

**BOARD CHARACTERISTICS, SUSTAINABILITY REPORTING AND
EARNINGS MANAGEMENT AMONG LISTED
FIRMS IN EAST AFRICA**

By

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**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS
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DECLARATION

Declaration by Candidate

I declare that this project is my original work and has not been presented to any other institution. No part of this project may be reproduced without prior or express permission of the author and/or Moi University.

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DEDICATION

I dedicate this work to my wife Ruth, children Reagan, Reyna and Renee and friends for their immense support during the conceptualizing and writing of the project. May God bless you all.

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Special gratitude goes to the Almighty God for the gift of good health as I embarked on writing the Project. I acknowledge Moi University for offering me an opportunity to pursue my master's programme in the institution. This work would also not have been complete without the efforts of of my supervisors Dr. Nderitu Githaiga and Dr. Stephen Bitok. Dean School of business and Economics Dr. Cheboi. Head of Department Dr Naomi. May God bless you today and always. Special thanks also go to my classmates, whom we worked together in developing the project. I am also grateful to the entire School of Business and Economic fraternity for your unwavering support.

ABSTRACT

Manipulation of financial information through earnings management affect firm value and lowers investors' confidence. The recent corporate accounting scandals at Enron, WorldCom, Mumias, Uchumi, among others, is an indicator of managerial motive in earnings management and the need for an effective board in mitigating opportunistic managerial behaviours. Although prior studies have examined the relationship between board characteristics and earnings management the findings are inconclusive. Studies show that the board influences the adoption of environmental and social initiatives. Similarly, another stream of literature indicates that sustainability practices mitigates against unethical practices such as earnings manipulation. Therefore, this study sought to investigate whether sustainability reporting mediates the relationship between board characteristics and earnings management among listed firms in East Africa. The specific objectives were to examine the effect of; board size, board independence, board financial expertise and board gender diversity on earnings management. Additionally, the study determined whether sustainability reporting mediated the relationship between; board size, board independence, board financial expertise, board gender diversity and earnings management. The study was anchored on several theories; agency theory, signalling theory, stakeholder theory and the legitimacy theory. This study adopted the explanatory and longitudinal research designs. The target population consisted of the 122 listed firms in East Africa. However, after applying the inclusion/exclusion criteria the final sample comprised of 88 firm. Data was secondary and quantitative in nature and was for the period 2010 -2020. In total, the study had 799 firm-year observations. The data that was extracted from the firms' annual financial reports with the aid of a data collection schedule. Data was analyzed using both descriptive and inferential statistics. The results of the Hausman test determined the choice between the fixed effect and the random effect panel data estimation model. The study found out that board size ($\beta=0.233$, $\rho<0.05$), board independence ($\beta= -0.347$, $\rho<0.05$), board financial expertise ($\beta= -0.218$, $\rho<0.05$) and board gender diversity ($\beta= -0.610$, $\rho<0.05$) had a significant effect on earnings management for firms listed in East Africa securities exchange. Further the study established that sustainability reporting had a significant negative effect on earnings management ($\beta=-0.6118$, $\rho<0.05$). Moreover the study established that sustainability reporting mediates the relationship between board size ($\beta=0.061$, $\rho<0.05$), board independence ($\beta=-0.133$, $\rho<0.05$), board financial expertise ($\beta=-0.063$, $\rho<0.05$) board gender diversity ($\beta=-0.078$, $\rho<0.05$), and earnings management among listed firms in East Africa. Based on the findings, the study concluded that sustainability reporting mediated the relationship between board characteristics and earnings management. The findings have several recommendations. First, policy makers should address corporate governance mechanisms that mitigates earning management. For example, there is need for a lean board that is more independent and with a higher proportion of women. Besides, a high percentage of board members with financial expertise is effective in controlling accounting fraud. Second, there is need for voluntary and mandatory sustainability practices and disclosures as a strategy for mitigating earnings management. This study was limited to East African listed firms and four board characteristics. Therefore, future studies may consider other board attributes, unlisted firms and other institutional settings since this may shed more light on the relationship between board characteristics, sustainability reporting and earnings management.

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ABBREVIATIONS

AEM	Accruals Earnings Management
AMEX	American Express Company
ASX	Australian Stock Exchange
CEO	Chief Executive Officer
CMA	Capital Markets Authority
CSER	Corporate Social and Environmental Responsibility
DAC	Discretionary Accruals
DSE	Dar es Salaam Stock Exchange
EM	Earnings Management
ESG	Environmental Social and Governance
GAAP	Generally Accepted Accounting Principles
GRI	Global Reporting Initiative
IFRSs	International Financial Reporting Standards (IFRSs)
IPO	Initial Public Offer
IRRC	Investor Responsibility Research Center
MDGs	Millennium Development Goals
NASDAQ	National Association of Securities Dealers Automated Quotations
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange
REM	Real Earnings Management
RSE	Rwanda Stock Exchange
SOX	Sarbanes-Oxley Act of 2002
UNEP	United Nations Environment Programme

UNWCED	United Nations World Commission on Environment and Development
USE	Uganda Securities Exchange
WBCSD	World Business Council for Sustainable Development

OPERATIONAL DEFINITION OF TERMS

- Board characteristics:** it is the attributes of the board.
- Board financial expertise:** the proportion of board members who have the knowledge and experiences in accounting and financial reporting, internal controls and auditing to the total number of directors.
- Board gender:** is the percentage of female directors on the board
- Board independence:** is the ratio of the number of independent directors to total board size
- Board size:** as total number of directors on the board.
- Earning management:** as the process of taking conscious steps within the range of generally accepted accounting principles (GAAP) to close the reported profits to the desired profit level
- Sustainability reporting:** is the reporting by companies or organizations on the economic, environmental, and social impacts caused by their daily activities.

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter discusses the background of the study, the institutional setting, the statement of the problem, the objectives, the significance of the study and the scope.

1.1 Background of the Study

The wave of massive accounting fraud involving large corporations such as Enron, WorldCom, Xerox, Royal Ahold, HealthSouth, and so on has elicited a lot of interest among policy-makers, practitioners and scholars on earnings management practices (Shen & Chih, 2007). Furthermore, since financial ratios remain the most widely used measure of firm performance, it is not surprising that a vast body of empirical financial and accounting literature pays considerable emphasis on determinants of firms' earnings quality. In addition, there is a growing attention on the adoption of international financial reporting standards (IFRSs) and the quality of reported earnings, which makes earnings management (EM) an essential subject in accounting literature (Callao & Jarne, 2010).

While Schipper (1989) and Healy and Wahlen (1999) view earnings management as the alternation of firms' reported economic performance by insiders to either "mislead some stakeholders" or to "influence contractual outcomes." Gaviious, Segev and Yosef (2012) views earnings management as the practice of making discretionary accounting choices to achieve the desired level of reported earnings. According to Krishnan and Parsons (2008), earnings management involves "selecting accounting estimates that result in reporting earnings that are advantageous to the company or its managers at the expense of external stakeholders."

Accounting data is a tool that helps monitor and regulates the contractual relations between the firm and its stakeholders (Holland & Ramsay, 2003). Therefore, information asymmetries between insiders and outsiders reduce the likelihood that insiders are replaced and lower the threat of firm takeovers (Jensen & Ruback, 1983; Shleifer & Vishny, 1997). In addition, the executives tend to be more entrenched and derive private benefits by consuming perquisites, shirking, building empires, or diverting profits and assets at the expense of shareholders (Jensen & Meckling, 1976). Zingales (1994) and Shleifer and Vishny (1997) argue that insiders have a natural incentive to hide their private control benefits by engaging in earnings management to dilute their rent-seeking activities from outsiders. Specifically, manipulation of earnings is used to reduce outside interference and protect insiders' private control benefits. For instance, insiders can use their discretion in financial reporting to inaccurately reflect firm performance and consequently weaken outsiders' ability to govern the firm (Desender, Castro & De León, 2011).

Studies show that debt contracting may compel firms to avoid reporting losses or earnings decreases. For instance, earnings manipulations reduces the likelihood of financial covenants being violated (Franz, HassabElnaby & Lobo, 2014). Besides, investors who are concerned with the stock returns examine the earnings frequently. This amplifies capital market pressure, which in turn creates a further incentive for managers to engage in earnings manipulation (Kałdoński, Jewartowski & Mizerka, 2020). In addition, the systematic analysis of firms' financial performances by financial analysts and stockbrokers over the last two decades puts further pressure on firms to maintain earnings momentum to fulfill the expectation of the market (De Jong *et al.*, 2014). Consequently, understanding the determinants of earnings management continues to elicit a lot of debate.

Earning management is a problem facing both developed and developing economies. However, this practice poses a greater threat to emerging and developing region that are characterized by weak legal protection of minority shareholders' interests and concentrated ownership structures. The last decade saw several listed companies in East Africa report losses years in a row for instance (Uchumi Supermarket, Mumias Sugar Company) and banks such as Dubai Bank, Imperial Bank, and most recently Chase bank, which is under receivership. The World Economic Forum (2012) reported that scandals involving companies listed at the Nairobi Securities Exchange (NSE) and the Dar es Salaam Securities Exchange (DSE) have adversely affected investors confidence and raised questions on the integrity of the auditing and reporting standards, the strength of investor protection and the protection of minority shareholders. Additionally, a survey by Ernst and Young (2013) indicates that 53 percent of the respondents believed that their companies had overstated their financial performance. In response, the regulators have proposed a raft of stringent measures to strengthen corporate governance mechanisms. For instance, the Kenya Capital Market Authority (CMA) revised the mandatory CG code for listed companies in 2015 contrary to the spirit of the current voluntary "comply and explain" CG code (CMA, 2014).

The increasing cases of earnings management have led to companies issuing profit warnings. According to the NSE, these profit alerts have been blamed on weak local currency, accounting fraud, and increased competition (The East African, 2015). In all these cases, firms underreported their liabilities, overstated assets, included fictitious loans and cash balances, and over-stated income to meet analyst expectations.

Studies on earnings management are becoming the subject of recent empirical studies in financial economics. Moreover, it has been a tremendous and consistent concern among practitioners and regulators and has received substantial consideration in the

accounting literature. Prior studies on earnings management have shown that weak board characteristics mechanisms are associated with more significant earnings management (Chi *et al.*, 2015; Bekiris & Doukakis, 2011). The critical function of board characteristics in financial reporting is to ensure strict compliance with generally accepted accounting principles (GAAP) and maintain corporate financial statements' credibility. Therefore, firms with strong governance mechanisms are expected to have fewer incentives for managers to engage in earnings management due to effective management monitoring in the financial reporting process. Besides, many countries have adopted corporate governance codes and adopted International Financial Reporting Standards (IFRS) to control ethical lapses and improve financial information reliability.

Though previous studies in the area have emphasized the importance of board characteristics such as board gender diversity (Gavious *et al.*, 2012), board independence (Asgar *et al.*, 2020), board size (Kolsi, & Grassa, 2017) and board financial expertise (Kankanamage, 2015; Bala & Gugong, 2015) in mitigating earnings management, their findings are inconclusive therefore difficult to generalize.

While the primary responsibility of the board of directors is to ensure that agents (managers) utilize the assets to maximize shareholders' value, the board is also expected to ensure that the agent adheres to legal requirements to prevent unlawful and unethical behaviour. Therefore, the trend now is for the board of directors to consider both the financial and social needs in setting the firm's strategic objective. Consequently, in addition to focusing on the bottom line, companies need to contribute to the well-being of their communities, environment, and societies commonly referred to as sustainability performance, which has necessitated the need for sustainability reporting.

The ethical dimensions of sustainability reporting suggest that firms seek to be ethically responsible and show their ethical behaviour through sustainable practices (Amran, Lee & Devi, 2014). Sustainable reporting promotes investor's confidence through enhanced transparency and quality of financial information, which tends to reduce the opportunistic behaviour of managers. The GRI Sustainability Reporting Guidelines defines sustainability reporting as "a process that assists organizations in setting goals, measuring performance and managing change towards a sustainable global economy – one that combines long term profitability with social responsibility and environmental care" (Global Reporting Initiative, 2013). Sustainability reporting communicates a firm's economic, environmental, social, and governance performance, reflecting positive and negative impacts on the firm's performance (Mistry, Sharma & Low, 2014; Sharma & Kelly, 2014).

Proponents of signalling theory suggest that sustainability reporting is a valuable tool that helps managers signal their trustworthiness, communicate the effectiveness of governance structures and demonstrate their firms' sustainability to internal and external stakeholders (Romero, Ruiz & Fernandez-Feijoo, 2019; Uyar & Kılıç, 2012). Rezaee and Tuo (2019) argue that disclosure of both financial and nonfinancial information to stakeholders helps in mitigating managerial opportunism and unethical earnings manipulation. Besides, Dhaliwal *et al.*, (2011) claim that sustainability reporting reduces information asymmetry between managers and investors, thus increasing firm value and reducing capital cost. Therefore, the adoption of sustainable reporting provides a sound foundation for improved quality of financial reporting.

Since corporate governance denotes the system of rules, practices, and processes by which a company is directed and controlled, it plays a significant role in the quality of sustainability reporting and earnings management. Consequently, this study seeks to

establish the effect of board characteristics on earnings management and the mediating role of sustainability reporting. In addition, there are relatively few studies conducted in this area, specifically in developing countries, which are characterized by weak legal systems, less transparent disclosure of financial reporting, and ineffective corporate governance mechanisms.

1.2 East African Securities Exchanges

The East African region consists of 6 countries, namely Kenya, Uganda, Tanzania, Burundi, Rwanda, and South Sudan. The region has 4 securities exchanges: Nairobi Securities Exchange, Uganda Securities Exchange, Dar es Salaam Stock Exchange, and Rwanda Stock Exchange. Under the umbrella of the East Africa Community, there are plans to integrate the four Exchanges to form a single East African bourse.

1.2.1 The Nairobi Securities Exchange (NSE)

Nairobi Securities Exchange is the oldest and was originally founded in 1954 as a regional exchange for Kenya, Tanzania (then Tanganyika), Uganda, and Zanzibar. However, after these countries attained independence, the exchange stopped servicing the other countries' securities markets, thus becoming the first Kenya securities exchange. The NSE changes its name from Nairobi Stock market to Nairobi Securities Exchange to allow the listing and trading of debt instruments, which has improved market liquidity.

Presently, NSE operates as a limited liability company. As of December 2020, 62 companies were listed on the Nairobi Securities Exchange. The total market capitalization was a market capitalization of Ksh 2,776.9 billion. The exchange has five market tiers: Main investments market segment, alternative investment market

segment, Growth and Enterprise Market Segment (GEMS), and Real Estate Investment Trusts (REITS) fixed income securities market segment.

1.2.2 Uganda Securities Exchange

Capital Markets Authority, acting under the provisions of the Capital Markets Authority Act (1996), enacted the stock exchanges regulations (1996) to guide the establishment and operations of a stock exchange. Following these regulator changes, the Uganda securities exchange (USE) began operating in 1998, with the East African Development Bank listing a bond that matured in December 2001. The exchange has been trading equities since 2000. Total market capitalization as of December 2020 was UGX. 18,577.94 billion (USE annual report, 2010). As of December 2013, seventeen companies were listed on the Uganda exchange.

The exchange has three segments: fixed income securities market, main investment market segment (for large companies), and alternative investment market segment (for smaller companies). Trading is currently executed via an open outcry system, and trades are settled on a T+5 basis. Recently USE harmonized listing, trading, and settlement rules and procedures with those of the NSE. The three East African exchanges plan to set up an East African central depository system and electronic trading system. Foreign investors in shares traded on the Uganda exchange are not subject to special restrictions, as with the NSE and DSE. Some several statutes and regulations regulate the operations of the Uganda Stock Exchange. The regulatory compliance of the USE is primarily monitored by the Uganda Capital Markets Authority, powers given to the body by the Capital Markets Act (Cap 84).

According to the Capital Markets Regulations (1996), the USE is mandated to engage solely in operating a stock exchange. The Capital Markets Authority is the regulator,

and its mandate is to ensure transparency of the stock exchange by obtaining detailed information before registering a stock exchange and continuously being appraised about changes in its operations.

1.2.3 Dar es Salaam Securities Exchange

The Dar es Salaam Securities Exchange (DSE) was incorporated in 1996 under the Capital Markets and Securities (CMS) Act of 1994. However, DSE became operational on 15 April 1998, with TOL Gas Limited and Tanzania Breweries Limited (TBL) becoming the first companies to be listed. The Tanzanian government introduced two-year bonds in 1997 and then five- and seven-year bonds in 2002 to lengthen the maturity profile of government debt. Two- and five-year bonds were first listed on the DSE in 2002, although only Tanzanian residents can invest in these instruments. As of early 2005, other than the Tanzanian government's bond listings, "corporate" bonds, issued by the East African development bank and BIDCO, were listed on the DSE. In May 2003, the DSE liberalized its restrictions on cross-listings to allow cross-listings by companies based in EAC partners Kenya and Uganda. In 2004 Kenya Airways was the first firm to cross-list on the DSE. In 2006 DSE implemented the automated trading, clearing, settlement, and depository systems developed by Kenya for the EAC region. This should go some way toward improving the Tanzanian exchange's market infrastructure and help increase liquidity. Government securities chiefly dominate Tanzania's small bond market of Tsh 10,533 billion.

