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Does better governance abate the external debt–capital flight revolvement in sub-Saharan Africa?☆

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ABSTRACT

Most African countries are grappling with long-term fiscal slippages and escalating debt burdens due to high levels of non-concessional and overcapitalized borrowing. At the same time, the continent is paradoxically deemed a net creditor to the rest of the world owing to excessive capital flight. More concerning is the seemingly strong correlation between external debt and capital flight from these countries. While some studies have considered the moderating role of governance in the effect of capital flight on various sectors of African economies, how governance may moderate the correlation between external debt and capital flight remains empirically unexplored. Using unbalanced panel data on capital flight, external debt, and governance indicators from 1990 to 2020 for 20 African countries, we observe that; (i) the external debt–capital flight revolvement may be a short-run rather than a long-run phenomenon. (ii) The marginal effects show that improved governance indicators at least moderate the short-run positive correlation between external debt and capital flight. We discuss the policy implications.

1. Introduction

African countries face many macroeconomic imbalances. One of such imbalances is the excessive debt burdens and the escalating debt servicing cost owing to the increased volumes of non-concessional borrowing to fill their ever-increasing fiscal space (Thullah, 2023; Adeniran et al., 2018; Teyim Pila, 2023). External debt constitutes a significant proportion of the debt stock in these countries. Statistics show that as of 2021, African countries owe in excess of US$644.9 billion in external debt alone, and the total public debt constituted about 24% of their combined GDP, with debt servicing at the end of 2023 standing at US$68.9 billion. Concurrently, most of the countries are said to be witnessing excessive capital flight, which further widens their fiscal space and constrains them of the needed resources for development (Mekongo et al., 2023; Leykun Fisseha, 2022). Statistics show that Between 1970 and 2018, the continent experienced capital flight exceeding $2 trillion, an amount nearly equivalent to the combined GDP of all sub-Saharan African countries. While aid inflows to the continent amount to approximately $47 billion annually, African countries are estimated to lose around $60 billion each year due to capital flight. Indeed, the trend shows that capital flight from the region has been increasing over the years. For example, in Fig. 1, the volume of capital flight from the 20 African countries considered in this study shows an upward trajectory since the 1990s before trending downward in the early to late 2000s. Beside the fact that unfavorable macroeconomic environment could trigger capital flight, the trend also shows that capital flight from Africa is possibly procyclical, increasing during periods of economic prosperity and declining in bad times. For instance, economic growth was much higher in most of these countries in the early parts of the 2000s before declining steeply in the later part of the 2000s coincinding with the spill over effects of the great financial crisis (GFC) and a fall in international market prices for commodities.

More concerning is the strong correlation between external debt and capital flight in what is referred to as the revolving-door hypothesis of external debt and capital flight (Ndikumana and Boyce, 2011; Beja, 2006; Chipalkatti and Rishi, 2001; Ajilore, 2005; Agyeman et al., 2022; Khan and Ajayi, 2000). While the direction of causality is not widely discussed in the literature, Beja (2006) and Ndikumana and Boyce (2021) distinguishes between debt-fuelled and debt-driven capital flight in this revolving phenomenon. Debt-fuelled capital flight is where the borrowed funds themselves serve as the fuel or are themselves channeled out as capital flight. In contrast, debt-driven capital flight is when excessive borrowing creates an unfavorable macroeconomic environment, triggering investment and capital reversals, leading to capital flight. Ndikumana and Boyce (2011) argues that a substantial

☆ All data sources are recognized. Data are collected only from public sources and are available for sharing by contacting the corresponding author.

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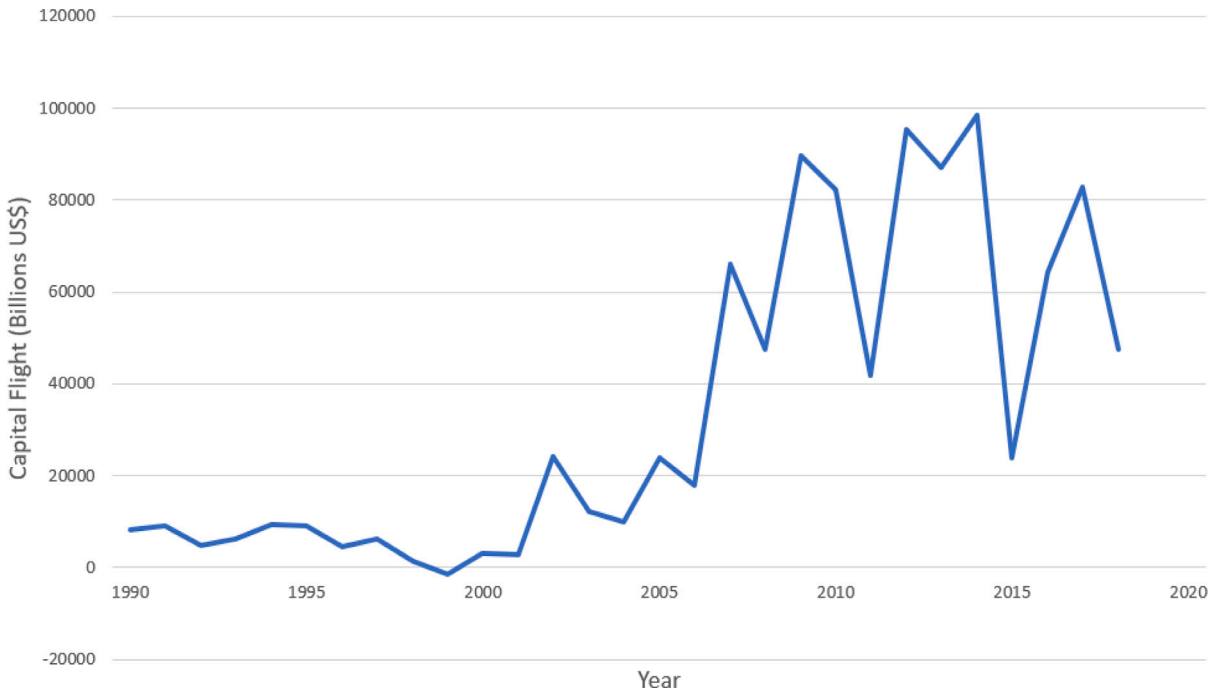


