and shows the speed of adjustment of the adjustment with which capital flight respond to economic growth.

4. Presentation of Results

The result of the model was gotten from the estimation of model specified in the methodology. The estimation procedure employed in this analysis is the ordinary least squares method of estimation (OLS) and the econometric software is the E-view 4.1 version.

The empirical result presented in table 4.1 shows that a percentage increase in the rate of capital flight (CAPLT) will lead to an 84% decrease in the dependent variable, economic growth (RGDP). This implies that an increase in rate of capital flight (CAPLT) decreases the rate of economic growth (RGDP) and this conforms to a priori or theoretical postulations and holds ground in Nigeria economy.

In the rate of exchange (ERX), a percentage increase in exchange rate, decreases the level of economic growth (RGDP). This implies that increase in exchange rate, decreases the level of economic growth in the economy. This does not conform to theoretical postulations.

In trade balance (LOG (TBAL)), a percentage increase in the trade balance (LOG (TBAL)) will lead to 21% percentage increase in economic growth (RGDP). This implies that level of trade balance increases the level of economic growth (RGDP) in Nigeria and conforms to a priori expectations.

In the level of interest rate (INTD), a unit increase in level of interest rate will lead to 0.6 percentage decrease in economic growth (RGDP).

Table 4.1: Dependent Variable Log (Rgdp)

| VARIABLES | COEFFICIENT | STD. ERROR | T-STAT | PROB |
|-------------|-------------|------------|-----------|--------|
| C | 9.391267 | 9.326545 | 3.000694 | 0.0000 |
| LOG(CAPFLT) | -0.841194 | 0.268123 | 3.137343 | 0.0045 |
| EXR | -0.002330 | 0.008973 | -0.259661 | 0.7973 |
| LOG(TABAL) | 0.219248 | 0.152573 | 2.436999 | 0.0006 |
| INTD | -0.006513 | 0.040158 | -4.162183 | 0.0005 |
| LOG(MFQ) | -0.759799 | 0.920273 | -3.825623 | 0.0001 |

R² = 0.86 DW = 1.72
 R² = 0.83 (F-STAT) = 26.0

Sources: Authors' Computation.

In manufacturing sector output as a ratio of GDP (MAFQ/GDP), a percentage increase in the manufacturing sector output as a ratio of GDP will lead to 76 percentage increase in economic growth (RGDP). This implies that the rate of interest increases the level of economic growth (RGDP) in Nigeria.

In the Domestic Political Climate (DPC), a unit increase in Domestic Political Climate will lead to 55 percentage increase in economic growth (RGDP). This implies that the rate of political stability increases the level of growth in economic growth (RGDP) in Nigeria.

Economic Criteria (a priori) Test

This criteria is used to examine whether the regression parameter coefficients agrees with theoretical postulations or conforms to a priori expectations both in sign and magnitude.

The table below shows whether the economic variables under study conform to a priori expectations or not.

Table 4.1.2:

| Variables | Coefficient | Signs | Conclusion |
|-------------|-------------|----------|------------------|
| LOG(CAPFLT) | -0.841194 | NEGATIVE | CONFORMS |
| EXR | -0.002330 | NEGATIVE | DOES NOT CONFORM |
| LOG(TABAL) | 0.219248 | POSITIVE | CONFORMS |
| INTD | -0.006513 | NEGATIVE | CONFORMS |
| LOG(MFQ) | -0.759799 | NEGATIVE | CONFORMS |
| DPC | 0.551926 | POSITIVE | CONFORMS |

Sources: Authors' Computation.

From the table above all the variables conforms to theoretical postulations or apriori expectations, except exchange rate.

Statistical Criteria (First Order) Test

The Coefficient of Multiple Determinations (R^2)

From the empirical analysis, it was observed that the adjusted coefficient of determination (R^2) value is 0.83 and this implies that about 83% of the fluctuations in economic growth (RGDP) are caused by the regressors used in the study. Hence, the total amount of variations in the regressand (RGDP as proxy for economic growth) is explained by the regressors to the tune of 83%.

Table 4.2.2: Student t-Test

| VARIABLES | T-STAT | T-TAB | DECISION RULE | ASSESSMENT |
|-------------|-----------|-------|---------------|-------------------------------|
| LOG(CAPFLT) | 3.137343 | 2.042 | REJECT HO | STATISTICALLY SIGNIFICANT |
| EXR | -0.259661 | 2.042 | ACCEPT HO | NOT STATISTICALLY SIGNIFICANT |
| LOG (TBAL) | 2.436999 | 2.042 | REJECT HO | STATISTICALLY SIGNIFICANT |
| INTD | -4.162183 | 2.042 | REJECT HO | STATISTICALLY SIGNIFICANT |
| LOG(MFQ) | -3.825623 | 2.042 | REJECT HO | STATISTICALLY SIGNIFICANT |
| DPC | 0.734391 | 2.042 | ACCEPT HO | NOT STATISTICALLY SIGNIFICANT |

Sources: Authors' Computation.

