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Causal Effect Relationship between Audit Committee Composition and Earnings Management among Listed Manufacturing Firms in Kenya: A Panel Fixed Effect Model Analysis

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Abstract: This project aimed to examine the effect of Audit Committee (AC) composition on Earnings Management (EM) among manufacturing firms listed in Kenya. The components of AC targeted included independence, gender diversity, expertise, age and size. The study relied on agency, stewardship and stakeholder theories. The project was based on descriptive design where all the nine manufacturing firms listed at the NSE were used in the study. The research adopted annual secondary data extracted from annual reports of the manufacturing firms. The data covered the period from eight years from 2013 to 2020 and was recorded on data collection sheets. The data in the data collection sheets were entered into a Microsoft Excel sheet. The data was panel in nature covering seven years and nine firms giving rise to 72 observations. The prepared data was exported to STATA version 15 before analysis was carried out. Measures of central tendency and dispersal including standard deviation, mean, kurtosis and skewness were generated to identify outliers and general distribution of data. Tests of OLS regression assumptions were carried out to enable the choice of the most suitable model of analysis. Finally, panel data regression was adopted. The coefficient of determination was 0.7531 implying that Audit committee composition explains 75.31% of the total variation in earnings management. The study further revealed that AC Independence, gender diversity and expertise had a significant inverse effect on EM. AC size had a direct and significant effect on EM. The effect of AC age diversity on EM was direct and significant. The study concluded that AC composition had a critical role in minimising EM among the firms studied.

Keywords: Audit Committee Composition, Earnings Management, Audit Committee Independence, Audit Committee Gender Diversity, Audit Committee Expertise, Audit Committee Size, Audit Committee Age Diversity.

1. Introduction

Globally, in an effort towards improving board governance, sub-board committees are established and delegated with various functions. A key subcommittee charged with ensuring the quality of books of accounts is the Audit Committee (Raimo, Vitolla, Marrone & Rubino, 2021). The link between Audit Committee (AC) composition and Earnings Management (EM) has been examined in the empirical literature with aspects of AC composition examined including Audit Committee independence, gender diversity, experience, size and age diversity. The link subsisting between AC independence and EM has often been inverse in most studies (Abubakar, Usmam. Anuforo, Alhaji, 2021). Additionally, the link between gender diversity of the AC and EM has been inverse in various studies (Sudarman & Hidayat, 2019. Literature has also tended to establish an inverse link subsisting between AC experience and EM (Kapkiyai, Cheboi & Komen, 2020). Finally, the causal effect link between AC size and EM has tended to be positive in various studies (Isa & Farouk, 2018). AC composition is a collective term that refers to AC independence, gender diversity, expertise, size and age (Moses, 2019). AC independence is the condition that enables the committee to perform its duties objectively (Isa & Farouk, 2018). AC gender diversity is several male or female directors within the committee as a proportion of the AC size (Chijoke-Mgbame, Boateng & Mgbame, 2020).

AC expertise is relevant auditing, accounting and financial technical skills possessed by the members of the AC (Zalata, Tauringana & Tingbani, 2018). AC size is the enumeration of the directors serving in the AC. Finally, AC age diversity represents the average age of the directors serving in the AC (Juhmani, 2017).

The composition of the AC determines its effectiveness (Juhmani, 2017). "It is paramount that the AC members be qualified and have adequate academic and work experience, especially in the area of finance, auditing and accounts. There ought to be diversity in the AC to improve the quality of output and decisions arrived at the AC meetings (Waweru, 2018). To enhance accountability and objectivity, the firm should ensure that the AC is properly constituted in terms of independence, experience, leadership and overall business knowledge (Hastuti, Setiawan & Widagdo, 2020). An effective AC is critical in assuring that financial reports are not compromised in terms of manipulation of books of accounts in what is referred to as EM (Al-Absy, Ismail & Chandren, 2018).

Various authorities have defined EM; however, there is no single definition of the concept that is generally adopted. El Diri (2017) defined EM as a management discretion action to report financial statements that depict a picture of stable financial performance. In a related definition, Kim, Kim and Zhou (2017) defined EM as conscious decisions taken by those preparing financial statements and reports according to generally accepted accounting principles (GAAPs) to present an acceptable financial performance to users of accounting information. In addition, Moratis and van Egmond (2018) define EM as the manipulation of actual financial records by taking advantage of loopholes in the GAAPs. The minimization of EM is very critical given that the executive in most cases makes decisions that are contrary to what shareholders would wish (Kjærland, Haugdal, Søndergaard & Vågslid, 2020). Managers often take advantage of managerial discretion in earnings reporting especially where controls are not adequate leading to EM. Such actions of EM lead to financial reports that are misleading the users of accounting information (Harris, Karl & Lawrence, 2019). EM results from differing and contrasting interests of the executive and the common stockholders. Therefore, it has become necessary for shareholders to incur monitoring costs by employing directors who sit in the AC to ensure that the financial reports are a true reflection of the status of books of accounts (Jordaan, De Klerk & De Villiers, 2018).

