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Re-examining the Casuality between Capital Flight and Foreign Direct Investmen in Nigeria

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Abstract: The relationship between capital flight and Foreign Direct Investment (FDI) has generated continuous debate in literature. This study aims at providing quantitative analysis of cointegration and causality between capital flight and FDI in Nigeria from 1985 to 2015. The study employed secondary data which was obtained from Statistical bulletin of Central Bank of Nigeria and data base of World Bank. The data obtained were subjected to Units root test, Co-integration test and Pair-Wise test of Granger Causality. The findings of co-integration revealed that the estimated equation and the series are co-integrated. The Granger-Causality test shows that there is no bi-directional causality between FDI and Capital Flight in Nigeria. The study concludes that the success to curtail capital flight in Nigeria is to improve level of infrastructural facilities in the country which can facilitate increase in domestic investment and also attract FDI. It is recommended that enhancing investment environment by minimizing the obstacles to doing economic activities, and increasing the effort against international financial crime will help reduce capital flight and improve FDI in Nigeria.

Keywords: Capital flight; foreign direct investment; Causality; BOP; Nigeria

JEL Classification: B40; C10; F20; F21

1. Introduction

The empirical investigation into impact of foreign direct investment to the emancipation of any country has been debated quite persistently in the literature. Kant (1996) noted that this debate explained the channels in which FDI may help to boost growth in recipient countries particularly in developing countries. FDI flows

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into a country through stock of foreign debt, because when debt is significant, capital flight rises, capital flight also worsening and deepening the debt problems of the indebted countries.

However, capital flight observed in several developing countries indicates that scarce capital in these countries is fleeing to the developed countries, worsening their financing problems and making debt servicing more difficult and costly. Capital flight is a problem for developing countries where there is scarce-capital which usually reduces growth in this economy. It is also believed that if these funds can be used at home, they can be used to reduce the level of foreign indebtedness and the inherent liquidity bottlenecks in traversing the foreign-exchange constraint.

Furthermore, it is worrisome that capital flight from developing countries is an indication to foreign investors about the risks involved and lead to a decline in, or even cessation of private capital flows. (Schneider, 2003) The purgatory of capital through capital flight dampens the local tax base in developing economies but the working of FDI as showed by theoretical underpinning to bring about economic growth and development has not had it impacts due to reoccurring effects of capital flight.

Turning to Nigeria, capital flight is more pronounced than it is elsewhere in other West Africa region. Nigeria is rated among the heavily-indebted countries where the problem of capital flight has been regarded uncontrolled. It is revealed that Nigeria capital flight has been significant over the years.

Table 1. Capital Flight Estimates of Nigeria 1970-2013 (US \$ Million)

Year	Total Estimates
1985	1957
1986	6337
1987	1323
1988	670
1989	5297
1990	-1835
1991	-4360
1992	-3819
1993	5129
1994	5414
1995	316
1996	217
1997	3932
1998	4141
1999	-1448
2000	2124
2001	85
2002	8134

2003	4065
2004	-7764
2005	-14274
2006	-15218
2007	-10473
2008	2098
2009	8957
2010	20781
2011	18832
2012	30640
2013	39678

Computed by Authors, 2017

The picture painted above is quite direful. The mere size of capital outflows in relation to export earnings is clearly a source of concern because Capital Flight of this magnitude will continue to impede Nigeria's development and poverty alleviation effort of government.

Furthermore, Upon this, policy observers, researcher and academicians have observed that foreign debt and capital flight (in most developing countries, Nigeria inclusive) accumulate simultaneously as in the case with private external borrowing guaranteed by governments (which escalate with capital flight). This off course has raise leading question whether FDI inflows in LDCs facilitate capital flight (as private foreign borrowings do), or do they, instead, mark a dwindle in capital flight or a return of flight capital to the resident developing countries? Or put more relevant to the Nigeria case which is the global focus for this study, has FDI resulted to a plough back of capital flight? And expressing the simultaneity more pronouncedly, has capital flight resulted in reducing FDI?

The primary objective of this empirical piece of work is to demonstrate quantitatively the cointegration and causality between capital flight and foreign direct investment in Nigeria through. The specific objective is to empirically determine if there is long run relationship causality between FDI and capital flight in Nigeria. Aside this, it provide the case for Nigeria for which limited adequate empirical work is available to the researcher on the interaction between FDI and capital flight to pattern with as at the time of this investigation. Thus, this study attempts to fill the gap.

