THE RELATIONSHIP BETWEEN EARNINGS MANAGEMENT AND COST OF CORPORATE BONDS AMONG THE FIRMS LISTED ON THE NAIROBI SECURITIES EXCHANGE.

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the project contains no material previously published or written by another person except where due reference is made in the project itself.

Admin No…….

Sign ……

Date …….

Approval

This project has been submitted for examination with my approval as the university supervisory.

Supervisor ……...

Strathmore University Business School.

Sign …….

Date ……...

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ABBREVIATIONS AND ACRONYMS

BIS:	Bank for International Settlements
AEM:	Accrual-based Earnings Management
GAAPs:	Generally Accepted Accounting Principles
IAASB:	International Auditing and Assurance Standards Board
IFRSs:	International Financial Reporting Standards
REM:	Real Earnings Management

ABSTRACT

This research study aimed at determining the relationship between the cost of corporate bonds and earnings management among the firms listed on the Nairobi securities exchange. The study target population was the 21 firms listed at the NSE that issued corporate bonds in the period 2015-2020. The study used secondary data which was gathered from annual reports to provide empirical evidence which aimed at determining the extent of earnings management and its relationship to the cost of corporate bonds. OLS regression was used to analyze the secondary data. This study was anchored on the Agency theory, signaling theory, positive accounting theory and efficient market hypothesis theory. Analysis of the secondary data was through descriptive procedures assisted by SPSS Version 21 software. This study finds that a positive significant relationship exists between the cost of corporate bonds and accrual-based earnings management, however a negative and significant relationship exists between cost of corporate bonds and real earnings management. Investors are encouraged to exercise caution when deciding on whether to invest on corporate bonds or not. Researchers and scholars are encouraged to research on better models to estimate earnings management. The study incorporated both accrual-based and real activities in studying the relationship between cost of corporate bonds and earnings management, A limitation of this study is that it focused on listed companies, therefore other researchers are encouraged to look into earnings management in the unlisted companies. This study will be a valuable addition to the few existing studies on the corporate bonds market particularly in developing markets. It will serve as a guide to researchers and academicians who may wish to replicate the study in the other frontier markets due to shared market similarities.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The recent financial crisis has significantly increased the importance of the bond market as a source of financing as businesses have moved away from excessive reliance on bank debt and increased government borrowing. Developed countries like the United States have the largest, the best and the most developed bond market in the world. Bond statistics in Bank for International Settlements (BIS) (2019) show that the bond market is dominated by developed countries. The United States account for 39% of the world value of issued domestic bonds (BIS, 2019). Their market is highly diversified with products such as mortgage-backed securities, federal agency securities, corporate bonds and government bonds. Next is Japan (18%). The UK and emerging markets follow closely.

In Kenya Corporate bond have recorded a poor performance at the Nairobi Securities exchange (NSE) despite its role in funding companies and in spite of its huge potential as a sustainable source of investment. The primary role of a developed also functioning market for bond is provision of cheaper, long-term finance for funding capital investments. Growth of bond markets is critical to the financial and economic systems of a nation. There is a scarcity of studies on performance of corporate bonds in NSE, though the attention is growing. Investors have demonstrated a growing interest in bonds to a point that some of the bonds have been oversubscribed.

The benefit of corporate bonds to a developing economy like Kenya was exemplified by International Monetary Fund (*International Monetary Fund Annual Report 2012 : Working Together To Support Global Recovery*, (2012) .By observing that debts from private sector absorb the pressures from the banking sector through credit risk diversification across the economies. These debts can also be utilized as a provision for long-term resources for long-term ventures. It also provides products for long-term investments for long-term savings hence lower costs of funding; enhancing flexibility of financial products so as to satisfy investors' needs and borrowers as well as efficient capital reallocation (Maina, 2019).

While the domestic bond market in Kenya is fairly small compared to world standards, it is ranked number three with South Africa and Nigeria leading in that order in sub-Saharan Africa (Maina, 2019). This market remains as instrumental particularly government bond that enables the government to raise finances locally to counter its fiscal deficits. According to Ngugi & Agoti, (2014) most debt markets in Africa, the bond experiences problems such as poor performance, high volatility and inefficiencies. Ndung'u (2013), states that though Kenya's bond market is well diversified, it needs to be developed further.

1.1.1 Corporate Bond

It is a long-term contract under which a borrower agrees to make payments of interest and principal on specific dates, to the holders of the bond (Brigham & Ehrhardt, 2013). The purpose of issuing bonds is to raise long-term finance from the investors as an alternative to borrowing from a bank and rights issues. The intrinsic features of a bond are: the coupon, maturity, its indenture provisions and type of ownership.

A variety of features affect bond price and maturity. These are the provisions that allow the issuer to buy back all or part of its outstanding bonds at a specified call price before maturity of the bond.

Karanja (2014) identifies three alternative call options that affects bond's price and maturity. The first option is a freely callable provision which allows the issuer to retire the bond at any time with a special notification period of one to two months. The second option is the non-callable provision which does not allow the issuer to retire the bond prior to maturity. The final option is the deferred provision which implies that the issue cannot be called for a certain time period after issue date. From general finance theory, the correct price of an asset equals the present value of all cash flows that the investor expects to receive during the life of the asset.

1.1.2 Determinants of corporate bonds issue

Bond issuance is based on the behavior of the person who buys the bond, the lender or the saver. In the bond market, investors who buy bonds give credit to issuers and receive interest (Maina, 2019). The bond market demand curve is the relationship of bond prices and quantity of bonds that investors demand all other factors are constant. This curve shows the inverse

relationship between bond demand and its price, as well as its direct relationship to interest rates, other factors constant. At higher bond prices, the quantity demanded falls and the interest rates also falls due to their inverse relationship

1.1.3 Earnings Management

According to Healy and Wahlen (1999), earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers".

Schipper (1989) explains that earnings management is really disclosure management in the sense of a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain as opposed to merely facilitating the neutral operation of the process.

Scott (2003) describes earnings management as the choice by a manager of accounting policies so as to achieve some specific objective"

According to Ronen and Yaari (2008), the definition in the literature that best describes earnings management seems to be that of Healy and Wahlen (1999). However, there are two weaknesses associated with this definition. First, it does not set a clear boundary for earnings management (Dharan, 2003). Second, not all earnings management is misleading. There must be an intention to mislead for a purpose. Earnings management could in addition unblock blocked communication to the stakeholders. The manager can communicate private information to the stakeholders.

The definition of Scott (2003), has a negative, but also a positive view on earnings management. Ronen and Yaari explain earnings management which can be 'beneficial (white), it enhances the transparency of reports; the pernicious (black) involves outright misrepresentation and fraud; the gray is the manipulation of reports within the boundaries of compliance with bright-line standards, which could be either opportunistic or efficiency-enhancing.' It is not possible to separate earnings management in black, white, or gray.

Ronen and Yaari (2008) specify earnings management in greater detail. Earnings management that violates accounting standards is associated with fraud. Accounting choices

within the law and standards are defined as conservative accounting, neutral accounting or aggressive accounting. Conservative accounting means that earnings are taken cautiously, earnings are deflated. The result is an overly aggressive recognition of provisions or reserves and an overstatement of restructuring charges and asset write-offs. If there is no earnings management this means the manager uses neutral accounting.

When earnings are inflated, it could be that the aggressive accounting method is used. Examples of this method are an understatement of the provision for bad debts and drawing down provisions or reserves in an overly aggressive manner. As discussed before, the manager can choose an accounting policy to achieve a specific objective. It is important that the objective meets the interests of the manager and the stakeholders. Earnings management in a good sense provided a signal on future value and is an efficient means to bridge the information asymmetry between management and shareholders without getting into detail. Earnings management in the bad sense is distorting the truth and that is a result of poor governance (Ronen and Yaari, 2008).

Similar to Zadeh *et al.* (2012), Nurdiniah and Herlina (2015) analyzed factors affecting the motivation of earnings management in manufacturing listed in the Indonesia Stock Exchange. They looked at motivation bonus; motivation debt, the motivation of the political cost. They find that Motivation debt (leverage) has a positive effect and no significant effect on earnings management. These findings are consistent with Njogu (2016) who examined factors influencing earnings management among companies listed on the Nairobi Securities Exchange and also found a positive and significant relationship between the size of the debt in the company and earnings management. Both these findings are however inconsistent with Zadeh, Salehi and Alaei (2012). The difference in findings could be because Njogu (2016); Nurdiniah and Herlina (2015) used Leverage as a proxy for the equity while Zadeh *et al.* (2012) used the actual debt size of the company. However, Andersson and Frisk (2016) studied variable pay as a predictor of earnings management among Swedish listed companies. They did not find any significant relationship size of the debt and earnings management.

1.1.4 Relationship between earnings management and the cost of corporate bonds

In a recent study, Poretti *et al.* (2020) examine the impact of hospitality firms' debt level on earnings quality**.** Using a sample of 642 large companies from 26 countries over 15 years, they show that, in general, higher financial leverage leads to lower earnings manipulation,

especially in countries with strong investor protection. In other words, debt can act as a disciplinary mechanism on managers due to the increased in-depth monitoring undertaken by debt-holders to ensure that earnings reflect the true economic reality of the firm and that debt covenants are respected. Knowing they are under high scrutiny; managers are more likely to publish realistic earnings. However, this effective monitoring only works when institutions protect shareholders from managers' misbehavior - that is to say, when litigation risk is high.

The relationship between debt and earnings management is not obvious on the one hand, leverage acts as a firm- level disciplinary mechanism on managers, as debt holders usually enhance their monitoring activities (Jensen, 1986). Indeed, creditors need to make sure debt covenants are respected and, thus, closely monitor the quality of accounting information disclosed by managers. On the other hand, managers may be tempted to manage earnings to limit the pressure coming from debt holders.

Watts and Zimmerman (1986) argued that managers are more likely to use accounting methods that increase earnings when the debt/equity ratio is high. Such an association exists because disclosing higher earnings allows a better negotiation of the quantity of debt and a decrease of the cost of debt.

1.1.5 The Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) is the principal securities exchange of Kenya. It offers a world class trading facility for local and international investors looking to gain exposure to Kenya and Africa's economic growth. The NSE demutualized and self-listed in 2014. The NSE plays a vital role in the growth of Kenya's economy by encouraging savings and investment, as well as helping local and international company's access cost-effective capital. The NSE operates under the jurisdiction of the Capital Markets Authority (CMA). It lists 64 companies to-date, whose shares are publicly traded, a derivatives market and bond-markets with plans for the inclusion of other securities and commodities.

