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Determinants of Capital Flight: New Panel Evidence from Sub-Saharan Africa (SSA)

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Abstract: This paper examines the determinants of capital flight in sub Saharan African countries (SSA) by introducing corruption as a focus variable in the model. The econometric analysis is based on data from 25 SSA countries over the period 1986–2010 using dynamic panel data estimation methods: Corruption, our focus variable retains its expected positive sign and is statistically significant across all the estimations. The relationship remains very strong even when other standard control variables are taken into account. These results confirm our hypothesis that the nature of corruption in SSA is such that it encourages and promotes capital flight. The empirical findings also indicate that the capital flight in SSA countries is driven mainly by corruption, lag capital flight, external debt, foreign direct investment, and macroeconomic uncertainty. Based on these results, the paper recommends that governments in the region should manage their external debt efficiently, and stabilize their monetary and macroeconomic policies in order to curtail capital flight. Finally, our results are also robust to different specifications, measures of corruption, and econometrics estimation techniques.

1. INTRODUCTION

Countries within sub-Saharan Africa (SSA) are facing substantial and major financing gaps, and thus hindering the much-needed public and private investments that will make it likely for the region to achieve the Sustainable Development Goals (SDGs)[2] adopted by member states of the United Nations in September 2015 in New York. Take for example, the first and second dimensions of the goals: economic development and social inclusion; achieving them by the year 2030 will be a mirage if conscious efforts are not made to block the gaps and black holes in the continent's public finances. This is coming against the backdrop of member states in SSA starting

from very low initial conditions: levels of deprivation are acute; infrastructure is inadequate and capital is in short supply. Achieving the SDGs will therefore be a herculean task given that the region is also the source of large-scale capital flight for over the last 40 years. The scale of the challenge is enormous and according to Kar and Freitas (2012), developing countries on average, lost between US$ 586 billion to US$919 billion annually to capital flight between the intervening periods of 2001 to 2010.

Capital flight, in terms of level, is generally heterogeneous across the region; however, what is very obvious from Figure 1 is that countries like Nigeria and Angola that are known as oil-producing nations are topping the list in terms of the amount of capital flight from SSA. The main concern, therefore, is that while the volume of capital flight from Africa may be small relative to other regions of the world, it carries with it some substantially heavier costs for the African economies in terms of foregone economic development opportunities, and perhaps this is why the nature of capital flight from the region is particularly injurious. Other previous related independent studies conducted for SSA countries have equally established the existence of capital flight as well as its effects on economic growth (as a precursor to the findings of Ndikumana *et al.* (2015), see other similar works by Morgan Guarantee and Trust Company (1986); Lessard and Williamson (1987); Murindi, Hermes and Lessink (1996); Ajayi (1997); Boyce and Ndikumana (2000), among others).

Given that sub Saharan African countries are lagging behind in major human development indicators relative to other parts of the world (see Tables 1), capital flight according to Fofack and Ndikumana (2010), carries heavy opportunity cost as it undermines the much-needed domestic investment, and according to Nkurunziza (2015), it equally retards economic growth and undermines poverty reduction. Empirical evidence on the ground in the region equally indicates that most of the flight capital from SSA countries ultimately hurts the poor and is usually a by-product of official corruption as established, for examples by the activities of some African leaders[3]. Even more recently in 2016 is what is now known as "Panama Papers"[4] scandal. Despite this reality, few studies, if any have attempted to systematically incorporate corruption into the capital flight and economic growth analysis.

This study seeks to provide empirical evidence by shedding light on the role that corruption plays as a determinant of capital flight. Specifically, the paper aims to address two empirical questions. First, is there a relationship between corruption and capital flight within the region? On the one hand, it may be hypothesized that corruption may provide resources that fuel capital flight, which would imply a positive

relationship between the two phenomena; in other words, countries with high corruption would also have high capital flight. This question is worth investigating given that the level of corruption and capital flight within the region is getting worse. While the literature has established that external borrowing fuels capital flight (Boyce, 1992; Ndikumana and Boyce, 2003, 2011a), relatively little attention has been paid to the possibility that corruption may also be a determinant of capital flight. The paper is based on a sample of 25 SSA countries for which we have adequate data on capital flight from 1986 to 2010. The analysis uses panel data econometric estimation techniques to investigate the determinant of capital flight by focusing on the role of corruption. The econometric specification and estimation take into account the persistence of capital flight over time as documented in the literature (or hysteresis; Ndikumana et al., 2015) and potential endogeneity of regressors using the system dynamic panel data estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998). The main results that emerge from this paper indicate that in the context of SSA countries macroeconomic instability poor institutional quality, debt and corruption are used in part to finance capital flight. The results reveal also that capital flight episodes arise in the presence of less developed financial system.

The remainder of the paper proceeds as follows. The next section provides a definition and measurement of capital flight. Section 3 provides a review of the literature, summarizing the evidence on the determinants of capital flight. The theoretical, empirical model and the estimation methodology are provided in Section 4. Section 5 describes the data and some economic intuition. Section 6 presents and discusses the econometric results. Section 7 concludes

2. DEFINITION AND MEASUREMENT OF CAPITAL FLIGHT

When it comes to defining capital flight there are several definitions in the literature, one good example is given by Dooley (1986) who defines capital flight as outflows that are held by non-resident, that is beyond the reach of local monetary and fiscal policies or do not yield an interest domestically. Similarly, it also refers to the movement of money from investment in one country to another in order to avoid country-specific risks like hyperinflation, political instability and anticipated depreciation and devaluation of the local currency. The phenomena tend to point towards the notion that: capital flight is said to occur when government officials and wealthy individuals in society move financial assets out of the country in desperation to avoid actual or expected government intervention that could substantially reduce the value of their assets. It includes everything from carrying cash across the border in suitcases so as

to avoid an expected increase in taxes to lying about the number of receipts gained from exporting products and using the excess export earnings to buy a mansion in Chelsea or Kensington, London, United Kingdom

Capital flight as a phenomenon is unobservable and therefore has to be estimated. Measuring capital flight is not straight forward and can be quite difficult, and this is partly because of the existing lack of consensus in having a precise definition of the concept. As a result, the measurement of capital flight is usually driven by the definition adopted per time. However, the literature on capital flight has identified several measures. The nature of capital flight is likely to affect its estimations but definitely not its economic consequences. Generally, the following measures of capital flight can be found in the literature: Dooley Method; Residual Method; Hot Money Method; Trade Mis-invoicing Method and Asset Method.

The Dooley Method: This method tends to define capital flight as all legal and illegal capital outflows that are driven by the singular desire to place assets or wealth beyond the reach and control of domestic authorities. This method of computing capital flight takes the total number of capital outflows as reported in the balance of payments statistics and then makes some modifications by accounting for errors and omissions. It also factors in the difference in the change in the stock of external debts and external borrowing, and if the stock of external debt is larger than external borrowing the difference is assumed to be part of capital flight. Furthermore, by using a representative market interest rate and in this case, the United States of America deposit rate, the stock of external assets is computed in such a way to align with the reported interest rate earnings in the balance of payment. Finally, capital flight is measured as the difference between total capital outflows and the change in the stock of external assets matching reported interest income.