The composition of AC among the boards of listed manufacturing firms is very essential in the minimization of EM. The empirical literature existing globally has consistently established that EM among listed companies hinges on some critical aspects of AC composition including independence, expertise, gender diversity, size and age. The link existing between AC independence and EM has often been inverse in most studies (Abubakar, Usmam. Anuforo & Alhaji, 2021). Additionally, the causal effect link between AC gender diversity and EM has been inverse in various studies (Sudarman & Hidayat, 2019). Literature has also tended to establish an inverse causal effect link between AC experience and EM (Kapkiyai, Cheboi & Komen, 2020). Finally, the causal effect link between EM and AC size has tended to be positive in various studies (Isa & Farouk, 2018).

There are nine listed manufacturing and allied companies in Kenya including Carbacid Investments Ltd, East African Breweries Ltd, Mumias Sugar, British American Tobacco Kenya, Flame Tree Group Holdings Ltd, Unga Group Ltd, B.O.C Kenya Limited, Eveready East Africa Ltd and Kenya Orchards Ltd (NSE, 2020). The firms have ACs of varying composition including independence, gender diversity, size, expertise and age diversity. In the list of the listed manufacturing companies, Mumias Sugar halted most of its operations after a series of loss-making that could have been concealed by EM carried out before 2013 when the company was reporting profitability (Birgen & Bogonko, 2018). Eveready East Africa Ltd too has been reporting loss making. The government has significant shareholding in the two companies hence their failure in recent times is partly because of systematic failures by the Board of management especially the AC leading to the concealment of poor performance for some time before their poor performance became known (Sanghani, 2014).

Globally, in Indonesian firms, Siagian and Siregar (2018) evaluated the influence of AC financial skills on EM. The study revealed that AC financial expertise had a minor effect on EM. In Malaysia, Ghaleb, Al-Duais and Hashed (2021) evaluated the contribution of AC chairs' legal expertise to Real EM in energy and utilities companies. The study revealed that AC chairs with legal expertise was directly associated with Real EM practices. In the Netherlands, Mardessi and Fourati (2020) examined the association between the quality of financial reporting and AC for companies with stock floated at the Amsterdam Stock Exchange from 2010 to 2017. The study revealed that the possibility of the AC to lower real EM was based on AC gender diversity. In Nigeria, Abubakar, Usman, Anuforo, and Alhaji (2021) evaluated the influence of AC attributes on EM. The finding shows that AC size prevents managers' activities in earnings manipulations. In addition, AC financial expertise was useful in curtailing earnings manipulation practices. Locally in Kenya, Kariuki and Aluoch (2020) evaluated the contribution of AC size on the financial reporting quality in firms listed at the NSE. The study concluded that there was a direct impact of AC size on the quality of financial reports."Kapkiyai, Cheboi, and Komen (2020) examined the causal effect link between the effectiveness of audit committees and EM practices in listed firms at the Nairobi Securities Exchange (NSE). The study used a panel regression model with results showing that an effective AC aids in reducing EM. Further, having more meetings, and more directors who are independent and AC with adequate financial skills reduces EM. Kapkiyai, Cheboi and Komen (2020) excluded AC characteristics like AC gender diversity and age. The current study went a step further by seeking an answer to the research question, what is the effect of AC composition on earning management among listed manufacturing firms in Kenya?

2. Literature Review

2.1 Theoretical Review

2.1.1 Agency Theory

Mitnick (1973) advanced and Jensen and Meckling (1976) through the theory the advanced explain that an agency relationship exists where one party (principal) contracts the services of another party (agent) to represent it in a business transaction for some fees such that the principal delegates some authority and responsibility to the agent (Jensen & Meckling, 1976). In addition, agency conflict emerges when the principal' (Shareholder) and agent' (Executive) interests conflict hence the managers take actions that may not be in congruence with shareholders worth (Dalton et al., 2007). To minimise agency conflict, the principal (shareholders) may take certain actions that involve putting in place control mechanisms. Such control mechanisms are often called agency costs (Jensen & Meckling, 1976). The major agency costs include the cost of employing directors to serve on the board and monitor the work of the executive. The cost of contracting an external auditor to examine books of accounts and ensure they are a true reflection of the financial status of the firm. Notwithstanding its strengths, agency costs are an added cost in the operation of the firm hence eating into the profits of the shareholders (Wiseman, Cuevas-Rodríguez & Gomez-Mejia, 2012). In addition, always acting in the best interest of the shareholders ignores other stakeholders who have a stake in the firm like the government, employees, customers, competitors, suppliers and the public (Bosse & Phillips, 2016). The adherence to shareholders' interests may also distort and interfere with other equally important affairs like strategic focus, and investment plans hence minimising commitment to the creation of economic value (Eisenhardt, 1989). The theory is applicable in the study as it informs the variable AC composition and EM. To minimise the manager's discretionary accruals where managers manipulate books of accounts to present an acceptable financial performance. Listed firms employ directors to serve on the board of directors of which some are expected to serve in the AC to help in evaluating books of accounts and control within the organization to minimise EM by the executive. The AC is expected to monitor the work of the executive and ensure financial reports represent the true and fair view of the status of the firm."