It is a requirement that firms listed in the Nairobi securities exchange have to publish an annual report. This is an overview of the consequences of the economic events the company faces. An important element of the report is the financial statement. This statement is a summary of events that have affected the firm over the fiscal period for which the report has been prepared (Meulen *et al.*, 2007). The firms use financial reporting to communicate with

the stakeholders. Financial reporting helps the best-performing firms in the economy to distinguish themselves from poor performers and facilitates efficient resource allocation and stewardship by stakeholders (Healy & Wahlen, 1999).

1.2 Statement of the Problem

The overall performance of corporate bonds in Kenya has commonly been less than satisfactory according to the statistics from CBK (2018), CMA (2018), KNBS, (2020) and World Bank Report (2015). Consequently, various studies in this area present the bond market in Kenya as skinny and underdeveloped (Ringui,2012). The bond Market in Kenya accounts for below 10 percent of the whole dealings in bonds on the NSE. The Treasury bond Market has usually exceeded the corporate bond Market in trading activity (Waweru, 2014). Previous research studies on treasury market performance have been more extensive than that of the corporate bond market which is virtually non-existent. Ochenge *et al.* (2020) analyzed the major microstructure elements: performance, volatility and efficiency of the Kenyan government bond market. He further investigated the determinants of performance using a comparatively close proxy of performance. A study by Waweru (2014) sought to examine the effect of macroeconomic variables on the performance of infrastructure bonds. Mwangi (2013) studied the effect of benchmark bonds program on performance of the Kenyan government bond market. He concluded that the implementation of this program has been effective in fostering performance. He further noted that issue size and trade frequency vitally influenced government bond market in Kenya. The findings suggested that interest rates and exchange rates have a positive relationship with performance of infrastructure bonds. The aforementioned studies do not broadly address the corporate bond performance. Most of the recent studies have investigated influence of macro-economic factors on the performance of corporate bonds market. Ngabirano (2016) studied the determinants of corporate bonds performance in Kenya. He concluded that that there was a positive insignificant relationship between size and corporate bond performance. Additionally, the study concluded that there was a negative insignificant relationship between bond rating, bond term, coupon and corporate bond liquidity. Maina (2019) examined macro-economic variables and performance of corporate bonds at the Nairobi securities exchange. This study intends to fill these gaps by finding the relationship between earnings management and the price of corporate bonds Kenya.

1.3 Research Objectives

1.3.1 General Objective

To determine the relationship between cost of corporate bonds and earnings management among firms listed on the Nairobi securities exchange.

1.3.2 Specific Objective

1. To determine the relationship between earnings management and cost of corporate boards.

1.4 Research Questions

1. What is the relationship between earning managements and cost of corporate boards?

1.5 Significance of the Study

This study will be useful to the following:

1.5.1 Researchers and scholars

This study will be a valuable addition to the few existing studies on the corporate bonds market particularly in developing markets. It will serve as a guide to researchers and academicians who may wish to replicate the study in the other frontier markets due to shared market similarities

1.5.2 Policymakers and regulators

Through the examination of the extent of earnings management by firms listed on the Nairobi Securities exchange, policymakers and industry regulators such as Capital Markets Authority can be able to monitor trends and patterns of the practice and consequently give regulations and guidelines to companies.

1.5.3 Investors

The study establishes the extent of earnings management by firms listed on the Nairobi securities exchange. The findings will help future investors when making decisions as to whether to commit their funds to a company. The study will also examine the relationship between the cost of corporate bonds and earnings management. The findings of the study are expected to assist current investors, shareholders of companies when making decisions regarding investing their funds in certain companies.

1.6 Scope of the Study

The study was limited to corporate debt issues listed at the Nairobi securities exchange fixed income securities market segment for the period between 2015-2020.The companies act cedes the regulation of corporate bonds preceding and succeeding its enactment, such as capital markets regulations. However, it stipulates the duties of issuers of bonds therefore the companies act of 2015 has no direct influence on period choice. The scope of the study was guided by the study objective of the relationship between earnings management and the cost of corporate bond.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to review the literature that have been researched and presented out by various authors with a view of identifying gaps and permit further studies in the area of corporate bonds. The chapter is organized as follows: Section 2.2 discusses theoretical review, 2.3 highlights empirical review, 2.4 research gap, 2.5 summary of literature review, and 2.6 conceptual framework.

2.2 Theoretical Review

2.2.1 Agency Theory

Agency as proposed by Jensen and Meckling (1976), defines a contractual relationship whereby one or more parties referred to as the principal transfers decision making rights to another party in order to perform a service on their behalf. The positive accounting theory uses agency relationship to explain the association between the firm and various stakeholders, for instance, in relation to this study, the bondholders assume the role of principal while the managers are the role of Agent. Agent Individuals within an agency relationship have their self-interests and objectives and will take advantage of any opportunity available in order to maximize their welfare. In cases where there is an imperfect flow of information, certain problems will arise (Jeruto *et al.*, 2021)

The agent may work contrary to the objectives of the contract or the agent may not put their best efforts into their work. Subsequently, conflict of interests arises between principal and agent and the principal is therefore forced to incur agency costs in order to minimize the agency problem (Ger, 2018). This theory is relevant to this study in that it explains the relationship between the management (agent) and bondholders (principal).

Agency theory has been used by various scholars to examine and connect managerial relationship with principals (shareholders) (Assenso *at al.*, 2021 ;Hassen, 2014 ;Mojtahedi,

2013 ; Mellado *at al.,* 2017).Some researchers have pointed out that agency theory can be used to show that a positive association between financial leverage and earning management and also an inverse association between yield spread and pre-issue real activities manipulation can be expected, , i.e., firms engaged in abnormally high levels of real activities manipulation are associated with subsequent lower cost of debt (Mellado *et al.*, 2017). In this study, agency theory was useful as it informed the relationship between bond holders and Managers and consequently form basis of investigating whether the managers engage in earnings management get access to cheap financing since Creditors use earnings and other accounting information to assess firm health, credibility, and viability .Thus if bondholders perceive EM as an opportunistic behavior, they required a higher risk premium for poorer accounting quality and for taking on additional future cash flow risk (Ge & Kim, 2014). The limitation of this theory is that it doesn't hold water when there is objective consistency between the principal and agent, it only becomes a theory when there is objective variation between the principal and the agent and also control mechanisms suggested on the basis of agency theory are not only expensive, but also economically ineffective, because mechanisms protecting shareholders' interests may interfere with realization of strategic decisions, may restrict collective actions, distort the relationship. However, agency theory has gained prominence because it offers executives incentives to take actions that enhanced shareholder wealth. Second, these plans help companies attract and retain managers who have the confidence to risk their financial future on their own abilities—which should lead to better performance.

2.2.2 Signaling Theory

This theory was developed in the 1970s based on the contributions of Arrow and Spencer (Giunta, 2011). This theory is based on the signals that a firm sends to its users. It tends to imply that the most profitable companies provide more and better financial information to its users in order to acquire more capital (Sousa *et al.*, 2016). Through financial reports, firms are able to send signals to different stakeholders about the financial health, performance, and its future prospects. Stakeholders use the information presented in the financial reports to make decisions regarding the returns on their investment. Since financial reporting carries such an enormous weight with regards to the investment decisions of the shareholders, managers may then make use of this situation to manipulate the information in the reports in order to get the investors to act in a preferred manner (Hung *et al.*, 2020). It is simply put that

when a firm reports lower profitability and performance, it sends negative signals to prospective investors and if they report higher profitability and performance, they send positive signals that attract prospective investors; managers, therefore, may find it necessary to engage in earnings management due to the signaling effect that financial reports have on the financial performance of a firm.

2.2.3 Positive Accounting Theory

This theory was proposed by Watts and Zimmerman (1978). The authors try to provide an explanation as to why certain firms choose to use certain accounting practices and methods. The theory also tries to provide a forecast of methods used by certain firms. Positive accounting theory is considered as a good economic theory but it is criticized since it doesn't provide prescription for accounting and therefore doesn't provide any means of improving accounting practice. This, therefore results in alienation of practicing accountants. This theory highlights the self-interest of the stakeholders of the firm as the main reason as to why a firm may choose a certain accounting method (Ger, 2018). For instance, there is an agency relationship between managers and the various stakeholders of the company such as shareholders and debt-holders. The stakeholders are only after ensuring that their stake in the firm in terms of wealth is protected. Therefore, the positive accounting theory tries to predict the accounting methods adopted by certain firms while considering the effect of these accounting practices on stakeholders' wealth.

The positive accounting theory has three hypotheses including the bonus plan hypothesis, the debt-equity hypothesis, and the political cost hypothesis. Using these three hypotheses' Watts and Zimmerman (1978) attempt to explain and subsequently forecast whether a firm would use a particular accounting method or whether it would reject the particular method.

Each one of these hypotheses represents different incentives that could explain the practice of earnings management. The bonus plan hypothesis posits that when managers' bonus is based on the reporting earnings of a firm, then the managers chose those accounting methods and practices that increased the reported income in that financial period, all other factors held constant. Managers are opportunists and they took advantage of any opportunity thereof to maximize their own interest in the form of wealth maximization. Subsequently, if they believe that a particular accounting method or practice will increase reported earnings, they will choose to use that particular accounting method or practice (Bassiouny, 2016). This

hypothesis provides a positive relationship between real earnings management and the cost of corporate bonds.

This theory is very relevant to this study since it explains the opportunistic behavior of executives and why they may choose to employ certain accounting methods for their own benefit. The theory informed the dependent variable (earnings management) as a technique that management might employ to influence the cost of new bond issues (independent variable) towards the fulfillment of their own selfish gain.

