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Capital Flight from Natural Resource-Dependent African Countries:
Updated Estimates and Analysis for the Cases of Cameroon, Ghana, and Zambia, 1970-2021

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Capital flight from natural resource-dependent African countries:
Updated Estimates and Analysis for the Cases of Cameroon, Ghana, and Zambia, 1970-2021[1]

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Abstract

This paper is part of a project that investigates domestic and global drivers and enablers of capital flight from Cameroon, Ghana and Zambia, three countries that are significantly endowed in natural resources. It presents estimates of capital flight from these three countries and discusses the key drivers of the phenomenon. The results show that as of 2021, estimated total capital flight stood at $71.1 billion for Cameroon, $50 billion for Ghana, and $71.5 billion for Zambia. External borrowing and, in the cases of Zambia and Cameroon, trade misinvoicing, are key correlates of capital flight. While external borrowing directly and indirectly drives capital flight, trade misinvoicing constitutes an important mechanism of unrecorded cross-border capital flows. This study contributes to the efforts to uncover the mechanisms and enablers of capital flight from Africa, with the aim of shedding light on possible strategies to curb further capital outflows in the context of efforts to scale up and diversify development financing to support recovery from global crises, the transition to green growth, and sustainable development in Africa.

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1. Introduction

African countries face daunting challenges in meeting the large and growing needs for financing their development agenda. The situation has been exacerbated by recent and ongoing global shocks – the Covid-19 pandemic and the war in Ukraine – that have caused a contraction in economic activity, reduced government revenue, slowed capital flows, and undermined macroeconomic stability. African countries have experienced financial stress associated with increasing external debt burdens both in terms of stocks of debt and cost of debt service due to rising world interest rates and an increasing share of expensive private debt. Some countries have been forced to default, including Zambia, one of the countries covered by this study, while others have fallen into the debt distress category, which makes further external finance harder to come by.

At the same time, African countries have experienced an acceleration of financial hemorrhage due to capital flight since the turn of the century. It is estimated that as of 2018, Africa had lost more than \$2 trillion through unrecorded capital outflows (Ndikumana and Boyce, 2021). Including other forms of illicit financial flows, Africa is losing up to \$88 billion annually, of which \$30-50 billion occurs through trade misinvoicing (UNCTAD, 2020).[3] This vastly exceeds the amount of the resources that flow into the continent in the form of official development aid, foreign direct investment, or external borrowing. The evidence suggests that the debate on strategies to boost financing for development in Africa must put the problem of capital flight and other illicit financial flows at the center stage. Specifically, instead of focusing only on how to attract more external finance, African governments and their development partners must seriously promote strategies for curbing further illicit capital outflows and repatriating the continent's wealth held abroad resulting from past capital flight.

While all countries are affected by capital flight, some are more affected than others. In particular, the evidence has shown that natural resource-dependent African countries experience comparatively more capital flight than their resource-scarce counterparts. According to the latest estimates, eight of the top ten African countries with the highest volume of capital flight are

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[3] See also UNCTAD (2016) and UNECA (2015).

resource-dependent (Ndikumana and Boyce, 2021; see details in the next section). This suggests that the causes of capital flight are country and context specific. This has motivated research that goes beyond analysis at the aggregate and cross-sectional levels towards case studies as a means for better understanding the mechanisms, channels, enablers and institutional drivers of capital flight. This study follows in the footstep of the recent work by Ndikumana and Boyce (2022) and their colleagues that investigated the cases of Angola, Côte d'Ivoire, and South Africa to uncover specific drivers of capital flight in these countries and the role of domestic and external enablers of the plunder of natural resources and capital outflows.

This paper is part of a larger study focused on the cases of Cameroon, Ghana and Zambia, countries that are significantly endowed in natural resources and have experienced substantial capital flight over the past decades. This paper presents the latest estimates of capital flight from these three countries and discusses the key drivers of the phenomenon. As of 2021, estimated total capital flight since 1970 stood at $71.1 billion for Cameroon, $50 billion for Ghana, and $71.5 billion for Zambia. Key correlates of capital flight in the three countries are external borrowing and trade misinvoicing (except for Ghana where the latter is minimal). While external borrowing directly and indirectly drives capital flight, trade misinvoicing constitutes an important mechanism of unrecorded cross-border capital movement. In all three countries, the phenomenon of capital flight has accelerated in recent years, a period characterized by accelerated growth in the post-global financial crisis period, acceleration of debt accumulation, and severe global crises arising from the COVID-19 pandemic and the war in Ukraine, which have negatively affected international financial flows, trade and other critical aspects of the global economy. Analysis of capital flight at the country level aims at shedding light on possible strategies to curb further outflows in the context of efforts to scale up development financing to support recovery from the global crises, transition to green growth, and sustainable development in Africa.

The remainder of the paper is organized as follows. The next section provides a brief literature review on the key drivers of capital flight with a focus on how analysis at the case study level can help advance knowledge on the subject. Section 3 presents the data sources and methodology for estimating capital flight from the case-study countries. This is followed by a presentation and discussion of the estimation results in Section 4. Section 5 concludes the paper with a summary of the findings and some policy recommendations.

2. Drivers of capital flight: a brief review

The economic literature on capital flight has devoted substantial attention to understanding the nature of the phenomenon, measuring its magnitude, and exploring empirically its drivers over time and across countries. The empirical evidence has convincingly shown that capital flight is a severe problem that spares no country in the developing world, and whose intensity continues to increase over time. The analysis of the drivers of capital fight is essential to inform the design and implementation of policies aimed at curtailing further capital outflows, minimizing the impact on the economy, and encouraging the repatriation of wealth stashed abroad resulting from past capital flight.

Thus far, however, most of the analysis has been undertaken primarily at the cross-sectional and aggregate level. Since recently, efforts have been undertaken to delve into the complexity of the drivers and mechanisms of capital flight at the country level, considering economic and institutional factors, as well as domestic and external dimensions of the phenomenon. The volume edited by Ndikumana and Boyce (2022) presents compelling evidence on the cases of Angola (Shaxson, 2022), Côte d'Ivoire (Merckaert, 2022) and South Africa (Aboobaker, Naidoo and Ndikumana, 2022). The aim of disaggregated country-level analysis is to shed light on the pertinence of the evidence accumulated from aggregate and cross-country analysis. This section highlights key dimensions where research can benefit substantially from case studies. This helps to motivate the study on the cases of Cameroon, Ghana and Zambia.