From the above table, all the variables are statistically significant having passed the rule of thumb and conventional t-criteria except the exchange rate (EXR) and DPC.

F-Statistics

From the table 4.1 above, since the $F^* = 26.0$ is greater than the $f\alpha (k-1/N-k) = 4.92$, we therefore conclude that the overall regression is statistically significant at 5% significant level; implying that there exist a relationship between economic growth (RDGP) and the explanatory variables of the study.

Econometric Test (Second Order Criteria)

The second order test referred to as the econometric test is based on the satisfaction of the Classical Linear Regression Model (CLRM). The following batteries of econometric tests were found necessary and vital to this research with normality test.

The normality test was employed in this study in order to ascertain whether the error term of the regression model followed a normal distribution or not. The test follows a chi-square distribution hypothesis. Since χ^2 computed = 5.99 is greater than the χ^2 tabulated =3.75=Jarque Bera value, we therefore reject H_0 and conclude that the error term in normally distributed.

Autocorrelation Test

dl=1.143 and du=1.739, while DW=1.72

Since $Du < d < 4-d = 1.71 < 1.72 < 2.25$ then we do not reject H_0 of no autocorrelation, both positive and negative.

Unit Root Test for Stationarity

Table 4.3.1: Result of Stationarity Test

| VARIABLES | ADF STAT | 5% CRITICAL VALUE | ASSESSMENT | ORDER OF INTEGRATION |
|-------------|----------|-------------------|------------|----------------------|
| LOG(CAPFLT) | -3.19 | -2.94 | STATIONARY | I(1) |
| EXR | -3.63 | ” | ” | I(1) |
| LOG(TBAL) | -7.37 | ” | ” | I(1) |
| INTD | -7.35 | ” | ” | I(1) |
| LOG(MFQ) | -5.40 | ” | ” | I(1) |
| DPC | -4.23 | ” | ” | I(1) |
| RGDP | -6.23 | ” | ” | I(1) |

Sources: Authors’ Computation.

From the above table, all the variables under study are all stationary at different order of integration/stationary.

Table 4.3.2: Result of Model Specification Test

| VARIABLES | F-STATISTIC | F-TABULATED | ASSESSMENT |
|--------------------|-------------|-------------|----------------------|
| Dependent variable | 4.95 | 2.92 | Model well specified |

Sources: Authors’ Computation.

From the empirical result above, since $F_{cal} = 4.95$ is greater than the tabulated $F_{value} = 2.92$, we reject the null hypothesis (H_0) of model not well specified hence accepting the alternative (H_1) of model well specified. This implies that the model is well specified having passed through the criteria for model specification.

Heteroscedasticity Test

The model is specified as:

$$\mu_1 = \beta_0 + \beta_1 \text{LOG(CAPFLT)} + \beta_2 \text{(EXR)} + \beta_3 \text{LOG(TBAL)} + \beta_4 \text{(INTD)} + \beta_5 \text{LOG(MFQ/GDP)} + \beta_6 \text{(DPC)} + \beta_5 \text{(LOG(CAPFLT))^2} + \beta_6 \text{(EXR)^2} + \beta_7 \text{LOG(TBAL)^2} + \beta_8 \text{(INTD)^2} + \beta_9 \text{LOG(MFQ/GDP)^2} + \beta_{10} \text{(DPC)^2} + \beta_{11} \text{((CAPFLT) ((EXR)) (LOG(TBAL) (INTD) (MFQ/GDP) (DPC) + V_t}$$

Table 4.3.3: White Heteroscedasticity Test

| VARIABLE | F-STATISTIC | F-TABULATED | ASSESSMENT |
|--------------------|-------------|-------------|------------------|
| Dependent variable | 1.10 | 2.92 | Homoscedasticity |

Sources: Authors' Computation.

From the empirical results above, we accept the hypothesis of equal variance (Homoscedasticity) and conclude that there is equal and constant variance of the error term of the estimated parameters of the regression model.

Results from Co-Integration Test

Table 4.3.4: Co-Integration Tests

| | T-ADF | Lag | 5%Critical value | 1% Critical value |
|----------|---------|-----|------------------|-------------------|
| Residual | -1.7455 | 2 | -1.955 | -2.656 |
| Residual | -1.5877 | 1 | -1.955 | -2.656 |
| Residual | -1.3688 | 0 | -1.955 | -2.656 |

Sources: Authors' Computation.

From the table, since the residual t-ADF of -1.7455, -1.5877 and -1.3688 at lag length 2, 1, and 0 respectively are less than the 5% and 1% critical values of -1.955 and 2.656, it means that the residual is not stationary and hence there is no long-run linear relationship or co-integration among the variables. Here the residuals show the linear combination among economic variables under study.

Speed of Adjustment (Speed of response of RGDP to changes in net Capital Flight)

In this section, we mainly utilize the estimation of the Autoregressive Distributed Lag (ARDL) model, which is the based model for this work. It is clear that the median and mean lags serve as a summary measure of the speed with which Y (RGDP) responds to Xs (Net Capital Flight and other variables).