2.2.4 Efficient Market Hypothesis

Fama (1970) postulated efficient market hypothesis (EMH) theory that describes behaviors of a perfect market in which securities are held at the equilibrium and prices of securities (stock and bonds) are displayed as public information which can be accessed and acted upon immediately this has been announced. This is so because; securities that are priced fully and fairly call for quick action by the investors. In simple terms, the idea is to have a market whose price is a reflection of accurate indicators for apportionment of funds. This suggests that a market in which firms can craft investment decisions on production are able to choose securities that reflect ownership of firm undertakings with the supposition that security prices will show the available information. A market that prices portray available information is regarded to as an efficient market. Various macroeconomic variables including inflation, money supply and exchange rate were determined as one the variables that affect performance of bonds by various researchers (Fama, 1981; Mayasami & Sims, 2002; and Oriwa, 2012)

Capital markets that trade in stock and bonds help in the discovery of prices, liquidity, reduction in transactional costs and transfer of risks. Development of capital markets is a key ingredient towards finance sector development since it supplements the functions of banking systems in steering economic development. Yartey and Adjasi (2007) posit that they aid in minimizing information cost by creating and sharing of information with firms ensuing into efficient markets whose prices reflect existing information. Efficient markets support domestic growth of economy. Apart from availing resources to investors, efficient markets channels financial resources into local market economies. The credit market has increased its activities in financing investments with deposits forming a significant proportion of their financial asset basket this is because the bond and equity markets have not been thriving as

they should be (Ngugi *et al.*, 2009). EMH enables us to make an inference that changes in these macroeconomic factors definitely have an effect on the corporate bond performance. The study is therefore geared towards determining the expected link between earning management variables and the corporate bonds price in Kenya

2.3 Empirical Review

This section consists of an empirical review of the relationship between corporate bond price and earnings management. Research conducted in this area has shown several inconsistencies which may be explained by differences in theories used, variables used, the context of the study, and methodology. Consequently, this section points out the various inconsistencies presented in empirical findings.

2.3.1 Corporate Bond

Ringui (2012) investigated the factors that determine the development of the Kenyan corporate bond market. The findings suggested that political, macroeconomic and regulatory factors fully determined the development of Kenya's corporate bond market. Overall, the findings show that the confluence of multiple factors are important in the development of the Kenyan corporate bond market. They included the political environment, investor base of the country, the difficult nature of the issuance process, regulatory framework and various macroeconomic factors.

Mwaniki (2012) examined the sensitivity of Kenya banks stock yields to exchange rate and interest rates changes. This study measured performance using stock returns in Kenya. The results show that 73.2% of NSE-listed commercial bank stock price fluctuations are due to exchange rate fluctuations. Musyoki *et al.* (2012) surveyed in Kenya and investigated the impact of real exchange rate volatility on economic growth, while exchange rate volatility has a positive impact on GDP growth, but is not significant in affecting GDP growth rate.

Karanja (2014) investigated the determinants of issuance of corporate bonds by the firms listed in the Nairobi securities exchange. The study findings established that tenure period of corporate bonds affects their demand. Investors being rational are skeptical about postponing consumption of money for longer period of time and would rather invest in ‘short-term’

periods. The higher the frequency of redemption of the principle reduces the return of the bonds as it affects interest generating ability of the bonds, thus investors don't prefer higher short redemption periods. Long subscription period of corporate bonds affects investments in the same. This follows that some investors take longer to decide on whether to invest in the bond and/or others look to financial resources for the same thus short period cut them off. Interest rate is the major revenue centre for corporate bonds, thus, the higher the interest, the higher the return. Thus, investors prefer higher interest generating bonds.

Ngabirano (2016) studied the determinants of corporate bond performance in Kenya. The study found that all the internal determinants had a negative insignificant relationship with bond performance except the bond issue size and the coupon which had a beta coefficient that was positive. The study also found that all the external determinants had a positive insignificant relationship with bond performance except the interest rates, exchange rates and inflation rates size which had a beta coefficient that was negative. Finally, the study established that there have been policy remedies put in place in Kenya to manage performance. Which included transparency, diversity of investor base and fiscal policies.

Maina (2018) examined macro-economic variables and performance of corporate bonds at the Nairobi securities exchange. The Pearson correlation analysis results demonstrated an inverse relationship between three macro-economic variables; exchange rates, interest rates and inflation rates with performance of corporate bonds. The analysis for multiple linear regression results demonstrated that exchange rates, inflation rates, and commercial banks rates of interest have negative effect on performance of corporate bonds. Government expenditure had a significant positive association on performance of corporate bonds. Government spending showed a positive association to performance of corporate bonds

2.3.2 Control variables

2.3.2.1 Size of firm

The size of the firm affects the credit rating (Dechow *et al.*, 2010) Various researchers have pointed out that agency theory and signaling theory can be used to show that a positive association between size, the price of corporate bond and the level of earnings management (Ge & Kim, 2014). Size of the firm has been measured in the previous research total assets (Mellado *et al.*, 2017). New bonds issued by large firms are less risky than those of small

firms (Ge & Kim, 2014). A large firm is likely to have strong internal control and well-built accounting information systems which together are supposed to guarantee (Bassiouny, 2016).

Several reasons exist to prove a negative relation between firm size and earnings management as explained by (Filip & Raffournier, 2014). Large-sized firms may have stronger internal control system and may have more competent internal auditors as compared to small-sized firms therefore; an effective internal control system helps in publishing reliable financial information to the public, so this will likely reduce the ability of the management to manipulate earnings (Bassiouny, 2016).

On the other side, a positive relation exists as large-sized firms face more pressures to meet the analysts' expectations (Gel, 2018). In addition, large-sized firms have greater bargaining power with auditors so the larger the firm size, the more bargaining power they have in negotiations with auditors. Differences in the research findings highlighted above could be attributed to. Differences in geographical regions and institutional settings where the studies were conducted.

2.3.2.2 Leverage

Leverage is the proportion of debt financing in the capital structure of a firm. It was measured by the ratio of long-term debt-to-fixed asset, or the ratio of total liabilities to total assets. Firms with proportionally higher debt in their capital structure are prone to higher agency cost. Gel (2018) argues that firms that are highly geared are more likely to engage in earnings management than firms that are not highly geared.

Prior literature link between the debt level and the choice of accounting policy and that’s because debt covenants are based on the accounting numbers reported and any violation in the debt covenants imposes costs on the company. One of the theories linking the two variables is the financial distress theory explained by Fung & Goodwin (2013) which examines earnings management incentives among managers in financial distress firms. They argue that when managers manipulate the firm’s earnings, they are doing that to convince their creditors that the financial distress is temporary nature and will be able to recover soon. Another theory would be the information asymmetry, according to Dechow *et al.* (2012); information asymmetries tend to be less severe for large loans, since any fixed costs associated with obtaining information about a borrower are less of an obstacle for large loans. It is also suggested that small borrowers have greater information asymmetries, and a loan’s size is typically positively correlated with its borrower’s size. When a company relies on

debt, the managers tend to choose accounting policies that increase the income so that they abide by the debt covenants imposed by banks and bondholders and this allows them to avoid any renegotiation costs (Bassiouny, 2016).

Based on the prior literature a negative relation is proposed to exist between firm financial leverage and earnings management mainly for two reasons, first, leverage requires debt repayment, thus reduces cash available to management for non-optimal spending. Second, when a firm employs debt financing, it undergoes the scrutiny of lenders and is often subject to lender induced spending restriction (Jensen & Meckling, 1976). Differences in findings highlighted above could be attributed to differences in period and timing of study and the geographical area where studies were done.

2.3.2.3 Age of the Firm

Age of the firm is defined as the years since incorporation. The age of the firm may have an impact to its credit rating. Firms which have been around over the years can have the ability to achieve credit rating advantage and they will be reluctant to engage in earnings management. The credit rating of a firm is believed to become better as years passes.

As time passes, firms discover what they are good at and learn how to do things better as they specialize more and new techniques are found to standardize, coordinate, and speed up their production processes, as well as to minimize costs and improve quality (Bassiouny, 2016)

Based on prior research, Firms that have been in the market for long times tend to have low level of earnings management than beginners as they are well known companies, that have a great value in the market and they have a reputation to protect, also they are aware of the rules and codes that govern their practices. Moreover, Old firms might have improved their financial reporting practices over time.

2.4 Research Gaps

Various theories debated through the study have strived to elucidate the phenomena of elements of macro-economic on how corporate bonds performed around the literature (Ngabirano,2016). A handful of researches have been executed in the lesser developed bond market countries on various aspects of bond market development. In Kenya a few studies have been done on bond markets but rarely on influencers of micro-economic factors of

earnings management and corporate bonds pricing. Majority of the reports were centered on treasury bonds but scarcely on corporate bonds. The few studies on corporate bonds performance targeted characteristics of issuing firm and Macro- economic variables. Therefore, research gap that exists as limited studies has been done to investigate in Kenya the micro-economic factors and pricing of corporate bonds.

2.5 Summary of the Literature Review

Table 2.1: Summary of the Literature Review

Author, Year	Theory	Measurement of variables	Findings
Maina (2018)	Efficient Market Hypothesis Trade off Theory Arbitrage pricing theory	Longitudinal survey approach Census approach Study Period (2001 to 2015).	Only 41.40% of the variation in performance of corporate bonds was unexplained by the factors that were included in the model. Multiple linear regression analysis findings demonstrated that inflation rates, exchange rates and commercial banks interest rates have a negative effect on performance of corporate bonds. Government expenditure, the regression output revealed, had a significant positive influence on performance of corporate bonds. Pearson correlation analysis results demonstrated an inverse relationship between three macroeconomic variables; exchange rates, interest rates and inflation rates with performance of corporate bonds. Government spending showed a positive association with performance of corporate bonds.
Ngabirano (2016)	Option Pricing Theory	5 points Likert-type scale: Strongly agree (1) Agree (2) Neutral (3) Disagree (4) Strongly disagree (5)	Internal factors such as bond size, rating, coupon, bond terms and liquidity do not affect performance of corporate bonds. External factor including interest rates, inflation, and exchange rates had negative end results on corporate bonds performance

Author, Year	Theory	Measurement of variables	Findings
Munene (2015)	Linquidity Preference Theory Trade off Theory Efficient Market Hypothesis	13 years' time-series data (2001-2014): Descriptive survey design.	The determinants of treasury bonds uptake were liquidity; credit rating; rate of interest; floating rate bonds; gearing ratio; infrastructure bonds; zero coupon bonds; years to maturity and fixed coupon bond. The study concluded that long years to maturity of Treasury bonds affect investments in the same issue. This follows that some investors take longer to decide on whether to invest in the bond and/or others look to financial resources for the same thus short period cut them off
Ringui (2014)	Capital Structure theories	Descriptive Statistics	Political, macroeconomic and regulatory factors account fully in determining corporate bond market development in Kenya.

