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## Capital Flight in Developing Economies: A Panel Analysis of Nigeria and South Africa

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## Abstract:

Capital flight portends great danger to any nation as it represents foregone investments, a reduction in a country's tax base, and a contributor to the debt problem, among others. This paper investigates the determinants of huge capital flight in Nigeria and South Africa using panel data from both countries. We investigated the determinants of capital flight utilizing the common coefficient and fixed effect models. Capital flight is caused by the trade balance, domestic economic performance, one-year lag of external debt and political stability. Dooley's debt-flight revolving door, which observed that unrecorded capital outflows from developing countries take place simultaneously with external borrowing, is empirically found to be true in the two countries. Governments of developing countries must therefore strive towards reducing country risk or macroeconomic risk so as to stop the tide of capital flight. They must create an enabling environment that motivates asset-holders to keep their wealth in domestic currency while repatriating streams of flows from foreign assets among others.

## 1. Introduction

Over the years, substantial movements of international capital have been experienced in most African countries of the world. There are some attendant risks and benefits that accompany this capital movement. One of such risks is that of fuelling capital flight. According to Cooper and Hardt (2000), capital flight entails the flow of financial assets resulting from the holder's perception that the capital is subjected to an inordinate level of risk due to devaluation, hyperinflation, political turmoil, or expropriation if retained at home in domestic currencies. The owner of funds in this hostile environment is seeking a safe haven for these funds.

Causes of capital flight according to Ajayi (2005) include varying risk perception, exchange rate misalignment, financial sector constraints and repression, fiscal deficits, weak institutions, macroeconomic policy distortions, corruption and extraordinary access to government funds, among others. A hypothesis proposed by Khan and Ul Haque (1985) argues that the perceived risk of investment in developing countries is higher than elsewhere. Residents of developing countries can therefore expect risk-free compensation for the additional risk on their investments at home. Khan and Ul Haque (1985) describe this risk as "expropriation risk." That is, domestic residents face the possibility of their assets being expropriated by the government. Expropriation may include outright nationalization, taxes, or exchange controls, whereas the risk on similar assets held abroad is negligible. An exogenous or policy-induced shock that raises the perceived level of risk could therefore result in capital flight; at the same time, the government would be forced to go abroad to obtain financing to cover not only the original imbalance, but also the loss of resources through capital flight.

The size of capital flight in developing countries is assuming a serious dimension and posing a huge threat to sustainable growth, especially in Africa. According to Boyce and Ndikumana (2001), many poor countries are losing more resources via capital flight than through debt servicing. They concluded that Africa is a net creditor to the rest of the world because the value of the private assets held abroad as measured by accumulated capital flight is far more than the external debt stock of Africa. United Nations Economic Commission for Africa (UNECA, 2005) for instance observed that capital flight in Africa has increased tremendously and the situation is becoming worrisome because of the negative association between current account balances and capital flight in these economies. In addition, external debt and capital flight are positively intertwined.

Capital flight in Nigeria and South-Africa are more severe in magnitude than it is elsewhere in other Sub-Saharan African countries. According to Chang and Cumby (1990, 19) net capital outflows from Sub-Saharan Africa were estimated at US\$40 billion between 1976 and 1987 and this figure is identical to flows from some Latin American countries such as Argentina, Brazil or Venezuela. Capital flight from Nigeria alone is estimated to be about US\$17.5 billion, with US\$11 billion in outflows between 1985 and 1987 alone. For South-Africa, Mohammed and Finnoff (2004) estimated an average capital flight as a percentage of GDP of 6.6 percent a year between 1980 and 2000. According to Ndikumana and Boyce (2003) (lifted from Ndikumana and Boyce, 2009), real capital flight (in 2004 US\$) is 165,696.7 and 18, 266 respectively for Nigeria and South-Africa. UNECA (2005) made an estimate of 2.39 and 1.91 respectively of average capital flight to GDP between 1991 and 2004 for Nigeria and South-Africa. These estimates looks modest in ratio form, however, when viewed from the absolute term, they are about the highest in Africa.

