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An Empirical Analysis of the Impact of Capital Flight on Nigeria Economy

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Abstract

This research work presents an empirical analysis of the impact of capital flight on Nigeria economy. The research work made use of secondary data collected from Central Bank of Nigeria's Statistical Bulletin of various issues and National Bureau of Statistics. The empirical measurement covers the sample period between 1980 and 2014. An Ordinary Least Square (OLS), Augmented Dickey-Fuller unit root test and Co-integration test were adopted to carry out an extensive analysis of the adopted variables which include Gross Domestic Product, Capital Flight and Exchange Rate. The results revealed that the variables have a significant effect in the positive direction. This implies that as capital flight inflow increases into the economy, it in turn increases the exchange rate causing a positive influence on the Nigeria economy within the period considered. However, recommendations were made that the government should create an enabling environment for investments in Nigeria so as to encourage more inflow of funds from abroad and dissuade outflow of funds by providing investment outlets. The monetary authority should ensure capacity building for local investments. Also, the Federal Government should intensify effort in the recovery of looted funds in foreign accounts and its anti-corruption campaign as this will improve the country's image and attract inflow of funds from abroad for investment purposes in Nigeria.

Keywords: Capital Flight, Monetary Authority**,** Anti-Corruption, Gross Domestic Product, Exchange Rate

Introduction

The issue of capital flight has been a major concern in less developed country like Nigeria, where there is inadequacy of capital necessary for development. According to Saheed et al (2012), capital flight is viewed as a movement of local saving from less developed economies away from financing local real investment for a foreign financial investment in advanced economies of the world leaving the economic growth and development of the less developed economies at base.

Berger (1987) refers to capital flight as illegal movement of capital from one country to another. He emphasized the legality of movement of capital across countries. The legality, then connotes that the countries affected imposes exchange or capital control. Capital flight entails flow of financial assets resulting from the holder's view that capital is subjected to inordinate level of risk due to devaluation, hyperinflation, political turbulence or

expropriation of retained earnings at home in domestic currencies. The owner of funds in this hostile environment is seeking a safe place for his fund (Cooper and Hardt, 2000). Ayadi (2008) found interest differential and exchange rate depreciation significant causes of capital flight in Nigeria and concluded that capital flight is depriving Nigeria economy of substantial and critical financial resources needed for investment and building of social capital among others.

This outflow of funds from developing countries brings about reduction in capital available for investment purposes that could spur economic growth and development. However, where such phenomenon occurs, developing countries are forced to obtain external borrowings to augment domestic funds in other to achieve economic growth hence, the burden of debt servicing which may eventually plunge the country to perpetual bondage of poverty.

In spite of the attention paid to capital flight, it still remains a serious problem in a number of developing economies. In the past years, interest in capital flight has slightly increased and there is yet again a strand of literature dedicated to this problem. In many of these countries capital flight appears rather voluminous, taking away a substantial part of the resources which could otherwise be used for reversing the perverse economic trends like high indebtedness foreign exchange shortages and finance for economic growth. Capital flight is not a solved problem and it still remains an important issue requiring attention.

Capital flight is attributed to the sluggish growth and persistent unfavorable balance of payment in most developing countries including Nigeria, to capital flight not minding the private transfer and long-term capital inflows to those countries.

Empirical and Theoretical Framework

The influence of capital flight on any economy has made it to attract attention and several studies. Most of the studies concentrated more on the determinants of capital flight than its impact on the economy and the studies being conducted on the Latin America. In recent time's emphasis have been shifted on African continent and impact on her economies.

The studies on capital flight for Africa include those of Ajayi (1992), Umoru (2013), Saheed and Ayodeji (2012), Otene and Richard (2012), Ayodele (1991), Kolapo and Oke (2012), for Nigeria, Njimanted (2008) for Cameroun, Nyoni (2000) for Tanzania, Makochekanwa (2007) for Zimbabwe amongst others who researched on capital fight in African nations.

Kolapo and Oke (2012), analyze the relationship between Nigerian economic growth and capital flight determinants between 1985 -2010. Where they analyze their data with co-integration and concluded that inflation and exchange rate are prominent causes of capital flight from Nigeria and that foreign investments significantly affect the level of gross domestic product.

