

# Capital Structure and Earnings Management Practices: Empirical Analysis in Sub-Sahara Africa

Saheed Akande Shittu<sup>1</sup>, Hakeem Olayinka Onifade<sup>2</sup>

<sup>1</sup>Department of Accountancy, Federal Polytechnic Ayede, Nigeria

<sup>2</sup>Department of Accounting, Crescent University, Abeokuta, Nigeria

## Email address:

shittusa@federalpolyayede.edu.ng (Saheed Akande Shittu), hakeemonifade@gmail.com (Hakeem Olayinka Onifade)

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**Abstract:** This study assesses the impact of capital structure (CS) on Earnings Management Practices (EMP) in selected firms in sub-Sahara Africa. EMP was proxied by real EMP using Rowchodhury's (2006) model and accrual EMP measured by Khothari *et al.* (2005) model. The study applied the Generalized Method of Moments (GMM) estimator to data collected from the financial statements of two hundred and seventy-six (276) firms purposively selected from Nigeria, Ghana, Kenya, Tanzania, South Africa, and Zimbabwe from 2010 to 2020, given 3,069 observations firm-years. The results show that firms in Kenya, Nigeria, and Tanzania partake in real EMP through the structure of their capital. However, firms in Ghana, South Africa, and Zimbabwe do not partake in real EMP through the structure of their capital. Furthermore, the findings reveal that firms in Ghana and South Africa use their capital structure to embark on accrual EMP, while firms in Nigeria, Kenya, and Zimbabwe do not. The study concludes that firms in selected countries in sub-Saharan Africa substitute real and accrual forms of EMP. Therefore, the study recommends that capital providers in Nigeria, Ghana, Kenya, Tanzania, South Africa, and Zimbabwe should maintain sufficient attention to both real and accrual EMP for sustainable leveraging and the management of opportunistic selections of accounting choices, but increase the use of real EMP.

**Keywords:** Capital Structure, Accrual, Real, Earnings Management Practices, Sub-Saharan Africa

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## 1. Introduction

The main goals of financial reporting are to give stakeholders information about an enterprise's performance and assist users of accounting information in making wise choices. Accounting earnings and their components are especially crucial for stakeholders who want to gauge a company's performance and forecast its operating cash flows in the future. In the corporate world, problems with corporate financial distress and outright business failure have been a major problem. Many well-known American companies, including Enron and WorldCom, have failed in the recent past (in the early 2000s) for a variety of reasons, including dishonest profit manipulations, dishonest accounting practices, and persistently subpar performance, among others [25, 29, 45]. This has brought vital and functional changes to the costs of running organizations. In order to avoid breaching debt covenants or to keep relationships for future

debt raising, managers have strong incentives to manage earnings, including increasing their bargaining power and securing more favorable terms in debt contract negotiations [35, 36, 47]. Additionally, the disclosure of violations, whether required or voluntary, may increase the cost of debt, reduce the efficacy of investments, or result in an acceleration of payments and a reduction in credit lines. By using Earnings Management Practices (EMP), Directors of companies may be able to convince investors that the company has stronger earning potential, resulting in a rise in the share price. Similarly, EMP can be conducted to influence borrowing costs, which will eventually jeopardize the interests of shareholders. Hence, this study examined the effect of Capital Structure (CS) on EMP.

The effect of CS on EMP can be seen from different theoretical perspectives, with inclusive opinions from different scholars. Because empirical evidence is still inconclusive, this study shed more light on assessing the effect of CS on EMP. Despite many studies on EMP in

developed countries, which have tried to carry out more literature on capital structure and EMP [5, 15-17], there is still limited research in sub-Saharan African countries. More so, previous academic studies reflected that capital structure and EMP, especially in sub-Saharan African countries, were largely based on accrual EMP [21, 31, 48]. Nevertheless, as managers can use accrual and real EMP as substitutes, the influence of capital structure should be considered on both techniques rather than only accrual. In addition, most of these studies considered a maximum of three countries and made use of pooled ordinary least squares and panel data analysis [28, 42]. Further, using less than ten years of observations as done in these studies may not be enough to show a true picture of the influence of capital structure on EMP. It is believed that a new study on the influence of a firm's CS on EMP will contribute significantly to the existing literature. Therefore, for a period of eleven years, this research evaluated the influence of CS on accrual and real EMP among selected listed firms in six sub-Saharan African countries.