Natural resources and capital flight

The evidence from the empirical literature has documented a close connection between the volume of capital flight and endowments in natural resources in developing countries. In the case of Africa, oil and mineral-rich countries feature prominently on the top of the list of countries with the highest volume of capital flight (Ndikumana and Boyce, 2021). Table 1 presents estimates of total capital flight over 1970-2018 for the top 10 countries and Ghana (added because it is one of the case studies in the project) along with indicators of the contribution of natural resources and manufacturing to total exports in 2021. In 8 of the top 10 countries, primary commodities account for more than 68 percent of total exports. The two exceptions are Egypt (53%) and Morocco (30%).

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The share of primary commodities in total exports exceeds 90% for 6 of the 10 top. Minerals are the dominant commodities for South Africa (50% of total exports) and Zambia (79%). Agricultural commodities account for a sizeable share of total exports in Côte d'Ivoire (39%) and Ghana (16%). The flip side of heavy endowment in natural resources is lack of diversification as exhibited by the small share of manufacturing goods in total exports. Manufactured products represent less than 12 percent of total exports in these countries, with the exceptions of Egypt, Morocco, and South Africa.

Table 1: Importance of the natural resource sector (% of total exports) among African countries with the highest amount of capital flight (over 1970-2018)

|	Capital flight (1970-2018) ($billion)	Fuels (% of exports)	Ores, metals, precious stones, and non-monetary gold (% of exports)	Coffee, tea, cocoa, spices, and manufactures thereof (% of exports)	All primary commodities (% of exports)	Manufactured goods (% of exports)
Nigeria	466.6	88.0	2.1	1.5	93.7	6.3
South Africa	329.5	8.6	50.1	0.1	68.7	31.3
Algeria	135.5	93.9	5.2	0.02	94.8	0.2
Morocco	135.5	0.9	7.4	0.3	30.4	69.6
Angola	103.1	93.7	3.8	0.01	97.9	2.1
Egypt	79.0	29.5	6.9	0.7	52.8	47.0
Congo, Rep.	71.1	76.8	12.6	0.3	93.9	6.0
Zambia	59.4	1.0	78.6	0.1	88.7	11.3
Cameroon	57.1	49.9	5.8	18.4	93.3	6.5
Côte d'Ivoire	55.4	17.0	9.1	38.9	91.9	8.1
Ghana (#16)	42.7	30.8	40.5	15.8	95.8	4.2

Source: UNCTAD Statistics database

The three countries selected for this study exhibit typical features of natural resource dependence and therefore are compelling cases for examining the extent of exposure to capital flight associated with natural resource endowment and governance of the natural resource sectors.

In the case of Cameroon, crude oil exports represented 23.4% of total exports in 2021, while wood and cocoa together accounted for 21.5%. The share of crude oil in total exports as well as its contribution to GDP have been declining over time. In 1986, crude oil accounted for 19.9 percent of GDP and 48.2 percent of total exports (Figure 1).

While Ghana is not ranked among the top 10 countries in Africa in terms of capital flight (it was number 16 in 2018), its economy is also dominated by primary commodities, which make up 95.8 of total exports. Ghana's exports have been traditionally dominated by gold and cocoa. Natural resource dependence has increased with the discovery of oil. In 2021, oil, gold, and cocoa accounted for 80.6 percent of total exports (Bank of Ghana database) (Figure 2).

Zambia's economy is dominated by the mineral sector, primarily copper and cobalt which accounted for 73.5 percent of total exports in 2020 (Bank of Zambia database). This share has fluctuated over time because of variations in production and international prices of minerals (Figure 3). For instance, in 2010, it was at 81%, but it dropped to 65% in 2013.

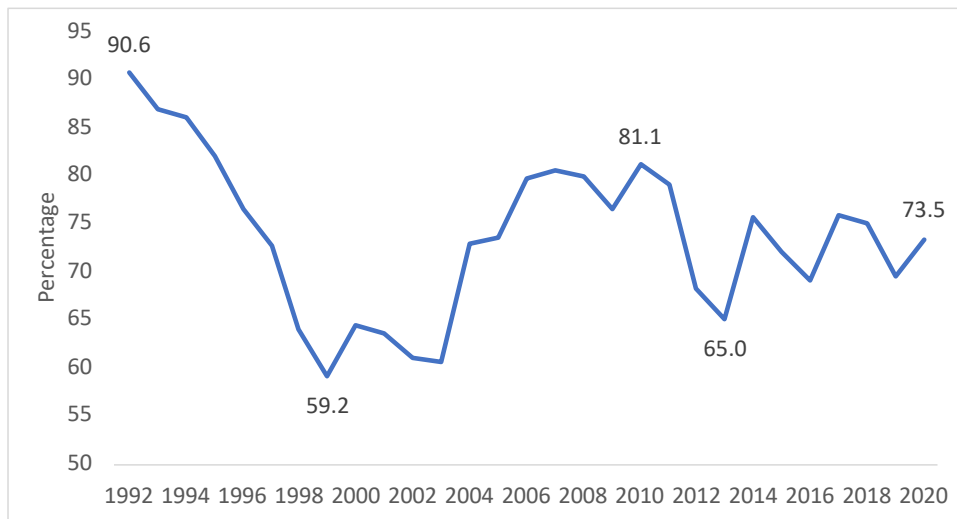Figure 1: Contribution of oil to total exports and GDP in Cameroon (percent)
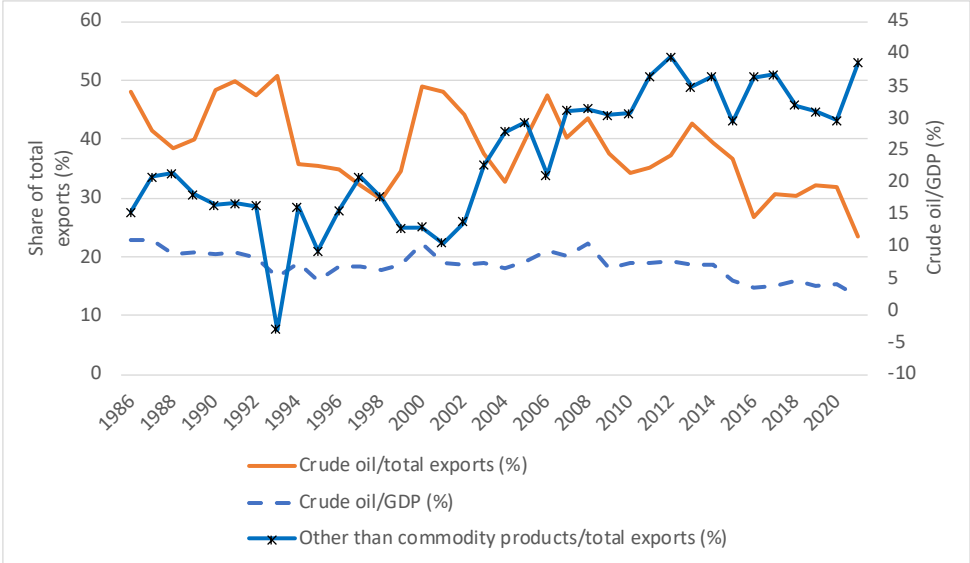
Source: Government statistical databases

