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Asset Structure and Growth Opportunities: Empirical Analysis on Earnings Management Practices in Sub-Saharan Africa

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Abstract

This study assesses the influence of asset structure and growth opportunities on Earnings Management Practices (EMP) amongst firms in sub-Saharan Africa. Both real and accrual EMP were considered. Two hundred and seventy-nine (279) firms were purposively selected across six (6) sub-Saharan African countries for a period of eleven years, from 2010 to 2020, giving a total of 3,069 observations. Data gathered from the financial statements of chosen firms were analyzed using a panel least squares regression model. The findings reveal that asset structure and growth opportunities have a positive and significant effect on accrual and real EMP. Similarly, leverage and firm size have a positive and significant effect on real EMP. However, leverage has a negative and significant impacton accrual EMP while firm size has a positive and significant impact on accrual EMP. Also, firm age has no significant influence on both accrual and real EMP. The study concludes that asset structure and growth opportunities positively and significantly influence accrual and real EMP amongst firms in sub-Saharan Africa. Hence, the study recommends that firms in sub-Saharan Africa should refrain from using a larger percentage of their non-current assets as collateral to obtain debt to avoid perpetrating EMP.

Keywords:Assets structure, Growth opportunities, Earnings management practices, Sub-Saharan Africa.

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1. Introduction

The primary goal of financial managers is to maximize earnings and create growth opportunities for the firm by structuring the company's assets in the most profitable manner. The International Accounting Standard Board (IASB) conceptual framework described assets as "resources controlled by an entity as a result of past transactions or events from which future economic benefits are expected to flow to the entity" (ICAN, 2019). Assets are typically separated into two categories: tangible assets and intangible assets. Current and non-current assets make up tangible assets. Accounting rules specify specific conditions for intangible assets. As a result, tangible assets make up the majority of the assets listed in the statement of financial condition for businesses (Sun &

Rath, 2009). Asset structure is the combination of non-current assets and current assets held by firms to establish and expand their businesses. Appropriate asset structures create growth opportunities for the company and improve its status. Financial managers manage earnings to achieve this goal in order to attract potential investors by showing the company's desirable status.

Growth opportunity is inevitable for any firm; growth companies are typically described as being prosper, with less information available but greater growth opportunities or better growth prospects. On the other hand, mature organizations are renowned for having lengthy histories, substantial sizes, and more information available but fewer opportunities for expansion. Because growth companies have more room for growth than mature companies do, investors should overreact more to them (Cai *et al.,* 2018). This underinvestment issue can limit a company's potential for growth and lower its stock price, both of which may prompt a manager to falsify a company's profitability in order to draw in additional investors. Earnings Management Practices (EMP) are a type of conscious act with the goal of showing a firm's earnings as normal to achieve a favorable and intended level of level profit (Nozarpour & Norouzi, 2015). According to Adel (2015), managers engage in EMP in beneficial circumstances such as to derive information value, for regulatory purposes, or as a growth opportunity.

In Africa, literatures seem to be lacking on the nexus between asset structure and growth opportunities on EMP in terms of empirical evidence, particularly in sub-Saharan Africa where there is an unstable economy. Most studies on asset structure and EMP were carried out in Asia (Sun & Rath, 2009; Das *et al.,* 2018; Khuong *et al.*, 2019). The only study conducted across the counties in Africa is the work of Elikalla (2017), carried out among firms in the MENA region of Africa. More so, growth opportunities and EMP have not been empirically analyzed in sub-Saharan Africa. Most studies in Africa were based on accrual EMP and focused on a particular sector in a single country(Khanh & Thu, 2019; Nanik & Nur, 2019; Rajeevan & Ajward, 2020), unlike this study, which considered non-financial listed firms across six countries in Sub-Saharan Africa. More so, the majority of previous studies also used Dechow *et al.'s* modified Jones model (1995) for accrual EMP, while the current study employed Rahama and Shahur's (2008) model to measure accrual EMP. Hence, this study examines the effect of asset structure and growth opportunities on accrual and real EMP.