## 2. Literature Review

### 2.1. Capital Structure and Earnings Management Practices

The repetitive choice of an accounting policy or set of reporting guidelines is a component of EMP. When preparing and presenting financial statements for particular reasons, managers frequently use EMP. It aims to present a revenue flow with a smaller deviation from trend than would have otherwise been seen [12, 13, 48]. According to Musa A. F. and Muhammad A. I [25], EMP occurs when the Directors use their discretion in reporting transaction financial statement in a favourable manner rather than the ways it actually occurs in order to mislead some stakeholders about the true performance of the firms. According to research by Leuz *et al.* [22], EMP refers to the insider manipulation of a company's reported economic success in order to deceive some stakeholders or affect contractual outcomes. In addition, Wallace D. N. and Pornsit J. [53], describe EMP as the practice of using the latitude provided by accounting principles to give managers the ability to affect reported earnings, causing reported revenue to be higher or lower than it otherwise would be.

In terms of managing earnings, capital structure choices may occur in two ways. In the first instance, the degree of debt may be utilized as a management decision-control tool. Higher debt levels limit the power of opportunistic managers by reducing the cash flow available for discretionary spending on irrelevant assets [11, 14, 29, 52]. An excess of debt compared to equity in a company also raises the risk of insolvency. Thus, it would stand to reason that companies with more leveraged capital arrangements would exhibit less real or discretionary EMP, which can be described as the reverse leverage. Similarly, CS choices, however, may work against investors' interests and in favor of managers' selfish behavior. In order to fulfill the requirements, set forth by the

debt covenants, managers may falsify the financial accounts [33, 38, 46]. As a result, companies that are getting close to breaking debt covenants manage profits more aggressively. In light of these points, it appears that sub-Saharan Africa is a region where empirical problems with the fostering or restricting effects of debt on EMP, also known as leverage and reverse leverage effects, exist.

### 2.2. Theoretical Review

Signaling Theory: Spence (1973) initiated the signaling theory, and Ross (1977) later developed it. The theory looked at how managers and investors interacted in an environment of asymmetric knowledge. Therefore, a firm shows some signals through EMP to assess itself to other firms or to the industry. In fact, there is a lot of incomplete information between different business stakeholders in market economies. Due to their access to confidential information that enables them to communicate with a variety of investors and market players, managers are therefore thought to be the most knowledgeable party regarding the firm's future prospects [43]. The analytical framework for this study was based on signal theory because a company sends signals through its EMP to compare itself to other businesses in its industry or to other industries. Managers can use EMP to increase earnings reported and accurately report the financial performance of the business by having knowledge of the expectations and future prospects of the company [57]. Managers are able to share and report on confidential information about the company's future performance thanks to these accounting practices. As a result, market standards and manager expectations are brought into alignment.

### 2.3. Empirical Review

#### 2.3.1. Capital Structure and EMP

In order to understand the effect of CS and EMP, there have been various studies conducted in Asia, Europe, Africa, and the Pacific. In Asia, Lastari N. and Aeni N. [20] opined that capital structure positively influences accrual EMP. In the same vein, Alomush *et al.*, Khanh T. and Thu J., Nanik L. and Nur A. [2, 16, 26] observed a positive and significant influence of capital structure on accrual EMP in their empirical findings conducted in Jordan, Vietnam, and Indonesia, respectively. However, Hassan T. M. and Abdulrahman A. [14] in Bangladesh discovered a negative and significant effect of capital CS on accrual EMP, as well as Neeraj *et al.*, [27] in their studies conducted in India. In Europe, the study observed the work of Mercedes *et al.* [23] that was conducted in Spain, where the authors observed a negative and significant effect of CS on accrual EMP. Similarly, negative and significant effect of CS were revealed in the works of Doukakis L. and Ugrin *et al.* [8, 52], conducted across firms in European countries. In international settings, Ningrun *et al.* [29] worked across 30 countries; Paolo S. and Laora M. [38] conducted across countries in Latin America, where the studies observed negative and significant impact of CS on accrual EMP.

However, Lemma *et al.* [21] worked across 44 countries using panel regression for 748 non-financial firms and discovered a positive and significant influence of CS on accrual EMP.