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Figure 2: Contribution key commodities to total exports in Ghana (percent)
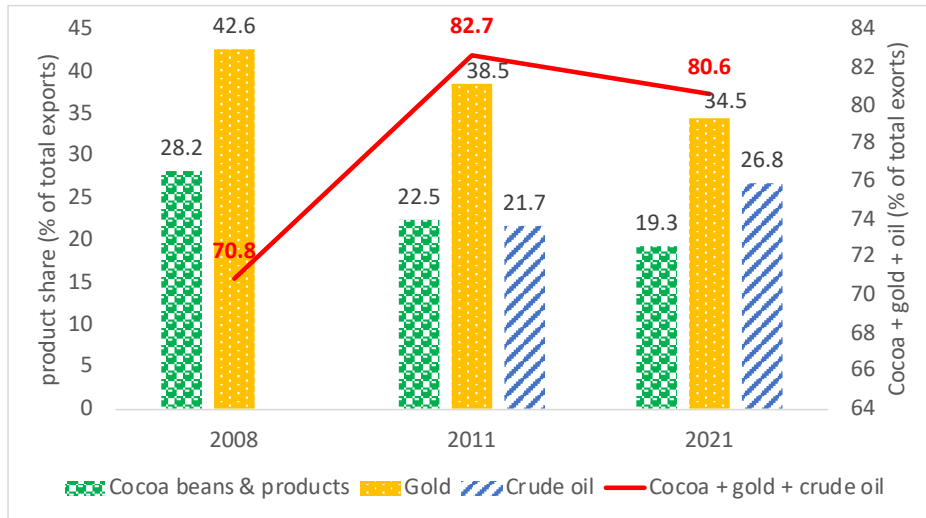
Source: Bank of Ghana database

Figure 3: Share of copper and cobalt in Zambia's total exports (percent)

Source: Bank of Zambia database

The question is, what explains the relatively high exposure to capital flight for countries that depend on natural resources? The relationship between capital flight and natural resources involves both direct and indirect linkages, which can be conceptualized in various ways (Ndikumana and Sarr, 2019). First, abundance in natural resources, and especially high dependence on revenue from resource rents, tends to weaken the mechanisms of control and accountability. This is because the collection of resource rents diminishes the government's need to collect taxes, which consequently

weakens the state-people performance contract. Such an environment generates and enhances temptations for politicians to embezzle the resource rents and other state revenues, part of which are siphoned abroad for safe keeping. Kolstad and Soreide (2009) put it succinctly: "corruption is the development problem in resource-rich countries, rather than just one of a number of problems" (p. 14).

Second, when natural resource exploitation is dominated by multinational corporations (MNCs), the imbalance of economic power and technical capacity between the African state (the nominal regulator) and the MNCs creates opportunities for violation and abuse of rules and regulations in the areas of taxation, trade, and foreign exchange transactions. In such an environment, capital flight may occur through trade misinvoicing by exporters as well as through embezzlement of revenues by public officials.

Third, the outflow of capital through export misinvoicing is further facilitated by the ability of globally connected corporations and conglomerates to trade commodities among related entities. In the case of African countries where extractive sectors are dominated by global MNCs, we can expect a close connection between capital flight and natural resource dependence.

The case studies of Cameroon, Ghana and Zambia further explore the linkages between natural resources and capital flight through detailed historical, institutional and statistical analysis focusing on key resource sectors in each country.

Institutions, natural resource governance and capital flight

Even though most resource-endowed African countries have experienced relatively high capital flight, there are a few exceptions that have not suffered a similar fate. A good example is Botswana, which is the world's top producer of diamonds and yet experienced low capital flight (estimated at $4 billion over 1970-2018). This suggests that while endowment in natural resources may be a vulnerability factor for capital flight, there are other factors that help mitigate this risk. One prominent mitigating factor is the quality of institutions in general, and the quality of management of the extractive sectors in particular. In other words, natural resource governance is critical for the link between natural resources and capital flight.

Cross-sectional econometric analysis on African countries supports this proposition: the interaction between resource rents and measures of institutional quality is positively related with capital flight (Ndikumana and Boyce, 2023; Ndikumana, Boyce, and Ndiaye, 2015). Case studies provide even more direct evidence on the role of institutions and governance of extractive industries for the linkages between capital flight and natural resources. The cases of Angola, Côte d'Ivoire and South Africa are analyzed in detail in Ndikumana and Boyce (2022). In Angola, oil has fueled capital flight and personal enrichment of politically connected individuals and corporations through export misinvoicing, embezzlement of export proceeds that "go missing," and funneling funds in offshore financial centers with the help of international commercial banks (Shaxson, 2022). The Angolan national oil company has been used by the political elites as a cash cow. Capital flight from Angola is a clear manifestation of the 'resource curse' preventing the country from benefiting its oil endowment.

In Côte d'Ivoire, where the cocoa sector is fully privatized and dominated by foreign corporations, endemic opacity of cocoa export statistics facilitates export misinvoicing as a channel of capital flight (Merckaert, 2022). Export misinvoicing is also the story of South Africa's mineral sector (Ndkumana, Naidoo, and Aboobaker, 2022), resulting in large volumes of capital flight. The case of South Africa presents a clear illustration of the complex network of domestic and international actors that participate in the transformation of public assets (including those of state-owned enterprises) into private wealth that is funneled abroad with the help of domestic and foreign banks.

One aspect of governance of natural resources that matters for the linkages between capital flight and natural resources is the ownership structure, and specifically the role of the public sector in extractive industries. The first question is whether extractive companies are national or foreign, and the second is whether they are privately owned, government owned or mixed. The case of Ghana offers a useful case study in this respect, especially in comparing the organizational structure and regulation of the cocoa sector and the gold sector, and the implications for the performance of the two sectors and the impact on the economy. Ndikumana and Adjei-Mantey (2023) analyze the case of cocoa, while Ndikumana and Cantah (2023) examine the gold sector. They find significant differences between the two sectors, which reflect the differences in the regulatory frameworks and organizational structure of the two sectors. While the cocoa sector is strictly regulated by the government with a major role of COCOBOD as an operator, the gold

sector is fully liberalized and is governed by a business-friendly fiscal regime. The analysis of trade statistics shows a stark difference: while cocoa trade statistics exhibit no large systematic discrepancies between Ghana's exports and its partners' recorded imports, gold statistics exhibit large discrepancies – especially in the case of gold exported to South Africa. Specifically, Ghana reports substantial gold exports to South Africa, but little Ghanaian gold shows up in South Africa's import statistics. To the extent that these discrepancies in gold trade with South Africa (overinvoicing of gold exports) are not compensated by symmetric discrepancies with other partners (underinvoicing), they would reduce measured capital flight.

