

Capital Flight and Exchange Rate Volatility in Nigeria: The Nexus

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Abstract

This paper attempts to ascertain the relationship that exists between capital flight and exchange rate volatility in Nigeria. The study adopted an ex-post facto research design. The study employed the parametric statistical techniques of Ordinary Least Squares (OLS) since the data (secondary data) used is quantitative in nature. To capture the relationship between capital flight and exchange rate in Nigeria, the empirical model that accommodates the capital flight and exchange rate nexus was specified. The coefficient of capital flight was positively signed and statistically very highly significant at 1%. This implies that every unit increase in capital flight will lead to increase in exchange rate in Nigeria. This means that exchange rate is influenced by the volume of capital flight in Nigeria. The study recommends among others that a stable exchange rate regime should be established through a drastic reduction in capital flight and increase capital inflows in the form of foreign private investments.

Keywords: Capital flight, Exchange Rate, Hot Money Approach, Volatility, Trade Mis-invoicing, Balance of Payment.

1. Introduction

The difficulty in differentiating between capital flight and normal capital outflows has been the conceptual problem in this elusive phenomenon in Nigeria. However, capital flight, normal or abnormal, has a deleterious effect on the economy of the source country (Onwioduokit, 2007). For instance, the quality of balance of payments data in less developing countries is generally poor. That is why Dooley (1994) maintains that the longer capital flight remains, the worse are the consequences for economic activity, especially in a country that is heavily dependent on external financing. From the conception of the phenomenon lies an element of political sentiment. For that reason, capital flight out of developed countries is usually looked at as capital outflows, because the investors from developed countries are responding to investment opportunities while those from developing countries are said to be escaping the economic and political uncertainties at home (Khan and Hague, 1987; Ajayi, 1997). The volume of money lost in capital flight in Nigeria is the highest in sub-Saharan Africa countries (Ajadi, 2008).

No one knows the precise amount lost to capital flight but the experts say it runs into hundreds of billions of dollars. Banking estimates in 2006 are that it is over \$30 billion from Africa alone (Smith, 2006). The capital flight from Zaire, for instance, was estimated at US\$12 billion between 1968 and 1980, while the amount of capital flight from 25 low income African countries within the Sub-Saharan region for 1970 – 1996 is estimated at US\$193 billion (after adjustment for trade mis-invoicing) (Ndikumana and Boyce, 1998). Also, the Global Financial Integrity (2010) cited in Saheed and Ayodeji (2012), gives the estimate of capital flight between 1970 and 2008 from Africa to be about US\$1.8 trillion. Also, Saheed and Ayodeji (2012) observe that by the records available to the Central Bank of Nigeria between January 22, 2010 and March 5, 2010, that a total sum of US\$6.734 billion (about ₦1,043.77 billion) went out of the country. With these available records for the short periods, one can then imagine what could be the actual amount that left the shores of Nigeria through legal and illegal routes to the developed countries.

In the benchmark neoclassical economic theory, capital should, on net, flow from rich countries that have relatively high capital-to-labour ratios to poorer countries of relatively low ratios (Prasad, Rajan and Subramanian, 2006). Today, it is paradoxical that the reverse is the case, that is, capital flows from poor to rich countries in the form of capital flight. This perverse pattern of flows has been particularly striking since the beginning of the last decade. Also, the apparent perversity of overall foreign financing is even more dramatic when one examines the allocation of capital across developing countries (Prasad, Rajan and Subramanian, 2006). With this pattern of financial flows, one is bound to ask whether foreign capital plays a helpful, benign or malignant role in the process of economic growth.