In Africa, Nyatichi *et al.* and Saline *et al.* [30, 42] found a negative and significant influence of CS on accrual EMP. In the same vein, Okafor *et al.* [32] in a study conducted in Nigeria found negative and significant influence of CS on accrual EMP. However, Ogiriki and Iweias [29] revealed a positive and significant impact of capital structure on accrual EMP in another study conducted among manufacturing firms in Nigeria. More so, the work of Nelson *et al.* [28], conducted among firms in Kenya and Tanzania, discovered that CS has a positive and significant effect on accrual EMP. In addition, Elkalla T. [9] found that the capital structure revealed positive and significant influence on accrual EMP in MENA countries. More so, Bassiouny *et al.*, Swai J., Waweru N. and Riro G. [6, 48, 54] in their studies carried out in Kenya, Egypt, and East Africa, respectively, found that capital structure positively and significantly influences accrual EMP. Thus, the authors observed that the majority of studies reviewed came up with different views on how capital structure can influence EMP and considered less than six countries, particularly in Africa. The study hypothesized as follows:

H<sub>01</sub>: Capital structure does not significantly drive accrual EMP of firms in sub-Sahara Africa.

### 2.3.2. Capital Structure and Real EMP

In Asia, Anabelen *et al.*, Mohdsuffian *et al.*, [4, 24] in their studies carried out in Malaysia and Korea, respectively, that capital structure has positive and significant effect on real EMP. Nevertheless, Rajeevan S. and Ajward R. [39] in Sri Lanka discovered a negative and significant relationship between capital structure and real EMP. With regards to Europe, the authors observed the study of Owusu *et al.* [37] that showed a negative impact of CS on real EMP, while Lara *et al.* [19] discovered a positive and significant influence of capital structure on real EMP. In an international setting, Anagnostopoulou S. and Tsekrekos A. [5] carried out a study among eighteen countries around the world, and the work of Kim *et al.* [17] conducted in North America found a positive and significant influence of capital structure on real EMP. Though, Alsharairi M. and Salama A. [3] found a negative influence of capital structure on real EMP in a study conducted in North America. In Africa, Elkalla T. [9] found that the capital structure had a negative influence on real EMP. The authors observed that the majority of studies reviewed were carried out on accrual EMP, particularly in Africa. This study is considered both accrual and real EMP to fill identified research gap. Thus, the study hypothesized that:

H<sub>02</sub>: Capital structure has no significant influence on real EMP of firms in sub-Sahara Africa.

## 3. Methodology

### 3.1. Design and Data

The study used *ex-post facto* research design while the population of the research consists of listed companies in sub-Sahara Africa. Using multi stage sampling technique, Stratified sampling method was used to divide sub-Sahara Africa into 4 regions, while 3 regions and 6 countries (Eastern: Kenya and Tanzania; Southern: South Africa and Zimbabwe; Western: Nigeria and Ghana) were considered for the study. The Central Africa region was excluded because the Douala Stock Exchange was the only stock exchange that belonged to the African Securities Exchanges Association in the region but had just two non-financial listed companies, resulting in inconsistent data needed for the study. A purposeful sampling method was employed to select NFLF companies with the data needed for the study from 2010 to 2020. Therefore, 76 out of 166 firms (45.8%) in Nigeria, 12 out of 31 firms (38.7%) in Ghana, 127 out of 250 firms (50.8%) in South Africa, 31 out of 63 firms (49.2%) in Zimbabwe, 26 out of 64 firms (40.6%) in Kenya, and 7 out of 25 firms (28%) in Tanzania were chosen, giving a total of 279 firms in the six chosen Sub-Saharan African nations. Data collected were analysed using Generalized Method of Moments (GMM) estimator.

### 3.2. Model Specification

AEMP was measure by DA while NDA is calculated using Khothari *et al.* [18] model adapted from the work of Orazalin N. and Akhmetzhanov R. [34].

$$DA = TA - NDA \quad (1)$$

Where

DA = Discretionary Accrual used to proxy accrual EMP,  
TA= Total Accrual, NDA= Non-Discretionary Accrual

$$TA = \Delta CA_t - \Delta Casht - \Delta CL_t + \Delta DCL_t - DEPt \quad (2)$$

NDA estimated as follows;

$$NDA_t = \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \alpha_2 \left( \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} \right) + \alpha_3 \left( \frac{PPE_t}{A_{t-1}} \right) + ROA_{it} \quad (3)$$

Where,

NDA, t = Non-Discretionary Accrual,  $\Delta REV_t$ , t = Changes in firm revenue,  $\Delta REC_t$ , t = Change in Receivable, More so,  $PPE_{it}$  = Non-current asset,  $ROA_{it}$  (or  $it-1$ ) = ratio of earnings by asset.,  $A_i$ , t-1 = Total assets

