KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

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EARNINGS MANAGEMENT, AUDIT QUALITY, AND COST OF DEBT: EVIDENCE FROM GHANA

BY

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DECLARATION

I hereby declare that this submission is my own work toward the award of the Master of Science in Accounting and Finance and that to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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I ascribe glory and thanks to God for the grace to complete this programme. Also, the completion of this master's programme would not have been possible without the guidance, patience, and support to my esteemed supervisor Dr. Godfred Aawaar. Most importantly, I am grateful for my family's unconditional, unequivocal, and loving support.

DEDICATION

I dedicate this work to my wife Mrs. Jennifer Acquah.

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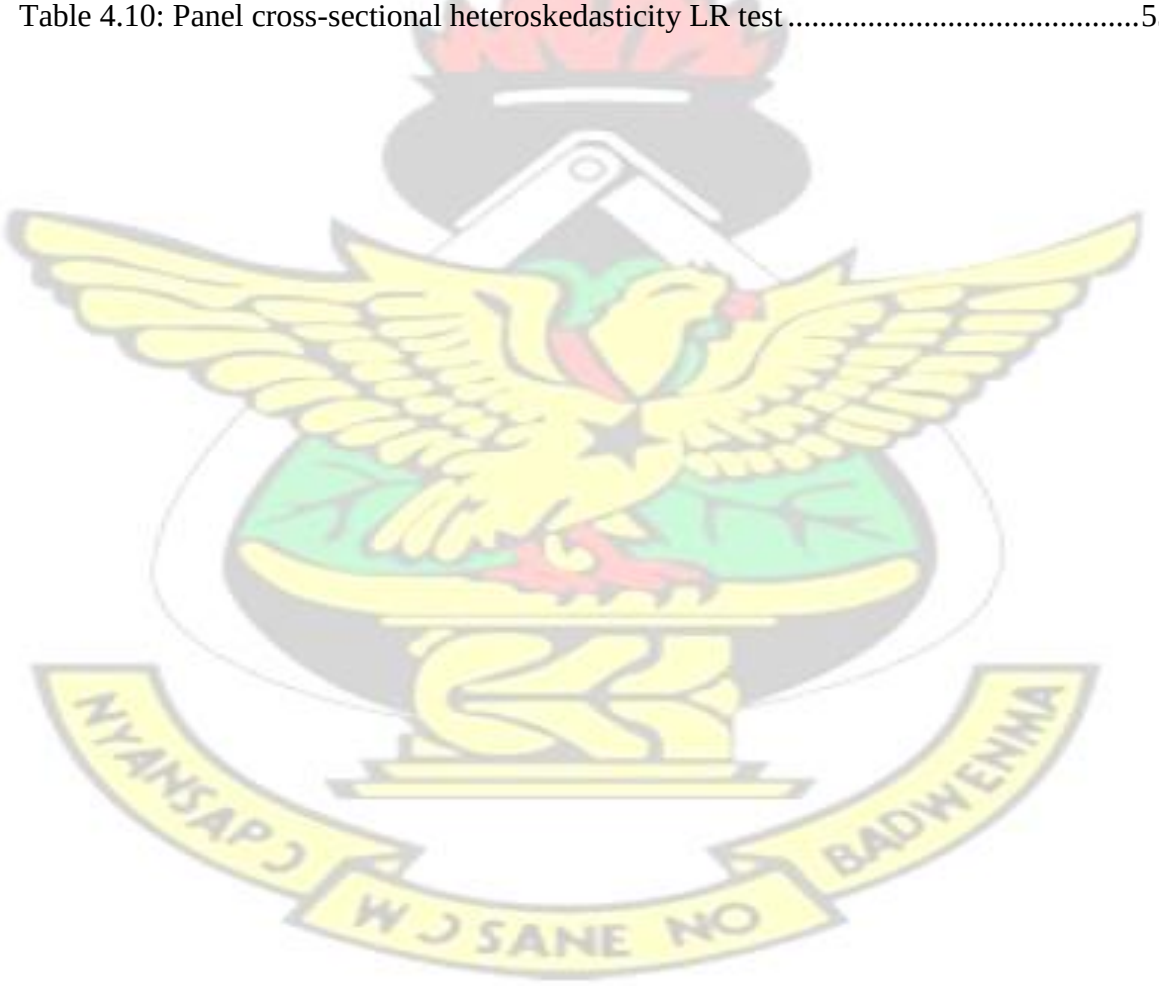

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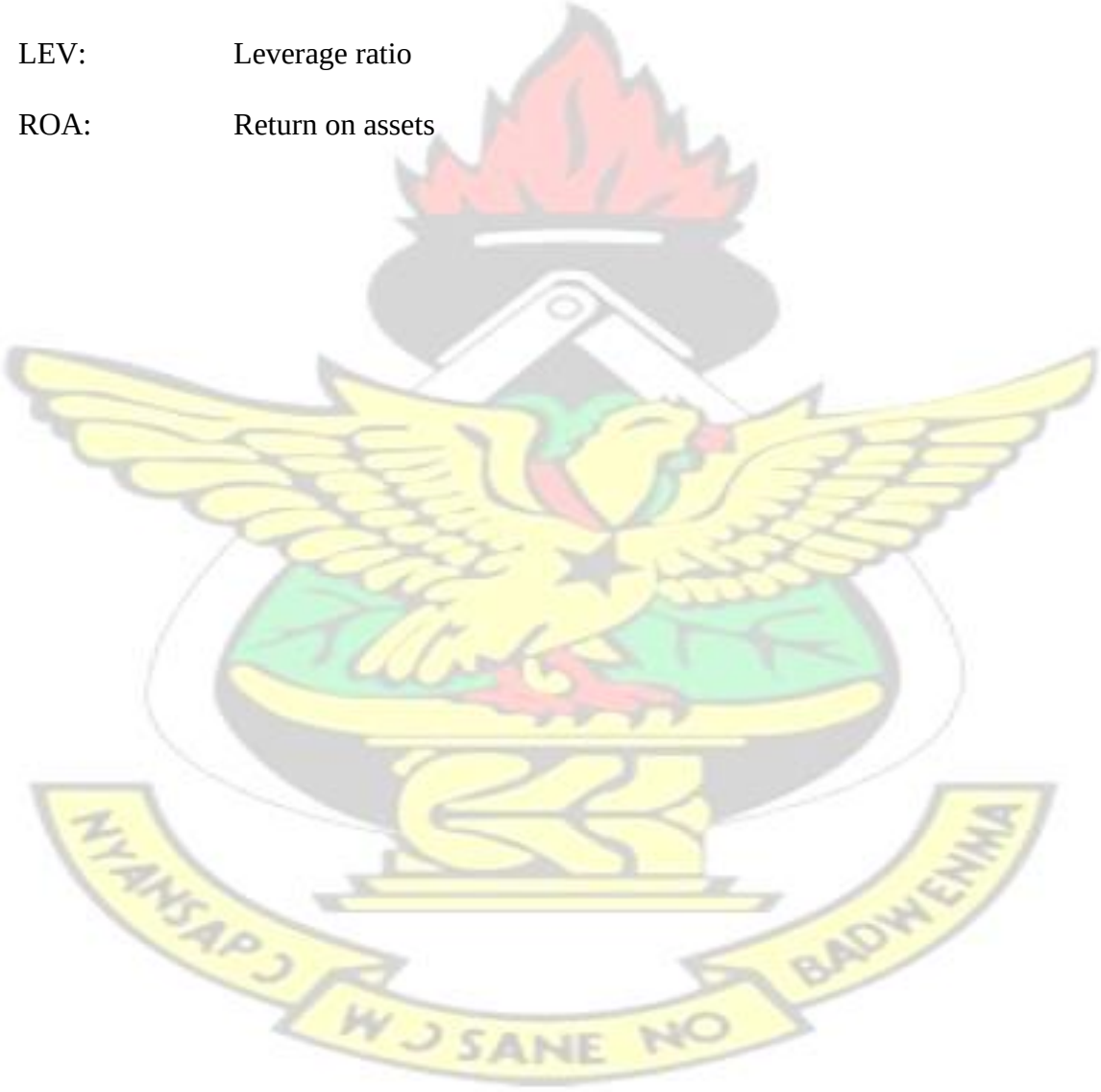
LIST OF ABBREVIATIONS

EM:	Earnings Management
COD:	Cost of Debt
AUQ:	Audit Quality
ICR:	Interest coverage ratio
LIQ:	Liquidity ratio
COL:	Assets pledged as collateral
LEV:	Leverage ratio
ROA:	Return on assets



ABSTRACT

In the world of finance, companies often engage in earnings management (EM) to meet or exceed financial targets, which can have serious consequences for investors and stakeholders. One of the potential impacts of EM is increased cost of debt, as lenders may view these practices as a signal of financial instability or unreliability. To mitigate these risks, companies may turn to audit quality (AUQ) as a way to provide transparency and credibility to their financial reporting practices. This study therefore analysed the effect of AUQ and EM on the cost of debt (COD) of listed firms in Ghana. The study was based on the signalling theory and the agency theory. The study employed the explanatory and quantitative research designs. The data for the study was secondary which was obtained from the annual reports of the sampled firms. The study sampled 15 firms for the period 2010-2021. The study data was analysed using panel regression. The study found that EM had a negative significant effect on COD. The study further found that AUQ does not have a significant effect on COD. Also, AUQ had a significant negative effect on EM. Finally, the study found that AUQ negatively moderates the relationship between EM and COD. It is recommended that firms should focus on engaging reputable audit firms with a track record of providing high-quality audit services to help reduce the risk of earnings management. Firms can engage high-quality audit firms, and the audit committee should oversee the work of the audit firm to ensure they adhere to professional standards. Firms can also invest in training for their internal audit staff to ensure they have the necessary skills to detect and prevent earnings management.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the past few decades, there has been a growing concern among investors, regulators, and other stakeholders about the quality of financial reporting by public companies (Assad and Alshurideh, 2020; Irwandi, 2020; Ghaleb, Qaderi, Almashaqbeh and Qasem, 2021). The extent to which a company manipulates its earnings has a significant bearing on the veracity of its financial statements. Whenever a business alters its accounting practises to boost its reported profits, either to achieve or exceed its earnings targets or to make its financial performance seem better, it is engaging in earnings management (EM) (Ghaleb, Qaderi, Almashaqbeh and Qasem, 2021). Earnings management practices can mislead investors and creditors into making decisions based on incorrect information, which can ultimately lead to serious consequences for both the company and its stakeholders.

One of the key consequences of EM is the impact it can have on a company's cost of debt (Puspita and Utami, 2022). The cost of debt is a measure of the cost a company pays to borrow money, and it can be affected by the perceived risk associated with a company's financial health (Ding, Appolloni and Shahzad, 2022). EM can mislead investors and creditors into making decisions based on incorrect information, which can ultimately lead to serious consequences for both the company and its stakeholders. Companies with higher levels of earnings management may be perceived as riskier, leading to a higher cost of borrowing (Ruslim and Muspyta, 2021). However, the extent of earnings management is affected by the quality of the company's audit (Kalbuana, Suryati and

Pertiwi, 2022). Audit quality (AUQ) is a critical mechanism for ensuring the accuracy and reliability of financial reporting, and auditors are responsible for detecting and reporting any instances of earnings management. However, the quality of the audit can vary depending on the auditor's experience, expertise, and independence, among other factors (Debnath, Chowdhury and Khan, 2022). Agency theory (Jensen and Meckling, 1976) states that AUQ is essential in reducing agency conflicts. A competent auditor may act as an effective monitoring mechanism that alerts the market to promising developments. The firms' efforts to lessen information asymmetry among creditors are anticipated to result in lower interest rates on loans (Sitanggang, Karbhari, Matemilola and Ariff, 2020). This is due to the possibility that shareholders may effectively monitor management's conduct via audited financial statements, increasing management's responsibility. By strengthening the credibility of financial reporting, the presence of competent auditors also reduces the danger of information asymmetry to creditors (Le, and Moore, 2021). The degree of AUQ attained in practise is thought to be influenced by demand and supply variables as well as institutional and contextual factors. So, determining an acceptable objective level of audit quality and comprehending the market's overall level of audit quality are difficult tasks (Li, and Wu, 2020). However, investors, stakeholders, and other market players obviously need to have confidence in the auditing profession's ability to provide an audit quality level that meets their standards (Li and Wu, 2020). Empirical evidence has shown mixed results concerning the variables of the study. Situmeang, Maksum and Supriana (2018) and Meini and Siregar (2014) found that earnings management had a negative effect on the cost of debt. However, Kim, Lee, and Keun Yoo (2020) found that EM positively affected the cost of debt (COD). In their study of private firms in Brazil, Manoel, da Costa Moraes, Santos and Pündrich (2022) found that AUQ negatively affected COD. However, Huq, Hartwig and Rudholm

(2022) and Thu, Khanh, Ha and Khuong (2018) found no relationship between AUQ and COD. Mollik, Mir, McIver and Bepari (2020) examined Australian firms from 2006 to 2009 and found that AUQ had a negative effect on EM. However, Jayeola, Agbatogun Taofeek and Toluwalase (2017) study of Nigerian firms found a positive effect. Olthof (2017) and Ajekwe and Ibiamke (2017) empirical studies found that AUQ and EM have a positive effect. The above shows a great deal of research on this topic in the academic literature, but most of it is conducted in established countries and needs to pay more attention to rising economies. In the last decade, trade and investment in Ghana have expanded, making it one of Africa's rising powers. In Ghana, Kamil and Appiah (2022) have documented an increase in the cost of doing business.