A sound exchange rate policy had been identified to be one of the vital conditions to improving the economic performance in developing countries like Nigeria. Stability in the effective real exchange rate engenders confidence and favourable expectations about the business environment. An overvalued exchange rate negatively affects the export sector and exposes import-competing industries to fierce competition from foreign companies, and may lead to capital flight, decline in foreign direct investment and technological transfers,

economic recession, and tight monetary and fiscal policy (Toulaboe, 2011). A key component of economic reform programmes in Nigeria is the real devaluation of domestic currency. This had a deleterious effect on the economy. Exchange rate risk as one of the effects of currency devaluation is the variability in returns on securities as a result of fluctuations in currency. Meanwhile, when there is a negative fluctuation of currency, high import prices will emerge as a result of decrease in the purchasing power of the domestic currency (Saheed and Ayodeji, 2012). Exchange rate risk measures the erratic pattern of exchange rate movements. The more volatile the movement, the higher the risk. Pervasive economic instability can lead to unwillingness of private investors to commit large sums to investment because of the irreversible nature of long-term private investment. The extent of overvaluations of the domestic currency and the fear or expectation of a future devaluation or depreciation of the domestic currency may induce wealth holders to move part of their wealth abroad.

Given the foregoing, this paper attempts to critically ascertain the relationship that exists between capital flight and exchange rate volatility in Nigeria. The paper is therefore organized into five sections. After the introduction is Section II that dwells on the literature review, Section III explains adopted methodology in the study; Section IV discusses the findings while the last, Section V is the conclusion and policy recommendations.

2. Literature Review

This section tries to review the related literature on the areas of capital flight, exchange rate volatility and also the theoretical framework upon which the study is anchored.

2.1. *The Concept of Capital Flight*

Capital flight, no doubt falls into multi-disciplinary phenomenon (International Accounting, Economics, Investments, Finance, Political Science, etc.). Various scholars have attempted to define capital flight. Yet capital flight had remained a particular elusive phenomenon conceptually. The conceptual problem had existed because it is not immediately clear what differentiates capital flight from “normal” capital outflows. Hence capital flight has plethora of definitions because different writers use different concepts when discussing or measuring capital flight (Isu, 2002). Isu went further to explain that at one extreme, all private capital outflows from developing countries, whether short-term or long-term are classified as capital flight. This he attributed to the generally capital-poor nature of the developing countries. Capital outflows, therefore, reduce the resources available to these countries and impede their ability to address their developmental problems.

Dooley (1986) defines capital flight as those external assets held by the private sector that do not generate income reflected in the balance of payments account of a country. This definition, however, excludes those outflows that are considered normal in the sense that they correspond to ordinary portfolio diversification and business transactions of domestic residents. Khan and Hague (1987) maintain that the term ‘capital flight’ is generally associated with short-term outflows resulting from economic or political uncertainties in the home country. In other word, it is money that is fleeing from the country rather than external investment guided by long-term economic considerations. From this definition, capital flight would consist of all short-term private outflows plus the “net errors and omissions” items on the balance of payment accounts, that is, the items that cannot be otherwise accounted for. However, the definition has some weakness in that the approach does not take into consideration short-term outflows that correspond to normal portfolio diversification by domestic residents.

The studies which have considered the issue of capital flight have found that trade mis-invoicing is a significant net addition to total capital flight in some countries in some years (Ajayi, 1997; Ndikumana and Boyce, 1998). Capital flight from Sub-Saharan Africa, estimated at \$274 billion (including interest earnings), was equivalent to 145 percent of the total debt owed by these countries in mid-1990s. The largest means of shifting capital out of Africa is reckoned to be transfer mispricing. Capital flight due to transfer mispricing exceeds \$10 billion a year (Baker, 2005). Fake transactions are estimated to account for an additional \$150 – 200 billion a year and 60 percent of trade transactions into or out of Africa are estimated to be mispriced, by an average of 11 percent (Tax Justice Network, 2005).

Isu (2002) analyzed the implication of capital flight on the development of Nigeria and concludes that Nigeria had greatly suffered as a result of capital flight. Thus, within the period of study (1970 – 1991), Nigeria is assumed to have lost resources in excess of \$45 billion to capital flight. He recommends that the element of uncertainty in Nigeria’s macro economy occasioned by an unpredictable political transition, unpredictable economic environment, unpredictable living standards and unpredictable productivity levels should be forcibly removed from the Nigerian environment to make for a reversal of the capital outflows syndrome.