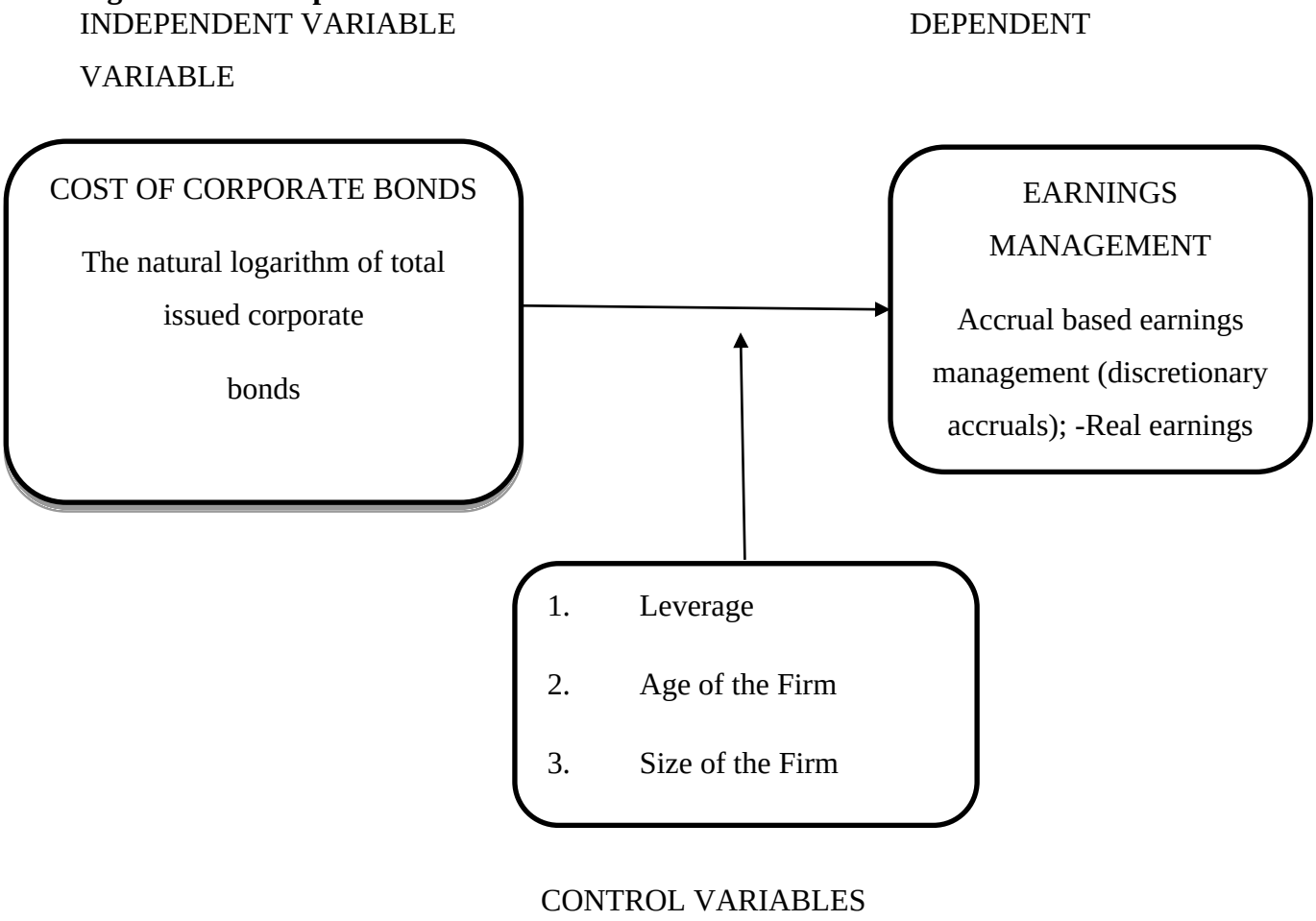
Author, Year	Theory	Measurement of variables	Findings
Waweru (2014)	Tradeoff Theory Modern Portfolio Theory Efficient Market Hypothesis Expectation Theory of Term Structure of Interest Rate Liquidity Preference Theory	Time series data: Interest Rates Inflation Rates Exchange rates Real GDP Diaspora Remittances USD '000' Liquidity KSH '000000'	Exchange rates and rate of interest and had a positively significant association with infrastructural bonds liquidity. The findings, however, depicted that diaspora remittances, real GDP and variability in inflation rate have a significant negative association with liquidity of infrastructure bonds
Karanja (2014)	Trade Off Theory Pecking Order Theory Liquidity Preference Theory	The study compared the coupon rate of the corporate bonds with the banks' long-term loan interest rate and treasury bonds rate as bonds competitors in terms of corporations' preference alternative borrowing from banks and investor preferences for stable treasury bonds respectively. This was achieved using panel data	The demand of corporation bonds is affected by Tenancy period. Investors being rational are skeptical about postponing consumption of money for longer period and would rather invest in 'short- term' periods. The higher the frequency of redemption of the principle reduces the return of the bonds as it affects interest generating ability of the bonds, thus investors don't prefer higher to short redemption periods. Long subscription period of corporate bonds affects investments in the same.

Author, Year	Theory	Measurement of variables	Findings
Wanjiku (2014)	Signaling Theory Pecking Order Theory Trade-off Theory Agency cost Theory	Time Series Data: Centum share prices from 21/01/2013-19/03/2013	It established that many companies experienced a turning point in outstanding cash flows at the date of issuance of bond. The study results depicted that there were significant movements that were periodically observed pre and post bond issue.
Ge and Kim (2014)	Agency Theory, Positive Accounting Theory	Ordinary least squares procedure Regression Analysis US bond Market	Overproduction impairs credit ratings and that sales manipulation and overproduction are associated with higher bond yield spreads. Overall, our results imply that credit rating agencies and bondholders perceive real earnings management as a credit risk-increasing factor and thus require high risk premiums.

2.6 Conceptual Framework

Based on the literature on earnings management and cost of corporate bonds, a conceptual framework was developed. Cost of a corporate bond been the independent variable while earnings management is the dependent variable. Control variables include Age of the Firm and leverage

Figure 2.1: Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter provides a blueprint or outline for conducting the study. Section 3.3 identifies research design and describes researcher's overall plan for obtaining answers to the research questions guiding the study. Section 3.4 identifies the population and sample of the interest to the researcher and which was used in the study. Section 3.5 describes data which was used in the study and how that data was collected. Section 3.6 describes how the data was analyzed and summaries identifying and explaining conceptual and empirical models applied. 3.7 consist of operationalization of Variables

3.2 Research Design

This study adopted an explanatory research design. This research design is used to identify the extent and nature of causal relationships (Kothari, 2004). Therefore, the study sought to provide an understanding on the relationship between earnings management and its relationship to cost of corporate bonds companies listed on NSE

3.3 Population and Sampling

The population was a complete set of observations from which samples were extracted. The population must share some common observable features by (Saunders *et al.*, 2019). Kothari (2004) described the sample as part of a subset of the survey population that is selected to participate in the study and represents the study population. Due to small size of population the study used all the firms as a sample. The population covered was all 21 corporate bonds listed in the Nairobi Securities Exchange Fixed income section. The study covered period from 2015-2020.

The subpopulation consisted of 21 issued bonds drawn from the following sectors. Insurance, energy, telecommunications, investment, manufacturing, real estate and banking as listed below

Table 3.1: Population distribution

Sector	Number of Companies	% of the total
Banking	10	47.6
Manufacturing	3	14.3
Real Estate	3	14.3
Insurance	4	19.0
Telecommunication	1	4.8
Total	**21**	**100.0**

3.5 Data Collection Methods

In order to determine cost of corporate bonds and its relationship to earnings management, the study used secondary sources of data. These included annual financial reports of various companies. Kitchin and Tate (2013) explain that there are three main justifications for using secondary sources of data. First, the data may not be available in any other form. Secondly, there is an economic justification based on time and cost. Thirdly, it allows for replication of studies by other researchers so as to ascertain the validity of results. In this study, the use of secondary data was justified on the grounds that it is the most dependable means of obtaining the required information.

3.6 Data Analysis

Data which was collected was quantitative and time series in nature. The data was cleaned up and keyed in SPSS. The same data was also stored in excel for diagnostic tests through Eviews. The collected data was analyzed using both descriptive and econometric models of time series data and the data was presented in tables and graphs. Additionally, stationary tests were carried out on all variables to ascertain their order of integration to avoid the spurious regression problem. All estimations were carried out using Eviews (Version 10) and SPSS (Version 26). Whilst EViews was used in diagnostics tests because of its capacity and ease in offering solutions against OLS assumptions anomalies, SPSS was on the other hand preferred in establishing the causality between independent and the dependent variables. The analysis of the Data was carried out using OLS method.

3.7 Operationalization of Variables

Operationalization of the variables is the process of explaining the meaning and measurement of study variables used in the research (Kothari *et al.*, 2014). The process is done so that readers are aware of the meaning assigned to the variables as they could have different meanings in different disciplines. This section describes the measurement for the dependent variable, independent variable and control variables. The dependent variable in the study was earnings management while the independent variable was cost of corporate bonds.The control variables were age of the firm, size and leverage.

3.7.1 Dependent Variable

In this study, earnings management is the dependent variable. The study estimated both accrual-based and real earnings management. Multiple models were used to estimate discretionary accruals (accrual-based earnings management) in order to make a comparison of the results. The models in this study were: the original Jones 1991; the modified Jones 1995; Kothari 2005, augmented Jones 2011.

First, total accruals were calculated as follows:

TAt= Net income- operating cash flows

Thereafter, non-discretionary accruals were determined using the different models as follows:

3.7.1.1 The original Jones model (1991)

$$NDAt = \alpha 1 (1/A\tau\text{-}1) + \alpha 2 (\Delta REV\tau) + \alpha 3 (PPE\tau) \quad ei,t$$

equation 1

Where:

ΔREVτ = revenues in year τ less revenues in year τ-1 scaled by total assets at τ-1 PPEτ = gross property plant and equipment in year τ scaled by total assets at τ-1 Aτ-1 = total assets at τ-1
α1, α2, α3 = firm specific parameters

3.7.1.2 The modified Jones model (1995)

NDAτ= α1 (1/Aτ-1) +α2 (ΔREVτ-ΔRECτ) +α3 (PPEτ) + ei,t *equatio*

n 2

Where:

ΔRECτ = net receivables in year x less receivables in year x-1 scaled by total assets at year x-1.

ΔREVτ = revenues in year x less revenues in year x-1 scaled by total assets at x-1 PPEτ= gross property plant and equipment in year scaled by total assets at x-1;

Aτ-1 = total assets at x-1

α1,α2,α3 = firm-specific parameters.