Saheed and Ayodeji (2012) , conducted research on impact of capital flight on exchange rate and economic growth in Nigeria. The study revealed a positive relationship between capital flight and investment in Nigeria and concluded that capital flight has a positive effect on Nigeria economic growth.

Umoru (2013) in his study of capital flight and the Nigerian economy analyzed using co-integration to test the relationship between gross domestic product and capital flight, exchange rate, domestic investment, public expenditure and industrial output in Nigeria. His study revealed that capital flight impacts adversely on the growth rate of GDP and such growth rate effect of capital outflow is significant. Capital control is insignificant in stimulating GDP growth rate in Nigeria, exchange control weak, industrial output is a veritable resources

of GDP growth rate in Nigeria, public expenditure has significant positive impact on GDP growth in Nigeria and that the growth effects of domestic investment is insignificant in Nigeria. The study therefore suggested a need for effective control of capital outflows.

Adaramola and Obalade (2013) in their study analyzed the impact of capital flight on Nigeria economic growth used the Johansen co-integration test to investigate the dynamic relationship between capital flight and economic growth. The study revealed that there is a long run co-integration among the variables and that capital flight significantly and positively influence Nigerian economic growth in the short run. It was revealed that capital flight significantly and positive influence economic growth of Nigeria in long runs.

Ajayi (2012) in his comprehensive study of capital flight and Nigerian economic growth for 40years (1970-2009) analyzed the relationship between gross domestic product, external debt, foreign direct investment, external reserves and current account balance. The study revealed that capital flight and its assessments are significant factors for explaining economic trends in Nigeria. Also capital flight has negative impact on the economy. He recommended that funds from foreign sources in form of loans, gifts, grants and aids should be judiciously used for economic development of Nigeria.

Cuddington (1986) in his study of Argentina, Mexico, Uruguay, and Venezuela uses portfolio adjustment model. He found that residents consider foreign financial assets as an edge against domestic inflation. Also, exchange rate overvaluation, disbursement of public debt and lagged capital flight as motivator of capital outflow. While, Boyce (1992) found that unfavorable foreign exchange position and budget deficit are among capital flight motivators. Ngeno (1994) has it that outflow of capital is the major cause of currency overvaluation.

Dooley(1978) in his study shown a significant relationship between capital flight and inflation repression and risk premium through a study of seven developing countries which are Brazil, Argentina, Chile, Venezuela, Philippine, Peru and Mexico. The study found that since residents expected returns on domestic assets are threatened by inflation, the perceived inflation risk therefore motivate capital flight. His study aligned with Kolapo and Oke (2012), Folorunsho(2008).

Awung (1995) opined that transfer of embezzled public funds into private account abroad, political instability caused by uncertainty and insecurity, coup and counter coups could motivate residents to invest abroad as against Dooley (1978), Boyce (1992), Cuddinton (1986) amongst others.

Ojo (1992), in his study of three countries namely; Cote d' Ivore, Nigeria and Morocco revealed that Nigeria had the largest capital flight of about 35billion and emphasized the importance of domestic economic environment including policy related variables as government budget defect and changes in external debt. Also, khern and Hague (1987) estimated capital flight from four sub-saharan African countries: Nigeria, Sudan, Tanzania and Uganda from 1976 to 1989, using their estimates capital flight may seem small compares to Latin American countries but the burden as a percentage of GDP is higher by 61% of sub-saharan compared to 22% for Latin American . Murinde *et al.,* (1996) by their calculation, discovered that Nigeria experienced the biggest capital flight over the period representing 60% of the combined total of the four countries in the sample of their econometric analysis of the determinant of capital flight which indicated that the most explanatory variables is public external borrowing. The results revealed that capital flight and external debt are closely dependent.

In Nigeria, the Continuous capital flight result from reliance on foreign hospitals for medical care; foreign schools and universities for training and foreign shopping malls for

purchasing necessary and luxury goods. This is complemented by the exportation of corruptly acquired money to overseas bank accounts for private use (Niyi Akinnaso, 2015).

Objectives of The Study

The main objective of this research work is to carry out an empirical analysis of capital flight's impact on the economic growth in Nigeria.

Theoretical Framework

There are three approaches to the measurement of capital flight in the theory of international economics. They are; the balance of payment approach, residual approach and bank deposit approach. The residual approach which is considered for this study was developed by the World Bank (1985). The approach measured capital flight as the difference between sources and uses of capital inflows. The sources of capital inflows are increases in external debt and foreign direct investment. These capital inflows are used to finance either current account deficits or increase in official reserves.

