External Debt and Capital Flight in East Africa

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Abstract
Capital flight remains significant for public officials in East Africa member states, especially since the emergence of the foreign debt crisis and the associated drastic decline in capital inflows from developed nations and Bretton Woods institutions. Given their smaller resource base, debt accumulation and budget deficit, the problem of capital flight in developing nations requires examination. The study examined the effect of accumulating external debt on capital flight in East African countries that includes Kenya, Tanzania, Uganda, Rwanda, and Burundi using panel data for the period 1988 to 2018. The study was guided by the debt-overhang theory that helped to analyze the motive of fleeing capital from developing economies to developed countries as a result of foreign debt accumulation. Secondary data was sourced from World Bank and Statistical Abstract reports. Ordinary least squares technique combined with the fixed effect estimation approach was used during analysis. The fixed effect regression findings reported that external debt had a positive and significant effect on capital flight in East African countries. A substantial fraction of the borrowed funds is being captured by African political elites who in turn channel the cash abroad in form of capital flight, thus, increased capital outflow indebts citizens through increased external debt to finance public spending. From the result, the policymakers should pursue debt financing, that is, EAC states should borrow from new lenders at a relatively lower interest rate and use the proceeds from the new loan to repay the old loans to avoid the risks of external loan defaults, so as to reduce the debt effect on capital flight.
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1. Introduction

Given the investment-growth nexus, capital flight has contributed to the sluggish growth in affected economies through reduction in government tax revenue and its debt servicing capacity since income earned abroad cannot be taxed. According to World Bank (2006), consequences of capital flight in Sub-Sahara Africa include the overreliance on a few exports due to the underdevelopment of the manufacturing sectors, high vulnerability to terms of trade shocks, high borrowing, and a narrowed taxation. The majority of the countries in the Sub-Saharan region are commodity-dependent, particularly on agriculture which forms the major contributor to the annual gross domestic product, which is an indicator of the infancy level of development. The problem of capital flight emanates from its numerous long-term adverse effects on economic growth and development as scarce economic resources are lost and hence do not contribute to enhancing the socio-economic and political welfare of residents of Sub-Sahara Africa (Forson et al., 2017). The East African region is prone to over-borrowing from developed economies to finance major governmental spending and private projects (Gisore, 2021).

According to World Bank (2006), given the magnitude of its debt crisis, a substantial fraction of the borrowed funds is being captured by African political elites who in turn channel the cash abroad in form of capital flight. Due to this revolving technique, public external debts are being transferred to developed nations as a form of private external assets through corrupt private or public citizens. For instance, Africa is estimated to have lost over US$1 trillion in capital flight between 1998 and 2010 (Kar & Freitas, 2012). This sum is roughly equivalent to all of the official development assistance received by Africa during the same period. These outflows are of serious concern, given inadequate growth, high levels of poverty, resource needs, and the changing global landscape of official development assistance (Olaoye *et al*., 2021).

External debt affects East African Community economic growth mainly through diminished investment given that debt repayment constitutes diversions of domestic resources that would have contributed to domestic investment (World Bank Economic, 2017). Given the principle of acceleration, the rate of economic growth of EAC depends on the countries investment profile. Statistically, the East African Community (EAC) lost US$ 9.8 billion in ten years from 2008-2018 in aggregate. As a result, this trend has weakened not only capital formation, but also causes economic slowdown, leading to a sluggish rate of regional integration and production capacity of member countries (World Bank, 2008). It has therefore led to persistent adverse effects on a development program in EAC because capital flight weakens the domestic asset formation and retention in the EAC countries (Eshete, 2014).