2.1 Theoretical Review

This study was based on signal theory.Spence (1973) established the signal theory, which looked at the interaction between managers and investors in an environment of asymmetric information. As a result, a corporation sends signals through EMP to compare itself to other companies or to the industry. In fact, there is a lot of incomplete information amongst different firm stakeholders in market economies. Due to their access to confidential information that enables them to communicate with a variety of investors and market participants, managers are therefore thought to be the most knowledgeable stakeholder on the company's future cash flow. Only businesses with expanding potential, according to Xue (2004), can control their results in a way that communicates with the market and investors. The study found that businesses with strong growth potential employ earnings management to disclose investment opportunities. In a similar vein, Altamuro *et al.* (2005) reported that the usage of earnings management is justified by the managers' desire to provide accurate information about the company's future success.

2.2 Literature Review and Hypotheses Development

2.2.1 Asset Structure and Earnings Management Practices

The study observed studies on assets structureand EMP. In Asia, Based on studies that found positive relationships, Das *et al.* (2018) conducted a panel regression study to examine the effect of asset structure on both accrual and REM in India. The study found a positive and significant influence of assets structure on accrual EMP while the study discovered no significant relationship between assets structure and real EMP. More so, positive and significant effect of assets structure on EMP was revealed by Sun and Rath (2009) in a study conducted in Australia. On the basis of studies that found negative relationships, the study observed from the work of Khuong *et al.*(2019) conducted in Vietnamese showed a negative and significant influence of asset structure on real EMP. In Africa, Elikalla (2017) conducted a panel regression study in MENA and observed negative and significant impact of asset structure on both accrual and real EMP. Having reviewed previous literature in developed and developing economies. There is a limited empirical works on assets structure and EMP particularly in sub-sharan Africa. More so, the findings revealed inclusive as some studies discovered positive relationship while others observed negative. In addition, most of the above studies were focus on accrual EMP except Elikalla (2017) which was conducted in MENA region of Africa. Thus this study filled the research gap by assessing the influence of assets structure on real and accrual EMP.

$Ho_{1:}$ Assets structure does not significantly drive accrual EMP

$Ho_{2:}$ Assets structure has no significant influence on real EMP.

2.2.2 Growth Opportunities and Earnings Management Practices

The study observed studies on growth opportunity and EMP. In Asia, on the basis of studies that found positive relationships, in the study conducted by Nozarpour and Norouzi (2015), positive significant of growth opportunity was observed on accrual EMP. More so, Das *et al*. (2018), discovered positive and significant relationship of growth opportunity with accrual and real EMP. Similarly, Khuong, *et al*. (2019) showed positive significant effect of growth opportunity on real EMP. Based on the studies found negative relationship, Khanh and Thu (2019) carried out a study in Vietnamese, using GMM for 241 firms randomly selected for the period of 2010-2016. The findings revealed negative and significant effect of growth opportunity on accrual and real EMP. In addition, Nanik and Nur (2019) revealed negative and significant effect of growth opportunity on accrual EMP. However, Rajeevan and Ajward (2020) showed no relationship of growth opportunity with accrual based earnings management. Ugrin *et al.* (2017) and Cohen and Zarowin (2010) observed negative and significant effect of growth opportunity on accrual EMP in the studies conducted in Europe and North America respectively. In the studies carried out across the countries by Ningrun (2019), the study observed positive and significant effect of growth opportunity on EMP. While Roychowdhur (2006) revealed negative and significant relationship of growth opportunity with accrual EMP. In Africa, on the basis of studies that found negative relationships, in the study conducted by Elikalla (2017) in MENA countries revealed negative and significant effect of growth opportunity on accrual EMP while negative but insignificant effect was observed on real EMP. Likewise, Abubakar (2020) showed negative insignificant relationship between growth opportunities with accrual EMP. Nevertheless, in the studies conducted by (Swai, 2016; Hassan & Abdulrahaman. 2020), negative and significant relationship were observed between growth opportunity with accrual and real EMP respectively. However, having review previous empirical studies on the subject matter, it was notedthat previous studies on EMP were conducted in developed counties and also majorly focused on accrual

EMP while neglecting REM. Therefore, this study formulated hypotheses below on how growth opportunity influence both accrual and real EMP in order to fill research gap.

