Journal of Indonesian Applied Economics, Vol.7 No.2, 2017: 131-145

THE CAPITAL FLIGHT FROM NIGERIA: AN EMPIRICAL ANALYSIS

Musibau Hammed Oluwaseyi *
School of Economics, Finance and Banking, Northern University of Malaysia

ABSTRACT

The capital flight from Nigeria has become a trending macroeconomic issue within the country. This is as a result of its implications on economic growth due to the fall in investment as a result of scarce capital created by persistent capital flight. On estimates, Nigeria losses $22 billion to capital flight annually as a result of bad economic system alone; hence, the study analyzes the impacts of capital flight on Nigeria's economic growth. The investment of portfolio theory is adopted in the study. This posits that an investor considers the real returns from investment in the determination of the detainment of wealth, or otherwise, in a country. Thus, the real interest rates differential has been identified as a main determinant of capital flight in an economy. This study employs the vector error correction mechanism (VECM) and granger causality test to analyze the causality between capital flight, interest rates differential, political instability and economic growth; using available data between 1980 and 2014. The results show that current year of capital flight is influenced by its previous year values, and there is a negative relationship between capital flight and Nigeria's economic growth. Similarly, the results depict that a positive (and significant) relationship exists between capital flight and interest rates differential, explaining that the higher risk-adjusted returns abroad influence domestic capital flight. Also, there is unidirectional causality running from economic growth to capital flight; while there is independence among other variables.

Keywords: Capital Flight, Interest Rates Differential, Economic Growth, VECM.

JEL Classification: F32, G11, G12

INTRODUCTION

The issue of capital flight has received significant attention in developing countries in recent years. Several arguments have been upheld on the causes, magnitude as well as the consequences of capital flight on the host country. Most investors in the less developed countries often respond positively to investment opportunities, while the developed countries counterparts reluctantly invest as a result of risks which surround investment climate, rather, they prefer investing overseas (Ajayi, 1997). The capital flight connotes the

* Corresponding e-mail: mizbauhameed2010@gmail.com

leakages of resident capital from the home country to foreign countries; which are mainly the consequence of economic (as well as political) uncertainties in the domestic economy. In this process, scarce economic resources are lost. Moreover, the resources that are flown overseas would have been more useful and beneficial for the improvement of welfare in the home country (Schneider, 2003).

The capital flight refers to difference (residual) between capital inflows and the foreign exchange outflows (Fofack and Ndikumana, 2010). Thus, any inflow which neither offsets the deficits in the current account nor adds to reserves is termed capital flight. This is usually in response to economic and political uncertainties in a country, where an investor tries to avoid the risks in the domestic economy and seeks to gain from higher yields abroad by investing in short-term securities. The sustainable level of development, which may be attained when a country is able to sufficiently mobilize and retain resources, has been adversely affected by capital flight leading to inefficiency in the management of the economy, reduction in per capita income as well as the investment in the domestic economy; thereby worsening the problem of income inequality (Ajayi, 2014; Nkurunziza, 2014).

Similarly, the failure of government in the provision of enabling environment and strengthening of government institutions, in order to increase investor confidence in the local economy, may enhance capital flight. This is because poor governance manifests in corruption, unstable macroeconomic environment, trade an incorrect invoice, smuggling and poor regulatory frameworks; all of which encourage capital flight (Boyce and Ndikumana, 2012). As part of unstable economic environment, Davies (2008) opines that capital flight could be directly stimulated by war, or through the fears of war, which heighten political risks; or indirectly through such means as inflation and public debts, thereby inducing capital flight.

The incessant loss of economic and social welfare in recent times has necessitated the need for the menace of capital flight to be addressed head-on. The widespread of capital flight in Nigeria has resulted into a loss of $22.1 billion in just five weeks (in 2015); $2billion annually as a result of weak educational policies alone; and an estimated sum of $22 billion reported to have been lost due to trade incorrect invoice and other anomalies in the petroleum sector between 2002 and 2011. The widespread of capital flight has also

culminated in the drastic fall in the domestic exchange rate with the resultant effects on loss of employment, rise in inflation rate (from an average of 9% to 17.6% in August 2016), depletion of foreign reserves, rise in debts and further capital flight. (See This Day, 2016; Vanguard, 2014; Vanguard, 2015; NBS, 2016).