Capital flight according to the Dooley method can be computed as:

$$TCO = FB + FI - CAD - \Delta FRS - NEO - \Delta WBIMF \quad (1)$$

Where *TCO* denotes total capital outflows, *FB* denotes foreign borrowing as reported in the balance of payment statistics. *FI* is the net foreign investment flows, *CAD* while is the current account deficit, and *FRS* is the foreign exchange reserve. *NEO* is net errors and omissions and *WBIMF* represents the difference between the change in the stock of external debt reported by the World Bank and foreign borrowing reported in the balance of payments statistics published by the IMF.

The stock of external assets (*SEA*) is calculated as:

$$SEA = (1 + r_w)RR_t \ldots \ldots \ldots \quad (2)$$

Where r_w denotes international market interest rate and RR_t is the registered receipt. Capital flight from the Dooley method is then measured as:

$$CF_d = TCO + SEA \quad (3)$$

The Residual Method: This is the most used method in the literature and is otherwise known as the World Bank method. It is fairly straightforward in the way it is computed. In addition to comparing the sources and uses of capital flows, it also considers all private capital outflows as capital flight. It also acknowledges the challenges of separating normal and abnormal capital outflows, and as a result, it measures all unrecorded outflows as capital flight. In addition to foreign reserves *FRS* as uses, the current account deficits (*CAD*) on one hand is compared with both the net increases in external debt (*ED*) and the net inflow of foreign investment (*FI*). When the sources are more than the uses of capital inflows, the difference is then referred to as capital flight. From the foregoing, the residual method of capital flight can be presented in an equation format as follow:

$$CF_r = \Delta ED + FI - CAD - \Delta FR \quad (4)$$

where Δ denotes change and *CF* represents capital flight

It is worth pointing out that the residual method has been widely used in the literature and in some cases with minor variations to the above formula. Some studies that have implemented the above standard approach are: Erbe (1985) and the World Bank (1985), while a modified version of the residual method was implemented by Morgan Guaranty Trust (1985) and Murinde *et al.* (1996) by including the change in the foreign assets of the local baking system.

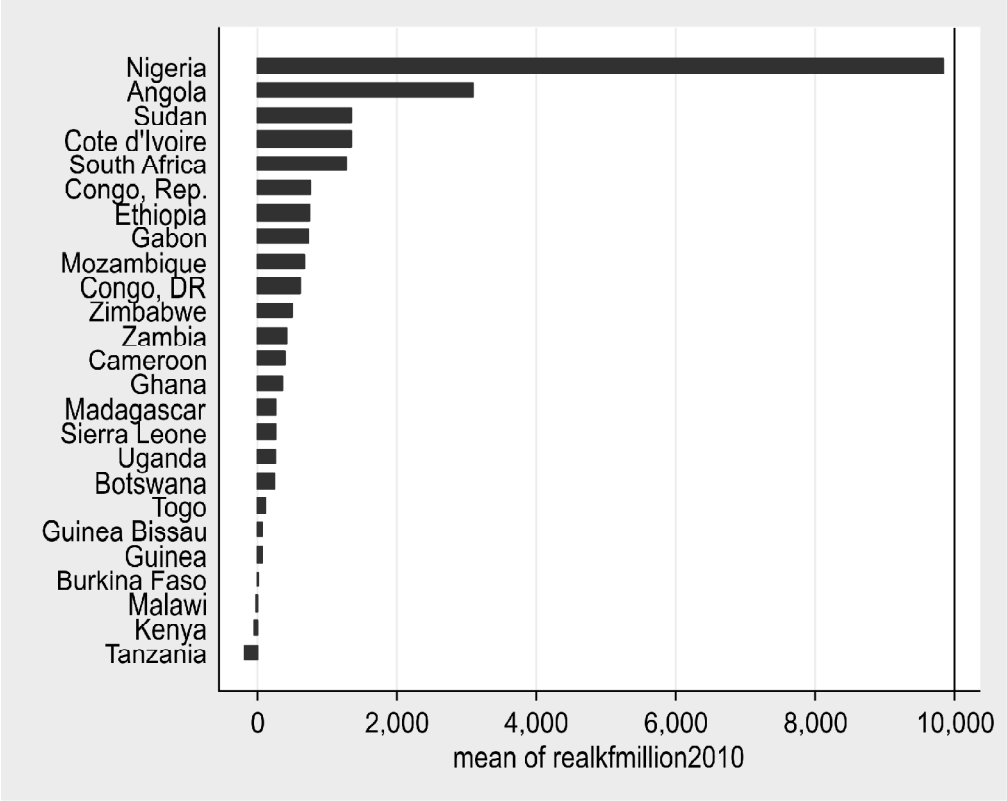
The Hot Money Method: This measure takes the view that capital flight is measured by adding up non-bank private short-term capital outflows together with net errors and omissions. This is akin to a situation the capital outflows are responding to short term differences in the various market conditions (domestic and international). Examples of authors that have used this method to measure capital flight are: Cuddington (1986) and Gibson and Tsakalotos (1993). The hot money method of computing capital flight can be summarized by the following formula:

$$CF_h = SCO + NEO \quad (5)$$

where *CF* denotes hot money capital flight and *SCO* is the total amount of short-term capital flows.

The Trade Mis-invoicing Method: In this method, capital flight is derived by comparing data from both the exporting and importing countries. Capital flight happens when importers report higher values of imported goods when contrasted with the values of the same reported exported goods. Some of the authors that have used trade mis-invoicing measure of capital flight are Claessens and Naude (1993). On the other hand, exporters are said to be engaged in capital flight when they report lower values of goods exported when compared with the same values of reported goods by importers. Export under-invoicing and export over-invoicing are the mechanisms under which capital flight occur through residents including resident's abnormal capital outflows. In other words, both the malpractices of export under-invoicing and import over-invoicing are the financial vehicle through which domestically accumulated wealth is siphoned outside the country. However, this method of measuring capital flight is highly contested and deemed inaccurate because of the poor quality of import and export data occurring as a result of trade mis-

Figure 1: Capital Flight from SSA (1970-2010) (billion, constant 2010US$)



invoicing. Critique of this measure, amongst others, include: Lessard and Williamson (1987); Ajayi (1997); Collier et al. (2001) and Boyce and Ndikumana (2002) proposed that adjustments of the capital flight figures by using the residual method will correct for the abnormality.

The Asset Method: This method of measuring capital flight represents a direct and short cut approach. Authors like Hermes and Lensink (1992); and Collier *et al.* (2001) measure capital flight way by taking the total stock of assets of non-bank residents held by a foreign bank which is readily available from the IMF's IFS. Put differently, it measures the minimum amount of assets held abroad. In addition to a bank account, residents can also hold their assets in other forms. For example, assets can be held via foreign equity holdings. The drawback for this method according to Ajayi (1997) is that it fails to recognise the fact that huge amount of assets not related to bank deposits are equally held abroad and even the so-called bank deposits can also be held in financial jurisdictions with banking secrecy enshrined in their statutes books and thereby making it difficult to identify the names and nationalities of the depositors.

Figure 1: Showing mean Real Capital Flight (% of GDP) from SSA countries using the Boyce and Ndikumana (2010) Dataset. On the x-axis is capital flight, and on the y-axis are the countries. From this figure, one can see a trend for concern in terms of the volume of capital flight from most countries in our sample. The descending order *hbar* shows that about 84 per cent of countries from the sample are faced with problems of capital flight.