Moreso, unlike the only previous work on the relationship between FDI and capital flight (i.e. Kant, 1996) which considers correlation analysis, this paper utilizes the econometric analysis. In particular, the granger-causality regression analysis will be used following adequate assessments of our data in order to suit the recent advancement in econometrics. The study depends on quantitative data which are

available in historical forms. We employ time series data ranging from 1985 and 2015.

2. Literature Review

The empirical investigation into the implications of capital flight on FDI has received increasing attention from several studies. (Ajayi, 1995; Ayadi, 2008; Bakare, 2011; Beja, 2013; Oloye & Olatunji, 2015) During the period of the debt crises in the late 1970s and 1980s, a lot of attention was devoted to the study of the outflows of resident capital as a response to unhealthy domestic policies and political instability. Jimoh (1999) viewed capital flight to be generally believed as capital that is running away. Essentially, capital flight from finance perspective is viewed as short-term speculative outflows from a country. This is taken to mean outflows that involve the acquisitions of assets overseas plus net errors and omission.

To ensure any economy remains economical and significant in a dynamic international economy, such economy requires substantial investment in modern technologies, equipment and contacts which presents an investment opportunity in the private equity space. (Javorcik, 2004) Reducing fled capital by means of injection either private equity or foreign direct investment is essential in enhancing efficiency and firm growth. (Bender & Ward, 2009) Aggravating the necessity for capital injection is the fact that the Zimbabwean working population depends on small enterprises for employment. The need for private equity finance to boost start-up firms and provide finance for leverage buyout transactions is therefore important. With limited access to bank debt due to insufficient trading history and the riskiness of cash flows, access to venture capital funds becomes pivotal. (Bender & Ward, 2009) Venture capital firms can be engines of new job creation and a source of innovation as they support growing and innovative companies. (Bertoni, Colombo & Grilli, 2013; Harris, Jenkinson & Kaplan, 2014)

The management style of multinational capitalists differs across countries as well, depending on the development of institutions. (Lerner & Tåg, 2013; Lerner et al., 2011) Venture capital firms are actively involved in managing their investments by way of getting board representation and involved in the day-to-day management issues. (Jaaskelainen, 2012) This makes private equity or foreign direct investment and venture capital-owned companies better managed compared to those company funded by other sources. (Bloom, Sadun & Van Reenen, 2015; Melusi & Mabutho, 2015)

Private equity funds vary among countries especially organizational form. In countries such as the United Kingdom and the United States, firms are said to be organized as limited partners which indirectly affect form of FDI, while in countries

such as France and Germany, they have a structure that involves banks. (Lerner, Pierrakis, Collins & Bravo, 2011)

The literature has proffered concrete evidence that capital flight is indirectly influence by flows of capital particularly the flows of foreign capital in the mode of foreign debt into the recipient country. This contentious debate was highly discussed in literature especially in the obsequies of the debt crisis of the 1980s. Cuddington (1987) found in Mexico that 31 cents of each dollar of long current-term external loans to the government termed as capital flight in the same year. Earlier work on African countries show similar direction pointing to a close platform between capital flight and debt inflows. (Boyce & Ndikumana, 2015)

The statement by Kant (1996) points that the nexus between FDI and capital flight is undetermined a priori. The investment climate perspective, proved that capital flight is influenced by the risk-adjusted return dynamics between foreign and local assets. Under this view, capital flight is a pointer of higher returns to foreign asset relative to the local country. But as Lessard and Williamson (1987) pointed out that the investment climate is not sufficient to explain continuous capital flight and FDI. If local assets are surrounded by foreign assets in rate of return, this is basis for both foreign and local investors. However, the investment climate suggest a negative relationship between capital flight and FDI, a lucrative investment environment would stimulate FDI but discouraging capital flight; in other words, it would encourage both FDI and domestic investment.

The discriminatory treatment perspection showed that capital flight is influenced by government laws and regulations that are strongly in favor of foreign investment. These may include preferential taxation such as tax holidays and priority given to foreign claims over resident claims in the scenario of a financial shortage. (Kant, 1996) Such preferential treatments would result in differential perceived or actual risk for home investment relative to FDI, which would stimulate capital flight. (Dooley, 1988; Eaton, 1987; Khan & Haque, 1985) Under those situation, high capital flight would lead to high FDI.

The third possibility has been ignored in the literature. The two perspectives above, showed that capital flight and FDI may move mutually or in the opposite direction due to a third factor that affects both. The nexus may not necessarily be direct. However, there is a tendency that FDI can actually cause capital flight directly, in a similar way as the debt-fueled capital flight. First, FDI generate new resources that can be flight out of the country in illicit channels, thus remaining unrecorded in the country's Balance of Payments. This is a way in which FDI fueled capital flight. Second, ex ante, capital flight could be the true reason of FDI, in which case the host country serves as mere transit for unrecorded financial outflows, especially those destined to secrecy jurisdictions. This would be the case for capital flight-bound FDI.