The objective of the study is to analyze the impacts of capital flight on Nigeria's economic growth. As an attempt to improve upon previous studies, the study tests the empirical relationship between capital flight and political instability in Nigeria, using available data. A lot of studies have not been carried out on this particular aspect (to the best of my knowledge), even though many studies have examined the theoretical relationship.

EMPIRICAL OF LITERATURE REVIEW

Several studies have been carried out to examine the impacts of capital flight on different economies. Davies (2008) used both ordinary and generalized least squares in his analysis of post-war capital flight and inflation, and obtained a positive relationship between capital flight and war (dummy). This means that a period of war in a country may be that of high capital flight. This is similar to the results obtained by Akanbi (2015), using the Engel Granger two-step procedures, and Ndikumana (2008) who used inflation differential as a measurement of economic environment that influences capital flight.

Using panel OLS, Ndikumana (2008) established a negative coefficient for capital flight; which is similar to that obtained by Nkurunziza (2014) using the incremental capital-output ratio (ICOR), and Akanbi (2015) who obtained a negative coefficient for investment. This posits that for most of the studies, empirical analysis explains that capital flight tends to reduce the growth rate.

Also, Akanbi (2015) obtained a negative coefficient for the real interest rates differential in his regression analysis, He estimated that interest rates differential and investment affect capital flight (at 0.05) of (2.45846) and (4.53176) standard errors, in the long-run, respectively. He therefore posits that capital flight creates long term economic growth challenge, while also reducing capital for investment in infrastructures. This is similar to the result obtained by Ndikumana et al. (2016), using the two-step GMM procedure.

However, positive coefficient was obtained for the same variable in analysing capital flight by Ndikumana (2008), Ajayi (1992), and Lawanson (2007) using ordinary least squares.

Similarly, Ndikumana et al. (2014) established that a positive relationship exists between the current and previous years' capital flight. Lawanson (2007) and Ndikumana et al. (2016) also obtained a positive coefficient for lagged capital flight. While analyzing the relationship between capital flight, economic growth and other macroeconomic variables in Nigeria using the residual estimation method. Ajilore (2010) obtained that the coefficient of capital flight estimates is positive (for most of the considered periods), which indicates that residents persistency engage in capital flight. Thus, he identifies trade incorrect invoicing as a means by which residents illegally transfer capital abroad.

METHODOLOGY AND DATA SOURCES

The capital flight is a form of capital flow, and is therefore is explained by the portfolio theories. One of the major theories of international capital movements is the interest parity theory (also known as the theory of international interest arbitrage) as it affects the short-term capital. This posits that funds may be allocated among different international financial centers in order to maximize returns, while not incurring exchange rates risks (Collier, Hoeffler and Pattillo, 1999). This portends that investors in the domestic economy do not divest completely, but for the domestic economic and political environments to be improved. As such, investors attempt to avert risks, while also taking advantage of higher returns in the foreign markets.

In line with this portfolio analyzes and following Ndikumana et al. (2014), Nkuruziza (2012), Collier et al. (2004) and Davies (2008); among others, the relationship among capital flight, real interest rates differentials, political instability and economic growth is hereby expressed as follows;

$$CF_t = f\,(RINTDIFF_t, PTS_t, GDP_t) \quad (1)$$

where: *CF* = Capital flight

RINTDIFF = Real Interest Rates Differential

PTS = Political Instability

GDP = Economic Growth.

The functional relationship between these variables (expressed in equation 1) may be simplified in linear equation form as:

$$CF_t = \beta_0 + \beta_1 RINTDIFF_t + \beta_2 PTS_t + \beta_3 GDP_t + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

where β_0 is the intercept; β_1 , β_2 , *and* β_3 represent the variable coefficients, while ε_t is the white-noise residual (error) term.