Fig. 1. Trend in total capital flight from 20 African countries (Millions US).
Note: Trends in capital flight from the 20 African countries computed by summing the capital flight values for all the countries over the years.
Source: Authors' Construct.

amount of the capital flight from African countries results from the former, noting that for every dollar of their external debt, 60–70 cents returns to the developed world in the name of capital flight. Gankou et al. (2016) found that a one-dollar increase in external debt leads to a capital flight increase of 47–62 cents in Cameroon, with capital flight being more sensitive to oil revenues than external debt. It is worth noting that the external debt-capital flight revolvement is exclusive to Africa. For instance, Chipalkatti and Rishi (2001) observes a bidirectional relationship between debt and capital flight with political implications on external debt management. Furthermore, Saxena and Shanker (2016) observe that external debt positively influences capital flight in India, as increased debt servicing burdens lead to resource outflows, undermining economic stability and growth.

This raises concern about the motive for external borrowing by most of these countries, especially given that the impact of external debt on their economic growth is empirically found to be weak or insignificant. For instance, Sandow et al. (2022) observed that external debt significantly negatively impacts economic growth in sub-saharan Africa, with effective public sector management playing a crucial role. Interestingly, good governance appears to reverse the negative effect of external debt on economic development. For instance, Manasseh et al. (2022) notes that the relationship between governance indicators, external debt, and its volatility positively impacts economic growth in Sub-Saharan Africa.

According to Mekongo et al. (2023), capital flight deprives African countries of the funds necessary for economic growth and development, arguing that regional financial integration may reduce capital flight conditional on enhanced quality of governance. Ampah and Kiss (2021) discuss the impact of capital flight and external debt on general welfare in Sub-Saharan Africa and find that an increase in capital flight or external borrowing worsens welfare. Similarly, Agyeman et al. (2022) examines the relationship between capital flight and economic growth in Sub-Saharan Africa and finds that capital flight and external debt hurt economic growth. Otieno et al. (2022a) observed that capital flight continues to be a major concern in East African countries due to the foreign debt crisis and the fall in capital inflows from their development partners.[1]

While some studies have pointed to governance's potential to limit capital flight, none specifically examines how well governance may moderate the correlation between external debt and capital flight. For instance, Asongu and Nnanna (2020) notes that effective governance may prevent countries from entering the capital flight trap[2] but may not reverse the negative impact of capital flight on development. Alesina and Tabellini (1989) examine the simultaneous occurrence of external debt accumulation, capital flight, and low domestic capital formation in developing countries due to uncertainty and competing governance, political, and distributional agendas. They also found that left-wing governments are more likely to impose capital outflow restrictions than right-wing governments. Consequently, the risk premium lenders provide and the possibility of debt repudiation is affected by political regimes and their changes. Therefore, governments' political instability and competing distributional intentions can explain the simultaneous occurrence of substantial foreign debt accumulation, private capital outflow, and low domestic capital accumulation in developing countries.

Given the extent of institutional underdevelopment in Africa,[3] this study focuses on assessing the impact of governance in abating the revolving phenomenon of external debt and capital flight in the African context. Additionally, we test the hypothesis proposed in Alesina and Tabellini (1989) that right-wing governments are associated with high incidences of capital flight using US regime changes as a proxy for left and right-wing governments. This is because the US is an important destination for capital flights from African countries. Since the policies of the source and destination countries are equally important in capital

[1] They observe that a considerable amount of money borrowed is obtained by African political leaders, who then channel the money abroad in the form of capital flight, indebting citizens through rising external debt to fund public expenditures.

[2] A situation where a country persistently witnesses high capital flight.

[3] For more on institutional underdevelopment in Africa, see Acemoglu et al. (2012).

flight, we believe this is a valid approach for empirically testing this hypothesis. Our findings show that the existence of the revolving-door hypothesis in Africa may be a short-run rather than a long-run phenomenon and that the strength of political stability, regulatory quality, rule of law, and the level of democratization moderates the long run rather than the short-run correlation between external debt and capital flight. Additionally, we do not find any statistically significant difference between right and left-wing US governments on capital flight from African countries. However, this hypothesis appears validated in the long run albeit sensitive to different specifications. We discuss the implications of our findings for policy formulation. The rest of the paper is structured as follows: Section 2 describes the methods and sources of our data, Section 3 presents the estimation strategies, Section 4 presents our empirical findings and discussions, and the conclusions and policy discussions are presented in Section 5