In 2015 the Dar-es-Salaam Stock exchange re-registered to become a public limited company. The company changed its name from the Dar Es Salaam Stock Exchange Limited to the Dar Es Salaam Stock Exchange Public Limited Company. As of December 2020, the total market capitalization of the DSE was just over Tsh 16445.17

billion (DSE annual report, 2020). As of September 2013, there were thirteen equity listings on the exchange. Currently, DSE has 28 listed firms

1.2.4 The Rwanda Stock Exchange (RSE)

Rwanda Stock Exchange was incorporated in 2005 but officially launched in January 2011. The RSE is operated under the jurisdiction of Rwanda's Capital Market Authority (CMA), established under Law No.23 (2017) and previously known as Capital Markets Advisory Council (CMAC), which was established by the Prime Minister's Order of 28 March 2007 to initially guide the development of a Capital Market in Rwanda.

The stock exchange's doors opened for trading on 31 January 2011. That day coincided with the first day of trading in the stock of Rwanda's only brewery, Bralirwa, which trades as BLR. The Rwanda Stock Exchange replaced Rwanda over the Counter Exchange that had been in operation since 2008, with two companies listed, namely Kenya Commercial Bank Group (KCB) listed on 18 June 2009 and National Media Group (NMG) listed on 2 November 2010.

As regards the stock markets, the Rwanda Stock Exchange (RSE) has 10 active firms with a market capitalization of approximately USD 3,627 million(2020). RSE is a member of the African Stock Exchanges Association and operates closely with the NSE, DSE, and USE. There are plans to integrate the four stock exchanges to form a single East African bourse. As of April 2014, the RSE trades five listed local and East African companies and trades three governments and one corporate fixed-income instrument. As of December 2020, RSE had 10 listed firms, where five are cross-listed.

1.3 Statement of the Problem

Listed firms are expected to observe a higher standard of corporate governance and disclosure regime due to the many stakeholders whose investment decisions depend on

the firm's earnings quality. Furthermore, prior studies associate earnings management with lower capital markets liquidity (Ascioglu *et al.*, 2012), a higher probability of IPO failure (Alhadab, Clacher & Keasey, 2015), and lower stock returns (Wu, Lin & Fang, 2012). Besides, shareholders' reliability of financial statements for decision-making became questionable (Fodio, Ibikunle & Oba, 2013).

High profile corporate financial scandals in developed countries, for instance Enron, Xerox, Worldcom, Aldephia, Tyco, Parmalat, One-tel, Savannah bank of the early 21st century highlighted managerial interest in reporting earnings and the board of directors' failure to protect the shareholders. In Africa, Nigeria reported the collapse of corporate bodies; Cadbury Nigeria Plc Savannah Bank, Societe Generale Bank of Nigeria, Peak Merchant Bank, Oceanic Bank, Intercontinental Bank, Union Bank, Afribank, Finbank, ETB, Springbank). In the East African region, several listed companies (Uchumi Supermarket, Mumias Sugar Company) and banks (Dubai Bank, Imperial Bank, and Chase Bank) engaged in earning manipulation and failed to report losses, subsequently subjecting investors to significant financial risks and risks and sudden stock price declines.

The unprecedented rise in earning management has drawn the attention of regulators and capital markets around the world to initiate corporate governance reforms. Consequently, the Sarbanes Oxley Act was introduced in 2000 by the United States to tackle the situation. In 2002, the Kenyan Capital Markets Authority (CMA) issued Guidelines on Corporate Governance Practices by Public Listed Companies (now the Code of Corporate Governance Practices for the Issuers of Securities to the Public, 2015), which is contrary to the previous spirit of voluntary "comply and explain" CG code (CMA, 2014).

Empirical studies emphasize that board characteristics, such as board independence, size, gender diversity, and financial expertise, affect earnings management and the quality of financial statements (Al Azeez, Sukoharsono & Andayani, 2019; Saleh, Iskandar & Rahmat, 2005); however, the findings of these studies are mixed and debatable. Some studies suggest a positive causality (Ching, Firth & Rui, 2006), others a negative relationship (Kapoor & Goel, 2017; Alves, 2014), yet some authors suggest no relationship (Sukeecheep *et al.*, 2013; Yang, Chun, & Ramadili, 2009; Hashim & Devi, 2008). Therefore, this study seeks to explore whether there exists an indirect relationship between board characteristics and earnings management.

In the aftermath of global financial scandals and increased stakeholder pressure, companies are now more sensitive toward sustainability reporting (SR). SR entails voluntarily reporting a firm's ethical values, long-term sustainability performance, and reputation (Rezaee & Tuo, 2019). Presently, the board not only monitors and controls managers' behaviors but also ensures that the company meets societal and environmental needs, which is best captured by sustainability reporting (Rezaee, 2016). Recent studies reveal that sustainability reporting reduces information asymmetry between the principal and the agent; thus, mitigating opportunistic managerial behaviours (Al-Shaer, 2020).

Despite the extensive research on board characteristics and earning management, no study has investigated the link between board characteristics, sustainability reporting and earnings management. Consequently, this study provides the earliest empirical research examining whether sustainability reporting mediates the relationship between board characteristics and earning management among listed firms in East Africa, considered a developing region. Further, the implementation of sustainability reporting

and corporate governance codes are still in their early stages in developing and emerging markets compared to developed countries.

1.4 General Objectives

The main objective of this study was to determine the mediating effect of sustainability reporting on the relationship between board characteristics and earnings management among listed firms in East Africa.

1.4.1 Specific Objectives

The study was guided by the following specific objectives.

1. To analyze the effect of board size on earnings management among listed firms in East Africa.
2. To examine the effect of board independence on earnings management among listed firms in East Africa.
3. To assess the effect of board financial expertise on earnings management among listed firms in East Africa.
4. To examine the effect of board gender diversity on earnings management among listed firms in East Africa.
5. To determine the mediating role of sustainability reporting on the relationship between:
 - a) Board size and earnings management among listed firms in East Africa.
 - b) Board independence and earnings management among listed firms in East Africa.
 - c) Board financial expertise and earnings management among listed firms in East Africa.
 - d) Board gender diversity and the earnings management among listed firms in East Africa.

1.4.2 Research Hypotheses

This study sought to address the following research hypotheses;

H₀₁: Board size has no significant effect on earnings management among listed firms in East Africa.

H₀₂: Board independence has no significant effect on earnings management among listed firms in East Africa.

H₀₃: Board financial expertise has no significant effect on earnings management among listed firms in East Africa.

H₀₄: Board gender diversity has no significant effect on earnings management among listed firms in East Africa

H₀₅: Sustainability reporting does not significantly mediate the relationship between;

H_{05a1}: Board size and earnings management among listed firms in East Africa

H_{05a2}: Board independence and earnings management among listed firms in East Africa

H_{05a3}: Board financial expertise and earnings management among listed firms in East Africa

H_{05a4}: Board gender diversity and earnings management among listed firms in East Africa

1.5 Significance of the Study

The findings of this study are helpful to several stakeholders. First, shareholders of listed firm can now understand how board attributes helps in mitigating earnings manipulation and ultimately their wealth. Accordingly, the shareholders are better informed on an ideal board composition. Similarly, with the growing interest in sustainability development, the findings of this study forms a focal point on why firms should engage in sustainability initiatives through which they can minimize earnings

manipulation. Second, the findings inform policy-makers on how to mitigate corporate accounting scandals through corporate governance guidelines on board characteristics and sustainability reporting frameworks. Third, the study contributes to the existing empirical literature by examining the indirect relationship between board characteristics on earnings management relationship through sustainability reporting.

1.6 Scope of the Study

The study sought to investigate the mediating effect of sustainability reporting on the relationship between board characteristics and earnings management among listed firms in East Africa. The study's population consisted of all listed firms in East African securities exchanges. As of 2020, the region had 122 listed firms distributed as 10 listed in the Rwanda Stock Exchange Ltd (RSE), 67 listed in the Nairobi Securities Exchange (NSE), 17 listed in the Uganda Securities Exchange (USE), and 28 listed in the Dar es Salaam Stock Exchange (DSE). The study used secondary data for the period between 2011 and 2020 to test the hypotheses. Several reasons informed the choice of the study period. First, the Rwanda Stock Exchange was launched in January 2011. Second, the Nairobi Stock Exchange Limited changed to Nairobi Securities Exchange Limited in 2010 to support trading, clearing and settling equities, debt, derivatives, and other associated instruments. Third, the Uganda Securities Exchange adopted the Settlement and Clearing Depository electronic trading system in 2010.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter discusses the main research variables comprising of earnings management, board characteristics and sustainability reporting. The chapter further examines theories suggesting the relationship between the main variables. Additionally, the section reviews related empirical studies and finally presents its conceptual framework.

2.1 Concept of Earnings Management

Extant literature depicts varied definitions of earnings management. As early as Schipper (1989) defined earnings management as "purposeful intervention in the external financial reporting process with the intent of obtaining private gain." According to Healy & Wahlen (1999), "earnings management occurs when managers use judgment in financial reporting and structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes to depend on reported accounting numbers." Additionally, Salehi *et al.*, (2020) view earnings management as the process of taking conscious steps within the range of generally accepted accounting principles (GAAP) to close the reported profits to the desired profit level.

A fundamental aspect of financial reporting systems is that cash flow derived from operations and accruals determines a firm's accounting earnings. Accrual decisions affect the reported net income by shifting the recognition of transactions and events to periods other than the related cash flows. Researchers view earnings management from two perspectives: First, the proponents of the opportunistic perspective argue that managers seek to mislead investors and other stakeholders on the economic position and performance of the firm through EM. Second, supporters of the information

perspective, first articulated by Holthausen and Leftwich (1983), conjectures that managerial discretion in the preparation of financial reports allows managers to disclose to investors their private expectations about the firm's future cash flows; implying that managers portray a good image about a company's performance. The distinction between the two perspectives suggests that EM is not always bad behaviour. For instance, Siregar and Utama (2008) examined whether companies listed on the Jakarta Stock Exchange (JSE) conduct efficient or opportunistic earnings management; the findings of this study show that the Indonesian listed companies practiced efficient earnings management.

Numerous studies have empirically documented earnings management practices (Schipper 1989; Chen, Cheng & Wang, 2015; Alves, 2011; Healy & Wahlen, 1999; Damak, 2018). Perols and Lougee (2011) examined whether previous earnings management impacts the likelihood that a firm will commit financial statement fraud and used a sample of 54 fraud firms and 54 non-fraud firms. The authors found that fraud firms are more likely to have managed earnings in prior years and that earnings management in previous years is associated with a higher likelihood that firms that meet or beat analyst forecasts or that inflate revenue are committing fraud.

Generally, debates on the earnings management issue are still ongoing among researchers, policymakers, and investors, which underscores the importance of earnings management in the accounting and finance literature. In recent days, studies are shifting to real earnings management (REM) as an alternative for earnings management practices (Cohen & Zarowin, 2010; Achleitner *et al.*, 2014). For example, Cohen, Dey and Lys (2008) stated that firms might shift manipulation practices from accrual earnings management (AEM) to REM, particularly after the Sarbanes-Oxley Act 2002. In the same context, studies have documented empirical evidence that companies are

switching to real earnings management compared to accrual earnings management that is easily detected by auditors (Hamza & Kortas, 2019; Li *et al.*, 2020).

While accruals earning management is achieved through different accounting standards and policies to represent operating activities, real earnings management is managing the normal operating activities of companies to adjust earnings according to managers' targets. Roychowdhury (2006) suggests that RE is "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing that certain financial reporting goals have been met in the normal course of operations." On the other hand, Zang (2012) views real earnings management as "a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing or structuring of an operation, investment, or financing transaction and which has suboptimal business consequences." The two definitions consider real earnings management as opportunistic managerial behaviour for advancing private interests rather than for the benefits of the company's stockholders. Several methods have been identified to manage earnings through deviations from normal business practices. These four types of real earnings management documented in the literature include sales manipulation, overproduction, abnormal cut of R&D, and abnormal cut of other discretionary expenses (Ge & Kim, 2014; Mao & Renneboog, 2015).

Although studies associate real earnings management with opportunistic managerial behaviour, using a sample of 18,267 firm years, Taylor and Xu (2010) found that the firms identified as engaging in real earnings management did not significantly negatively affect the firm's subsequent operating performances. The findings suggest that managers may manage earnings to communicate their private information about firms' prospects. They carefully evaluate the costs and benefits of real earnings

management activities to avoid hurting future performances. Additionally, Tan and Jamal (2006) argue that firms are more likely to manipulate their business activities to manage earnings in an environment of stringent accounting standards and regulations that reduce their financial reporting discretion.

2.2 Concept of Board Characteristics

The board of directors is a corporate governance mechanism used to align managerial behaviours with shareholder objectives for monitoring, disciplining, and advising (Fama & Jensen, 1983). Over two decades ago, Shleifer and Vishny (1997) defined corporate governance as "a mechanism that ensures investors in corporations get a return on their investment." This implies that board characteristics denotes a set of predetermined rules that guide executive actions for the best interest of investors. Bushman and Smith (2003) aver that corporate governance structures have two objectives. First, ensure that minority shareholders

Furthermore, in the wake of the worldwide globalization and financial scandals involving once-successful companies, securities exchanges and regulators continue to develop corporate governance codes and securities markets regulation to boost investors' confidence. In addition, public listed firms are subject to strict disclosure norms and maintain investors' protection.

The board of directors, and the respective committees, is a crucial internal governance mechanism that firms use to mitigate agency costs arising from the separation of ownership from control, which is common in modern-day corporations (Lim, How & Verhoeven, 2014). Despite being the subject of much attention from regulators and the combined code, boards display considerable cross-sectional variation. Agency theory suggests that management will act in their interest if they have the latitude to do so.

Management to construct a board that does not monitor will exploit any power conveyed by ownership.

Fama and Jensen (1983) conjecture that the board of directors is the core internal control mechanism responsible for monitoring and controlling the actions and behaviours of management (agent). It assumes the right to ratify and monitor essential decisions and hire, fire, and compensate important decision agents. Empirical studies also show that boards significantly reduce financial statement fraud or constrain accrual-based earnings management (Gallery *et al.*, 2008; Dimitropoulos, 2011; Arun, Almahrog & Aribi, 2015; Joubert & Fakhfakh, 2012).

Studies have shown that board characteristics correlate with better operating performance and market valuation (Klapper & Love, 2004; Khanchel El Mehdi, 2007; Ho, 2005). Some of the critical dimensions of board characteristics that have attracted growing research interest include board size, board independence, gender diversity, and board expertise (Cao *et al.*, 2015; Gaviious *et al.*, 2012; Asghar *et al.*, 2020; Kolsi, & Grassa, 2017; Nugroho & Eko, 2012).

2.2.1 Concept of Board Size

Both researchers and practitioners have debated the question of an ideal board size and its composition for several decades. The US Congress passed Sarbanes-Oxley Act in 2002 in the aftermath of well-publicized scandals in the for-profit world. The Act was intended to improve accountability and transparency in for-profit corporations, deter future abuses by restricting corporate board structure, and improve corporate governance in the US.

Board size is also considered an important characteristic that affects the board's effectiveness in monitoring management (Jensen, 1993). Loderer and Peyer (2002)

point out that the higher the number of members on the board, the greater the monitoring activity of management. Conversely, Jensen (1993) argues that large boards result in less effective coordination, communication, and decision-making and are more likely to control the manager.

Some previous empirical studies found a negative relation between board size and measures of firm performance (Pathan, Skully & Wickramanayake, 2007; Garg, 2007). These studies concluded that small boards are more effective and value additive because of their nimbleness and cohesiveness. Besides, communication is effective as well as coordination. Additionally, Jensen (1993) suggests attracting a lower degree of 'free-riding director problems. Other researchers have pointed out that directors in large boards cannot effectively express their ideas and opinions due to the limited time available at board meetings (Lipton & Lorsch 1992). Additionally, the individual board member's incentive to acquire information and monitor managers is low in large boards, making it easy for CEOs to control the board (Jensen 1993). In contrast, studies that find a positive relationship between board size and firm performance argue that larger boards provide better access to resources, more opportunities for networking, and additional skilled personnel, thus contributing positively towards better performance (Tanna, Pasiouras & Nnadi, 2011; Ntim, Opong & Danbolt, 2015; Rashid, 2018).

Give the importance of board size as a corporate governance mechanism; some studies have also sought to examine determinants of corporate board size. Some of the factors cited in empirical literature include firm complexity (Chen & Al-Najjar, 2012), regulatory controls and ownership (Min, 2018), firm size, growth opportunities, merger activity, and geographical expansion (Lehn, Patro & Zhao, 2009).