Table 1: Table showing Capital flight from Africa, 1970-2010 (billion, constant 2010US$)

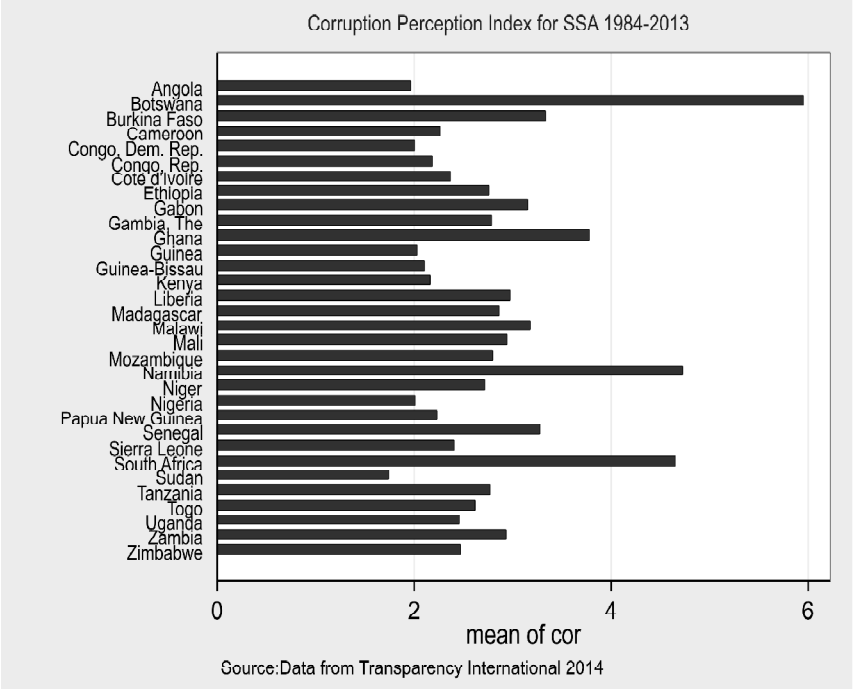
Period	*FDI*	*ODA*	*Capital Flight*
1970-1979	29.8	128.0	225.2
1980-1989	39.1	182.8	307.4
1990-1999	73.9	246.5	230.3
2000-2010	316.3	317.5	510.9
Total	459.1	874.8	1273.8

Data is sourced from www.peri.umass.edu and computed by the author

3. REVIEW OF THE LITERATURE

The literature on the determinant of capital flight is vast in relation to developing countries. Starting with a more recent paper on the study of capital flight in Africa,

Figure 2 :Showing Mean Corruption Perception Index for SSA Countries



Ndikumana *et al.* (2015) examined 39 countries in Africa covering 1970 to 2010 period and came to the conclusion that capital flight from the region peaked at US$1.3 trillion in constant terms. This estimate in 2010 represents eighty-two per cent of the GDP of all the countries considered in the study. The authors came to the conclusion that: "If this capital was invested abroad and earned interest at the going market rates, the accumulated capital loss for these countries over the thirty-nine-year period was US$944 billion". Putting the scale of the loss into perspective, for the year 2008, the total GDP of all countries within SSA was estimated to be US$997 billion. Taking a global view on the volume of capital flight across the other developing regions (Asia and Latin America) of the world, African region does not top the list in real US$ terms but it remains the biggest when compared to the size of the economies of countries within SSA. It is also important to emphasise that capital flight as a problem is not only unique to sub-Saharan African countries or other developing countries in particular, it is a global challenge to both developed and developing countries in general. As a matter of fact, recent academic work by Zucman (2013), show that less developed countries account for a small share of global unrecorded financial flow or capital flight.

Earlier studies empirically give credence to the hypothesis that capital flight is higher when a country's rate of economic growth is low. Pastor (1990), for example, in a study of the USA and Latin American countries finds that the growth rate potential between the two regions is an important determinant of capital flight. Similarly, Nyoni (2000) relates capital flight from Tanzania to the growth rate differential between the United Kingdom and obtains a similar result.

In a study investigating the impact of capital flight on economic growth over the period of 2002-2006 for a large number of 139 countries in the world, Gusarova (2006) employed fixed effects panel regression and the result showed that capital flight has a negative effect on economic growth but its significance was ambiguous because the results were not robust to specifications that accounted for region or year effects. In the same vein, Cervena (2006) in a recent study investigated the impact of capital flight on long term economic growth for a cross-section of 75 developing countries by performing a pooled cross-section analysis based on fixed-effects models. The Solow growth model is employed while controlling for other important right-hand side variables. The results suggest that countries with a higher capital flight to GDP ratio have experienced slower growth of GDP per capita, and with poorer countries suffering severe consequences. Similarly, Lan (2009) studied the effects of capital flight on economic growth in a sample of selected Association of South-East Asian Nations(ASEAN) countries by employing the ARDL Bounds test approach to co-integration with annual time series data spanning 1972-2005, after employing 3 different measures of capital flight the author concluded that on the one hand that capital flight is positively related to higher external debts, higher political instability and as well as higher budget deficit. On the other hand, the author found a significant negative effect of capital flight on growth in the respective countries in the sample. In a related study, albeit for a different region, Ndiaye (2009) examines the effect of capital flight on economic growth in the Franc Zone (FZ) area from 1970-2010. Three alternative measures of capital flight were also employed in the dynamic panel econometrics analysis used in the study and find that real capital flight from countries in this zone in sub-Saharan Africa significantly reduces economic growth. The results also confirm that domestic investment, credit to the private sector, domestic savings and the quality of institutions all play an important role in explaining the influence of capital flight on economic growth.

Olawale and Ifedayo (2015) in a study of Nigeria, investigates the impacts of capital flight on economic growth between the period of 1980 and 2012 using time series error correction model as their main estimation technique and concluded

that, overall, capital flight had a negative impact on the economy. In a more recent paper, Ajayi (2014) takes a more-broader approach to the analysis and implications of capital flight for economic growth and development in Africa. The paper was mainly descriptive and argues that capital flight undermines economic growth because of the resource gap which it exacerbates. This occurs through the ways in which capital flight undermines domestic resource mobilization effort, reduces domestic investment, reduces the tax base and ultimately leads to reduced public investment.

3.1. Determinants of Capital Flight

Based on the determinants of capital flight explored in the literature, six broad categories have been found as consistent determinants of capital flight:

Past Capital Flight: All else being equal, past capital flight have a tendency to persist over time. In other words, past capital causes more capital and connotes a positive relationship with real capital flight. These characteristics are attributed to the concept of habit formation and hysteresis. Past studies confirming this behaviour are; Ndiaye (2009) in a study of Franco Zone area of Africa found that past capital flight to have a positive effect on current capital flight. Boyce and Ndikumana (2003) saw this as a habit formation effect in that as more private players gain more experience moving capital abroad, they also get better at doing it over and over again. Cerra *et al.* (2006) in a related study on capital flight and economic growth also found similar result of a positive influence of past capital flight on current capital flight.

Contrary to the above results, Nyoni (2000) in a capital flight study of Tanzania found that past capital flight has a negative effect on current capital flight. Boyce (1992) in a similar study of capital flight in the Philippines found an insignificant effect of past capital flight on current capital flight. Even though these findings are quite contradictory, and the effect far from conclusive, they could have been influenced by the measure of capital flight used, the sample or region studied and the time period. By and large, most of the literature points towards a positive effect.