According to Mohamed and Finnoff (2004) capital flight of the South African magnitude will continue to impede its development. Capital flight negatively impacts the economy in the form of forgone private investment, tax revenue and potential public investment. The extent of South African capital flight in the period under Study (1980 to 2000) was 37% of the value of cumulative gross fixed capital formation for the same period. According to them, this huge capital flight represents an enormous sacrifice and missed opportunities for promoting South African growth and poverty alleviation.

Capital flight represents foregone investment in manufacturing plants, infrastructure, and other productive capacity. In addition, capital flight escapes government taxation, thus depriving nations of revenues capable of contributing to the reduction of fiscal deficits and constraining expenditures on social welfare programmes, defence and infrastructure development. In addition, the magnitude of tax evasion due to capital flight by the highest income class (an opportunity not open to middle and low income classes) accelerates income disparities and aggravates social instability. Based on the magnitude of the impact of capital flight on economic performance of Nigeria and South-Africa, and the lack of adequate research in this area, we conduct this analysis of the causal factors of capital flight in these countries by utilizing panel data from Nigeria and South Africa. This study will provide useful insights for academics and policymakers, especially in developing countries worldwide.

## 2. Literature Review

Capital flight has been caused mainly by trade mis-invoicing (Mohamed and Finnoff, 2004) other causes include racism, fear and sense of loss of power, structural weaknesses of the South African Economy that limited diversification and stifled investments are other important determinants of capital flight in South Africa. According to Ajayi (1995) other causes of capital flight include financial sector constraints (narrowness of the capital and money markets) and limited variety of instruments.

Ajayi (1995) categorized capital flight into, debt-driven capital flight – Consequent to external borrowing, capital flight takes place. Example: expectations of exchange rate devaluation, or fiscal crisis, possibility of crowding out domestic capital and avoidance of taxes and ex-propriation risk (Ajayi, 1995).

Debt-fuelled capital flight: The inflow of capital provides both the motive and the resources for capital flight and borrowed funds are themselves transferred abroad (Ajayi, 1995).

A study by Eryar (2005) showed that capital flight seems to be affected by loss of confidence in the overall economy. In essence, if the residents of a country see macroeconomic instability as a threat to their holding of domestic assets, they tend to switch to foreign assets in order to protect the value of their assets from any sudden changes. These changes can be in the form of a freeze on assets in the banking system or a postponement of interest payments on public debts. The import of Eryar's (2005) study is that it postulates that excessive debt stock can stimulate capital flight. This is what Boyce (1992) termed as the debt-flight revolving door.

Ajayi (1992) discussed two causal factors of capital flight. If a currency appreciation is expected, domestic wealth owners will shift assets into foreign assets. If a currency is overvalued, citizens will expect the currency to be subjected to devaluation in the future. This will cause residents to avoid the potential capital loss by converting into foreign wealth and currencies. The important point here is that exchange rate can exert either a negative or positive impact on capital flight, depending on residents' expectations of future currency value. The contribution of this study to the literature is an investigation of the direction of the impact of exchange rate changes on capital flight using Nigeria as a case study.

There is no consensus measure of capital flight, however, there are various methods for its estimation. These methods include Dooley's (1986), "hot money" method (Cuddington, 1986), Hermes, et. al. (2002), "residual method" (Word Bank, 1985; Cline, 1995). In addition to the above, Ndikumana and Boyce, (2002); Morgan Guarantee (1986) and; Cline (1995). However, this study has no objective of contributing to this semantic debate but to elicit the contributory factors of capital flight in these countries. Deppler and Williamson (1987) stated that capital flight has the potential of giving rise to a net loss in the total resources available for domestic savings and investments in any affected economy. Since domestic savings and investments are very important in the growth process, an economy experiencing huge capital flight is retarded. By the same token, the induced liquidity crunch in such an economy can lead to depreciation of domestic currency in a floating exchange rate system. If efforts are being made to protect its exchange rate by stabilizing it, a loss of reserves will result. In addition to the above, income and wealth outside the domestic economy cannot be subjected to domestic taxes and, potential revenue to its government is lost. Consequently, the debt servicing capacity of such country is constrained as capital flight erodes its foreign exchange base.