2.2.2 Concept of Board Independence

Lawmakers and securities exchanges around the globe continue to advocate for board independence as an essential element of good corporate governance. In addition, many countries have adopted legislation or codes prescribing higher representation of outsiders on the boards of listed companies. The earliest and most widely recognized example is the Code of Best Practice issued by the Cadbury Committee in 1992, which recommends that UK listed firms have at least three outside directors. Furthermore, Dahya and McConnell (2007) note that since 1992, 15 other countries have adopted either voluntary or mandatory standards for a minimum number of outside directors on corporate boards. The term independent directors are used interchangeably with non-executive directors and outside directors; though, not all non-executive directors are independent.

Non-executive directors are believed to play a vital role in monitoring, perhaps challenging managerial actions if needed. This assertion is supported by the agency theory that suggests that effective monitoring reduces agency costs as the agents have fewer opportunities to build their wealth at the expense of shareholders. Moreover, Fama (1980) suggests that independent directors are employed to ensure that insiders' competition stimulates actions consistent with shareholder value maximization. Besides, independent directors are also valuable tools for monitoring board activities and improving the transparency of corporate boards as they improve the firm's compliance with the disclosure requirements (Chen & Jaggi, 2000). In addition, a high-quality board will lower the incidence of financial statement frauds, which are more likely to occur in the presence of lower board independence (Cornett *et al.*, 2009)

Studies on board independence and firm performance showed mixed results. While some report a positive relationship between board independence and performance

(Uribe-Bohorquez, Martínez-Ferrero & García-Sánchez, 2018), others show a negative association (Guo & Kga, 2012). Yet some show relationship between the proportion of outside directors and firm performance (Rashid, 2018; Chen, Cheng & Wang, 2015; Khalil & Ozkan, 2016; Gallery *et al.*, 2008).

2.2.3 Concept of Board Gender

Board gender diversity has become a widely debated board characteristics area in the last two decades. Sixteen national corporate governance codes encourage the appointment of female directors; fourteen countries mandate gender quotas for publicly traded firms (Terjesen, Couto & Francisco, 2016). In addition, capital market regulators have begun addressing women's representation on the board by requesting listed firms to disclose their gender policy.

The three main theories conjecture that greater gender diversity promotes board effectiveness and firm performance, agency theory, resource dependency and gender role theory (Terjesen, Sealy & Singh, 2009). From an agency theory perspective, Francoeur, Labelle and Sinclair-Desgagné (2008) state that "women often bring a fresh perspective on complex issues, which can help correct informational biases in strategy formulation and problem-solving." The proponents of the resource dependency theory suggest that female directors bring unique and valuable resources and relationships to their boards. Ibarra (1993) also noted that, unlike male directors, female managers generally have more diverse networks.

Gender role theory by Eagly (1987) postulates that a person's gender determines their behavior and its effectiveness concerning influence. Additionally, the theory argues that male's and females' behavior are assessed in terms of how it ascribes (or diverges) from expectations of the respective gender. Therefore, the gender role theory explains how

men and women have normatively prescribed behavior with respect to communication, including influence tactics. For instance, women are expected to ascribe to more feminine roles such as sympathy and gentility; while men are considered as more assertive and aggressive (Eagly1987). The question as to whether female directors are good monitors is subject to extensive research interest. Using data from 3,876 public firms in 47 countries and controlling for a wide set of corporate governance mechanisms, Terjesen *et al.*, (2016) found that firms with more female directors have higher firm performance by market (Tobin's Q) and accounting (return on assets) measures. A study by Srinidhi, Gul and Tsui (2011), which employed panel data drawn from the S&P COMPUSTAT, Corporate Library's Board Analyst, and IRRC databases for the period 2001–2007, provide further evidence that firms with female directors, specifically in the audit committee, are characterized by better reporting discipline by managers. In addition, Lara *et al.*, (2017) who examined the relationship between female directors, gender biases, and financial statements quality, found that a larger percentage of women among independent directors is significantly associated with lower earnings management practices board of directors' characteristics of UK firms. The study employed panel data for the period 2003-2012 that yielded a sample of 4,785 firm-year observations

2.2.4 Concept of Board Financial Expertise

Board financial expertise is considered a key element in board characteristics. To monitor the preparation and reporting of financial information, the board of directors should have accounting and financial knowledge. According to Gelderen (2013), board financial expertise is defined as "the past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results in the individual's financial sophistication,

including being or having been a CEO or other senior officer with financial oversight responsibilities." Therefore, board financial expertise denotes the proportion of board members who have the knowledge and experiences in accounting and financial reporting, internal controls, and auditing to the total number of directors

Financial expertise is therefore essential in mitigating the manipulation of accounting information. As of 2003, the leading US stock markets (NYSE, NASDAQ & AMEX) adopted new sets of corporate governance rules requiring listed firms to ensure that all members of their board audit committee to be financially literate and that at least one member must have financial expertise (Agrawal & Chadha, 2005)

Prior studies show that board financial expertise is an essential determinant of quality financial statements (Kankanamage, 2015; Bala & Gugong, 2015; Xie, Davidson III & DaDalt, 2003). The findings of a study by Agrawal and Chadha (2005) among 318 US firms emphasized the importance of financial expertise among the outside directors in reducing the probability of financial restatements.

Very few studies have explored financial expertise on the board, as they focused mainly on the financial knowledge of the audit committee. Thus, there is a scarcity of studies on the relationship between board financial expertise and earnings management

2.3 Concept of Sustainability Reporting

The idea of sustainability took center stage after the United Nations declared the Millennium Development Goals (MDG) by 2000. Goal 7 of the MDGs is premised on ensuring environmental sustainability. Additionally, the Sustainable Development Goals (SDG) of 2015, which are intended to be realized by 2030, have many goals directly related to social and environmental issues. In particular, Goal 12.1 of the SDGs encourages companies, especially large and transnational companies, to adopt

sustainable practices. Again, owing to globalization, intense competition, and environmental concerns, corporations must meet the expectations of diverse stakeholders for sustainability.

UNWCED (1987) defines sustainability or sustainable development "as development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Therefore, sustainability focuses on corporate activities that enhance its ability to create long-term value for various stakeholders in a firm's context. Presently, stakeholders expect firms to disclose financial and non-financial information that reveals a holistic view of the company.

In the academic discourse, sustainability reporting is synonymously known as social reporting, corporate social and environmental reporting (CSER), or environmental reporting, which refers to the same motive and meaning, that is, to report corporate responsibility towards their stakeholders (Stiller & Daub, 2007). Sustainability reporting is an emerging concept globally and can be traced back to Europe as early as the 1960s and 1970s. Still, the proactive effort was made through the Global Reporting Initiatives (GRI) in 1997 in collaboration with United Nations Environment Programme (UNEP) (Das *et al.*, 2021). However, it was until the mid-1990s that the first sustainability report was issued, which complied with the set-up of the Global Reporting Initiative (Amran, 2012).

Sustainability reporting has been widely used to refer to a 'public report by companies to provide internal and external stakeholders with a picture of the corporate position and activities on economic, environmental and social dimensions' (WBCSD, 2002). The Global Reporting Initiative (GRI, 2006) defines sustainability reporting "as the practice of measuring, disclosing, and being accountable to internal and external

stakeholders for organizational performance towards the goal of sustainable development." Researchers have also conceived SR as an effective communication tool for business organizations to manage and balance their productive efforts with those of the environment and for companies to disclose their sustainability plans and performance and enhance stakeholder confidence (Stewart *et al.*, 2018). Amran *et al.*, (2014) also claim that sustainability reporting indicates a firm's transparency and effectiveness of its governance structure.

Sustainability initiatives are increasingly becoming commonplace in both private and public firms due to the improved understanding of businesses' impact on the environment. Therefore, the firm is voluntarily disclosing non-financial information on their websites and other media of communication. Several theories can support the practice of sustainability reporting. The agency theory, grounded on the separation of ownership from control, argues that shareholders will seek to control managers' behaviour through bonding and monitoring activities (Fama & Jensen, 1983). Therefore, the extent of disclosure helps these two parties (managers and shareholders) mitigate information asymmetry (Healy & Palepu, 2001). Ness & Mirza (1991) noted that managers tend to disclose social and environmental information if it promotes their private interest, and as long as the perceived benefits of this disclosure outweigh its related costs. Similarly, firms that divulge sustainability information tend to receive favourable perceptions regarding their corporate governance mechanism.

According to signalling theory, companies can utilize voluntary disclosures as a mechanism that provides the stock market with further information about the companies' economic reality to influence investor expectations and reduce information asymmetries (Uyar & Kılıç, 2012). In addition, it has also been argued that managers of profitable firms increase the level of disclosure to signal to investors that the firm is

profitable and to support their continuation and compensation (Oyelere, Laswad & Fisher, 2003).

Since external stakeholders hold critical resources, the resource dependence and stakeholder theories postulate that firms must meet stakeholders' expectations to gain access to such resources and maintain the contractual relationship (Erdiaw-Kwasie, Alam & Shahiduzzaman, 2015; Mokashi, Becker & Corbett, 2020; Freeman & Reed, 1983). Legitimacy theory hypothesizes that voluntary disclosure is because of public pressure. Besides, firms with poor environmental credentials tend to provide more extensive positive environmental disclosures to mitigate the bad corporate reputation (Cho & Patten, 2007).

With the increased interest in sustainability reporting, a research stream has emerged, investigating the effect of firm-specific characteristics on social and environmental reporting. Amongst the varied firm-specific attributes, board characteristics have been singled out as essential determinants of sustainability reporting because the board of directors is central to corporate governance (Shamil *et al.*, 2014; Janggu *et al.*, 2014; Al-Shaer & Zaman, 2016). In addition, Shamil *et al.*, (2014) suggest that board size and dual leadership are positively associated with sustainability reporting, and boards with female directors are negatively associated with sustainability reporting. Falikhatun *et al.*, (2020) provide additional evidence on sharia governance (sharia supervisory board, independent commissioner, board of director's meeting, and audit committee) sustainability reporting.

2.4 Theoretical Review

2.4.1 Agency Theory

The theory underpinning this study is agency theory. This theory describes the agency relationships between managers and shareholders and between shareholders and debt holders (Jensen & Meckling, 1976). In agency theory, the separation of ownership and control is seen as hallmarks of the modern corporation, using their firm-specific knowledge and managerial expertise to gain an advantage over the firm's owners, who are absent from the day-to-day affairs of the firm (Dibia & Onwuchekwa 2014). Since the managers are "in control" of the firm, the risk is that they will pursue actions in their self-interest, not the owners' interest (Jensen & Meckling, 1976).

Managers are likely to manipulate earnings to hide the firm's actual financial position, which the shareholders ought to have known. Based on theory, managers may produce a biased financial report without the opportunity of the investor to see through it. Because of the opportunistic managerial behaviour, firms ought to put in place an internal control mechanism that aligns the interest of the principal and agent through the establishment of an effective board of directors (Kapoor & Goel, 2017).

Agency theory concern is resolving the agency problem that arises from the divergent desire and goals between the principal (owner) and agent, looking into the most efficient contract governing the principal-agent relationship. Fama and Jensen (1983) suggest that the board of directors is one the most critical mechanisms in any firm's internal corporate governance structure. From an agency perspective, larger boards are more likely to be vigilant for agency problems because of the broader pool of knowledge and expertise upon which to draw (Larmou & Vafeas, 2010). The agency theory perspective also conceives that larger boards support effective monitoring by reducing CEO dominance within the board and protecting shareholders' interests (Singh

& Harianto, 1989). They pointed out that larger boards improve the bargaining position of the board concerning the CEO, and thus, larger boards are more effective in monitoring the management.

Dalton and Dalton (2005) further noted that a large board of directors increases board diversity in terms of experience, skills, and monitoring. Therefore, in the context of earnings management, increasing the size of the board is expected to reduce the discretionary accruals and improve the financial reporting quality due to the improved level of monitoring by the board of directors.

The appointment of independent directors on the corporate board is another important corporate governance mechanism. Independent outside directors are motivated to avoid colluding with managers owing to their human capital value (Fama 1980; Fama & Jensen 1983). Thus, the principal utilizes independent outside board members to monitor financial reporting and internal transactions (Peasnell, Pope & Young, 2005). Board independence focuses on the number of independent directors as expounded in the agency theory. Prior studies conclude that corporations with independent boards tend to have fewer cases of earnings management. Dimitropoulos (2011) examined the effect of board composition on earnings management and found that non-executive directors help mitigate earnings management and improve the quality of financial reporting. Similarly, Marra, Mazzola, and Prencipe (2011) find that board independence and audit committees play an essential and influential role in reducing earnings management after introducing IFRS.

Proponents of agency theory advocate for a diverse board and the inclusion of female directors to enhance board effectiveness. Gender perspectives improve the understanding of motives and the level of involvement in earnings management.

Behavioral studies, management, and financial literature show significant differences in male and female risk preferences and decision-making (Zalata, Tauringana & Tingbani, 2018). Besides, gender literature indicates that women are less aggressive and ethical than men (Siboni *et al.*, 2016; Gull *et al.*, 2019; Saona *et al.*, 2019). Previous studies further reveal that board gender is an effective monitoring tool. Specifically, board women's presence reduces the level of earnings management (Damak, 2018; Gavius *et al.*, 2012; Harakeh, El-Gammal & Matar, 2019).

The financial background of board members is essential for board effectiveness. According to Beekes, Pope and Young (2004), for efficient monitoring, the directors should have enough financial and accounting knowledge to understand the effect of financial reporting decisions. Financial expertise helps the board, particularly the audit committee, understand and interpret the complexity of financial reporting. Besides, the board can efficiently and effectively probe the managers on financial matters and understand auditors' judgment (Carcello *et al.*, 2006). The significance of board financial expertise is highlighted by SOX (2002), which states that directors should have the required experience in preparing and auditing financial statements and accounting for accruals, estimates, and reserves (Dhaliwal, Naiker & Navissi, 2010). This study uses the agency theory to hypothesize that board characteristics mitigate the likelihood of firms engaging in earnings management.

2.4.2 Signalling Theory

The agency theory is premised on the principal and agent conflict that necessitates the need for an effective board to monitor managerial behaviours. Signalling theory on the other hand explains how signals of success or failure of management (agent) are conveyed to the owner (principal) (Spence, 1974, 1973, 2002).

The theory argues that the party can reduce information asymmetry with more information signalling it to others. In this case, signalling entails communicating firm 'quality' or value through communication channels such as voluntary disclosure, product warranties, or financial accounts (Cotter, Lokman & Najah, 2011). For voluntary corporate disclosures, managers provide additional information to investors to help them in making investment decisions. Therefore, managers who expect a high level of future growth signal that to investors. Furthermore, previous studies provide evidence on the assertions of signalling theory that a high-quality firm will not shy away from informing the market about their quality (Kanagaretnam, Lobo & Whalen, 2007). Managers of firms with neutral news also have an incentive to report positive information not to be suspected of having poor results.

On the contrary, managers of firms with poor performance have incentives not to report bad news. In the same vein, Kothari, Shu and Wysocki's (2009) noted that managers tend to conceal or postpone bad information because the market reaction to bad news is higher than that of good news. However, firms also have an incentive to report bad news to avoid litigation costs for failure to disclose and to maintain the firms' equity value. Skinner (1994) argues that managers 'pre-empt' bad news (such as earnings decline) to avoid litigation and reputational costs. Hence signalling theory assumes that firms will disclose more information than is demanded. To be effective, the signal must not be unique and must conform to the actual quality of the firm (Morris, 1987). Signalling theory suggests that while engaging in sustainability reporting can impose costs; some benefits accrue to good corporate citizens (Rezaee, Dou & Zhang, 2020). Firms may engage in sustainability reporting for various strategic reasons: building a better relationship with customers, employees, and suppliers; creating branding and reputation for their high quality, socially and environmentally sensitive products and

services that can improve earnings quality; and granting fewer opportunities for earnings management. Prior *et al.*, (2008) suggest that managers may adopt discretionary actions to manage earnings in an attempt to convey favourable or unfavourable information about the firm's prospects to the capital markets. Hence, earnings manipulation can show investors the likelihood of better earnings and cash flows in the future. By engaging in voluntary disclosure of sustainability initiatives, firms lower information asymmetry because managers disclose information that signals outsiders that a firm is performing better relative to its peers. Therefore, with high disclosure quality, there would be less need for strong internal governance mechanisms to mitigate earnings management. Therefore, sustainability reporting would be sufficient in constraining inappropriate earnings management behaviour. In light of the theoretical propositions of the signaling theory, this study, the signalling theory is used to argue that by engaging sustainability reporting firms reduces information asymmetry between managers and outsiders and consequently reduces the likelihood of managers engaging in earnings management

2.4.3 Legitimacy Theory

Legitimacy theory by Dowling and Pfeffer (1975) is premised on the notion of the existence of a non-binding social contract between the organization and society. Suchman (1995) suggests the existence of two types of legitimacy. First, is the strategic legitimacy focuses on the organization's motives and desires. Neu, Warsame and Pedwell (1998) argue that legitimacy is a way of communicating and representing an organization's image. Moreover, Clarkson, Li, Richardson and Vasvari (2008) suggest that legitimacy is a combination of reactive and proactive strategies. On the other hand, Comyns (2016) defines legitimacy as the degree to which stakeholders claim immediate and urgent action. Generally, an organization operating in society receives direct and

indirect pressures from various stakeholders toward its diversified social and economic functions.