Rate of return differentials: This is proxied by the difference between an African country's interest rate and the more stable U.S interest rate (US real interest rates minus the African country's real interest rate). This variable has been used in a lot of studies to measure the relative attractiveness of domestic assets to residents' relative to foreign assets. This is the variable that encourages us to test the portfolio choice theory hypothesis that capital flight is driven by mainly higher world interest rates relative to domestic interest rates. On the whole, interest rate differentials do not always have a statistically significant relationship with capital flight (Lensink *et al.*

(1998). This may be an indication that perhaps other determinants like political instability and macroeconomic instability are much better at explaining capital flight. As for the countries in our sample, the motive for capital flight would probably also be driven by the need to hide ill-gotten wealth from the reach of tax authorities in case the prevailing political realities changes.

Macroeconomic Instability: Countries experiencing macroeconomic instability tend to manifest in different ways and can take the following form: Increase in the budget deficit, growing inflation, exchange rate overvaluation, increase in current account deficits, and general government debt. Also, put differently, macroeconomic instability happens when there is an aggregate mismatch between domestic demand and supply.

Exchange rate overvaluation has been consistently found to be a natural factor in the determinants of capital flight in the literature. If a country's currency is overvalued through the exchange rate mechanism today, the natural expectation is that devaluation of the same currency will occur in the future and as a result, this scenario will lead to loss of real income as prices of foreign goods rise relative to domestic goods. To avoid losing out badly, most residents will hold part of their wealth abroad.

High inflation also reduces the real value of the domestic assets and thereby acting as an incentive for residents to hold their assets abroad. This variable has a positive effect on capital flight and has been confirmed by several studies on the determinants of capital flight. Dooley (1988) confirmed the positive effect of inflation on capital flight and on the other hand, Boyce and Ndikumana (2003) in a study of capital flight on developing countries found an insignificant effect of inflation on capital flight. The evidence for this variable is far from conclusive, however, economic intuition and literature suggests that inflation drives capital flight positively. High current account deficits and government budget deficits can also positively affect capital flight and this is because it raises expectation on the part of residents that government will raise taxes in the future so as to help balance its public finances by paying its debt.

Finally, it must be noted that evidence from the above macroeconomic indicators, shows that macroeconomic instability will generally increase the incentives for capital flight (see Lensink1 *et al.* (1998).

Political Instability: This variable is expected to encourage capital flight because it increases the risks and uncertainty surrounding the policy environment and its

outcomes for investors and domestic asset holders. For example, as a result of the perceived high level of corruption and lack of confidence in the domestic political environment, residents would well prefer to hold their wealth abroad when they contemplate the consequences of these factors for the future value of their assets. Researchers that have found positive relationships between capital flight and political instability are: Boyce and Ndikumana (2003) found a positive relationship between capital flight and political risk and Collier *et al.* (2004) found a similar result.

Capital Inflows: Capital inflows generally tend to have positive effects on capital flight. Examples of capital inflows are long term debt, foreign direct investment, aid and remittances. Foreign direct investment, according to Cuddington (1987), may have a positive effect on capital flight because of the inflows of foreign currencies. However, Lensink *et al.* (2000) in a study of 84 developing countries found a contradictory result of an insignificant effect on foreign direct investment. However, Ajayi (1995) have argued that capital inflows such as aid and foreign direct investment to developing countries are a strong contributory factor to capital flight because of the simultaneous occurrence of capital inflows and capital outflows.

External Debt: For so many developing countries, an increase in external debts leads to inflationary financing and will ultimately result in an inflationary tax on the residents in the future. Many empirical studies in the literature have confirmed that there is a positive relationship between capital flight and external debt. What this means is that higher external debt is associated with a higher capital flight. For example, Boyce and Ndikumana (2003) in a study of 30 sub-Saharan African countries over the 1970-1996 period, found that on average, 80 cents out of every one U.S dollar borrowed in a given year by a sub-Saharan African country left the region as capital flight. Similarly, Chipalkatti and Rishi (2001) in a study of capital flight in India found a two-way relationship between capital flight and external debt and concluded that the relationship is conformity with the revolving door hypothesis. A financial revolving door hypothesis is where both external debt and capital flight fuel each other by providing capital for reverse flow.

4. THEORETICAL ANALYSIS AND EMPIRICAL MODEL

Several relevant theses have been advanced by past literature as rationale for capital flight, however, in this chapter, we follow Le and Zak (2006) and employ a model of "portfolio choice framework of asset allocation" first used by Sheets (1995), and subsequently by Collier *et al.* (2001) and Ali and Walters (2011) to help us explain the role of corruption in the capital flight process in SSA countries. Sheets (1995) using

a portfolio-choice framework of asset allocation, presents a theoretical model in which capital flight is determined by risk diversification motive with one important incentive like the rate of return differential on investments and relative risk incentive. The incentive, in this case, relates to factors that adversely impact the macroeconomic environment, and as a result, reduce the risk-adjusted returns to domestic investments. There are other incentives that also implies that capital flight arises due to factors that raise the relative riskiness of the domestic economy. Simplifying this further, households can hold wealth (*C*) portfolios in the form of both domestic and foreign assets (i.e. in a different jurisdiction). The proportion of the portfolio held abroad is usually dependent on the returns and riskiness of domestic assets relative to foreign assets. In other words, capital flight would be driven by the difference between the rate of return to investment abroad and in the domestic market. Given that private wealth holders are concerned about the real returns on their investments, the rate of return differential between foreign and domestic asset is considered an important determinant of portfolio decisions. The relative return to investment is captured by the interest rate differential with the expected coefficient being positive since higher real interest rate differential encourages economic agents from SSA to hold their wealth in foreign assets. The higher the differential, the higher the proportion of portfolio held abroad.

We incorporate the important fact, as documented in the literature, that capital flight tends to persist over time so that countries with high capital flight in the past and present tend to have high capital flight in the future (Ndikumana and Boyce, 2003, 2011b; Ndikumana *et al.,* 2015). This suggests modelling capital flight as dynamic process where current capital flight depends on its lags. The specification of the empirical model is motivated by the goal of this study which is to examine the relationship between corruption and capital flight, for this purpose, we include corruption as explanatory factors of capital flight. The empirical capital flight equation is therefore specified as follows:

$$CF_{it} = \beta_0 + \beta_1 CF_{it-1} + risk_{it}\,\beta' + \gamma return_{it} + \omega Y_{it} + \delta_t + \mu_i + \varepsilon_{it} \qquad (6)$$

where:

CF_{it} *stands for Capital Flight as a percentage of GDP.*

riskit vector contains distortionary policy indicators.

$return_{it}$ *is a measure that captures the rate of return differentials.*

Y_{it} *denotes control for the overal level of economic development (GDP per capita).*

δ_t *is a vector of common time varying effects*

μ_i *captures unobserved time – invariant country specific effects; and*

ε_{it} *is the time varying error term*

The capital flight equation specified above is estimated using the Arellano-Bover/ Blundell-Bond linear panel-data method (Arellano and Bover, 1995; Blundell and Bond, 1998), referred to as "systems dynamic panel data estimator". It is an extension of the original GMM estimator of Arellano and Bond (1991), enabling us to address potential bias to the results in case of serial correlation in the endogenous variable. This approach is particularly appropriate given the persistent nature of capital flight (Ndikumana and Boyce, 2003; Ndikumana et al., 2015), which is accommodated by inclusion of the lag(s) of the dependent variable. This approach also enables us to handle potential endogeneity of explanatory variables.