2.1.2 Stakeholder Theory

The theory proposed by Freeman (1984) posits that firms exist to meet the interests of those having an interest in the operations and future of the organization and not just the shareholders. The attention of the theory is to those stakeholders that can hinder or improve the chances of the business to survive and thrive in the business environment (Phillips et al., 2003). The stakeholder theory also focuses on the responsibility of the executive to take care of the interests of all key stakeholders. Post, Preston and Sachs (2002), stated that stakeholders are individuals groups or other organizations that have a direct interest in the operation of the firm and are affected and can affect the operation, actions, goals and policies of the firm in question. Major stakeholders may include creditors, owners, directors, employees, government, unions, suppliers and the local community where the firm gets inputs and sells output (Kaczmarek, Kimino & Pye, 2014). To meet the concerns and interests that are often competing as well as conflicting, the firm needs to find the right balance where the critical segment of the stakeholders are considered first before the other less important stakeholders (Bridoux & Stoelhorst, 2014). Nonetheless, the theory has received its share of criticism, especially regarding the fact that it is not practical to meet the needs of all stakeholders without endangering the shareholders worth (Blattberg (2004). In addition, the theory has been criticised for not fitting the capitalist world where the interest of the owners of capital (shareholders) comes first (Mansell, 2013). In summary, the theory supports agency theory in that it extends the boundary of agency theory from just focusing on shareholders to looking into other stakeholders' interests too. The theory underpins corporate governance where the company is expected to balance the different divergent interests of various stakeholders of the firm. The company is expected to operate under the dictates of the corporate governance principles suggesting that a company should have directors serving in the AC to ensure that managers do not manipulate cooks of accounts. This is done to ensure that financial reports are of high quality and present the fair and true economic status of the firm such that different stakeholders can rely on them for various purposes and decisions.

2.2 Empirical Review

Kapkiyai, Cheboi, and Komen (2020) examined the causal effect link between the effectiveness of audit committees on EM practices in listed firms at the NSE. The study adopted longitudinal data for 13 years from 2004 to 2017. The research adopted panel regression with results showing that an effective AC aids in reducing EM. Further, having more meetings, more directors that are independent and AC with adequate financial expertise reduces EM. Kapkiyai, Cheboi and Komen (2020) excluded other AC attributes such as gender diversity of the AC as well as the age of the AC. The current study goes a step further by examining the role of AC gender and age diversity on EM. In a study in Nigeria, Abubakar, Usman, Anuforo and Alhaji (2021) evaluated the causal effect link subsisting between EM and AC attributes. The sample size was seventy-two firms that were listed in the securities exchange market studied from 2014 to 2018. The study adopted the PCSEs model. The finding shows that AC size prevents managers' activities in earnings manipulations. In addition, the result establishes that AC independence

presence on the AC controls managers' opportunistic behaviour. Abubakar, Usman, Anuforo and Alhaji (2021) were carried out in Nigeria and hence may not be wholesomely adopted in Kenyan firms due to different operating environments.

In an examination of Indonesian firms, Siagian and Siregar (2018) evaluated the relationship existing between the financial expertise of AC and EM. The sample size consisted of three hundred and eighty-four observations for the period 2012- 2014. The research used Random Effect Model (REM) regression with results revealing that the financial expertise of AC had a minor inverse influence on EM. Siagian and Siregar (2018) did not establish any major impact of AC financial expertise on EM contrary to general expectations. Besides, the study concentrated on one aspect of AC composition and a study examining other aspects of AC composition will expand the applicability of the study. Sudarman and Hidaya (2019) evaluated the causal effect link subsisting between gender diversity in the AC and EM among Indonesian firms that had floated shares. The study covered all the listed firms with data collected between 2013 and 2017. The study adopted multivariate regression analysis. The findings revealed that AC gender diversity contributed to minimising EM. Sudarman and Hidaya (2019) focused on gender diversity as an aspect of AC composition while ignoring other aspects. Another study comprehensively examining aspects of AC composition on EM is therefore critical.

Setiawan, Phua, Chee and Trinugroho (2020) evaluated the causal effect link between EM AC characteristics among firms. The research examined three hundred and ninety-three Indonesian organizations that had listed their common stock on the stock exchange market. Data was collected between 2006 and 2010 period. The research used REM and FEM where results showed that AC attributes had a major impact on EM practice. Further, AC gender diversity had an inverse influence on EM. However, AC meetings frequency and expertise had a direct influence on EM. In addition, AC size and independence did not show a significant effect on EM. However, Setiawan, Phua, Chee and Trinugroho (2020) find a direct effect of financial skills and meeting frequency on EM contrary to theoretical expectations. Ghaleb, Al-Duais and Hashed (2021) analysed the causal effect link between AC chairs' legal expertise and Real EM in Malaysian energy and utilities companies between 2013 and 2018. The study was a sample of two hundred and twenty-nine companies. The study finds that AC chairs with legal skills are significantly and positively associated with Real EM practices. The findings are inconsistent with those other studies and another study ought to be done to clear out the inconsistency.