1.1 Statement of the Problem
Capital flight from EAC economies constitutes a serious development challenge that includes tax diversion, accumulated debt, and unstable macroeconomic policies. Due to the reduction in the capital formation from EAC, there is a persistent decline in r tax base thus forcing the governments to borrow funds to support the deficits in the budget allocations. Higher borrowing without proper avenues to curb capital flights has increasingly led to the crowding-out effect since private investors are not able to stand low profits vis-à-vis higher interest rates (Nyoni et al., 2021). Poor level of capital inflows minimizes both economic growth and development, thus, increased capital outflow indebts citizens through increased external debt to finance public expenditures. It is therefore on the ground of these findings that this study determined the effect of debt crisis on capital flight.

1.2 Objective of the Study
The objective of this study was to investigate the effect of external debt on capital flight.

2. Theoretical Literature
The debt-overhang theory which is also known as debt-driven theory was first postulated by Krugman in 1988. It states that capital flight reduces the incentive to save and invest in the domestic economy (Krugman, 1988). It assumes that, if the country has large foreign debt, there are higher chances of domestic currency depreciation, fiscal and monetary policy crisis, propensity of the crowding out of domestic capital, and expropriation of assets to pay for the debt (Liew et al., 2016; Makori et al., 2022). Capital flight leads to poor economic growth, which calls for the necessity to borrow to promote economic stability. Further borrowing or indebtedness promotes capital flight, which in turn leads to poor economic growth, and the cycle continues. Overvalued exchange rates lead to increased expectations of depreciation shortly (Kolapo et al., 2000). This in turn would lead to rising prices of foreign goods relative to those of domestic goods, and thus loss of real income. To avoid welfare losses, residents hold at least part of their assets abroad. High inflation directly erodes the real value of domestic assets, stimulating residents to hold assets outside the country. High current account deficits may have a similar impact on exchange rate expectations, and may thus be a stimulus for capital flight. However, the theory is limited to exchange rate, inflation, and debt as the major determinants of capital flight.

2.1 Empirical Literature
In summary, from the past studies reviewed, the influence of external debt on capital flight is clear. However, the empirical studies were carried out a long time ago with no study majoring on the EAC member states using panel data. At the same time, these studies did not cover post and pre-capital liberalization from the 1980s to the millennium years. As a result, this study used recent data and major macroeconomic variables using panel data for the period 1988 to 2018.

2.2 Theoretical Framework
The study adopted portfolio choice theory developed by Markowitz (1952) because it assumed that economic agents send their capital abroad to invest in a portfolio that maximizes the expected utility of their final wealth. In addition the portfolio choice theory was also complimented by the investment diversion and debt overhang theories thus making it elastic to incorporate variables in the study.

$$In \{NKF_t\} = -In [E (r^d_t - r^f)] + In (Y_t) + In \{Var(r^d_t)\} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$

Where $NKFt, rdt, rf$, and Yt represent net capital flight at time 't', domestic interest rate at time 't', risk-free foreign interest rate, and gross domestic product at time 't' respectively. $Var(rdt)$ represent variance of risk associated with domestic interest rate which originates from both economic and non-economic factors. Decomposing $Var(rdt)$ is further discomposed in to two parts $ɖ^2_{e,t}$ and $ɖ^2_{o,t}$ which represent economic factors, that is, interest rate differential and non-economic factors, that is, corruption respectively. However, $ɖ^2_{e,t}$ and $ɖ^2_{o,t}$ are treated as independent risks associated with capital flight.

Thus, equation 1 can then be written as;

$$In \{NKF_t\} = -In [E (r^d_t - r^f)] + In (Y_t) + In (ɖ^2_{e,t}) + In (ɖ^2_{o,t}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.(2)$$

Letting $\frac{NKFt}{Yt} = CF_t$, $E (r^d t - rf) = ID_t$ and $Y_t = GDP_t$

$$In CF_{it} = -In ID_t + In(GDP_{it}) + In (\partial^2 e, t) + In (\partial^2 o, t) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (3)$$

Where;
CF_{it} represents the ratio of capital flight to gross domestic product,
ID_t represents interest rate differential,
GDP_{it} represents real gross domestic product,
$\partial^2 e, t$ represents the economic risks, and $\partial^2 o, t$ represents non-economic risks.
From the above equations, it can be concluded that there have been changes in patterns in the key macroeconomics

variables that determine capital flight in member states. This is because according to Markowitz (1952), capital flight will rise with increasing domestic economic and non economic risks.