5. DATA AND ECONOMIC INTUITION

Dependent Variable

We use capital flight as our dependent variable and it is expressed as a percentage of GDP. There are different measures of capital flight known to have been used in past studies: it ranges from the World Bank method, developed in 1985; Morgan Guaranty Trust method, developed in 1986, and the Cline method, developed in 1987. We use the capital flight measures from the Political Economy Research Institute at the University of Massachusetts[5], compiled by Ndikumana and Boyce. This estimate suits our purpose because they were created for African countries and also in order to minimize potential biases in narrower measures. Secondly, we also employed the hot money estimates of capital flight from the Global Financial Integrity Group as a robustness check. The [6]Global Financial Integrity data are estimates for three different measures of capital flight: Hot Money Method, Trade Mis-invoicing and the World Bank Methods.

Corruption: Our main variable of interest, which is corruption is very hard to measure. This is partly because corrupt activities are quite opaque by nature. Some authors focusing on the individual country study have used court cases or the numbers of actual prosecutions in a region or country as proxies for corruption. However, we do not use this type of data as a measure of corruption mainly because it will not be ideal for empirical cross-country studies like this and besides, such data may only be an indication of how good or bad the judicial system is and is nothing to do with corruption. Like other recent researchers, we use the ICRG measure of corruption

that is perception-based and also subjective. However, the reason for using it is motivated by the fact that its coverages include more countries and longer time period across the globe. To that extent, it is therefore suited for cross country studies.

As mentioned earlier, corruption is only one aspect of poor governance. To help us test a broader measure of governance, we also employ the Polity2 variable, which is part of the Polity IV Project, as an additional control variable or regressor. In terms of scores, a score of -10(strongly autocratic) and a score +10(strongly democratic).

Other Control Variables

As common in the economic literature, high variations in variables like real interest rates (INT), real exchange rates (EXR), and inflation rates (INF) are clear indications of economic risk. This view is supported by the work of De Gregoria (1993) who maintain that macroeconomic and monetary uncertainty is usually indicated by high variance in real interest rates and inflation rates. Therefore, we expect the signs of the above variables to be positive in our regression analysis. Furthermore, Adji *et al.* (1997) also find that the return on investment is grossly reduced when the exchange rate appreciates. Therefore, as a key indicator of market distortions, the variance of the exchange rates variable is hypothesized to have a positive association with capital flight.

GDP Per Capita: This variable was extracted from the *World Bank Development Indicators of the World Bank*. Higher GDP per capita represents a sign of economic progress and development. It also indicates a high return on domestic investment. Therefore, this variable ought to reduce capital flight as private investors will now be more interested in investing in the domestic market as a result of the expected higher return on investment. A negative sign is expected between capital flight and higher economic growth (Ndikumana and Boyce 2008).

Inflation: This is measured as a percentage change in the consumer price index and it is one of the most important macroeconomic variables that influence capital flight. The data is constructed from the World Development Indicators. A positive relationship is expected between capital flight and inflation, and this is so because high expected inflation would consequently lead to a high reduction in the values of domestic assets when compared to assets held abroad.

Interest Rate Differentials: This is defined and estimated as the US risk-free interest rate minus the domestic interest. This is proxied by the difference in the

domestic country's interest rate and U.S. interest rate. This variable is taken from the World Development Indicator (2015) and computed by the author. This would help test the conventional portfolio choice theory assumption that implies that capital flight is driven by higher world interest rates relative to domestic interest rates. A positive relationship is expected between interest rate differentials and capital flight

Polity 2: This variable is expected to be negatively correlated with capital flight. However, the relationship can be both ways as political stability, on one hand, reduces capital flight and on the other hand, political instability increases capital flight.

Debt: This is total debt and is taken from the World Development Indicators. It is expected to have a positive relationship with capital flight. Empirical research work by Ndikumana and Boyce (2011) shows that increased foreign borrowing is positively related to capital flight. This can also increase the likelihood of debt crises and thereby worsening the country(s) macroeconomic conditions and investment environment.

Past Capital Flight: This is also sourced from the Boyce and Ndikumana dataset on capital flight (2011). The expected relationship with capital flight is positive. Many empirical studies have reported positive results between past capital flight and real capital flight (Murinde, 2014; Vos 1992), and it tends to persist over time and thereby suggestive of habit formation as private actors gain more experience in capital flight operations.

FDI: This is also known as Foreign Direct Investment and it is included in the study to find out how, and if at all FDI have any effect on capital flight.

Table 2: Variables' a Priori Expectations

Independent Variables	*Expected Signs with Capital Flight*
Past Capital Flight	Positive (+)
GDP Per Capita	Negative (-)
Corruption	Positive (+)
Foreign Direct investment	Positive (+)
Inflation	Positive (+)
Polity2	Negative (-)
Debt	Positive (+)
Interest Rate Differential	Positive (+)
Real Exchange Rate	Positive (+)
Bank credit to Private Sector	Negative (-)
Budget Deficit	Positive (+)

6. EMPIRICAL RESULTS

This section presents the results of the empirical analysis on the determinants of capital flight in 25 sub-Saharan African countries based on pooled OLS, Random Effects and GMM models over 1986 to 2010 period. Tables 4. to 5. contain the results of the three models.

Initially, we estimated all the equations with pooled OLS and then implemented two types of estimator controlling for country-specific effects : (a) fixed effects estimator takes into account that there may be omitted individual country effects that are possibly correlated with the factors explicitly included in the equation and treats these omitted factors as constant; and (b) the random effects estimator, it assumes that any potentially omitted country-specific factors are uncorrelated with those included in the model. We then implemented the Hausman test to choose between the two estimators. The null hypothesis is that the coefficients obtained from the efficient random effects estimator are not different from the ones estimated by the consistent fixed effects estimator. If they are (insignificant p-value, prob>chi2 larger than 0.05), then it is safe to use the random effects. From the test results, we confirm the appropriateness of the random effects model for all the equations across our sample of countries.

Table 4 presents our preliminary results from both pooled OLS and Random Effects after controlling for the level of economic development (GDP per capita) and other macroeconomic instability (log of inflation and exchange rate overvaluation) and rate of returns differentials that aided us in testing the portfolio choice hypothesis. In all the specifications in pooled OLS and Random Effects results, the coefficients of GDP per capita have the right negative sign and it is highly statistically significant at the 1% level in the 2 final results of pooled OLS and Random Effect. Implying that the higher the level of economic development in countries within our sample in SSA, the less the incentives for capital flight to occur. This result is in line with economic intuition and much of the literature. It supports the empirical evidence provided by Beja (2006), who found that countries unable to improve economic growth because of weak macroeconomic policies or inefficient economic sectors will discourage investors and can ultimately lead to conditions conducive for capital flight. Turning to our debt variable, the coefficient shows the expected positive sign in all the regressions but only strongly statistically positive in last 2 full sample results for both pooled OLS and Random Effect. This result indicates that increased total debt either through external borrowing or otherwise provide the fuel and motive for capital flight In SSA countries. It may also reflect the relative

riskiness of the economies of the sub-Saharan African countries in our sample. This result is similar to Collier *et al.* (2001) and Boyce and Ndikumana (2008), who found that higher levels of indebtedness are linked to increased capital flight.