Consequently, management engages with different socially beneficial programs, or at a minimum, attempts to avoid behaviors detrimental to society and its expectations (Khan, Muttakin & Siddiqui, 2013). Organizations use ERSP as a tool to communicate to society and legitimize its environmental performance to diverse stakeholders (Comyns 2016; Lu, Abeysekera & Cortese, 2015). As legitimacy is threatened when companies breach their social contracts (e.g., environmental protection), environmental reporting can be used to mitigate these pressures (Comyns, 2016). Management believes that legitimacy not only increases opportunities to attract economic resources and reduce threats from external forces but also to ensure social and political support. Therefore, the study uses legitimacy theory to argue that sustainability reporting affect earnings management

2.5 Review of the Empirical literature

2.5.1 Board Independence and Earnings management

Chen *et al.*, (2015) sought to investigate the impact of board independence reduce earnings management after regulatory reforms requiring firms to have a majority of board members to be independent. Data on board structure was obtained from the Investor Responsibility Research Center (IRRC) during the financial data on earnings management from Compustat and stock price information from CRSP for the pre-and post-regulation period. The initial sample was 1,755 firms with board information in 2000 from IRRC; however, after removing samples with incomplete financial data, it reduced to 1,205 firms. The study found that compliant firms had no significant effect on the reduction of earnings management compared to the non-compliant ones.

Khalil and Ozkan (2016) study investigated the association between board independence, audit quality, and earnings management among Egyptian firms. The study used a sample of 1,005 non-financial Egyptian firm-year observations over the period 2005–2012. The study findings show that increasing the ratio of non-executive directors on the firm's board of directors or its audit committee does not mitigate opportunistic earnings management sufficiently.

Epps and Ismail (2009) examined the relationship between corporate governance and earnings management in the US Sample comprised of 3,126 firms drawn from 38 industries. The findings of the study indicate that a high ratio of independent directors reduces earnings management.

Cornett, McNutt and Tehranian (2009) explored the impact of board characteristics and earnings management on large US bank holding companies. The study used a sample of 46 United States BHC, which operated from 1994 through 2002 period. The authors found that more boards that are independent appear to constrain earnings management.

Gallery, Gallery and Supranowicz (2008) study examined the impact of board characteristics reforms on earnings management by using a firm fixed-effect, cross-sectional analysis of 200 firms listed on the Australian Stock Exchange (ASX) for the financial years ending in 2000 and 2005. The results of this study indicate that certain governance practices are essential in limiting earnings management. In particular, board independence and audit committee (AC) independence are associated with lower performance-adjusted discretionary accruals, a commonly used earnings management measure. However, increasing executive shareholdings provides incentives to manage earnings.

Dimitropoulos (2011) studied the link between corporate governance and earnings management in the European football industry. The studies considered a sample of 67 clubs and panel data for 2006 to 2009. The finding shows that a high proportion of independent directors, managerial ownership and institutional ownership, and small board size are associated with high-quality financial reporting through the deterioration of earnings management behaviour.

2.5.2 Board Gender and Earnings Management

Board gender diversity literature draws from multiple theories, one of which is the resource dependency theory. According to this theory, company boards are important sources providing links to the uncertain external environment. In a setting characterized by uncertainty, directors with a variety of characteristics can provide valuable links to the external environment and valuable soft assets such as skillsets and information (Hillman, Cannella & Paetzold, 2000).

Damak (2018) examined the effect of board gender diversity board on earnings management among French listed companies. The authors employed a sample of 85 companies listed in the SBF120 for the period 2010-2014. The results suggest that women on boards are effective in their monitoring role. Indeed, the findings show a significant negative effect of board women presence on earnings management practices level. However, there is no empirical evidence that board gender diversity affects the earnings management strategy. Moreover, the results reveal that some control variables significantly influence the earnings management level and strategy. Besides, more independent and bigger size are more effective in monitoring the corporate financial accounting process, as these variables negatively affect the earnings management.

Gavious, Segev and Yosef (2012) explore whether the presence of female directors on the board of directors and the audit committee determines the extent of earnings management. The sample consists of financial and non-financial information for Israeli high-technology firms listed in the USA between 2002 and 2009. The findings of this study show that accounting aggressiveness is affected by the proportion of women on the board of directors and the audit committee.

Using a sample of 60 UK firms and data for 2002 and 2009, Arun *et al.*, (2015) explore the relationship between board gender and earning management. The authors find that firms with more female and independent female directors are likely to adopt practices that restrain earnings management practices. Further, by distinguishing between high- and low-debt firms, the findings reveal those female directors have a positive effect on earnings management in low debt.

Arioglu (2020) investigates whether the carriage of female directors with specific attributes affects earnings quality. The study considers data for 2,279 companies yielding 15,842 observations extracted from all non-financial companies listed on the Borsa Istanbul between the years 2009 and 2017. The results show no statistically significant relationship between the presence of female directors on company boards and earnings management.

Harakeh *et al.*, (2019) examine the link between female directors, earnings management, and CEO incentive compensation using a sample of 1986 firm-years for 2007–2015. The findings show a positive association between earnings management and CEO incentive compensation and a negative association between female directors and earnings management.

Sun, Liu and Lan (2011) survey whether the gender of the directors on fully independent audit committees affects the ability of the committees in constraining earnings management and, thus, their effectiveness in overseeing the financial reporting process. Using a sample of 525 firm-year observations over the period 2003 to 2005, found no association between the proportion of female directors on audit committees and the extent of earnings management.

2.5.3 Board Size and Earnings Management

Several studies have examined the relationship between board size and earnings management. A study by Rahman and Ali (2006) employed a sample of 97 top companies to find that earnings management is positively related to the size of the board of directors. The findings support the view that larger boards are ineffective in their oversight duties relative to smaller boards. Conversely, Joubert & Fakhfakh (2012), who studied 180 French and Canadian listed firms' and panel data over the period 2006-2008, found that CEO stock ownership, independent monitoring, and institutional investor's property are strong determinants of earnings management; however, the effect of leadership structure and board size was insignificant.

Alves (2011) investigated the impact of the board structure on earnings management for a sample of 34 non-financial listed Portuguese companies for the years 2002 to 2007. The results of this study confirm a non-linear relationship between board size and earnings management. Further, the results indicate that discretionary accruals are negatively related to board composition. In addition, there is no evidence that an audit committee affects the levels of earnings management.

Damak (2018) studies the relationship between gender-diverse boards and earnings management: using a sample of 85 companies listed in the SBF120 and panel data for

2010-2014. The results of this study confirm that women on boards are effective in their monitoring role. Indeed, the findings show a significant negative effect of board women presence on earnings management practices level. However, there is no empirical evidence that board gender diversity affects the earnings management strategy. Moreover, the study reveals that a more independent and bigger size is more effective in monitoring the corporate financial accounting process, as these variables negatively affect earnings management.

Using a sample of 326 companies listed in the Singapore stock exchange, Ramachandran *et al.*, (2015) examined the influence of corporate governance practices on earnings management. The results show that the board size has a strong positive relationship with DAC, indicating that if the number of directors on the board is higher, it is likely to impact DAC leading to EM in Singapore.

2.5.4 Board Financial Expertise and Earnings Management

Knowledge in finance and accounting improves the board of directors' understanding of financial statements and financial reporting issues. Therefore, having such background enables directors to identify the financial statement misstatements more, and managers are less likely to manipulate earnings for self-interest. Cadbury's report (1992) states that the economic competence of non-executive board members is of particular importance for the board's effectiveness, and the results of many studies support this statement.

Kankanamage (2015), who examined the effect of board characteristics on earnings management using a sample of 160 listed firms in Sri Lanka from and panel data for 2012 to 2015, reported that board financial expertise constrains earnings management thus improving performance the financial reporting quality and transparency.

Bala and Gugong (2015) studied the effect of board characteristics on earnings management among listed food and beverages firms in Nigeria. The study considered a sample of 8 firms and panel data for 2009 to 2014. The findings show that increasing the number of board members with financial expertise places the board in a better position to detect earnings management, thus reducing the likelihood of managers engaging in earnings management.

Agrawal and Chadha (2005) examined whether corporate governance mechanisms are linked to the probability of restating its earnings. The authors used a sample of 159 US public companies that restated earnings and an industry-size matched sample of control firms. Data was for the period 2000 and 2001. The finding indicates that the probability of restatement is significantly lower in companies whose boards or audit committees include an independent financial expert

Xie *et al.*, (2003) assessed the role of the board of directors, the audit committee, and the executive committee in preventing earnings management. The sample comprised 110 firms in the S&P 500 index as listed in the June Standard and Poor's directory for 1992, 1994, and 1996. The findings show board and audit committee members with corporate or financial backgrounds are associated with firms that have smaller discretionary current accruals

2.6 Board Characteristics and Sustainability Reporting

2.6.1 Board Size and Sustainability Reporting

A study by Shamil *et al.*, (2014) sought to examine the effect of characteristics on sustainability reporting. The study considered a sample of 148 listed companies from the CSE (Colombo Stock Exchange) that were selected through stratified random sampling. Data were collected from the 2012 annual reports and the hypotheses were

tested using a hierarchical binary logistic regression. The findings of the study indicate that Board size is positively associated with sustainability reporting. Correa-Garcia, Garcia-Benau and Garcia-Meca (2020) explored the determinants of the quality of sustainability reporting in Latin American business group for the period between 2011 to 2015. The study found that board size had a significantly positive effect on sustainability report while board independence had no effect.

Mudiyanselage (2018) studied the effect of board of directors in corporate sustainability (CS) disclosure in Asia. Data was collected from a sample of 100 listed Sri Lankan companies for the years 2012 to 2016. The results of this study confirm that voluntary engage in sustainability disclosure policy have larger boards, a high proportion of independent directors and more female directors in their boards.

2.6.2 Board Independence and Sustainability Reporting

Board independence is an important aspect of corporate governance; however, its impact on voluntary disclosure is unclear. Janggu *et al.*, (2014). Assessed the impact of good corporate governance on the sustainability disclosure among listed companies in Malaysia. The sample consisted on 100 public companies. Data was analyzed using Structural Equation Modelling technique of Partial Least Squares. The findings of this study show that board size, professionalism and board designation had a significant impact on sustainability disclosure. However, board independence and board ownership were not significant in motivating sustainability disclosure. Shamil *et al.*, (2014) reported no relationship between board independence and EM among firms listed in the Colombo Stock Exchange.

Jamil, Ghazali and Nelson (2020) examined the effect of corporate governance structure on sustainability reporting among Malaysian firms. The study employed a

sample of 126 firms in the main board of Bursa Malaysia. Data was for the years 2010 and 2014. The results of this study show no association between board independence and sustainability reporting.

Buallay and AlDhaen (2018) assessed the impact of audit committee characteristics (AC) on sustainability reporting among banks listed in GCC stock exchange. The data was for the period 2013 to 2017. The study's results indicates that AC size, independency of AC members and AC meetings significantly and positively affects sustainability disclosure.

2.6.3 Board Financial Expertise and Sustainability Reporting

The existence of an effective corporate board is key in overseeing and creating strategic plans that balance the interest of multiple stakeholders. Therefore, board's skills and attributes significantly affect the strategic decisions of the firms. Thus, firms require boards that have diversified characteristics and significantly help the firms to maintain profitability with an environment-friendly atmosphere. A study by Naheed *et al.*, (2021) investigated the effect of board's financial expertise (BFE) on corporate social responsibility (CSR) disclosure in China. The study employed a sample of Chinese listed firms from 2009-2016 that yielded 3272 firm-year observations. The findings indicate that board financial expertise is positively and significantly associated with disclosure of CSR.

2.6.4 Board Gender and Sustainability Reporting

Board gender diversity may affect decision making owing to more varied perspectives and non-traditional approaches to problems. Setó-Pamies (2015) claim that gender diversity has a positive and significant impact on CSR and that female directors talent play a strategic role in enabling firms to manage their social responsibility and

sustainable practices. The presence of female directors on boards can reinforce mechanisms of stakeholder engagement and increase the credibility of corporate reports (Manetti & Toccafondi, 2012). Female directors' personality traits differ from their male counterparts (Walker, Machold & Ahmed, 2015). Furthermore, the presence of female directors in corporate boards decreases the likelihood that the firm will be involved in litigation for financial reporting fraud (Lenard *et al.*, 2017). Therefore, board gender diversity is likely to have an impact on sustainability reporting practices among firms.

Shamil *et al.*, (2014) who assessed the association between board characteristics and sustainability reporting found that the proportion of female directors was negatively associated with sustainability reporting. García-Sánchez *et al.*, (2019) examined the association between board diversity and the quality of sustainability reporting. The study used an international sample of 273 firm-year observations from 2006 to 2014. The findings show that the presence of women in supervisory and senior management positions reduced the risk of impression management strategies on sustainability disclosure.

Fernandez Feijoo, Romero and Ruiz-Blanco (2014) studied the association between board gender diversity and sustainable reporting. The study considered data drawn from 2,116 stock-exchange-listed banks over the period 2007 to 2016. Findings show a positive significant effect on the level of ESG disclosure results at 20% female board participation. Conversely, at levels above 50%, negative returns to scale manifest on ESG disclosure from female board participation.

2.7 Sustainability Reporting and Earnings Management

Stakeholders' pressures and information demands have changed significantly in recent years, and companies are required to respond accordingly (Romero *et al.*, 2019). For that reason, sustainability reporting is gradually gaining popularity as a communication instrument between a corporation and its stakeholders (Amran *et al.*, 2014). Further, sustainability reporting demonstrates a firm's transparency to its stakeholders and the effectiveness of governance structures. According to Al-Shaer (2020), sustainability reporting improves the quality of financial reporting, thus mitigating earnings manipulation.

The empirical literature on the relationship between sustainability reporting and earnings management provides mixed findings, and several studies have found a negative association. Al-Shaer (2020) explored the relationship between sustainability reporting quality and post-audit financial reporting. The study focused on FTSE 350 companies and data for 2007 to 2018. The findings indicate that firms that produce high-quality sustainability reports are significantly and negatively associated with earnings management.

Similarly, Rezaee and Tuo (2019) examined the relationship between the quantity and quality of sustainability disclosures and earnings quality using 35,110 firm-year observations for 1999 to 2015 and found that sustainability disclosure quantity is positively associated with innate earnings quality and negatively correlated with discretionary earnings quality. Thus, SR is essential in mitigating managerial earnings manipulation and unethical opportunistic reporting behavior. Alipour *et al.*, (2019) explore the association between corporate environmental disclosure quality (EDQ) and earnings quality (EQ) by using a sample of 107 Iran non-financial firms. The findings

indicate that those companies with better environmental reporting may have higher earnings quality.

2.8 The Mediating Role of Sustainability Reporting on the Board Characteristics and Earnings Management Relationship

The effect of board characteristics on earnings management is unclear, and therefore, there is a need to investigate the presence of variables that mediate the relationship. Research conducted by Janggu *et al.*, (2014) show that board size, professionalism, and designation significantly influenced sustainability disclosure. In the same vein, Chouaibi, Chouaibi, and Zouari (2021) report that board characteristics such as board size, independence, and diversity significantly affect the integrated reporting quality positively. According to Loh, Thomas and Wang (2017), the quality of a sustainability report will positively affects firm's value. Sustainability reports can also reduce agency costs (Loh *et al.*, 2017). Empirical studies show that board characteristics influences the disclosure of sustainability practices such as CSR. For instance, a study by Rouf and Hossan (2020) reported that the proportion of female directors and proportion of independent directors had a significant relationship with the CSR disclosure among listed banking sectors in Bangladesh. However, the study found that board size had no significant effect on CSR disclosure. Lagasio and Cucari (2019) also confirm that board independence, board size, and women directorship enhance environmental, social and governance (ESG) disclosure. Using a sample of firms from Latin America, Husted and de Sousa-Filho (2019) provide additional evidence that board size and independent directors have a positive and significant effect on ESG disclosure. Conversely, women on the board and CEO duality had a significantly negative effect on ESG disclosure.

Extant literature indicates that firms engaging in sustainability practices and disclosure are less likely to engage in earnings management. Using a panel dataset of 595 French

firm-year observations for the years 2010-2014, Amar and Chakroun (2018) found a negative relationship between CSR disclosure and earnings management. In the same line of research, Gerged, Al-Haddad and Al-Hajri (2020) reported significantly negative relationship between CED and EM in Kuwait; implying that environmentally responsible managers are less likely to be engaged in earnings manipulation. Employing a sample of 60 firms listed on the Italian Stock Exchange, Grimaldi *et al.*, (2020) reported a negative relationship between sustainability engagement and earnings management practices. The finding suggest that companies with a higher level of sustainability engagement are less likely engage in EM practices. The legitimacy theory also hypothesizes that firms engage in sustainability reporting to improve stakeholders' perception of the companies' image (Gerged *et al.*, 2020). Based on empirical literature there seems to be an indirect relationship between board characteristics and earnings management through sustainability reporting.