2. Methods and sources of data

We use the governance indicators database of Kraay et al. (1999) to investigate if governance limits the revolving door phenomenon of external debt and capital flight from African countries. The governance indicators include; control of corruption, governance effectiveness, political stability and absence of violence, regulatory quality, rule of law, and voice and accountability. These are all factor variables ranging from 2.5 (indicating high) to −2.5 (indicating low) quality of governance. We also include polity2 which measures the level of democratization. Since most African countries face similar challenges of institutional underdevelopment and escalating external debt burdens, the idea is to investigate how the performance of their social and political institutions limits the correlation between their external debt and capital flight. We use Ndikumana and Boyce (2021) estimates of capital flight data from African countries.[4] Additionally, we control for country-specific real and financial sectors in our baseline model. The real sector is represented by national income, and the countries' financial sector development level represents the financial sector. The GDP, inflation, and exchange rate data are sourced from the World Development Indicators database, and the data on financial development is obtained from the financial statistics of the International Monetary Fund. Alesina and Tabellini (1989) argue that capital flight is high when right-wing governments are in power. We test this hypothesis using a US regime dummy as a proxy since the US is a significant destination of capital flight from Africa. We set this dummy equal to 1 when Republicans are in government and 0, otherwise. Additionally, we control for three sub-regional blocs, viz; the Eastern African Economic Community (EAC), the Economic Community of West African States (ECOWAS), and the Southern African Development Corporation (SADC). Since the governance indicators are traditionally highly correlated among themselves (Kraay et al., 1999), we add them step-wise into the models. The data on external debt and the fiscal balance are sourced from the country-level database of fiscal space created by Kose et al. (2022). The description and summary statistics of the variables are shown in A.1 in the appendix.

3. Estimation strategies

We employ a mix of static and dynamic panel models to examine the moderating role of governance in the relationship between external debt and capital flight from African countries. To account for country-fixed effects and heterogeneity, we fit the panel correlated standard errors (PCSE) model to our data. This model accounts for the non-spherical error structure of the data and improves the efficiency of estimates and the accuracy of inference (Bailey and Katz, 2011). Although Parks (1967) proposed the feasible generalized least squares (FGLS) estimator and popularized by Doran and Kmenta (1986) for fitting such data to improve the efficiency and accuracy of inference, Beck and Katz (1995) observed the poor finite sample properties of the FGLS estimator. Based on Monte Carlo simulation, they showed that the standard errors of the FGLS estimator in finite samples have small confidence intervals that underestimate variability in the data by over 50% in most cases. Consequently, Beck and Katz (1995) suggest fitting such datasets with the ordinary least squares method and the subsequent estimation of the covariance matrix of the parameters with their proposed sandwich-type panel-corrected standard errors (PCSE) estimator. This estimator, though similar in spirit to the heteroscedasticity and autocorrelation consistent (HAC) estimator (MacKinnon and White, 1985; White, 1980), has a superior ability to account for the time-series-cross-sectional structure of the panel data explicitly. This makes the PCSE more robust regarding non-spherical errors relative to the HAC model. Implementing the PCSE technique is nothing but calculating the covariance matrix of the OLS parameters, taking cognizance of the non-spherical error properties of the time-series-cross-sectional data. The routine for implementing the PCSE model is readily available in most statistical packages, and for STATA, it is performed via the *xtpcse command*. Mechanically, however, the PCSE begins with fitting a linear model to the panel data as in Eq. (1)

$$y_{i,t} = x'_{i,t}\beta_i + \epsilon_{i,t}; i = 1, \ldots, N, t = 1, \ldots ..., N \tag{1}$$

where $y_{i,t}$ is the dependent variable for each country at time t, $x_{i,t}$ is a vector of independent variables, including the governance indicators. The governance indicators are governance effectiveness (GE), political stability and absence of violence (PS), regulatory quality (RQ), control of corruption (CC), rule of law (RL), and polity2(measure of democratization). Included in the explanatory variables are regime and economic bloc dummies. The regime dummy is a regime switch between the major political parties in the US, and it is 1 when the Republicans are in government and 0 otherwise. $\epsilon_{i,t}$ is the contemporaneously correlated and country-level heteroskedastic error term, and β_i is the vector of to-be estimated parameters whose covariances are estimated as per Eq. (2)

$$Cov(\hat{\beta}) = (X^T X)^{-1}(X^T \Omega X)(X^T X)^{-1} \tag{2}$$

where Ω is an NT × NT non-unit matrix that incorporates the non-spherical errors into the computation of the covariances of the estimated parameters. Under the spherical errors axiom, $\Omega = \sigma^2 I$ such that when I is an NT × NT identity matrix, Eq. (2) reduces to the usual OLS relation for covariance computation. For operationalization, we estimate Eq. (1) step-wise according to the governance indicators for a total of seven models for parsimony and to avoid overfitting as the governance indicators are traditionally known to exhibit a high level of correlation (Kraay et al., 1999).

Additionally, to distinguish between the short and long-run role of governance in the revolving-door phenomenon of capital flight and external debt, we employ the pool mean group (PMG) estimator of Pesaran et al. (1997). This estimator assumes short-run heterogeneity and long-run homogeneity of coefficients. Given the unbalanced nature of our data set, we could not include many variables simultaneously in the PMG specifications. Instead, we broadly control for the real sector of the economy using the natural logarithm of country-level GDP and the financial sector using the country-level financial development index. The PMG model is generically specified in Eq. (3). To warrant the estimation of the panel-ARDL model, we performed the Im et al. (2003) and Dickey and Fuller (1979) panel root tests on all the variables at levels and first differences. As shown in Table A.3, the results reveal that our variables have mixed order of integration, i.e., I(0) and I(1), indicating that some of the variables are non-stationary at levels but stationary at first difference. This mixture of I(0) and I(1) is conducive

[4] Ghana, Kenya, Botswana, Burkina Faso, Nigeria, South Africa, Sierra Leone, Ethiopia, Zambia, Burundi, Madagascar, Tanzania, Mozambique, Rwanda, Malawi, Uganda, Angola, Congo, DR Congo, Zimbabwe.

for performing Panel ARDL estimations (Pesaran et al., 1997).

$$\Delta KF_{i,t+1} = \mu_i + \delta_i[KF_{i,t} - extdebt_{i,t} - \rho_i Z_{i,t}] + \sum_{j=1}^{p-1} \lambda_{i,j} \Delta KF_{i,t-j} + \sum_{j=1}^{p-1} \lambda_{i,j} \Delta extdebt_{i,t-j} + \sum_{l=1}^{q-1} \delta_{i,j} \Delta Z_{i,t} + \epsilon_{i,t} \quad (3)$$

4. Empirical findings and discussions

Table A.2 presents the correlation matrix of the variables used in our analysis. It is worth noting that the six governance indicators exhibit high correlations, giving credence to our step-wise inclusion of these variables in our estimations to avoid multicollinearity. The correlation among the remaining variables is generally weak and insignificant.