The result for the real exchange overvaluation variable as expected from the literature, have the right positive sign but it is not statistically significant even at the 10% level in all the regressions. Generally, a positive and statistically significant result of an overvaluation of a country's exchange rate can lead to capital flight. This is because when a nation's currency is overvalued, there is a certain expectation that the currency will depreciate in the future, and this induces the private investors or savers to shift their portfolio compositions in favour of foreign assets. Empirical examples from previous studies are in Ngeno (2000), Ajayi (1992). On the other hand, the interest rate return differential (This is the return differentials between each country's interest rate and the stable U.S. interest rate), coefficient is positive and strongly statistically significant at the 1% level for both regressions in OLS and Random Effect. This result concurs with Sheets (1995) and Ajayi (1992), who both found that return differential can act as an incentive for capital flight when the return on domestic instruments is low relative to the world's, then foreign assets can become highly attractive options for domestic economic agents.

The result for net foreign direct investment (FDI) represents a motive for capital flight for both pooled OLS and Random Effect results, and this is because the coefficient on FDI is positive and significant at the 1% level across all the regressions. Implicitly, this connotes that some of the dollars associated with FDI inflow to SSA countries may likely end up as capital flight. The result suggests that governments should pay more attention to FDI and ensure that FDI benefits their economies. These results are consistent with the results of Chunhachinda and Sirodum (2003).

For our main variable of interest, ***corruption,*** in all the specifications in pooled OLS and Random Effects results, the coefficient has the right positive sign but it is not statistically significant even at the conventional level. This could well be because of the nature of the estimator at this stage. Pooled OLS and Random Effect are not known to be the best estimation methods because of their limitation and tendency to bias results (especially pooled OLS). A priori expectation is a positive and statistically significant coefficient and therefore mean that the higher the level of corruption the higher the incentives for capital flight to occur.

Consistent with other empirical studies (Ajayi (1992)), Boyce and Ndikumana (2003) and Lawanson (2007), the budget deficit variable has a positive sign in both RE and OLS, however, it is statistically significant in RE at the 10% level but not in

OLS. The positive sign suggests that a large government deficit may prompt capital flight. This highlights the motivation of investors to move capital abroad to escape future taxation directly and indirectly via monetisation of deficits. The result also implies that fiscal mismanagement, and the need for future fiscal adjustment either through formal taxation or inflationary financing clearly reflects the risks associated with domestic policy environment.

Another important institutional variable is polity2 and the coefficient is negative and statistically significant at the 1% level of significance at both pooled OLS and RE models. This result is consistent with the expected sign and this implies that in the context of governance and institution, emphasis on good governance and strong institution within SSA countries will lead to a fall in capital flight. On the other hand, if less emphasis is put into building good governance and strong institution, capital flight will likely persist.

The results for our measure of financial development, which is proxied by the ratio of bank credit to the private sector is positive in both pooled OLS and RE and statistically significant at the 1% level of significance. This result indicates a positive impact of financial development on capital flight and therefore supports the presumption that the development of the financial system, and the ease of conducting a transaction that accompanies it, may facilitate the export of capital.

Table 5. reports the results of our system GMM estimation, and with respect to our main variable of interest, the coefficient of the ***corruption*** variable is positive and statistically significant at the 5% and 1% levels of significance for both system GMM and difference GMM respectively. This implies that corruption is positively associated with capital flight from sub-Saharan African countries in our study. In practice, this means that corruption is an important factor affecting capital flight from these countries. Put differently, it leads to a higher level of capital flight because of the way corruption affects it. This is not entirely surprising, given that in an environment of poor governance and weak accountability, the private economic agent cannot fully internalize the costs of corruption and may choose to hedge against uncertainty by holding assets abroad. This result is consistent with an earlier empirical work of Le and Rishi (2006) who reported a positive effect of corruption on capital flight for a study of 69 countries involving both developed and developing countries.

Looking at the other institutional variable of polity2, the results confirm our earlier finding in our pooled OLS and RE of the negative and statistically significant effect of governance and political stability on capital flight. This result which showed

that polity2 is negative and statistically significant at the 1% level implies that poor political stability proxied by the polity2 variable is associated with higher capital flight. Conversely, positive political stability will lead to less capital flight from our sample of countries.

With respect to the other control variables, the FDI variable is positive and statistically significant at the 1% level in all the regressions. This result implies that FDI is associated with higher outflow of capital flight from sub-Saharan African countries. The reason for this result and interpretation could be because of the nature of most FDI to sub-Saharan African, which most often than not is mostly connected to natural resources exploitation with little or no forward and backward linkages with the wider economy. The result for our main measure of economic development (per capita GDP) reports a strongly negative and statistically significant effect at the 1% level of significance. These results imply that economic growth is an important factor to explain capital flight from SSA member countries. Although in the literature, capital flight may directly undermine economic growth via several channels (see Erbe (1985), Cuddington (1987), Ajayi (1997)), Williamson (1987) and Dooley *et al.* (1994). This outflow of capital can be activated by both private sectors and government officials. Since investment return is higher in advanced countries, private sectors are interested to invest their additional money in the advanced economy. On the other hand, a corrupt government official may also embezzle public money through money laundering. These results confirm the findings of Murinde, Hermes and Lesink (1996).

Economic growth: As expected, the coefficient of GDP per capita variable has a negative sign, which is statistically significant. This result concurs with the findings of Ajayi (1992) and contradicts the findings of Ngeno (2000), who found the coefficient to be positive and significant. This empirical finding provides some support for the hypothesis that capital flight is higher when a country's rate of economic growth is low. This implies that low economic growth is an indication of low profitability of domestic investment, and therefore capital will tend to flee the country.

The coefficient on the inflation rate variable has a positive sign and this is in conformity with the theoretical expectation. The coefficient is also statistically significant and this result concurs with the findings of Pastor (1990), Olopoenia (2000) and Okit (2000). The result suggests that capital flight over the period may have resulted from the high and rising inflation rates in the country that led to erosion of the real values of assets denominated in domestic currency terms. This

may have forced individuals to reduce real holding of the domestic currency in order to protect themselves against inflation tax. Part of their assets holdings is directed to domestic real assets, while the other part finds its way to real investment or deposit abroad. Therefore, empirical evidence supports the hypothesis that high inflation makes assets denominated in domestic currency less attractive compared to those denominated in foreign currency.

Inflation is positively and significantly related to capital flight in the full sample. The results suggest that high inflation erodes the real value of domestic assets, which induces residents to hold assets outside the continent. High inflation may also signal future exchange rate depreciation, which also increases capital flight.

Debts: The results confirm that increased total debt either through external borrowing or otherwise, provides the fuel and motive for capital flight as the coefficient on debt is positive and significant at the 1% level. In all models, the estimated coefficients of total debt are from approximately 95 to 98 per cent, this means that the majority of a dollar of total debt in SSA countries will end up as capital flight. The results also suggest that governments within the region are responsible for ensuring that borrowings benefit their economies and not for the funds end up enriching few individuals. This finding is in line with Boyce and Ndikumana (2002) for sub-Saharan African countries and Beja (2007) for Indonesia, Malaysia and Thailand.