The annual time-series data spanning thirty four (35) years between 1980 and 2014 were obtained for estimations. The capital flight is calculated (following Boyce and Ndikumana (2011) who adopt the World Bank (1985) estimates, with adjustment for trade incorrect invoice by summing up the change in external debts stock, net inflow of FDI, and Trade incorrect Invoice, and subtracting change in reserves and current account balances from the results. The data on all these variables, including that on Nigeria's GDP and domestic deposit rates, as well as inflation rates for Nigeria and the United States, were obtained from the website of the World Bank's Global Development Indicators. The data on Nigeria's imports from, and exports to the rest of the world; U.S bond rate (used in calculating interest rates differentials) were obtained from the website of the IMF's Direction of Trade Statistics. The political instability is measured by Amnesty International's political instability index. The (real) interest rates differentials measures the difference between the (real) foreign rates of interest on securities (treasury bills, bonds) and the (real) domestic deposit rates. In their analysis, Ndikumana and Sar (2016) consider US treasury bills as a proxy for the world interest rates. The economic growth is measured by nominal GDP to ascertain the level of domestic production; and (subscript) *t* denotes the time-series feature.

The analytical technique used in the study is vector error correction mechanism (VECM). The foremost step in econometric techniques is to test for the unit root sequence such that the null hypothesis (ρ=1: not stationary) is established against the alternative hypothesis (ρ<1: stationary). For VECM, the expectation is that the null hypothesis (may) be rejected, implying that data has no unit root (is stationary) only after the first-difference. This stationarity test is a pre-examination procedure to ascertain the stationarity (or otherwise) of the data - the suitability of the data for estimation- and to avoid a spurious regression.

The Augmented version of the Dickey-Fuller (ADF, 1979) regression examines the existence of unit root, Y_t such that:

$$\Delta Y_t = \alpha + \lambda t + \gamma Y_{t-1} + \sum_{i=1}^{k} \beta_i \Delta Y_{t-i} + \varepsilon_t \text{ , ……. (3)}$$

where *Y* represents each of the *GDP, PTS, RINTDIFF* and *CF*; individually.

The Johansen test of cointegration is then adopted to examine the long-run association among the series. Hence, the properties of the regression residuals for stationarity is such that error term (ε_t) is stationary, so that the series are cointegrated. The order of integration of the residuals will be tested using the ADF test:

$$\Delta \hat{\varepsilon}_t = \rho \hat{\varepsilon}_{t-1} + \sum_{i=1}^{n} \delta_i \Delta \hat{\varepsilon}_{t-i} + \nu_t \text{ ……. (4)}$$

If the (variable) series are found to have one or more cointegrating vectors, then the Vector Error Correction Mechanism (VECM) will be a suitable tool of analysis. According to Sim (1980), if there is simultaneity among the series, there should be no distinction between the endogenous and exogenous variables and all should be treated as endogenous.

The VECM analyses the short-run disequilibrium situation and the long-run equilibrium adjustment among the variables; while treating all the variables as endogenous. It examines the speed of convergence to equilibrium, and how much change in dependent variable is due to changes in the explanatory variables. The VECM specification is given by:

$$\begin{aligned}\Delta CF_t = {} & \beta_0 + \rho ECT_{t-1} + \beta_1 \Delta RINTDIFF_t + \beta_2 \Delta PTS_t + \beta_3 \Delta GDP_t + \beta_4 \Delta CF_{t-1} \\ & + \beta_5 \Delta RINTDIFF_{t-1} + B_6 \Delta PTS_{t-1} + B_7 \Delta GDP_{t-1} + \beta_8 \Delta CF_{t-2} + \beta_9 \Delta RINTDIFF_{t-2} \\ & + B_{10} \Delta PTS_{t-2} + B_{11} \Delta GDP_{t-2} + \varepsilon_t \text{ … … … … … … … … … … … … … … … … (5)}\end{aligned}$$

where: β_i represent both the short-run and long-run effects, which examine the instantaneous and lagged effects of a (current) change in CF_t on the changes in each of the regressors; ρ is the feedback (adjustment) effect, which shows the speed of adjustment, for example, the magnitude of the disequilibrium that is being corrected (ρ<1 to ensure stability).