3.7.1.3 Kothari Model

NDAi,t = α1 (1/Ai,t–1)+ α2REVi,t + α3PPEi,t + α4ROAi,t + ei,t……*equation 3*

Where:

ΔREVi,t = revenues in the year *t* less revenue in year *t-1* for firm *i* scaled by *Ai,t-1 PPEi,t* = gross property, plant and equipment in the year *t* for the firm *i* scaled by *Ai,t-1 ROAi,t* = return on assets in the year *t* for firm *i* scaled by *Ai,t-1*

Ai,t-1 = total assets in year *t-1* for the firm *i εi,t* = error term in the year *t* for firm *i*

3.7.1.4 The augmented jones models

NDAt = β0+ β1ΔSalest + β2 PPEt + β3CFt-2 +β4CFt-1+ β5CFt + β 6TAt–1+ εt…*equation 4*

where:

TAt= Total accruals during period t

ΔSalest= change in sales during period t

PPEt= the level of gross property, plant, and equipment CFt= operating cash flows in year t

CFt-1 = operating cash flows in year t-1 CFt-2= operating cash flows in year t-2 TAt-1 = lagged total accruals

εt– εt-1= difference in error term during period t and period t-1 β1> 0, β2< 0, β3> 0, β4> 0, and β5< 0

3.7.1.5 Real earnings management

Following prior studies (Chan *et al.* 2014; Swai & Mbogela, 2016; Zhou *et al.* 2016; Li, 2017) this study will consider three real activities manipulations for real earnings management to be measured as follows using the model by Roychowdhury, 2006.

The extent of real earnings management based on abnormal operating cash flows (R_OCF), abnormal discretionary expenses (R_DISEXP), and abnormal production costs (R_PROD). To estimate the normal levels of operating cash flows (OCF) and production costs (PROD), the following regressions for each company and year were run:

$$OCF_{i,t} / A_{i,t-1} = \beta 0 + \beta 1 / A_{i,t-1} + \beta 2 S_t / A_{i,t-1} + \beta 3 \Delta S_t / A_{i,t-1} + S_{i,t} + e_{i,t} \quad \textit{equation 5}$$

$$PROD_{i,t} / A_{i,t-1} = \beta 0 + \beta 1 / A_{i,t-1} + \beta 2 S_t / A_{i,t-1} + \beta 3 \Delta S_t / A_{i,t-1} + \beta 4 \Delta S_{t-1} / A_{i,t-1} + S_{i,t} + e_{i,t} \quad \textit{equation 6}$$

Where:

$A_{i,t-1}$ is total assets at $t-1$. $S_{i,t}$, is the sales at t, and

ΔS_{t-1} is the sales in year t less sales in year $t-1$.

$PROD_{i,t}$ is defined as the sum of cost of goods sold and change in inventory during year t. R_OCF is calculated as the difference between the actual value of OCF and the normal level predicted from the equation. R_PROD is calculated in a similar way.

3.7.2 Independent variable

Cost of corporate bond is the independent variable in this study. Which was measured as the total of issued corporate bonds. =TOTAL ISSUED BONDS

To determine the relationship between earnings management and cost of corporate bonds, OLS linear regression was used. The regression model was used because it is appropriate for determining the analytical relationship between variables (Kothari, 2004). The author also explains that regression analysis does not only explain the cause and effect of the variables but also to what degree and to which direction.

In this study there are more than two variables, earnings management (dependent variable); Cost of corporate bonds (independent variable); leverage, firm size, and Age of the Firm,

The linear regression model was as follows:

$AEM_{i,t}$ (or $REM_{i,t}$) = $\alpha i + \beta 1 CCB_{i,t} + \beta 2\ LEVERAGE_{i,t} + \beta 3\ SIZE_{i,t} + \beta 4$ AGE + ACCRUALS + $\mu i,t$

Where: AEM stands for accrual-based earnings management, REM represents real earnings management, and CCB is the total of issued. The control variables include leverage (LEVERAGE), firm size (SIZE). Prior studies have found associations between these control variables and earnings management (for example, Myers *et al.* 2003; Cheng and Warfield 2005, Bergstresser and Philippon 2006 and Larcker *et al.* 2007)

Specifically, this research considered an overall measure of real earnings management as follows:

Thus, the model can be stated as follows:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \varepsilon_t \quad \text{.....} \textit{equation 7}$$

Where:

Y = EM (as a measure real earnings management)

$X_{1\,t}$ = cost of corporate bonds transactions

$X_{2\,t}$ = leverage

$X_{3\,t}$ = size of firm

$X_{4\,t}$ = age of firm

β_0 = constant

$\beta_{1\ldots4}$ = Elasticity (coefficients for the cost of corporate bonds transactions, leverage, size of firm, age of firm respectively)

ε_t = Error term assumed to be normal in distribution with mean zero and variance σ^2

t = time periods under study

Table 3.2: Variable Definition

Variable type	Measure	Definition	Source
Dependent variable			
EARNING MANAGEMENT AEM REM	**AEM+REM** Accrual-based earnings management Real-earnings management	Discretionary accruals measured by Jones 1991; Jones 1995; Kasznik; DD; McNichols; Kothari; Yoon; Augmented Jones models. Abnormal operating cash flows and abnormal production	Audited annual reports
Independent Variable Type	**Measure**	**Definition**	**Source**
CCB	Cost of Corporate bonds	Natural logarithm of Sum of the Issued corporate bond in firm.	Audited annual reports
LEVd	Leverage	Ratio of total liabilities to total assets (Olowokure *et al.*, 2015; Waweru and Riro 2013).	Audited annual reports
SIZE	Size of Firm	(Ger ,2021)	Audited annual reports
AGE OF FIRM	Age of Firm	Number of Years since incorporation Olowokure *et al.*,2015)	Audited annual reports

3.8 Diagnostic tests

Diagnostics tests seek to identify the possibility of bias that may occur in research. These tests include normality test, linearity test, multi collinearity test, test for heteroscedasticity, test of Autocorrelation, unit root test and Hausman test. Normality tests for this study included normal Q-Q plot for the dependent variable (earnings management). To test for heteroscedasticity, the Breusch-Pagan/Godfrey test (1979) and the Modified Wald test (Murteira, Ramalho & Ramalho, 2013) were used. To establish whether the residual is serially correlated, Durbin-Watson test for autocorrelation was conducted (Chang, Pal & Lin, 2019). The Durbin Watson test reports a test statistic, with a value from 0 to 4, where: 2 denotes no autocorrelation; 0 to 2<2 denotes a positive autocorrelation, while >2 denotes a

negative autocorrelation. The decision rule is that test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside this range could be cause for concern. To establish the stationarity conditions of the data series in this study, unit root test using the Augmented Dickey-Fuller (ADF) methodology was conducted, with the null hypothesis being that the series under consideration is non-stationary or has a unit root.

3.8.1 Testing for Normality of Residuals

In this study, normality was diagnosed using a histogram of regression standardized residuals as well as the Jarque-Bera test. According to Gujarati (2007), the assumption of normality of residuals signifies the generalizability of findings. Standardization is important in order to determine if the information given by the dependent variable is normally spread. The null hypothesis (**H0**) states that the residuals are normally distributed. Where the probability value is greater than 0.05, the data is then considered to be normally distributed.

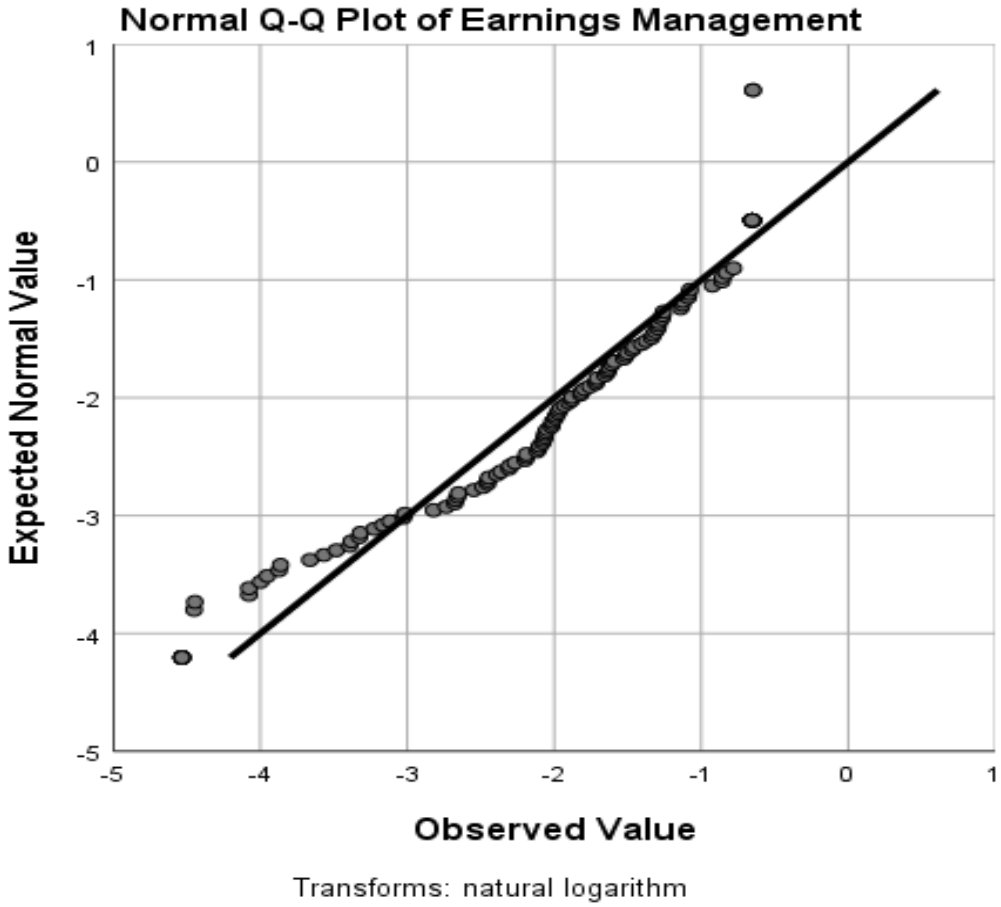


Figure 3.1: Normality Test for the Residuals
Source: Research Data (2022)

Normal Q-Q curve showed a curve that was close to the hypothetical line for normally distributed data.

3.8.2 Testing for Heteroscedasticity

The Ordinary Least Squares (OLS) assumes that the error term is homoscedastic, that is, it has constant variance. If the error variance is not constant, then there is heteroscedasticity in the data. Running a regression model without accounting for heteroscedasticity would lead to biased parameter estimates. To test for heteroscedasticity, the Breusch-Pagan/Godfrey test (1979) and the Modified Wald test (Murteira, Ramalho & Ramalho, 2013) are used.