In the Netherlands, among firms listed on the Amsterdam Stock Exchange, Mardessi and Fourati (2020) examined the relationship between the quality of financial reporting and AC for the period 2010 to 2017. The research used a panel regression model. The findings showed that the capability of AC to reduce real EM was based on AC gender diversity. However, Mardessi and Fourati (2020) was limited to gender diversity and another ought to be carried out AC attributes such as the financial experience of the AC. Dakhlallh, Rashid, Abdullah, and Shehab (2021) examined the influence of board structure on Real EM and the moderator influence of AC independence on their link. Using panel data from public companies in Jordan from 2009 to 2018, the study showed that the structure of the board affects the decisions of companies to manipulate reported earnings." Board independence exaggerates the incidence of all Real EM. CEO duality only exaggerates Real EM. AC independence weakens the influence of the board size to curb all real EM proxies and AC independence enhances the ability of the board to curb all real EM. AC independence enhances the impact of CEO duality on curbing real EM. Dakhlallh, Rashid, Abdullah and Shehab (2021) adopted AC independence as a moderating variable. Therefore, a study examining the direct influence of AC independence on EM is necessary.

Kariuki and Aluoch (2020) evaluated the contribution of AC size to the quality of financial reporting among firms listed at the NSE. The study was a census of all the 62 listed firms used as a unit of analysis. Annual data spanning 5 years from 2014 to 2018 was used in the study. The research concluded financial expertise of the AC had a direct influence on the quality of financial reports for listed firms at the NSE. The study focused on only one aspect of AC composition. In a study of Australian firms, Mollik, Mir, Monir, McIver and Bepari (2020) evaluated the direction of causation between EM and the effectiveness of AC. The data was collected from 2006 to 2009 considered as the GFC period. The research adopted FEM where the findings showed that improved audit quality reduced EM in the PCP; however, during GFC AC did not influence EM. Moreover, the expertise of AC did not influence EM. Mollik, Mir, Monir, McIver and Bepari (2020) reported future research should examine the effects the effect of other AC characteristics during and before global shocks.

3. Methodology

3.1 Research Design

A descriptive research design was adopted in this study. Descriptive designs are used in studies that do not influence the environment in which the variables are interacting but rather report on ex post facto relationships after variables have interacted in their natural environment (Kothari, 2004). Descriptive design is also concerned with establishing the causal effect relationship after the collection and analysis of relevant data using scientific methods. The design enabled the researcher to collect secondary annual data regarding AC compositions and EM to evaluate the causal effect link between AC compositions and EM.

3.2 Study Population

The research targeted all manufacturing firms listed at the NSE as of 31 December 2020. There were nine (9) listed manufacturing firms in NSE (www.nse.co.ke). The study was a census of all listed manufacturing firms at the NSE therefore no sampling was carried out with data covering the period of eight years from 2013-2020. Listed manufacturing firms were targeted since most EM happens in firms that have major inventory and manufacturing firms are a classic example of firms with the majority of resources tied in receivables and inventory. Additionally, listed manufacturing firms do publish audited financial statements hence they have ready secondary data.

3.3 Data Collection

The research adopted panel data extracted from annual reports of the manufacturing firms. The data was specifically extracted from the financial statements and statement of corporate governance. Regarding AC composition, the specific data collected included the number of members in the AC, the number of independent non-executive directors in the AC, the number of female members of the AC, number of AC members with finance/accounts/auditing experience and qualification. Regarding the EM, the specific data collected included net income from total assets, operations, cash flow from operating activities, debtors and net property, plant and equipment of all listed manufacturing companies. The data covered the period from eight years from 2013 to 2020 and was recorded on data collection sheets.

3.4 Data Analysis

The data in the data collection sheets will be entered into a Microsoft Excel sheet. The data in the Excel sheet were examined for completeness before the study variables were computed. The data was panel in nature covering seven years and nine firms giving rise to 72 observations. The prepared data was exported to STATA version 15 before analysis where measures of central tendency and dispersion such as standard deviation, mean, Kurtosis and skewness were generated to identify outliers and general distribution of data. Diagnostic tests were carried out to enable choice of the most suitable model of analysis. Finally, panel data regression was adopted. The panel data regression model adopted is presented in equation [1].

$$EM_{it} = \beta_0 + \beta_1 Ind_{1it} + \beta_2 GD_{2it} + \beta_3 Expertise_{3it} + \beta_4 size_{4it} + \beta_5 Age_{5it} + \varepsilon_{it} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots[1]$$

Where:
EM = Earnings Management is measured by discretionary accruals (the difference between total accruals and non-discretionary accruals).
Ind = Audit committee independence is measured by the ratio of independent non-executive directors in the committee to the size of the audit committee.
GD = Gender diversity is measured by the ratio of female directors in the audit committee to total membership of the Audit Committee.
Expertise = Audit committee expertise is measured by the ratio of membership of the committee having finance/accounts and auditing training and experience to the total membership of the audit committee.
size = Audit committee size is measured as the number of members of the audit committee.
Age =Audit committee age diversity is measured as the average age of the members of the Audit Committee.
β_0 is the intercept term, β_1- β_5 are the coefficient of independent variables.
ε =Error term, i= firm 1, 2, 3...9 and t = Time period 2012, 2013, 2014............................2020