Moreover, while the totality of the proceeds of cocoa exports is repatriated to Ghana by COCOBOD, a substantial fraction of gold export earnings is retained abroad by foreign companies (Ndikumana and Cantah, 2023). The two modes of sectoral management and regulation generate substantially different outcomes in terms of exposure to capital flight.

Evidence on the linkages between capital flight and natural resources through trade misinvoicing have also been discovered elsewhere. A few examples are given here for illustrative purposes. Kwaramba, Mahonye and Mandishara (2016) present evidence of export misinvoicing in Zambia in the cases of diamonds, gold and nickel. The cases of export misinvoicing in the oil and timber sectors in Cameroon have been examined in a few studies, including Gankou, Bedoma and Sow (2016) and Mpenya et al. (2016). The diamonds sector in Central African Republic also has been found to suffer from substantial export misinvoicing, which is associated with weak governance (Kossele and Njong, 2020). The evidence suggests that export misinvoicing is a key mechanism in the strong link between natural resource dependence and capital flight.

External debt

The empirical literature has documented close linkages between capital flight and external debt, especially since the debt crises of the 1980s (see, for example, Ndikumana and Boyce, 2003). The relationships can be both direct and indirect. External debt can directly fuel capital flight as borrowed funds are embezzled and converted into private wealth that is funneled abroad into bank accounts and physical assets such as real estate and other valuable objects. Econometric evidence has shown that in the case of African countries, more than half each dollar borrowed goes back

abroad as capital flight in the same year (Ndikumana and Boyce, 2002; Ndikumana, Boyce and Ndiaye, 2015). Additional leakages continue in subsequent years.

External borrowing also causes capital flight indirectly through adverse effects on the economy that in turn induce capital flight. Accumulation of external debt fosters an environment characterized by high investment risk and low returns to investment, inducing wealth holders to prefer to transfer their assets abroad. These 'debt overhang' effects are magnified when economic governance and political stability are also weak, which may presage high taxation or high risk of expropriation in the future. Wealth holders may seek to avoid such risks by funneling their wealth abroad.

The debt-capital flight link merits serious attention given the recent rapid acceleration of external indebtedness across the continent, with some countries facing severe debt distress and even default (Ndikumana, Mannah-Blankson, Njuguna, 2020). Debt accumulation in Africa since the turn of the century has coincided with an explosion of capital flight (Ndikumana and Boyce, 2021). The trend worsened prior to the Covid crisis and was further exacerbated by its economic fallout.

The three countries in this study exhibit this phenomenon of rapid increase in external debt from the turn of the century, as depicted in Figure 4. Another feature of this period is that the rise in debt stock has coincided with substantial increase in the reliance of US dollar-denominated debt. This has exposed borrowing countries to rising costs of debt service due to the steady appreciation of the US dollar against national currencies. In the case of Zambia, two other important related developments have been the increase in the average interest rate on new external debt commitments and the increase in nonguaranteed private debt. These two factors further contribute to a rising overall cost of debt. As a result of the rapidly rising burden of debt obligations in the context of a struggling economy, Zambia became the first African country to face debt default in the wake of the Covid crisis in 2020. This underscores the importance of carefully investigating the implications of debt accumulation for capital flight in African countries.

Figure 4: Trends in external debt in Cameroon, Ghana and Zambia over 2000-2021
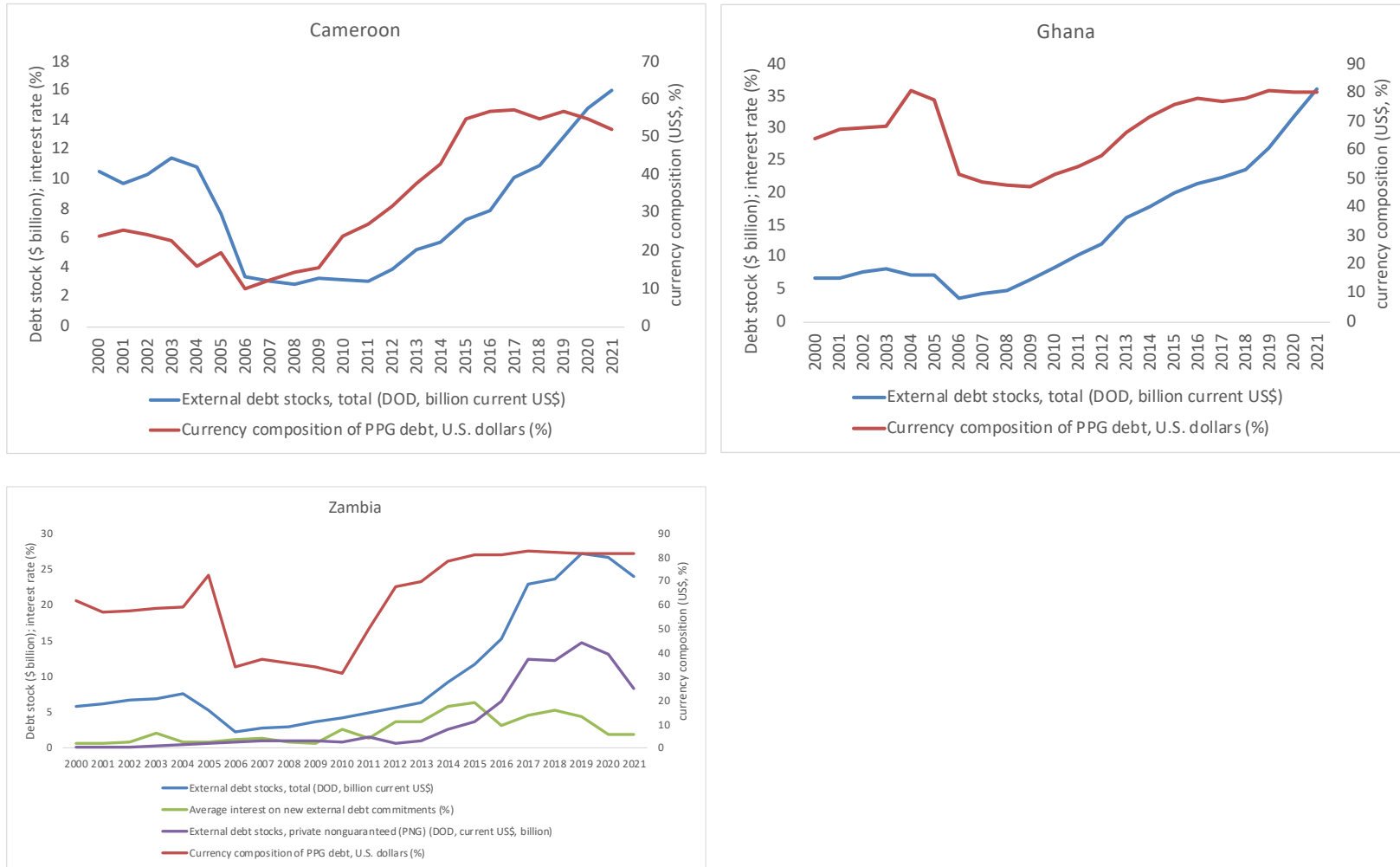
Source: World Bank, International Debt Statistics