The functional form of the models are as follows:

Model 1

$$AEMP = \beta_0 + \beta_1 CS + \beta_2 FSIZE_{it} + \varepsilon \quad (4)$$

Model 2

$$REMP = \beta_0 + \beta_1 CS + \beta_2 FSIZE_{it} + \varepsilon \quad (5)$$

*Table 1. Measurement of Study Variables.*

Variable	Abbreviation	Measurement	Source
Dependent			
Accrual Earnings Management Practices	AEMP	Total accrual minus discretionary accrual	[34, 44]
Real Earnings Management Practices	REMP	Abnormal cash flow multiply by -1 plus Abnormal Production plus Abnormal Discretionary Expenses multiply by -1. Rowchowdhury (2006) model	[1]
Independent			
Capital Structure	CS	Long Term Debt (LTD) by Total Asset (TA)	[42]
Control			
Firm Size	FSIZE	Firms Annual Turnover	[10, 43]
Constant	$\beta_0$		
Slope Coefficient	$\beta_1, \beta_2$		
Error term	$\epsilon_i$		
Time/period	t		

Source: Authors' Compilation (2023)

## 4. Data Analysis and Results

### 4.1. Descriptive Statistics

The findings revealed that Real Earnings Management Practices (REMP) for Kenya, Tanzania, and Ghana companies have positive mean values of 0.025, 0.065, and 0.068, respectively, according to the descriptive statistics. For companies in South Africa, Zimbabwe, and Nigeria, the mean numbers were all negative (-0.018, -0.037, and -0.023, respectively). This indicates that businesses in Kenya, Tanzania, and Ghana participated in REMP to a greater extent than companies in South Africa, Zimbabwe, and Nigeria. Additionally, it was discovered that firms in Kenya, Tanzania, and Ghana had larger standard deviations than those in South Africa, Zimbabwe, and Nigeria, which is a sign of higher REMP volatility. With the exception of South Africa, the mean values for Discretionary Accrual Earnings Management Practices (DAEMP) were positive for companies across all of the study countries. This suggests

that companies in Kenya, Tanzania, Zimbabwe, Nigeria, and Ghana participated in more income-increasing AEMP, with respective mean values of (0.016, 0.028, 0.066, 0.017, and 0.005). Furthermore, it was discovered that companies in those countries had higher standard deviations than companies in South Africa, suggesting higher volatility. Kenya's (0.316), Zimbabwe's (0.352), and Nigeria's (0.303) mean values for capital structure are greater than Tanzania's (0.182), South Africa's (0.164), and Ghana's (0.164) mean values. With regards to capital structure, Kenya's (0.316), Zimbabwe's (0.352), and Nigeria's (0.303) mean values for capital structure are greater than Tanzania's (0.182), South Africa's (0.164), and Ghana's (0.179). This suggests that businesses in Kenya, Zimbabwe, and Nigeria depended more on debt funding than equity financing. With mean values ranging from 4.567 to 4.886, there is no discernible difference in firm size between the various nations, with the exception of South African firms, which have a mean value of 5.592, suggesting that South African firms are marginally larger than those in other countries.

*Table 2. Descriptive Statistics.*

Countries	Variables	REMP	DAEMP	CS	FS
Kenya	Mean	0.025	0.016	0.316	4.886
	SD.	0.630	0.098	0.175	0.804
	Min.	-0.844	-0.229	0.000	2.303
	Max.	5.087	0.527	0.823	6.393
Tanzania	Mean	0.065	0.028	0.182	4.759
	SD	0.590	0.081	0.169	0.677
	Min.	-0.581	-0.167	0.006	3.617
	Max.	0.896	0.237	0.745	5.775
South Africa	Mean	-0.018	-0.002	0.164	5.592
	SD	0.022	0.029	0.183	0.885
	Min.	-0.588	-0.279	0.021	0.548
	Max.	6.078	9.376	0.697	7.290
Zimbabwe	Mean	-0.037	0.066	0.352	4.654
	SD	0.130	0.880	0.264	0.623
	Min.	-0.127	-0.236	0.003	3.011
	Max.	8.145	9.638	0.594	6.004
Nigeria	Mean	-0.023	0.017	0.303	4.753
	SD	0.028	0.218	0.230	0.817
	Min.	-0.372	-1.026	0.017	2.751
	Max.	1.806	3.410	0.902	6.809
Ghana	Mean	0.068	0.005	0.179	4.567
	SD	0.317	0.165	0.175	1.032