3. Materials and Methods

3.1 Research Design and Study area

The study used quantitative research design as it seeks to evaluate the role of external debt on capital flight. This research design was chosen because enabled the researcher to analyse the trend and effect of capital flight and external debt of the member countries of EAC. The study covered East African Community (EAC) comprising of five member states: Kenya, Uganda, Tanzania, Burundi and Rwanda and the time period was chosen based on the availability of data. The block was chosen since the countries have had a long history of budget deficit given that lots of capital flew from the region while their external debt almost equal to capital flight from the region (World Bank, 2010). The EAC is found in sub - Saharan Africa and is located between (5^0N, 29.2^0E); (5^0N, 41^0E) and (11^0S, 29.2^0E); (11^0S, 41^0E) respectively as shown in the figure 1.
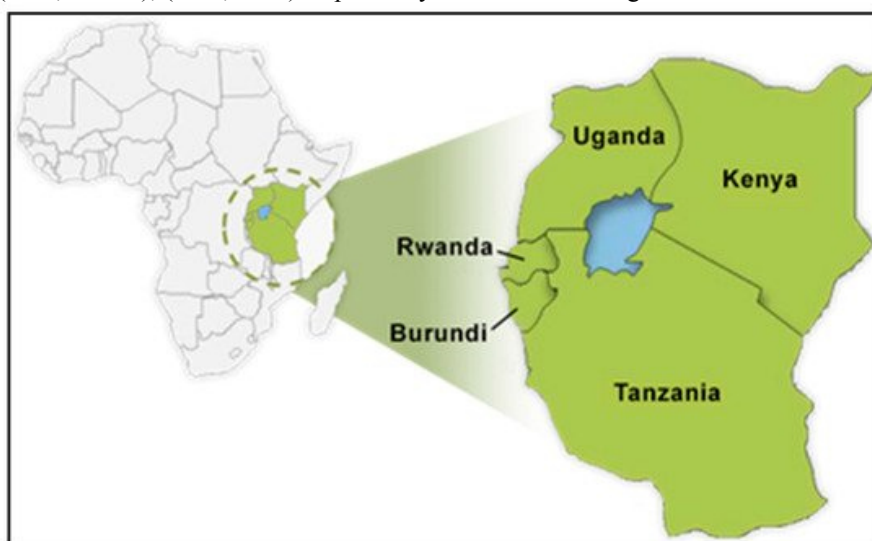
Figure 1: Map Showing the Study Area
Source: Tyner (2018).

3.2 Empirical Model Specification

The study was guided by the Portfolio choice theory developed by Markowitz (1952) that explores reasons why economic agents send their capital abroad to invest in a portfolio that maximizes the expected utility of their final wealth. The theory argues that capital flight will rise with increasing domestic economic and non-economic risks. The study used panel data regression analysis whereby a linear regression analysis was used to estimate the relationship between capital flight and external debt in EAC member States. This can be explained using the regression equation;

$$CF = CF\,(\beta1, \beta2, \beta3, \beta4, \beta5, RGDP, IRD, IRD, CI, RER) + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

The estimated model is given as;

$$In\ CF_{it} = \beta0 + \beta1 InCI_{it} + \beta2 InED_{it} + \beta3 InRER_{it} + \beta4 InRGDP_{it} + \beta5 InIRD_{it} +$$
$$\varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where:
CF = Capital Flight,
CI= Corruption Index,
ED = External Debt,
RER = Real Exchange Rate,
RGDP = Real Gross Domestic Product,
IRD = Interest Rate Differential,
ε_{it} = Error term, β_0 =Intercept term, and $\beta_1, \beta_2, \beta_3,$ and β_4 are slope coefficients.