Globalization, safe havens and offshore financial centers

Globalization has increased the speed and scope of movement of goods and finance across countries. With the acceleration of technological innovation, globalization has also been associated with increased difficulties in deterring illicit financial flows. These flows are facilitated by the expansion and sophistication of the so-called 'safe havens' and offshore financial centers that help in the transfer and concealment of private wealth. The accumulation of private wealth from past capital flight from Africa has reached towering heights, making the continent a net creditor to the rest of the world in the sense that the stock of ill-gotten wealth from capital flight exceeds the continent's liabilities vis-à-vis the rest of the world. This indicates the substantial opportunity costs incurred by the continent from capital flight, beyond the outflows that deplete domestic savings and compromise productive investment on an annual basis.

The global nature of capital flight and the forces that facilitate it imply that strategies to combat the problem must also be global. In particular, preventing further capital flight and inducing wealth repatriation will require a global compact anchored around enforcement of transparency and accountability in international trade and financial systems, supported by effective, universal automatic sharing of trade and banking information on a country-by-country basis.

3. Estimation of capital flight: methodology and data

Capital flight is estimated following the latest methodology as presented in Ndikumana and Boyce (2022), which fine-tuned approaches used in previous studies (see Ndikumana and Boyce, 2010). For each country each year, capital flight is measured as unrecorded capital outflows, which is obtained as the difference between recorded sources of inflows and recorded uses of these inflows. Recorded inflows consist of net external borrowing (reported in the International Debt Statistics), foreign direct investment, portfolio investment and 'other investment' as recorded in the Balance of Payments. Net external borrowing (debt flows) is obtained from the change in debt stock, after adjustments for exchange rate fluctuations (for the currencies in which the external debt is denominated), debt write-offs or forgiveness, and interest arrears accumulation. These inflows of

foreign exchange are used to cover the current account deficit, with the balance added to the stock of foreign exchange reserves. The difference between recorded inflows and recorded uses provides a measure of capital flight as a balance-of-payments residual:

$$KF = CDEBTADJ + FDI + PI + OI - (CAD + CRES) \qquad (1)$$

where CDEBTADJ is the change in debt stock adjusted for exchange rate fluctuations, debt forgiveness, and change in interest arrears; FDI is foreign direct investment; PI is portfolio investment; OI is other investments; CAD is the current account deficit; and CRES is net additions to foreign exchange reserves.

To obtain a comprehensive measure of capital flight, we add net outflows resulting from misinvoicing of exports and imports. This is obtained by comparing the African country's trade statistics to those of its trading partners. Following established methodology, we compute annual trade misinvoicing by scaling up the discrepancies relative to the group of industrialized countries (ICs), using the inverse of the share of this group in the African country's exports or imports as appropriate.

The destinations of some exports and sources of some imports are not indicated in the official trade statistics, instead being lumped under 'unspecified territories' and 'unspecified areas'. If such flows belong to the group of industrialized countries used as our benchmark, this will cause a bias in our estimates. In an attempt to reduce any biases that may arise from such misclassification of imports and exports, we assume that the shares of imports or exports recorded under 'unspecified areas' which in fact belong to ICs are proportional to the shares of ICs in the African country's total country-specific imports and exports.

For a given year *t*, for an African country *i*, export misinvoicing (DXIC) and import misinvoicing (DMIC) with respect to ICs are calculated as follows:

Import misinvoicing:

$$DMIC_{it} = (M_{i,IC,t} + M_{i,IC,t}^{U}) - cif * X_{IC,it} \qquad (2)$$

Export misinvoicing:

$$DXIC_{it} = M_{IC,it} - cif * (X_{i,IC,t} + X^U_{i,IC,t}) \tag{3}$$

The terms $X^U_{i,IC,t}$ and $M^U_{i,IC,t}$ represent the amounts of exports and imports recorded under 'unspecified areas' that are allocated to ICs based on the latter's shares in the African country's total exports and imports.

To obtain aggregate net trade misinvoicing relative to all the country's trading partners we scale up the discrepancies with respect to ICs with the inverse of the IC group's share in the country's imports and exports as follows:

$$MISINV_{it} = \frac{DMIC_{it}}{ICMS_{it}} + \frac{DXIC_{it}}{ICXS_{it}} \tag{4}$$

Where *ICMS* is IC's share in the sum of country's total imports from advanced economies and imports to emerging and developing countries. *ICXS* in turn stands for IC's share in the sum of country's total exports.

We finally obtain our measure of capital flight adjusted for trade misinvoicing (*ADJKF*) by adding the estimated trade misinvoicing to the balance of payments residual as follows:

$$ADJKF = CDEBTADJ + FDI + PI + OI - (CAD + CRES) + MISINV \tag{4}$$

4. Results

This section presents the results of capital flight estimations for the three countries in this study.

The case of Cameroon

The results for Cameroon are presented in Table 2 and Figure 5. Over the 1970-2021 period, Cameroon lost $71 billion (in constant 2021 dollars) through capital flight. The largest unrecorded capital outflows occurred in the 1980s ($26 billion for the decade) and during 2010-2021 ($20.9 billion). The results show an uptick of capital flight in the last decade, with a total of $15.2 billion during 2010-2019 up from $7.3 billion over 2000-2009. In 2020 and 2021 alone, the country lost

$5.6 billion through capital flight, or an average of $2.8 billion per year, which is higher than the average annual loss recorded in the 1980s ($2.6 billion per annum).

Key correlates of capital flight from Cameroon are external borrowing and trade misinvoicing. Over the period 2010-2021, net external debt inflows totaled $14.7 billion, or an average of $1.2 billion annually. Net trade misinvoicing added $6.5 billion to the leakage obtained through the Balance of Payments (BoP) residual.