Despite the growing cost of conducting business in Ghana, a number of research have neglected the association between debt cost and other influencing variables. In addition, debt financing accounts for a significant portion of company financing in Ghana; however, research analysing the link between audit quality and earnings management and debt costs, with the aim of attracting investors and promoting exports, has yet to be conducted. This study contributes to the literature by investigating the interrelationship between audit quality, earnings management, and costs of debt. Also, the study examines the moderating role of audit quality on the relationship between audit quality and the cost of debt.

1.2 Statement of the Problem

According to the agency theory (Jensen and Meckling, 1976), shareholders and other stakeholders rely on external mechanisms, such as high-quality audits, to monitor the actions of management and reduce agency costs. The signalling theory (Spence, 1973)

suggests that companies use various signals, such as high-quality audits, to convey information to external stakeholders about their financial performance, quality of financial reporting, and other attributes. By engaging in a high-quality audit, companies signal to lenders that they are committed to providing reliable financial information, which can reduce the perceived risk of lending and lower the cost of debt. Hence there is a theoretical negative relationship between audit quality and the cost of debt and a positive relationship between earnings management and the cost of debt.

However, empirical findings have produced varying results as some scholars found negative, positive and no significant relationship (Situmeang, Maksum and Supriana, 2018, Meini and Siregar, 2014; Olthof, 2017; Manoel, da Costa Moraes, Santos and Pündrich, 2022; Thu, Khanh, Ha and Khuong, 2018). Also, in spite of the above, empirical studies on the subject are limited in Ghana. The Ghanaian literature has studies on earnings management and tax avoidance (Amidu and Yorke, 2017; Amidu, Coffie, and Acquah, 2019). Other studies focused on corporate governance variables such as board size, board independence, board meetings, ownership structure, audit committee size, audit committee meeting and audit committee independence and its relationship with earnings management (Agyekum, Aboagye–Otchere, and Bedi, 2014, Agyei-Mensah, 2018; Agyei-Mensah and Yeboah, 2019; Kukah, Amidu and Abor, 2016). Kamil and Appiah (2022) examined gender diversity and the cost of debt. Coffie, Bedi, and Amidu (2018) examined audit quality, cost equity and cost of debt. However, their study did not examine EM and the COD and how AUQ influences it. This study, therefore, utilises Ghanaian data to examine the interelationship between audit quality, earnings management and the cost of debt in Ghana.

1.3 Objectives of the Study

The main objective of the study is to analyse the interelationship between audit quality, earnings management and the cost of debt of listed firms in Ghana. The study specifically addresses the following objectives:

i. To examine the effect of earnings management on the cost of debt of listed firms
ii. To investigate the effect of audit quality on the cost of debt of listed firms
iii. To explore the effect of audit quality on earnings management of listed firms
iv. To examine the moderating role of audit quality on the relationship between earnings management on the cost of debt of listed firms

1.4 Research Questions

i. What is the effect of earnings management on the cost of debt of listed firms?
ii. What is the effect of audit quality on the cost of debt of listed firms?
iii. What is the effect of audit quality on the earnings management of listed firms?
iv. What is the moderating role of audit quality on the relationship between earnings management and the cost of debt of listed firms?

1.5 Significance of the Study

This study is relevant to the academic community. The findings of this study fill a gap in the Ghanaian literature and may propel future researchers to explore other moderating variables.

The study can help improve the quality of financial reporting by highlighting the importance of high-quality audits in reducing the risk of misreporting. Companies can use

this information to implement better internal control procedures and increase their reliance on external auditors.

The study can help companies reduce their cost of debt by highlighting the importance of high-quality audits in enhancing the reliability of financial statements. Lenders can use this information to reduce the perceived risk of lending to companies with a high-quality audit. The study can help promote ethical behaviour in firms. Companies may be less likely to engage in earnings management practices if they know that such practices can increase their cost of debt and damage their reputation.

The study can help strengthen the role of auditors in maintaining the integrity of financial reporting by highlighting the importance of maintaining a high level of professional scepticism and identifying and preventing earnings management practices.

1.6 Scope of the Study

The study focuses on companies listed on the Ghana stock exchange. The data covers the annual reports of the firms covered under the study, and firms are selected based on the availability of data.

1.7 Summary of Methodology

This study employed the quantitative approach because the research questions require the collection of numerical data. Also, the research type is explanatory. This is because the study explains the relationship between the constructs of the study using independent variables and testing its effect on the dependent variable, while controlling for extraneous variables. The study makes use of secondary data because the information needed for the

study is extracted from the annual reports of the firms considered under the study. The study sampled 15 non-financial firms-based data availability from 2010-2021. The study includes dependent variable (cost of debt); independent variables (audit quality and earnings management); and control variables (interest cover, collateral, size, age, leverage, return on assets and liquidity). The data for the study is analysed using panel regression. Diagnostic tests such as the Hausman test, autocorrelation, heteroscedasticity has been conducted.

1.8 Limitations of the Study

The study's focus on Ghana limits the generalizability of its results. This study's results may not apply to situations in other countries since the extent to which incomes are managed varies from one country to another as a result of institutional and legal differences. Also, the study might not be able to control all factors that affect earnings management since the study is limited to verifiable data from the annual reports.

1.9 Organisation of the Study

This study contains five chapters. Chapter one introduces the study and outlines issues relating to the background of the study, the problem statement, research objectives and questions, justifications, the scope of the study and finally, the organisation of the study. Chapter two presents a literature review on the subject. This includes a critical evaluation of conceptual, theoretical, and empirical studies by other researchers. In concluding the chapter, the study's conceptual framework is given. Chapter three contains a detailed discussion of the adopted methods of data collection. Chapter four examines and discusses the data collected for the study. Finally, chapter five discusses the findings, conclusions and recommendations and areas for future research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter includes a significant literature review on the topic. The chapter is divided into the following five (5) sections: Section 2.1 gives the conceptual literature of the study, examining themes on management of earnings, quality of audit and debt cost, while section 2.2 presents the theoretical review encompassing agency theory and signalling theory. The empirical reviews and formulation of hypotheses are described in section 2.3, while the conceptual framework is offered in section 2.4. Section 2.5 provides a summary of the chapter.

2.1 Conceptual Review

Concepts relating to management of earnings, quality of audit and debt cost are explained in this section.

2.1.1 Audit Quality

The audit phase is considered a crucial factor of the financial reporting system because it checks that the financial report is in an unbiased and impartial manner to improve the integrity of such report. The most critical element in audit quality is an auditor's capacity to spot inconsistencies and other serious mistakes and the degree of confusion between owners and management in the accounting records (Husain, 2019). Khudhair, Al-Zubaidi, and Raji (2019) describe AUQ as the market-assessed combined likelihood that a given auditor would both (a) discover a violation in the accounting structure of the company, and (b) disclose the violation. While the latter is defined as the integrity of the auditor, the

former is referred to as the auditor's professional competence. In other terms, by inferring AUQ from its description, it is argued that audit quality relies on the auditor's competence as well as the real degree of independence practised. Xiao, Geng, and Yuan (2020) define AUQ as the degree to which an independent auditor can be relied upon to ensure that financial statements provided by management are accurate and complete. According to this definition, an audit is of high quality if and only if the auditor can assert with high assurance that the financial report is accurate. According to Blum, Hatfield, and Houston (2022), the capacity of auditors to identify and report significant misstatements and manipulations of net income is central to the concept of audit quality. They see audit results as well as how effectively an audit will defend users' interests by identifying and disclosing misstatements in financial statements and growing knowledge asymmetry between the management and consumers of financial statements. Financial statements without knowledge asymmetry and misstatements, they claim, indicate the presence of audit quality.

The competency of an auditor, according to Karim, Syamsuddin, Jumarding and Amrullah, (2022), may be divided into two categories: technical competence and independence. The core of the technical competence component is the capacity to identify significant accounting mistakes and anomalies. Disclosure of major misstatements and errors is a critical component of auditor independence.

2.1.1.1 Expectation Gap

The expectation gap is the disparity between what the general public believes auditors do and what auditors really do. The public may expect auditors to catch every error or fraud in a company's financial statements, but the reality is that audits have limitations and can

only provide reasonable assurance of the accuracy of the financial information (Deepal, and Jayamaha 2022). Fotoh and Lorentzon (2023) explain that the expectation gap is a perception gap between the role and responsibilities of auditors and the expectations of stakeholders. Auditors are only required to provide reasonable assurance that the financial statements are free of material misstatements, but stakeholders may expect them to identify and eliminate every financial irregularity. The expectation gap is a communication gap between auditors and stakeholders regarding the scope and limitations of the audit. Auditors may communicate the limitations of their work, but stakeholders may not fully understand or appreciate those limitations, leading to unrealistic expectations of the audit process (Conteh and Hamidah, 2021).

Professional standards require auditors to maintain independence, integrity, and objectivity. However, if the public's expectations of what auditors should do exceed what is possible or required by professional standards, then auditors may be subject to criticism or even legal action for not meeting those expectations (Samimi, Nahandi and Mottaghi, 2022). The expectation gap can create pressure on auditors to perform beyond their professional obligations, leading to increased risk of audit failure or compromised independence. For example, if stakeholders expect auditors to catch every instance of fraud, auditors may be tempted to engage in unethical or even illegal behaviour to meet those expectations (Deepal, and Jayamaha 2022). The expectation gap can erode public trust in the audit profession, which can have negative implications for auditors' reputations and the overall value of the audit function. If stakeholders believe that auditors are not providing the level of assurance they expect, they may be less likely to rely on audit reports or to invest in companies that have been audited. Unrealistic expectations can lead to increased pressure on auditors to perform beyond the scope of

their work, which can compromise their independence and objectivity (Olojede, Erin, Asiriuwa and Usman, 2020). Unrealistic expectations can also lead to an overreliance on the audit report as a guarantee of the accuracy of the financial statements. This can lead stakeholders to place too much trust in the audited financial statements, and not conduct their own due diligence or analysis. As a result, material misstatements may go undetected, leading to a lower level of audit quality. The expectation gap can also lead to increased skepticism and mistrust of auditors, which can undermine the effectiveness of the audit function. If stakeholders believe that auditors are not providing the level of assurance they expect, they may be less likely to rely on audit reports or to invest in companies that have been audited (Dung and Tuan, 2019). To maintain high levels of audit quality, auditors must manage the expectation gap by effectively communicating the scope and limitations of their work to stakeholders, and by conducting high-quality audits in accordance with professional standards. By doing so, auditors can help ensure that stakeholders have realistic expectations of the audit process and that the audit report provides reliable and relevant information to stakeholders (Iwanowicz and Iwanowicz, 2019).