In line with existing literatures, such as Boyce and Ndikumana (2011), Nkurunziza (2012; 2014), Ajayi (1995; 1997; 2014), among others, the coefficient of GDP is expected to be negative, indicating that capital flight reduces the level of growth. Also, the coefficient of (real) interest rates differential may either be positive or negative. Similarly, the coefficients of political instability index and that of capital flight are expected to be positive each; negative capital flight indicates reverse capital flight.

EMPIRICAL ANALYSIS

The results of the data analysis are summarized and explained below. These are obtained from the author's computations, using E Views 9.0

Table 1. Unit Root Tests

Variable	ADF Statistic/ PP Statistic		Remark
	T- Statistic	Critical Value	
CF	-4.286574	-2.954021	I(1)**
INTDIFF	-5.422305*	-2.954021	I(1)**
GDP	-7.158150	-2.957110	I(1)**
PTS	-8.518861	-2.954021	I(1)**

*indicates stationarity using the PP Test **indicates significance at 0.05

The table summarizes the results of the ADF as well as the Philip Perron (PP) tests for unit root. As denoted by I (1), the series have unit root (non-stationary) at level but become stationary at first difference. This is evident from the fact that the t-statistics is greater than the critical value, while the probability value is less than 0.05, for each of the series. The series are therefore modelled using first difference.

Hence, the long-run relationship will be tested using the Johansen cointegration test.

Table 2. Johansen Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.493981	49.78057	40.17493	0.0041
At most 1 *	0.427514	27.30160	24.27596	0.0202
At most 2	0.234897	8.895256	12.32090	0.1753
At most 3	0.001806	0.059658	4.129906	0.8413

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
*denotes rejection of the hypothesis at the 0.05 level**MacKinnon-Hang-Michelis(1999) p-values

In the results in Table 2, trace statistic specifies two cointegrating equations (None and At most 1) since the values of the trace statistics are greater than critical values, for each level, and it is significant at 0.05 level. Thus the series, as shown by the results, are cointegrated and therefore there is long-run association among the series.

Therefore, Vector Error Correction Mechanism (VECM) will be used to obtain the speed of adjustment for convergence to equilibrium; and to examine the short-run disequilibrium situations as well as the long-run equilibrium adjustments between variables. The choice of VECM is informed based on the stationarity of the series after the first difference, as well as their cointegration.

Table 3.Vector Error Correction Mechanism

Variable	Coefficient	Standard Error	T-Statistic
C	6.868333	3.25916	2.10739
ECT	-0.280135	0.08740	-3.20511
D(CF(-1))	0.458908	0.19445	2.36002
D(CF(-2))	-0.300885	0.18303	-1.64389
D(RINTDIFF(-1))	0.043751	0.08334	0.52496
D(RINTDIFF(-2))	0.159806	0.07193	2.22183
D(PTS(-1))	-1.512039	4.37139	-0.34589
D(PTS(-2))	2.071255	4.27062	0.48500
D(GDP(-1))	-0.186875	0.10784	-1.73288
D(GDP(-1))	-0.224634	0.11589	-1.93829
Coefficient of Determination (R^2)			0.47
F-Statistic			2.18
Akaike Information Criterion			8.10
Schwarz Information Criterion			8.56

Source: Authors' Calculation

Table 3 summarizes the results of the VECM. From the results, it is observed that the error correction term (*ECT*) has a negative coefficient, which is less than one. This is a necessary condition for VECM, since all the variables as treated as endogenous. Thus, this explains that the rate of adjustment back to equilibrium is 2.8%. Similarly, the coefficient of capital flight (lagged 1) is positive and significant. This explains that current **y**ear capital flight is being influenced by the previous year capital flight. This is similar to the results obtained in the studies carried out by Ndikumana (2014); Lawanson (2007). Real Interest rates

differential (lagged 2) is also positive and significant. This explains that investors are averse to domestic risks and opt for foreign investment if the interest rate is higher in the foreign market. This is similar to the results obtained by Ndikumana (2008); and may be considered the other side of findings by Ndikumana et al. (2016), using the US treasury bills rate as a proxy for world interest rate to test the validity of portfolio theory. They obtained a negative and significant coefficient for interest rate differential, and explained in the direction of the domestic market (that higher interest rate in the domestic market discourages capital flight).