On the sources-of-foreign-exchange side, in addition to external borrowing Cameroon received significant foreign direct investment totaling $15.3 billion over the four decades, and other investments totaling $25.9 billion over the study period. On the uses-of-foreign exchange side, the inflows were offset in the BoP by the current account deficit, with some limited additions to the foreign exchange reserves.

In relative terms, total capital flight from Cameroon was equivalent to 157 percent of the country's 2021 GDP. On an annual basis, capital flight represented 5.5 percent of GDP on average over the past four decades, with the highest ratio recorded in 1980s at 13.2%.

Table 2: Capital flight from Cameroon, totals by decade (constant 2021 US$, billion)

|	1970-1979	1980-1989	1990-1999	2000-2009	2010-2021	1970-2021
CDEBTADJ	7.0	7.7	10.6	-6.0	14.7	**34.2**
FDI	0.6	2.1	0.2	3.5	8.8	**15.3**
PI	0.0	0.0	-0.3	0.0	0.6	**0.2**
OI	1.2	8.9	6.0	1.5	8.2	**25.9**
CA	-6.7	-10.2	-5.5	-4.9	-16.3	**-43.7**
CRES	0.0	0.0	0.1	-4.2	-1.6	**-5.7**
BOP residual	**2.2**	**8.5**	**11.2**	**-10.1**	14.4	26.2
Trade misinvoicing	1.9	17.8	1.2	17.4	6.5	**44.9**
Adjusted capital flight	**4.2**	**26.3**	**12.4**	**7.3**	20.9	**71.1**
Memorandum						
Sources of funds*	8.9	18.7	16.6	-0.9	32.2	**75.5**
Uses of funds*	6.7	10.2	5.4	9.2	17.8	**49.3**
BOP Residual	2.2	8.5	11.2	-10.1	14.4	**26.2**
Private flows (FDI + PI)	0.6	2.1	-0.1	3.5	9.4	15.4
Average annual capital flight (million, constant 2021 US$)	*417.8*	*2,630.2*	*1,240.7*	*731.7*	*1,740.4*	*1,733.9*
Average annual capital flight/GDP (%)	2.1	13.2	6.7	1.7	4.3	5.5
Total capital flight/end-decade GDP (%)**	32.5	141.1	66.1	26.1	47.2	156.8

Notes: The symbols of the variables are defined under the equation providing the algorithm for computation of capital flight.[4]
*Sources of funds = CDEBTADJ + FDI + PI + OI; Uses of funds = (CA + CRES)
**The ratio of total capital flight/end of decade GDP (last row of the table) is calculated using real capital flight in constant 2015 US$ given that real GDP is published in constant 2015 US$ in World Development Indicators. The ratio for the full period 1970-2021 is total capital flight in constant 2021$ divided by nominal GDP in 2021.

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[4] The definitions are reproduced here for convenience: CDEBTADJ = change in debt adjusted for exchange rate fluctuations, debt forgiveness and interest arrears accumulation; FDI = foreign direct investment; PI = portfolio investment; OI = other investment; CA = current account balance; CRES = change in reserves

Figure 5: Trend of capital flight and trade misinvoicing in Cameroon, 1970-2021 (billion, constant 2021 US$)
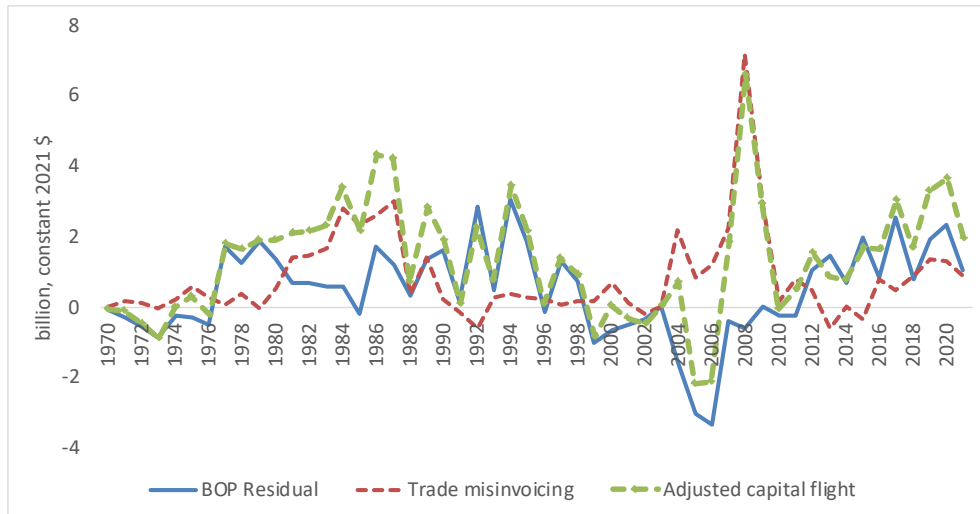
Source: Author's computations

The case of Ghana

The results for Ghana are presented in Table 3 and Figure 6. Over the past four decades Ghana lost $50 billion (again, in constant 2021 dollars) from unrecorded capital outflows. The phenomenon exhibits an upward trend since 2010. During the last decade, the volume of capital flight more than doubled relative to the previous decade, from $10.8 billion to $24.3 billion. On average, over the study period, the country lost $1.2 billion per year, representing 3.9 percent of the country's GDP. Cumulative capital flight as of 2021 represented 65 percent of GDP that year, less than in the cases of Cameroon and Zambia but far from trivial.

Once again, in Ghana external borrowing (change in the stock of external debt) and foreign direct investment more than balanced the current account deficits and accumulation of reserves on the uses side, generating net unrecorded capital outflows. External borrowing grew rapidly after the turn of the century, with new inflows totaling $23.6 billion over the period 2000-2009. During the same period the country received large net FDI inflows totaling $36 billion, most of which went into the oil and gold sectors.

Unlike the cases of Cameroon and Zambia reviewed in this study, net trade misinvoicing has not significantly contributed to total capital flight from Ghana. Important insights on this topic emerge from the analysis of two key sectors in the economy, gold (Ndikumana and Cantah, 2023) and cocoa (Ndikumana and Ajei-Mantey, 2023). In the case of cocoa, disaggregated statistical analysis reveals relatively low export misinvoicing, with a total underinvoicing of $7.8 billion over the 2000-2019 period, or $390 million per year. To a significant extent, the limited export misinvoicing is attributable to the organizational and regulatory structure of the cocoa sector in which the state company COCOBOD has monopoly rights of exporting cocoa.[5] Thus, the usual incentives for export misinvoicing (tax evasion and concealment of foreign exchange earnings) do not apply. The sector therefore contributes relatively little to capital flight through export misinvoicing.