Political instability and Forex fluctuations were used as control variables since they also influence rate of capital flight.

3.3 Description and Measurement of Variables

Capital Flight: Capital flight is used as the dependent variable in the study and the data was retrieved from the World Bank Data Catalog for all countries' capital flight.

Gross Domestic Product: It is measured as annual percentage growth rate of GDP at market prices based on constant local currency (World Bank, 2010). Data for the Real Gross Domestic Product was retrieved from the countries' Statistical Abstracts. A negative relationship is expected between capital flight and domestic real GDP growth rate since a stable economy minimizes capital flight given public confident on domestic market to invest.

External Debt : According to Ndikumana and Boyce (2003), external debt is used with intention to measure the risk of private asset expropriation. To measure the external debt, the study employed aggregate external debt (Babu et al., 2014). Data for the External Debt is collected from the Statitiscal Abstratcs. A positive relationship between the external debt and capital flight is expected.

Interest Rate Differential: Interest Rate Differentials (INR) was estimated as the US risk free interest rate minus the domestic real interest rate. Data is obtained from the the International Monetary Fund (IMF) database. A positive relationship is expected between capital flight and interest rate differential because a higher domestic return rate compared to the foreign return rate would result in capital reversal (Liew et al., 2016).

Corruption Index: The CPI ranks countries by the degree to which corruption is perceived to exist among government officials. Data for the Corruption Index was retrieved from the the Transparency Interational reports for the duration of the study. A positive relationship is expected between capital flight and Corruption (Mose, 2021).

Real Exchange Rate: Since currency devaluation erodes the value of domestic assets, residents respond to the possibility of impending currency devaluation by switching into foreign assets. Data for the Exchange Rate was retrieved from the Central Bank reports. Employing the finding of Cuddington (1986), a positive relationship between real exchange rate and Capital flight is expected.

3.4 Panel Unit Root Analysis

Panel Unit Root test was conducted to ensure that the variables are stationary and that none of them is of an order greater than I (I). Levin Lin and Chu (2002) unit test is superior test power for the long-run relationships in panel data analysis than Im-Pesaran and Shin which begin by specifying a separate ADF regression for each cross-section with individual effects and no time trend.

$$\Delta y_{it} = \alpha_i + \rho_i y_{i,t\ 1} + \sum_{j=1}^{p_i} \beta_{ij}\Delta y_{i,t\ j} + \varepsilon_{it} \quad \text{……………………………………………………. (6)}$$

Where $i = 1,\dots,N$ and $t = 1,\dots,T$

3.5 Co-integration Approach

The study tested for the existence of a long-run cointegration among capital flight and the independent variables using panel cointegration tests suggested by Pedroni (1995). Differencing leads to lose of long run relationship between variables and so co integration test was conducted using Pedroni (1995) to check whether the variables have got long run relationship or not. The procedures proposed by Pedroni make use of estimated residual from the hypothesized long-run regression of the following form:

$$y_{i,t} = \alpha_i + \delta_i t + \beta_{1i} x_{1i,t} + \beta_{2i} x_{2i,t} + \dots + \beta_{Mi} x_{Mi,t} + e_{i,t} \quad \text{………………………...… (7)}$$

for t = 1,…..,T; i = 1,…,N; m = 1, …., M,
Where;
 T is the number of observations over time,
 N number of cross-sectional units in the panel,
M number of regressed variables

In this set up, α_i is the member specific intercept or fixed effects parameter which varies across individual cross-sectional units. The same is true of the slope coefficients and member specific time effects $\delta_i t$.