In Dooley (1978), a significant relationship between capital flight and inflation repression and risk premium was discovered in a study of seven developing countries which include Argentina, Brazil, Chile, Venezuela, Philippine, Peru and Mexico. He concludes that the perceived inflation risk on returns on domestic assets by resident encourage capital flight. In a similar study, Cuddington (1986) with the use of portfolio adjustment model found that residents would consider foreign financial assets as an edge against domestic inflation. Cuddington discovered that the motivators of capital outflow include exchange rate overvaluation,

disbursement of public debt and lagged capital flight. He studied four developing countries – Argentina, Mexico, Uruguay and Venezuela.

Busari (2010) examines the impact of capital flight on some economic recession indicators in Nigeria, whereby capital flight was regressed against GDP, inflation, interest rate, unemployment and exchange rate, with the use of ordinary least squares (OLS) model. The findings show that capital flight has a negative effect on GDP, inflation, interest rate and unemployment. The variables used in the study were statistically insignificant except for GDP and unemployment.

Saheed and Ayodeji (2010) examined the impact of capital flight on exchange rate and economic growth in Nigeria, using ordinary least squares (OLS) method to analyze the secondary data. It was found that capital flight has a positive and significant impact on the exchange rate in Nigeria, and unlike most of the existing studies, capital flight has a positive effect on economic growth in Nigeria. Similar to this finding, Adesoye, Maku and Atanda (2012) found that capital flight has positive impact on economic growth. Saheed and Ayodeji (2012) recommend that since most illicit capital outflow results from misinvoicing like under invoicing of exports and over invoicing of import, the effectiveness and efficiency of the custom officials need to be improved upon through further training and workshops, especially on how to detect and handle misinvoicing in import and export activities.

Olugbenga and Alamu (2013) examined the impacts of capital flight on Nigeria economic growth over a period of 30 years (1981 – 2010). The Johansen Co-integration test was utilized to investigate the dynamic relationship between capital flight and economic growth. The result shows that capital flight has negative impact on economic growth in the short-run but the reverse is the case in the long-run. The study therefore recommends that since unproductive use of borrowed fund is reflected in embezzlement by political office holders and subsequent transfer to foreign private accounts, effort should then be made to ensure strict monitoring of execution of public projects, accountability and transparency. Also, enabling business environment to encourage foreign investors into Nigeria should be created; and capital outflows that finance importation of capital goods that are necessary of development purposes should be encouraged due to its long-run positive effects.

In Uguru (2011), the impact of capital flight on the corporate performance indices of profit, cost of production and tax paid by some selected multinational corporations in Nigeria was evaluated. With the employment of the OLS regression model, the findings show that corporate profits which are supposed to be ploughed back into the economy are shifted abroad; transfer mispricing and over invoicing of import increase the high cost of production of firms, which lead to high cost of consumer goods in Nigeria, and capital flight reduces government revenue through tax evasion.

Ugwuanyi and Uguru (2010) analyzed the influence of capital flight as a multidisciplinary phenomenon on foreign direct investment in Nigeria. They employed the ordinary least squares (OLS) regression model in the study and found that capital flight has a negative and significant influence on foreign direct investment in Nigeria for the period under study (1997 – 2004). It is, however, recommended that government should minimize policy reversals, since an erratic stance and frequent policy reversals create uncertainty that reduce private domestic investment thereby creating room for capital flight and its attendant undesirable effect.

Speaking on the implications of capital flight on development, Emeagwali (2000) subsumed the implications in three points. First, money outside Africa cannot be used to develop Africa. Second, money outside Africa cannot be taxed. And third, it is the poor people in Africa that indirectly pay for the external debts. He further asserted that capital flight increases the level of corruption. In other words, the flight of capital means that police officers cannot be adequately paid and are forced to extract bribes. Medical doctors, teachers (lecturers inclusive) and government clerks extort bribes from citizens. He then observed that capital flight is related to lack of technological development. Therefore, attempting to solve this hydra-headed problem without understanding the relationship between technology and capital flight will be like a wild goose chase for a mirage in the desert.

2.2. *Measurement of Capital flight in Nigeria*

Dooley (1986) notes that the estimates of capital flight are not always available but should be constructed because there is no generally accepted definition of capital flight. However, three internationally recognized methods to the measurement of capital flight are the “hot money” measure, the residual and the Bank of International Settlement (BIS) measure (Cuddington, 1986; Sheets, 1995).