The results presented in Table 1, based on the panel-corrected standard errors (PCSE) model, confirm a significant positive relationship between external debt and capital flight in Sub-Saharan Africa (SSA). This finding aligns with the revolving door hypothesis and is consistent with the conclusions drawn in the literature (Alesina and Tabellini, 1989; Ajayi and Ndikumana, 2014; Beja, 2006; Chipalkatti and Rishi, 2001; Ajilore, 2005).

However, the outcomes from the PMG model, as depicted in Tables 2 and 3, suggest that the revolving door phenomenon may be a short-term phenomenon. In the long run, the coefficients of external debt tend to become negative and insignificant. This switch is attributed, in part, to a possible long term impact of governance as some governance variables appear to mitigate the long run effect of external debt on capital flight. Notably, political stability, voice and accountability, rule of law, and the level of democratization appear to mitigate the positive effect of external debt on capital flight in the long run.

Notably, most existing panel studies on the revolving door utilize static panel models, and our static PCSE model corroborates these earlier findings. Interestingly, this model identifies exchange rate depreciation and inflation as discouraging factors for capital flight. Contrary to expectations, inflation's negative effect on capital flight challenges economic intuition linking inflation to macroeconomic stability. This finding contradicts the results of Kwesi and Kiss (2017), indicating inflation as a positive predictor of weak macroeconomic fundamentals which could trigger capital flight. However, it aligns with the conclusions of Yapatake Kossele and Ngaba Mbai-Akem (2020), who observed a negative impact of inflation on capital flight in the least corrupt African countries, as well as Eluyela et al. (2020), who found a significantly negative effect of inflation on capital flight in Nigeria. Additionally, Davies (2008) noted that post-war inflation increases annual capital flight flows.

Furthermore, our findings reveal that exchange rate depreciation and inflation deter capital flight. These findings are contrary to our expectations and economic theory. In our hypothesized scenario, when a country experiences high inflation and rapid exchange rate depreciation, it indicates weak macro fundamentals and should lead to capital reversals and more capital flight. Our results also contradict the findings of Otieno et al. (2022b), who reported a positive effect of exchange rate volatility and depreciation on capital flight. Similarly, Bosupeng et al. (2019) found that over-valuation leads to a decline, while undervaluation leads to increased capital flight in Botswana due to trade mis-invoicing. However, Uche and Effiom (2021) found that exchange rate stability may not necessarily combat capital flight due to distributional asymmetric effects, arguing that the effect of the exchange rate on capital flight may vary across different quantiles of capital flight. Similarly, Gouider and Nouira (2014) observes that strong undervaluation may discourage capital flight, while strong overvaluation can stimulate it. We contend that high inflation and exchange rate depreciation may serve as early warning signs to financial and monetary authorities who may strengthen preventative measures to curb capital flight. We observe this in Ghana, Nigeria, and Zambia during the recent currency crises, where monetary authorities clamp down on unauthorized forex bureaus whose activities potentially increase the supply of forex, leading to capital flight.

Regarding financial development, income, our results indicate negative but insignificant effects on capital flight. Our findings on the effect of financial development is inline with those of Mawutor et al. (2022), who found that financial development reduces capital flight by creating an efficient, stable, and well-developed financial sector that complements a well-reformed and efficient business environment. However, Mekongo et al. (2023) found that financial development in Africa only reduces capital flight in the presence of regional financial integration. Our results further show that the fiscal balance exerts positive but insignificant effect on capital flight.

Countries in the West and the East African economic blocs appear to have a high incidence of capital flight as compared to their counterparts in the Southern African Economic block (SADC), as shown by the positive effect of the interplay between the WES and EAC dummies and external debt on capital flight albeit they are largely insignificant. This may be due to differences in the relative level of political stability in the SADC region. The governance variables weakly mitigate the apparent positive correlation between external debt and capital flight in the PCSE static model. This indicates the presence of a possible short-run debt-fuelled capital flight even in the presence of governance in most African countries. This may be due to administrative lapses or governance ineffectiveness.

Furthermore, based on the US regime change dummy, we do not find any based on the US regime change dummy, we do not find any significant difference between left and right-wing governments regarding capital flight, at least in the short run, as suggested by Alesina and Tabellini (1989). We think this remains an open research question subject to the availability of data on regular regime changes in most African countries. Pattillo et al. (1999) argue that capital flight occurs for portfolio investment purposes. Therefore as robustness checks, we test this hypothesis by including the interest spread between African countries and the 10-year bond yield of the United States. Similar to Ndikumana and Boyce (2011), we found (Table A.4 in appendix) that capital flight in Africa is not driven by portfolio choice decisions.[5] Indeed, the spread is positively and significantly correlated with capital flight.

In light of these findings, policymakers should consider the potential short-term nature of the revolving door effect and focus on enhancing governance structures to mitigate the long-term impact of external debt on capital flight. Additionally, attention should be given to the unexpected roles of inflation and exchange rate dynamics, recognizing their potential as tools for discouraging capital flight. Policymakers may also explore avenues for fostering financial development and regional financial integration to curb capital flight in the region.

Table 2 presents the outcomes of the short-run PMG model, complementing the findings of the PCSE results. It is evident that external debt predominantly positively influences capital flight, aligning with our earlier discussions and reinforcing the fact that the revolving door hypothesis may be a short-term issue in Africa.