Empirical evidences on the determinants of capital flights identified some non-macroeconomic factors. Lensink, Hermes and Murinde (1988), examined the link between political risk and capital flight for a number of developing countries and concluded that no matter how capital flight is defined or measured, political risk factor has a significant role to play in the determination of capital flight. Fatehi (1994) analyzed the impact of political disturbances on capital flight in 17 Latin American countries. He utilized a stepwise multiple regression analysis on data between 1950 and 1982 and concluded that, political disturbances in some of those countries had effects on, capital flight. Ajayi (1992) also reported the political aspect of capital flight which is linked to corruption and access to foreign funds by political leaders of developing countries. According to Ajayi, access to political offices and the corruptibility of office holders are important factors in the determination of capital flight. However, Nyoni (2000), discountenanced the existence of political risk in the determination of capital flight. Nyoni (2000) employed a time series analysis over 1973 to 1992 on data from Tanzania. He analyzed the impact of some macroeconomic variables while capturing political shock with a dummy variable. He concluded that lagged capital flight, real growth rates, interest rate and exchange rate differentials significantly impacted on capital flight while political shock had no statistically significant impact on capital flight. External debt has been hypothesized to impact on capital flight. This occurs when countries borrow and simultaneously divert the proceeds abroad thereby fuelling capital flight. This situation is referred to by Boyce (1992) as 'debt-flight revolving door'. Boyce (1992) concluded that a direct causal linkage exists between external debt and capital flight (see also Boyce and Ndikumana,

(2001)). Demir's (2004) study of the relationship between external debt and capital flight in Turkey however showed a contemporaneous bi-directional causality between debt and capital flight. Chipalkatti and Rishi (2001) also reported similar results as Demir's.

Empirical as well as theoretical validation of macroeconomic factors determining the magnitude of capital flight is abundant. Dooley (1988) examined the relationship between inflation rate and capital flight for 5 Latin American countries between 1973 and 1986. He found a significant positive relationship between inflation and capital flight (Victor, 2004 also validated the above relationship). Cuddington (1987) employed time series data from 1974 to 1984 to verify the relationship between capital flight and a number of macroeconomic variables. The result obtained showed that interest rate differentials, external debt flows, lagged capital flight, inflation and exchange rate significantly accounted for capital flight in 7 Latin American countries. Other empirical contributors to capital flight analysis include Boyce (1992) who confirmed the contribution of external debt, budget deficits, and interest rates in the determination of capital flight (see also Ng'eno, 2000). Other findings by Ng'eno (2000) include the fact that real appreciation of currency encourages capital flight. It also suggests that without credible reforms, growth in the economy would lead to increased capital flight. In other words, increased income would encourage accumulation of foreign assets.

Mohamed and Finnoff (2004) presented an estimate of the wealth that left South Africa in the form of capital flight during the 1980 to 2000 period adopting the residual method of calculating capital flight used by Boyce and Ndikumana (2001). They observed that from 1980 to 2000, the average capital flight as a percentage of GDP was 6.6 per cent a year. They went further by emphasizing that there were different motivations for capital flight before and after apartheid. They found contrary to other researchers that capital flight as a percentage of GDP was higher after the democratic elections in 1994 despite the much more political and economic instability during the elections (5.4% in the apartheid period and 9.2% in the post apartheid period). This increase in post apartheid capital flight they attributed to the discomfort of those involved in capital flight in the post apartheid democratic process and capital flight is not affected by political instability in South Africa.

Lensink, Hermes and Murinde (2000) tested the hypothesis that political risk escalated the magnitude of capital flight after controlling for macroeconomic and policy variables in a number of developing countries. They employed the Baro tradition used in studies on endogenous growth models. Specifically, they employed a variant of Leamer's extreme bounds analysis (EBA) in which they tested for sensitivity of political variables to alterations in the conditioning set of variables which have been identified in the literature to be related to capital flight and other domestic and international macroeconomic circumstances which are added to their model. They concluded that in most cases, political risk variables do have a statistically robust relationship with capital flight once these other variables are included.