2.9 Control Variables

The study incorporated several control variables into the statistical models to isolate the effect of the explanatory variables on the dependent variables. The choice of the control variable is informed by empirical literature that show a significant relationship between the variables and earnings management.

2.9.1 Firm Age and Earnings Management

Extant literature shows that firm age is an essential determinant of earnings management. Young firms are more likely to be engaging in earnings management than older firms (Gul *et al.*, 2009). Younger firms have inadequate knowledge of the industry and have limited access to credit opportunities from banks, capital markets, and suppliers because of their new entrants status. However, older firms have a long credit history and well-established internal control and corporate governance systems.

Therefore, relative to older firms, young firms have more incentives and opportunities to engage in earnings manipulation to portray a favorable financial position to outsiders (Bansal, 2021)

2.9.2 Firm size and Earnings Management

The size of the firm is a significant determinant of earnings management. Extant literature shows two opposing views as to the firm size and EM relationship. First, large firms have more incentives for engaging in EM. Large firms have a higher likelihood of engaging in earnings manipulation due to their complex business structures (Lobo & Zhou, 2006). First, the high magnitude of operating activities makes it difficult for financial analysts and other stakeholders to detect EM; thus, creating an opportunity for managers to engage in earnings management. Second, large firms have greater bargaining power with the auditors, making the auditor waive any attempt by large firms to engage in EM.

On the contrary, large firms are less likely to engage in EM (Putra, Pagalung & Habbe, 2018). First, large firms have solid and sophisticated internal controls that deter any possible earnings management. Second, large-sized firms are usually audited by auditors from big 5 accounting firms characterized by more experienced auditors who could help prevent earnings manipulations. Finally, large firms are keen on the reputation costs that may arise from EM; therefore, these firms will put better internal control relative to small-sized firms.

2.9.3 Firm Profitability and Earnings Management

Profitability is an indicator of managers' ability to meet a company's bottom lines. The firm's effectiveness in generating a satisfactory level of profits through the utilization

of assets can also motivate managers to manipulate earnings (Mostafa & Ibrahim, 2019).

Regarding managerial compensation, the existence of bonus schemes within the firm, managers will try everything possible to earn higher bonuses (Gao & Shrieves, 2002). Similarly, the higher the reported profits, the more investors desire to infuse additional capital (Purnama & Nurdiniah, 2019). Stable profits boost investors' confidence that the company is well-performing and sustainable. Therefore, every management in companies, especially financial managers, must support a variety of efforts and hard work of any workers who joined the company to achieve the common goals that are expected as well as supporting and pay attention to any decision taken within the company so that it can run properly.

Richardson (2000) suggests a systematic relationship between information asymmetry and the level of earnings management. The presence of information asymmetry encourages managers to report untrue information, particularly when the information is linked to the measurement of a manager's performance.

2.10 Conceptual Framework

A conceptual framework is a visual demonstration of the relationship between the research variables. Earnings management is the study's dependent variable, while board characteristics are the independent variable. Board characteristics are disintegrated into board size, board independence, board financial expertise and board gender diversity. Sustainability reporting is the mediating variable, while the control variables comprise of firm size, firm age and firm performance. The conceptual framework is illustrated below.

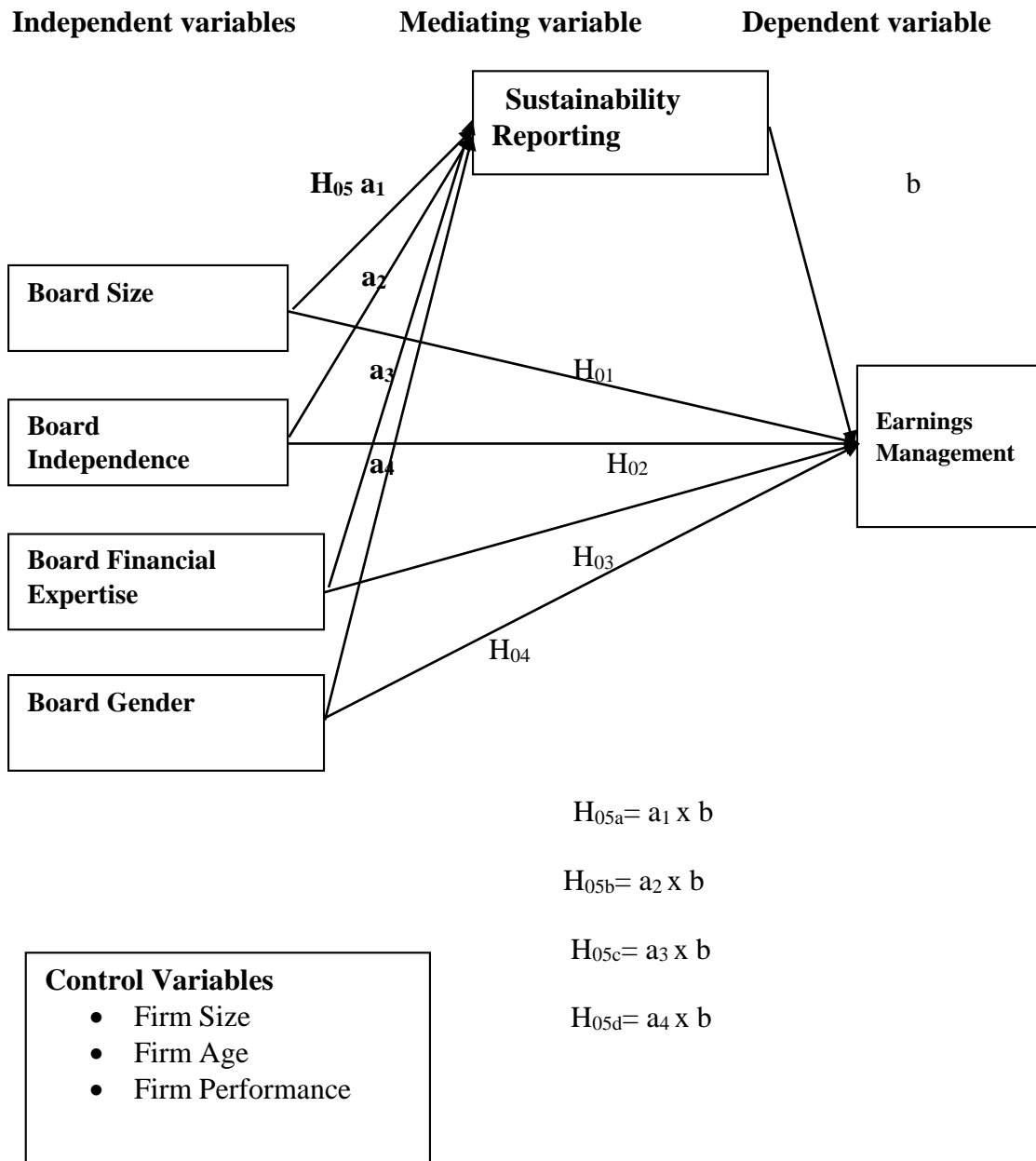


Figure 2.1: Conceptual Framework
Source: Researcher 2021

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Overview

This section gives an overview of the research design, target population, sampling techniques, model specification and measurement of the variables, data collection, data analysis and ethical consideration.

3.1 Research Design

According to Singh (2006), a research design “is a mapping strategy. It is essentially a statement of the object of the inquiry and the strategies for collecting the evidence, analyzing the evidence, and reporting the findings” The elements of research design include sampling procedures, research strategies, tools and techniques for collecting the evidence, analyzing the data and reporting the findings. Singh (2006) further claims that research design should be accurate, relevant, reliable, unbiased, and free from confounding effects.

This research is both explanatory and longitudinal. Explanatory studies seek to establish causal relationships between research variables, with the main emphasis being to study a problem to explain the relationship between variables (Saunders, Lewis & Thornhill, 2009). A longitudinal study uses continuous or repeated measures to follow specific individuals over an extended period (Caruana *et al.*, 2015). The justification of a longitudinal design is that the study used data from 2011 and 2020 to test the research hypothesis. Additionally, descriptive studies aim to develop or test a theory by identifying causal relationships that explain the change in a variable. The choice of an explanatory research design is because; this study seeks to clarify the relationship between variables

3.2 Target Population

According to Alexander (2015), a target population is a group "about which conclusions are to be made." Therefore, the target population comprises a collection of elements upon which research findings were generalized. The study population consisted of all listed firms in East Africa. Rwanda 10, Kenya 67, Uganda 17 and Dar-es-salaam Stock Exchange 28. Exclude Burundi as it doesn't have a securities exchange. After applying inclusion and exclusion criteria of eliminating cross listed companies and those which were not fully operational through the study period 2011 – 2020, 88 listed firms remained. In total the study had 792 firm year observations.

3.3 Data Collection

The study used data that was both secondary and quantitative. Secondary data is information or data that has been collected or compiled with by other researchers before the current study. Though secondary data is historical and it is considered the most unbiased and reliable. The study extracted data from the selected firm's audited annual reports.

According to Tharenou, Donohue and Cooper (2007), quantitative data comprised a set of observed or measured variables. In the same vein, Zikmund *et al.*, (2013) argue that quantitative data "is a representation of a phenomenon by assigning numbers in an ordered and meaningful way." Therefore, quantitative data is in the form of numbers and figures on which mathematical or statistical analysis and manipulation are the basis of making inferences. In this study, all the variables were represented and measured numerically.

3.4 Measurement of Research Variables

Research variables ought to be measurable to enable hypotheses testing, making inferences, and drawing conclusions. Measurement entails the operationalization of research variables. Sekaran and Bougie (2016) define the operationalization of concepts as “operationally defining a concept to render it measurable is done by looking at the behavioral dimensions, facets, or properties denoted by the concept. These are then translated into observable and measurable elements so as to develop an index of measurement of the concept”. Operationalization thus entails reducing research variables into their respective empirical measurements. The study operation operationalized the variables as follows.

3.4.1 The Dependent Variable

Drawing on previous literature, this study uses the modified Jones model proposed by Dechow, Sloan and Sweeney (1995) to estimate discretionary accruals as a measure for EM behavior. A large body of earlier studies has examined EM using abnormal accruals as a proxy for earnings manipulation (Jones, 1991; Dechow *et al.*, 1995; Defond and Subramanyam, 1998; Kasznik, 1999). Therefore, in line with prior research (Chen *et al.*, 2011; Houqe, Ahmed & Van , 2017; Orazalin and Akhmetzhanov, 2019), this study uses the modified Jones model (Dechow *et al.*, 1995) to estimate EM.

$$\frac{TA_t}{A_{t-1}} = \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 \left[\frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} \right] + \alpha_3 \left(\frac{PPE_t}{A_{t-1}} \right) + \epsilon_{it}$$

where:

TA_t – total accruals, measured as the difference between net profit and operating cash flows from activities; A_{t-1} - total assets at the end of year t-1; ΔREV_t – the difference in operating revenues in year t and year t -1; ΔREC_t - the difference in net receivables in year t and year t-1; PPE_t - property plant and equipment at the end of year t.

3.4.2 The Independent Variables

The independent variables in this study comprised of four board characteristics: board size, board independence, board financial expertise and board gender diversity.

3.4.2.1 Board Size

Board size is generally is the number of sitting directors on the board of a company. Based on prior literature, the variable is measured as the natural logarithm of the total number of directors (Ntim *et al.*, 2015; Rashid, 2018).

$$BS = \text{Natural logarithm total number of director}$$

3.4.3.2 Board Independence

Board independence is an explanatory variable in the study, and board independence is the percentage of independent outside directors on the board. An outside director is defined as someone who is not, and has not been, directly or indirectly employed by the firm, either as an employee or as a manager. This variable was measured as the ratio of an independent director to the total number of directors (Khalil & Ozkan, 2016; Mahmood & Orazalin, 2017; Suyono & Farooque, 2018).

$$BI = \frac{\text{Number of independent directors}}{\text{total number of board directors}}$$

3.5.3.3 Board Financial Expertise

Board financial expertise is viewed as key element in board characteristics, and it denotes the number of board members with knowledge in accounting and finance. Consistent with Bala and Gugong (2015), this variable was measured as the ratio of the number of board members with financial expertise to the total number of the board of director members.

$$BFE = \frac{\text{Number of directors with financial expertise}}{\text{total number of directors}}$$

3.5.4.4 Board Gender Diversity

Prior studies conceptualize board gender diversity as the presence of women in corporate boards. Accordingly, this study measured this variable as the ratio of female board members to total board members sitting on the board (Arun *et al.*, 2015; Gaviious *et al.*, 2012).

$$BGD = \frac{\text{Number of female directors}}{\text{to the total number of directors}}$$

3.4.3 Sustainability Reporting

Sustainability reporting was the mediating variable and was measured using the Sustainability Reporting Index (SRI). SRI (based on a weighted scoring method) is calculated by the ratio of actual score of sustainability reporting awarded to the maximum score attainable by the firm. The proxy variable used is SRDI (Sustainability Report Disclosure Index), regulated in GRI-G4 Guidelines. In GRI-G4 Guidelines, the disclosure of items is more than GRI-G4 Guidelines, which is 91 items. The economic dimension consists of 9 disclosures, the environmental dimension consists of 34 disclosures, and the social dimension consists of 48 disclosures. The instrument is annexed in the appendix.

3.5 Model Specification

The study used panel data for the period 2011 -2020. Since the study's main objective is to investigate the mediation effect of sustainability reporting on the board characteristics and earnings management relationship, several regression models were used. The choice between fixed-effect regression and random-effect estimation technique was based on the Hausman test results. The first model tested the impact of the control variables on earnings management, while the second regression examined the effect of board characteristics on earnings management. The third regression

SR_{it} is the sustainability reporting in period "t" for the cross-sectional unit "i"

FA_{it} is the firm age in period "t" for the cross-sectional unit "i"

FS_{it} is the firm size in period "t" for the cross-sectional unit "i"

FP_{it} is the firm performance in period "t" for the cross-sectional unit "i"

ε_{it} = error term

β_0 is the intercept.

β_1, \dots, β_n are the beta-coefficients

"i" is the cross-section units

"t" is the period (2011 to 2020)

3.6 Regression Assumptions and Panel Data Diagnostic Tests

Regression diagnostic tests are techniques for exploring problems inherent to regression analysis and determining whether certain assumptions appear reasonable. Panel data regression models have several assumptions that must hold before data analysis. These assumptions include linearity, multivariate normality, multicollinearity and homoscedasticity. Similarly, panel data diagnostic test were conducted to ascertain the suitability of the data before using the selected panel data estimation model. Specifically, the study checked for unit root, heteroskedasticity, and autocorrelation.

3.6.1 Linearity Test

Regression models assume a linear relationship between the independent variable(x) and the dependent variable(y). The premise of linearity was tested through augmented component-plus-residual plots.

3.6.2 Normality Test

Regression models assume multivariate normality, suggesting that residuals should be normally distributed. Non-normality affects sampling variance. The normality assumption assures that the p -values for the t -tests and F -test were valid. The study used Shapiro Wilk tests to test for normality. The null hypothesis for the test is normality, implying that the p -value is lower than the $\text{Prob} > \chi^2$ for normality. If p values appear greater than 0.05 then accept null hypothesis that residual are normally distributed.

3.6.3 Multicollinearity Test

Multicollinearity means that independent variables are positively correlated with each other. Multicollinearity affects accuracy in estimating the standard error of regression coefficients. Variance Inflation Factor (VIF) was test multicollinearity. According to VIF, multicollinearity is present if the values are greater than 10. The remedies for severe multicollinearity include first differencing, dropping one variable, increasing the sample size, or pooling the data (Gujarati *et al.*, 2012).

3.6.4 Homoscedasticity Test

Homoscedasticity assumes that the variance of error terms is similar across the values of the independent variable. The variance of the error term should be constant. Heteroskedasticity affects the validity of inference, the statistical power of hypothesis tests, and the accuracy of the regression coefficients' accuracy intervals. The study performed the Cameron and Trivedi's test, and the White general test. The null hypothesis of these tests is homoscedasticity, whereas the alternative hypothesis is heteroskedasticity. The p -values of $p > \chi^2$ 0.05 must be held to accept the null hypothesis.