Consistent with the PCSE results, financial development and income exhibit negative and positive effects on capital flight, albeit mostly statistically insignificant. While these findings echo the earlier discussions, the nuanced impact of economic variables on capital flight emphasizes the need to maintain a healthy macroeconomic environment.

Governance indicators generally exert negative, but statistically insignificant, effects on capital flight in the short run. This consistency with the PCSE model suggests that, at least in the short run, governance

[5] Ndikumana and Boyce (2011) observe that capital flight generally begets capital flight and far from being driven by portfolio choice decisions, the African Politician is more concerned about concealing their wealth that they are willing to pay to keep their monies in offshore account.

Table 1
PCSE Estimates.
Source: Authors' Calculations.

	Capital flight						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
External Debt	0.00020**	0.00023**	0.00017*	0.00027**	0.00023**	0.00030**	0.00002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
inflation	−0.00015**	−0.00013**	−0.00012*	−0.00015**	−0.00016**	−0.00014**	0.00001***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Financial Dev't	−0.00047	−0.00864	−0.01323*	−0.00896	−0.00525	−0.00895	0.00136
	(0.0084)	(0.0091)	(0.0078)	(0.0093)	(0.0076)	(0.0079)	(0.0070)
Log(GDP)	−0.00113	−0.00049	−0.00032	−0.00053	−0.00082	−0.00053	−0.00116*
	(0.0011)	(0.0010)	(0.0010)	(0.0009)	(0.0010)	(0.0008)	(0.0007)
Fiscal Balance	0.00017	0.00020	0.00020	0.00019	0.00016	0.00018	0.00010
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0002)
Extdebt × WES	0.00012	0.00010	0.00010	0.00010	0.00009	0.00011	0.00009**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Extdebt × EAC	0.00006*	0.00007*	0.00008	0.00005	0.00004	0.00005	0.00007***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Extdebt × Regime	−0.00008	−0.00011	−0.00007	−0.00012	−0.00009	−0.00010	0.00004
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Extdebt × CC	−0.00024						
	(0.0000)						
CC	−0.00002						
	(0.0001)						
Extdebt × GE		−0.00042					
		(0.0000)					
GE		0.00005					
		(0.0001)					
Extdebt × PS			−0.00031				
			(0.0000)				
PS			0.00005				
			(0.0001)				
Extdebt × RQ				−0.00000*			
				(0.0000)			
RQ				0.00006			
				(0.0001)			
Extdebt × RL					−0.00051		
					(0.0000)		
RL					−0.00001		
					(0.0001)		
Extdebt × VA						−0.00019	
						(0.0000)	
VA						0.00007	
						(0.0001)	
Extdebt × Polity2							0.00001
							(0.0000)
Polity2							−0.00036
							(0.0002)
Constant	0.02441	0.01312	0.00928	0.01326	0.01939	0.01093	0.02014
	(0.0203)	(0.0180)	(0.0190)	(0.0173)	(0.0185)	(0.0146)	(0.0124)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Economic blocs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	311	311	311	311	311	311	454

Note: CC=control of corruption, GE=governance effectiveness, PS=political stability, RQ=regulatory quality, RL=Rule of law, and VA= Voice and accountability *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Dependent variable: Capital flight.

may not be sufficiently effective in moderating the correlation between external debt and capital flight. Policymakers should, therefore, explore additional strategies or reforms to improve governance mechanisms that can more effectively counteract the short-term influences of external debt on capital flight. To explore the marginal effects, we produce the average marginal effects of external debt on capital flight conditional on improvements in the governance indicators using the PCSE estimates. The results as shown in A.1 in the appendix suggest that improvements in almost all the governance indicators significantly mitigate the positive correlation between external debt and capital flight.

Examining the regime difference variable does not reveal any significant effect on the relationship between capital flight and external debt in the short run. This finding underscores the importance of recognizing the complex interplay of political factors in influencing capital flight dynamics. While regime changes may have long-term implications, their immediate impact on capital flight in the short run appears to be limited.

Notably, the high speed of adjustment between the short and long runs across our models enhances the credibility of the PMG model

Table 2
PMG Estimates—Short-run.
Source: Authors' Calculations.

	Capital flight						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ECT	−0.95171***	−0.83380***	−0.75167***	−0.74613***	−0.77878***	−0.84778***	−0.86312***
	(0.0765)	(0.0788)	(0.0885)	(0.1085)	(0.0840)	(0.1182)	(0.0485)
ΔExternal Debt	−0.00035	0.00139	0.00245*	0.00197**	0.00127*	0.00070	0.00017
	(0.0011)	(0.0012)	(0.0014)	(0.0008)	(0.0007)	(0.0009)	(0.0003)
ΔFinancial Dev't	−0.15004	−0.36241	−0.14713	−0.23896	0.09700	−0.64857	−0.23425
	(0.1818)	(0.2409)	(0.1280)	(0.1513)	(0.2083)	(0.4723)	(0.2353)
ΔLog(GDP)	0.01322	0.00770	0.01501	0.01731	0.00927	0.01043	0.01621**
	(0.0120)	(0.0134)	(0.0117)	(0.0128)	(0.0113)	(0.0156)	(0.0069)
ΔRegime	−0.00256	−0.00113	−0.00305	0.00293	−0.00271	−0.00713	0.00170
	(0.0033)	(0.0043)	(0.0029)	(0.0049)	(0.0031)	(0.0071)	(0.0014)
ΔExtdebt × CC	0.00003						
	(0.0000)						
ΔCC	0.00025						
	(0.0012)						
ΔExtdebt × GE		0.00004					
		(0.0000)					
ΔGE		−0.00141					
		(0.0014)					
ΔExtdebt × PS			−0.00007				
			(0.0000)				
ΔPS			0.00313				
			(0.0024)				
ΔExtdebt × RQ				−0.00013			
				(0.0001)			
ΔRQ				0.00674			
				(0.0057)			
ΔExtdebt × RL					−0.00004		
					(0.0000)		
ΔRL					0.00041		
					(0.0024)		
ΔExtdebt × VA						−0.00001	
						(0.0000)	
ΔVA						0.00151	
						(0.0010)	
ΔExtdebt × Polity2							0.00007
							(0.0001)
ΔPolity2							−0.00070
							(0.0018)
Constant	−0.02921***	0.05264***	0.06494***	0.04534***	0.06355***	0.03449***	−0.00521***
	(0.0039)	(0.0062)	(0.0103)	(0.0116)	(0.0090)	(0.0076)	(0.0016)
N	317	317	317	317	317	302	541