Mathematically, residual approach to capital flight measurement is represented as:

$KCF = \Delta ED + FDI - CAD - \Delta FR$

Where:

KCF is capital flight

FDI is Net Foreign Investment Inflows

ED is stock of external Debt

CAD is Current Account Balance

FR is the stock of Foreign Reserves.

Methodology

The research work made use of secondary data collected from Central Bank of Nigeria's Statistical Bulletin of various issues and National Bureau of Statistics. The empirical measurement covers the sample period between 1980 and 2014. An Ordinary Least Square (OLS), Augmented Dickey-Fuller unit root test and Co-integration test were adopted to carry out an extensive analysis of the adopted variables which include Gross Domestic Product, Capital Flight and Exchange Rate.

Model Specification

For the purpose of analysis, data for this research work are secondary data obtained through the Central Bank of Nigeria's Statistical Bulletin, National Bureau of Statistics and others for the period between 1980 and 2014. The mathematical representation of the variables identified from this model is presented as follows:

Gross Domestic Product (GDP) = f{capital flight(CF), exchange rate(EXCR)}

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \mu$

Where:

Y = GROSS DOMESTIC PRODUCT

X_1=Capital Flight

X2 = Exchange Rate

Presentation of Regression Results

The regression result on the empirical analysis of the impact of capital flight on the Nigeria economy is presented below

Table 1
Regression Analysis
Dependent Variable: Y
Method: Least Squares
Date: 02/05/16 Time: 09:36
Sample: 1980 2014
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	7.65E-06	8.53E-07	8.967305	0.0000
X2	137.3605	30.67911	4.477330	0.0001
C	-785.2840	2226.966	-0.352625	0.7268

R-squared	0.876091	Mean dependent var	13651.05
Adjusted R-squared	0.867831	S.D. dependent var	24587.41
S.E. of regression	8938.779	Akaike info criterion	21.12069
Sum squared resid	2.40E+09	Schwarz criterion	21.25674
Log likelihood	-345.4914	Hannan-Quinn criter.	21.16647
F-statistic	106.0568	Durbin-Watson stat	0.545596
Prob(F-statistic)	0.000000		

Source: Eview Result output

Table 1 shows the regression result of the research study. The findings revealed that the result even not spurious due to a low value of Durbin-Watson statistic than is less than one when compared to the coefficient of determination (R^2) that is having a significant higher value, there is need to test for the stationarity of the variables. However, the significant high value of R^2 which is approximately 87.61% explains the true behaviour of the independent variables (capital flight and exchange rate) while 12.39% explains the disturbance error term in the model. The adjusted R^2 of approximately 86.78% explains the true behaviour of the R^2. Hence, the model shows a good fit.

Based on the t-statistic test, it is revealed that the calculated value of capital flight and exchange rate (8.97 & 4.48) as variable against it p-value (0.00 & 0.00) is lesser than the test of significance at 5%. This revealed the significant effect of both variables on the economic growth of Nigeria within the period considered.

The overall test of statistic, the F-statistic, revealed that the p-value (0.00) of the calculated F-statistic (106.06) is lesser than the test of significance at 5%; we therefore reject the null hypothesis and conclude that there is significant impact of capital flight on the Nigeria economy based on both macroeconomic variables considered within the period.

Unit Root Tests Result: The Analysis

Table 2

Augmented Dickey-Fuller unit root test for the variables

Variables	ADF	5%	Differencing	LAGS
Y	3.9033	0.0052	1st	1
X1	8.0143	0.0000	1st	1
X2	5.4436	0.0001	1st	1

Source: Author computation from Eviews 7

Table 2 shows the Augmented Dickey-Fuller unit root test for the variables so as to verify if the variables are stationary are not. The findings of the results revealed that the considered variables are stationary and does not have a unit root problem at 5%, first differencing and at lag 1 within the period.