As theoretically expected, the coefficient on the debt variable has a positive sign and which is statistically significant. The result concurs with the findings of Boyce and Ndikumana (2002). This empirical finding implies that the growing foreign debts in the country may increase expectations about exchange rate depreciation and an increase in taxation, which provides a stimulus to hold foreign assets. Finally, we find a consistently positive and significant impact of total debt, suggesting that increased borrowing may fuel capital flight. This finding is consistent with the literature (Ndikumana and Boyce (2003, 2011)).

Interest Rate Differentials

The coefficient of interest rate differential variable has a positive sign and it is statistically significant. This result concurs with the findings of Ngeno (2000) and Ajayi (1992) that found the coefficient to be positive and statistically significant. The positive sign implies that if financial markets are liberalised, and international capital movement is deregulated then domestic capital may be expected to flow abroad as

long as risk-adjusted returns are higher elsewhere. On the other hand, a negative and statistically significant result will have the opposite effect on capital flight. Furthermore, the rate of return differential statistically significant positive effect on capital flight also implies that capital flight may be expected to flow abroad as the risk-adjusted rate of return is higher elsewhere. This result is also in support of the conventional portfolio choice theory assumption that capital flight in SSA countries is driven by higher and stable world interest rate relative the domestic interest rates.

Real Exchange Rate

The coefficient on the real exchange rate has the expected positive sign, which is statistically significant. This result concurs with Ngeno (2000) and Ajayi (1992). The result suggests that the overvaluation of the exchange rate leads to capital flight. When a nation's currency is overvalued, there is an expectation that the currency will depreciate in the future, and this induces the private investors or savers to shift their portfolio compositions in favour of foreign assets. So, as the money supply increases while foreign exchange earnings decline, the exchange rate become overvalued. People expect the exchange rate to be devalued and hence attempt is made to send their capital out of the country to avoid potential capital loss.

Financial Development: The proxy measure for financial development in SSA countries has a negative coefficient as expected. The coefficient is also statistically significant. However, Collier *et al.* (2001), and Boyce and Ndikumana (2002) using M2/GDP and M3/GDP respectively as a proxy for financial development found the coefficient to be negative and insignificant. This contradiction may be due to the fact that these other studies used cross country data set. The empirical finding in this study suggests that financial development in SSA countries can reduce capital flight if accompanied by an expansion of opportunities for domestic portfolio diversification.

Budget Deficit: Consistent with other empirical studies (Ajayi (1992)), Boyce and Ndikumana (2003) and Lawanson (2007), the budget deficit variable has a positive sign, and statistically significant in all models at 5% level of significance. The positive sign suggests that a large government deficit may promote capital flight. This highlights the motivation of investors to move capital abroad to escape future taxation directly and indirectly via monetisation of deficits. The result implies that fiscal mismanagement and the need for future fiscal adjustment be it through formal taxation or inflationary financing clearly reflects the risks associated with domestic policy environment.

6.1. Robustness Check to Different Specification

The only different result in our robustness check is the lagged capital flight, the estimated coefficient on the lagged capital flight are positive and significant at mostly 1% level. This result is in conformity with the theoretical expectation and the result equally indicates that there is a tendency for past capital flight to have a positive and significant effect on current capital flight from SSA member countries. It also suggests that capital flight has a tendency to persist over time. This may reflect a habit formation effect, as capital flight corrodes the legitimacy of capital controls, particularly if the capitalists include government authorities. At the same time, capital flight may contribute to the deterioration of the macroeconomic environment, and in turn fuelling further capital flight. The results from all the techniques support the findings from the studies of Ndiaye (2009), Boyce and Ndikumana (2003, 2007), Mikkelsen (1991), and Vos (1992).

Table 3: Summary Statistics for the Determinants of Capital Flight

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
VARIABLES	Obs	Mean	St.Dev.	Min	Max
Real capital flight(2010)	125	927.5	3, 088	-11, 114	27, 338
GDP Per Capita	125	957.9	1, 416	128.2	8, 522
Inflation(%GDP)	125	100.7	647.2	-5.111	7, 034
Polity2	125	-0.976	5.122	-9	9
Debt(%GDP)	124	4.768	4.493	0.294	27.36
Corruption(ICRG)	125	4.069	1.679	0	8.774
Budget Deficit	56	-0.918	5.999	-11.78	21.10
Interest Rate Differential	125	-1.725	28.23	-212.8	104.0
Bank Credit to Private Sector(dcpsb)	123	13.29	12.59	0.154	74.71
Real Exchange Rate	60	126.6	62.22	23.73	404.2
FDI Inflows	124	3.818	9.191	-1.706	6.733

Notes: Data on GDP per capita, Domestic Credit to the Private Sector by banks, Inflation, Interest Rate Differentials, Foreign Direct Investment Inflow (FDI), Real and Effective and Exchange Rate are all taken from the World Development Indicators Dataset of the World Bank (2015). For these variables, summary statistics are based on average data for the period 1986-2010. Data on Real Capital Flight are taken from the Boyce and Ndikumana dataset at the Political Economy Research Institute, University of Massachusett, USA. The Polity2 variable is taken the Polity IV Project.

Table 4: Determinants of Capital Flight (Pooled OLS and Random Effects Results), 1986-2010 (*** $p<0.01$, ** $p<0.05$, * p

Capital Flight=DV	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
VARIABLES	*POLS*	*RE*	*RE*	*RE*	*RE*	*RE*
Lag RKF(2010)	-2.383**	-1.244***	-1.282***	-1.469***	-1.485***	-2.383**
	(0.932)	(0.357)	(0.360)	(0.391)	(0.394)	(0.932)
GDP per capita	-10.86***	-0.242	-0.214	-0.239	-0.238	-10.86***
	(1.829)	(0.340)	(0.344)	(0.350)	(0.354)	(1.829)
Log Corruption	4,832	112.2	153.3	-55.57	-70.32	4,832
	(3,067)	(1,244)	(1,249)	(1, 277)	(1,328)	(3,067)
Log FDI	8, 151***	951.6***	927.6***	1, 016***	1,011***	8, 151***
	(1,322)	(304.8)	(307.1)	(322.1)	(326.0)	(1, 322)
Log Inflation	4, 719***		360.3	301.6	291.9	4, 719***
	(1,097)		(454.0)	(459.2)	(472.6)	(1,097)
Polity2	-1, 498***			74.13	74.59	-1,498***
	(431.8)			(124.5)	(125.9)	(431.8)
Log Debt	5,639**			654.9	653.3	5,639***
	(2,084)			(566.0)	(570.3)	(2,084)
Interest Rate Differentials	555.5***				2.088	555.5***
	(136.6)				(16.46)	(136.6)
Real Exchange Rate	29.76					29.76
	(21.79)					(21.79)
Bank Credit to Private Sector(dcpsb)	738.8***					738.8***
	(114.8)					(114.8)
Budget Deficit	1,159					1,159*
	(674.6)					(674.6)
Constant	-175,982***	-15,995***	-16,386***	-18,130***	-17,959***	-175,982***
	(31,787)	(6,155)	(6,199)	(6,508)	(6,685)	(31,787)
Observations	21	74	74	74	74	21
R-squared	0.926					
Number of id		25	25	25	25	9

Table 5: Determinants of Capital Flight in sub-Saharan Africa (SSA), 1986-2010, Generalized Method of Moments(GMM)