Table 3.3: Breauch-Pagan Test for Heteroscedasticity

Panel Cross-section Heteroskedasticity LR Test
Null hypothesis: Residuals are homoscedastic
Specification: LEM C LOGIVS

	Value	Probability
Likelihood ratio	18.15507	0.0524

LR test summary:

	Value
Restricted LogL	63.13280
Unrestricted LogL	72.21034

R-squared	0.955527	Mean dependent var	13.00566
Adjusted R-squared	0.950444	S.D. dependent var	5.946578
S.E. of regression	0.054090	Akaike info criterion	-3.360517
Sum squared resid	0.102402	Schwarz criterion	-3.149407
Log likelihood	72.21034	Hannan-Quinn criter.	-3.284186
F-statistic	187.9979	Durbin-Watson stat	1.180795
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.894442	Mean dependent var	9.136680
Sum squared resid	0.102402	Durbin-Watson stat	0.843664

Source: Research Data (2022)

The results in the above table showed that the probability value of the chi square is of the Breauch Pagan test was 0.0524 and greater than the 0.05. Because the null hypothesis of this study states that the error variance is homoscedastic, the study concludes that the error variance is homoscedastic since null hypothesis was not rejected.

3.8.3 Testing for Multicollinearity

Multicollinearity was tested in this study by means of tolerance and variance inflation factor (VIF). Hair et al. (2010) points out that a very small tolerance value (0.10 or below) or a large VIF value (10 or above) shows high collinearity (Multicollinearity). According to Hair *et al*. (2010), multicollinearity denotes to a condition where more than two expounding variables are extremely linearly related. Testing for multicollinearity is necessary before data analysis because highly collinear explanatory variables result to estimators that are not best linear unbiased estimators (BLUE). This is because as multicollinearity increases, the standard error of coefficients increases making them less reliable.

Table 3.4: Multicollinearity Results Using VIF

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.887813	12467.39	NA
Cost of corporate bonds	0.002307	1584.182	1.785972
Leverage	0.017289	12338.27	4.571241
Size of firm	0.001666	1804.485	5.081772
Age of firm	0.372695	34141.17	9.692158

Source: Research Data (2022)

Where VIF values are more than 10, it shows that there is multicollinearity (Field 2009). According to the results, the variance inflation factor was found to be less than 10 (1.785972, 4.571241, 5.081772 and 9.692158) hence no multicollinearity.

3.8.4 Testing for Autocorrelation

Serial correlation/Auto correlation occurs when the effect of one independent variable on another independent variable travels across time intervals affecting the future levels of the other independent variable. Bhargava et al. (1982) sum up the Durbin-Watson measurement (Durbin and Watson, 1971) to the fixed impacts board model. Baltagi and Li (1991, 1995) determine a LM measurement that tests for first request sequential connection. Wooldridge (2002) proposes an effectively implementable test for sequential connection dependent on the OLS residuals of the first-differenced model.

The null hypothesis is that there is no first-order autocorrelation (Wallis, 1995). Autocorrelation refers to lack of independence between the residual terms of observations (Field, 2000). For data to have high predictive power, the residual terms between any two

observations in different time periods should not be auto correlated. (Maddala, 2001). The study used the Durbin-Watson test to test for auto-correlation. The Durbin-Watson statistic should range between 1.5 to 2.5 to imply absence of correlation between residual terms (Field, 2000). The study adopted the Durbin-Watson test to test for autocorrelation.

Table 3.5: Durbin Watson test for Autocorrelation in Panel Data
Total panel (balanced) observations: 126

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.525722	0.942238	2.680555	0.0111
Cost of corporate bonds	0.080332	0.048031	1.672523	0.1033
Leverage	-0.032621	0.131489	-0.248088	0.8055
Size of firm	0.138896	0.040811	3.403385	0.0017
Age of firm	1.982847	0.610488	3.247972	0.0026
R-squared	0.897232	Mean dependent var		9.136680
Adjusted R-squared	0.885487	S.D. dependent var		0.157716
S.E. of regression	0.053371	Akaike info criterion		-2.906640
Sum squared resid	0.099695	Schwarz criterion		-2.695530
Log likelihood	63.13280	Hannan-Quinn criter.		-2.830309
F-statistic	76.39304	Durbin-Watson stat		1.720180
Prob(F-statistic)	0.000000			

Source: Research Data (2022)

From the Table 4.4 the null hypothesis of no serial correlation between residual terms is accepted given that the Durbin Watson statistic was 1.720180 and was within the acceptable range of 1.5 and 2.5. Therefore, there is no 1st order correlation between residual terms.

3.8.5 Unit Root test

Empirical work based on time series data assumes that the underlying time series is stationary, that is, its mean, variance and auto covariance (at various lags) remain the same no matter at what point they are measured. Such a series will tend to return to its mean and fluctuations around this mean will have a broadly constant amplitude. Gujarati (2007) asserts that stationarity tests are conducted to avoid change of estimates over time in the study variables which would in turn lead to spurious estimates. Testing for stationarity of the individual time series is important because if a time series is non-stationary, we can study its behaviour only for the time period under consideration and as a consequence, it is not possible to generalize it to other time periods. Moreover, regression of a nonstationary time series on another nonstationary time series may produce spurious regression. To establish the stationarity conditions of the data series in this study, unit root test using the Augmented

Dickey-Fuller (ADF) methodology was conducted, with the null hypothesis being that the series under consideration is non-stationary or has a unit root.

First running the normal regression model helps us to show the relationship between R squared and the Durbin Watson. From the table, the results shows that the R squared (0.897232) is greater than the Durbin Watson statistic was (0.720180) and thus the series in the model are not stationary. Therefore, stationarity testing was conducted as shown below

Table 3.6: Stationarity Test for the Variables at Zero Difference

Variable	t-Statistic	Prob.*	Comment
EM	38.6611	0.0073	Stationary
Cost of Corporate bonds	28.6679	0.0945	Non-Stationary
Leverage	18.6909	0.5420	Non-Stationary
Size of firm	21.3088	0.3792	Non-Stationary
Age of firm	21.0697	0.3930	Non-Stationary

Source: Research Data (2022)

From the findings in table 4.5, it was revealed that all the variables under study had an Augmented Dickey-Fuller probability statistic of more than 0.05. Thus, all the variables were found not to be stationary. This necessitated the need for first difference.

Table 3.7: Stationarity Test for the Variables at 1st Difference

Variable	t-Statistic	Prob.*	Comment
Cost of Corporate bonds	85.3149	0.0000	Stationary
Leverage	21.9889	0.3411	Non-Stationary
Size of firm	30.8893	0.0567	Non-Stationary
Age of firm	29.5189	0.0780	Non-Stationary

Source: Research Data (2022)

Table 4.6 shows that cost of corporate bonds was stationary at first difference were while the rest of the variables were still not stationary (since *p-value>0.05)*. This necessitated the need for the second difference for Size of firm, leverage and the number of age of firm.

Table 3.8: Stationarity Test for the Variables at 2nd Difference

Variable	t-Statistic	Prob.*	Comment
Leverage	21.9889	0.0411	Stationary
Size of firm	30.8893	0.0067	Stationary
Age of firm	29.5189	0.0080	Stationary

Source: Research Data (2022)

Table 4.7 shows that size of firm, leverage and age of firm became stationary at the second difference, given that the *p-value<0.05*.

3.9 Ethical Consideration

In research ethics are important for two important reasons (Ger, 2018). First, ethics in research is important to enhance the aims of the research such as knowledge, truth and avoidance of error. Second, since research often involves a great deal of cooperation and coordination among many different people in different disciplines and institutions, ethical standards promote the values that are essential to collaborative work, such as trust, accountability, mutual respect, and fairness. In this study, ethical considerations were considered through obtaining permission from Strathmore University to carry out the research study.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents empirical outcomes which were derived from the secondary data on annual basis for the 6 years for 21 firms under study thus giving rise to 126 observations. Section 4.2 presents summary of descriptive statistics. Section 4.3 trend analysis.4.4 diagnostic tests.4.5 Auto-correlation Analysis and Section 4.6 Regression analysis main results.

4.2 Summary of the Descriptive Statistics

This section presents the descriptive statistics for the aspects of cost of corporate bonds, leverage, size of firm, age of firm and Earnings management. The results in Table 4.1 revealed that the mean earnings management for firms listed in NSE between the year 2015 and 2020 was 0.199 (change in Accrual-based earnings management) with 0.520 (percent change) being the maximum value and 0.010 as the minimum value. The standard deviation was 0.167 implying that the earning management is closely clustered to the mean. This implies that across the 6-year period of study, change in earning management has maintained a relatively constant figure.

Likewise, the mean cost of corporate bonds in the same period were 17.743 (natural logarithm of sum of the issued corporate bond in the firms listed in NSE) with 21.370 being the maximum cost of corporate bonds and 15.230 as the minimum value recorded in that period. The standard deviation was 1.741 implying that the cost of corporate bonds is closely clustered to the mean. This implies that across the 6-year period of study, cost of corporate bonds maintained a fairly constant figure.

Mean leverage in the same period were recorded at 0.279 (ratio of total liabilities to total assets) with 0.790 being the maximum leverage and 0.000 as the minimum value recorded in that period. The standard deviation was 0.234 implying that leverage is closely clustered to the mean. This implies that across the 6-year period of study, leverage maintained a relatively constant figure.

Mean size of firm in the same period were recorded at 14.489 (natural log of total assets) with 18.220 being the maximum size of firm and 12.440 as the minimum value recorded in that period. The standard deviation was 1.486 implying that the Size of firm are closely clustered to the mean. This implies that across the 6-year period of study, size of firm maintained a fairly constant figure.

Age of firm, likewise, recorded a mean of 43.020 (years) with 0.000 years as the minimum number and 100.000 years as the minimum number recorded in that period. The standard deviation was 24.297 implying that the age of firms considered in this study was distributed over 100 years. This implies that across the 6-year period of study, age of firm varied largely from one firm to the other.