Note: PMG model constructed based on automatic lag selection criteria. CC=control of corruption, GE=governance effectiveness, PS=political stability, RQ=regulatory quality, RL=Rule of law, and VA= Voice and accountability *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Dependent variable: Capital flight.

for both short and long-term analyses. This suggests that the model adequately captures the transitional dynamics, allowing for a more accurate representation of the relationship between external debt and capital flight over time.

Table 3 presents the results of the long-run PMG model. The table shows that the short-run positive and significant effect of external debt on capital flight begins to diminish in the long run, pointing to the fact that the revolving door involving capital flight and external debt may be a short-run phenomenon. Financial sector development significantly discourages capital flight contingent on governance effectiveness and democratization. However, it significantly encourages capital flight even in the presence of the rest of the governance indicators. This suggests that, to a large extent, governance in Africa does not complement financial sector development to exert a desirable effect on the level of capital flight. Moreover, economic growth significantly limits capital flight in the presence of effective governance, political stability, regulatory quality, and the rule of law. Thus, an increase in per capita income accompanied by effective governance does not necessarily result in capital flight. Political stability, the rule of law, voice, and accountability, and the level of democratization mitigate the positive effect of external debt on capital flight in the long run, albeit some are not statistically significant. US regime change appears to matter in the long-run capital flight in SSA, depending on the specification. Particularly, we find that capital flight reduces during the tenure of right-wing governments in the long run, contrary to the hypothesis proposed in Alesina and Tabellini (1989).

5. Conclusions and policy direction

This study investigates whether governance moderates the positive correlation between external debt and capital flight in sub-Saharan Africa. We confirm the revolving-door hypothesis based on the PCSE static panel model with fixed effects and the PMG dynamic model, especially in the short run. However, the positive association between capital flight and external debt diminishes in the long run, suggesting

Table 3
PMG Estimates—Long-run.
Source: Authors' Calculations.

	Capital flight						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
External Debt	−0.00007*	0.00003	0.00001	−0.00004	−0.00010**	0.00005	0.00002
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0000)
Financial Dev't	0.00574***	−0.00297*	0.16391***	0.09489***	0.04548***	0.13785***	−0.00392***
	(0.0011)	(0.0016)	(0.0357)	(0.0107)	(0.0167)	(0.0236)	(0.0015)
Log(GDP)	0.00174	−0.00371***	−0.00553***	−0.00531***	−0.00468***	−0.00109	0.00068
	(0.0012)	(0.0013)	(0.0014)	(0.0011)	(0.0013)	(0.0012)	(0.0007)
Regime	0.00123	−0.00170	−0.00256**	0.00143**	0.00113	−0.00121*	0.00156**
	(0.0009)	(0.0012)	(0.0010)	(0.0007)	(0.0010)	(0.0007)	(0.0008)
Extdebt × CC	0.00001***						
	(0.0000)						
CC	0.00009						
	(0.0001)						
Extdebt × GE		0.00002					
		(0.0000)					
GE		0.00018*					
		(0.0001)					
Extdebt × PS			0.00005***				
			(0.0000)				
PS			−0.00024***				
			(0.0001)				
Extdebt × RQ				0.00001			
				(0.0000)			
RQ				0.00058***			
				(0.0001)			
Extdebt × RL					0.00004***		
					(0.0000)		
RL					−0.00006		
					(0.0001)		
Extdebt × VA						−0.00003	
						(0.0000)	
VA						−0.00090***	
						(0.0001)	
Extdebt × Polity2							0.00001
							(0.0000)
Polity2							−0.00002
							(0.0002)
N	317	317	317	317	317	302	541

Note: PMG model constructed based on automatic lag selection criteria. CC=control of corruption, GE=governance effectiveness, PS=political stability, RQ=regulatory quality, RL=Rule of law, and VA= Voice and accountability *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Dependent variable: Capital flight.

that the revolving door hypothesis may be a short-run phenomenon in SSA. In our specification, this dynamic may stem from the long-term effect of governance. Countries in the West and the East African economic blocs appear to have high incidences of capital flight compared to their counterparts in the Southern African Economic bloc (SADC), as shown by the positive effect of the interplay between the WES and EAC dummies and external debt on capital flight. This difference may result from the relative level of political stability in the SADC region.

Moreover, exchange rate depreciation/devaluation and inflation discouraged capital flight in our short-run specification, contrary to expectations. Financial development encourages capital flight in the short run but largely discourages the same in the long run. Political stability, the rule of law, voice, and accountability, and the level of democratization individually mitigate the positive effect of external debt on capital flight in the long run, albeit some are not statistically significant. However, when these governance indicators interacted with capital flight, the interactive effects remained positive, suggesting that high governance reforms are necessary in order to see their mitigative effect on capital flight (see Fig. A.1 in the appendix). Depending on the specification, US regime change appears to matter in long-run capital flight dynamics in SSA. Particularly, we find that capital flight reduces during the tenure of right-wing governments in the long run, contrary to Alesina and Tabellini's (1989) hypothesis.