$Ho_{3:}$ There is no significant effect of growth opportunities accrual earnings management practices.

$Ho_{4:}$ Growth opportunities have no significant influence on real earnings management practices.

Conceptual framework

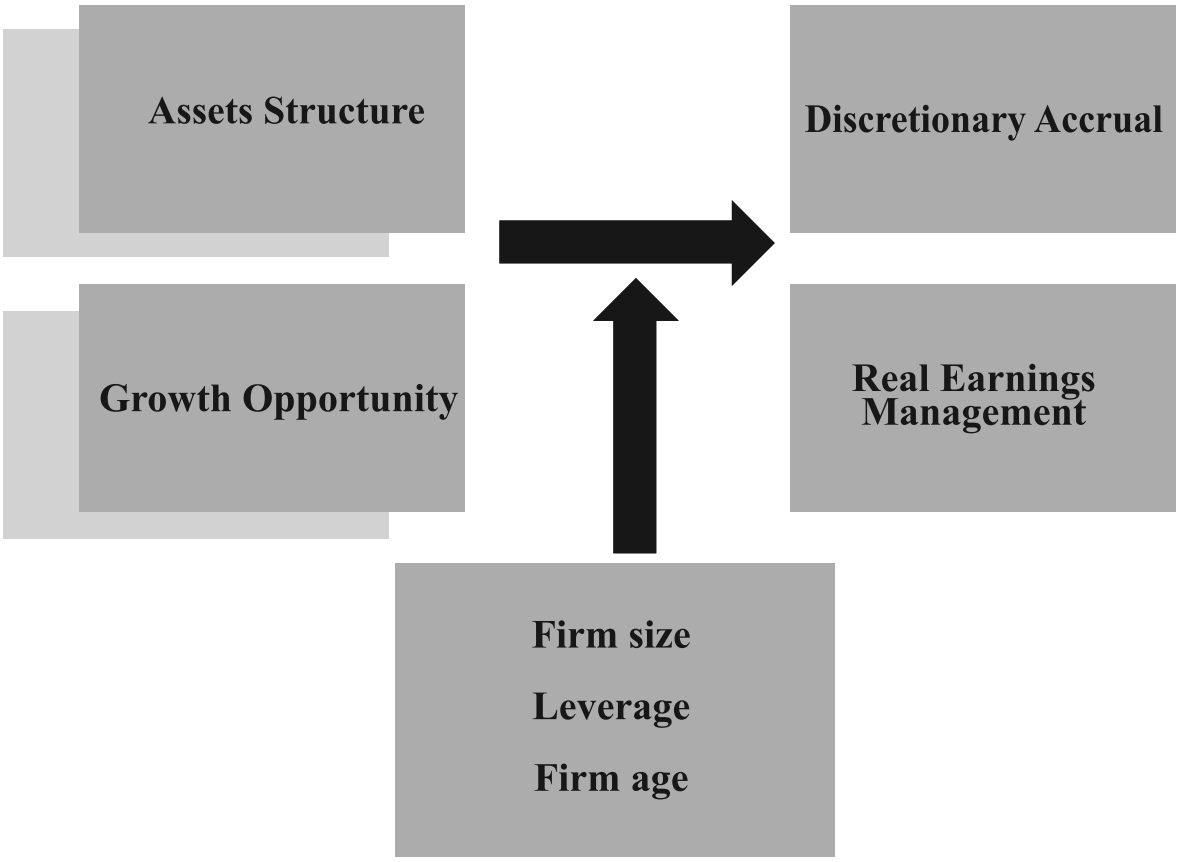

Fig 1: Conceptual framework
Source: Authors design 2023

3. Methodology

Ex-post facto research design was adopted in this study due to the fact that all the data needed for the study already exists. Five hundred and ninety-nine (599) listed firms in six selected countries in sub-Sahara African countries as at 31st December, 2020 represent study population. Purposive sampling technique was employed to select two hundred and seventy-six (276) non-financial listed firms for eleven (11) years from 2010 to 2020 giving a 3,069 observations while panel data ordinary least square regression estimation model was used to analyse data collected.

