

Dynamic Empirical Analysis of the Determinants of Capital Flight in Nigeria

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Abstract: The importance of capital flight and its determinants in Nigeria cannot be over emphasized giving the need for capital towards the country's development. However, it is worrisome of the rate evasion of these capital which is contrary to economic theory. Questions are being raised on how Nigeria can achieve the quest of development in the face of this rapid capital evasion. This study therefore investigated on the determinant of capital flight in Nigeria. Recent data from World Bank Development Indicators (WDI) were used employing the residual approach to measure of capital flight in an autoregressive distributed lag (ARDL) model technique. Outcome from the research revealed there is no short-run dynamics among the variables and previous levels of capital flight substantially fueled more capital flight. Trade openness and exchange rate appreciation were found to be a substantial means to reduce capital flight. Overall, the study revealed that external debt, inflation, foreign exchange reserve, interest rate spread and political stability constituted the determinants of Nigeria's capital flight. The political regime was found not to have a substantial impact on the flight of capital. The study therefor recommend among others, the avoidance of non-productive loans to reduce external debt, appreciation of exchange rate and the increase in trade openness.

Keywords: ARDL; capital flight; determinants; trade openness

JEL Classification: D24

1. Introduction

The magnitude of capital flight in developing countries is taking a thoughtful facet and setting huge peril to their sustainable growth. The severity of this delinquent is that most developing countries are deprived of nations' revenues and left with fiscal deficits. Hence, they are puzzled with substantial debt burdens, foreign exchange dearth as well as poverty of different dimension making capital flight result to a considerable lack of resources needed to finance growth (Hermes, Lensink & Murinde, 2002). Sub-Saharan African (SSA) countries has experienced capital flight

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more than other countries and regions. In 2018, capital outflow in SSA was US\$11.87billion (World Development Indicator (WDI), 2018).

The Nigeria Capital flight is more brutal and substantial than other SSA countries almost all through the past six decades. Nigeria is among the least developing countries in the world although among the ten highest oil producing countries. An estimation by Hermes and Lensink (1992) on six SSA countries (Nigeria inclusive) revealed that Nigeria has the largest prevalence of capital flight of US\$21 billion which is about 60% of the total capital flight from the six countries. The IMF (1987) bare that between 1972 and 1989, Nigeria experienced a \$7,573million loss given to capital flight and about US\$3.5billion flew out of Nigeria in 1996. The total of 9.12 billion of capital outflow left Nigeria in 2010 and as at 2018, it was recorded to be 12.84billion (World Development Indicator (WDI), 2018).

Capital flight in Nigeria is having many damaging consequences on the economy with significant low investment levels on account of capital flight having multiplier corollary on the economy as a whole including the destabilization of domestic interest rate and exchange rates, debt burden, high unemployment rate and inequality. From a position in which Nigeria was “under borrowed” in the late 1970’s, external debt stock, amounted to US\$300 billion in the 1980’s which was roughly equal to its income per capital and about US\$31.28billion in 2018.

The renewed interest in the study of capital flights particularly its determinant gained momentum in the past three decades and this is associated with the realization of the imperative part that external assets hoarded always in overseas plays if left in home economy (Ajayi, 1992). The high amount of outflow of resources from Nigeria now poses a conundrum to policy-makers in the country. This has led to continuous search for a lasting solution to this problem and has attracted the attention of researchers and policy makers. However, the effectiveness of any measure to curb capital flight in Nigeria would depend largely on accurate assessment of the basis of capital flight in Nigeria which tend to differ among countries.

Although assessment studies on capital flight from Nigeria are not new, but the most recent study (Oluwaseyi, 2017) with reliable methods of estimation end in 2014 data. This study however failed to look at the political system as a factor to cause capital outflow. There is therefore a lacuna necessitating the need to update the analysis of capital flight from Nigeria, taking into consideration the major economic events that occurred in the recent years. Hence, based on this premise this study strives to contribute to acquaintance in four major ways. First, the research investigates on the causing factors of capital flight from Nigeria. Second, it examined the effect of regime (military or civilian) on capital flight most which has been neglected by past studies. Third, the study investigates on the flow of causality among capital flight and its determinants.