Countries	Variables	REMP	DAEMP	CS	FS
	Min.	-3.749	-1.191	0.066	2.378
	Max.	2.246	0.706	0.891	6.112

Note: SD= Standard Deviation, Min= Minimum, Max= Maximum

Source: Authors' Computation (2023)

#### 4.2. Correlation Matrix

To examine the correlations between the model variables, a Pearson correlation matrix, as shown in Table 3, was calculated. The study found that the majority of variable

correlations are low, with all coefficients being 0.8, which is the threshold for multi-collinearity problems indicated by earlier study by (Khanh & Thu, 2019).

**Table 3.** Pearson Correlation Matrix.

Countries	Variables	REMP	DAEMP	CS	FS
Kenya	REM	1.000			
	DA	-0.002	1.000		
	CS	0.159	0.032	1.000	
	FS	0.028	-0.104	0.005	1.000
Tanzania	REM	1.000			
	DA	0.091	1.000		
	CS	-0.7981	-0.034	1.000	
	FS	0.013	0.029	0.054	1.000
South Africa	REM	1.000			
	DA	0.403	1.000		
	CS	0.069	-0.006	1.000	
	FS	-0.615	0.346	-0.218	1.000
Zimbabwe	REM	1.000			
	DA	-0.035	1.000		
	CS	0.039	0.004	1.000	
	FS	-0.732	-0.007	0.006	1.000
Nigeria	REM	1.000			
	DA	0.007	1.000		
	CS	-0.063	-0.005	1.000	
	FS	0.017	0.008	-0.003	1.000
Ghana	REM	1.000			
	DA	-0.002	1.000		
	CS	0.004	-0.068	1.000	
	FS	0.003	0.054	-0.045	1.000

Source: Authors' Computation (2023)

#### 4.3. Diagnostic of the Variables

As shown in Table 4, the VIF was employed in the study to assess for multicollinearity diagnostic. The capital structure in Tanzania had the highest calculated VIF number

of 1.09, and with the average VIF value of 1.03 across all variables. All VIF values, however, were considerably below the cutoff of 5, indicating that multicollinearity between the study model variables is not a major issue.

**Table 4.** Variance Inflation Factor (VIF).

Countries	Variables	VIF Value	Tolerance
Kenya	CS	1.01	0.994960
	FS	1.03	0.969550
Tanzania	CS	1.09	0.920450
	FS	1.05	0.954848
South Africa	CS	1.01	0.992456
	FS	1.04	0.963302
Zimbabwe	CS	1.03	0.971700
	FS	1.03	0.972348
Nigeria	CS	1.00	0.997899
	FS	1.01	0.992508
Ghana	CS	1.02	0.983165
	FS	1.08	0.927659
Mean		1.03	

Source: Authors' Computation, (2023).

#### 4.4. Effect of Capital Structure on Accrual and Real Earnings Management Practices

Table 5 shows the effect of Capital Structure (CS) on accrual and real EMP. The coefficients REMP and DAEMP ( $1 - \delta$ ) as observed in Table 4 which is speed of adjustment represent the coefficients of the lagged real EMP<sub>t-1</sub> and accrual EMP<sub>t-1</sub>, respectively. The coefficient ( $1 - \delta$ ) is negative and significant for Kenya, Tanzania, Zimbabwe, as well as Ghana, while it is positive and significant for South Africa and Nigeria. The results shown that CS in firms in Nigeria (western region), Kenya and Tanzania (eastern region) ( $\beta = 1.201; 0.002; 0.031; p > |t| = 0.000; 0.004; 0.002$  0.05, respectively) positively and significantly influence real EMP. Though, CS in firms in Zimbabwe ( $\beta = -0.062, p > |t| = 0.000$  0.05), South Africa ( $\beta = -0.005; p > |t| = 0.029$  0.05), and Ghana ( $\beta = -0.014; p > |t| = 0.033$  0.05) negatively and significantly influence real EMP.