Table I. Selected Countries and Number of Non-Financial Listed Firm for the Study

Countries	Listed Firms	Non-financial Listed Firms	Percentage (%)
Ghana	31	12	39
Kenya	64	26	41
Nigeria	166	76	46
South Africa	250	127	51
Tanzania	25	7	28
Zimbabwe	63	31	49
Total	**599**	**279**	**47**

Source: Authors compilation, (2023)

3.1 Model Specification

Discretionary Accrual (DA) was used to represent accrual EMP

DA= TA- NDA

$TAt = \Delta CAt - \Delta Cas\ t - \Delta CLt + \Delta DCLt - DEPt$

The study model adapted was from the work of Nanik and Nur (2019) with modification with addition of REM and firm Age.

$DA_{it} = \alpha + \beta_1 AS_{it} + \beta_2 GOPPit + \beta_3 FSIZE_{it} + \beta_4 LEV_{it} + \beta_5 FAGE_{it} + \varepsilon_{it}$

$REM_{it} = \alpha + \beta_1 AS_{it} + \beta_2 GOPP_{it} + \beta_3 FSIZE_{it} + \beta_4 LEV_{it} + \beta_5 FAGE_{it} + \varepsilon_{it}$

α is intercept in this study, i is cross sectional and t is time identifier, ε is a model error term, while $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, =Coefficients for the respective determinants

Table II. Measurement of Variables used in the Study

Variable	Acronomy	Measurements	Reference
Dependent			
Accrual Based	DA	NDA= $\frac{TA}{Ai_{t-1}} = \alpha_1\left(\frac{1}{Ai_{t-1}}\right) + \alpha_2\left(\frac{\Delta REV - RECi_t}{Ai_{t-1}}\right) + \alpha_3\left(\frac{PPEi_t}{Ai_{t-1}}\right) + \alpha_4 ROA + \alpha_5 MB + \varepsilon it$ (Rahma and Shahrur, 2008) model.	Elikalla (2017)
Real Earnings Management Practices	REM	Abnormal operating cash flow plus abnormal production costs minus abnormal discretionary expenses. Rowchowdhury (2006) model	Darmawan *et al.* (2019)
Independent			
Assets Structure	AS	Non-Current Asset □ Total Asset	Khuong *et al.*(2019)
Growth Opportunities	GO	Natural log of Dollar revenue in thousands computed as revenue divided by US annual exchange rat	Nanik and Nur (2019)
Control			
Firm Size	FSIZE	Natural log of sales in number	Shaista (2018)
Leverage	LEV	Ratio of total liability to total assets	Shittu *et al.* (2022)
Firm Age	FAGE	Different between current years minus year of listing on the stock exchange	Orazalin and Akhmetzhanov (2019)

4. Results

4.1 Descriptive Statistics

The results in Table III reveal that DA ranges between a minimum of -4.89, a maximum of 8.35 with a mean and standard deviation values of 0.038 and 0.32 respectively. Similarly, REM has a minimum value of -14.17, maximum value of 10.64, with a mean value of 0.113 as well as standard deviation value of 0.779. The low standard deviation for both DA and REM shows that majority of selected firms for the study are in the same range which indicate absence of outlier in the variable data. Moreover, the findings show that AS, GO, FSIZE, LEV and FAGE each range between minimum values of 0.005, 0.003, 2.98, -12.33 and 1.00 and maximum values of 99.88, 8.54, 9.31, 97.81 and 126.00 respectively. This indicate that there is a wide gap between explanatory variables. In addition, the findings show that kurtosis values for study variables are moderately low which indicate normal distribution of data to the centre. More so, except for firm size other variables under study were positively skewed and implies that most of the data are on the right side of the normal curve.