2. Literature Review

2.1. Conceptual issues

There is no general agreeable definition of the concept of capital flight. According to Okoduwa (2005), capital flight is a very large transfer of currency from one country to another, in search of protection against adverse economic, political or military development. Thus, with these economic, social and political turnouts in less developed countries including Nigeria, capital flees from these countries to the developed world.

Kindleberger (1987) on the other hand defined capital flight as the run-away capital that or “flees” atypical risk at home irrespective of the legality of such flight.

2.2. Theoretical Literature

Theories shows negative connectivity between current account balances and capital flight, inferring that capital flight tend to worsen current account challenges while foreign debt and capital flight are positively intertwined, supporting the “round-tripping” or ‘back-to-back’ hypothesis. Some theories of capital flight:

The Investment Diversion Theory: This theory holds that capital leaves and are siphoned from their countries to advance counties owing to macroeconomic uncertainties and poor political status in developing country for superior investment prospects in advanced counties (Ayaji, 1992).

The Debt Driven Thesis: according to this thesis, on account of a county’s hefty external debt, inhabitant are spurred to transfer the borrowed money for the development of the countries and resources to foreign countries. This lowers the spur to save and invest in domestic country assuming that enormous foreign debt are impressions of exchange rate, crowding out of domestic capital for the payment of the debt.

The Tax-Depressing Thesis: This thesis submits that there is usually lose in revenue and a fall in government revenue on account of wealth accumulated abroad beyond what the domestic government can control and tax through capital. This reduces the revenue generating ability of the government.

The Austerity Thesis: This opined that those that are poor are often awfully indebted in the face of capital flight from a country. They agonize more because they are endangered by the excruciating severity of government measures to pay off debt obligation to international banks (Pastor 1990).

2.3. Empirical literature.

There exist a good number of literatures on capital flight ranging from its determinant to impact on the economy. Capital flight from 1970 to 1992 was analyzed by Nyatepe-Coo (1994) for seven SSA countries. The results showed the expanse of capital from Nigeria, Ghana, Congo-Zaire, and Zambia were 91%, 58%, 35% and 32% of external borrowing respectively. This wastied to the unpredictability of the government's actions, macroeconomic volatility and political flux while contrary to this, Ajayi (1997), estimated the enormousness of capital flight from 21 Africa countries that are heavily indebted within the Sub-Saharan area for the years 1980 through 1991 and no relationship was found between capital flight and external debt.

Boyce and Ndikumana (2001) also estimated the aggregate of capital flight from 25 low-income African countries in the Sub-Saharan area for 1970 to 1996 using panel data. They saw a direct substantial linkage between capital flight and external borrowing and the estimated amount when adjusted by trade mis-inviocing totaled more than \$193 billion.

Dim and Ezenekwe (2014) assessed the socio-economic bases of Nigeria capital flight, employing hot money and residual methods using Fully Modified Ordinary Least Squares (FMOLS), the Seemingly Unrelated Regression (SUR) model, and Error Correction Model. Their result show that only previous capital flight, fiscal equilibrium and exchange rate substantially explained Nigeria's capital flight for all the estimation techniques employed. From their findings, the problem of capital flight affects future investment and widens the savings gap for years following.

Gankou, Bendoma and Sow (2016) found that a surge in external debt increases capital flight and political stability helps in reducing capital flight when they examined the door theory for Cameroon from 1970 to 2010 while Forson, Obeng, and Brafu-Insaidoo (2017) examined the determinant of capital flight in Ghana for 1986-2015 using ARDL model found that the high ratio of national real interest rate as it relates to overseas interest rate, high-quality governance, growth rate of RGDP substantially reduces capital flight. Also while, current external debt to GDP ratio and financial development increases capital flight, previous levels of external debt to GDP reduces it.

Oluwaseyi (2017) investigated on the bases and causality of Nigeria capital flight and discovered that capital flight is mainly caused by interest rate disparity using vector error correction mechanism (VECM) and granger causality test on capital flight, political instability, interest rates differential, and economic growth for the period 1980 to 2014. Previous levels of capital flight significantly influences current year's level of capital flight and unidirectional causality ran from economic growth to capital flight.