2.1.2 Earnings Management

Earnings management may be interpreted in a variety of ways, but they all come down to the same thing: an effort to inflate a company's profits (Beyer, Guttman, and Marinovic, 2019). Ruwanti, Chandrarin and Assih (2019) used the phrase earnings management to characterise the practise of altering a company's financial statements for the advantage of its shareholders. El Diri, Lambrinoudakis, and Alhadab (2020) describe EM as the practise of trying to conceal a company's true financial performance by altering transactions that may alter the reported financial results. Chowdhury and Eliwa (2021)

contend that the Accounting standards provide managers with the latitude to adjust their use of reporting techniques, assumptions, and estimates to achieve the amount of earnings management they seek. EM, as defined by Durana, Michalkova, Privara, Marousek, and Tumpach (2021), is the process through which a company alters its public financial statements for private gain. Earnings management, as defined by Hussain and Akbar (2022), is the practise of altering publicly available financial information in order to deceive interested parties about an organization's true economic performance or to alter the outcomes of contracts that are contingent on publicly available financial information. In addition, EM may be seen as a reasonable and ethical way for a company's management to fulfil its objective of reporting and disclosing consistent and predictable financial outcomes (Lin and Wu, 2022). Durana, Valaskova, Siekelova and Michalkova (2022), on their part, define EM as deviations from regular operational procedures resulting from managerial involvement in the reporting process, which includes accounting estimates and methodology as well as operational judgements.

Management participates in EM to maximise their incentive programmes and stock options or to reduce their cost of capital or political spending (El Diri, Lambrinoudakis and Alhadab, 2020). Keeping capital and political expenses low is advantageous for firms while giving high wages to top executives is detrimental. Considering that high-quality auditors provide greater audit quality and higher information quality and credibility, utilising such auditors may minimise the negative consequences of this way of EM to some degree (Kalbuana, Suryati and Pertiwi, 2022). Executives may manipulate outcomes via the use of accounting methods and estimations, as well as the adoption of certain operational techniques. This decision will affect sales, delivery timelines, and research, development, and maintenance expenditures. As noted by Debnath, Chowdhury

and Khan (2022), CEOs control earnings via accrual manipulation, which has no effect on cash flow. This might arise, for example, if expenditures associated with bad debt are under-provisioned or if the write-off of assets is delayed. In addition, managers may participate in profit management by influencing the course of the year's events to achieve specified financial objectives. By influencing actual activities, such as cutting R&D expenditures, cash flows and, in certain situations, accruals may be impacted.

2.1.3 Discretionary Accruals

Accrual is a journal entry that records an income, cost, or asset item without a corresponding cash transaction (Almasarwah, 2019). A discretionary accrual is an accrual that was made by the management of the reporting company based on its own discretion (Hoang and Phung, 2019). Hence, a discretionary accrual is an unrealized expenditure, asset, or revenue item that was recorded in the accounting system but is optional. In practically every study, abnormal accruals have been used to imitate the quality of profits (Chowdhury and Eliwa, 2021; Lin and Wu, 2022; Hussain and Akbar, 2022). Accruals should be considered normal if they reflect changes in underlying performance and abnormal if they disclose distortions caused by the application of accounting standards or earnings management (Al-Shattarat, 2021). In this sense, discretionary accruals are synonymous with abnormal accruals. Prior research on earnings management focused on discretionary accruals. Two components comprise profits: operational cash flow and total accruals. Total accruals are comprised of managerial estimates and assumptions about future cash flows and are used to make financial statements more representative of a company's real financial performance (Sosnowski, 2021). The sum of discretionary and non-discretionary accruals equals the total accrual (Arnas, Lamtiar, Kurniawati, Kurnianto and Kalbuana, 2021). Non-discretionary accruals refer to the portion of an

accrual that an accounting regulator demands in impacting a company's cash flows. Using the discretionary accruals component, managers have the option of altering a company's cash flows within the constraints imposed by accounting regulations (Dechow and Dichev, 2002). According to Dechow, Ge and Schrand (2010), the discretionary character of accruals enables managers to exercise control over outcomes. Jones (1991) accounted for non-optional changes in current assets and liabilities using shifts in sales control. Jones (1991) used property, plant, and equipment control to account for the percentage of depreciation expenditure that was non-discretionary. While a company's sales determine the amount of working capital accruals, the amount of property, plant and equipment dictates the amount of depreciation accruals. The results of a regression between total accruals and non-discretionary accrual determinants were used to calculate discretionary accruals, a proxy for earnings management.

To eliminate measurement errors when discretion is exercised via non-cash revenues such as account receivables, Dechow, Sloan and Sweeney (1995) created a cross-sectional Modified Jones (1991) model in which account receivable changes are subtracted from revenue changes. The authors contend that a modified version of Jones's (1991) model is most suited for evaluating the efficacy of earnings management. Kothari, Leone and Wasley, (2005) made modifications to the Modified Jones Model (Dechow et al. 1995) by directly including the return on assets as an extra independent variable to explain business performance. Despite this, a performance-optimization technique was applied. They were able to estimate performance-matched discretionary accruals by comparing the sample company's firm-year observation to that of the control firm in the same industry and year. Hence, the sample firm reversed its discretionary accruals by the current or previous year's return on assets (ROA) that was most comparable.

2.1.4 Cost of Debt

According to Gerwanski (2020), COD is the interest expense a company pays on its outstanding debt, such as bonds or loans. Bhuiyan and Nguyen (2020) also explain that the cost of debt is the return that lenders require for providing a loan or buying a bond issued by a company. This return is expressed as an interest rate and represents the cost of borrowing. It is the rate that lenders demand to compensate for the risk they are taking by lending money to the company. The COD is the after-tax cost of borrowing money, which takes into account the tax benefits of interest payments being tax-deductible (Li, Chen, and Xiang, 2022). Tran (2022) also explains that the COD is the opportunity cost of using debt financing instead of equity financing. It represents the return that investors could have earned if they had invested their money in other opportunities. COD is represented directly in the interest rate imposed on a company's total debt. According to Gigante and Manglaviti (2022), the interest rate on a loan may be considered a borrowing cost in its own right. COD may be readily recouped cumulatively as interest expense in the financial statements. Interest expenditure is the interest payment paid by the corporation to the lender. A company's interest payments are based on the loan's principal amount plus the interest rate set by the creditor. Not just the overall quantity of a company's debt affects interest expenses, but also the quality of that debt. If the loan's creditworthiness is high, the lender may be ready to negotiate a more favourable interest rate. A loan's creditworthiness is determined by its default or non-payment risk. If the likelihood of default is low, the debt is said to be well-qualified (Tran, 2022). According to Huq, Hartwig, and Rudholtz (2022), there exists a positive relationship between the interest rate and the level of information risk associated with a business. Consequently, organisations that provide accounting information of inferior quality are found to have higher costs of capital. According to Carmo et al. (2016), while determining interest rates,

lenders often consider information risk. According to Thu, Khanh, Ha, and Khuong, 2018), financial data also aids creditors in determining the risk of a company's bankruptcy and in forecasting its future cash flow and revenue requirements. The cost of debt is a key metric used in financial analysis to evaluate a company's financial health and creditworthiness. Investors, creditors, and analysts use the COD to determine a company's ability to meet its financial obligations and its overall risk profile. When making investment decisions, companies use the cost of debt as a discount rate to determine the present value of future cash flows. This is important in evaluating the potential returns of investments and determining whether they will be profitable (Huq, Hartwig, and Rudholtz, 2022).

2.1.4.1 Determinants of Cost of Debt

According to Gea and Johan (2021) company's creditworthiness is a key determinant of its COD. Lenders typically charge a higher interest rate to companies that are perceived to have a higher risk of defaulting on their debt obligations. Creditworthiness is evaluated based on factors such as the company's financial statements, credit rating, and business model. Interest rates in the market can also affect a company's COD (Bacha, Ajina and Ben Saad, 2021). The COD is generally higher when interest rates are high, and lower when interest rates are low. When interest rates in the market are high, lenders can demand higher interest rates on their loans to compensate for the opportunity cost of lending their money instead of investing it elsewhere at a higher rate. As a result, companies that need to borrow money will also have to pay higher interest rates on their debt obligations, which will increase their cost of debt (Bacha, Ajina and Ben Saad, 2021). Conversely, when interest rates are low, lenders may be more willing to lend money at lower interest rates because the opportunity cost of lending is lower than in a

high-interest-rate environment. This can result in lower borrowing costs for companies, which can lead to a lower cost of debt (Bacha, Ajina and Ben Saad, 2021). Tran (2022) explains that the term of the debt, or the length of time until the debt matures, can also affect the cost of debt. Longer-term debt generally has a higher cost than shorter-term debt. Firstly, longer-term debt typically involves more risk for lenders because the longer the term of the loan, the greater the likelihood that unexpected events could occur that could affect the borrower's ability to repay the debt. To compensate for this increased risk, lenders may require a higher interest rate on longer-term debt, which increases the cost of debt for borrowers (Tran, 2022).

Secondly, longer-term debt is generally less liquid than shorter-term debt because it takes longer for the lender to receive the principal and interest payments. This can make the loan less attractive to lenders, which again could lead to higher interest rates and a higher cost of debt for borrowers (Ge, Liu, Qiao and Shen, 2020). Changes in market interest rates can have a greater impact on longer-term debt than on shorter-term debt. If interest rates rise, borrowers with longer-term debt may be stuck paying higher interest rates for a longer period of time, which can increase the cost of debt. The industry and competition can affect the cost of debt in a few ways (Fidiyawati, Nuraina and Sulistyowati, 2022). First, industries that are perceived to be more risky may require higher returns to compensate lenders for the additional risk. For example, companies in the oil and gas industry may have a higher cost of debt due to the volatility of oil prices and the risk of environmental disasters. Second, competition in the industry can affect the cost of debt as well. Companies in highly competitive industries may have a lower cost of debt because lenders may see these industries as less risky since there are many players in the market. Conversely, companies in monopolistic or oligopolistic industries may have a higher cost

of debt since they may be the only or few players in the market, leading to greater risk for lenders (Sunardi, Husain and Kadim, 2020).

2.2 Theoretical Review

The theories relevant to the study are the agency theory and the signalling theory, and they are explained in this section.

2.2.1 Agency Theory

The agency theory framework was developed by Berle and Means (1932). The emphasis of their research was on how agency theory may be used to explain the growth of giant organisations. It was discovered that the interests of directors and managers were at war with those of the firm's owners, and the theory of agency was employed to explain this disparity. Jensen and Meckling (1976) formalised agency theory by extending the work of Berle and Means (1932). The theory essentially recognises that various persons engaging in the same circumstance with the same objective might have different motives and that these differences may present themselves in different ways. Considering that efficiency is inherently related to effectiveness and that there will always be an information imbalance between principal and agent, this indicates that there will always be a degree of goal conflict between parties. So, the emphasis of agency theory is on the contractual connection between the principal and one or more individuals known as the agent(s) who execute the principal's orders. It is thought that both the principal and agent joined the relationship for their own benefit. The principal entrusted decision-making authority to the agents. The best explanation for managerial motivations to participate in earnings management is agency theory (Yimenu, and Surur, 2019). Based on the agency conflict it is possible for management to mislead investors by portraying a misleading

picture of the company's financial health by using profits. Audit quality is important as it provides assurance to lenders that the financial statements are free from material misstatements. According to the agency theory, high audit quality reduces the risk of earnings management and increases lender confidence, which lowers the cost of debt. Conversely, low audit quality and earnings management increase the perceived risk of default, leading to a higher cost of debt.