Table III. Descriptive Statistics

Variable	Min.	Max.	Mean	Standard Deviation	Kurtosis	Skweness	Observation
DA	-4.894	8.349	0.038	0.320	16.075	6.134	3,069
REM	-14.172	10.636	0.113	0.779	6.252	2.055	3,069
AS	0.005	99.879	54.158	23.776	2.086	0.200	3,069
GO	0.003	8.545	0.905	1.469	8.559	2.454	3,069
FSIZE	2.979	9.306	6.591	1.075	2.914	-0.366	3,069
LEV	-12.331	97.810	20.666	17.692	13.200	5.473	3,069
FAGE	1.000	126.000	28.279	19.348	4.574	1.192	3,069
Sampled Firms	279	279	279	279	279	279	279

Source: *Authors' Computation,* (2023)

4.2. Correlation Matrix and Multicolinearity Test

The degree of association between the dependent and explanatory variables and Variance Inflation Factor (VIF) to test for multicolinearity shown in the Table 4 below.

Table IV. Correlation Matrix and Variance Inflation Factors (VIF)

Variable	DA	REM	AS	GO	FSIZE	LEV	FAGE	VIF
DA	1.000							
REM	0.051	1.000						
AS	0.055	0.121	1.000					1.51
GO	0.079	0.050	0.043	1.000				1.50
FSIZE	0.014	0.008	0.116	-0.552	1.000			1.05
LEV	0.005	0.007	0.067	0.009	0.007	1.000		1.03
FAGE	0.013	-0.004	-0.079	0.079	-0.022	0.062	1.000	1.00

Source: *Authors' Computation* (2023)

Table IV above shows positive relationship between DA and (AS, GO, FSIZE, LEV & FAGE). Similarly, except for FAGE all other study variables were positively related with REM. More so, both independent and control variables among themselves were positively related except for GO and FSIZE, AS and FAGE as well as FSIZE and FAGE. In addition, the results shows that VIF was consistently lower than (10) signifying absence of multicolinearity among the variables.

4.3 Model 1 Regression Results

This model focuses on estimating the effect of AS, GO, FSIZE, LEV and FAGE on DA.

Table V. Regression Results for Model 1

	DA Pooled OLS	DA Fixed Effect	DA Random Effect
C	-3.36 (0.001)**	-5.36 (0.000)**	-3.50 (0.000)**
AS	-6.50 (0.000)**	-1.37 (0.171)	2.04 (0.0411)**
GO	-2.09 (0.037)**	-0.92 (0.357)	5.12 (0.000)**
FSIZE	-0.14 (0.887)	6.14 (0.000)**	3.37 (0.001)**
LEV	0.03 (0.976)	-0.50 (0.614)	-0.42 (0.671)
FAGE	-0.51 (0.611)	-1.82 (0.069)	0.09 (0.925)
Adj R-Squared	0.015	0.009	0.09
F/Wald Test	10.41 (0.000)**	7.93 (0.000)**	35.41 (0.000)**
VIF	1.27		
Heteroscedasticity	1667.25 (0.000)**		
Huasman Test	40.69 (0.214)		

Source: *Authors' Computation* (2023)
Note: ** Significant at 5%

The value of F-statistic is 10.41 with significant p-value of (0.000) implies that the regression model is valid for statistical inferences. The lagrangian multiplier test also shows the presence of cross-sectional heteroskedasticity since the p-value of the residuals against the independents was significant. The presence of hetroskedasticity was corrected was corrected using transformed regression data panel fixed effect and panel random effect. Similarly, F-statistic values of 7.93 and 35.41 with wald-statistic values of (0.000) and (0.000) for fixed and random effects models respectively are statistically significant. With regards to the (R^2) coefficient of determination for the study variables was 9% systematic variations in Discretionary Accrual EMP (DA) were jointly explained by the independent variables in both fixed and random effects. Thus, there are more factors that drive DA apart from AS and GO and our control variables since about 91% was still not explained.