The residual approach, also known as the broad measure is given as the difference between the sources and the uses of fund and was developed by a variety of researchers (World Bank, 1985; Erbe; 1985; Morgan Guaranty; 1986; Dooley, Helkie, Tryon and Underwood; 1986; Gordon and Levine; 1989; Murinde, Hermes and Lensink; 1996). This measure calculates capital flight as the change in gross external debt plus foreign direct investment (FDI) less both the current account deficit and the change in official reserves (Isu, 2002). Discrepancies between the stock of the external debt and cumulative debt – creating flows often arise, reflecting various reporting inaccuracies and inappropriate vetting of transactions in the BOPs. Isu (2002) opines that the

apparent weakness of the broad measure is that it classifies all accumulations of foreign assets by the domestic private sector as capital flight; it does not seriously attempt to differentiate risk – induced outflows from portfolio diversification. From the foregoing, the residual method may not be the best approach for measuring capital flight in Nigeria bearing in mind the problem of differentiating between various types of capital movement.

The residual method is expressed in equation of capital flight as follows:

$$KF_r = f(\Delta ED, FDI, CAD, \Delta FR)$$

This capital flight function can be rewritten as

$$KF_r = \Delta ED + FDI - CAD - \Delta FR \dots\dots\dots (1)$$

Where, KF_r is the estimate of capital flight based on residual approach.

ΔED is change in gross external debt using World Bank or IMF data.

FDI is the net foreign direct investment

CAD is the current account deficit/surplus

ΔFR is the change in the stock of official foreign reserves.

The hot money measure, otherwise known as the balance of payment approach focuses on recorded short-term capital outflows and unrecorded net errors and omissions in the balances of payments. The errors and omissions line is added because capital outflows are conducted surreptitiously, and as such, they will only be captured in errors and omissions especially in the country with capital control.

Using equation, the hot money measure expressed capital flight as

$$TKO = f(FB, FDI, CAD, \Delta FR, EO, \Delta WBIMF)$$

This function can be better expressed as follows

$$TKO = FB + FDI - CAD - \Delta FR - EO - \Delta WBIMF \dots\dots\dots (2)$$

Where, TKO is the total capital outflows

FB is foreign borrowing as reported in the BOP statistics.

EO is net errors and omissions

$\Delta WBIMF$ is the difference between the changes in the stock of external debt reported by the World Bank and foreign borrowing reported in the BOP statistics published by the IMF, while

FDI, CAD and ΔFR remain the same as in the equation above.

The Bank of International Settlement (BIS) measure or Bank Deposit Approach is the third approach which is given as the change in the domestic residents deposits with foreign banks. This measure had been criticized on the ground that private funds held abroad are in most cases not recorded by the relevant authorities (Lessard and Williamson, 1987 cited in Olugbenga and Alamu, 2013). Other weaknesses were given in Isu (2002) as follows:

- a. The BIS measure may mistakenly include official reserves as well as private deposits, because most Central Banks keep a portion of their reserves in foreign commercial banks.
- b. Dubious investors in attempt to evade domestic authority may decide not to disclose their nationality when registering accounts abroad.

Irrespective of the weaknesses stated above, the major advantage of BIS measure is that it does not rely on any balance of payments data.

Sequel to the deficiencies inherent in the residual approach and the bank deposit approach, the use of the balance of payment approach to measure capital flight in Nigeria becomes inevitable. Therefore, this study attempts to measure the capital flight estimates in naira value from Nigeria within the period under review (1970 – 2007).

Table 1: Capital Flight from Nigeria (in ₦ million)

Years	Capital flight Estimates
1970	113.4
1971	233.8
1972	119.6
1973	206.7
1974	3,238.9
1975	172.7
1976	371.2
1977	611.2
1978	1,389.9
1979	1,875.0
1980	2,547.9
1981	3,117.2
1982	3,842.4
1983	1,663.2
1984	365.3
1985	2,379.3
1986	2,512.9
1987	9,693.9
1988	7,949.8
1989	19,257.9
1990	26,193.5
1991	4,093.7
1992	21,239.7
1993	17,412.3
1994	20,315.7
1995	236.6
1996	116.0
1997	59.1
1998	369.9
1999	946,124.2
2000	393,248.5
2001	304,345.9
2002	311,125.6
2003	973,948.4
2004	1,425,642.7
2005	1,500,836.3
2006	1,766,337.1
2007	2,426,369.8

Source: Central Bank of Nigeria (Several Years); National Bureau of Statistics – Annual Abstract of Statistics (2008) and Isu (2002).