Yalta (2006) explored two issues relating to capital flight for Turkey for the period 1975 through 2001. First of all, he measured capital flight through the residual method for Turkey and observed that capital flight from Turkey has being of moderate size changing between -7 and 12 percent. In his comparative analysis, he observed that capital flight in the year 2000 is seven times the total flows of foreign direct investment into Turkey and 10 times the size of portfolio investment in the same year. The second focus of his research is the impact of capital flight on the level of investment. He concluded that capital flight reduces investment by constraining domestic savings thereby impeding economic growth and development.

Forgha (2008) Explored the determinants, measurement and the impact of capital flight on the real economic growth in Cameroon using two-stage least squares technique after the application of co-integration and error correction mechanism using data from 1970 through 2005. He found that large capital outflows from Cameroon is accounted for largely by political instability, fiscal deficits, interest rate-inflation differentials and external debt servicing /GDP ratio. He also found that capital flight bears a serious negative impact on growth in Cameroon.

Based on earlier literature on capital flight especially on developing economies, the causal factors of pollution are far from being resolved as there are different findings on their causal factors. In addition, in most cases, there is paucity of data which may affect the results of earlier studies. To fill the gaps, we utilized panel study of two of the biggest and similar economies in Africa (Nigeria and South Africa) in order to overcome the identified shortfalls of earlier results.

## 3. Model and Estimation Method

Dooley (1988) stated that domestic and foreign investors face asymmetric risk when investing in a developing economy and this asymmetric risk determines the magnitude of capital flight. The magnitude of capital flight is further explained by the portfolio theory in which investors choose between two portfolios in order to maximize utility and wealth. Modern portfolio theory focuses on how risk-averse investors build portfolios in order to optimize or maximize expected returns given a level of market risk. Thus, risk is considered as an inherent part of higher returns. According to the theory, risks from stock holdings are two, namely, systematic and unsystematic risks. Systematic risks are those that cannot be diversified away and they include interest rates risk, recessions and wars, inflation etc. On the other hand, unsystematic risks (also known as specific risks) are specific to individual stocks and can be diversified away as more stocks are added to the portfolio. While it is easier to diversify away unsystematic risk, systematic risk is the main contributor or determinant of capital flight in any country. The reason for this is that systematic risk is undiversifiable. Inflation, exchange rate fluctuations, interest rates risk are a part of systematic risk of holding assets in the domestic economy and, investors generally avoid these risks by moving their assets from the domestic economy to other economies where systematic risk is higher to developed economies where systematic risk is lower. Portfolio theory therefore encourages capital mobility and heterogeneous risk preferences. To what extent systematic risks affect capital mobility and consequently capital flight, is an important issue for empirical analysis.

## 3.1. Model

Model 1 is employed in the analysis of the determinants of capital flight in Nigeria and South-Africa using the least-squares dummy variable (LSDV) estimator technique. We analyzed data ranging from 1985 to 2007 in a balanced panel study. There are the tacit assumptions first that intercept and slope coefficients are constant. We also made the assumption that the slope coefficients are constant but the intercept varies over individuals. This is to account for individuality of each country or all effects which are specific to a particular country which are not varying with time.

$$FLI_{it} = \boldsymbol{\alpha}_0 + \boldsymbol{\alpha}_1 TBA_{it} + \boldsymbol{\alpha}_2 EXR_{it} + \boldsymbol{\alpha}_3 INF_{it} + \boldsymbol{\alpha}_4 DIF_{it} + \boldsymbol{\alpha}_5 GDP_{it} + \boldsymbol{\alpha}_6 DEB_{it-1} + \boldsymbol{\alpha}_7 POL_{it} + \boldsymbol{\mu}_{it}$$
(1) Where:

FLI<sub>it</sub> is the total yearly amount of capital flight in million US dollars for country i. DEB<sub>it-1</sub> is the total debt stock in the immediate past year or year t-1 (in million US dollar) for country i. EXR<sub>it</sub> is the yearly average exchange rate of one US dollar in Naira or Rand. DIF<sub>it</sub> is the difference between domestic short term interest rate and the United States' 3-month Eurodollar rate (or US 3-months Eurodollar rate minus Nigeria or South-Africa's short term rates). The persistence of nominal excess returns on foreign asset relative to domestic asset and, any uncertainty about whether (relative) purchasing power parity holds, encourages capital flight for country i. This is also known as the international arbitrage conditions. GDP<sub>it</sub> is the growth of the economy as measured by the real GDP. The higher the level of growth in the domestic economy, the higher the opportunity for domestic investments. The higher the opportunity for domestic investments, the less the incentives to engage in capital flight (Ajayi, 1992: 55) for country i. TBA<sub>it</sub> is the trade balance in million US dollars for country i. A bigger external sector is associated with more transactions with foreigners. This provides more opportunities to circumvent foreign exchange restrictions and encourage more funds to be deposited in international banks abroad. In other words, success in trade is expected to trigger capital flight. This variable therefore is expected to have a positive sign. INF<sub>it</sub> is the rate of inflation in the domestic economy in time t for country i. POL<sub>it</sub> is the political stability defined as having value 1 during civilian rule and zero otherwise (military in Nigeria and apartheid in South Africa) (see also Onwioduokit, 2001).  $\mu_{it}$  is the random error term.

## 4. Empirical Analysis and Discussion

The data employed in this study are annual macroeconomic variables which include; capital flight, foreign debt stock and trade balance obtained from the Economist Intelligence Unit [EIU] (2008) Country Data-Annual time series. Other data for the study include the exchange rates, interest rate differentials, inflation rate and were obtained from the United Nations databases. The sample period is from 1985 through 2007. Data for interest rate differentials was not directly available and as such direct computation by the author was done (e.g. three-month US Eurodollar rate minus Nigerian 3-month's rate). The political stability was based on a dummy score of 1 for democratic rule and zero otherwise.

| Dependent Variable: FLI?               |             |                    |             |          |  |  |  |
|--|-------------|--------------------|-------------|----------|--|--|--|
| Method: Pooled Least Squares           |             |                    |             |          |  |  |  |
| Date: 06/27/10 Time: 21:36             |             |                    |             |          |  |  |  |
| Sample: 1985 2007                      |             |                    |             |          |  |  |  |
| Included observations: 23              |             |                    |             |          |  |  |  |
| Total panel (balanced) observations 46 |             |                    |             |          |  |  |  |
| Variable                               | Coefficient | Std. Error         | t-Statistic | Prob.    |  |  |  |
|  |             |                    |             |          |  |  |  |
| C                                      | -10028.64   | 3378.209           | -2.968626   | 0.0052   |  |  |  |
| TBA?                                   | -0.314002   | 0.130226           | -2.411210   | 0.0208   |  |  |  |
| EXR?                                   | 67.14812    | 24.50302           | 2.740402    | 0.0093   |  |  |  |
| INF?                                   | -1.550655   | 38.21943           | -0.040572   | 0.9678   |  |  |  |
| DIF?                                   | 341.0033    | 151.9810           | 2.243722    | 0.0308   |  |  |  |
| GDP?                                   | 0.068395    | 0.011734           | 5.828757    | 0.0000   |  |  |  |
| DEB?(-1)                               | 0.340783    | 0.106082           | 3.212456    | 0.0027   |  |  |  |
| POL?                                   | -3747.281   | 1827.920           | -2.050024   | 0.0473   |  |  |  |
|  |             |                    |             |          |  |  |  |
| R-squared                              | 0.677462    | Mean dependent var |             | 1104.372 |  |  |  |
| Adjusted R-squared                     | 0.618047    | S.D. dependent var |             | 5607.900 |  |  |  |
| S.E. of regression                     | 3465.815    | Sum squared resid  |             | 4.56E+0  |  |  |  |
|  |             |                    | 8           |          |  |  |  |
| Log likelihood                         | -434.4833   | F-statistic        |             | 11.40221 |  |  |  |
| Durbin-Watson stat                     | 1.977834    | Prob(F-statistic)  |             | 0.000000 |  |  |  |

Table 1: Capital flight estimates for common coefficient panel data

The result in table 1 shows the pooled equation (with common constant) for capital flight for Nigeria and South-Africa. Trade balance, inflation and political stability are inversely related to capital flight while exchange rate, interest rate differentials, national output increment and debt lagged for a year are positively related to capital flight. All these variables significantly

explained capital flight in Nigeria and South-Africa. The coefficient of determination showed that the independent variables were able to explain about 68 percent variability in capital flight. The F-test revealed the joint significance of the independent variables in explaining capital flight. However, because of the fact that each country has its own peculiar characteristics in the explanation of capital flight, we reflect this in our fixed effect model of capital flight and the result is presented below.