Capital Flight=DV	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
VARIABLES	*1S SGMM*	*1S SGMM*	*1S SGMM*	*1S SGMM*	*1S SGMM*	*Diff-GMM*
Lag RKF (2010)	-0.772***	-0.912***	-0.667**	-0.657**	-2.383***	-3.635***
	(0.296)	(0.279)	(0.281)	(0.275)	(0.625)	(0.0776)
GDP per capita	-0.383*	-0.344*	-0.340*	-0.333	-10.86***	-4.857***
	(0.205)	(0.199)	(0.206)	(0.205)	(1.227)	(0.242)
Log Corruption(ICRG)	-183.1	60.80	-1, 040	-1, 280	4, 832**	14, 569***
	(1, 090)	(972.1)	(872.5)	(837.1)	(2, 057)	(852.5)
Log FDI	1, 316***	1, 234***	1, 074***	1, 028***	8, 151***	6, 716***
	(234.0)	(213.1)	(215.4)	(211.8)	(886.5)	(370.3)
Log Inflation		590.1*	171.4	124.3	4, 719***	5, 777***
		(319.9)	(308.1)	(312.8)	(735.3)	(490.8)
Polity2			97.04	92.90	-1, 498***	-1, 455***
			(81.11)	(78.15)	(289.6)	(74.30)
Log Debt			534.7	555.9	5, 639***	1, 971***
			(421.1)	(412.8)	(1, 398)	(289.8)
Interest Rate Differentials				6.415	555.5***	118.4***
				(10.89)	(91.62)	(22.50)
Real Exchange Rate					29.76**	-22.31***
					(14.61)	(3.949)
Bank Credit to Private Sector(dcpsb)					738.8***	-334.9***
					(77.01)	(53.55)
Budget Deficit					1, 159**	2, 033***
					(452.3)	(193.7)
Constant	-22, 716***	-22, 698***	-18, 124***	-16, 838***	-175, 982***	
	(4, 955)	(4, 405)	(4, 242)	(4, 151)	(21, 315)	
Observations	74	74	74	74	21	12
Number of id	25	25	25	25	9	8

Standard errors in parentheses*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6: Robustness Check for the Determinants of Capital Flight in sub Saharan Africa (SSA), 1986-2010

Capital Flight=DV VARIABLES	*(1) Diff-GMM*	*(2) Diff-GMM*	*(3) Diff-GMM*	*(4) Diff-GMM*	*(5) Diff-GMM*	*(6) 1S SGMM*
Lag RKF(2010)	0.603***	0.272***	0.270***	0.270***	-0.162	0.412***
	(0.0419)	(0.0506)	(0.0506)	(0.0506)	(0.103)	(0.0997)
GDP per capita	-0.983***	-2.641***	-2.527***	-2.527***	-11.98***	-7.459***
	(0.346)	(0.378)	(0.383)	(0.383)	(1.180)	(1.227)
Log Corruption	298.7	266.1	161.9	185.6	-3, 557	662.8
	(595.1)	(580.2)	(592.4)	(588.2)	(2, 741)	(1, 658)
Log FDI	194.0*	184.4*	210.9*	214.4*	2, 688***	3, 014***
	(107.1)	(106.0)	(110.1)	(110.3)	(726.3)	(660.0)
Log Inflation		204.4	172.1	169.9	539.9	1, 405*
		(152.7)	(152.7)	(154.3)	(812.2)	(733.4)
Polity2			9.703	9.988	-704.5	-308.0
			(47.07)	(47.08)	(640.3)	(235.1)
Log Debt			150.0	148.0	-606.6	843.8
			(228.1)	(228.6)	(990.5)	(819.6)
Interest Rate Differential				0.394	51.31	146.6*
				(4.334)	(116.4)	(80.33)
Real Exchange Rate					2.278	-1.251
					(18.60)	(14.90)
Bank Credit to Private Sector(dcpsb)					602.2***	406.4***
					(162.2)	(79.56)
Budget Deficit					316.4	690.4**
					(368.4)	(322.7)
Constant						-59, 650***
						(13, 916)
Observations	470	400	395	395	65	83
Number of id	25	25	25	25	8	9

Standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

7. CONCLUSIONS

The principal goal of this paper has been to find out the role of corruption as a determinant of capital flight over the past decades in SSA. Apart from the many determinants of capital flight known to the literature, no other study has attempted to investigate the direct effect of corruption on capital flight; specifically, the paper uniquely focused first on the introduction of corruption variable into the capital flight model. To the best of our knowledge, there are no other existing studies that considered these two phenomena in the context of economic growth analysis. The formalization of these relationships and the results we have presented in this paper constitutes a substantial contribution to the literature on capital flight and corruption. In other words, it is considered to be a clear contribution which aims to fill the gap in the existing literature. For this reason, the paper employed a sample of panel observation for 25 countries over the period of 1986 to 2010. The data for the study were taken from the *World Bank Development Indicators* (WDI, 2015), Boyce and Ndikumana (2010) dataset on capital flight, *Polity IV Project*, *Political Risk Services* (ICRG, 2014), and *Worldwide Governance Indicators* (WGI, 2012). The study also used different estimation techniques like pooled OLS, Random Effects and GMM. The conclusion that can be drawn from this chapter is that: corruption, our main variable of interest as it relates to the determinants of capital flight is positive and statistically significant. This means that for countries within our sample, corruption is a positive determinant of capital flight. It equally means that corruption encourages capital flight from the region. The findings of this paper have clear policy implications. In order to reduce capital flight within the region, policy makers in SSA countries should focus on undertaking institutional reforms to reduce corruption and by extension capital flight. Furthermore, stabilizing their economic and political environment. In particular, they should apply clear and accurate policies regarding their external debt and foreign direct investment, as well as with respect to monetary policies, affecting interest rates. Such clear and stable policies are likely to reduce uncertainty and their impact on the real GDP growth and real value of wealth as perceived by different agencies, which will in turn help to reduce the level of corruption in the economy and its effect on capital flight.

Notes

1. See *http://www.sustainabledevelopment2015.org/index.php/news/284-news-sdgs/1630-un-secretary-general-releases-post-2015-synthesis-report* for details on SDGs.

2. Examples of African Leaders in this regard are: President H. Boigny of Ivory Coast, President Mobutu of Zaire, General Sani Abacha of Nigeria *https://www.laits.utexas.edu/africa/ads/273.html*
3. The "Panama Papers" scandal is a trove of leaked documents, apparently the biggest data leak in history (11 million documents) from the Panamanian law firm, Mossack Fonseca, with international specialism to launder money, create shell companies, hide cash from tax authorities and dodge sanctions for those willing to engage the firm. Many past and current African leaders' names were found in these documents. *http://time.com/4297388/panama-papers-africa-investment/*
4. Data are available online at *www.peri.umass.edu/africa* (Boyce and Ndikumana, 2011)
6. See *http://www.gfintegrity.org/report/illicit-financial-flows-from-developing-countries-2004-2013/* for details.

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Appendix 1: List of Countries in the sample

1. Angola
2. Botswana
3. Burkina Faso
4. Cameroon
5. Congo, Democratic Republic
6. Congo, Republic
7. Cote d'ivoire
8. Ethiopia
9. Gabon
10. Ghana
11. Guinea
12. Guinea Bissau
13. Kenya
14. Madagascar
15. Malawi
16. Mozambique
17. Nigeria
18. Sierra Leone
19. South Africa
20. Sudan
21. Tanzania
22. Togo
23. Uganda
24. Zambia
25. Zimbabw