3.6.5 Autocorrelation Test

According to Gujarati *et al.*, (2012), autocorrelation is the "correlation between members of a series of observations ordered in time." The presence of autocorrelation renders the estimated values of t, F, and χ^2 incorrect. Tests for autocorrelation in panel data include the Baltagi-Wu test, the Durbin Watson test, and the Breusch-Godfrey test. Drukker (2003) contends that these tests have numerous specification assumptions such as individual effects, need for non-stochastic regressors, and inability to work in the presence of heteroscedasticity. Therefore, the Wooldridge test was employed in this study. The absence of autocorrelation is fulfilled if % change in error(t) on (t-1)=-5

3.6.6 Unit Root Test

A fundamental assumption of regression analysis is that the time series data should be stationary. Stationarity is the probability that time series variables do not change over time. Nonstationary leads to spurious regression relationships and the validity of t-test and F-tests. Stationary infers that the mean, variance, and auto-covariance are time-invariant. The study tested for unit root using the Levin- Lin Chu, Fisher-type unit-root test based on Dickey-Fuller test. The null hypothesis (H_0) for the two tests is that all panels contain unit roots. Reject the null hypothesis when results in the test statistics yields a value of $P = \chi < 0.05$

3.6.7 The Hausman test

The choice between fixed effect and random effect regression depends on the results of the Hausman test. Fixed effect regression allows one to control for time-invariant unobserved individual effects correlated with the observed independent variables. The fixed-effect model assumes that any time-invariant characteristics are unique to an individual, hence not associated with other individuals' characteristics. The random-effect assumes that the variation across entities is random and uncorrelated with the

predictor or the independent variables (Greene, 2003). Hausman test has two hypotheses;

Ho. (Null hypothesis) where the preferred model is random-effect

Ha. (The alternative hypothesis) where the preferred model is fixed-effect.

If ρ -value < 0.05 , the null hypothesis is rejected, and the fixed-effect model should be used; otherwise, the random-effect model.

3.7 Data Analysis

Data analysis is the application of reasoning to understand the data, and it encompasses looking for consistent patterns and summarizing important details discovered in the investigation. Data analysis was preceded by data entry, data cleaning, and converting the raw data into the various proxies measuring the research variables. Data were analyzed through descriptive and inferential statistics. Descriptive statistics aims to summarize the data into mean, minimum and maximum values, and standard deviation. The study used Pearson's pairwise correlation to estimate the direction and magnitude of the research variables. The study's hypotheses were tested by interpreting the beta coefficients and ρ -values of multivariate regression estimation equations. Data was analyzed using STATA version 13 due to its wide acceptability in panel data estimation models.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Overview

This chapter presents the results of the study. The findings are presented in five key sections; descriptive statistics, diagnostic tests, correlation analysis, hypotheses testing and mediation results.

4.1 Descriptive Statistics

The descriptive statistics for the research variable over the period 2011 to 2020 are presented in table 4.1 as shown below.

Table 4.1: Summary Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EM	792	-.0332823	.3376265	-1.015912	.976693
SR	792	.3325476	.203582	.0208333	.8375
BS	792	9.046717	2.594673	4	17
BG	792	.2313	.1452774	0	.6666667
BI	792	.792354	.1233237	.2307692	1
BFE	792	.6568809	.1804466	.2	1
FA	792	63.05051	33.78346	4	169
FS	792	7.188639	.929066	5.103691	9.023028
FP	792	.058629	.0985434	-.2944799	.4827577

Source: Researcher 2021

The descriptive statistics for the untransformed data are presented in Table 4.1. The mean earnings management was -0.0333 (minimum= -1.02 and maximum = 0.977; standard deviation = 0.338). The negative mean of earnings management implies that the selected firms were generally managing earnings downwards. However, the standard deviation of earnings managements show a wide variations in earnings management across firms used in the study. The mean board size capital, was 9.0468 (minimum= 4.00 and maximum = 17; standard deviation = 2.594). Further, the average

board gender was (minimum= 0.00 and maximum = 0.667; standard deviation = 0.145). While the mean value of board financial expertise was 0.657 (minimum= 0.200 and maximum = 1.000; standard deviation = 0.180). Besides, the average firm age was 63.051 (minimum= 4.000 and maximum = 169.000; standard deviation = 33.783). Sustainability reporting had a mean value of 0.333 (minimum= 0.021 and maximum = 0.838; standard deviation = 0.204); implying low level of reporting. The average firm size was 7.189 (minimum= 0.929 and maximum = 9.023; deviation = 5.104). The average performance of the selected firm was 0.05 (minimum= -0.294 and maximum = 0.483; standard deviation = 0.099)

4.2 Robustness Checks

Prior to regression analyses, the data was subjected to several robustness tests. Namely, the normality tests, multicollinearity, unit root test, test for heteroscedasticity, autocorrelation test, and specification error test

4.2.1 Unit Root Test

Econometric models produce non-sensible or spurious regression results if data is non-stationary (Gujarati, Porter & Gunaseka, 2012). Non-stationary data refers to a data series that does not have a constant mean, variance, and auto-covariance at various lags over time. Though recent, it is increasingly becoming essential to check stationarity in panel data (Maddala & Wu, 1999). Testing for stationarity means that the mean and variance of variables are time-invariant. In economics and finance, time related or seasonal shocks of one period may strongly influence subsequent periods. This study applied Levin- Lin Chu and the Fisher-type unit-root test. The following hypotheses were considered in conducting the unit root test.

Null hypothesis (H₀): Panel data contains unit root [non-stationary].

The alternative hypothesis (H_a): Panel data is stationary.

Considering the *p*- values shown in Table 4.2, the null hypothesis was rejected at all conventional significance levels for all the study variables; implying that there was no unit root in the panel data and that the data was suitable for statistical analysis.

Table 4.2: Results of Unit Root Test

	Levin-Lin-Chu	Fisher-type unit-root test
EM	-19.91	-18.77
p value	0.00	0.00
BS	-0.001	-.259
p value	0.00	0.04
BI	-27.23	-3.70
p value	0.00	0.00
BFE	-22.52	-4.74
p value	0.00	0.02
BG	-17.94	-4.61
P value	0.00	0.00
SR	-13.73	-6.76
p value	0.00	0.00
FA	-53.73	-47.39
p value	0.02	0.00
FS	-4.62	-62.40
p value	0.00	0.05
FP	-7.59	-9.10
p value	0.00	0.02

Source: Researcher 2021

4.2.2 Normality Tests

To confirm normality Shapiro Wilk Normality test was used. The results presented in table 4.3 show that the ρ -value is greater than 0.05 value. Thus, the null hypothesis that the residuals are normally distributed cannot be rejected and the conclusion is that the data is normally distributed.

Table 4.3: Shapiro Wilk Normality test

Skewness/Kurtosis tests for Normality			----- joint -----		
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
resid	792	0.8053	0.0543	3.90	14.26

Source: Researcher 2021

4.2.3 Autocorrelation Test

Wooldridge test for autocorrelation was used to check for autocorrelation. The results presented in table 4.4 show that the ρ -values is $0.6332 > 0.05$. Therefore, the test's null hypothesis that there is no first order correlation cannot be rejected.

Table 4.4: Wooldridge test for autocorrelation

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

$$F(1, 87) = 0.229$$

$$\text{Prob} > F = 0.6332$$

Source: Researcher 2021

4.2.4 Multicollinearity

Multicollinearity implies that that two or more of the predictor variables are highly correlated. The study used the Variance inflation factor (VIF) and the correlation matrix to check for the presence or absence of multicollinearity. Multicollinearity is present if the VIF value is higher than 10 (Gujarati, 2012) or the pairwise correlation coefficients are greater than 0.8. Table 4.5 indicates that the VIF values range between 1.02 and 1.35; which, are less than 10, implying the research variables do not suffer from multicollinearity.

Table 4.5: Variance Inflation Factor

Variable	VIF	1/VIF
SR	1.35	0.741845
FP	1.34	0.745736
BS	1.19	0.843176
BG	1.18	0.845917
BFE	1.11	0.902949
BI	1.10	0.907514
FA	1.05	0.956525
FS	1.02	0.982356
Mean VIF	1.17	

Source: Researcher 2021

4.2.5 Test for Heteroskedasticity

The Breusch-Pagan/ Cook-Weisberg test were used to test for heteroskedasticity, and the results are presented in Table 4.6. The test uses a cluster-robust standard error estimator to control heteroskedasticity. Using this robust standard error estimator (cluster), the study assumed that observations should be independent across clusters. The Chi2 (1) value was *0.12* and *p-value* of *0.724* revealing that the null hypothesis was not rejected. Thus, the assumption of homoscedasticity was not violated.

Table 4.6: Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

Ho: Constant variance

Variables: Myresiduals	
chi2(1) =	0.12
Prob > chi2 =	0.724

Source: Author 2021

4.2.6 Specification Error Test

Table 4.7 highlights the results of the Ramsey RESET test. From the findings in the table, the probability values of the computed statistics in the Ramsey RESET test are more than the threshold value of 0.05; implying the model does not seem to be misspecified.

Table 4.7: Ramsey RESET (test using powers of the fitted values of FP)

Ho:	model has no omitted	Variables
	F(3, 792) =	11.97
	Prob > F =	0.08

Source: Researcher 2021

4.2.7 Correlation Analysis

The purpose of correlation analysis is to understand the nature and magnitude of the relationship between research variables. The pairwise correlation coefficients for the study variables are presented in table 4.8. Pearson pairwise correlation results in the table show that the relationship between sustainability reporting ($r = -0.155$; $\rho < 0.05$), board gender ($r = -0.350$; $\rho < 0.05$), board independence ($r = -0.110$; $\rho < 0.05$), board financial expertise ($r = -0.195$; $\rho < 0.05$) and earning management is negative and statistically significant. The association between board size ($r = 0.1321$; $\rho < 0.05$), firm age ($r = 0.168$; $\rho < 0.05$), firm size ($r = 0.168$; $\rho < 0.05$), firm performance ($r = 0.156$; $\rho < 0.05$) and earnings management is positive and statistically significant. The table further shows correlation between board gender ($r = 0.1153$; $\rho < 0.05$) board independence ($r = 0.210$; $\rho < 0.05$), board financial expertise ($r = 0.177$; $\rho < 0.05$) and sustainability reporting is positive and significant. However, the relationship between sustainability reporting and board size is negative correlated ($r = -0.213$; $\rho < 0.05$).

Table 4.8: Pairwise Correlation Matrix

	EM	SR	BS	BG	BI	BFE	FA	FS	FP
EM	1.0000								
SR	-0.1553*	1.0000							
BS	0.1321*	-0.2130*	1.0000						
BG	-0.3504*	0.1152*	0.3040*	1.0000					
BI	-0.1103*	0.2178*	0.2102*	0.0613	1.0000				
BFE	-0.1951*	0.0891*	0.1748*	0.2526*	0.1190*	1.0000			
FA	0.1677*	-0.0068	0.1873*	0.0723*	0.0357	0.0516	1.0000		
FS	0.1131*	0.0005	-0.0727*	-0.0702*	-0.0837*	-0.0747*	-0.0584	1.0000	
FP	0.1564*	-0.0194	0.0573	0.0317	-0.0575	-0.0502	0.1276*	0.0094	1.0000

*p<.05

Source: Researcher, 2021

4.3 Regression Analyses

Several regression analysis were done since the study was testing the mediating effect of sustainability reporting on the relationship between board characteristics and earnings management. The first model tested for the effect of the control variables on the outcome variable. The second model was used to determine the effect of the predictor variables on the outcome variable (*path a*). The third model tested for the effect of the predictors on the mediating variable. The final model was used to test for the mediating effect (*path b*). The outputs for model 3 and model 4 were interacted to derive *path ab* and Sobel test was applied to ascertain the significance of the mediation.

4.3.1 The Effect of the Control Variables on Earnings Management

The regression results for earnings management and the control variables are presented in table 4.9. Based on the results of the Hausman Test (Appendix IV), the fixed effect model is used for interpretations

Table 4.9: Testing the Effect of the Control Variables of Earnings Management

Fixed-effects (within) regression	Number of obs	= 792			
Group variable: COMPANYID	Number of groups	= 88			
R-sq: within = 0.2781	Obs per group: min	= 9			
between = 0.1392	Avg	= 9.0			
overall = 0.1782	Max	= 9			
	F(3,701)	= 90.03			
corr(u_i, Xb) = -0.4425	Prob > F	= 0.0000			
EM	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]
FA	.9377343	.0658475	14.24	0.000	.8084524 1.067016
FS	.0247248	.0140032	1.77	0.078	-.0027684 .052218
FP	.4549752	.0727516	6.25	0.000	.3121381 .5978123
_cons	-1.859242	.1476349	-12.59	0.000	-2.149102 -1.569383
sigma_u	.23989797				
sigma_e	.2324037				
Rho	.51586357 (fraction of variance due to u_i)				
F test that all u_i=0: F(87, 701) = 7.55 Prob > F = 0.0000					

Source: Researcher (2021)

Based on the findings older firms are more likely to engage in earnings management compared to younger ones. The results are similar to those reported by Khanh and Nguyen (2018) among Vietnamese listed firms and Wang and Campbell (2012) who examined Chinese domestically listed firms. The findings can be attributed to information asymmetry and agency problem that encourage managers to engage in earnings manipulations. As a result, managers have tendency to engage in real earnings management, which can be concealed as normal business transactions and more difficult to be discovered. Firm size had a positive effect on earnings management. Alves (2011) found similar findings among Portugal firms; however, Khanh and Nguyen (2018) claim a negative association. Large firms have huge discretionary accruals than smaller companies; therefore, more likely to engage in earnings management. Firm profitability (as measured by ROA) has a significantly positive

effects on earnings management. The findings are consistent with those by Chen, Elder and Hsieh (2007) who studied Taiwanese listed companies. However, a study by Orazalin (2019) claims that profitable companies are less likely to engage in earnings management. The positive association between ROA and EM support the argument that managers are motivated to engage in earnings manipulations to dress up the firm performance and lengthen the increasing series of earnings or forecasts by financial analysts.

4.3.2 Testing the Effect of Board Characteristics on Earnings Management

The regression results for board characteristics on earnings management are presented in table 4.10. The Hausman Test (Appendix IV) supported the used of the fixed effect model to test the direct hypotheses.

Table 4.10: Testing the Direct Effects

Fixed-effects (within) regression	Number of obs	=	792			
Group variable: COMPANYID	Number of groups	=	88			
R-sq: within = 0.3582	Obs per group: min	=	9			
between = 0.2463	Avg	=	9.0			
overall = 0.2798	Max	=	9			
	F(7,697)	=	55.58			
corr(u_i, Xb) = -0.3803	Prob > F	=	0.0000			
EM	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
BS	.2334063	.0956688	2.44	0.015	.0455727	.4212399
BI	-.3468475	.0971768	-3.57	0.000	-.5376418	-.1560531
BFE	-.2182677	.0745191	-2.93	0.004	-.3645765	-.0719588
BG	-.6097745	.0807664	-7.55	0.000	-.7683492	-.4511998
FA	.8759442	.0628103	13.95	0.000	.7526241	.9992643
FS	.0175405	.0133094	1.32	0.188	-.0085907	.0436718
FP	.3489058	.0702995	4.96	0.000	.2108816	.48693
_cons	-1.354936	.1917158	-7.07	0.000	-1.731346	-.9785267
sigma_u	.21611288					
sigma_e	.21975941					
Rho	.49163452 (fraction of variance due to u_i)					
F test that all u_i=0: F(87, 697) = 6.68 Prob > F = 0.0000						

Source: Researcher (2021)

The results of the fixed effect regression presented in Table 4.10 were used to test the four direct hypotheses as discussed below

Hypothesis (H₀₁) stated that : *Board size has no significant effect on earning management among listed firms in East Africa*: The results presented in Table 4.10 show that board size has a significant positive effect on earnings management ($\beta_1 = 0.233$ and $p\text{-value} < 0.05$); hence, (H₀₁) was rejected. Further, a unit increase in board size to a 0.2333 unit increase in earnings management. Rahman and Ali (2006) found similar results; however, they contradict prior studies by Damak (2018) and Orazalin (2019) that indicate negative relationship; Joubert and Fakhfakh (2012) which shows no relationship. The findings of this study suggests that large boards are ineffective in monitoring managerial opportunities behaviors that are associated with earnings manipulation relative to smaller boards.

Hypothesis (H₀₂) stated that: *Board independence has no significant effect on earning management among listed firms in East Africa* The results indicate a significantly negative association between board independence and earnings management ($\beta_2 = -0.347$, $p < 0.05$); therefore H₀₂ is rejected. The results are supported by previous studies (Chen *et al.*, 2007). However, the results contradict those of Orazalin (2019) that show a weak relationship between board independence and earnings quality. Based on the regression results a unit increase in board independence reduces earnings management by 0.347 units. Outside directors perform an important monitoring function in public companies. They are expected to offer for an independent and objective review of the financial reporting process, internal controls, and the audit function. Therefore, a more independent board constrains earnings management.

Hypothesis (H₀₃) stated that; *Board financial expertise has no significant effect on earning management among listed firms in East Africa.* The regression results in Table 4.10 illustrate that board financial expertise had a significant effect on EM ($\beta_3 = -0.218$ and $p < 0.05$); thus H₀₃ is rejected. The results are supported by previous empirical studies (Chen *et al.*, 2007; Zalata *et al.*, 2018). From the results, a unit increase in board financial expertise would lead to a 0.218 decrease in the EM. Board members possessing knowledge in finance and accounting can perform their oversight role in the financial reporting process more effectively and competently. Additionally, financial expertise enhances the board's ability to evaluate internal controls and detect material misstatements. Therefore, a high proportion of directors with financial expertise is likely to reduce the extent managers can engage in EM.