3.5 Diagnostic Test

Diagnostic test was carried out before inferential analysis to examine the robustness of the regression model. The diagnostic tests were carried out to ensure classical least squares assumptions were not violated. The test included heteroscedasticity, autocorrelation, normality, multicollinearity and unit root diagnostic tests. A normality test is carried out to ensure data points are normally distributed as given by mean equaling to median (Kothari, 2004). The study adopted Kurtosis and skewness to examine the normality of data such that when the skewness statistic is zero and Kurtosis is 3 then the data is perfectly normal.
 Further, the Shapiro-Wilk test was adopted to test the normality of the data where non-normal data have a p-value less than .05 level of significance. According to Gujarati (2003), data is said to be homoscedastic if the error term depicts constant variance and mean. This means that the residuals are dispersed evenly around the mean with constant variance on either side of the mean. The absence of homoscedasticity is referred to as heteroscedasticity where the error terms are non-constant. Heteroscedasticity results in spurious regression where the standard errors are over-identified and misleading. The study used the Modified Wald test for the presence of group heteroscedasticity.   The study concluded the presence of homoscedasticity if the p-value generated is greater than 0.05 level of significance. In the presence of heteroscedasticity alone, the study can use robust standard errors. According to Kothari (2004), multicollinearity exists where the explanatory variables used in the study

are highly correlated among themselves and with the error terms. Cooper and Schindler (2006) noted that the presence of multicollinearity results in inflated parameter estimates. The research adopted variance Inflation Factor (VIF) to examine the presence of multicollinearity. VIF values greater than 5 signify the presence of multicollinearity (Kothari, 2004). Autocorrelation is said to exist only and only if residuals in one period are highly correlated with error terms in successive periods (Gujarati, 2008). The study adopted the Wooldridge Drukker test to evaluate the presence of autocorrelation where a probability value greater than 0.05 will be taken to imply the absence of autocorrelation. In case the researcher establishes the presence of autocorrelation of order one alone, the researcher will adopt panel-correlated standard errors (PCSEs) (Wooldridge, 2013).

3.6 Random or Fixed Effects

The research employed the Hausman test to decide on the suitability of random effects and fixed effects models. Wooldridge (2013) asserts that the Random effects model is preferred since the fixed effects model is only efficient in producing acceptable estimates when the data being analyzed suffers from correlation issues. Further, the fixed effects model may not be most appropriate if there is little variability of variables across time (Allison, 2009). If the P-value is greater than a 5% level of significance, a random effects model should be used. To confirm the significance of the effect of AC composition on EM, the study used an F-test where a p-value less than 5% level of significance signifies a significant effect. The p-values associated with the coefficients of the independent variables were used to test the significance of the effect of each explanatory variable on EM. The p-values less than 5% level of significance show a significant effect of the individual explanatory variable on the dependent variable.

4. Results

4.1 Descriptive Analysis

The study examined the distribution of the explanatory and outcome variables in terms of standard deviation, mean, minimum and maximum. The purpose of descriptive analysis was to establish the general nature of the data to be used for inferential analysis. The findings are presented in Table 1.

Table 1: Summary of Descriptive Statistics

	GD	Age	Ind	Expertise	size	EM
Mean	0.44505	54.5435	0.67116	0.1861	3.8254	2,530,681
Standard Deviation	0.16957	4.11494	0.17237	0.19333	0.63601	231,924
Kurtosis	3.16686	4.79457	3.2825	3.1374	2.83586	3.639546592
Skewness	0.16059	0.77472	-0.5155	0.44661	0.16007	0.121889848
Minimum	0.1806	44	0.23	0.1	3	83,635
Maximum	0.8412	63	0.9	0.63636	7	13,274,959
Count	72	72	72	72	72	72

Note: Gender Diversity (GD), Age diversity (Age), independence (Ind), Expertise (Expertise), size (size) and Earnings Management (EM).

Table 1 presents the descriptive statistical analysis. AC gender diversity was measured by the ratio of female directors in the audit committee to the total number of members of the audit committee. The mean gender diversity was 0.44 implying that there was an average of 44% of the directors in the audit committee being female. The standard deviation showed that the AC diversity of individual firms was spread around the mean with about 0.16 points. A minimum of 0.18 gives the firm that had the lowest AC gender diversity while a maximum of 0.84 gives the firm that had the highest AC gender diversity. Audit committee age diversity was measured by the average age of the directors in the AC. The mean age was 54.5 with a standard deviation of 4.1 around the mean age. The minimum of 44 shows the firm that had the youngest audit committee while the maximum of 63 shows the firm that had the oldest AC. AC independence was measured by the ratio of independent non-executive directors in the AC to the total audit committee size. The mean audit committee independence was 0.67 implying that about 67.1% of the audit committee of listed manufacturing firms in Kenya were comprised of independent non-executive directors. The minimum captured the firm that had the lowest audit committee independence at 23% and the maximum presented the firm that had the highest Audit committee independence at 90%. Audit committee expertise was measured by the ratio of members of the AC possessing finance, accounting and auditing training and experience to the total audit committee size. The mean AC expertise was 0.18 implying that about 18% of the AC membership were those directors that possessed finance, accounting and auditing training and experience. The standard deviation showed that the audit committee expertise on individual firms was spread around the overall mean by about 19%. The minimum expertise presents the firm that had the