More so, CS in firms in Ghana ( $\beta = 0.281; p > |t| = 0.028, 0.05$ ) and South Africa ( $\beta = 0.008; p > |t| = 0.000$  0.05) have positive effect on accrual EMP. Nevertheless, CS in firms in Kenya ( $\beta = -0.002, p > |t| = 0.000$  0.05), Zimbabwe ( $\beta = -0.031, p > |t| = 0.000$  0.05) and Nigeria ( $\beta = -0.163, p > |t| = 0.043, 0.05$ ) negatively and significantly influence accrual EMP. Nevertheless, CS has no significant effect on accrual EMP in Tanzania ( $\beta = 0.003, p > |t| = 0.258; > 0.05$ ). Furthermore, real EMP is positively and significantly affected by Firm Size (FS) in firms in Nigeria ( $\beta = 0.135, p > |t| = 0.025, 0.05$ ), South Africa ( $\beta = 0.445, p > |t| = 0.000$  0.05) as well as Zimbabwe ( $\beta = 0.337; p > |t| = 0.000, 0.05$ ). Though, real EMP is negatively and significantly affected by FS in firms in Kenya ( $\beta = -0.152, p > |t| = 0.000$  0.05) and Ghana ( $\beta = -1.018, p > |t| = 0.000; 0.05$ ). More so, accrual EMP is positively and significantly affected in firms in Kenya ( $\beta = 0.009, p > |t| = 0.004$  0.05), Nigeria ( $\beta = 0.274, p > |t| = 0.000$  0.05), South Africa ( $\beta = 0.336, p > |t| = 0.000$  0.05), and Zimbabwe ( $\beta = 0.159; p > |t| = 0.005; 0.05$ ). Nevertheless, accrual EMP is negatively and significantly affected by FZ ( $\beta = -0.136, p > |t| = 0.013; 0.05$ ) in firms in Ghana. Whereas in Tanzania, FS shown insignificant effect on DAEMP as well as REMP ( $\beta = -1.521; -0.121, p > |t| = 0.418; 0.352; > 0.05$  respectively).

With regards to diagnostic tests, the Wald chi2 statistic of (real EMP: 23.96, 124.13, 19.26, 101.69, 75.83, 161.34) with probability values of (0.017, 0.000, 0.021, 0.000, 0.000, 0.000) as well as (accrual EMP: 715.42, 10.85, 108.38, 126.60, 192.22, 51.76) with probability values of (0.000, 0.028, 0.000, 0.000, 0.000, 0.000) for Kenya, Tanzania, Zimbabwe, South Africa, Nigeria and Ghana respectively indicated that the model valid for policy inference. Furthermore, Arellano-Bond test for zero autocorrelation in first-differenced errors shows that the Z-statistic of the AR (2) test were (REMP: 0.768, -0.855, -1.327, -0.482, 1.514, -1.817) with probability values of (0.442, 0.393, 0.184, 0.630, 0.130, 0.069) as well as (DAEMP: -1.141, -1.779, -1.737, -

1.827, -3.251, -0.749, 0.453) with probability values of (0.253, 0.075, 0.082, 0.068, 0.001, 0.453) for firms in Kenya, Tanzania, Zimbabwe, South Africa, Nigeria and Ghana respectively revealed that there is no problem of autocorrelation in the model. Thus, it means that the result is valid for policy inference.

#### 4.5. Discussion of Findings

The positive and significant influence of Capital Structure (CS) on real EMP in firms in Nigeria, Kenya and Tanzania implies that firms in those countries engaged in REM through the structure of their capital. This result agrees with earlier findings carried out by [4, 7, 26], while differ with the results of [37, 42]. Nevertheless, the negative and significant effects of CS on real EMP in firms in Ghana, South Africa and Zimbabwe suggests that firms in those countries do not engage in real EMP through the structure of their capital. The negative effect agrees with the research findings of [3, 9] but differs from [12, 24]. Furthermore, the positive and significant impact of CS on accrual EMP among firms in South Africa and Ghana suggests that firms in those countries manipulate earnings through accrual EMP. This supports the research findings of [20, 31] and is different from the findings of [30, 32]. However, the negative and significant effect of CS on accrual EMP among firms in Kenya, Zimbabwe, and Nigeria implies that low-g geared firms in these countries do more accrual EMP, while levered firms do not engage in a higher level of AEMP. The findings are at variance with the empirical studies carried out by [23, 27], but agree with the empirical findings of [2, 30]. These results imply that, in a group of firms that finance their operations more through debt than equity, real EMP is more preferred than accrual EMP by exploiting accounting choices to twist firms' earnings. Although, in highly geared firms, the attention of capital providers could be drawn to checkmate's operation and limit the chance to use accrual EMP. Thus, firms might switch to real EMPs, which are masked as daily operational activities and are more difficult to discover.