The data as shown above was generated using the hot money measure. The table shows that the capital flight estimates were fluctuating during the period under review. However, between 1992 and 1997, capital flight from Nigeria decreased by more than 99.7 percent, while between 2001 and 2007, it increases by more than 668.0 percent.

2.3. *Exchange Rate Volatility in Nigeria*

Exchange rate is the price at which the domestic currency is exchanged for foreign currencies. It is the rate at which one currency will be exchanged for another, that is, the value of a country's currency in terms of another (Saheed and Ayodeji, 2012). For the past four decades, Nigeria has had problems with exchange rate management. A major challenge facing policy makers in Nigeria and elsewhere is what should be the nature of Nigeria's exchange rate. In determining an appropriate exchange rate, a country's economic structure and institutional characteristics should be considered. Nigeria's over dependence on the oil and gas sector has affected the major macro-economic variables including exchange rate. Majority of the import dependent economies like Nigeria face the problem of exchange rate volatility. Ugwuanyi and Onyeka (2012) observe that Nigeria's major foreign earning is from oil hence fluctuation of crude oil prices in the world market has made the Nigerian economy highly susceptible to the over changing exchange rate. In Jhigan (2005), changes in export

and imports, and structural influences are the factors that cause fluctuation in the exchange rate. Therefore, a proper exchange rate management seeks to strike balance between the level of imports and that of exports of goods that the country has comparative advantage. The over dependence on oil and gas exports which provides more than 95 percent of all foreign exchange earnings has compounded the problem of volatility of the country's foreign exchange rate regimes (Obaseki, 2001 cited in Ugwuanyi and Onyeka, 2012).

Edwards and Sevastano (1999) distinguish nine existing different exchange rate regimes, varying from free float to full dollarization. The most important exchange rate systems have been the gold exchange standards, the Breton Woods system and the flexible exchange rate system. The floating exchange rate is determined by the market forces of demand and supply (Saheed and Ayodeji, 2012). However, a more volatile foreign economy can be an argument in favour of a fixed exchange rate regime once similarities in the business cycles in both countries are taken into account (Berger, Sturm and de Haan, 2000). With a simple model of exchange rate regime choice and with data from 65 non-OECD countries (1980 – 1994), Berger, Sturm and de Haan (2000) found that variance of output at home and in potential target countries as well as the correlation between home and foreign real activity are powerful and robust predictors of exchange rate regime choice. Also, the study finds that countries that deviate from the models predicted regime by choosing fixed instead of floating exchange rates generally suffer higher exchange rate volatility than other countries having a fixed exchange rate regime.

Employing data from 33 developing countries, Toulaboe (2011) investigates the relationship between the mean growth rate of per capita GDP and real exchange rate misalignment. The study finds that average real exchange rate misalignments are relatively correlated with economic growth. This result implies that inappropriate exchange rate policies contribute to the poor economic performance in the developing countries.

Ugwuanyi and Onyeka (2012) examined the impact of exchange rate volatility on economic growth in Nigeria, using a 25-year data (1987 – 2011). The findings show that exchange rate volatility had positive and non-significant impact on Nigeria's gross domestic product growth rate. They then recommends re-thinking of exchange rate management in Nigeria and re-diversification of the Nigeria economy which is presently oil dependent to sectors that will attract foreign exchange earning.

Chukwudi and Madueme (2011) examined the impact of the dollar, Yen and the Euro volatility on foreign direct investment in Nigeria. The study used the autoregressive conditional heteroscedasticity for its analysis. Using data collected from 1970 to 2008 it was found that G-3 exchange rate volatility leads to volatility in FDI and other macroeconomic variables which in turn causes volatility in exchange rate, forming a vicious cycle. The study then recommends the need to avoid over valuation of the exchange rate and to maintain stable and flexible exchange rates in the Nigerian economy.