2.2.2 Signalling Theory

When developing signalling theory, Spence (1973) focused on how the value of workers varied based on their degree of education. It was expected that a candidate's degree of education would shed light on the kind of employee they would be. Sharing educational background was intended to level the playing field between employers and workers. The objective of the signalling theory is to explain the behaviour of two individuals with access to contradictory information (Khalil and Ozkan, 2016). The information will influence the choices of both consumers and corporations. It is often considered that certain data are accessible to the public while others are confined to a smaller audience. Whether or not this knowledge is readily accessible will impact policy decisions regardless. In signalling theory, it is thought that more powerful people would communicate their knowledge with less powerful people (Spence, 2002). Yet, the signalling must be reliable for it to be of any use. The credibility of a corporation will deteriorate if it provides an erroneous information. Signalling theory suggests that companies use various signals, such as audit quality, to convey information about their financial performance, quality of financial reporting, and other attributes to external stakeholders. By engaging in high-quality audits, companies signal to lenders that they are committed to providing reliable financial information, which can reduce the perceived

risk of lending and lower the cost of debt (Chowdhury, and Eliwa, 2021). In the context of audit quality, signalling theory suggests that companies with a higher quality audit are likely to have better financial performance and lower levels of risk and are thus more attractive to lenders. The company's willingness to invest in a high-quality audit can be seen as a signal of their commitment to transparency and good governance practices, which can increase lenders' confidence in the reliability of the financial statements and reduce the perceived risk of lending (Alhadab and Clacher, 2018). Earnings management practices can also be seen as a signal to lenders about the company's financial performance and risk. Companies that engage in earnings management may signal to lenders that they are struggling to meet their financial obligations, which can increase the perceived risk of lending and result in a higher cost of debt (Yimenu and Surur, 2019).

Therefore, signalling theory suggests that the level of audit quality and the presence of earnings management can serve as signals to lenders about the reliability of the financial statements and the level of risk associated with lending to a particular company. Firms that allocate resources towards a comprehensive audit process have the ability to convey to creditors their dedication to furnishing dependable financial data, hence potentially resulting in a reduced burden of debt. On the other hand, corporations that engage in earnings management may convey to creditors their lack of financial stability, thus resulting in an increased loan expense.

2.3 Empirical Review and Hypotheses Formulation

A review of previous studies is presented in this section. The empirical review is divided into four sections. Each section relates to the objective of the study.

2.3.1 Earnings Management and Cost of Debt

EM affects the COD by manipulating financial statements to meet earnings targets or show stronger financial performance to appear less risky to lenders. This can lead to a lower cost of debt, as lenders may perceive the company as more likely to generate steady cash flows and make payments on its debt (Emudainohwo and Okolo, 2022). On the other hand, If a company engages in EM practices that are discovered or suspected, it can damage the company's reputation and reduce its credibility with lenders. This can lead to a higher perceived risk of lending to the company, resulting in a higher COD (Ruwanti, Chandrarin and Assih, 2019). Situmeang, Maksum, and Supriana (2018) analysed the effect of EM on COD using data from manufacturing businesses registered on the Indonesia Stock Exchange between 2007 and 2011. Based on a study of the data, it was established that EM led to a greater COD. Kim, Lee, and Keun Yoo (2020) did a comparable study to investigate how real EM influences the global cost of borrowed capital. Utilizing a dataset of 14,654 records from 18 countries between 1987 and 2013, they discovered a positive relationship between EM and COD. Emudainohwo and Okolo (2022) found that EM positively affect COD of Nigerian firms. Beiruth, Brugni, Marinho and Costa (2021) found that Em positively affect the COD of Brazilian firms. Based on the above, the study hypothesises that:

H1: There is a negative relationship between earnings management and cost of debt.

2.3.2 Audit Quality and Cost of Debt

The quality of the audit may enhance the effectiveness of debt contracting by enhancing the reliability of financial information, decreasing the amount of information uncertainty, and reducing the costs of debt monitoring for lending institutions (Jensen and Meckling 1976). Companies with higher AUQ are more likely to have accurate and reliable

financial statements, which increases the confidence of investors, analysts, and lenders. This increased confidence can lead to a lower perceived risk of lending to the company, resulting in a lower cost of debt (Sanoran, 2022). On the other hand high-quality audits may uncover negative information about the company's financial health, resulting in a higher perceived risk of lending. This may lead to a higher COD, even if the information uncovered does not ultimately impact the company's ability to repay its debt (El-Dyasty and Elamer, 2022).

Manoel, da Costa Moraes, Santos, and Pündrich (2022) examine whether private Brazilian sugarcane sector organisations audited by the Big 4 had lower financing costs than non-Big 4 audited enterprises. This was done by using a unique, personally compiled data collection. The verification of financial statements by a competent auditor did not have an impact on the COD, according to the empirical investigation. Huq, Hartwig, and Rudholtz (2022) examined the significance of audited financial statements for private lending businesses. Using an instrumental variable method, they determine that utilising renowned auditing firms did not result in increased interest savings on loans. Thu, Khanh, Ha, and Khuong (2018) examined the influence of audit quality perception and accrual-based profits management on the cost of loan capital for energy enterprises listed on the Vietnam stock exchange. This data collection covered information on 29 energy businesses trading on Vietnam's stock exchanges between 2010 and 2016. They found no indication that accrual-based earnings management reduces debt servicing expenses. Based on the above, the study hypothesises that:

H2: There is a negative relationship between audit quality and cost of debt.

2.3.3 Audit Quality and Earnings Management

Researchers assert that, due to their higher competence, the top 4 auditors are better positioned to detect earnings management and act to detect and reveal it in order to protect their reputations. Reputable audit firms tend to restrict earnings management, hence enhancing the transparency and precision of audited financial reporting (Nwoye, 2021; Mollik, Mir, McIver and Bepari, 2020). From 2006 to 2015, Mollik, Mir, McIver, and Bepari (2020) gathered 503 firm-year observations from Australian businesses. Earnings management was constrained by audit quality, as indicated by being audited by the Big4 auditors. Mandour, Elharidy, and Mokhtar (2018) examined the influence of AUQ on EM practises between 2010 and 2014. In the investigation, data were analysed using multiple regressions. The investigation revealed a negative correlation between AUQ and EM.

Jayeola, Agbatogun, and Toluwalase (2017) examined the relationship between AUQ and EM in Nigeria. Using a longitudinal research approach, secondary data were collected between 2005 and 2014. According to the results, audit quality showed a significant positive correlation with earnings management. Also, Okereke (2022) investigated the relationship between AUQ and EM in Nigeria. Annual reports of thirteen publicly listed firms of consumer items were mined for secondary data. The findings of the research indicated that AUQ had a significant effect on earnings restatement processes. Olthof (2017) studied if AUQ had a significant impact on EM. Utilizing a sample of 52 Dutch publicly traded companies in 2016, this study used a multiple regression model that adjusted for firm size, corporate leverage, sales growth, and industry. The data suggested that audit quality had no direct influence on earnings management in the Netherlands. From 2009 to 2014, Ajekwe and Ibiamke (2017) analysed the association between audit

quality and EM in Nigeria. The investigation revealed that audit quality limited earnings management, although the reduction was not statistically significant. Hassan, Aksar, Khan, Ahmed and Zahoor (2023) found that AUQ negatively affected COD. In a study IPOs in Indonesia Hafsah and Mirano (2023) found AUQ and EM were negatively related. Based on the above, the study hypothesises that:

H3: There is a negative relationship between audit quality and earnings management.

2.3.4 Audit Quality, Earnings Management and Cost of Debt

When companies engage in EM practices, it can create uncertainty about their financial health and increase the perceived risk of lending. However, high-quality audits can identify and report EM practices, leading to more accurate financial statements and reducing the perceived risk of lending. As a result, companies may be able to obtain a lower cost of debt, even if they engage in some degree of earnings management (Indarti and Widiatmoko, 2021). On the other hand some lenders may still perceive earnings management practices as a significant risk factor, regardless of the quality of the audit. As a result, even with a high-quality audit, companies may still face a higher cost of debt if they engage in earnings management practices (Le and Moore, 2021).

Indarti and Widiatmoko (2021) did empirical research to investigate if AUQ moderates the effect of EM on COD. This study looked at companies that sold consumer goods and were listed on the Indonesia Stock Exchange from 2016 to 2018. The results showed that managing earnings was a good way to keep interest payments on debt to a minimum. As shown by the findings of the test of the moderating hypothesis, audit quality moderated the relationship between AUQ and COD. Orazalin and Akhmetzhanov (2019) looked at how earnings management and the quality of audits affect the interest rates that

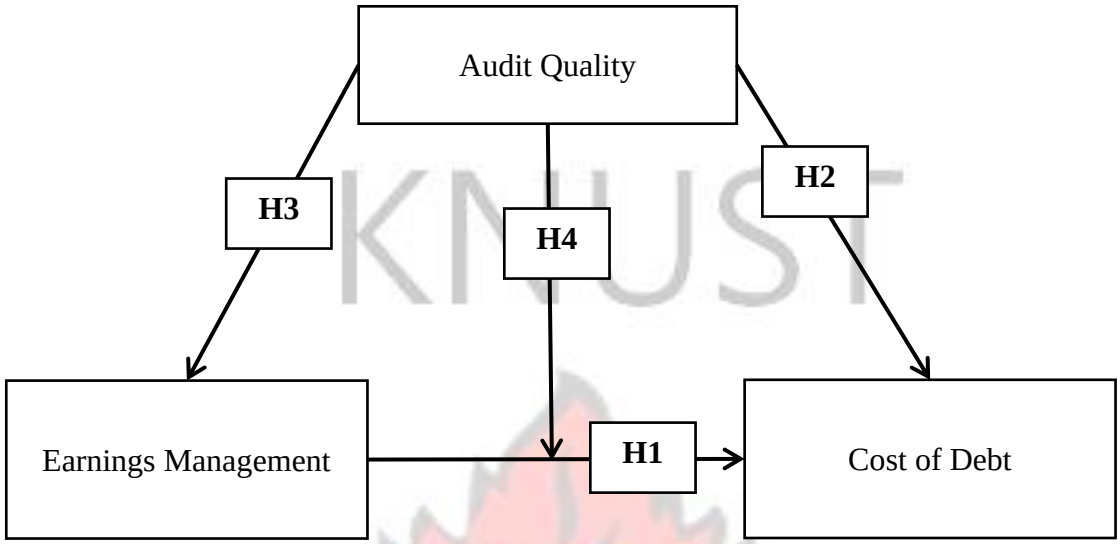
Kazakhstani public companies that are listed on foreign stock markets pay. For this study, the Kazakhstan Stock Exchange was used as a sample. They looked at the relationship between AUQ, EM, and COD using a cross-sectional ordinary least squares method. The finding demonstrated a negative association between EM and COD. The data also showed that debt service fees were lower when audits were done better. Yet, whether a business is audited by one of the Big Four or a smaller agency, EM has the same effect on loan cost. Based on the above, the study hypothesises that:

H4: AUQ moderates the relationship between EM and COD

2.4 Conceptual Framework

The conceptual framework for the study is presented in this section. It includes the independent variables, dependent variables, and moderating variable. In the table EM is linked to COD. Audit quality is also linked to EM and COD. Further, AUQ moderates the relationship between EM and COD.

Figure 2.1: Conceptual framework



Source: Construct by author (2023)

2.5 Chapter Summary

The pertinent literature has been presented in this chapter. Which comprised of conceptual literature such as AUQ, EM, discretionary accruals, COD. Also, theoretical review including signalling theory and agency theory has been explained. The empirical reviews and hypotheses formulation as well as conceptual framework has also been presented.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the method that was applied in carrying out the study. This chapter contains the following sections: research design (3.1), data (3.2) methods (3.3), model specification (3.4) and research variables (3.5) and chapter summary (3.6).

3.1 Research Design

Research design is the process of identifying and selecting the most appropriate research method or combination of methods for a particular research question, based on the nature of the research problem and the available resources (Siedlecki, 2020). This study employed the quantitative approach because the research questions require the collection of numerical data. Also, the research questions require objectivity and minimization of bias hence this approach allows for statistical tests to be carried out on the data in a standardised manner to establish statistical significance. Also, the research type was explanatory. This is because the study explains the relationship between the constructs of the study using independent variables and testing its effect on the dependent variable, while controlling for extraneous variables. Again, the research strategy is a longitudinal study because the study involved collecting data from the same individuals or groups (companies) over an extended period of time. The study was designed to observe and analyse changes in variables over time, rather than at a single point in time.