The coefficient of political instability is both negative and positive (for lagged 1 and 2 respectively), but not significant. This goes in line with the studies carried out by Davies (2008). This may imply that political situation and terrorism in some parts of the country has not really affected the operations of investors. This may not also be unconnected with the present war against terrorist groups in Nigeria, which may have raised investors' confidence.

Finally, the coefficient of GDP (for the lagged periods 1 & 2) is negative and significant. This goes in line with the studies carried out by Lawanson (2007), as well as Nkurunziza (2014) on capital flight and poverty in Africa. This confirms the 'apriori' expectations that capital flight tends to reduce the level of economic growth.

The F-Statistic measures the overall (whole) significance of a model. With a coefficient of 2.18, which is above the 1.96 critical value, the model may be said to be good-fitted.

Table 4, Variance Decomposition Method

Period	S.E.	CF	RINTDIFF	PTS	GDP
1	12.28326	100.0000	0.000000	0.000000	0.000000
2	19.11513	98.89728	0.002581	0.035132	1.065007
3	21.85542	91.58693	1.316642	0.334295	6.762135
4	22.47454	88.81259	1.300949	1.476263	8.410197
5	22.84080	86.82892	1.443007	2.390695	9.337377
6	24.03846	79.47483	3.140401	2.747729	14.63704
7	25.76391	69.88009	5.221104	5.800417	19.09839
8	27.81737	59.99192	6.439814	10.66364	22.90462
9	30.73354	50.36758	7.687878	13.59878	28.34576
10	35.12559	40.73832	8.540549	15.09875	35.62238

Source: Authors' Calculation

The variance decomposition (Table 4), describes the effects of the shocks and subsequent adjustment in each of the capital flight variables. In the short run, impulse of

innovation (shock) to CF account for 100 percent variation of the fluctuation in *CF* (own shock). Shocks to *RINTDIFF, PTS* and *GDP* can cause 0.00, 0.00 and 0.00 percent, respectively.

In the long run however, impulse of innovation (shock) to CF account for 40.74 percent variation of the fluctuation in CF (own shock). Shocks to *RINTDIFF, PTS* and *GDP* can cause 8.54, 15.10 and 35.62 percent, respectively.

To confirm the validity of the results, residual diagnostic tests are conducted. These are explained by the tables below;

Table 5. Heteroscedasticity Test

Chi-Sq	df	Prob.
198.6080	180	0.1626

The results of the heteroscedasticity test is as shown (in Table 5) above. Since the probability value is more than 0.05, the null hypothesis cannot be rejected. In other words, it may be ascertained that the residual is free from heteroscedasticity.

Table 6. The Serial Correlation LM Tests

Lags	**LM-Stat**	**Prob**
1	10.23358	0.8541
2	20.55230	0.1964
3	13.25884	0.6537

The above table (Table 6) summarizes the serial correlation LM test results. It can be observed that the probability values for each of the lags is more than 0.05. Hence, the null hypothesis cannot be rejected. In other words, it can be confirmed that the series are free from serial correlation.

Table 7. Pairwise Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
GDP does not Granger Cause CF	33	4.53013	0.0197
CF does not Granger Cause GDP		0.39342	0.6784
PTS does not Granger Cause CF	33	0.28305	0.7556
CF does not Granger Cause PTS		0.24387	0.7852
RINTDIFF does not Granger Cause CF	33	0.15762	0.8549
CF does not Granger Cause RINTDIFF		0.08113	0.9223
PTS does not Granger Cause GDP	33	1.96045	0.1596
GDP does not Granger Cause PTS		2.30296	0.1186
RINTDIFF does not Granger Cause GDP	33	0.37708	0.6893
GDP does not Granger Cause RINTDIFF		2.05297	0.1472
RINTDIFF does not Granger Cause PTS	33	1.08474	0.3518
PTS does not Granger Cause RINTDIFF		0.19559	0.8235