The question then is, does FDI possible influencing factors that facilitate the capital flight link? Two possible ways is guarantee to explain this. First, local natural endowment attract FDI, which translate to financing capital flight. Second, as the natural resource sector is subject to corruption and rent seeking, FDI directed to natural resources is more susceptible to contribute to capital flight. This would show a direct relationship between capital flight and FDI very strong in countries that have both abundant natural resource endowment and corrupt institutions. The objective of this study is to show clearly the empirically the linkages between capital flight and FDI and sheds light on the role that FDI play in the leakages of scarce capital in the case of African countries (Nigeria particularly).

3. Research Methodology

In theory, the relationship that exist between capital flight and foreign direct investment (FDI) has remained traditionally independent of each other but recently emphasized has been placed on the interaction between them. More importantly, it has been argued that FDI is a component of capital flight measurability. However, since part of capital flight could also be used as investment in foreign countries thus capital flight is symbiotically also a crucial part of FDI. As such, the relationship between them is one of a mutual interdependence. For the purpose of this study, the *Erbe and the World Bank* broad was employed to measure capital flight, given by:

$$CF = \Delta ED + FDI + BOP + FR \quad (4.1)$$

Where;

CF equal to capital flight, ED equal to external debt, FDI equal to FDI, CAS equal to current account surplus and FR equal to change in foreign reserves. Essentially, this measure is adopted for two reasons, first, it is the broadest capital flight measure that can be found in the literature and second, it takes change in gross external debt and net foreign direct investment as the sources of finance and subtracts current account deficit and building up of foreign reserves from it. As such, it possibly upholds our methodology of study which relates simultaneity of interactions between our variable of interests. According to Sims and Todd, if there is true simultaneity among a set of variables, they should be gauged on equal footing, and there should not be a priori difference between independent and dependent variables. Following this, our model for this empirical work is:

$$CF = F(FDI, BOP, RGDP, EXR, BM2) \quad (4.2)$$

and in linear form with time subscript our equation above is restated as:

$$MCF = \psi_0 + \psi_1 FDI + \psi_2 BOP + \psi_3 RGDP + \psi_4 EXR + \psi_5 BM2 + \Omega \quad (4.2)$$

Where MCF = measure of capital flight (given by $\Delta ED + FDI + BOP + FR$); FDI is foreign direct investment; BOP is balance of payment balance (deficit or surplus); RGDP is real gross domestic product; EXR is exchange rate; and BM2 is broad money supply and Ω is residuals for our equations. (This study sources secondary data from the Central Bank of Nigeria (CBN), Debt Management Office (DMO) and Nigerian Bureau of Statistics (NBS). The sample periods for estimation cover 1985 to 2015 consisting of quarterly series for each variable).

$\psi_0, \psi_1, \psi_2, \psi_3, \psi_4$, are the parameter of the estimated equation while Ω is the error term.

The *a priori* expectation are as follow $FDI > 0$, $BOP < 0$, $RGDP < 0$, $EXR < 0$, and $BM2 > 0$

The Granger causality is used to test for the direction of causality between FDI and capital flight in Nigeria. The Granger causality test equation for capital flight granger cause FDI is specified as;

$$FDI_t = \alpha + \sum_{i=1}^{\eta} \beta_i CF_{t-i} + \sum_{i=0}^{b_1} \theta_i \ln FDI_{t-i} + \Omega_t$$

So also, the Granger causality test equation for capital flight granger cause FDI is specified as

$$CF_t = \alpha + \sum_{i=1}^{\eta} \beta_i FDI_{t-i} + \sum_{i=0}^{b_1} \theta_i \ln CF_{t-i} + \Omega_t$$

4. Data Analysis and Interpretation

4.1. Stationary Test

Table 2 is use to test the stationarity of the variables at level, the series (CF, FDI, EXR, BOP, GDP, and BM2) is exposed to unit root tests. The results are listed in the table below.

Table 2

Variables	Order	Included in Test Equation	ADF Test Statistic	Mackinnon Critical Value
GDP	I(0)	Trend & Intercept	-2.9677	-1.2712
FDI	I(0)	Non	-2.3677	-3.7017
EXR	I(0)	Trend & Intercept	-2.4617	-0.4953
CF	I(0)	Intercept	-2.2678	-3.7017
M2	I(0)	Trend & Intercept	-2.0588	-0.5875
BOP	I(0)	Intercept	-2.9077	-1.5325

Source: Eviews output computed by the authors, 2017

The ADF results in table 2 shows that some of the variables are non stationary at level, i.e. $I(0)$ at 5 percent confidence levels.