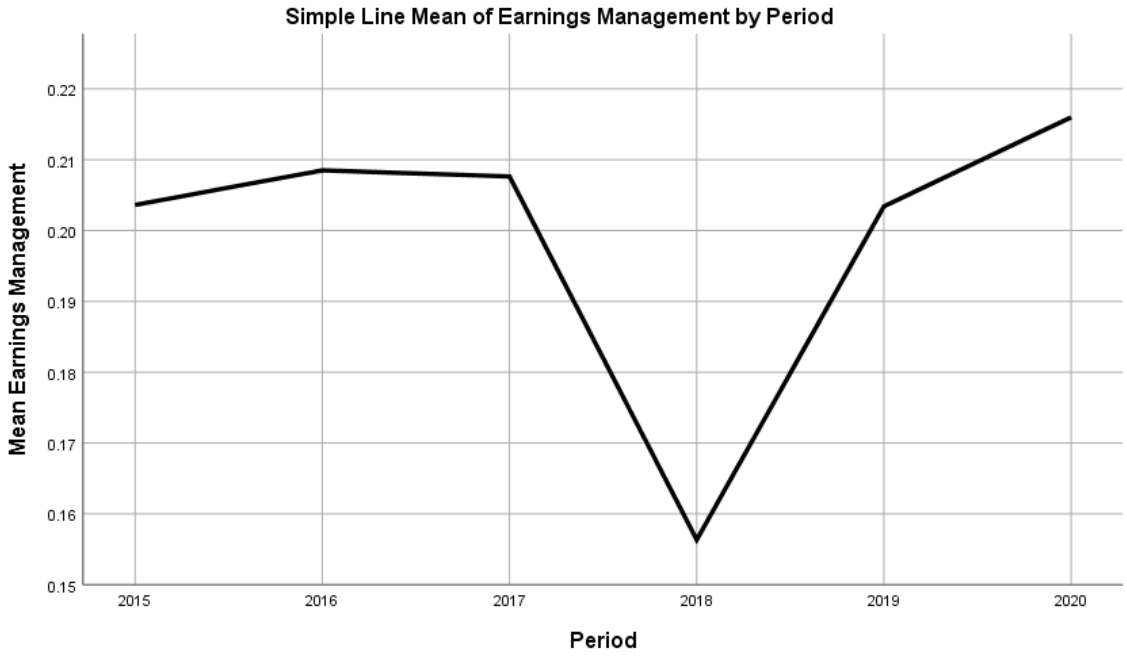
Table 4.1: Summary of the Descriptive Statistics

Descriptive Statistics		Earnings Management	Cost of Corporate bonds	Leverage	Size of Firm	Age of Firm
Range	Statistic	0.510	6.140	0.790	5.770	100.000
Minimum	Statistic	0.010	15.230	0.000	12.440	0.000
Maximum	Statistic	0.520	21.370	0.790	18.220	100.000
Mean	Statistic	0.199	17.743	0.279	14.489	43.020
	Std. Error	0.015	0.155	0.021	0.132	2.165
Std. Deviation	Statistic	0.167	1.741	0.234	1.486	24.297
Variance	Statistic	0.028	3.032	0.055	2.209	590.327
N	Statistic	126	126	126	126	126

Source: Research Data (2022)

4.3 Trend Analysis

Overall, Figure 4.1 shows a moderate trend, though fluctuations inside the time lags especially towards 2018. The fluctuations indicate the results of shifts in accrual-based earnings management and real-earnings management that could have majorly been caused by political factors (particularly 2017 general elections) and other factors. In this study, trend analysis was important in making future predictions based on historical data as well as allowing comparison of data points for the periods between 2015 and 2020. Moreover, an analysis of trend gives the researcher a quick observation of the behaviour of the data to which would eventually enable them decide on which diagnostic tests to subject to the data, and the necessary remedy. For instance, where there was a structural change.



Fig

ure 4.1: Trend analysis for earnings management

Source: Research Data (2022)

The fluctuating trend line implies presence of a unit root or non-stationarity thus, is not possible to generalize its performance to other time periods. The fluctuations in the early stages might be due to changes in political and economic factors.

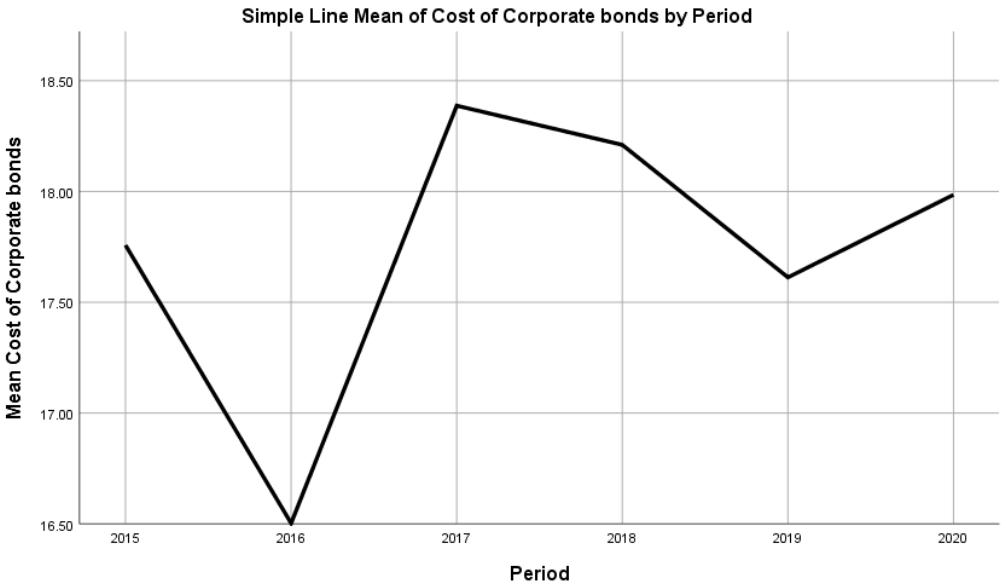
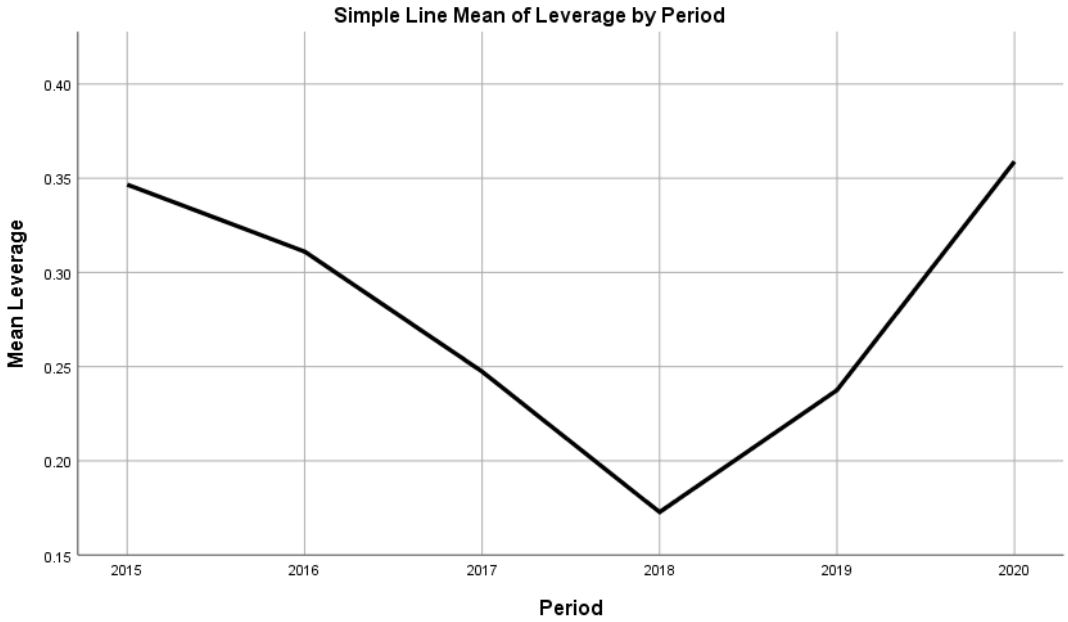


Figure 4.2: Trend analysis for cost of corporate bonds
Source: Research Data (2022)

The gradual decrease between 2015 and 2017 maybe due to risk averseness of listed corporations especially when towards general elections. The same argument applies on trend

increasing trend between 2017 and 2020 where this trend could be explained by which is mainly due to normalization of political activities within the country.



Source: Research Data (2022)

Figure 4.3: Trend analysis for leverage

Figure 4.4 indicates an initial decline and subsequent increasing trend on the size of the firm. The initial decline may be explained by small economies of the scale which leads to high operational costs. Subsequent period acceleration may be explained by increasing economies of scale and perceived reduction of operating, administrative and financing costs.

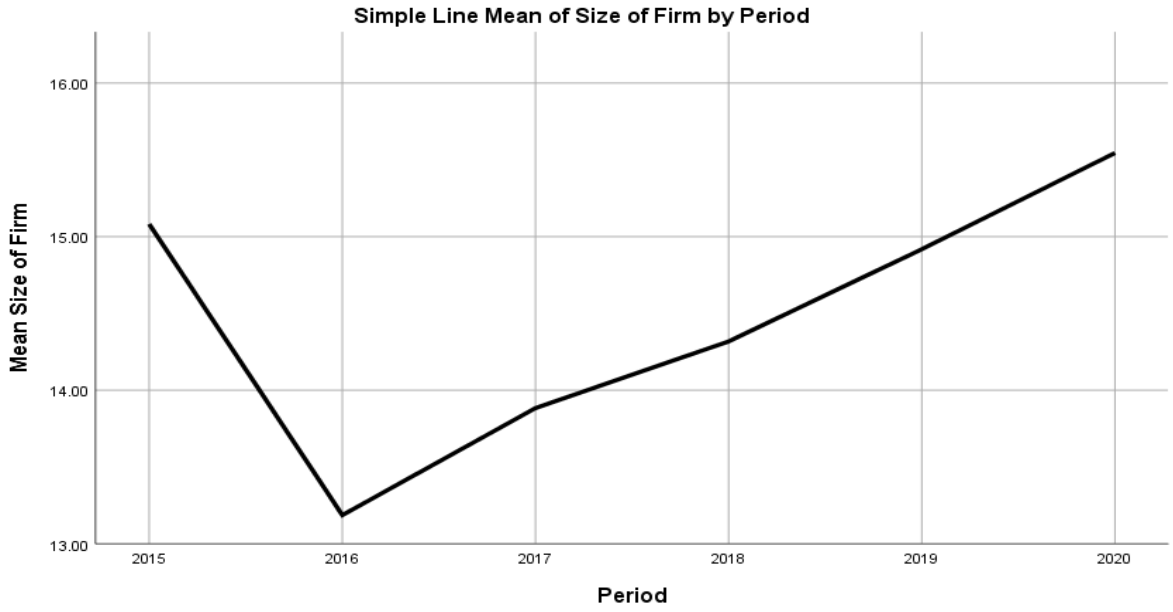


Figure 4.4: Trend analysis for size of the firm

Source: Research Data (2022)

The trend line implies a constant increasing though oscillating evolution. The increase is due to the constant increase in age of the firm from the time of incorporation.