Source: Authors' Calculation

The Granger-Causality test was conducted, as shown by Table 7 (above), to examine the abilities of the variables to influence one another. From the table, it is observed that there is a unidirectional causality running from GDP to CF (GDP granger causes CF). However, PTS, RINTDIFF and GDP do not granger cause one another. This implies that there is independence among political instability, (real) interest rates differential and economic growth.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study analyzes the impacts of capital flight on Nigeria's economic growth. Empirical analysis of political instability as a factor inducing capital flight, using available data, was also considered; which hitherto had not been found in recent literatures. There exists (a significant and) negative association between capital flight and economic growth; which explains that the prevalence of capital flight reduces the rate of economic growth. In the estimation of capital flight, the World Bank residual approach, with modifications to capture trade incorrect invoicing, was adopted. The estimates of capital flight is positive for most of the periods covered (1980-2014), which portends that there is continuous repatriation of

capital abroad by residents and investors. Similarly, capital flight has been identified as a consequence of economic and political instabilities. Thus, interest rates differential was found to be a major reason investors consider repatriating capital abroad, since the coefficient was found to be positive and significant. The coefficient of the index of political instability, however, was found to insignificantly influence capital flight. It was equally observed that there is a unidirectional causality running from GDP to CF (GDP granger causes CF), and there is independence among PTS, RINTDIFF and GDP, since they do not granger cause one another.

Having established the findings of the study, the following (policy) recommendations are hereby made;

1. Real interest rates differential has been found to be a major factor inducing capital flight from Nigeria. A relatively stable macroeconomic environment should therefore be pursued by policy-makers. An economic environment with lower inflation rate tends to increase investors' real returns from investment and discourage flight capital. A moderate contraction of monetary policy, and its alignment with fiscal policy, would go a long way in stemming the rising inflation and increase investors' real returns, thereby encouraging the retainment of private capital in the domestic economy.
2. Efforts towards improving the domestic economic performance through lower Debts-to-GDP-ratio, infrastructural improvement and a managed floating exchange rate, should be doubled and re-doubled, so as to forestall the re-occurrence of capital flight and increase investor confidence in the domestic economy.
3. Similarly, policy actions should be made towards improving and creating favorable environments for financial securities to thrive. A sound financial market often discourages investors from pursuing such abroad when local ones are relatively stable and developed, with expected higher returns. These may be in the form of a relative increase in financial returns and enlightenment on the low-riskiness-non-tax nature of portfolio investment, so as to increase confidence in financial securities in the domestic economy.
4. Reduction in political unrest created by terrorism and political class will induce confidence towards increased investment, and therefore reduces capital flight.

Government should therefore take its war against terrorism to the next level so as to increase domestic capital for investment and encourage the reverse capital flight.

REFERENCES

Ajayi, S. Ibi. (1992). An Econometric Analysis of Capital Flight from Nigeria. *World Bank Working Paper Series*, No.993 (Washington DC, World Bank)

Ajayi, S. Ibi (1995). Capital Flight and External Debt in Nigeria. *African Economic Research Consortium Research Paper,* No.35.

Ajayi, S. Ibi. (1997). An Analysis of External Debt and Capital Flight in the Severely indebted Low Income Countries in Sub-Saharan Africa. *Research Department, International Monetary Fund Working Paper* 68 (Washington DC).

Ajayi, S. I., & Ndikumana, L. (Eds.). (2014). Capital Flight from Africa: Causes, Effects and Policy Issues. *Oxford: Oxford University Press*.

Ajilore, T. O. (2010). An Economic Analysis of Capital Flight from Nigeria. *International Journal of Economics and Finance* **2**(4): 89

Akanbi, O. B. (2015). An Econometric Approach to Short and Long Run Analysis of the Nigerian Economy-Capital Flight in Nigeria. *International Journal* 83.