Aneto (2019) examined the macroeconomic causation of SSA countries' capital flight over the time 1981 to 2015. The study employed the ARDL and established that economic growth and external debt negatively and significantly sway capital flight in the short run and long run but interest rate, inflation and trade openness had no substantial impact. While, *Mwangi, Njuguna, and Achoki (2019) ascertained the connectivity linking capital flight and FDI in Kenya employing quarterly time series data for 1898 to 2018. They engaged the ARDL and flaunted that a surge in current FDI will upturn capital flight while a surge in former levels of FDI will bring down capital flight. GDP and inflation were found not to substantially impact on capital flight*

3. Methodology

3.1 Theoretical Framework

Six different methods can be identified in literature in the assessment of capital flight (residual method, the Morgan Guaranty method, the Dooley method, the hot money method, the trade misinvoicing method, and the asset method) (Claessens, Naude & Mundial, 1993). However, for the current study, the residual method is adopted because it is straightforward in its calculation of capital flight, minds all personal capital outflows as capital flight then, matches up their roots and uses of such capital flows (Aneto, 2019; Al-Basheer et al., 2016 among others).

Capital flight is therefore measured as:

$$CAF = \Delta EXD + NIFDI - (CAD + \Delta FEXR) \dots \dots \dots 3.1$$

Where: Δ represents change, CAF represents capital flight, EXD is the accumulation of gross external debt (public sector's net increase in external debt), NFDI is net overseas direct investment inflows, CAD denotes current account deficit and FEXR is additions to reserve.

3.2. Model specification

To explore the causations of capital flight (accounting for both economic and non-economic factors) and difference in capital flight given the political stability which is captured by the different regimes, the study engaged an Autoregressive distributed lag (ARDL) model. This is given that capital flight requires the spillover of the previous regime and economic situation into the present time. Countries that experienced great intensity of capital flight in the recent past are liable to experience greater capital flight in succeeding years given the import of the momentum initiated by capital flight itself (Ndikumana and Boyce, 2002). ARDL also allows for the combination of variables of $I(0)$ and $I(1)$. Thus ARDL model of this study is given as:

CAF = F (RGDP_g, EXD, EXCR, INF, FEXR INTS, TOP, POS).....3.2

Assuming a linear relationship, the model is stated econometrically as:

$$CAF = \beta_0 + \beta_1 RGDP_g + \beta_2 EXD + \beta_3 EXCR + \beta_4 INF + \beta_5 FEXR + \beta_6 INTS + \beta_7 TOP + \beta_8 POS + u_t \dots 3.3$$

CAF = capital flight

RGDP_g = growth of Real Gross Domestic Product.

EXD = External Debt

EXCR = Exchange rate

INF = Inflation

FEXR = Foreign exchange reserve

INTS = interest rate spread

TOP = Trade openness captured by Total trade-GDP ratio

POS = Political stability captured by dummy variable which takes the values of 0 for Military and 1 for Civilian administration (politically stable period).

U_t = Disturbance or error term.

$\beta_1, \beta_5 < 0$ while $\beta_2, \beta_3, \beta_4, \beta_6 > 0, \beta_7 < 0$

The model is transformed into an Auto-Redistributed Lag (ARDL) approach in the following

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$$CAP_{it} = \varphi_0 + \varphi_1 CAF_{t-1} + \sum_{j=1}^n \varphi_j \Delta X_{j-k} + u_t \dots 3.4$$

$j=1$

Where:

X_t = All other independent variables.

$i, j, j-k, j-1$ = unidentified lags to be ascertained by various criteria.

3.3. Estimation procedures: the possibility of multicollinearity amidst the variables was tested and the order of stationarity of the variables were verified using the Augmented Dicky Fuller test. With the presence of unit root in the variable, cointegration was carried out using the ADRL Bond testing which makes use of f statistics. Lastly, the diagnostic and the stochastic properties tests were carried out.

3.4. Data

The data for the study were obtained from the World Bank (World Development Indicators), (2018) covering the period 1970 to 2018. Data series are in dollar (US\$) to overcome exchange rate shocks. The E-views 9.0 econometrics package was used for the analysis.

4. Empirical Findings

4.1. Preliminary test

4.1.1. Correlation

Correlation scrutiny was carried out on the data to determine their degree and nature of correlation. The result (Table 4.1) showed no presence of multicollinearity amidst the variables. It was revealed that all variables with the exception of inflation and external debt were negatively correlated with capital flight indicating that increase in these variable brings about a falloff capital flight while a surge in inflation and external debt results to an upturn in the flight of capital. However, a multivariate regression analysis will be used for the policy implication of this study.