Table 3

Variables	Order	Included in Test Equation	ADF Test Statistic	Mackinnon Critical Value
RGDP	$I(1)$	Trend & Intercept	-2.9718	-7.9179
FDI	$I(1)$	Non	-4.9762	-2.5955
EXR	$I(1)$	Trend & Intercept	-2.9718	-5.1039
CF	$I(1)$	Intercept	-3.9718	-2.1039
M2	$I(1)$	Trend & Intercept	-2.9980	-16.402
BOP	$I(1)$	Intercept	-2.9718	-4.2262

Source: Eviews output computed by the authors, 2017

The ADF results in table 3 above shows that all the variables that are non stationary at level but became stationary at integration of order one, i.e. $I(1)$ at 5 percent confidence levels.

Table 4

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.960946	172.0611	95.75366	0.0000
At most 1 *	0.670374	84.50517	69.81889	0.0022
At most 2 *	0.642068	54.54066	47.85613	0.0104
At most 3	0.400360	26.80052	29.79707	0.1066
At most 4	0.380659	12.99203	15.49471	0.1151
At most 5	0.002085	0.056356	3.841466	0.8123
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.960946	87.55596	40.07757	0.0000
At most 1	0.670374	29.96451	33.87687	0.1367
At most 2 *	0.642068	27.74014	27.58434	0.0478
At most 3	0.400360	13.80849	21.13162	0.3810
At most 4	0.380659	12.93568	14.26460	0.0802
At most 5	0.002085	0.056356	3.841466	0.8123
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				

Since the Trace and Max-eigenvalue are not the same, the author make used of Trace test because it indicates 3 cointegration equation among variables of interest at 0.05 level

Table 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.255166	2.362454	1.801164	0.0843
FDI	0.145536	1.404223	0.103642	0.9183
EXCH	0.127509	0.031608	0.237584	0.8142
M2	0.062119	0.000345	3.242290	0.0035
BOP	-0.480288	0.132843	-3.615446	0.0014
GDPG	-0.161895	0.170024	-0.952185	0.3505
R-squared	0.783271	Mean dependent var		3.378786
Adjusted R-squared	0.649786	S.D. dependent var		7.622073
S.E. of regression	5.905087	Akaike info criterion		6.566362
Sum squared resid	836.8812	Schwarz criterion		6.846601
Log likelihood	-92.49543	Hannan-Quinn criter.		6.656013
F-statistic	4.863215	Durbin-Watson stat		1.963753
Prob(F-statistic)	0.003266			

Source: Eviews output computed by the authors, 2017

The estimated result in Table 5 above shows that a unit change in M2 will lead to 0.06 increase in capital flight. This conforms to a priori or theoretical postulation i.e increase in money supply will exarcebate capital flight. FDI conform to the apriori expectation but it is not significant. It shows that any unit increase in FDI will lead to 0.14 increase in capital flight i.e if FDI increases capital flight will increase too. The non significant of FDI is due to the fact that most FDI inflow into the country is based on oil sector, which make the sector more lucrative and under-develop other sector. The high concentration of capital in the oil sector makes capital flight highly traceable to the sector and lower the rate at which other sectors engage in capital flight. Exchange rate conform to apriori expectation but it is not significant. The non significant shows that there are other factors influencing capital flight in Nigeria such as corruption, inner-drive of political leader etc. RGDP is negatively related to capital flight i.e the higher the capital flight, the lower the RGDP of a country, it is significant at 5% level. The R2 (coefficient of determination) from the result is 0.78(78%) while adjusted R2 is 0.64 (64%). It shows that about 78% of systematic changes in the endogenous variable can be explained by changes in all independent variables. This is surely a good fit because only 22% systematic variation in CF is left unexplained by the model, which may be attributed to the disturbance term. The

Durbin Watson value corrected which is 1.9637 implies that there is no presence of first-order positive or adverse autocorrelation. A test of general significance of the model shows that the general model is insignificant at 5% levels of significance. This indicates the entire slope coefficient taken together is simultaneously insignificantly different from zero. One of the secondary objectives of this study is to examine the causality between capital flight and FDI. The causal relationship between these variables was carried out using Pair-Wise Granger causality test. The results are presented in table 6.