| Dependent Variable: FLI?               |             |                    |             |          |  |  |  |
|--|-------------|--------------------|-------------|----------|--|--|--|
| Method: Pooled Least Squares           |             |                    |             |          |  |  |  |
| Date: 06/27/10 Time: 21:33             |             |                    |             |          |  |  |  |
| Sample: 1985 2007                      |             |                    |             |          |  |  |  |
| Included observations: 23              |             |                    |             |          |  |  |  |
| Total panel (balanced) observations 46 |             |                    |             |          |  |  |  |
| Variable                               | Coefficient | Std. Error         | t-Statistic | Prob.    |  |  |  |
|  |             |                    |             |          |  |  |  |
| TBA?                                   | -0.285416   | 0.128769           | -2.216502   | 0.0329   |  |  |  |
| EXR?                                   | 40.66992    | 29.05769           | 1.399627    | 0.1700   |  |  |  |
| INF?                                   | -12.41051   | 38.03183           | -0.326319   | 0.7460   |  |  |  |
| DIF?                                   | 246.1643    | 160.0041           | 1.538488    | 0.1324   |  |  |  |
| GDP?                                   | 0.083018    | 0.014627           | 5.675763    | 0.0000   |  |  |  |
| DEB?(-1)                               | 0.302270    | 0.106598           | 2.835604    | 0.0074   |  |  |  |
| POL?                                   | -3080.783   | 1837.213           | -1.676878   | 0.1020   |  |  |  |
| Fixed Effects                          |             |                    |             |          |  |  |  |
| SAFC                                   | -12544.75   |                    |             |          |  |  |  |
| NIGC                                   | -8885.861   |                    |             |          |  |  |  |
| R-squared                              | 0.698732    | Mean dependent var |             | 1104.372 |  |  |  |
| Adjusted R-squared                     | 0.633592    | S.D. dependent var |             | 5607.900 |  |  |  |
| S.E. of regression                     | 3394.552    | Sum squared resid  |             | 4.26E+08 |  |  |  |
| Log likelihood                         | -432.9564   | F-statistic        |             | 14.30234 |  |  |  |
| Durbin-Watson stat                     | 2.114734    | Prob(F-statistic)  |             | 0.000000 |  |  |  |

Table 2: Capital flight estimates for the least-squares dummy variable (LSDV) estimator

From the table 2 above, the coefficient of determination shows that the independent variables explained about 70 percent variability in the capital flight. The adjusted coefficient of determination which is a more reliable measure of goodness of fit shows that the dependent variables explained about 63 percent variability in the dependent variable. The F-statistic shows that the independent variables jointly explained capital flight significantly. The constant variables for Nigeria is greatly different from that of South-Africa and the above points indicate that the assumption of constant intercept for Nigeria and South-Africa is unrealistic and that the country specific features are different for the two countries and result 2 is better than 1.

A cursory look at the results indicate that Trade balance, inflation rate and political stability are inversely related to capital flight while exchange rate, interest rate differentials, economic performance and one-year lag of debt are directly related to capital flight. These suggest that unfavourable trade balance is a result of trade-mis-invoicing and this contributes immensely in fuelling capital flight. As inflation rate increases, this contributes to capital flight. In addition, as there is political instability, capital flight is fuelled. The positive relationship between capital flight and exchange rate implies that as the exchange rate depreciates, capital flight is fuelled. Moreover, as the gap between the domestic interest rate and that of the rest of the world widens, more capital escapes the economy. Lastly, the relationship between capital flight and one-year lag external debt is a confirmation of the Dooley's debt-flight revolving door in which means that unrecorded capital outflows from developing countries take place simultaneously with external borrowing (Ayadi, 2009 also confirmed this in his study).

Generally however, trade balance, domestic economic performance, one-year lag external debt and political stability are the variables that significantly explain capital flight in Nigeria and South-Africa.