From the foregoing, available literature suggests that structural changes tend to increase foreign demand for domestic currency, appreciation of its value and raise in exchange rate. An appreciation of exchange rate in Nigeria result to an increase in cost of production in Nigeria's economy, which results in huge deficit in the country's balance of trade and of payment. In other words, Nigeria imports more than it exports. Capital flight encourages increasing demand for foreign currency, which tends to exert pressure on exchange rate, thereby increasing the rate and is reflected in the appreciation or depreciation of the local currency.

Table 2: Exchange Rate in Nigeria (1970 – 2007)

Year	Capital Rate (against US\$1)
1970	0.71
1971	0.70
1972	0.66
1973	0.66
1974	0.63
1975	0.62
1976	0.63
1977	0.65
1978	0.61
1979	0.60
1980	0.55
1981	0.61
1982	0.67
1983	0.72
1984	0.76
1985	0.69
1986	2.02
1987	4.02
1988	4.54
1989	7.39
1990	8.04
1991	9.91
1992	17.30
1993	22.05
1994	21.89
1995	21.89
1996	21.89
1997	21.89
1998	21.89
1999	92.69
2000	102.11
2001	111.94
2002	120.97
2003	129.36
2004	133.50
2005	132.15
2006	128.65
2007	125.83

Source: Central Bank of Nigeria (various years); National Bureau of Statistics – Annual Abstract of Statistics (2008)

Between 1970 and 1979, the Nigerian naira appreciated by more than 15 percent against the United States of American’s dollar. The second decade (1980 to 1989) saw drastic depreciation of the naira by about 684 percent. In the third decade (1990 to 1999), the Nigerian naira further depreciated by more than 1052 percent against the United States of America’s dollar. In the last period of 2000 to 2007, the foreign exchange rate also depreciated by more than 23 percent. When the various decades are compared, it shows that it was only the first decade (1970 – 1979) that naira value appreciated against the US dollar after which it started depreciating with amazing rates.

Hypothesis

With due regards to the objective of the study and in relation to the literature reviewed above, the study then hypothesized as follows:

- H₀:** Capital flight has no significant relationship with exchange rate in Nigeria.
H₁: Capital flight has significant relationship with exchange rate in Nigeria.

3. Methodology

3.1. Research Design

The study adopted an ex-post facto research design. Kerlinger (1977) cited in Obasi (1999) states that ex-post facto research is a form of descriptive research in which an independent variable has already occurred and in which an investigator starts with the observation of dependent variable then studies the independent variable in retrospect for possible relationship to and effects on the dependent variable.

3.2. Sources of Data

The source of data was purely secondary sources from Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics Annual Abstract of Statistics and Journal articles. The data used was mainly time series data which are quantitative in nature.

3.3. Model Specification

To capture the relationship between capital flight and exchange rate in Nigeria, the empirical model that accommodates the capital flight and exchange rate nexus was specified. From the reviewed literature and theories, the model for the study was derived especially from the Isu (2002) who concludes that capital flight tends to exacerbate already existing macroeconomic instabilities as has been in Nigeria, and Saheed and Ayodeji (2012) that affirm a positive and statistically significant impact of capital flight on exchange rate.

With reference to the hot money measure of capital flight model, which is adopted for the study, the mathematical expression below that was earlier stated will be vital for our study. That is

$$TKO = \beta_0 + \beta_1 FDI - \beta_2 CAD - \beta_3 FR + \beta_4 \Delta EO - \beta_5 WBIMF + e \quad \dots (3)$$

However, the simple regression analysis model for the study is specified as follows:

$$\text{Exchange rate (ExR)} = f(\text{capital flight})$$

$$\text{That is, ExR} = \beta_0 - \beta_1 TKO + e \quad \dots (3)$$

Substituting the hot money expression for capital flight in our model, we have the following:

$$\text{ExR} = \beta_0 + \beta_1 FDI + \beta_2 CAD + \beta_3 FR + \beta_4 \Delta EO + \beta_5 WBIMF + e \quad \dots (4)$$

Where, $\beta_0 - \beta_6$ are coefficients, and e is the stochastic error term.