To test for hypotheses formulated, the random effect was selected based on the Hausman test 40.69 (0.214) results which was insignificant suggesting random effect estimation is most appropriate to interpret the model. AS- Asset Structure and GO- Growth Opportunity (random effect *β=2.04; 5.12,* p>|t|=*0.041; 0.00 <0.05* respectively) as an independent variables to DA appears to have positive and significant influence on DA. In addition, FSIZE- Firm Size (random effect *β=3.37;* p>|t|=*0.001<0.05*) positive and significantly impact on DA. However, LEV- Leverage (random effect *β=-0.42;* p>|t|=*0.671>0.05*) reveals a negative but statically insignificant influence on DA while FAGE- Firm Age (random effect *β=0.09;* p>|t|=*0.925>0.05*) shows positive but not significant effect on DA.

4.4. Model 2 Regression Results

Model focuses on estimating the effect of AS, GO, FSIZE, LEV and FAGE on REM.

Table IV. Regression Results for Model 2

	REM Pooled OLS	**REM Fixed Effect**	**REM Random Effect**
C	3.77 (0.000)**	4.68 (0.000)**	-3.69 (0.000)**
AS	-1.43 (0.153)	0.48 (0.628)	2.58 (0.010)**
GO	-2.15 (0.031)**	-0.40 (0.689)	5.54 (0.000)**
FSIZE	-2.70 (0.007)**	-3.95 (0.000)**	3.23 (0.001)**
LEV	-2.77 (0.006)**	-5.91 (0.000)**	3.35 (0.000)**
FAGE	-0.69 (0.489)	-0.68 (0.494)	0.54 (0.592)
Adj R-Squared	0.0158	0.0017	0.1146
F/Wald Test	12.76 (0.012)**	5.57 (0.000)**	43.78 (0.000)**
VIF	1.27		
Heteroscedasticity	20.11 (0.000)**		
Huasman Test	20.74 (0.478)		

Source: *Authors' Computation* (2023)

Note: ** Significant at 5%

F-statistic value of 12.76, p=(0.000) shows that the regression model is statistically significant which implies that the model is valid for statistical inferences. The lagrangian multiplier test also shows the presence of cross-sectional heteroskedasticity since the p-value of the residuals against the independents was significant. The presence of hetroskedasticity was corrected was corrected using transformed regression data panel fixed effect and panel random effect as shown in the Table 5. The F-statistic and wald-statistic value of 5.57 (0.000) and 43.78 (0.000) for fixed and random effects models respectively are statistically significant. Considering the (R^2) coefficient of determination for the study variables was 11.5% systematic variations in Real Earnings Management Practices (REM) were jointly explained by the independent variables in both fixed and random effects. Thus, there are more factors that drive DA apart from AS and GO and our control variables since about 88.5% was still not explained. To test for hypotheses formulated, the random effect was selected based on the Hausman test 20.74 (0.478)results which was insignificant suggesting random effect estimation as appropriate model to interpret the results. AS- Asset Structure and GO- Growth Opportunity (random effect $\beta=2.58;\ 5.54;\ p>|t|=0.010;\ 0.00<0.05$ respectively) as an independent variables to REM appears to have positive and significant effect on REM. More so, FSIZE- Firm Size and LEV- Leverage (random effect $\beta=3.23;\ 3.35;\ p>|t|=0.001;\ 0.000< 0.05$) reveals positive and significant influence on REM. More so, FAGE- Firm Age (random effect $\beta=0.54;\ p>|t|=0.592>0.05$) reveals a positive but statically insignificant impact on REM.