3.6 Regression Model Selection

Panel data can be estimated by two techniques, fixed or random effect model. Therefore to establish whether to employ fixed effects model or random effects model, this study conducted Hausman test (1978) which tries to establish whether the error terms are correlated with the regressors, where null hypothesis states the absence of such correlation. Therefore, the null hypothesis posits that the preferred model is the random effects model against the alternative hypothesis denoting preference of fixed effects model. One advantage of fixed effects model is that it allows the unobserved individual effects to be correlated with the included variables.

3.7 Post Estimation Diagnostic Estimations

Lagging the dependent variable in a dynamic model may cause it to become correlated with the error term. This may lead to the problem of endogeneity of some explanatory variables. According to Khan and Hossain (2010), such model suffers from the problem of serial correlation and heteroscedasticity. Therefore, tests for the mentioned

problems were conducted before estimation which includes cross-sectional dependence, autocorrelation, and heteroscedasticity.

4. Results and Discussions

4.1 Panel Unit Root Test Results

Levin Lin and Chu (2002) panel unit root test was conducted to find out whether the variables were stationary at level or whether they were non stationary at level. Panel unit root results are presented in Table 1.

Table 1: Panel Unit Root Results

Variable	LLC (level)	LLC(first difference)	LLC(p-value)	Order of integration
LnCF	-2.2547		0.0121	I(0)
LnCI	-0.6670		0.2524	
		-3.5681	0.0002	I(1)
LnED	-0.0624		0.4751	
		-3.9082	0.0000	I(1)
LnER	-4.3974		0.0000	I(0)
LnGDP	1.7188		0.9572	
		-3.0643	0.0011	I(1)
LnIRD	-4.6390		0.0000	I(0)

5% significance level

From Table 1, capital flight, exchange rate and interest rate differential were found to be stationary at level while the remaining variables were found to be stationary after first differencing that is integrated of order one.

4.2 Co integration Estimations

Usually after differencing, variables tend to lose long run relationship and so cointegration test is being conducted to establish whether variables have got long run relationship after differencing. However, cointegration test was impossible since the variables were now not integrated of the same order.

4.3 Model Selection Results

To determine whether to use fixed effects or random effects regression model, Hausman (1978) test was conducted and the results were as follows. From the Hausman test, the p-value is 0.00 which is less than 0.05. Thus, the fixed effects regression model was chosen and used to analyze the relationship between the dependent and the explanatory variables.

4.4 Regression Analysis Results

Table 2 reports the fixed effect regression results.

Table 2: Results of Fixed Effects Regression

Variables	Coef.	Std.Err.	t	P>|t|	95% conf.Interval	
LnCI	0.6247**	0.4078	1.53	0.018	0.5739	0.6756
LnED	0.3493**	0.1723	2.03	0.044	0.3278	0.3708
LnER	0.8475**	1.2803	0.66	0.029	0.6878	1.0071
LnGDP	-0.8108***	0.2325	-3.49	0.001	-0.8398	-0.7818
LnIRD	0.7321*	2.0919	0.35	0.570	0.5719	0.8924
-cons	-11.9538**	5.7139	-2.09	0.038	-12.6664	-11.2412
R-sq: within	0.5208				F(5, 145) =11.32	
R-sq: Between	0.8451				Prob>chi2 = 0.0000	
R-sq: Overall	0.5434					

*** is significance at 1%; ** is significance at 5% and * is significance at 10%.

From the fixed effects regression results, the coefficient of external debt (ED) is about 0.35. This means that a one percent increase in external debt leads to an increase in capital flight by 0.35%. The coefficient is significantly positive and conforms to the debt-overhang theory which stipulates that the presence of inherited debt will be sufficiently large that creditors will not be able to have confidence in repayment. Thus, the finding of the study also conforms to the debt-overhang theory since in any case, the national debt exceeds the country's repayment ability, and then the expected debt service will be likely to increase relative to national output (Kolapo et al., 2000). This finding coincided with the past findings of Ajayi (1997), Ndiaye (2011), and Ndikumana and Boyce (2003) who found that increase in external debt leads to increased capital flight in the various regions and periods that they conducted their studies. This is because increased external debts make a country to be vulnerable to external shocks and this encourages capital flight because the environment seems to be unconducive to investors (Otieno et al., 2021). According to Ndiaye (2011), higher external debt for a country crowds out development

projects since much resources are devoted towards debt servicing at the expense of development projects and other crucial services (Babu et al., 2014). This makes a country lack essential/adequate infrastructure like roads, electrification, airports, and railways and as a result, the environment becomes unfavorable to investors hence leading to capital flight.