Boyce, J., and Ndikumana, L. (2008). New Estimates of Capital Flight from Sub-Saharan African Countries: Linkages with External Borrowing and Policy Options. *Working Paper Series*, No. 166

Boyce, J., and Ndikumana, L. (2011). Africa's Odious Debts: How Foreign Loans and Capital Flight Bled a Continent. *Zed Books.*

Boyce, J.K., and Ndikumana, L. (2012). Capital Flight From sub-Saharan African Countries:

Updated Estimates, 1970 – 2010. *PERI Research Report*.

Collier, P., Hoeffler, A., Pattillo, C. (1999). Flight Capital as a Portfolio Choice. *IMF Working Paper*: 99/171

Davies, V.A.B. (2008). Postwar Capital Flight and Inflation. *Journal of Peace Research*, 45, 519-537.

Dickey, D. A., and Fuller, W.A. (1979). Distribution of the Estimators for Autoregressive Time-Series with a Unit Root. *Econometrica*, Vol. 74, No. 366, pp. 427-31.

Engle, R.F., and Granger, C.W. (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica*, 55(2), 251-276. doi. 10.2307/1913236.

Fofack, H., and Ndikumana, L. (2010). Capital Flight Repatriation: Investigation of its

Potential Gains for Sub-Saharan African Countries. *African Development*

Review, 22 (1), 4-22.

Granger, C.W.J. (1969). Investigating Causal Relations by Econometric Models and Cross Spectral Methods. *Econometrica*, 35, pp. 424-38

IMF (2015). World Economic Outlook. *Washington DC: IMF*.

Johansen, S. (1988). Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control*, 12(2), 231-254. doi. 10.1016/0165-1889(88)90041-3.

Johansen, S., and Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration—With Applications to the Demand for Money. *Oxford Bulletin of Economics and Statistics*, 52(2), 169-210. doi. 10.1111/j.1468-0084.1990.mp52002003.

Lawanson O. A. (2007). An Econometric Analysis of Capital Flight from Nigeria: a Portfolio Approach. *Africa Economic Research Consortium.* Nairobi. Paper No 166.

NBS (2016): National Bureau of Statistics Inflation Figures, assessed via: *http://www.nigerianstat.gov.ng/*

Ndikumana, L. (2014): International Tax Cooperation and Implication of Globalisation. *CDP Background Paper* No. 24, New York: UNDESA.

Ndikumana, L., and Sarr, M. (2016). Capital flight and Foreign Direct Investment in Africa. *United Nations University World Institute for Development and Economic Research*

Nkurunziza, J. D. (2014). Capital Flight and Poverty Reduction in Africa. *Political Economy Research Institute.*

Phillips, P.C., and Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*, 75(2): 335-346.

PTS. (2015). The Political Terror Scale. *Retrieved 5/31/2016 http://www.politicalterrorscale.org/ptsdata.php*

Schneider, B. (2003). Measuring Capital Flight: Estimates and Interpretations. *Overseas*

Development Institute, London.

Sims, C. A. (1980). Macroeconomics and reality: Modelling Economic Series. *Clarendon Press*, Oxford.

The Vanguard, Nigeria. (2014). Nigeria losses N3.8 trillion to trade misinvoicing. *Accessed through: www.vanguardngr.com/ Nigeria losses N3.8 trillion to trade misinvoicing*

The Vanguard, Nigeria. (2015). Capital flight: Economy hard hit by $22.1bn outflow in 5 weeks', *Accessed through: http://www.vanguardngr.com/economy hard hit by $22.1bn outflow in 5 weeks*

This Day, Nigeria. (2016). Lawmaker Decries $2bn Annual Capital Flight, Weak Education Policy. *Accessed via: http://www.thisdaylive.com/lawmaker decries $2bn annual capital flight, weak education policy.*

World Bank. (1985). Case Study: Mexico in Capital Flight and Third World Debt, edited by D.R. Lessard, & Williamson, J. (Washington DC: *Institute for International Economics*).

World Bank. (2015). World Development Indicators (various years), *Washington D.C.*