3.2 Data

Companies trading on the Ghana Stock Exchange constituted the population of this investigation. Currently, 39 businesses are listed on the Ghana Stock Exchange. The study sampled 15 non-financial firms. Purposive sampling method was utilised to determine the seventeen non-financial entities that were included in the study. The basis for the selection of the firms was data availability. Due to lack of data firms were only selected if their annual reports were available to the researcher. Most of the firms had a lot of missing data hence the period with most data available was from 2010 - 2021. Financial firms were excluded because the method of calculating earnings management for financial firms is different from non-financial firms hence combining both sectors in one study is not tenable. Earnings management for financial firms requires loan loss provisions and non-performing loans which are not provided by non-financial firms. This study employed secondary data obtained from previous financial reports as published by the companies concerned. The data consisted of the set of financial statements obtained from annual report Ghana. The key data forms accessible for analytical research are cross-section, time series, and panel. In cross-sectional data, one or more variables are aggregated simultaneously for several survey units. Data, in time series, looks at values of one unit over time. The panel data enjoins both cross sectional and time series. Since the data for the study contained many companies and time periods, it was classified as panel data.

3.3 Methods

The method of analysis performed was panel regression. The panel regression equation may be specified using a pooled OLS, a fixed-effect (FE) model, or a random-effects (RE) model (Chan, and Tobias, 2021). With pooled OLS, the same model is estimated for all

observations, regardless of their group membership, based on the assumption that all data, including company-specific information, are derived from a single population (Dawson, 2019). Since there are no missing variables that may influence the regressors, it is believed that the model is sufficiently specified. Fixed and random effects models assume that unobserved heterogeneity affects the dependent variable and the independent variables. Specifically, these models assume that the unobserved heterogeneity is constant over time (fixed effect) or varies randomly across individuals (random effect). Fixed and random effects models attempt to account for this unobserved heterogeneity by including individual-specific intercepts (fixed effect) or individual-specific random effects (random effect) in the regression equation (Wagner III, 2019).

The difference is that the FE model assumes that unobserved heterogeneity is related to the intercept, which represents the entity-specific effect or unobserved heterogeneity that is constant over time. This unobserved heterogeneity is not observable in the data and is assumed to be correlated with the regressors, which can result in bias in the OLS estimator. By including entity-specific FE in the model, the effect of this unobserved heterogeneity is controlled for (Mair, and Wilcox, 2020). The RE model also accounts for unobserved heterogeneity but in a different way. The random effect model assumes that the unobserved heterogeneity is uncorrelated with the regressors and is allowed to vary randomly across entities. The RE model estimates the variance of the unobserved heterogeneity and includes it as an additional parameter in the model. This allows the model to capture the variation in the unobserved heterogeneity across entities (Dawadi, Shrestha, and Giri, 2021). The Hausman test is a statistical test that can help decide between fixed and random effects models. The test compares the efficiency and

consistency of the fixed and random effects estimators and provides a statistical measure of whether the fixed effect or random effect model is preferred.

3.4 Model Specification

The panel regression model for the study is given below. The model is arranged according to the objectives of the study. The model was adopted from the studies of Orazalin and Akhmetzhanov (2019).

$$COD_{it} = \alpha + \beta_1 EM_{it} + \beta_2 LIQ_{it} + \beta_3 COL_{it} + \beta_4 LEV_{it} + \beta_5 ROA_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 ICR_{it} + \varepsilon_{it} \ldots . (1)$$

COD is the dependent variable which is regressed over Em (independent variable) and LIQ, COL, LEV, ROA, AGE, SIZE, ICR (control variables). This equation establishes how EM affects COD.

$$COD_{it} = \alpha + \beta_1 AUQ_{it} + \beta_2 LIQ_{it} + \beta_3 COL_{it} + \beta_4 LEV_{it} + \beta_5 ROA_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 ICR_{it} + \varepsilon_{it} \ldots . (2)$$

COD is the dependent variable which is regressed over AUQ (independent variable) and LIQ, COL, LEV, ROA, AGE, SIZE, ICR (control variables). This equation establishes how AUQ affects COD.

$$EM_{it} = \alpha + \beta_1 AUQ_{it} + \beta_2 LIQ_{it} + \beta_3 COL_{it} + \beta_4 LEV_{it} + \beta_5 ROA_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 ICR_{it} + \varepsilon_{it} \ldots . (3)$$

EM is the dependent variable which is regressed over AUQ (independent variable) and LIQ, COL, LEV, ROA, AGE, SIZE, ICR (control variables). This equation establishes how AUQ affects EM.

$$COD_{it} = \alpha + \beta_1 EM_{it} + \beta_1 AUQ_{it} + \beta_1 (EM * AUQ)_{it} + \beta_2 LIQ_{it} + \beta_3 COL_{it} + \beta_4 LIV_{it} + \beta_5 ROA_{it} + \beta_6 AGE_{it} + \beta_7 SIZE_{it} + \beta_8 ICR_{it} + \varepsilon_{it} \ldots . (4)$$

COD is the dependent variable which is regressed over EM (independent variable), AUQ (moderator) and LIQ, COL, LEV, ROA, AGE, SIZE, ICR (control variables). This equation establishes how AUQ moderates the relationship between EM and COD. To establish the moderation, the interaction between EM and AUQ (EM* AUQ) must be significant.

COD: cost of debt, EM: earnings management, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets.

3.4.1 Diagnostic Testing

The study tested for multicollinearity, autocorrelation and heteroskedasticity. Multicollinearity can occur when two or more explanatory variables are associated with one another, and a common way to detect it is by looking at high Pearson correlations between variables (Hill, Griffiths and Lim, 2018). A Pairwise correlation of more than 0.8 is often used as a threshold to indicate possible multicollinearity. Multicollinearity can also be identified using the Variance Inflation Factor (VIF). Due to multicollinearity between the independent variables, the VIF indicates that the variance of the projected regression coefficients has increased. A high VIF value for a variable indicates that the variable is highly collinear with the other independent variables in the model, and this can lead to inflated standard errors, biased estimates, and reduced precision in the regression coefficients (Hill, Griffiths, and Lim, 2018).

Heteroskedasticity is another possible concern with regression analysis. It is a circumstance in which the residual variance fluctuates throughout the independent variable's values (s). As a result, the validity of statistical tests and the precision with

which regression coefficients are obtained may be compromised (Catania, and Billé, 2017). This was examined using the panel cross-sectional heteroskedasticity LR (likelihood ratio) test. If the prob.-value of the F-test is less than a preset significance threshold, we may infer heteroskedasticity in the regression model (e.g., 0.05). In regression models, autocorrelation, also known as serial correlation, arises when errors or disruptions are not independent of one another. This may occur if errors from one era are associated with errors from another one (MacKinnon, 2019). Autocorrelation may potentially impair the validity of statistical tests owing to erroneous and inefficient estimation of regression coefficients. The Durbin-Watson (DW) test was used to determine whether the residuals of the regression model exhibited autocorrelation or serial correlation. If the test statistic is less than 1.8, which it is if the range is 0-4, there is no autocorrelation.

3.5 Variables Description and Measurement

The variables for the study are explained in Table 3.1. They include the independent, dependent and control variables.

3.5.1 Dependent Variable

Cost of debt was the dependent variable. The cost of debt is the interest rate a company or organization pays on its debt obligations, such as bonds or loans (Orazalin and Akhmetzhanov, 2019). It was measured as Interest expenses divided by the interest-bearing debt (Orazalin and Akhmetzhanov, 2019). Interest expenses represent the cost of borrowing money, and dividing it by the interest-bearing debt gives a percentage that represents the cost of debt. This calculation takes into account both the interest rate

on the debt and the amount of debt outstanding, which are both important factors in determining the cost of debt.

3.5.2 Independent Variables

On of the independent variables for the study was earnings management. EM refers to the practice of using accounting techniques to manipulate a company's financial results to meet specific targets or goals (Nwoye, 2021). This study used discretionary accruals measured by modified Jones model (Dechow et al., 1995; Jones, 1991). Furthermore, the modified Jones is generally used in the literature to measure discretionary accruals (Arun et al., 2015; Fan et al., 2012; Gull et al., 2018; Jackson, 2018; Kim and Jung, 2020; Shu et al., 2015; Yu et al., 2020).

Depreciation on fixed assets reduces accruals, according to Jones (1991). Jones (1991) predicts that fluctuations in income will lead to fluctuations in operating capital, which in turn would affect accruals. In order to forecast discretionary accruals, Jones employs the variance of revenue (REV) and fixed asset (PPE) as independent variables. Managers, on the other hand, may employ credit sales to control profits. To calculate this, Dechow et al. (1995) modified the Jones model, that is, they deduct the variance of receivables (△ REC).

The following model is used to obtain estimates of the firm specific parameters:

$$\frac{TA_{it}}{A_{it-1}} = \beta_1 \frac{1}{A_{it-1}} + \beta_2 \frac{\Delta REV - \Delta AR}{A_{it-1}} + \beta_3 \frac{PPE}{A_{it-1}} + €_{it}$$

TA; total accruals (net income less operating cash flow), A; total asset, ΔREV; revenue in year *t* minus revenue in year *t-1*, ΔAR; receivables in year *t* minus receivables in year *t-1*, PPE, Property plant and equipment

Another independent variable was audit quality (AUQ). AUQ refers to the degree to which an audit provides assurance that a company's financial statements are reliable, accurate, and complete (Huq, Hartwig and Rudholm, 2022). It was measured as A dichotomous variable, which takes the value of 1 if the firm is audited by the big4 audit firms and 0 if otherwise (Huq, Hartwig and Rudholm, 2022). This measure assumes that Big 4 audit firms are associated with higher audit quality.

3.5.3 Control Variables

Liquidity ratio was a control variable for the study. Liquidity refers to an asset's ease of conversion into cash or other liquid form, or its capacity to be utilised to pay off obligations (Indarti and Widiatmoko, 2021). It was measured as current assets divided by current liabilities which shows a company's ability to pay its short-term obligations with its short-term assets (Indarti and Widiatmoko, 2021). A higher current ratio indicates a greater ability to pay off current obligations, while a lower ratio may suggest that a company could face challenges in meeting its short-term obligations.

Firm size was another control variable. Firm size is the value of a firm’s assets or market capitalization, which can reflect the scope of its operations and the level of investment required to maintain and grow the business (Mollik, Mir, McIver and Bepari, 2020). It was measured as the natural log of total assets (Mollik, Mir, McIver and Bepari, 2020).

Return on assets (ROA) is another control variable. ROA is the ratio of a company's net income to its total assets used in financial analysis (Thu, Khanh, Ha and Khuong, 2018). It was measured as earnings after tax divided by total assets. This measure captures the efficiency of a company in using its assets to generate profit. A higher ROA implies that a company is generating more profits from its assets. Conversely, a lower ROA may suggest that a company is not generating as much profit from its assets.

Firm age was another control variable. Firm age refers to the length of time that a company has been in operation (Sanoran, 2022). The variable under consideration was quantified as the temporal duration in years subsequent to the establishment of the organisation. Older firms may have established a track record of financial stability, which could lead to lower perceived risk and thus lower borrowing costs (Sanoran, 2022). Interest coverage ratio (ICR) was another control variable. It is a measure of a company's financial health that reflects its ability to meet interest payments on its debt. (Orazalin and Akhmetzhanov, 2019). The metric in question was determined by dividing profits before interest, taxes, depreciation, and amortisation by interest expenditures. A higher ICR implies that a company has more income available to cover its interest expenses, which could indicate a stronger financial position. Conversely, a lower ICR may suggest that a company is struggling to generate enough income to cover its interest payments, which could indicate weaker financial health (Orazalin and Akhmetzhanov, 2019).

Collateral (COL) was another control variable. COL is an asset or property that is pledged as security for a loan or other financial obligation (Orazalin and Akhmetzhanov, 2019). The metric under consideration was computed by dividing the sum of property, plant, and equipment by the entire value of assets. These assets can be used as collateral for loans or other financial obligations because they have tangible value and can be sold to recover funds in the event of default (Orazalin and Akhmetzhanov, 2019). Leverage (LEV) is another control variable. Leverage generally refers to the use of borrowed funds or other financial instruments to increase the potential return on an investment (Okereke, 2022). It was measured as total debt scaled by total assets. A higher leverage ratio indicates that a company has a higher level of debt relative to its assets, which can

increase the potential returns but also increase the financial risk. A lower leverage ratio indicates that a company is relying less on debt financing and has a lower level of financial risk (Okereke, 2022).