In addition, Positive and significant influence of FS on real EMP in Nigeria, South Africa and Zimbabwe indicate that the bigger the firms in Zimbabwe, South Africa, and Nigeria, the more those firms engage in real EMP, while a negative effect among firms in Kenya and Ghana means that the bigger the firms in Kenya and Ghana, the lower the firms in those countries participated in REMP. More so, the positive and significant effect of CS on accrual EMP in firms in Kenya, South Africa, Nigeria as well as Zimbabwe implies that the bigger the firms in these countries, the higher those firms engagement in accrual EMP. However, the negative and significant effect of CS on accrual EMP Ghana signifies that the bigger the firms in Ghana, the fewer firms are engaged in accrual EMP.

Table 5. GMM Results for effect of Capital Structure on Accrual and Real EMP.

Variable		Kenya	Tanzania	Zimbabwe	S. Africa	Nigeria	Ghana
CS	REMP <sub>t-1</sub>	-0.068* (0.000)	-0.232 (0.033)	-0.142 (0.000)	0.204 (0.000)	0.180 (0.000)	-0.394 (0.000)
	AEMP <sub>t-1</sub>	-0.104 (0.000)	-0.072 (0.018)	-0.276 (0.000)	0.363 (0.000)	0.068 (0.000)	-0.393 (0.048)
	REMP	0.002 (0.004)	0.031 (0.002)	-0.062 (0.000)	-0.005 (0.029)	1.201 (0.000)	-0.014 (0.033)
	AEMP	-0.002 (0.000)	0.003 (0.258)	-0.031 (0.000)	0.008 (0.000)	-0.163 (0.043)	0.281 (0.028)
FS	REMP	-0.152 (0.000)	-1.521 (0.418)	0.445 (0.000)	0.337 (0.000)	0.135 (0.025)	-1.018 (0.000)
	AEMP	0.009 (0.004)	-0.121 (0.352)	0.159 (0.005)	0.336 (0.000)	0.274 (0.000)	-0.136 (0.013)
Constant	REMP	-0.488 (0.000)	7.174 (0.409)	0.826 (0.001)	-1.730 (0.000)	-0.488 (0.072)	3.024 (0.002)
	AEMP	0.024 (0.060)	0.573 (0.322)	-1.822 (0.000)	-2.087 (0.000)	-1.473 (0.000)	0.488 (0.356)
Wald chi2	REMP	23.96 (0.017)	124.13 (0.000)	19.26 (0.021)	101.69 (0.000)	75.83 (0.000)	161.34 (0.000)
Statistic	AEMP	715.42 (0.000)	10.85 (0.028)	108.38 (0.000)	126.60 (0.000)	192.22 (0.000)	51.76 (0.000)
AR (2) test	REMP	0.768 (0.442)	-0.855 (0.393)	-1.327 (0.184)	-0.482 (0.630)	1.514 (0.130)	-1.817 (0.069)
	AEMP	-1.141 (0.253)	-1.779 (0.075)	-1.737 (0.082)	-1.827 (0.068)	-3.251 (0.001)	-0.749 (0.453)
Firms		26	7	31	127	76	12

Source: Authors' Computation (2023)

## 5. Conclusion

The study examines the influence of CS on accrual and real EMP in sub-Saharan Africa. Kenya, Tanzania, Zimbabwe, South Africa, Nigeria, and Ghana were the six countries selected for the study. Using data compiled by the Machameratios database of 279 selected listed firms across six countries from 2010–2020. The study concludes that firms in selected countries in sub-Saharan Africa substitute real and accrual forms of EMP. Therefore, the study recommends that capital providers in Nigeria, Ghana, Kenya, Tanzania, South Africa and Zimbabwe should maintain sufficient attention to both real and accrual EMP for sustainable leveraging and the management of opportunistic selections of accounting choices, but increase the use of real EMP. The study has contributed to the existing literature of accounting and EMP by extending measures of the effect of capital structure on earnings management practices to real earnings management techniques across six sub-Saharan African countries, compared to two or three countries in previous analyses. Further research could consider more than six countries as well as add more variables as a control variable in sub-Saharan African countries rather than only firm size.

## ORCID

Saheed Akande Shittu: 0000-0003-3382-5917

Hakeem Olayinka Onifade: 0000-0002-0681-1897

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