Table 4.1. Correlation Matrix

	CAF	RGDPG	EXD	EXCR	INF	FEXR	INTS	TOP	POLS
CAF	1								
RGDPG	-0.316018	1							
EXD	0.226259	0.188044	1						
EXCR	-0.115186	0.274274	0.154438	1					
INF	0.147845	0.223473	0.325306	-0.330726	1				
FEXR	-0.369672	0.324759	-0.332899	0.777869	-0.405592	1			
INTS	-0.071619	0.301336	0.303671	0.544595	0.029419	0.389347	1		
TOP	-0.821455	0.486975	-0.310175	0.063034	-0.166959	0.451735	0.106971	1	
POLS	-0.289941	0.477401	-0.022742	0.862191	-0.406402	0.809358	0.513617	0.357114	1

Source: Authors' Computation using EViews

4.1.2. Unit root test.

The level of stationarity of the variables were varied out using the Augmented Dicky Fuller test. Table 4.2 revealed that capital flight (CAF), RGDP growth rate (RDGPg), and domestic inflation were stationary at levels I(0) while, external debt (EXD), exchange rate (EXCR), foreign exchange reserve (FEXR), interest rate spread (INTS) and trade openness (TOP) were found stationary at first difference

I(1).

Table 4.2. Condensedexhibition of Unit-Root Tests using ADF

Variable	Levels	5% critical	1 st diff	5%critical	Remark
CAF	3.885250	-2.943427			I(0)
RGDPg	-3.422852	-2.945842			I(0)
EXD	-2.252778	-2.941145	-4.611306	-2.943427	I(1)
EXCR	1.805879	-2.941145	-4.258912	-2.943427	I(1)
DINF	-2.973335	-2.941145			I(0)
FEXR	-0.691125	-2.945842	-5.514412	-2.945842	I(1)
INTS	-2.136564	-2.941145	-6.536317	-2.945842	I(1)
TOP	-2.368726	-2.941145	-6.517312	-2.945842	I(1)

Source: Authors' Computation using EViews 9

4.1.3. Cointegration test

The bounds testing (ARDL) cointegration method was used. Result showed no cointegration amongst the variables with the F sat of 2.106489 lower than the 5% critical value of 2.22 and 3.39 at the lower and upper bounds respectively. Hence the null hypothesis of no cointegration was accepted.

4.2. Presentation and interpretation of ARDL Estimation

The ARDL was used in securitizing the causations of capital flight along with political stability effect. The outcome is as presented in Table 4.3 below.

Table 4.3. ARDL Estimation

Dep. Var= Capital flight (CAF)				
Long-run estimation				
Method = ARDL;				
R² = 0.78; F-Stat. = 11.06 F-Pro.= 0.0005; DW = 1.77				
Independent Variable	Coefficient	Standard error	t-sat	Probability
CAF(-1)	0.372274	0.137632	2.704844	0.0115*
RGDPG	4.59E+08	4.19E+08	1.095073	0.2828
EXD	0.046199	0.354630	0.130273	0.8973
EXCR	-1.50E+08	66931463	-2.243326	0.0330*
DINF	18329504	1.09E+08	0.167853	0.8679
FEXR	0.556458	0.275644	2.018758	0.0532*
INTS	1.59E+08	6.97E+08	0.228629	0.8208
TOP	-1.616904	0.250423	-6.456682	0.0000*
POLS	8.44E+09	8.38E+09	1.007787	0.3222
C	8.21E+08	8.69E+09	0.094477	0.9254

Source: Author's computation using Eviews 9 on the data; *shows substantial at 5% level.

The R², the F-statistics and DW-statistics revealed that the ARDL result was well fitted. The regressors in the model explained 87% of the variation in capital flight while DW-statistics of 1.77 showed the absence of first-order serial correlation as was confirmed by the Breusch-Godfrey test with f sat of 2.549623 and probability of 0.0975. The model also passed the heteroskedasticity (Breusch-Pagan-Godfrey heteroskedasticity test with f sat of 1.798063 and probability of 0.1133), and normality of errors (Jarque-Bera test with F sat of 3.887744 and probability of 0.143149).

Discussion of result.