Therefore;

Median Lag =

$$\left[\frac{-\log 2}{\log \lambda} \right] = \left[\frac{-0.30102999}{\log(0.879129)} \right] = - \left[\frac{0.30102999}{-0.05594739355} \right] = 5.380590067$$

Where,

λ_i is the long run multiplier of instrument target and is the elasticity coefficient of the lag of dependent (value (RGDP_{t-1})), which shows coefficient of 0.879129. Note that its values are between 0 and 1 (i.e. $0 < \lambda_i < 1$). As stated earlier, it tells length of time required for first half or 50% of the total change in the real gross domestic product following a unit sustained change in instruments target. The closer λ_i is to 1, the lower the rate of responds to the changes of the instruments targeted. Therefore, for a high speed of adjustment we expect λ_i to be low.

$$\text{Mean lag} = \left[\frac{\lambda_i}{1 - \lambda_i} \right] = \left[\frac{0.879129}{1 - 0.879129} \right] = 7.273293097$$

In other words, the median and mean lags calculated above show 5.38 and 7.27 respectively. This simply proves that real gross domestic product has a very low speed of responds to the changes in the net capital flight. This finding is supported in our previous observation in the analysis of two stages least square (2SLS) estimate, which showed that net capital flight has a low multipliers effect to the changes in real gross

domestic product in Nigeria, having multiplier effect of -0.000043unit. Though, statistical speaking, the result reaffirmed the negative significant impact of net capital flight to real gross domestic product in Nigeria, it has a long-run impact to the aggregate growth of the economy with the mean lag of 7.27 units and median lag of 5.38 units respectively.

5. Summary of the Findings

This study investigated the impact of capital flight on economic growth and development in Nigeria. As a result of the behavioral pattern of the variables, it adopted Ordinary Least Squares (OLS) technique in the study.

The results show that all explanatory variables were statistically significant having passed the rule of thumb and conventional t-criteria except the exchange rate (EXR) and DPC. Further, the coefficient of determination (R^2) was found to be high which indicates that the explanatory variables were able to account for greater proportion of the total variation of the dependent variable, Real Gross Domestic Product (RGDP). The value of Durbin-Watson Statistic (DW) shows that there is no presence of auto correlation; hence the model produced a parsimonious result. The result also shows that there is no endogeneity problem and that the variables were significant.

From the research findings of the study, the following can be inferred: Capital Flight which is a proxy for net flows shows a negative impact on Real Gross Domestic Product (RGDP); Domestic Political Climate (DPC) which measures the macroeconomic domestic political stability of the economy has a positive impact on Real Gross Domestic Product; Exchange rate (EXR) measures price of other currencies has a negative relationship with Gross Domestic Product (RGDP); Trade balance (TBAL) which measures the ratio of export to import has positive impact on economic growth in Nigeria; Interest rate differential (INTD) which is the difference between international and domestic interest rate shows a positive relationship with the Gross Domestic product.(RGDP) and the manufacturing sector output growth shows a positive impact on Real Gross Domestic product (RGDP). Finally, from the result of speed of adjustment, it shows on the average, that capital flight has low multiplier effect to the changes in Real Gross Domestic Product (RGDP).

6. Conclusion

The problems of capital flight have always engaged attentions of several analysts and of successive governments in Nigeria because it has denied the country of enormous resources which would have been used to improve economic growth and sustainable development. The findings of this study have improved on the general understanding of the impact of capital flight on the economy. The impact of capital flight on economic growth was also explored. It was reported that capital has negative impact on economic growth and exchange rate. Incorporating the findings of the study in addressing the problems of capital flight generally by implementing the recommendations of this study will enhance sustainable management of the use of resources for the development of the domestic economy. Thus, this will in turn facilitate the reversal of the impact of capital flight on economic growth.

7. Policy Recommendations

In the light of the findings and analysis of this research, the following recommendations are considered necessary for short, medium and long term implementations:

- I. Strategic management of foreign direct investment inflow transactions needed to avoid possible leakages of the same money going out as capital flight. The study recommends the need for policies which stimulate economic growth since increase in economic growth reduces capital flight.
- II. Concerted steps should be taken to improve security of life and property in the country. This is because security lapse is a threat to investment as well as businesses which severely constrains

output of manufacturing concerns. Where business and investment are threatened, investors will be forced to move their assets abroad thereby causing increase in capital flight

- III. Since high but sustaining economic growth reduces capital flight in the country, there is need to address the decay in the critical infrastructure like power supply, transportation system, water supply, etc, as this will help to boost domestic investment as well as attract genuine foreign investors.
- IV. There is dire need for governments of various nations to partner with anti-graft agencies to ensure that all channels through which people launder money abroad are stopped. In addition, international anti-corruption law should be implemented to reduce the quantum of money laundering.
- V. There is need to stabilize the financial and macroeconomic environment leading to drastic reduction of domestic economic uncertainty, reversal of capital flight and attraction of foreign direct investment.

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