In light of these findings, policymakers should consider the potential short-term nature of the revolving door effect and focus on enhancing governance structures to mitigate the impact of external debt on capital flight in the long run. Additionally, attention should be given to the unexpected roles of inflation and exchange rate dynamics, recognizing their potential as tools for discouraging capital flight. Policymakers may also explore avenues for fostering financial development and regional financial integration to curb capital flight. Also, policymakers should prioritize strategies that address the short-term dynamics of external debt and capital flight in Africa. While acknowledging the potential limitations of governance in the short run, efforts should be directed at enhancing governance frameworks to provide a more robust defense against capital flight. Additionally, policies aimed at promoting financial development and fostering economic growth should be pursued to mitigate their positive impact on capital flight

Table A.1
Description and summary statistics of variables.

VARIABLES	Description	N	Mean	SD	Min	Max
External Debt	Stock of external debt	616	57.33	47.61	3.677	261.8
Log(GDP)	Value-addition created through goods and services production	616	23.18	1.459	20.30	27.10
Capital flight	Differences between recorded inflows and uses of foreign exchange	574	0.0629	0.149	−0.475	1.351
Interest	One year-ahead bond yield of African countries	348	0.0510	0.0366	0.00378	0.198
USBY	10-year US bond yield	620	4.393	1.966	0.894	8.550
FD	Measures the extent of financial sector efficiency and deepening.	608	0.313	1.153	0	10.10
inflation	Change in the consumer price index.	555	94.59	1,054	−8.484	23,773
FSB	Difference between government revenue and expenditure	542	−2.658	4.472	−17.81	23.90
log(Exchange rate)	Relative price of one currency in terms of another.	609	−0.719	3.421	−21.929	8.0236
Spread	Difference between Interest and USBY	348	1.137	3.933	−6.323	14.51
CC	Captures public perception of corruption in the government	380	30.56	21.60	0.529	85.19
GE	Captures the perception of quality of public and civil service.	380	28.19	18.32	1.081	72.97
PS	Captures perception of likelihood of political instability and violence	380	29.68	21.55	0.529	90.57
RQ	Captures the ability of government to implement policies	380	30.80	19.03	0.478	75.96
RL	Captures the perception of agents' confidence in the rules of society	380	30.55	18.60	0.498	71.63
VA	Captures the perception of free speech	361	34.23	17.32	3.846	72.60
polity2	Measures the level of democratization	580	1.388	6.343	−88	9
US regime	Dummy= 1, when republicans are in office, and 0, otherwise	620	0.484	0.500	0	1
SADC	Dummy= 1, if a country is in Southern Africa and 0, otherwise	620	0.350	0.477	0	1
WES	Dummy=1 if a country is in West Africa and 0, otherwise	620	0.200	0.400	0	1
EAC	Dummy=1 if a country is in East Africa and 0, otherwise	620	0.450	0.498	0	1

Table A.2
Correlation matrix of variables.
Source: Authors' Computations.

	Capital flight	External debt	GDP	Financial Dev't	Inflation	Fiscal balance	Exchange rate	Corruption control	Governance effect.	Political stability	Regulatory quality	Rule of Law	Voice and Account.	Polity2
Capital flight	1													
External debt	−0.17	1												
GDP	0.73	−0.26	1											
Financial Dev't	0	−0.04	0.01	1										
Inflation	−0.02	0.03	−0.03	0	1									
Fiscal balance	0.01	−0.15	0	−0.03	0.09	1								
Exchange rate	−0.01	0.02	−0.02	0.19	−0.01	0.01	1							
Corruption control	−0.01	−0.21	0.04	−0.15	−0.11	−0.1	−0.07	1						
Governance effect.	0.07	−0.32	0.16	−0.07	−0.09	−0.1	−0.04	0.85	1					
Political stability	−0.08	−0.16	−0.12	−0.22	−0.09	−0.02	−0.07	0.73	0.62	1				
Regulatory quality	0.1	−0.32	0.17	−0.23	−0.14	−0.11	−0.09	0.8	0.88	0.66	1			
Rule of Law	−0.01	−0.29	0.06	−0.16	−0.09	−0.16	−0.07	0.87	0.89	0.74	0.86	1		
Voice and Account.	0.12	−0.19	0.25	0.6	−0.12	−0.18	−0.21	0.64	0.69	0.66	0.75	0.73	1	
Polity2	0.12	−0.16	0.23	0	−0.04	−0.08	−0.04	0.31	0.33	0.38	0.43	0.37	0.73	1

Table A.3
Unit root test.
Source: Authors' Computations.

	LM-Pesaran-Shin				Augmented-Dicky-Fuller			
	I(0)		I(1)		I(0)		I(1)	
	Only Intercept	Intercept & Trend	Only Intercept	Intercept & Trend	Only Intercept	Intercept & Trend	Only Intercept	Intercept & Trend
Capital flight	−8.097***	−6.524***	−18.986***	−16.273***	−8.979***	−7.398***	−20.156***	−17.308***
External debt	0.3299	1.9102	−10.802***	−8.621***	0.4902	2.1197	−11.808***	−9.522***
Inflation	−5.550***	−4.752***	−18.032***	−15.743***	−6.2713***	−6.972***	−19.360***	−18.256***
FD	−1.423*	−2.033**	−12.184***	−10.348***	−1.509	−2.2658	−13.184***	−11.204***
FSB	−3.734***	−2.767***	−13.464***	−11.567***	−4.1373***	−3.127***	−14.692***	−12.698***
Spread	−0.7864	−2.686***	−10.374***	−8.364***	−0.811	−3.226***	−11.667***	−9.7863
Exchange rate	0.3108	−2.8703	−11.511***	−10.022***	4.7169	−1.0168	−10.927***	−9.871***
Log(GDP)	4.3755	−1.2163	−10.355***	−7.563***	4.7686	−1.2997	−11.350***	−8.4078***

Table A.4
PSCE Estimates including the spread.