Analysis of Co-Integration Test Results

Table 3

Johansen's Multivariate Co-integration test

Hypothesized No. of CE(s)	Eigen-value	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.9998	269.5068	29.7971	0.0001	249.7977	21.1316	0.0001
At Most 1*	0.4931	19.7091	15.4947	0.0109	19.7016	14.2646	0.0063
At Most 2*	0.0003	0.0075	3.8415	0.9307	0.0075	3.8415	0.9307

Source: Author computation from Eviews 7

The Table 3 shows the Johansen's Multivariate Co-integration test of the variables used in this research study. Details of the result are shown in the appendices section. Based on the hypothesized number of co-integrated equation(s), it is revealed that both the Trace and Max-Eigen statistic test has two co-integrating equation because their p-value is lesser than the test of significance at 5%; we therefore reject the null hypothesis and conclude that there is two co-integrating equation between the variables.

The Dynamic Analysis of Result

The findings revealed that the variables used in the research study are not spurious but have a low Durbin-Watson statistic value lesser than one. The Augmented Dickey-Fuller unit root test was employed to correct the low value of the Durbin-Watson statistic and correct for stationarity. At first differences and lag 1, it is revealed that the variables are stationary and does not have a unit root problem. The co-integration test revealed two co-integrating equations among the variables. The dynamic effect of this is that the variables have a long and short run relationship.

Policy Implication and Recommendation

The coefficient of the variables, which is capital flight and exchange rate, is positively signed. The variables have a significant effect in the positive direction. This implies that as capital flight inflow increases into the economy, it in turn increases the exchange rate causing a positive influence on the Nigeria economy within the period considered. This is in agreement with the research done by Otene and Richard (2012) that despite the estimated model reported a negative effect on the capital flight to the Nigeria economy; it has a

significant impact on economic growth. However, the government should create an enabling environment for investments in Nigeria so as to encourage more inflow of funds from abroad and dissuade outflow of funds by providing investment outlets. The monetary authority should ensure capacity building for local investments. Also, the Federal Government should intensify effort in the recovery of looted funds in foreign accounts and its anti-corruption campaign as this will improve the country's image and attract inflow of funds from abroad for investment purposes in Nigeria.

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Appendices

Year	Gross Domestic Product (Y)	Capital Flight (X1)	Exchange Rate (X2)
1980	85.72	103.68	0.60
1981	94.33	9460.37	0.61
1982	101.01	23.85	0.67
1983	110.06	1658.86	0.72
1984	116.27	126.01	0.76
1985	134.59	3236.22	0.89
1986	134.60	9843.22	2.02
1987	193.13	29992.42	4.02
1988	263.29	6097.22	4.54
1989	382.26	20411.92	7.39
1990	472.65	57818.86	8.04
1991	545.67	28680.09	9.91
1992	875.34	41239.74	17.30
1993	1089.68	36922.73	22.05
1994	1399.70	40739.48	21.89
1995	2907.36	236.41	21.89
1996	4032.30	116.02	21.89
1997	4189.25	59.10	21.89
1998	3989.45	369.94	21.89
1999	4679.21	1113345.94	92.69
2000	6713.57	646948.54	102.11
2001	6895.20	611584.19	111.94
2002	7795.76	621229.34	120.97
2003	9913.52	1261337.62	129.36
2004	11411.07	2001271.80	133.50
2005	14610.88	2466275.81	132.15
2006	18564.59	2986918.51	128.65
2007	20657.32	4104917.11	125.83
2008	24296.33	37977.70	118.57
2009	24794.24	NA	148.88
2010	54612.26	NA	150.30
2011	62980.40	8841113287.00	153.86
2012	71713.94	7069934205.00	157.50
2013	80092.56	5562873606.00	157.31
2014	89043.62	4655849170.00	158.55

Dependent Variable: Y
Method: Least Squares
Date: 02/05/16 Time: 09:36
Sample: 1980 2014
Included observations: 33

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R-squared	0.876091	Mean dependent var	13651.05
Adjusted R-squared	0.867831	S.D. dependent var	24587.41
S.E. of regression	8938.779	Akaike info criterion	21.12069
Sum squared resid	2.40E+09	Schwarz criterion	21.25674
Log likelihood	-345.4914	Hannan-Quinn criter.	21.16647
F-statistic	106.0568	Durbin-Watson stat	0.545596
Prob(F-statistic)	0.000000		

Null Hypothesis: D(Y) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.903296	0.0052
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(Y,2)
Method: Least Squares
Date: 02/05/16 Time: 09:36
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Y(-1))	-0.676268	0.173256	-3.903296	0.0005
C	1910.562	1029.613	1.855611	0.0730