Table 6. Pair – Wise Granger Test Result

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause CF	28	0.68001	0.5165
CF does not Granger Cause FDI		0.65678	0.5280
BOP does not Granger Cause CF	28	0.87643	0.0297
CF does not Granger Cause BOP		4.10470	0.4299
EXCH does not Granger Cause CF	28	1.78320	0.0306
CF does not Granger Cause EXCH		0.63423	0.5394
M2 does not Granger Cause CF	28	0.33872	0.7162
CF does not Granger Cause M2		0.19350	0.8254
GDPG does not Granger Cause CF	28	2.33047	0.1198
CF does not Granger Cause GDP		0.46203	0.6357
BOP does not Granger Cause FDI	28	0.31491	0.7330
FDI does not Granger Cause BOP		1.14975	0.0343
EXCH does not Granger Cause FDI	28	2.14889	0.1394
FDI does not Granger Cause EXCH		0.56374	0.5767
M2 does not Granger Cause FDI	28	0.58404	0.5657
FDI does not Granger Cause M2		0.02600	0.9744
GDPG does not Granger Cause FDI	28	1.98328	0.1605
FDI does not Granger Cause GDP		1.12611	0.3415
EXCH does not Granger Cause BOP	28	2.79627	0.0818
BOP does not Granger Cause EXCH		0.50774	0.6084
M2 does not Granger Cause BOP	28	1.26067	0.3023
BOP does not Granger Cause M2		0.00844	0.9916
GDPG does not Granger Cause BOP	28	5.46122	0.0115
BOP does not Granger Cause GDP		0.16713	0.8471
M2 does not Granger Cause EXCH	28	0.80111	0.4610
EXCH does not Granger Cause M2		0.39892	0.6756
GDPG does not Granger Cause EXCH	28	0.03676	0.9640
EXCH does not Granger Cause GDP		1.76712	0.1932
GDPG does not Granger Cause M2	28	0.25281	0.7787
M2 does not Granger Cause GDP		0.30594	0.7394

Source: Eviews output computed by the authors, 2017

The Granger causality results displayed in figure 6 shows that there is non bi-directional between FDI and CF i.e according to this result, there is no Granger – Causality between FDI and CF in Nigeria, a unidirectional causality exists between BOP and CF; EXCH and CF at 5 per cent level of significance. It is also shown by the result that unidirectional causality exists between GDP and BOP i.e GDP granger cause BOP but BOP does not granger cause GDP.

However, the result shows non causal effect between FDI and CF. The existence of causal relationship as shown in Figure 4.5 can be summarized thus:

BOP→CF

EXCH→CF

4.2. Model Appropriateness Test

There are some features that these models should satisfy in order to be appropriate for policy consideration and implementation, the residuals must be normally distributed, absence of autocorrelation, no serial correlation, homoscedastic, etc. in this study these tests were conducted on the residuals to decide if these models are robust.

Table 7. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.254249	Prob. F(2,22)	0.7777
Obs*R-squared	0.677741	Prob. Chi-Square(2)	0.7126

Source: Eviews output computed by the authors, 2017

Table 8. Heteroskedasticity Test: ARCH

F-statistic	3.769433	Prob. F(1,27)	0.6627
Obs*R-squared	3.552668	Prob. Chi-Square(1)	0.6294

Source: Eviews output computed by the authors, 2017

The Breusch-Godfrey serial correlation LM test shows a P-Value of 71% for the observed R^2 which means we cannot reject null hypothesis that the residuals are not serially correlated. The Heteroscedasticity test also shows a P-Value of 62.9% for the observed R^2 meaning that the null hypothesis that the residual has no ARCH effect cannot be rejected. All these tests confirm that the model is robust for policy consideration.

5. Conclusion and Recommendations

The paper seeks to assess the interaction between foreign FDI and capital flight in a developing country taking Nigeria as a case study. The study was motivated by the fact that both FDI and capital flight have increased tremendously in the country, for the periods studied, and this calls for attention to know whether there is any relationship between them given the contradictory effects of both and their attendant impacts on economic growth and development.

Essentially, our empirical work provides a direction of existing relationship between FDI, capital flight and their determining variables modelled. In effect, we observed that there is a direct relationship between FDI and capital flight. FDI seems to increase capital flight and vice versa. However, since parts of capital flight could also be used objectively or otherwise as foreign investment abroad thus capital flight is symbiotically also a crucial part of outflow of FDI.

This can be concluded that the success to curtail capital flight in Nigeria is to improve level of infrastructural facilities in the country and maintain a stable exchange rate in the country. Without the availability of these needed facilities, it would be risky for investors to come into any country and sustained their capital.

Finally, recommendations to enhancing investment environment by minimizing the obstacles to doing economic activities, and increasing the effort against international financial crime will help reduce capital flight and improve FDI in Nigeria. This is important because it will stimulate investment position of the country.

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