lowest number of experts in finance, accounting and auditing at 10% while the maximum presents the firm that had the highest number of experts in finance, accounting and auditing in its audit committee at 0.63%.

Audit committee size was measured by the number of directors in the AC. The mean audit committee was 3.82 implying most audit committees had about 4 directors. The standard deviation showed that the AC sizes of individual firms were spread around the mean by about 0.63. The minimum showed that the firm with the smallest size audit committee had three (3) members while the maximum showed that the firm with the biggest size audit committee had seven (7) members. Finally, EM was measured by discretionary accruals. The mean EM was about Ksh. 2.53 million with a standard deviation of Ksh.231 thousand. The minimum EM was Ksh.83.6 thousand while the maximum EM was Ksh.13.2 million. The Kurtosis values for all variables were around three (3) and the skewness was around zero (0) hence the variables were normally distributed.

4.2 Diagnostic Tests

The study adopted Kurtosis and skewness to examine the normality of data such that when the skewness statistic is zero and Kurtosis is 3 then the data is perfectly normal. Further, the Shapiro-Wilk test was adopted to test the normality of the data where non-normal data have a p-value less than a .05 level of significance. The finding revealed almost all variables depicted normal distribution with only age being slightly skewed but generally normal. The study used the Modified Wald test for the presence of group heteroscedasticity. The study would conclude the presence of homoscedasticity if the p-value generated is greater than 0.05 level of significance. In the presence of heteroscedasticity alone, the study can use robust standard errors. The finding showed that the p-value was greater than 0.05 (p= 0.0551) implying homoscedasticity. The research adopted and variance Inflation Factor (VIF) to examine the presence of multicollinearity. VIF values greater than 5 signify the presence of multicollinearity (Kothari, 2004). The results revealed that there was no problem of multicollinearity given that all the VIF values were less than 5 and the mean VIF was also less than 5. The study adopted the Wooldridge Drukker test to evaluate the presence of autocorrelation where a probability value greater than 0.05 is taken to imply the absence of autocorrelation. The study revealed that there was no problem with serial correlation given the p-value was greater than 0.05 level of significance. The research also employed the Hausman test to decide on the suitability of random effects and fixed effects models. Wooldridge (2013) asserts that the Random effects model is preferred since the fixed effects model is only efficient in producing acceptable estimates when the data being analyzed suffers from correlation issues. If the P-value is greater than a 5% level of significance, a random effects model should be used. The results showed that the fixed effect model (FEM) was more appropriate given the p-value was less than 0.05 level of significance.

4.3 Regression Analysis

The study adopted a fixed effect model to examine the effect of AC composition on EM among listed manufacturing firms in Kenya. The study adopted a fixed effect model given that the Hausman test showed that FEM was more efficient than the REM given that the p-value was less than 0.05. The regression output consisted of coefficient of determination, F-test and t-test. Table 2 presented the fixed effect model where the overall coefficient of determination (R^2) was 0.7531 implying that AC composition explains 75.31% of the total variation in EM. The remaining variation of 24.69% was explained by variables that were not part of the study.   The p-value associated with F-test was less than 0.05 implying that the AC composition had a significant effect on EM among the listed manufacturing firms in Kenya. Further, the study sought to examine the effect of individual components of AC composition on EM. The effect of AC Independence had a significant inverse effect on EM (β_1 = -1.633, t= - 4.88, p= 0.000< 0.05). The study revealed that the effect of AC gender diversity on EM was inverse and statistically significant (β_2 = -1.27, t= 3.29, p= 0.005< 0.05). AC expertise had a significant inverse effect on EM (β_3= -1.083, t= -2.62, p= 0.047<0.05). The study also revealed that AC size had a direct but not statistically significant effect on EM (β_4= .1539, t= 0.82, p= 0.414> 0.05). The effect of AC age diversity on EM was direct and statistically significant (β_5 = 0.5168, t= 3.78, p= 0.002<0.05). Finally, the intercept term had a coefficient of β_0 = .3556 implying that when the explanatory variables are held constant at zero (0), EM was .3556. The model was thus estimated as:

$$EM_{it} = .3556 - 1.633 \textbf{Ind}_{it} - 1.27\textbf{GD}_{it} - 1.083\ \textbf{Expertise}_{it} + .1539\ \textbf{size}_{it} + .5168\textbf{Age}_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots[2]$$