Table 3.1: Variables and Measurement

Variable	Measurement	Source	Sign
Cost of debt	Interest expenses divided by the interest-bearing debt.	(Orazalin and Akhmetzhanov, 2019).	
Earnings management	It was measured using discretionary accruals	(Nwoye, 2021).	Negative/ Positive
Audit quality	A dichotomous variable, which takes the value of 1 if the firm is audited by the big4 audit firms and 0 if otherwise	(Huq, Hartwig and Rudholm , 2022).	Negative
Liquidity ratio	Current assets divided by current liabilities	(Indarti and Widiatmoko, 2021).	
Firm Size	Natural log of total assets	(Mollik, Mir, McIver and Bepari, 2020)	Positive
Return on Assets	Earnings after tax divided by total assets	(Thu, Khanh, Ha and Khuong, 2018)	Positive
Age	Number of years since the foundation of the company	(Olthof, 2017).	Positive
Interest coverage ratio	The ratio of earnings before interest, taxes, depreciation, and amortisation to interest expenditures.	(Orazalin and Akhmetzhanov, 2019).	
collateral	The ratio of PPE to total assets.	(Orazalin and Akhmetzhanov, 2019).	
Leverage	The metric of interest in this analysis is the ratio of total debt to total assets.	(Okereke, 2022)	Negative/ Positive

Source: Construct by author (2023)

3.6 Chapter Summary

This chapter has gone over the full procedure of conducting the study. The chapter specifically addresses study design, data, methodology, model specification, variable descriptions, and measurement. The study specifically explained how data was collected and evaluated. Furthermore, all of the measuring devices' numerous sources have been explained. The analysis and discussion of the findings are offered in the next chapter.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents the results and discussions of the study. This section is structured as follows: Section 4.1 presents the preliminary analysis which includes the descriptive statistics and the correlation analysis. Section 4.2 to 4.5 presents the results of the study and section 4.6 presents the diagnostics tests performed on the data. Section 4.7 is the chapter summary.

4.1 Preliminary Analysis

The preliminary analysis of the data are presented in this section to provide an understanding of the variables of the study.

4.1.1 Descriptive Statistics

The study's descriptive statistics are displayed in Table 4.1. The average COD across 167 observations is 0.36, with a standard deviation of 1.43. The range reaches a minimum of 0.00 and a maximum of 16.60. The data suggests that there is a wide range of values across the 167 observations, with a relatively high standard deviation compared to the mean. The fact that the minimum value is 0.00 indicates that some firms in the sample may not have any interest-bearing debt. On the other hand, the maximum value of 16.60 suggests that some firms in the sample may have a relatively high level of interest expenses compared to their interest-bearing debt. The mean EM amount for the 152 observations is -0.11, with a standard deviation of 7.77. The range is -81.30 to +81.30, and the mean is 81.30. The sample companies appear to use less earnings management on average, as indicated by the negative mean value (-0.11). However, the large standard

deviation of 7.77 suggests that there is significant variation in the degree of earnings management across the firms in the sample. The minimum value of -20.23 indicates that there are firms with relatively low levels of EM, while the maximum value of 81.30 indicates that there are firms with extremely high levels of EM. This wide range of values suggests that there may be some firms in the sample that are engaging in excessive earnings management practices.

The majority of firms (66%) in the sample were audited by the big four audit firms, as indicated by the audit quality (AUQ) variable. The mean AUQ is 0.66, with a standard deviation of 0.47. The high percentage of firms audited by the big four audit firms suggests that these firms are highly valued for their expertise and reputation in the industry. The mean AUQ of 0.66 indicates that most firms in the sample have a high level of audit quality, which could be attributed to the use of the big four audit firms. The relatively low standard deviation of 0.47 suggests that there is not much variability in the audit quality of firms in the sample, and that most firms have a similar level of audit quality. The average age of firms (Age) in the sample is 46.86 years, with a standard deviation of 16.83 years. The youngest firm is 18 years old, and the oldest firm is 93 years old. The descriptive statistics for Age indicate that the firms in the sample are relatively mature, with an average age of almost 47 years. The standard deviation of 16.83 suggests that there is some variability in the age of firms, with the youngest firm being 18 years old and the oldest firm being 93 years old. The mean liquidity ratio (LIQ) is 1.33 percentage points, with a standard deviation of 1.29 percentage points. In this range, 0.08 is the lowest value and 7.68 is the highest value. The average liquidity ratio of the sample firms is 1.33, which indicates that they have 1.33 times more current assets than current liabilities. The standard deviation of 1.29 suggests that there is considerable

variation in the liquidity ratios among the sample firms. The minimum value of 0.08 and the maximum value of 7.68 indicate that there are firms with very low liquidity as well as firms with very high liquidity.

Table 4.1: Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
COD	167	0.36	1.43	0.00	16.60
EM	152	-0.11	7.77	-20.23	81.30
AUQ	167	0.66	0.47	0.00	1.00
AGE	167	46.86	16.83	18.00	93.00
LIQ	167	1.33	1.29	0.08	7.68
SIZE	167	18.41	2.09	13.77	23.59
ICR	167	-182.06	2623.92	-33876.76	739.52
COL	167	0.52	0.98	0.02	9.26
LEV	167	0.63	0.26	0.02	1.43
ROA	167	0.04	0.14	-0.52	0.46

Source: Construct by author (2023), COD: cost of debt, EM: earnings management, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets.

The average firm size is 18.41, with a standard deviation of 2.09. The smallest firm in the sample has a size of 13.77, while the largest has a size of 23.59. This suggests that the firms in the sample vary considerably in size, with a majority likely being medium to large-sized firms. The mean interest coverage ratio (ICR) is -182.06, with a very high standard deviation of 2623.92. The lowest value is -33876.76, and the highest value is 739.52. This indicates a high degree of variation in the ability of firms to cover their interest expenses with their earnings before interest, taxes, depreciation, and amortization. The average assets pledged as collateral (COL) is 0.52, with a standard deviation of 0.98. The lowest value is 0.02, and the highest value is 9.26. This implies that there is considerable variation in the degree to which firms in the sample use collateral to secure their loans. The average leverage ratio (LEV) is 0.63, with a standard deviation of 0.26. The minimum value is 0.02, and the maximum value is 1.43. This suggests that there is

considerable variation in the degree to which firms in the sample rely on debt financing to fund their operations. The average return on assets (ROA) is 0.04, with a standard deviation of 0.14. The lowest value is -0.52, and the highest value is 0.46. This implies that there is considerable variation in the profitability of firms in the sample, with some firms earning negative returns and others earning relatively high returns.

4.1.2 Correlation

The correlation for the variables of the study are presented in Table 4.2. The highest correlation among the independent variables is between liquidity and leverage at 0.68 per cent. The lowest correlation among the independent variables is between COL and LEV at 0.01%. The highest correlation means that none of the independent variables of the study are highly correlated since they do not meet the 80 per cent threshold.

Table 4.2 : Pairwise Correlation

	COD	EM	AUQ	AGE	LIQ	SIZE	ICR	COL	LEV	ROA
COD	1									
EM	0.0019	1								
AUQ	0.0129	-0.0791	1							
AGE	0.2745**	-0.0563	0.3711*	1						
LIQ	-0.1023	-0.0921	0.2739*	0.0106	1					
SIZE	0.1546*	-0.0762	0.4119*	0.3692*	-0.0144	1				
ICR	0.0175	0.0229	0.1133	0.1169	0.0287	0.1486	1			
COL	-0.0096	-0.0396	0.1255	-0.0866	-0.12	0.0661	0.037	1		
LEV	0.1338	0.2410*	-0.5113*	-0.0577	-0.682*	-0.1672*	-0.0618	-0.0094	1	
ROA	-0.1581*	-0.4494*	0.3521*	0.1124	0.4931*	0.2829*	0.0205	-0.1154	-0.6083*	1

Source: Construct by author (2023), COD: cost of debt, EM: earnings management, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets.

4.2 Effect of Earnings Management on Cost of Debt of Listed Firms

The R-squared value of 0.14 Table 4.3 indicates that the model explains 14% of the variation in COD, and the F-statistic of 2.90 suggests that at least some of the independent variables have a significant joint effect on COD.

Earnings management (EM) has a prob.-value of 0.00 and a coefficient of -0.021159, indicating a statistically significant negative relationship with COD; thus, higher levels of EM are associated with lower debt costs. The prob.-value for the negative correlation between ROA and COD is 0.00, and the corresponding coefficient is -3.167186. The connection between LEV and COD is not statistically significant (0.359825, p = 0.49). The connection between the liquidity ratio (LIQ) and the cost of debt (COD) is not statistically significant (p = 0.23, coefficient = 0.097484). The association between company size and COD is positive and statistically significant (p=0.00, coefficient=0.089137). The prob.-value of 0.27 and the coefficient of -0.015840 for collateral assets indicate a non-significant relationship between COL and COD. The coefficient for age is 0.025800, and its p value of 0.21 indicates that it is not significantly related to COD. There is a statistically significant inverse relationship between interest coverage ratio (ICR) and COD (p=0.08, coefficient=-0.000014). The constant term in the regression model is -2.755367. This represents the estimated value of COD when all the independent variables in the model are equal to zero. However, since none of the variables in this model can be equal to zero in practice, the constant term is not particularly meaningful on its own. Its significance can be assessed by examining the prob.-value, which in this case is 0.01, indicating that the constant term is statistically significant at the 1% level.

Table 4.3: Random effect regression on earnings management and cost of debt

COD	Coefficient	Std. Error	t-Statistic	Prob.
EM	-0.021159	0.007012	-3.02	0.00***
ROA	-3.167186	0.728442	-4.35	0.00***
LEV	0.359825	0.516031	0.7	0.49
LIQ	0.097484	0.081616	1.19	0.23
SIZE	0.089138	0.027663	3.22	0.00***
COL	-0.015841	0.014169	-1.12	0.27
AGE	0.025801	0.020442	1.26	0.21
ICR	-0.000014	8.008614	-1.75	0.08*
Constant	-2.755367	1.020936	-2.7	0.01***
R-squared	0.14			
F-statistic	2.90***			

Source: Construct by author (2023),COD: cost of debt, EM: earnings management, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets,: 10% significance, **: 5% significance, ***: 1% significance*

The independent variable earnings management has a significant negative effect on cost of debt. This findings supports hypothesis 1 and confirms the study of Meini and Siregar (2014). One possible reason why EM may lead to a decrease in the COD is that it can create a perception of stability and predictability in the company's financial performance (Situmeang, Maksum, and Supriana, 2018). Lenders may view a company that consistently reports strong earnings as a lower risk borrower, and may be more willing to offer lower interest rates on debt.

Another possible reason why EM may decrease the COD is that it can improve a company's financial ratios, which are often used by lenders to evaluate creditworthiness (Kim, Lee, and Keun Yoo, 2020). For example, by increasing reported earnings, a company can increase its debt-to-equity ratio, which may be viewed positively by lenders as a sign of financial strength. Similarly, by decreasing reported losses, a company can improve its interest coverage ratio, which measures the company's ability to pay interest

on its debt. These improved financial ratios may lead to a decrease in the cost of debt. The finding supports the signalling theory (Spence, 1973). According to the signalling theory, firms with strong financial positions and earnings stability are more likely to use conservative accounting practices, while firms with weaker financial positions may be incentivized to use EM to artificially inflate their reported earnings. This is because creditors and investors rely on financial statements as a key source of information for assessing a firm's creditworthiness and investment potential. In the case of firms using earnings management, the use of such practices may signal to creditors that the firm is experiencing financial stability and hence will consider them less risky. This may lead creditors to demand lower returns on the funds leading to lower cost of debt.

Additionally, the agency theory also supports the negative relationship between EM and the COD. The agency theory suggests that conflicts of interest may arise between managers and external stakeholders, and that these conflicts can lead to actions that are not in the best interests of the firm or its stakeholders. EM can be seen as a form of agency problem, where managers may manipulate earnings to achieve personal objectives, such as increasing their compensation or meeting performance targets. In such cases, creditors may view the use of EM as a sign of poor governance and a lack of commitment to the long-term financial health of the firm, leading to increased borrowing costs. Thus, both signalling theory and agency theory provide theoretical support for the negative relationship between earnings management and the cost of debt.