R-squared	0.329523	Mean dependent var	270.9833
Adjusted R-squared	0.307894	S.D. dependent var	6491.034

S.E. of regression	5400.078	Akaike info criterion	20.08491
Sum squared resid	9.04E+08	Schwarz criterion	20.17560
Log likelihood	-329.4010	Hannan-Quinn criter.	20.11542
F-statistic	15.23572	Durbin-Watson stat	2.181142
Prob(F-statistic)	0.000478		

Null Hypothesis: D(X1) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.014345	0.0000
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(X1,2)
Method: Least Squares
Date: 02/05/16 Time: 09:37
Sample (adjusted): 1983 2014
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(X1(-1))	-0.551590	0.068825	-8.014345	0.0000
D(X1(-1),2)	-0.875400	0.392808	-2.228569	0.0355
C	-31909.35	188081.8	-0.169657	0.8667

R-squared	0.999938	Mean dependent var	22073284
Adjusted R-squared	0.999933	S.D. dependent var	1.16E+08
S.E. of regression	948730.9	Akaike info criterion	30.46808
Sum squared resid	2.16E+13	Schwarz criterion	30.61206
Log likelihood	-408.3190	Hannan-Quinn criter.	30.51089
F-statistic	192701.9	Durbin-Watson stat	1.582214

Null Hypothesis: D(X2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.443614	0.0001

Test critical values:	1% level	-3.646342
	5% level	-2.954021
	10% level	-2.615817

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(X2,2)
Method: Least Squares
Date: 02/05/16 Time: 09:38
Sample (adjusted): 1982 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(X2(-1))	-0.976565	0.179396	-5.443614	0.0000
C	4.674772	2.514518	1.859113	0.0725

R-squared	0.488727	Mean dependent var	0.037273
Adjusted R-squared	0.472234	S.D. dependent var	18.70749
S.E. of regression	13.59052	Akaike info criterion	8.115314
Sum squared resid	5725.771	Schwarz criterion	8.206012
Log likelihood	-131.9027	Hannan-Quinn criter.	8.145831
F-statistic	29.63294	Durbin-Watson stat	2.003349
Prob(F-statistic)	0.000006		

Date: 02/05/16 Time: 09:39
Sample (adjusted): 1982 2014
Included observations: 29 after adjustments
Trend assumption: Linear deterministic trend
Series: Y X1 X2
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.999818	269.5068	29.79707	0.0001
At most 1 *	0.493062	19.70907	15.49471	0.0109
At most 2	0.000257	0.007458	3.841466	0.9307

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

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.999818	249.7977	21.13162	0.0001
At most 1 *	0.493062	19.70161	14.26460	0.0063
At most 2	0.000257	0.007458	3.841466	0.9307

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

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

Y	X1	X2
-1.25E-06	1.56E-08	3.55E-05
-0.000274	-8.27E-09	-0.009914
0.000431	1.49E-08	-0.050156

Unrestricted Adjustment Coefficients (alpha):

D(Y)	-140.6746	-529.2755	2.997813
D(X1)	-52694089	-284720.7	-567.7550
D(X2)	-0.558787	-2.714009	-0.193906

1 Cointegrating Equation(s): Log likelihood -780.7539

Normalized cointegrating coefficients (standard error in parentheses)

Y	X1	X2
1.000000	-0.012540	-28.43715
	(3.5E-05)	(77.7400)

Adjustment coefficients (standard error in parentheses)

D(Y)	0.000176
	(0.00020)
D(X1)	65.75779
	(0.20850)
D(X2)	6.97E-07
	(3.2E-06)

2 Cointegrating Equation(s): Log likelihood -770.9031

Normalized cointegrating coefficients (standard error in parentheses)		
Y	X1	X2
1.000000	0.000000	36.06074
		(26.5384)
0.000000	1.000000	5143.470
		(6523.34)

Adjustment coefficients (standard error in parentheses)		
D(Y)	0.145068	2.17E-06
	(0.03176)	(2.1E-06)
D(X1)	143.7018	-0.822233
	(42.8839)	(0.00277)
D(X2)	0.000744	1.37E-08
	(0.00069)	(4.5E-08)