In contrast, the case of gold is quite complex, as evidenced by the odd situation where gold exports appear to be overinvoiced. Ghana's recorded gold exports exceeded its partners' recorded imports substantially, by roughly $27 billion over 2000-2019, after adjusting for the cost of insurance and freight (Ndikumana and Cantah, 2023). The extreme case is that of Ghanaian gold exports to South Africa, which do not appear at all in the latter's import statistics. This suggests that overall gold export misinvoicing and generally discrepancies between Ghana's exports and its partners' imports may in fact contribute to reducing estimated capital flight from Ghana.[6]

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[5] This contrasts significantly with the case of Côte d'Ivoire where cocoa exporting is dominated by private firms. Analysis of the sector reveals substantial discrepancies between recorded cocoa exports on the Ivoirian side and recorded cocoa imports from the partners' side (see Merckaert, 2022).

[6] Two points are worth noting here. First, given that our estimate of net trade misinvoicing is obtained by scaling up the discrepancies with respect to the group of industrialized countries, it does not reflect discrepancies with South Africa. Second, the fact that South Africa reports no gold imports from Ghana in fact tells us nothing about whether Ghana's gold exports data understate or overstate the value of gold exported to South Africa. Even if Ghana's gold exports were underinvoiced, the reported value would still exceed the value reported by South Africa given its peculiarities.

**Table 3: Capital flight from Ghana, totals by decade (constant2021 US$, billion)**

	1970-1979	1980-1989	1990-1999	2000-2009	2010-2021	**1970-2021**
CDEBTADJ	2.5	4.8	6.6	7.3	33.1	**54.3**
FDI	1.0	0.2	1.9	10.1	39.8	**53.0**
PI	0.0	0.0	0.0	0.9	15.7	**16.7**
OI	1.4	3.7	5.0	6.4	-9.7	**6.8**
CA	-1.0	-2.7	-6.6	-14.6	-42.0	**-66.9**
CRES	-1.1	-0.6	-0.2	-3.4	-4.3	**-9.6**
BOP Residual	**2.8**	**5.4**	**6.6**	**6.8**	**32.7**	54.3
Trade misinvoicing	-0.8	-1.1	-1.2	4.0	-4.8	**-3.9**
Adjusted capital flight	**2.0**	**4.3**	**5.4**	**10.8**	**27.9**	**50.4**
Memorandum						
Sources of funds*	4.9	8.7	13.4	24.8	79.0	**130.8**
Uses of funds*	2.1	3.3	6.8	18.0	46.3	**76.6**
BOP Residual	2.8	5.4	6.6	6.8	32.7	**54.3**
Private flows	1.0	0.2	1.9	11.0	55.6	69.7
Average annual capital flight (million, constant 2021 US$)	*202.7*	*428.8*	*539.5*	*1,082.4*	*2,323.6*	*1,200.4*
Average annual capital flight/GDP (%)	1.9	*4.2*	*5.0*	*4.6*	*3.8*	*3.9*
Total capital flight/end period GDP (%)**	16.9	29.6	24.6	29.2	37.1	65.0

Notes: The symbols of the variables are defined under the equation providing the algorithm for computation of capital flight.

*Sources of funds = CDEBTADJ + FDI + PI + OI; Uses of funds = -(CA + CRES)

**The ratio of total capital flight/end of decade GDP (last row of the table) is calculated using real capital flight in constant 2015 US$ given that real GDP is published in constant 2015 US$ in World Development Indicators. The ratio for the full period 1970-2021 is total capital flight in constant 2021$ divided by nominal GDP in 2021.

Figure 6: Trend of capital flight and trade misinvoicing in Ghana, 1970-2021 (billion, constant 2021 US$)
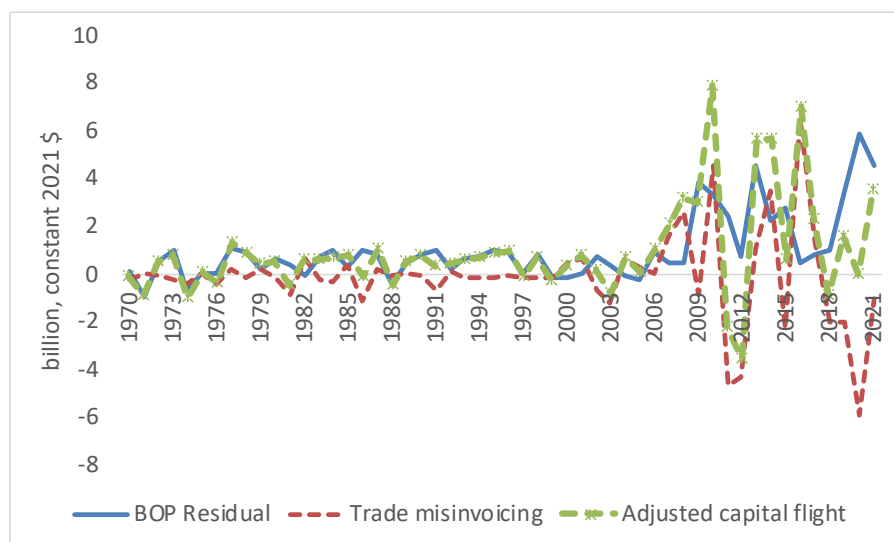
Source: Author's computations

The case of Zambia

The results for capital flight from Zambia are presented in Table 4 and Figure 7. Total capital flight over the period 1970-2021 amounts to $71.5 billion, making Zambia one of the leading countries for capital flight in Africa, as is the case for most natural resource-rich countries in the continent. This result amounts to average annual unrecorded outflows of $815 million over the past four decades.

Trade misinvoicing plays a significant role in capital flight, as reflected in the fact that net misinvoicing adds $37.2 billion to the BoP residual over the four decades under study. It became especially significant in the second decade of the 2000s where it remained steadily positive.

The most recent decade witnessed an explosion of capital flight, with a total of $43 billion, strongly correlated with both external borrowing ($23 billion) and trade misinvoicing ($23.1 billion). In addition to external borrowing, FDI was a major source of foreign exchange during the 2010-2021 period ($14.2 billion), with the two components together offsetting recorded outflows on the 'other investment' line of the BoP (-$28 billion).

The case of Zambia illustrates the risks associated with high external borrowing in association with capital flight. The country finds itself in a serious predicament where, while it must meet rising debt obligations resulting from acceleration in both the volume and cost of external borrowing, it simultaneously is losing resources through capital flight. Financial hemorrhage through capital flight precipitates debt distress and is one of the factors that can force a country into default, as happened in the case of Zambia in 2020.