4.3 Effect of Audit Quality on Cost of Debt of Listed Firms

The R-squared value of 0.11 in Table 4.4 indicates that the model explains 11% of the variation in COD, and the F-statistic of 2.36 suggests that at least some of the

independent variables have a significant joint effect on COD. AUQ has a coefficient of -0.172371 and a prob.-value of 0.00, indicating a negative relationship with COD. This means that as audit quality increases by one unit, EM decreases by 0.172371 units.The prob.-value for AUQ is 0.56, which is higher than the significance level of 0.10. This suggests that the relationship is not statistically significant.

ROA is negatively related to COD (-2.116331) and a significant prob.-value of 0.00. LEV (0.246821), on the other hand, has a non-significant prob.-value of 0.70, indicating that there is no significant relationship between LEV and COD. LIQ (0.048150) also shows a non-significant prob.-value of 0.45. Size (0.097490), on the other hand, has a significant positive relationship with COD, and a significant prob.-value of 0.02. Finally, COL (-0.002118) has a non-significant negative relationship with COD, a non-significant prob.-value of 0.88. For firm age, the coefficient is 0.023 with a non-significant prob.-value of 0.22. Similarly, for the variable 'ICR', the coefficient is -0.000012 with a non-significant prob.-value of 0.17, indicating that there is no significant relationship between interest coverage ratio and COD. The constant term in the model represents the intercept or the baseline value of the dependent variable when all independent variables are equal to zero. In this case, the constant term is -2.538147 with a prob.-value of 0.01, indicating that it is significantly different from zero.

Table 4.4: Random effect regression on audit quality and cost of debt

COD	Coefficient	Std. Error	t-statistic	Prob.
AUQ	-0.172371	0.291911	-0.59	0.56
ROA	-2.116331	0.645874	-3.28	0.00***
LEV	0.246822	0.646240	0.38	0.70
LIQ	0.048150	0.063752	0.76	0.45
SIZE	0.097490	0.040281	2.42	0.02**
COL	-0.002118	0.013512	-0.16	0.88
AGE	0.023000	0.018852	1.22	0.22
ICR	-0.000012	8.734667	-1.37	0.17
Constant	-2.538147	0.901787	-2.81	0.01***
R-squared	0.11			
F-statistic	2.36**			

*Source: Construct by author (2023),COD: cost of debt, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets, **: 5% significance, ***: 1% significance*

The finding indicated that AUQ did not have a significant effect on COD. This finding means that hypothesis 2 is rejected. The finding confirms the study of Manoel, da Costa Moraes, Santos, and Pündrich (2022). Also, the finding confirms with the study of Hartwig, and Rudholtz (2022) who examined the significance of audited financial statements for private lending businesses. Using an instrumental variable method, they determine that utilising renowned auditing firms did not result in reduction of cost of debt. One possible reason for not finding a significant effect on cost of debt could be that the difference in audit quality between the Big Four and other auditors is not large enough to impact the cost of debt significantly. In other words, the difference in audit quality between the Big Four and other auditors may not be significant enough to be reflected in the cost of debt.

4.4 Effect of Audit Quality on Earnings Management of Listed Firms

The R-squared value of 0.49 in Table 4.5 indicates that the model explains 49% of the variation in COD, and the F-statistic of 5.61 suggests that at least some of the

independent variables have a significant joint effect on EM. AUQ has a coefficient of -2.594623 and a prob.-value of 0.00, indicating a negative relationship with earnings management (EM). This means that as audit quality increases by one unit, EM decreases by 2.594623 units. The coefficient is statistically significant at a significance level of 0.01. ROA has a coefficient of -12.264277 and a prob.-value of 0.00, indicating a negative significant relationship with EM.

LEV (-1.678909) has a prob.-value of 0.25, indicating an insignificant relationship with EM. LIQ (0.275730) has a prob.-value of 0.05, indicating a significant positive relationship with EM. Firm size (-0.028807) has a prob.-value of 0.93, indicating an insignificant relationship with EM. COL (-0.197723) has a prob.-value of 0.00, indicating a significant negative relationship with EM. Age (-0.091178) has a prob.-value of 0.41, indicating an insignificant relationship with EM. ICR (0.0003) has a prob.-value of 0.17, indicating an insignificant relationship with EM. The constant coefficient is 7.777245, which represents the intercept of the regression line. The prob.-value is 0.03, which is less than the significance level of 0.05, indicating that this coefficient is statistically significant.

Table 4.5: Fixed effect regression on audit quality and earnings management

EM	Coefficient	Std. Error	t-statistic	Prob.
AUQ	-2.594623	0.874212	-2.97	0.00***
ROA	-12.264277	3.596926	-3.41	0.00***
LEV	-1.678909	1.463797	-1.15	0.25
LIQ	0.275730	0.153480	1.8	0.05**
SIZE	-0.028807	0.340273	-0.08	0.93
COL	-0.197723	0.054957	-3.6	0.00***
AGE	-0.091178	0.109308	-0.83	0.41
ICR	0.000324	0.000235	1.38	0.17
Constant	7.777245	3.487890	2.23	0.03**

R-squared	0.49
F-statistic	5.61**

*Source: Construct by author (2023), EM: earnings management, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets, **: 5% significance, ***: 1% significance*

The study found that AUQ have a significant negative effect on EM. This finding supports hypothesis 3 and it is in line with the studies of Mollik, Mir, McIver, and Bepari (2020). Also, Mandour, Elharidy and Mokhtar (2018) investigation revealed a negative correlation between audit quality and earnings management.

A possible explanation for the finding is that AUQ leads to more scrutiny of a firm's financial statements, which makes it more difficult for managers to manipulate earnings. Expertise, resources, and reputation all lend credence to the claim that audits conducted by the Big Four are of a higher calibre. Also, auditors have an incentive to maintain their reputation and avoid litigation, so they may be more likely to detect and report earnings management when they are associated with a firm that has a strong reputation for audit quality (Okereke, 2022). The finding supports the agency theory, which posits that there is a principal-agent relationship between shareholders (the principal) and managers (Jensen and Meckling, 1976). This relationship is characterized by information asymmetry, where the manager has more information about the firm's operations than the shareholder. As a result, managers may have an incentive to engage in earnings management to influence the perceptions of shareholders and creditors about the firm's performance. However, the presence of a high-quality audit can act as a monitoring mechanism to reduce the agency costs associated with earnings management. Specifically, auditors have the expertise and independence to detect and report any manipulation of financial statements by the management.

4.5 Moderating Role of Audit Quality on the Relationship between Earnings Management and the Cost of Debt of Listed Firms

The R-squared value of 0.13 in Table 4.6 indicates that the model explains 13% of the variation in COD, and the F-statistic of 2.11 suggests that at least some of the independent variables have a significant joint effect on COD. EM has a coefficient of -0.0205 and a prob.-value of 0.02, indicating a negative relationship with COD. This means that as EM increases by one unit, COD decreases by -0.0205 units. The coefficient is statistically significant at a significance level of 0.05.

The coefficient for AUQ is -0.2376 indicating a negative relationship with COD. However, the prob.-value for AUQ is 0.54, which is greater than the standard significance level of 0.10, indicating that the coefficient is not statistically significant. The coefficient for the interaction term EM*AUQ is -0.1256, indicating that the effect of EM on COD is moderated by AUQ. Specifically, when both EM and AUQ increase by one unit, the cost of debt decreases by 0.1256 units. The prob.-value for EM*AUQ is 0.01, which is less than the standard significance level of 0.10, indicating that the coefficient is statistically significant. The negative sign of the coefficient suggests that the relationship between EM and COD is weaker when AUQ is higher. In other words, the negative impact of EM on COD is less severe when AUQ is high. This implies that firms with high AUQ may be better able to manage the negative effects of EM on COD.

ROA (-3.417) has a prob.-value of 0.00, indicating a negative relationship with COD. LEV (0.0981) has a prob.-value of 0.89 suggests that it is not statistically significant in relation to COD. LIQ (0.066) has a prob.-value of 0.44 suggests that it is not statistically significant in relation to COD. Firm size (0.11310) has a prob.-value of 0.05, indicating a

positive relationship with COD. COL (-0.0257) has a prob.-value of 0.04, indicating a negative relationship with COD at a 5% level of significance. Age (0.028) has a prob.-value of 0.19 which suggests that it is not statistically significant in relation to COD. Finally, ICR (-0.000014) has a prob.-value of 0.08, indicating a statistically significant relationship with COD at the 10% level of significance. The coefficient for the constant is -2.971127 with a prob.-value of 0.01. This suggests that when all other independent variables are held constant, the expected value of COD is significantly different from zero. In other words, the constant represents the intercept of the regression line and indicates the average level of COD when all other independent variables are zero.

Table 4.6: Random effect regression on EM, AUQ and COD

COD	Coefficient	Std. Error	t-Statistic	Prob.
EM	-0.020497	0.008345	-2.46	0.02**
AUQ	-0.237591	0.387538	-0.61	0.54
EM*AUQ	-0.125565	0.049625	-2.53	0.01***
ROA	-3.416962	0.752713	-4.54	0.00***
LEV	0.098123	0.722525	0.14	0.89
LIQ	0.065982	0.084675	0.78	0.44
SIZE	0.113074	0.057417	1.97	0.05**
COL	-0.025662	0.012648	-2.03	0.04**
AGE	0.028041	0.021069	1.33	0.19
ICR	-0.000015	0.000008	-1.77	0.08*
Constant	-2.971128	1.085401	-2.74	0.01***
R-squared	0.13			
F-statistic	2.11**			

*Source: Construct by author (2023), COD: cost of debt, EM: earnings management, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets, *: 10% significance,**: 5% significance, ***: 1% significance*

This study found that AUQ negatively moderates the relationship between EM and COD. This findings confirms hypothesis 4 and relates to the studies of Indarti and Widiatmoko

(2021). One possible explanation for this finding is that higher audit quality leads to more reliable financial reporting, which in turn reduces the need for firms to engage in earnings management. As a result, the negative effect of EM on COD is reduced in firms with higher audit quality because lenders have greater confidence in the reliability of the reported financial information (Orazalin and Akhmetzhanov, 2019). Another possible explanation is that higher audit quality may lead to better communication between firms and lenders, which can help reduce information asymmetry and increase lenders' understanding of a firm's financial position. This improved communication and understanding can help reduce lenders' perception of risk and lower the cost of debt for firms, even when earnings management is present.

In addition, the negative moderation effect of AUQ on the relationship between EM and COD is explained by signalling theory (Spence, 1973). This theory suggests that firms can signal their creditworthiness to lenders through various mechanisms, such as high-quality financial reporting practices. In this context, the presence of a high-quality auditor can signal to creditors that the firm is committed to transparent financial reporting practices, which can reduce the perceived risk associated with investing in the firm. As a result, the negative impact of earnings management on the firm's creditworthiness may be mitigated by the presence of a high-quality auditor.

4.6 Diagnostic Tests

4.6.1 Multicollinearity Test

Table 4.7 presents the multicollinearity test. VIF is a measure of multicollinearity, which is the degree to which independent variables in a regression model are correlated with one another. Values of the VIF greater than 1 indicate differing degrees of multicollinearity

between the independent variables, whereas a value of 1 indicates the absence of multicollinearity. A VIF score of five or greater indicates significant multicollinearity. The reciprocal of VIF is a useful measure because it provides an easy way to assess the amount of variance that is not explained by the other independent variables. A tolerance value of less than 0.1 indicates that there is significant multicollinearity. In the table, the mean VIF is 1.75, which is generally considered to be acceptable and also all the variables have a Vif less than which means they are free from multicollinearity.

Table 4.7: Variance inflation factor

Variable	VIF	1/VIF
LEV	3.1	0.322314
LIQ	2.31	0.433171
ROA	2.23	0.447774
AUQ	1.88	0.53298
SIZE	1.42	0.703488
EM	1.34	0.744349
AGE	1.33	0.753067
COL	1.12	0.893572
ICR	1.04	0.962669
Mean VIF	1.75	

Source: Construct by author (2023), EM: earnings management, AUQ: audit quality, ICR: Interest coverage ratio, LIQ: Liquidity ratio, COL: Assets pledged as collateral, LEV: Leverage ratio, ROA: Return on assets.