Hypothesis (H₀₄) stated that; *Board gender diversity has no significant effect on earning management among listed firms in East Africa.* As illustrated in Table 4.10, the regression output shows that board gender diversity had a significant negative effect on EM ($\beta_4 = -0.610$ and $p < 0.05$); thus, H₀₄ was rejected. The empirical results show that firms with greater board gender diversity are more effective in constraining EM. Zalata *et al.*, (2018) who studied US firms; and Arun *et al.*, (2015) who studied UK, firm reported similar findings. As argued by the resource dependence theory, board gender diversity improves the quality of information due to rich and unique information held by diverse directors. Additionally, from an agency theory perspective, it has been shown that female directors are more ethical and thus less likely to engage in earnings manipulation (Kyaw, Olugbode & Petracchi, 2015; Wahid, 2018). Therefore, the positive association between board gender diversity and EM confirms that female directors improve the board's effectiveness in monitoring the quality of financial reporting practices; thus, deterring accounting reporting aggressiveness.

4.3.3 Testing the Effect of Board Characteristics on Sustainability Reporting

The effect of board characteristics on sustainability reporting was also examined since the study sought to test whether sustainability reporting mediates the board characteristics and earnings management relationship. Both the fixed effect regression and the random effect regression analysis were performed and the Hausman test supported the random effect and the results are presented in table 4.11 below.

Table 4.11: Regression of Sustainability reporting on board characteristics

Random-effects GLS regression	Number of obs	= 792			
Group variable: COMPANYID	Number of groups	= 88			
R-sq: within = 0.2047	Obs per group: min	= 9			
between = 0.2771	Avg	= 9.0			
overall = 0.2461	Max	= 9			
	Wald chi2(7)	= 209.52			
corr(u_i, X) = 0 (assumed)	Prob > chi2	= 0.0000			
SR	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]
BS	-.1016891	.0471237	-2.16	0.031	-.1940499 -.0093284
BG	.1308688	.0403907	3.24	0.001	.0517045 .210033
BI	.1899773	.0473366	4.01	0.000	.0971993 .2827553
BFE	.1045421	.0360633	2.90	0.004	.0338593 .1752249
FA	-.0078243	.0425342	-0.18	0.854	-.0911898 .0755412
FS	-.0041466	.0065389	-0.63	0.526	-.0169625 .0086693
FP	.7469022	.0611985	12.20	0.000	.6269554 .8668491
_cons	.1772038	.1074376	1.65	0.099	-.0333699 .3877776
sigma_u	.13792615				
sigma_e	.11335623				
Rho	.59685216 (fraction of variance due to u_i)				

Source: Researcher (2021)

The results presented in table 4.11 show that board size ($\beta_3 = -0.102$ and $p < 0.05$) had a significantly negative association with sustainability reporting. The findings contradict those reported by Mudiyanse (2018) who explored the effect of corporate governance on corporate disclosure among firms listed in Sri Lanka securities exchange

and found a positive effect. Table 4.11 indicate that the effect of boards independence on sustainability reporting was significantly positive ($\beta_3 = 0.190$ and $p < 0.05$). Conversely, Jamil *et al.*, (2020) reported no association between board independence and sustainability reporting. The positive association between board independence and sustainability reporting can be explained by the monitoring role of independent directors. Arguably, board independence reduces agency conflicts between the principal and the agent, which can be discharged by the firm providing extra financial and non-financial information that incorporate sustainability-related information.

The relationship between sustainability reporting and board financial expertise was positive and significant ($\beta_3 = 0.105$ and $p < 0.05$). Buallay and AlDhaen (2018) who studied the effect of audit committee characteristics on sustainability reporting among banks listed in GCC stock exchange reported similar results. Naheed *et al.*, (2021) also found a positive association using a sample of Chinese firms. However, the findings contradict those of Buallay and Al-Ajmi (2019) that show a negative relationship. Borrowing from the resource dependence theory firms with more financial experts on the board are better at procuring financial resources from the external environment. Financial resources enhances the firm's involvement in corporate social activities to enhance the firm's image and reputation.

The study investigated AC characteristics and sustainability in banks listed in GCC stock exchange and the relationship between AC characteristics and sustainability reporting. The data collected is a pooled data during the period 2013–2017. As an outcome of this study, the results indicated that AC size, independency of AC members and AC meetings have significant and has a positive impact on sustainability disclosure. However, AC member's financial expertise has negative and significant impact on the sustainability disclosure. As an outcome of this study, it is recommended the banks in

GCC to focus more on AC's characteristics to assure more sustainable transparency to their stakeholders. For instance, AC size should be considered taking into account the organizational size, which is expected to increase the effectiveness of the AC as well as Sustainability Report Disclosure

The effect of board gender diversity on sustainability reporting is significantly positive ($\beta_3 = 0.131$ and $\rho < 0.05$). The results are consistent with those of Al-Shaer and Zaman (2016) and Fernandez Feijoo *et al.*, (2014) but contradicts Shamil *et al.*, (2014). Gender diverse boards are linked with higher quality sustainability reports. Recent empirical studies also show that board gender diversity may influence financial reporting quality, compliance and ethical behaviour (Baselga-Pascual *et al.*, 2018; Dobija *et al.*, 2021). Studies further indicate that companies with female representation in the board are more ethical (Bernardi, Bosco & Columb, 2009). Therefore, a more gender diverse board is more likely to be stakeholder oriented, will focus on ethical business practices and ensure that the firm operates in a socially responsible manner.

Additionally, the study also found a significantly positive relationship between firm performance and sustainability reporting. This suggests that profitable firms are more likely to engage in sustainability reporting disclosure. Although large firms have more financial resources to engage in social and environmental activities and reporting the information, this study found no significant association between firm size and sustainability reporting. This implies that the size of the firm does not determine the extent firms engage in sustainability reporting ($\beta = -0.004$ and $\rho > 0.05$). The results contradict those of Buallay and Al-Ajmi (2019) and Jamil *et al.*, (2020) that show a positive relationship. The findings of this study can be explained to the increased external pressure for firms to engage in sustainability reporting irrespective of age. Similarly, firm age had no significant effect on sustainability reporting. Conversely,

studies by Shamil *et al.*, (2014), Buallay and Al-Ajmi (2019) reported a positive association between firm age and sustainability reporting. A major reason for these findings could be the fact that sustainability reporting is an emerging voluntary reporting initiative, particularly in the developing and emerging economies. Furthermore, Shamil (2014) argues that younger firms are even more likely to adopt sustainability reporting.

4.3.4 The Mediating Effect of Sustainability Reporting on the Relationship between Board Characteristics and Earnings Management

Hypothesis H₀₅ sought to determine whether sustainability reporting mediates the relationship between board characteristics (board size, board independence, board financial expertise and board gender diversity) and earnings management. To establish mediation the study considered the effect of the predictor variables (*path a*) and the effect of the mediating variable on the outcome variable while controlling for the predictor variables (*path b*). The beta coefficient of path were multiplied with the mediator's beta coefficient (in the pooled model; where the outcome variable was regressed against all the predictor variables and the mediator). The pooled model is shown in table 4.12.

Table 4.12: The effect of sustainability reporting on earnings management

Fixed-effects (within) regression	Number of obs	=	792			
Group variable: COMPANYID	Number of groups	=	88			
R-sq: within = 0.3968	Obs per group: min	=	9			
between = 0.2081	Avg	=	9.0			
overall = 0.2691	Max	=	9			
	F(8,696)	=	57.24			
corr(u_i, Xb) = -0.4505	Prob > F	=	0.0000			
EM	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
SR	-.5989297	.0712251	-8.41	0.000	-.7387715	-.4590878
BS	.2051779	.092967	2.21	0.028	.0226485	.3877074
BI	-.3201542	.0940176	-3.41	0.001	-.5047464	-.135562
BG	-.5520952	.0790426	-6.98	0.000	-.7072858	-.3969046
BFE	-.1830013	.0724718	-2.53	0.012	-.3252909	-.0407116
FA	.8968133	.0608003	14.75	0.000	.7774394	1.016187
FP	.4101268	.129821	3.16	0.002	.155239	.6650146
FS	.0151121	.012943	1.17	0.243	-.0103	.0405242
_cons	-1.214578	.1864653	-6.51	0.000	-1.58068	-.8484762
sigma_u	.11623296					
sigma_e	.05561947					
Rho	.81368376 (fraction of variance due to u_i)					
F test that all u_i=0:		F(36, 248) =	18.62	Prob > F = 0.0000		

Based on table 4.11, sustainability reporting has a significantly negative effect on earnings management ($\beta = -0.598$ and $p < 0.05$). The findings are supported by previous studies (Alipour *et al.*, 2019; Al-Shaer, 2020; Rezaee & Tuo, 2019). The negative association between SR and EM suggests that firms which engage in sustainability reporting are less likely to engage in earnings manipulations. By communicating financial and non-financial information to all stakeholders companies mitigating managerial opportunistic behavior and unethical earnings reporting. The computed values of path *a* and *b* is illustrated in table 4.13. The significance of the mediation effect was tested by the use of Hayes and Preacher Sobel test calculator (<https://quantpsy.org/sobel/sobel.htm>).

Hypothesis (H5_{a1}) stated that; *Sustainability reporting does not significantly mediate the relationship between board size and earning management among listed firms in East Africa.* This hypothesis was tested by checking the significance of *path a₁* and *path b*. The results show that SR significantly mediates the relationship between board size and EM ($\beta = 0.063$ and $\rho < 0.05$).

Hypothesis (H5_{a2}) stated that; *Sustainability reporting does not significantly mediate the relationship between board independence and earning management among listed firms in East Africa.* The results of *path a_{2b}* indicate SR significantly mediate the relationship between board independence and EM ($\beta = -0.113$ and $\rho < 0.05$). Consequently, hypothesis H05_{a2} was rejected.

Hypothesis (H5_{a3}) stated that; *Sustainability reporting does not significantly mediate the relationship between board financial expertise and earning management among listed firms in East Africa.* Based on the results of *path a_{3b}* ($\beta = -0.063$ and $\rho < 0.05$), it was concluded that SR mediated the relationship between board expertise and EM. Therefore, hypothesis H05_{a3} was rejected.

Hypothesis (H5_{a4}) stated that: *Sustainability reporting does not significantly mediate the relationship between board gender diversity and earning management among listed firms in East Africa.* The results of the *path a_{4b}* ($\beta = -0.078$ and $\rho < 0.05$) indicated that SR mediated the relationship between board gender diversity and EM. Hence, hypothesis H05_{a4} was rejected.

Table 4.13: Summary Table for Mediation

	Model 1 (<i>path a</i>)		Model 2 (<i>path b</i>)		Model 3 (<i>a x b = c'</i>)		Model 4 (<i>path c</i>)	
	β	$\rho > z$	β	$\rho > z$	β	$\rho > z$	β	$\rho > z$
a ₁	-0.102	0.000	-	-	0.061	0.003	0.233	0.000
a ₂	0.190	0.000	-	-	-0.113	0.000	-0.347	0.001
a ₃	0.105	0.000	-	-	-0.063	0.003	-0.218	0.000
a ₄	0.131	0.000	-	-	-0.078	0.000	-0.610	0.000
B	-	-	-0.598	0.000	-	-	-	-
-cons	2.089	0.093	-	-	-	-	-1.368	0.001
R ²	0.2771		0.3968				0.3582	
Hausman								
Prob>chi2	$\rho < 0.05$		$\rho < 0.05$				$\rho > 0.05$	

Source: Researcher 2021

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the findings, conclusions, recommendations limitations and suggestions for further studies.

5.1 Summary of Findings of the Study

This study sought to examine whether sustainability reporting mediates the relationship between board characteristics and earnings management. The main predictor variables were board size, board independence, board financial expertise and board gender diversity. The target population consisted of all listed firms in East Africa. The study period was 2011 to 2020. The findings of the study indicate that board characteristics significantly affects earnings management among listed firms. Besides the study found that SR mediated the relationship between board characteristics and EM.

5.1.1 Effect of Board Size on Earnings Management

The study's first specific objective was to assess the effect of board size on EM. The mean board size was 9 member with some companies having as many as 17 board members. The correlation between board size and EM was positive and significant ($r= 0.1321$; $\rho < 0.05$). the regression results confirm that board size had a positive and significant effect on earnings managements ($\beta= 0.233$; $\rho < 0.05$). Therefore, a unit change in board size is expected to cause a 0.233 unit increase in earnings management among listed firms in East Africa. Therefore, large board are ineffective in controlling earnings manipulation.

5.1.2 Effect of board Independence on Earnings Management

The second specific objective was to analyze the effect of board independence on EM. The mean board independence was 0.79; implying that boards of listed firms in East Africa are largely independent. The correlation between board size and EM was weak, positive and significant ($r = 0.1321$; $\rho < 0.05$). The regression results indicated that the relationship between board independence and EM among listed firms in East Africa is significantly negative ($\beta = -0.34$; $\rho < 0.05$). The beta coefficient show that a unit increase in board independence causes a 0.34 reduction in earnings management among listed firms in East Africa. Based on the findings, independent boards are more effective in monitoring unethical managerial behaviours related to earnings management.

5.1.3 Effect of Board financial Expertise on Earnings Management

The third specific objective was to determine the impact of board financial expertise on EM. The mean board independence was 0.65; implying that boards of listed firms in East Africa have a large numbers with financial and accounting knowledge. The pairwise correlation coefficient shows that the association between board financial expertise and earnings management is positive and significant ($r = 0.177$; $\rho < 0.05$). Further, the regression results indicated that the relationship between board independence and earnings management significantly negative ($\beta = -0.281$; $\rho < 0.05$). Therefore, a unit increase in board financial expertise would lead to a 0.281 unit decline in earnings management among listed firms in East Africa. Hence, a board with a high proportion of members with financial expertise is likely to earnings management.

5.1.4 Effect of Board Gender Diversity on Earnings Management

The fourth specific objective establish the effect of board gender diversity on EM. The mean board gender diversity was 0.23; suggesting that boards of listed firms in East Africa have a low female participation. Based on the correlation results the association

between board gender and earnings management was negative and significant ($r = -0.350$; $r < 0.05$).

The multiple regression analysis demonstrate that the board independence and EM relationship is statistically significant and negative ($\beta = -0.281$; $\rho < 0.05$). Thus, a unit increase in board financial expertise would lead to 0.281 decline in earnings management among listed firms in East Africa. The results suggest that a board with a high proportion of members with financial expertise is likely to less cases of earnings manipulation.

5.1.5 The Effect of Board Characteristics on Sustainability Reporting

The study tested for the effect of board characteristics on sustainability reporting. Specifically, the study found that board size, board independence, board financial expertise and board gender diversity had a significant and positive effect on sustainability reporting. However, board size had a negative effect on SR, which supports the view that large boards are largely ineffective.

5.1.6 Effect of Sustainability Reporting on Earnings Management

Sustainability reporting was used in the study as a mediating variable. SR had a mean value of 0.33, which suggest a low level of reporting or slow adoption of GRI among listed firms in East Africa. The study found that the relationship between SR and EM was significant and negative. Thus, firms engaging in voluntary disclosure of economic, social and environmental performance are less likely to be engaging in earnings manipulation

5.1.7 The Mediating Effect of Sustainability Reporting on the Relationship Between Board Characteristics and Earnings Management

To establish the indirect effect of board characteristics on EM through SR path *a* and *b* were considered. For *path a*, the effect of the predictor variable on the mediator was determined. The effect of the mediating variable on the outcome variable was tested in path *b*. The mediation results indicate that board characteristics such as independence, financial expertise and gender diversity significantly reduces earnings management through sustainability reporting. However, indirect path of board size through sustainability reporting leads to increased earnings management.

Table 5.1: Summary hypotheses table

Hypotheses	B	$\rho < 0.05$	Decision
H₀₁: Board size as no significant effect on earnings management among listed firms in East Africa.	0.233	0.000	Rejected
H₀₂: Board independence has no significant effect on earnings management among listed firms in East Africa.	-0.347	0.000	rejected
H₀₃: Board financial expertise has no significant effect on earnings management among listed firms in East Africa.	-0.218	0.000	rejected
H₀₄: Board gender diversity has no significant effect on earnings management among listed firms in East Africa	-0.610	0.000	Rejected
H_{05a}: Sustainability reporting does not significantly mediate the relationship between board size and earnings management among listed firms in East Africa.	0.061	0.000	Rejected
H_{05b}: Sustainability reporting does not significantly mediate the relationship between board independence and earnings management among listed firms in East Africa	-0.133	0.000	rejected
H_{05c}: Sustainability reporting does not significantly mediate the relationship between board financial expertise and earnings management among listed firms in East Africa	-0.063	0.008	Rejected
H_{05a}: Sustainability reporting does not significantly mediate the relationship between board gender diversity and earnings management among listed firms in East Africa	-0.078	0.000	Rejected

5.2 Conclusions

There is an increasing research interest on the board characteristics and EM relationship owing to the numerous corporate governance fiascos revolving around earnings management. Despite the contributions of these studies the relationship between board characteristics and earnings management is inconclusive. Besides, it has been suggested in literature that board characteristics determine the extents firms engage in sustainability reporting and that sustainability reporting mitigates the extent managers engage in fraudulent financial reporting. In view of this, this study sought to determine whether SR mediates the board characteristics and earnings management.