**Table 4: Capital flight from Zambia, totals by decade (constant 2021 $, billion)**

	1970-1979	1980-1989	1990-1999	2000-2009	2010-2021	**1970-2021**
CDEBTADJ	11.4	7.4	2.3	4.5	23.0	48.6
FDI	1.2	1.1	2.4	6.6	14.2	25.5
PI	0.0	0.0	0.0	0.2	5.7	6.0
OI	1.2	10.6	1.5	-10.3	-28.0	-25.0
CA	-8.4	-8.7	-4.2	-4.0	5.3	-20.0
CRES	1.9	0.1	-0.3	-2.2	-0.3	-0.8
BOP Residual	**7.4**	**10.4**	**1.7**	**-5.2**	**20.0**	**34.3**
Trade misinvoicing	-1.9	9.3	1.2	5.5	23.1	37.2
Adjusted capital flight	**5.5**	**19.7**	**2.9**	**0.3**	**43.1**	**71.5**
Memorandum						
Sources of funds*	13.8	19.1	6.2	1.1	15.0	55.1
Uses of funds*	6.4	8.7	4.5	6.3	-5.0	20.9
BOP Residual	7.4	10.4	1.7	-5.2	20.0	34.3
Private flows (FDI + PI)	1.2	1.1	2.4	6.8	20.0	31.5
Average annual capital flight (million, constant 2021 US$)	*735.6*	*1,038.2*	*168.5*	*-519.6*	*1,668.8*	*815.6*
Average annual capital flight/GDP (%)	5.9	30.3	4.5	-0.6	13.0	10.7
Total capital flight/end decade GDP (%)**	80.5	252.0	32.4	2.1	155.1	322.8

Notes: The symbols of the variables are defined under the equation providing the algorithm for computation of capital flight.
*Sources of funds = CDEBTADJ + FDI + PI + OI; Uses of funds = -(CA + CRES)
**The ratio of total capital flight/end of decade GDP (last row of the table) is calculated using real capital flight in constant 2015 US$ given that real GDP is published in constant 2015 US$ in World Development Indicators. The ratio for the full period 1970-2021 is total capital flight in constant 2021$ divided by nominal GDP in 2021.

Figure 7: Trend of capital flight and trade misinvoicing in Zambia, 1970-2021 (billion, constant 2021 US$)
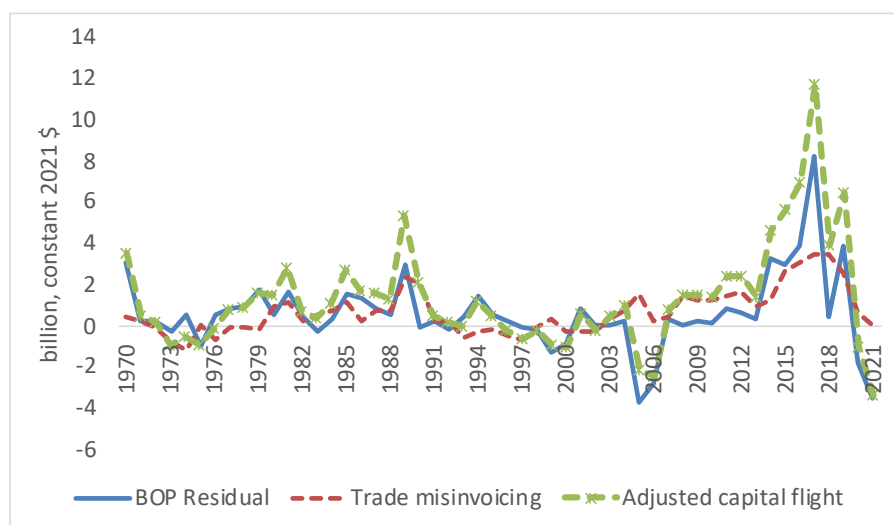
Source: Author's computations

5. Conclusion

The objective of this paper was to generate up-to-date estimates of capital flight from Cameroon, Ghana, and Zambia, and to examine key correlates of the level and trend of capital flight. The results show that the three countries have experienced large outflows of resources, amounting to a total of $71.1 billion for Cameroon, $50 billion for Ghana, and $71.5 billion for Zambia over the period 1970-2021 (in constant 2021 dollars). Furthermore, all three countries have witnessed an acceleration of capital flight since the turn of the century, coinciding with an acceleration of external borrowing and private capital inflows, which exceeded financing of the current account deficit and additions to the stock of foreign exchange reserves.

An important difference emerging from the results is that while net trade misinvoicing contributes significantly to estimated capital flight in the cases of Cameroon and Zambia, it plays a more limited role as a conduit of capital flight from Ghana. This reflects specific regulatory and management frameworks governing two key sectors of the Ghanaian economy, namely gold and cocoa. While the heavily regulated cocoa sector exhibits low systematic export misinvoicing, the liberalized gold sector exhibits substantial discrepancies between Ghana's exports and its partners' imports, anomalously pointing to apparent export overinvoicing (which statistically reduces

estimated capital flight). The inconsistencies in gold exports data are examined in a companion paper on the sector (Ndikumana and Cantah, 2023) and merit further investigation.

The chronic nature of capital flight and its continued acceleration suggest that it is driven by structural factors with both domestic and global dimensions. It implies that capital flight is not a problem that simply will go away on its own. It needs to be addressed with a robust strategy that is coordinated within countries as well as at the regional and global levels. National policy design can draw on policies to combat capital flight and illicit financial flows that are emerging in the academic literature and international agency reports (see Boyce and Ndikumana, 2015, 2022; UNCTAD, 2020). Because capital flight and illicit financial flows are transnational phenomena, a strategy to combat them requires robust multilateral engagement to address their drivers and channels, including tax evasion, money laundering, corruption, lack of transparency in trade and financial systems, and institutionalized banking secrecy. The African continent and the world will benefit immensely from better policy coordination and exchange of information on trade, banking, and taxation at the global level.

At the country level, African governments urgently need to re-examine the management and regulatory frameworks governing natural resource exploitation. Policy design and reform efforts must be focused on increasing transparency, compliance with national regulations and laws including tax compliance, and incentivizing domestic investment in the natural resource sector. The goal is to reduce financial hemorrhage and maximize the gains from natural resource exploitation by curtailing trade misinvoicing, maximizing tax and non-tax revenue, and maximizing effective repatriation of foreign exchange generated from commodity exports. To achieve these goals, African governments and their development partners need to scale up investments in "data infrastructure" (UNCTAD, 2020) with a focus on sector-level research and data generation. The tool kit for fighting capital fight includes various instruments, notably integrated digitalization of trade, financial, and tax systems, which will improve transparency, timely release of data, audit, monitoring of compliance, and detection of violations of trade, finance and capital account regulations. In this context, development partners need to support African governments by scaling up financial resources and technical assistance into digitalization in African economies.

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