Table 2: Fixed Effect Model

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Fixed-effects (within) regression          Number of obs      =          72
Group variable: ID                          Number of groups   =           9

R-sq:                                       Obs per group:
     within  = 0.5612                                         min =           8
     between = 0.8222                                         avg =         8.0
     overall = 0.7531                                         max =           8

                                            F(5,58)            =       70.81
corr(u_i, Xb)  = -0.0417                     Prob > F           =       0.000
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EM	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GD	-1.276986	.387749	-3.29	0.005	-4.114673	4.668645
Age	.516822	.136835	3.78	0.002	0.100421	1.566777
Ind	-1.633233	.334666	-4.88	0.000	-1.948878	4.315344
Expertise	-1.083274	.413216	-2.62	0.047	-2.757463	3.924015
size	.153982	.186811	0.82	0.414	-.2214302	.5293943
_cons	.3556423	4.687305	0.08	0.940	-3.063851	9.775135
sigma_u	1.1794627					
sigma_e	.80386545					
rho	.68282062	(fraction of variance due to u_i)				

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F test that all u_i=0: F(8, 58) = 6.18                      Prob > F = 0.0000
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5. Discussion

The study sought to establish the effect of Audit committee composition on earnings management among listed manufacturing firms in Kenya. The overall coefficient of determination (R^2) was 0.7531 implying that AC composition explains 75.31% of the total variation in EM. The remaining variation of 24.69% is explained by other variables, not within the scope of this study. Further, the p-value associated with F-test was less than 0.05 implying that the AC composition had a significant effect on EM among the listed manufacturing firms in Kenya. The finding agrees with Setiawan, Phua, Chee and Trinugroho (2020) who showed that AC attributes had a major impact on EM practice. Regarding the effect of each aspect of AC composition on EM, the study adopted the t-test. The study established AC Independence had a significant inverse effect on EM (β_1 = -1.633, t= - 4.88, p= 0.000< 0.05). The study showed that for every one-unit increase in AC independence, EM was reduced by 1.633 units. The inverse relationship implies that AC independence is responsible for reduced earnings management among the firms. Having more independent non-executive directors in the AC means that they will be objective in monitoring the accounting controls in place to reduce the chances of manipulation of books of accounts by the executive and employees working under them. The findings are in agreement with Kapkiyai, Cheboi, and Komen (2020) showed that having more independent AC reduces EM. Abubakar, Usman, Anuforo and Alhaji (2021) revealed that AC independence controls managers' opportunistic behaviour of manipulation of books of accounts. The study also revealed that the effect of AC gender diversity on EM was inverse and statistically significant (β_2 = -1.27, t= 3.29, p= 0.005< 0.05). A one-unit increase in gender diversity leads to a 1.27-unit decrease in EM. Having more female directors in the AC is associated with improved stewardship over the resources of the firm. Female directors are more conservative hence they tend to encourage the adoption of conservative accounting concepts and principles that are associated with tight controls over resources hence reduced earning

management opportunities. The finding is supported by Sudarman and Hidaya (2019) who revealed that AC gender diversity contributed to minimising EM. Mardessi and Fourati (2020) also showed that the capability of AC to reduce real EM was based on AC gender diversity. The study also revealed that AC expertise had a significant inverse effect on EM (β_3= -1.083, t= -2.62, p= 0.047<0.05). A one-unit increase in AC expertise was associated with a 1.083 reduction in EM. Having more AC members with expertise in finance, accounting, and auditing was advantageous to the committee as they could review audit reports with knowledge. Experienced AC members can review various controls in place in the firm to identify weaknesses to make recommendations for their strengthening. The strengthened controls reduce the loopholes that are exploited by executives and employees working under them in manipulating books of accounts. The findings agree with Siagian and Siregar (2018) revealing that the financial expertise of AC had an inverse influence on EM. Kariuki and Aluoch (2020) also revealed that the financial expertise of the AC had a direct influence on the quality of financial reports for listed firms at the Nairobi Securities Exchange. However, Mollik, Mir, Monir, McIver and Bepari (2020) had contrary findings showing that the expertise of AC did not influence EM.

The study also revealed that AC size had a direct but not statistically significant effect on EM (β_4= .1539, t= 0.82, p= 0.414> 0.05). A one-unit increase in AC size was associated with an increase in EM by .1539. The direct effect implies that having a larger than necessary AC size is associated with poor deliberations at the audit committee hence encouraging. However, the effect was not significant implying that the size of the AC was not a major factor when other aspects of AC composition were as expected. The finding conflicts with Kapkiyai, Cheboi, and Komen (2020) who showed that having more directors reduces EM. Abubakar, Usman, Anuforo and Alhaji (2021) also showed that AC size prevents managers' activities in earnings manipulations. The research showed that the effect of AC age diversity on EM was direct and statistically significant (β_5 = 0.5168, t= 3.78, p= 0.002<0.05). A one-unit increase in AC average age results in increased earnings management. The positive relationship could imply that the increased average age of the AC beyond a given point hinders their ability to minimise EM. Having very old directors may lead to increased chances of EM management by the executive as the directors in AC with advanced age may not manage to rigorously monitor internal controls as well as books of accounts.