However, there is a great need to test the two models so as to ascertain which one is more relevant in our analysis. Put in a different form, is the difference between Nigeria and South Africa significant enough to warrant a different intercept estimates for the two countries? This test is conducted by formulating the hypothesis of  $\alpha_{10} = \alpha_{20}$ . Where  $\alpha_{10}$  is the intercept for Nigeria and  $\alpha_{20}$  is the intercept for South Africa. We conducted an F-test of the above hypothesis as described below.

$$F - Statistic \frac{(R^2_{FE} - R^2_{CC})/(N-1)}{(1 - R^2_{FE})/(NT - N - K)} \approx F(N-1, NT - N - K)$$

Where,  $R_{EE}^2$  is the coefficient of determination of the fixed effects model.  $R_{cc}^2$  is the coefficient of determination of the common constant model. N is the cross sectional units (i.e. countries in this case), T is the different time period (23 in this case). K is the number of explanatory variables of the model.

The decision rule is, if F-statistic is bigger than the F-critical, then we reject the null hypothesis of existence of common intercept and accept the alternative hypothesis of different intercepts. Converse is the case when F-critical is bigger than F-statistic.

$$F - statistic = \frac{(0.698732 - 0.677462)/(2 - 1)}{(1 - 0.698732)/[(2)(23) - 2 - 7)} = 2.6124$$

 $F_{(N-1,NT-N-K)}$  at  $\alpha$ =0.05 is  $F_{1,37}$  at  $\alpha$ =0.05 =4.00. F-statistic is therefore less than F-critical, so we cannot reject the null hypothesis of common intercept for Nigeria and South Africa. Based on the above result, we can conclude that a common intercept estimate for Nigeria and South Africa is more appropriate and our conclusion will be based on it.

## 5. Implications of Findings

Capital flight is the major contributor to the problem of trade deficits in the studied countries. This therefore calls for proper accounting process for all the international transactions. In addition, as the economy grows, capital flight is fuelled. Dooley's debt-flight revolving door which means that unrecorded capital outflows from developing countries take place simultaneously with external borrowing is true in Nigeria and South-Africa. It leads one to deduce that external borrowing or external debt is a determinant of capital flight in Nigeria and South-Africa.

The postulates of the portfolio-choice theory which suggests that capital flight is driven by relative risk-adjusted expected return is true in the Nigerian case and that of South-Africa. In other words, differentials in interest rates as measured by the risk-premium which is, the difference between short-term commercial banks' deposit rates in Nigeria and South-Africa and, the 3-month Eurodollar rate (representing the World interest rates) significantly explains capital flight. The significant negative relationship reported is in conformity with theory and practice. This implies that as the foreign rate grows over and above the domestic rate, more funds are diverted away from the domestic economy and this contributes significantly to the growth in capital flight in Nigeria and South-Africa.

Political instability is confirmed to be a significant factor fuelling capital flight in agreement with Ajayi (2000). One limitation of this study is the inability to capture corruption level which is assumed to be a major determinant of capital flight anywhere. More research efforts are needed on the appropriate estimation of transparency or corruption index measures in Nigeria and South-Africa. Governments of third world countries must therefore put in place measures to curb corruption and political instability in order to reverse the tide of capital flight.

Based on the above therefore, Nigeria and South-Africa must initiate serious economic reforms which targets macro-economic stability, removal of structural distortions and creation of a conducive environment for enhancing domestic production capacity. For instance, targeting inflation in the economy, stabilization of domestic currency and strengthening the international reserve base and the competitiveness of domestic interest rate with the world interest rate. Price stability is the key to macro-economic stability and, investment is the driving factor of economic growth. Governments of developing countries must strive towards reducing country risk or macro-economic risk so as to stop the tide of capital flight. In addition, government in developing countries should reduce their fiscal deficits since this induces over-borrowing and encourages capital flight.

In addition to the above, the existing tax structure must be made conducive by reducing disincentives to productivity and incentives for tax evasion. Financial uncertainty in any economy must be removed so as to curb further capital flight and to reverse the trend in its growth. Lastly, developing countries must focus on investment in infrastructure and other productive aiding facilities. They must create an enabling environment that motivates asset-holders to keep their wealth in domestic currency while repatriating streams of flows from foreign assets.

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