Variables	Capital flight					
	(1)	(2)	(3)	(4)	(5)	(6)
External debt	0.489*	0.392	0.402*	0.435*	0.554*	0.475*
	(0.253)	(0.245)	(0.234)	(0.254)	(0.286)	(0.275)
Exchange	−0.004***	−0.004***	−0.004***	−0.003***	−0.003***	−0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
inflation	−0.180**	−0.135**	−0.126	−0.165**	−0.200***	−0.144**
	(0.077)	(0.065)	(0.082)	(0.069)	(0.074)	(0.068)
Financial Dev't	−7.507	−7.712	−26.519***	−5.665	−9.441	−17.441*
	(10.920)	(10.539)	(8.465)	(11.917)	(8.964)	(9.556)
Spread	0.883**	0.988**	0.749	1.004**	1.259***	0.939*
	(0.389)	(0.417)	(0.518)	(0.418)	(0.432)	(0.523)
Log(GDP)	−1.806	−0.920	−0.777	−1.161	−1.456	−1.111
	(1.501)	(1.285)	(1.419)	(1.354)	(1.382)	(1.288)
Fiscal Balance	0.201	0.190	0.230	0.211	0.141	0.253
	(0.379)	(0.382)	(0.431)	(0.384)	(0.376)	(0.411)
External debt × EAC	0.049	0.100	0.125	0.051	0.035	0.040
	(0.136)	(0.128)	(0.129)	(0.142)	(0.134)	(0.152)
External debt × SADC	−0.114	−0.112	−0.052	−0.134	−0.104	−0.103
	(0.142)	(0.144)	(0.144)	(0.155)	(0.140)	(0.154)
External debt × Regime	−0.174*	−0.161*	−0.194**	−0.158	−0.160*	−0.181*
	(0.093)	(0.097)	(0.096)	(0.100)	(0.094)	(0.103)
External debt × CC	−0.004					
	(0.003)					
CC	−0.049					
	(0.111)					
External debt × GE		−0.002				
		(0.003)				
GE		−0.114				
		(0.138)				
External debt × PS			−0.002			
			(0.003)			
PS			0.083			
			(0.099)			
External debt × RQ				−0.003		
				(0.003)		
RQ				0.043		
				(0.053)		
External debt × RL					−0.003	
					(0.004)	
RL					−0.114	
					(0.138)	
External debt × VA						−0.003
						(0.003)
VA						−0.114
						(0.138)
Constant	0.02441	0.01312	0.00928	0.01326	0.01939	0.01093
	(0.0203)	(0.0180)	(0.0190)	(0.0173)	(0.0185)	(0.0146)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Economic Blocs	Yes	Yes	Yes	Yes	Yes	Yes
N	311	311	311	311	311	311

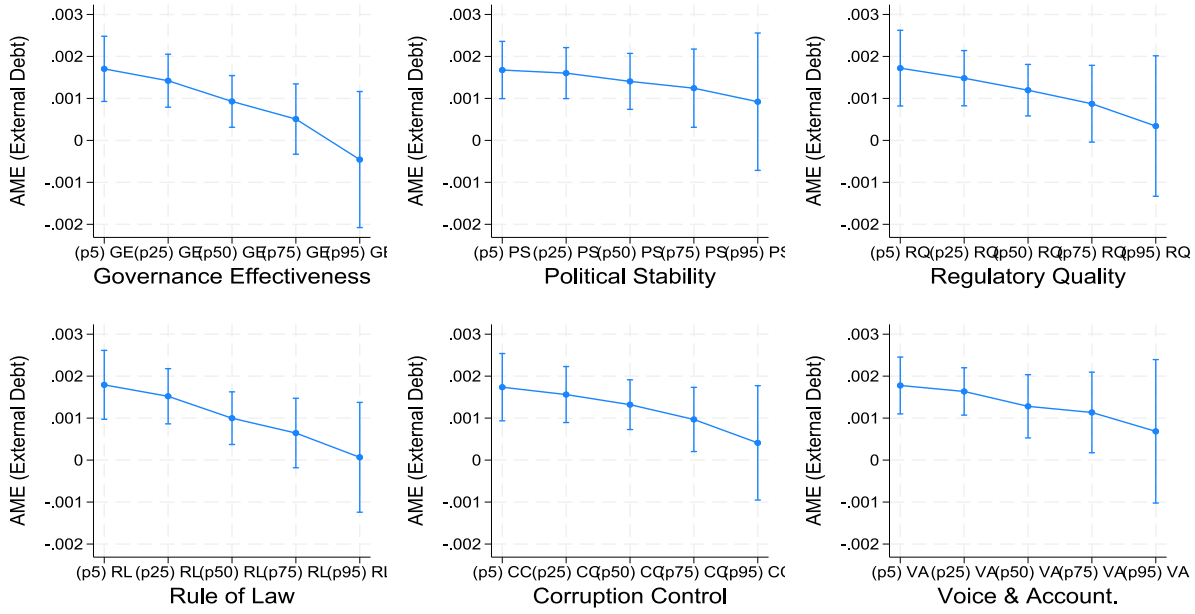


Fig. A.1. AME of External debt on capital flight conditioned on Governance.
Note: The figure shows the average marginal effects of external debt on capital flight conditional on improvements in the various governance indicators from their 5th to the 95th percentiles produced from the PCSE estimates. Improvements in Governance effectiveness, rule of law, and regulatory quality exert much steeper mitigation effects on the correlation between external debt and capital flight.

CRediT authorship contribution statement

Adamu Braimah Abille: Writing – review & editing, Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ishmael Adjei:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

See Tables A.1–A.4 and Fig. A.1.

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