4.5 Discussion of Findings

The positive and significant influence of AS on Discretionary Accrual EMP (DA) indicates that firms with more of non-current assets to total assets engage in higher level of DA in in selected countries in sub-Saharan Africa which align with the empirical findings of Sun and Rath (2009); Das *et al.* (2018) who also establish positive and significant influence of AS on DA in Australia and India respectively. Similarly, GO positive influence on DA implies that firms with growth opportunities in selected countries in sub-Saharan Africa were associated with higher degree of DA. This findings corroborate with the results of Ningrun (2019) but differ from the outcome of Khanh and Thu (2019); Hassan and Abdulrahaman (2020) in their research works carried out in Vietnamese and Bangladesh respectively. More so, the finding submits that larger firms in selected countries in sub-Saharan Africa engage in higher levels of DA as it revealed positive and significant effect of FSIZE on DA. This may be encouraged due to the fact that larger firms likely to have more competent and experienced managers that would perfect their reported earnings in a way that will favour their own personal interest. The results is in line with the empirical findings of Mohdsuffian *et al.* (2020); Rajeevan & Ajward (2020) conducted in Malaysia and Sri Lanka respectively but differ from the works of Anabelen *et al.* (2020); Nyatichi *et al.* (2020) in Korea and Kenya respectively. More so, the negative insignificant influence of LEV on DA means that firms in selected countries in sub-Saharan Africa support the outcome of the work of Ho *et al*. (2015). In addition, positive and significant effect of FAGE on DA suggests that the year firms has spent does not determine the level of partake in EMP.

With regards to Real Earnings Management practices (REM), positive and significant effect of AS on REM suggests that firms characterized by higher asset structure in selected countries in sub-Sahara Africa engage in REM. The result agree with the research findings of Sun & Rath, (2009); Das

et al., (2018) while differ from the work of Khuong *et al.,* (2019) in a study carried out in Vietnamese. Likewise positive and negative influence of GO on REM which depict that, since higher growth opportunities led to higher REM, growing non-financial listed firms in sub-Saharan Africa countries might engage in REM behaviour in order to improve the quality of their earnings. The result is in support of research findings of Kuo *et al.* (2014) for Chinese firms, Doukakis (2014) among 22 European countries, as well as, Khuong *et al,* (2019) for energy firms in Vietnamese and Das *et al*. (2018) for India firms who found a positive influence of GO on REM while different from the results of Ho *et al.* (2015) for Chinese firms. In addition, Swai (2016) for East Africa and Hassan and Abdulrahaman (2020) for Bangladesh firms who found negative effect of growth opportunity on REM.

More so, positive and significant influence of FSIZE on REM suggests that firm size influencing higher degree of REM in selected countries in sub-Saharan Africa. This finding is consistent with the argument made by Lemma *et al.* (2013) that greater pressure to meet or beat standards and superior bargaining power with auditors, lead to a higher degree of REM. This positive result is inconsistent with the research findings of Eldiria *et al.* (2020) for North America firms. However, the result supports the research findings Ningrun *et al.* (2019) across the countries and Kim *et al.*(2020) in international settings. In addition, positive effect of LEV on REM implies that firms in selected countries in sub-Sahara Africa engaged in REM through structure of their capital. This is align with the empirical findings carried out in Jordan by Alomush *et al*, (2018), Das *et al,* (2018) for India firms, Nanik and Nur, (2019) among Indonesia firms, Abdelkarim and Zuriqi, (2019) in Palestine but differ from research findings of Paolo & Laora, (2017); Saline, (2020); Owusu *et al.,* (2020) who found negative and significant effect of LEV on REM. In addition, FAGE does not significantly influence REM in selected countries in sub-Saharan Africa.

5. Conclusion and Recommendations

The concluded that assets structure and growth opportunities positively and significantlyinfluence accrual and real EMP. Similarly, firm size has a positive and significant impact on both accrual and real EMP. However, leverage has negative and significant impact on accrual EMP while exhibit positive and significant influence on real EMP. Also, firm age has no significant influence on both accrual and real EMP.

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