6. Conclusions

6.1 Conclusion

The study noted that AC composition had a critical role in minimising EM among the listed manufacturing firms in Kenya. Further, the research noted that having more independent non-executive directors in the AC means that they will be objective in monitoring the accounting controls in place to reduce the chances of manipulation of books of accounts by the executive and employees working under them.   The study also held that having more female directors in the AC is associated with improved stewardship over the resources of the firm. Female directors are more conservative hence they tend to encourage the adoption of conservative accounting concepts and principles that are associated with tight controls over resources hence reduced earning management opportunities. The study also noted that having more AC members with expertise in finance, accounting, and auditing was advantageous to the committee as they could review audit reports and various internal controls in place at the firm to identify weaknesses to make recommendations for their strengthening. The strengthened controls reduce the loopholes that are exploited by executives and employees working under them in manipulating books of accounts. The study is also of the view that having larger than necessary AC is associated with poor deliberations at the audit committee hence encouraging EM. Finally, the researcher thought that having very old directors may lead to increased EM management by the executive as the directors of advanced age may not manage to rigorously monitor internal controls as well as books of accounts.

6.2 Recommendations

Given the inverse effect of AC impendence on EM, the study recommends that listed manufacturing firms ensure that their AC have more independent non-executive directors to help encourage objective review of internal controls and financial reports with a view of presenting fair and true financial status of the firm. The Nairobi Securities Exchange should also ensure that listed manufacturing firms have well-constituted audit committees in terms of independence to minimise EM. Based on the inverse relationship between gender diversity and EM, the study suggests that listed manufacturing firms incorporate more female directors in their AC to minimise EM. Female directors tend to be conservative as regards to application of accounting principles and practises hence lowering the chances of manipulation of the accounting information system of the firms. The NSE should also closely monitor the election of the board of directors to ensure more female directors are incorporated by various firms. The study also revealed an inverse effect of AC expertise on EM therefore necessitating the need for listed manufacturing firms to ensure that each AC has an expert in finance accounting or auditing or a combination of any or all. Audit committees having relevant expertise are critical in minimising the chances of manipulation of books of accounts by the executive and employees working under them. The NSE should also ensure that listed firms have relevant experts on their boards to minimise EM and ensure the stability of listed manufacturing firms. Further, the positive effect of Audit committee size on EM makes it critical that listed manufacturing firms have the right number of AC members. Having too many members

in the AC may not necessarily translate to a reduction in EM. Optimal AC sizes may help improve the quality of deliberations at the committees and policy recommendations thereof. The NSE aught also ensures that committees of the whole board for listed firms are of the right size to improve the quality of corporate governance among firms.

Finally, given the positive effect of an average of the AC members on EM, the study recommends that listed manufacturing firms not elect directors who are advanced in age to be in charge of the committee. The committee needs a blend of younger and relatively experienced directors who are energetic and can rigorously monitor the accounting information system of the firms and internal controls. The NSE should also consider setting age limits for members servicing critical committees of the board.

6.3 Limitations

The study was limited to the 9 listed manufacturing firms at the NSE hence the findings are more relevant for adoption by listed manufacturing firms. The findings may not be useful for non-manufacturing firms that possess different operating environments. Non-listed manufacturing firms should apply the findings for policy purposes with caution. The study was also limited to five aspects of audit committees including AC independence, gender diversity, expertise, size and age diversity. Other aspects of AC composition such as audit AC nationality, and experience diversity were not within the scope of the study hence the parameter estimates may differ when excluded elements of AC are added to the model. The parameter estimates should thus be applied with caution by firms making decisions. The study also adopted discretionary accruals as the measure of EM as suggested by Guo and Zhang, (2021). Even though widely used in various empirical studies, it may not capture all aspects of EM management. The study was also limited to secondary data that may not capture all aspects of AC composition and EM especially the qualitative aspects that need a composite of measures both quantitative and qualitative.

6.4 Areas for Further Studies

The breadth of the current study can be improved through various recommendations to future researchers. The current study was limited to the 9 listed manufacturing firms in Kenya. The study recommends that future researchers extend the study to non-manufacturing firms listed at the NSE. This will enhance the usefulness of the findings across listed firms regardless of their operating environment. The current study was also limited to aspects of AC composition including AC independence, gender diversity, expertise, size and age diversity. The study therefore recommends that future studies should study other aspects of AC composition that were not within the scope of the current study such as AC nationality, and experience diversity among others. This would help in generating parameter estimates that are more accurate and have added value to the current study. The study adopted discretionary accruals as the measure of EM even though widely used in various empirical studies, it may not capture all aspects of EM management. The study thus recommends that future researchers should adopt other proxies of EM management to improve the dearth of empirical studies in EM. The study also recommends that future studies should adopt primary tools of data collection for measuring AC composition and EM in addition to quantitative secondary data.

Conflicts of Interest

"The authors declare no conflicts of interest."

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