4.6.2 Hausman Test

The Hausman test is used to determine whether the coefficients in a fixed-effects model or random-effects model are consistent or not. It tests whether the difference between the coefficients estimated in the two models is statistically significant or not. The test compares the difference between the coefficients of a consistent (fixed-effects) model and an efficient (random-effects) model. In Table 4.8, there are four equations being tested. The first column indicates the equation number, the second column indicates the test statistic (Hausman statistic) and the third column shows the prob.-value. The null

hypothesis is that the coefficients in the random-effects model are consistent with those in the fixed-effects model. Due to the fact that the prob.-values for Equations 1, 2, and 4 are all greater than 0.05, the null hypothesis cannot be rejected, hence the random-effects model is preferable to the fixed-effects model. The prob.-value of Equation 3 is less than 0.05 indicating that the null hypothesis should be rejected in favour of the fixed-effects model.

Table 4.8: Hausman test

	Stats	prob.-value	Meaning
Equation 1	7.14	0.52	Random effect
Equation 2	7.30	0.50	Random effect
Equation 3	29.08	0.00***	Fixed effect
Equation 4	8.88	0.54	Random effect

*Source: Construct by author (2023),***: 1% significance level*

4.6.3 Serial Correlation

The Durbin-Watson (DW) test can be used to detect autocorrelation or serial correlation in residuals from a regression model. If the test statistic is less than 1.8, which it is if the range is 0-4, there is no autocorrelation. Closer to 0 represents positive autocorrelation, while closer to 4 represents negative autocorrelation. In Table 4.9 there are four equations or models being tested, and their respective DW statistics are presented. For Equation one, two, three and four, the DW statistic are 1.94, 1.92, 2.03, and 1.95. All of these values are above 1.8, which indicates that there is little to no autocorrelation in the residuals of these models.

Table 4.9: Durbin-Watson Serial correlation test

Model	Stat	Meaning
Equation one	1.94	No serial correlation
Equation two	1.92	No serial correlation
Equation three	2.03	No serial correlation
Equation four	1.95	No serial correlation

Source: Construct by author (2023)

4.6.4 Heteroskedasticity

Table 4.10 shows the results of the panel cross-sectional heteroskedasticity LR (likelihood ratio) test for a panel regression model with four equations. The test was conducted separately for each equation in the model to check for the presence of heteroskedasticity in the errors of the equation. In this table, all LR test statistics are highly significant with prob.-values less than 0.01. This suggests strong evidence of heteroskedasticity in the errors of all four equations in the model.

Table 4.10: Panel cross-sectional heteroskedasticity LR test

	Stat	prob.-value	Meaning
Equation one	3495.39	0.00***	Heteroskedasticity
Equation two	1990.34	0.00***	Heteroskedasticity
Equation three	887.63	0.00***	Heteroskedasticity
Equation four	2484.63	0.00***	Heteroskedasticity

Source: Construct by author (2023), ***: 1% significance level

4.7 Summary of Chapter

This chapter presented the results of the study and also the discussion of the results. The variables for the study were described and also correlation analysis were performed. To ensure the results were not misleading the diagnostic test were performed.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter includes a description of the overall study results. Section 5.1 presents the summary of chapter 1-4. Section 5.2 concludes the study based on the main findings. Section 5.3 presents recommendations based on the main findings and section 5.4 provide suggestions for further research.

5.1 Summary of Findings

The main objective of the study was to analyse the effect of audit quality and earnings management on the cost of debt of listed firms in Ghana. The study was based on the signalling theory and the agency theory. The study employed the explanatory and quantitative research designs. The data for the study was secondary data. The study sampled 15 firms for the period 2010-2021. The study data was analysed using panel regression. Based on the regression results, the study found that EM had a negative significant effect on COD (coeff: -0.021159, prob.-value: 0.00). This suggests that higher EM is associated with lower COD. The study further found that AUQ does not have a significant effect on COD (coeff: -0.172371, prob.-value: 0.56). Also, AUQ had a significant negative effect on EM (coeff: -2.594623, prob.-value: 0.00). This suggests that the use of the big four auditors reduces earnings management practices. Finally, the study found that AUQ negatively moderates the relationship between EM and COD (coeff: -0.125565, prob.-value: 0.00).

5.2 Conclusion

Based on these key findings, the research draws the following conclusions. From objective one, it is concluded that lenders may view firms with high levels of earnings management as having lower-quality financial reporting, which can increase the perceived risk of lending and lead to higher cost of debt. From objective two, it is concluded that while audit quality may be important for overall financial reporting quality, lenders may not specifically consider it as a factor when determining the cost of debt. From objective three it is concluded that auditors can act as a check on management's financial reporting decisions, and higher-quality audits may lead to more conservative financial reporting that reduces the opportunity for earnings management. From objective four it is concluded that when firms engage in earnings management, lenders may look to audit quality as a signal of financial reporting quality. If a firm has a high-quality audit, lenders may perceive the earnings management as less risky and therefore charge a lower cost of debt. On the other hand, if a firm has a low-quality audit, lenders may view the earnings management as more risky and charge a higher cost of debt.

Overall, the study suggests that companies can benefit from avoiding earnings management practices and engaging high-quality auditors. While the use of high-quality auditors may not have a direct impact on a company's cost of debt financing, it appears to be an important factor in reducing the risk of earnings management and promoting financial reporting integrity.

5.3. Policy Implications and Recommendations

Based on the results of the study the following recommendations are proposed.

Firms should focus on increasing transparency in financial reporting and reducing the extent of earnings management. Firms should beef up internal controls to detect and prevent earnings management. This includes enhancing the effectiveness of the audit committee, improving the transparency of financial reporting, and developing ethical guidelines for managers and employees.

Firms should focus on engaging reputable audit firms with a track record of providing high-quality audit services to help reduce the risk of earnings management. Firms can engage high-quality audit firms, and the audit committee should oversee the work of the audit firm to ensure they adhere to professional standards. Firms can also invest in training for their internal audit staff to ensure they have the necessary skills to detect and prevent earnings management.

Firms should develop a culture of ethical behaviour by implementing a code of conduct, providing regular training to employees, and promoting transparency and accountability throughout the organization. This can help to reduce the incidence of earnings management and improve the overall reputation of the firm.

Firms should focus on long-term sustainability rather than short-term gains. Earnings management may provide short-term gains, but it can harm the long-term sustainability of the firm. Focusing on building a sustainable business model can improve the creditworthiness of the firm and reduce the cost of debt over time.

5.4 Suggestions for Further Research

It would be interesting to investigate the impact of earnings management on other financial metrics, such as stock returns or credit ratings. This would help to provide a more complete understanding of the consequences of earnings management practices. Further research should investigate the impact of other moderating variables on this relationship, such as firm size, industry type, or regulatory environment. This would help to provide a more nuanced understanding of the factors that influence the relationship between earnings management and cost of debt.

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APPENDIX- OUTPUT

Dependent Variable: COD
Method: Panel EGLS (Cross-section random effects)
Date: 04/19/23 Time: 17:23
Sample (adjusted): 2011 2021
Periods included: 11
Cross-sections included: 15
Total panel (unbalanced) observations: 152
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EM	-0.021159	0.007012	-3.017540	0.0030
ROA	-3.167186	0.728442	-4.347888	0.0000
LEV	0.359825	0.516031	0.697293	0.4868
LIQ	0.097484	0.081616	1.194430	0.2343
SIZE	0.089138	0.027663	3.222243	0.0016
COL	-0.015841	0.014169	-1.118004	0.2654
AGE	0.025801	0.020442	1.262143	0.2090
ICR	-1.40E-05	8.01E-06	-1.748237	0.0826
C	-2.755367	1.020936	-2.698864	0.0078

Effects Specification

	S.D.	Rho
Cross-section random	0.225805	0.0257
Idiosyncratic random	1.390975	0.9743

Weighted Statistics

R-squared	0.139589	Mean dependent var	0.316574
Adjusted R-squared	0.091454	S.D. dependent var	1.454290
S.E. of regression	1.386503	Sum squared resid	274.9019
F-statistic	2.899948	Durbin-Watson stat	1.939638
Prob(F-statistic)	0.005024		

Dependent Variable: COD
Method: Panel EGLS (Cross-section random effects)
Date: 04/19/23 Time: 17:18
Sample: 2010 2021
Periods included: 12
Cross-sections included: 15
Total panel (unbalanced) observations: 167
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AUDQ	-0.172371	0.291911	-0.590492	0.5557
ROA	-2.116331	0.645874	-3.276695	0.0013
LEV	0.246822	0.646240	0.381935	0.7030
LIQ	0.048150	0.063752	0.755274	0.4512
SIZE	0.097490	0.040281	2.420249	0.0166
COL	-0.002118	0.013512	-0.156730	0.8757
AGE	0.023000	0.018852	1.220079	0.2243
ICR	-1.19E-05	8.73E-06	-1.367732	0.1733
C	-2.538147	0.901787	-2.814575	0.0055

Effects Specification

	S.D.	Rho
Cross-section random	0.259050	0.0350
Idiosyncratic random	1.359489	0.9650

Weighted Statistics

R-squared	0.106746	Mean dependent var	0.303631
Adjusted R-squared	0.061518	S.D. dependent var	1.399496
S.E. of regression	1.356053	Sum squared resid	290.5429
F-statistic	2.360182	Durbin-Watson stat	1.921575
Prob(F-statistic)	0.019991		

Dependent Variable: EM
Method: Panel EGLS (Cross-section weights)
Date: 04/19/23 Time: 17:14
Sample (adjusted): 2011 2021
Periods included: 11
Cross-sections included: 15
Total panel (unbalanced) observations: 152
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AUDQ	-2.594623	0.874212	-2.967957	0.0036
ROA	-12.26428	3.596926	-3.409655	0.0009
LEV	-1.678909	1.463797	-1.146954	0.2535
LIQ	0.275730	0.153480	1.796518	0.0547
SIZE	-0.028807	0.340273	-0.084659	0.9327
COL	-0.197723	0.054957	-3.597760	0.0005
AGE	-0.091178	0.109308	-0.834145	0.4057
ICR	0.000324	0.000235	1.379313	0.1702
C	7.777245	3.487890	2.229785	0.0275

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.488780	Mean dependent var	-1.402781
Adjusted R-squared	0.401595	S.D. dependent var	5.387363
S.E. of regression	3.983986	Sum squared resid	2047.507
F-statistic	5.606251	Durbin-Watson stat	2.030742
Prob(F-statistic)	0.000000		

Dependent Variable: COD
Method: Panel EGLS (Cross-section random effects)
Date: 04/19/23 Time: 17:26
Sample (adjusted): 2011 2021
Periods included: 11
Cross-sections included: 15
Total panel (unbalanced) observations: 152
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EM	-0.020497	0.008345	-2.456247	0.0153
AUDQ	-0.237591	0.387538	-0.613078	0.5408
EM_AQ	-0.125565	0.049625	-2.530294	0.0125
ROA	-3.416962	0.752713	-4.539531	0.0000
LEV	0.098123	0.722525	0.135805	0.8922
LIQ	0.065982	0.084675	0.779239	0.4371
SIZE	0.113074	0.057417	1.969339	0.0509
COL	-0.025662	0.012648	-2.028992	0.0443
AGE	0.028041	0.021069	1.330923	0.1854
ICR	-1.46E-05	8.25E-06	-1.770971	0.0787
C	-2.971128	1.085401	-2.737355	0.0070

Effects Specification

	S.D.	Rho
Cross-section random	0.335397	0.0549
Idiosyncratic random	1.391144	0.9451

Weighted Statistics

R-squared	0.130345	Mean dependent var	0.281459
Adjusted R-squared	0.068667	S.D. dependent var	1.435038
S.E. of regression	1.385338	Sum squared resid	270.6019
F-statistic	2.113325	Durbin-Watson stat	1.954234
Prob(F-statistic)	0.027061		