On the relationship involving the regressors and capital flight (CAF), the result showed that previous levels of capital flight, economic growth rate, external debt (EXD), inflation (DINF), foreign exchange reserve (FEXR) and interest rate spread (INTS) were positively related with CAF where previous levels of capital flight, and FEXR were established to have momentous impact on current levels of capital flight. This is in obedience to the position that capital flight tends to obey the import to the impetus created by itself. The positive relation of RGDPg and FEXR with CAF however came out contrary to expectation and theory. The result means that a US\$1 increase previous CAF, RGDPg, EXD, and FEXR leads to 0.37, 4.59E+08, 0.05 and 0.56 Dollar increase in capital flight respectively.

The positive relationship between EXD and CAF tends to give credence to the debt-driven thesis of capital flight as well as the "round-tripping" or 'back-to-back' hypothesis. The servicing of debt results in the drain of foreign reserve which will

increase capital flight. In line with the above, Dim and Ezenekwe (2014), Oluwaseyi (2017), Salandy and Henry (2018) and Aneto (2019) also found lagged capital flight, external debt impacting on capital flight while Aneto (2019) found no significant impact of DINF and INTS in agreement with this study. However, Ajayi (1997) found no significant impact of external debt. Exchange rate (EXCR) and trade openness (TOP) were negatively and substantially related with CAF contrary to our expectation. This is however in line with the explanation that economies that are open are not much vulnerable to capital flight given that the transparency will help in increasing the confidence of investors in the long run. This was found in agreement with the findings of Salandy and Henry (2018). Analyzing the impact of political stability captured by the different types of regime, the result showed that capital flight was more in the civilian regime than in the military regime although it had no substantial impact. Hence, we may not be able to conclude which regime contributed more to capital flight. However, civilian regime has experienced several instability contrary to expectation that civilian government brings about stability. The corruption perception index as presented by Transparency international for Nigeria in 2016 was 28 and 27 in 2018 placing Nigeria at the rank of 136th position out of 176 countries that were examined (Trading Economics, 2019). Capital that would have been used for the development of the country is been carted away by corrupt leaders. This is confirmed by the findings of Gankou, Bendoma and Sow (2016).

5. Conclusion and Policy Recommendations

5.1. Policy Implications

Centered on the empirical assessment of the research paper, the following policy implication are drawn:

- Previous level of capital flight tends to instigate current level of capital flight. Hence, a long run policy measures with targets is recommended towards reduction of capital flight in Nigeria.
- Trade openness was established to have an inverse and substantial impact on capital flight. Hence, the study recommends that there should be increase in the trade openness as it will discourage capital flight.
- Exchange rate was identified to significantly reduce capital flight, the study therefore recommend the stability of Nigeria's exchange rate as well as the appreciation of the exchange rate by means of controlling relative prices and relative increase in income which increases the propensity to import as well as an increase in relative interest rate (deposit). This will create confidence in investors that they will not lose the value of their investment.

- External debt was established to increase capital flight although it is not substantial. Nevertheless, we recommend the formulation of reforms that is geared towards reducing external debt. Non-productive loan and expenditure should be avoided. Loan should be channeled into capital and productive investment.
- There was no substantial difference in amount of capital flight whether there is political stability or not. Therefore, policy measures to put an end to capital flight should be enforced irrespective of the political state and the regime.

5.2. Conclusion

The importance of capital flight and its determinants in the Nigeria economy cannot be over emphasized. The inevitable challenge therefore requires to devise strategies that would improve the quality of policy making in order to bring about large and sustained inflow of capital flight into Nigeria to the years ahead. This research investigated on the determining factors of Nigeria's capital flight employing an ARDL model. The study found only the presence of long-run connectivity between capital flight and the variables used and there was no short-run dynamics. Previous level of capital was established to be the major factor fueling Nigeria's capital flight. The research supports the debt-driven thesis. Trade openness was found to be the main tool to checkmate capital flight in Nigeria. Inflation and interest rate spread were also found to influence capital flight although not substantially. The study acclaimed among other things the stability of exchange rate, debt reduction as well as the increase in trade openness.

5.3. Further Research

We recommend the examination of the upshot of interest rate differential on Nigeria's capital flight. The more stable and lower foreign interest rate may be an attractive force to local capital.

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