In the model, because of the gap between the values of the dependent variable (exchange rate) and the independent variable (capital flight), there is need to transform one of the variables, that is, capital flight through Numeric Expression using Statistical Package for Social Sciences (SPSS). Therefore, the Capital flight variable becomes TKO/1000 (Nachrowi, 2006 cited in Saheed and Ayodeji, 2012).

3.4. Analytical Technique

The study employed the parametric statistical techniques since the data (secondary data) used is quantitative in nature. Therefore, the ordinary least square (OLS) is used to test the formulated hypothesis.

4. Findings and Discussions

Table 3: Simple Regression Result of the Relationship between Capital Flight and Exchange Rate in Nigeria

Variable	Coefficient	Std. Error	t-value	Sig.
Constant	14.386	4.887	2.944	***
Capital flight	7.1164E-005	.000	9.293	***
R	0.840			
R ²	0.706			
Adj R	0.698			
Std. Error of Est.	27.33448			
Durbin-watson	0.302			
F-ratio	86.365			

Source: SPSS Data Analysis, 2013

*** indicates very highly significant at 1%

The result of the analysis in Table 3 shows that the multiple regression coefficients (R) were 0.840 or 80.4%. This is an indication that the independent variable – capital flight – was highly correlated with exchange rate in Nigeria. The coefficient of determination (R²) was 0.706 or 70.6%, implies that 70.6% of the total variation observed in dependent variable – exchange rate, was attributed to changes in capital flight. The fitness of model was confirmed by the low value of standard error of the estimate (27.33448) and the F-ratio value of 86.365. The absence of autocorrelation in the model was indicated by the low value of Durbin-Watson value = 0.302.

The coefficient of capital flight was positively signed and statistically very highly significant at 1%.

This implies that for every unit increase in capital flight, will lead to increase in exchange rate in Nigeria. Again the significance means that exchange rate is influenced by capital flight.

The finding of the study is corroborated by that of Saheed and Ayodeji (2012) which shows that capital flight has a positive and statistically significant impact on exchange rate in Nigeria. They assert that the continuous demand for foreign currency resulting from capital outflow tends to exert pressure on the exchange rate. Also, in the views of Bamidele and Englama (1998), stability in the effective real exchange rate engenders confidence and favourable expectations about the business and economic environment. However, the findings of Iyoha (2000) and Ayadi (2008) are in line with the result of this study, except that their studies concluded that the exchange rate significantly explains capital flight. For instance, Iyoha (2000) succinctly suggests that exchange rate should find its equilibrium level in order to discourage capital flights and thereby increase domestic investment.

5. Policy Implications and Recommendations

The study has examined the relationship between capital flight and exchange rate volatility in Nigeria. The major significance of the study is that it will enable governments, Central Bank of Nigeria (CBN), other regulatory bodies, agencies, commissions and general public to understand the nexus between capital flight and exchange rate volatility.

The Central Bank of Nigeria record has shown that an average of US\$1 billion (₦156 billion) is spent on weekly basis by the federal government of Nigeria for the importation of refined petroleum products (Saheed and Ayodeji, 2012). The implication of this phenomenon is that more money is needed to make good the deficit between the export of crude oil and importation of refined petroleum products. This means that more money than required were being expended by the federal government of Nigeria, which would have been used to put the refineries across Nigeria in functional conditions, for full capacity operation.

Based on the findings as above, the study therefore recommends that:

1. A stable exchange rate regime should be established. This will reduce capital flight and increase capital inflows in the form of foreign private investments. It will also boost private domestic investment.
2. The custom officers need to be further trained to be effective and efficient in handling trade mis-invoicing, which results in negative capital outflows from the country.
3. Diversification of the Nigeria economy should also be given the needed attention. This will eventually lead to less dependence on oil revenue which is determined by fluctuations in exchange rate prices. Investment in the real sector of the economy will help to ameliorate capital flight from Nigeria.
4. Placing a limitation as to the amount or percentage of local profit that could be repatriated to parent company from the subsidiary will help to reduce capital flight from Nigeria.

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