Based on the findings the study made several conclusions. First, though board characteristics helps in mitigating earnings management, a large board is ineffective. Specifically, the findings revealed that board independence, board financial expertise and board gender diversity are vital in monitoring and controlling managerial behaviours associated with earnings management. Second, the study concluded that the extent of sustainability reporting is largely influenced by board characteristics. Such as Board independence, financial expertise and board gender diversity

5.3 Theoretical Implications

The research findings have several implications for researchers and to accounting literature. First, the study extends to the body of knowledge on board characteristics and earnings management by revealing an indirect relationship through sustainability reporting from an emerging region perspective. Second, the findings collaborate the assertions of the agency theory propositions that board characteristics are vital in mitigating unethical managerial behaviours such as earnings management. Third, the study blends the legitimacy theory, the agency theory and the legitimacy theory in explaining that an effective board not only aligns managerial interests of the managers

with those of the shareholders but ensures that the interests of other stakeholders are met and disclosed through sustainability reporting.

5.3.1 Policy Implication

Based on the findings regulators and policymakers should consider reforming corporate governance guidelines. First, listed firms should have smaller boards, higher proportion of outside directors and more board members should be knowledgeable in accounting and finance. Second, the findings highlights the importance of board gender diversity among East African listed firms to constrain earnings management. Therefore, the region may consider mandatory gender quota in corporate boards that is common in European countries. Second, since sustainability reporting is usually a voluntary disclosure exercise, it would be important for policy interventions for mandatory disclosure not only to reduces incidences of unethical financial reporting but also furnish investors with additional information.

5.3.2 Managerial Implication.

The study has several managerial contributions. First, shareholders should consider board characteristics that enhances board effectiveness in mitigates earnings management. This entails having leans boards, a high proportion of board members with financial expertise and more female representation in the boards. Similarly, firms may consider managerial development courses on financial and accounting. Second, there is need for listed firms to adopt sustainability reporting as a strategy of mitigating earnings manipulation and other fraudulent financial reporting practices among managers. Besides, sustainability reporting will improve investors' confidence and ultimately firm value.

Therefore, this study contributes improves the understanding of the impact of board characteristics on earnings management from a developing region perspective. This study may help improve the awareness of firms' decision makers across the globe in constraining earnings management through board characteristics and sustainability reporting. The findings of this study highlights that to tackle earnings management problem firms need to focus more on strengthening disclosure quality rather than internal control mechanisms.

5.4 Limitations and Future Research

Despite the novelty of this study's findings, there are several limitations. First, the study is limited to listed companies in East Africa; therefore, expanding the study to other developed and emerging economies would shed more insights on how contextual differences affects the relationship among the variables. Second, gender is just one dimension of board diversity. Consequently, it would be appropriate to analyze how sustainability reporting influences the association between other dimensions of board diversity (for instance education, experience, age) and earnings management. Third, future research studies can also assess the effect of ownership structure, board effectiveness, committees and profile of directors on sustainability reporting because prior empirical studies confirm that they affect voluntary disclosures. Third, board characteristics only explain approximately 41 per cent of the variation in sustainability reporting; therefore, there is need for further studies to unearth additional internal and external determinants of sustainability reporting. This kind of study would be more important particularly in emerging economies with low adoption of voluntary disclosure practices. Finally, this study relied on published annual reports and the GRI checklist to measure sustainability reporting. Perhaps, future research could consider

using qualitative methods (such as interviews, case studies etc.) which may explain further the current state of sustainability reporting among listed firms in East Africa.

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Appendix III: Sustainability Reporting Index (Sri)

No	Performance indicators	Reporting item	Map to G3
Economic performance (max score is 35)			
1		Direct economic value	EC1
2	Economic	Financial implications, risks and opportunities due to climate change	EC2
3	Performance	Defined benefit plans and services provided for public benefit	EC3
4		Financial assistance from government	EC4
5	Market	Policy and practices on locally-based suppliers	EC6
6	Presence	Procedures for local hiring	EC7
7	Indirect economic impact	Development and impact of infrastructure investments and services provided for public benefit	EC8
Environmental performance (max score is 80)			
8	Materials	Materials used	EN1
9		Materials used that are recycled input materials	EN2
10	Energy	Direct energy consumption	EN3
11		Indirect energy consumption	EN4
12	Water	Total water withdrawal	EN8
13	Biodiversity	Land owned, leased, managed in or adjacent to, protected areas and areas of high biodiversity value	EN11
14		Significant impact of activities on biodiversity in protected areas and areas of high biodiversity value	EN12
15		Direct and indirect greenhouse gas emissions	EN16
16	Emissions	Emissions of ozone-depleting substances	EN19
17	effluents	NO, SO and other significant air emissions	EN20
18	and waste Water discharge	Water discharge	EN21
19		Waste	EN22
20		Significant spills	EN23
21	Products and	Initiatives to mitigate environmental impact of products and services	EN26
22	Services	Products sold and their packaging materials that are reclaimed	EN27

23	Compliance	Fines and non-monetary sanctions for non-compliance with environmental laws and regulations	EN28
Social performance (max score is 125) Labour practices and decent work (max score is 45)			
24	Employment	Workforce by employment type, employment contract and region	LA1
25	Employee turnover		LA2
26	Labour/	Employees covered by collective bargaining agreements	LA4
27	Management relations	Minimum notice period (s) of operational changes	LA5
28	Occupational	Injury, occupational diseases, lost days and absenteeism and work related fatalities	LA7
29	Health and safety	Education, training, counselling, prevention and risk-control programmes to assist workforce members, their families or community members regarding serious diseases	LA8
30	Training and education	Employees' training	LA10
31	Diversity and	Composition of governance bodies and employees breakdown	LA13
32	Equal opportunity	Basic salary of men to women	LA14
Human rights (max score is 30)			
33	Investment and	Investment agreements with human rights clauses	HR1
34	Procurement practices	Suppliers and contractors that have undergone screening on human rights	HR2
35	Non-discrimination	Incidents of discrimination	HR4
36	Freedom of association and collective bargaining	Operations in which the right to exercise freedom of association and collective bargaining may be at significant risk	HR5
37	Child labour	Operations as having significant risk for incidents of child labour	HR6
38	Forced and compulsory labour	Operations as having significant risk for incidents of forced or compulsory labour	HR7
Society (max score is 30)			
39	Community	Programmes that assess and manage the impact of operations on communities	S01
40		Business units analysed for corruption	S02
41	Corruption	Employees trained in anti-corruption policies and procedures	S03
42		Actions taken in the incidents of corruption	S04
43	Public policy	Participation in public policy development and lobbying	S05
44	Compliance	Fines and non-monetary sanctions for non-compliance with laws and regulations	S08

Product responsibility (max score is 20)			
45	Customer health and safety	Health and safety impact of products and services is assessed for improvement	PR1
46	Product and service labelling	Type of product and service information required	PR3
47	Marketing communications	Programmes for adherence to laws and standards related to marketing communications	PR6
48	Compliance	Fines for non-compliance with laws and regulations concerning the provision and use of products and services	PR9

Appendix IV: List of Listed Firms In East Africa

Appendix I: Target Population: Firms Listed in East Africa

Appendix I (a): Nairobi Security exchange

No.	Company	Sector	Year listed
1	Eaagads Limited	Agriculture	1972
2	Kakuza Limited	Agriculture	1951
3	Kapchorua Tea Factory Limited	Agriculture	1972
4	Limuru Tea Kenya Limited	Agriculture	1967
5	Sasini Limited	Agriculture	1965
6	Williamson Tea Kenya Limited	Agriculture	1972
7	Rea Vipingo Plantations Limited	Agriculture	1998
8	Car and General (Kenya) Limited	Automobiles and Accessories	1950
9	Sameer Africa	Automobiles and Accessories	1994
10	Marshalls (E.A) Limited	Automobiles and Accessories	1987
11	Barclays Bank of Kenya Limited	Banking	1986
12	CFC Stanbic of Kenya Holdings Limited	Banking	1970
13	Diamond Trust Bank of Kenya Limited	Banking	1972
14	Equity Group Holdings Limited	Banking	2006
15	Housing Finance Group Limited	Banking	1992
16	I&M Holdings Limited	Banking	2013
17	KCB Group Limited	Banking	1989
18	National Bank of Kenya Limited	Banking	1994
19	NIC Group PLC	Banking	1971
20	Standard Chatered Bank Kenya Limited	Banking	1988
21	The cooperative Bank of Kenya Limited	Banking	2008
22	Atlas African Industries Limited	Commercial and Service	2014
23	Express Kenya Limited	Commercial and Service	1978
24	Kenya Airways Limited	Commercial and Service	1996
25	Longhorn Publishers Limited	Commercial and Service	2012
26	Nairobi Business Ventures Limited	Commercial and Service	2016
27	National Media Group Limited	Commercial and Service	1973
28	Standard Group Limited	Commercial and Service	1954
29	TPS Eastern Africa Limited	Commercial and Service	1997
30	Uchumi Supermarket Limited	Commercial and Service	1992
31	WPP Scan Group Limited	Commercial and Service	2006
32	Deacons East Africa PLC	Commercial and Service	2016
33	Hutchings Biemer Limited	Commercial and Service	1993
34	Athi River Mining Cement Limited	Construction & Allied	1997
35	Bamburi Cement Limited	Construction & Allied	1951

36	Crown Paints Kenya Limited	Construction & Allied	1992
37	E.A Cables Limited	Construction & Allied	1973
38	E.A Portland Cement Company Limited	Construction & Allied	1972
39	Ken Gen Company Limited	Energy and Petroleum	2006
40	Kenol Kobil Limited	Energy and Petroleum	1959
41	Kenya Power & Lighting Company Limited	Energy and Petroleum	1954
42	Total Kenya Limited	Energy and Petroleum	1988
43	Umeme Limited	Energy and Petroleum	2012
44	Britam Holdings Limited	Insurance	2011
45	CIC Insurance Group Limited	Insurance	2012
46	Jubilee Holdings Limited	Insurance	1984
47	Kenya Reinsurance Corporation Limited	Insurance	2006
48	Liberty Kenya Holdings Limited	Insurance	2007
49	Pan Africa Insurance Holdings Limited	Insurance	1963
50	Centum Investment Company Limited	Investment	1977
51	Home Afrika Limited	Investment	2013
52	Kurwitu Ventures Limited	Investment	2014
53	Olympia Capital Holdings Limited	Investment	1974
54	Trans-Century Limited	Investment	2011
55	Nairobi Securities Exchange Limited	Investment Services	2014
56	B.O.C Kenya Limited	Manufacturing and allied	1969
57	British American Tobacco Kenya Limited	Manufacturing and allied	1969
58	Carbacid Investments Limited	Manufacturing and allied	1972
59	East African Breweries Limited	Manufacturing and allied	1972
60	Eveready East Africa Limited	Manufacturing and allied	2006
61	Flame Tree Group Holdings Limited	Manufacturing and allied	2015
62	Kenya Orchards Limited	Manufacturing and allied	1959
63	Mumias Sugar Company Limited	Manufacturing and allied	2001
64	Baumann Company limited	Manufacturing and allied	1976
65	Unga Group Limited	Manufacturing and allied	1971
66	Safaricom Limited	Telecommunication and Technology	2008
67	Stanlib Fahari I-Reit	Real Estate Investment Trust	2015

Appendix 1 (b); Uganda Security Exchange

No.	Company	Sector	Year
1	BAT Uganda Ltd	Consumer Goods	2000
2	East African Breweries Ltd	Consumer Goods	2001
3	Kenya Airways	Consumer Services	2002
4	Nation Media Group	Consumer Services	2010
5	Uchumi Supermarkets	Consumer Services	2013
6	Vision Group	Consumer Services	2004
7	Bank of Baroda (Uganda) Ltd	Banking	2002
8	Centum Investment	Investment	2011
9	DFCU Ltd	Banking	2004
10	Equity Group	Banking	2009
11	Jubilee Holdings Ltd	Insurance	2006
12	Kenya Commercial Bank Ltd	Banking	2008
13	NIC Holdings	Banking	2010
14	Stanbic Bank Uganda Ltd	Banking	2007
15	Cipla Quality Chemical Industries Ltd	Health Care	2018
16	Uganda Clays Ltd	Industrials	2000
17	Umeme Ltd	Utilities	2012

Appendix 1 (c); Tanzania Security Exchange

No.	Company	Sector	Year
1	TOL Gases	Basic Materials	1998
2	East African Breweries	Consumer Goods	2005
3	Jatu	Consumer Goods	2020
4	Tanzania Breweries	Consumer Goods	1998
5	Tanzania Cigarette Company	Consumer Goods	2000
6	Tanzania Tea Packers (TATEPA)	Consumer Goods	1999
7	Kenya Airways	Consumer Services	2004
8	Nation Media Group	Consumer Services	2011
9	Precision Air Services	Consumer Services	2011
10	Uchumi Supermarket	Consumer Services	2014
11	CRDB Bank	Banking	2009
12	Dar es Salaam Commercial Bank	Banking	2008
13	KCB Group	Banking	2008
14	Maendeleo Bank	Banking	2013
15	Mkombozi Commercial Bank	Banking	2015
16	Mucoba Bank	Banking	2016
17	Mwalimu Commercial Bank	Banking	2015
18	National Microfinance Bank Plc	Banking	2008
19	Yetu Microfinance	Banking	2016
20	Jubilee Holdings	Insurance	2006

	National Investments Company		
21	(NICOL)	Mutual Fund	2018
22	TCCIA Investment	Mutual Fund	2018
23	Dar es Salaam Stock Exchange	Stock Exchange	2016
24	Swissport Tanzania	Industrials	2003
25	Tanga Cement Company	Industrials	2002
26	Tanzania Portland Cement Company	Industrials	2006
27	Swala Oil and Gas (Tanzania)	Oil & Gas	2014
28	Vodacom Tanzania	Telecom	2017

Appendix 1 (d); Rwanda Security Exchange

<u>No.</u>	<u>Company</u>	<u>Sector</u>
1	Bralirwa	Consumer Goods
2	Nation Media Group	Consumer Services
3	Uchumi Supermarkets	Consumer Services
4	BK Group	Financials
5	Equity Group	Financials
6	I&M Bank Rwanda	Financials
7	KCB Group	Financials
8	RH Bophelo	Health Care
9	CIMERWA	Industrials
10	Crystal Telecom	Telecommunications

Appendix V: Hausman Test

Control Variables

	---- Coefficients ----			
	B Fe	B re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
FA	.9377343	.7747636	.1629707	.033991
FS	.0247248	.0342601	-.0095353	.0054912
FP	.4549752	.4074338	.0475414	.0142875

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(3) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 35.13$$

$$\text{Prob}>\chi^2 = 0.0000$$

Effect of Sustainability Reporting on Board Characteristics

	---- Coefficients ----			
	B Fe	B Re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
BS	.2334063	.1768735	.0565328	.0358761
BG	-.6097745	-.6601284	.050354	.0266969
BI	-.3468475	-.3142688	-.0325787	.0379343
BFE	-.2182677	-.2027096	-.0155581	.0330156
FA	.8759442	.7217273	.1542169	.033681
FS	.0175405	.025467	-.0079265	.0054689
FP	.3489058	.3208367	.0280691	.0174146

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(7) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 33.16$$

$$\text{Prob}>\chi^2 = 0.0000$$

Effect of Sustainability Reporting on Earnings Management

	---- Coefficients ----			
	B Fe	B Re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
SRI	-.5001268	-.388069	-.1120578	.0278306
BS	.1971863	.1485735	.0486128	.0310096
BG	-.5234603	-.5914706	.0680103	.0231377
BI	-.2402671	-.2194843	-.0207828	.0326423
BFE	-.1615518	-.1655597	.0040079	.0296387
FA	.8742593	.7327983	.141461	.0305319
FS	.0170221	.0254215	-.0083994	.0048003
FP	.3311056	.3119948	.0191108	.0134342

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(8) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 56.94$$

$$\text{Prob}>\chi^2 = 0.0000$$

Effect of Board Characteristic on Sustainability Reporting

	---- Coefficients ----			
	b fe	B re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
BS	-.0974766	-.1016891	.0042125	.0140808
BG	.1408084	.1308688	.0099396	.0106061
BI	.1809757	.1899773	-.0090016	.0137131
BFE	.1121628	.1045421	.0076207	.0125663
FA	.0321669	-.0078243	.0399912	.0422927
FS	-.0060646	-.0041466	-.001918	.002103
FP	.712215	.7469022	-.0346873	.0170621

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(7) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 7.62$$

$$\text{Prob}>\chi^2 = 0.3669$$