From the control variables regression results, the coefficient of corruption index is positive and this conforms to the economic theory of portfolio adjustment postulated by Markowitz (1952). Corruption wastes taxes or rates that have been earmarked for important projects and this translates to poor quality services or infrastructure development which in turn promotes capital flight (Liew et al., 2016). The coefficient of the exchange rate in relation to growth is positive and conforms to the economic theory of investment diversion theory postulated by Dunning et al. (1998). This is because, amid expected currency depreciation, citizens would anticipate the economic agents to safeguard their assets by demanding higher valued currencies thus engaging in capital flight (Bigsten & Kayizzi-Mugerwa, 2001). For the case of gross domestic product, the coefficient is negative and conforms to portfolio adjustment theory which emphasized that investors will only be willing to accept higher expected returns which mostly contradicts the scenario in developing economies with low expected returns (Liew et al., 2016; Schneider, 2003). Finally, the coefficient for the interest rate differential was insignificant in East African economies.

From the results in Table 2, the probability of F-statistics is 0.0000, the model is a good fit and all explanatory variables are jointly statistically significant at a 5 percent level of significance. From the results of the R squared above, the model of the study was a good fit since all the R squared results attained 50% and above. Pesaran's (2011) test for cross-sectional dependence showed that there was no cross-sectional dependence. Wooldridge's (2006) test for autocorrelation was used to establish whether the error terms of different periods are correlated or not and the results of the test showed they are not correlated. Modified Wald test for group-wise heteroscedasticity was employed and results showed no heteroscedasticity.

5. Conclusions and Recommendations

5.1 Conclusion

The objective of this study was to examine the effect of external debt on capital flight in the East African countries over the period 1988-2018. The positive and statistically significant effect of external debt on capital flight could be because most of the external borrowings in EAC are transformed instantaneously from capital inflow to capital flight, ultimately ending up abroad, usually in a private foreign account. As a result, with increased failure in repaying debt or when there is a high potential of default, will lead to capital outflows from developing countries associated with non-repayment risks.

5.2 Recommendations

The governments of EAC States need to pursue policies that are geared towards reducing the debt stock to reduce this effect on capital flight. First, there is a need for debt financing that is EAC states should borrow from new lenders at a relatively lower interest rate and use the proceeds from the new loan to repay the old loans to avoid the risks of external loan defaults. As a result of loan repayments, citizens will gain confidence in the domestic economy with stable economic stability than taking their capital overseas in response to higher risks of debt repayments. At the same time for debt sustainability, this strategy will help EAC states to minimize long-term debt crisis for the future generation who would have been obliged to repay loans at a higher rate.

For debt sustainability, East African states need to focus on external loan restructuring strategies i.e. renegotiating for lenient external loan terms with external lenders like debt relief strategies, debt rescheduling, and reduction in debt servicing interest rates. By applying for external loan restructuring strategies, it will help towards loan retirements in the long run that will minimize capital from East African nations. Lastly, governments of EAC members should pay more attention to the debt management profile particularly by the use of concessional loans to commercial loans since they are being offered at a lower interest rate with long repayment periods. As a result, the governments of EAC will have accommodative time to consolidate funds without extra tax burden on citizens to repay for the loans in a short term.

5.3 Areas for Future Research

Alternative studies should be carried out to include domestic debt in regression model to understand the effect of domestic debt on capital flight in East African member countries.

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