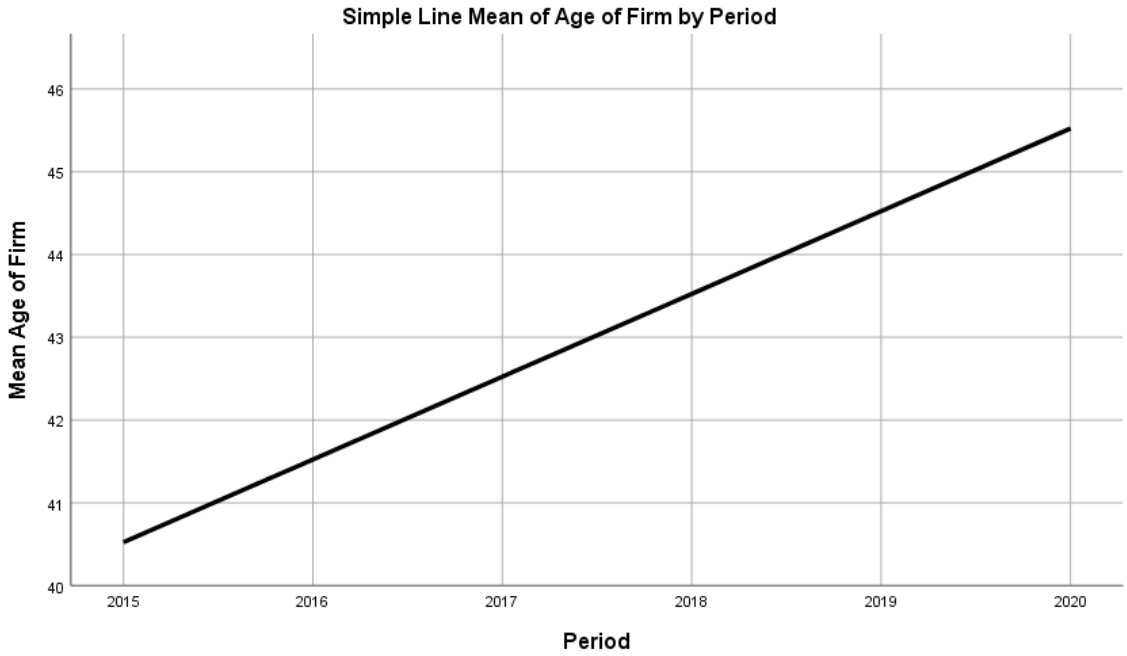


Figure 4.5: Trend Analysis for Size of firm
Source: Research Data (2022)

4.5 Correlation Analysis

Table 4.2: Correlation Analysis

Correlation	Earnings management	Leverage	Cost of corporate bonds	Size of firm	Age of firm
Earnings management	**1**				
Leverage	0.907	1			
Cost of corporate bonds	0.608	0.596	1		
Size of firm	0.900	0.690	0.610	1	
Age of firm	0.904	0.641	0.482	0.733	1

Source: Research Data (2022)

The results in the table 4.2 showed that there is a significant positive link between size of firm and earnings management (r= 0.907241, p=0.000). It further shows that leverage and earnings management have a positive and significant relationship (r= 0.608568, p=0.000). The findings further indicated that there is a positive and significant association between cost of corporate bonds transactions and earnings management (r= 0.90072, p=0.0.000). These

findings are consistent with Nyasimi (2016) who established that there was a positive relationship between the number of customers who use cost of corporate bonds and EM growth. Moreover, the table also shows that there is a significant positive relationship between age of firm and earnings management (r= 0.904548, p=0.000).

4.6 Regression analysis main results

This section was based on estimating the relationship between cost of corporate bonds and earnings management, relationship between size of firm and earnings management, relationship between leverage and earnings management, and the relationship between age of firm and earnings management. This was achieved through a composite index on the relationship between independent variables and earnings management.

The model R- squared was 0.992312. This implies that the goodness of fit of the model explains 99.23% of the variation in the earnings management. This shows that Independent Variables has an impact on earnings management: that is the aspects of cost of corporate bonds, leverage, size of firm and age of firm are good predictors of earnings management (as a measure earnings management in the model used). This is further supported by the significance of the F statistic; 258.1520 where the value was greater than the critical value at 0.05 significance level where the Prob (F-statistic) was 0.000. This implies the general linear (OLS) model is statistically significant. Regression findings in table 4.3 revealed that leverage and earnings management are positively and insignificantly related (β=0.007122, p=0.7579). The table further indicates that size of firm and earnings management are positively and insignificantly related (β=0.003648, p=0.9490).

The table below presents the findings of the regression at composite level.

Table 4.3: Relationship between Independent Variables on Earnings Management

Dependent Variable: earnings management

Total panel (balanced) observations: 126

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.07042	1.126046	10.71930	0.0000
Cost of corporate bonds	0.007122	0.022858	0.311565	0.7579
Leverage	0.003648	0.056437	0.064634	0.9490
Size of firm	0.034530	0.023300	1.481940	0.0104
Age of firm	1.059879	0.511810	2.070846	0.0404
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.992312	Mean dependent var		9.136680
Adjusted R-squared	0.988468	S.D. dependent var		0.157716
S.E. of regression	0.016936	Akaike info criterion		-5.049480
Sum squared resid	0.007458	Schwarz criterion		-4.458372
Log likelihood	114.9896	Hannan-Quinn criter.		-4.835754
F-statistic	258.1520	Durbin-Watson stat		1.863403
Prob (F-statistic)	0.000000			

Dependent Variable: EM

Source: Research Data (2022)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the summary discussion of the findings, conclusions and recommendations in relation to the research objectives. In addition, the chapter contains areas of further research.

5.2 Summary of Findings

The summary of the findings enumerates what was discovered or proved in each variable that was given as collaborated in the statistical analysis of the study. The summary was guided by the specific objective of this study as follows.

Data on earnings management, cost of corporate bonds, leverage, and size of firm was found to be displaying normal univariate distribution characteristics from their descriptive statistics. The results in revealed that that the independent variables collectively have an impact on earnings management: that is the aspects of cost of corporate bonds, leverage, size of firm and age of firm are good predictors of earnings management (as a measure earnings management in the model used) The correlation between discretionary accruals from the various models and cost of corporate bonds was found to be positive , meaning that as discretionary accruals increase,cost of corporate bonds also increased and vice-versa. This finding was consistent with Ger (2018); Li (2017); Njogu (2016); Nurdiniah & Herlina (2015). This finding was however inconsistent with Bassiouny (2016) that found the relationship to be negative and also inconsistent with Assenso et al (2021); Ge (2014) who found no significant relationship. The coefficient of correlation between real earnings management and cost of corporate bonds was however found to be negative, meaning that as real earnings management increased, cost of corporate bonds decreased and vice-versa

Notwithstanding these results, cost of corporate bonds and leverage were found to be insignificant at multivariate level with size of firm as well as the age of firm being significant.

5.3 Conclusion of the Study

The study aimed at determining the relationship between cost of corporate bonds and earnings management. The findings showed that there was a significant positive relationship between cost of bonds and accrual-based earnings management. The findings were consistent with the positive accounting theory that hypothesize if the cost of debt will reduce with the financial health of company financial reports, the higher the likelihood of earnings management. However, therewas a significant negative relationship between cost of corporate bonds and real earnings management. This finding was consistent with the agency theory that hypothesizes alignment of executives' interests with those of the shareholders. In fact, and according to the agency theory, bondholders are implementing optimal contracts with companies whosefinancial statements depict a good financial health of the company in order to ensure the convergence of interests and reduce agency problems.

5.4 Recommendations of the Study

Based on the study findings, the current study recommends the following:

Policy makers and regulators

Given that listed companies do engage in earnings management practices to either increase or decrease reported income, policy makers and industry regulators should monitor trends and patterns of the practice in order to give regulations and guidelines.

Contribution to knowledge

This study sought to build on to the positive accounting theory- debt plan hypothesis and agency theory by determining the relationship between cost of corporate bonds and earnings management. Additionally, the study sought to add to the existing body of knowledge by incorporating real earnings management where scanty research has been done in relation to corporate bonds. Further, the study sought the views of industry players in an attempt to better understand the extent of earnings management.

One of the limitations of this research was that it only focused on companies listed on the securities exchange. The study excluded companies which are not listed on the securities exchange and also excluded NGOs. Another limitation was in the tool of analysis used i.e., regression. The regression analysis tools have various assumptions such as linearity which

assumes that the relationship between the dependent and independent variable is linear. However, regression was the best tool for analysis in this study. This research also faced limitation in the availability of the annual reports of some companies listed on the securities exchange. Even though companies listed on the NSE are required to publish their financial statements with the NSE and CMA some companies fail to do so. There was also a limitation in obtaining data related to discretionary expenses required to estimate real earnings management.

5.5 Areas of Further Study

It is recommended that studies are conducted among companies that have not issued corporate bonds as a means of financing and also companies which are not listed on the securities exchange. It is further recommended that other tools of analysis are used that are more applicable in order to have more accurate findings.

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APPENDIXES

Appendix I: Corporate Bonds Medium Term Notes Listed at the NSE

1. PTA bank ltd floating rate bond
2. Centum bond senior unsecured fixed rate and equity linked notes
3. Consolidated bank of kenya ltd medium term note programme
4. Shelter afrique medium term notes
5. Barclays bank medium term floating rate notes
6. MRM
7. CFC stanbic bank senior & subordinated bond issue
8. CFC stanbic multicurrency medium term note
9. KENGEN public infrastructure bond offer 2019
10. SAFARICOM ltd domestic medium-term note
11. Housing finance medium term note
12. I&M medium term note
13. BRITAM medium term note
14. UAP holdings medium term note
15. NIC medium term note
16. CIC insurance group ltd medium-term note
17. CBA fixed medium term note
18. EABL fixed medium term note
19. CHASE Bank fixed medium-term note (s)
20. REAL People medium term note
21. FAMILY bank medium term