

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,**

**KUMASI**

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**CAPITAL STRUCTURE AND FIRM PERFORMANCE: THE ROLE OF  
CORPORATE GOVERNANCE**

**BY**

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**(BSc Accounting and Finance)**

**A THESIS SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND  
FINANCE, KWAME NKRUMAH UNIVERSITY OF SCIENCE AND  
TECHNOLOGY, KUMASI IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF A MASTER OF SCIENCE DEGREE  
IN ACCOUNTING AND FINANCE**

**NOVEMBER, 2023**

## DECLARATION

I hereby declare that this submission is my own work towards the award of **MSc Accounting and Finance** and, that to the best of my knowledge, it contains no material previously published by another person or any 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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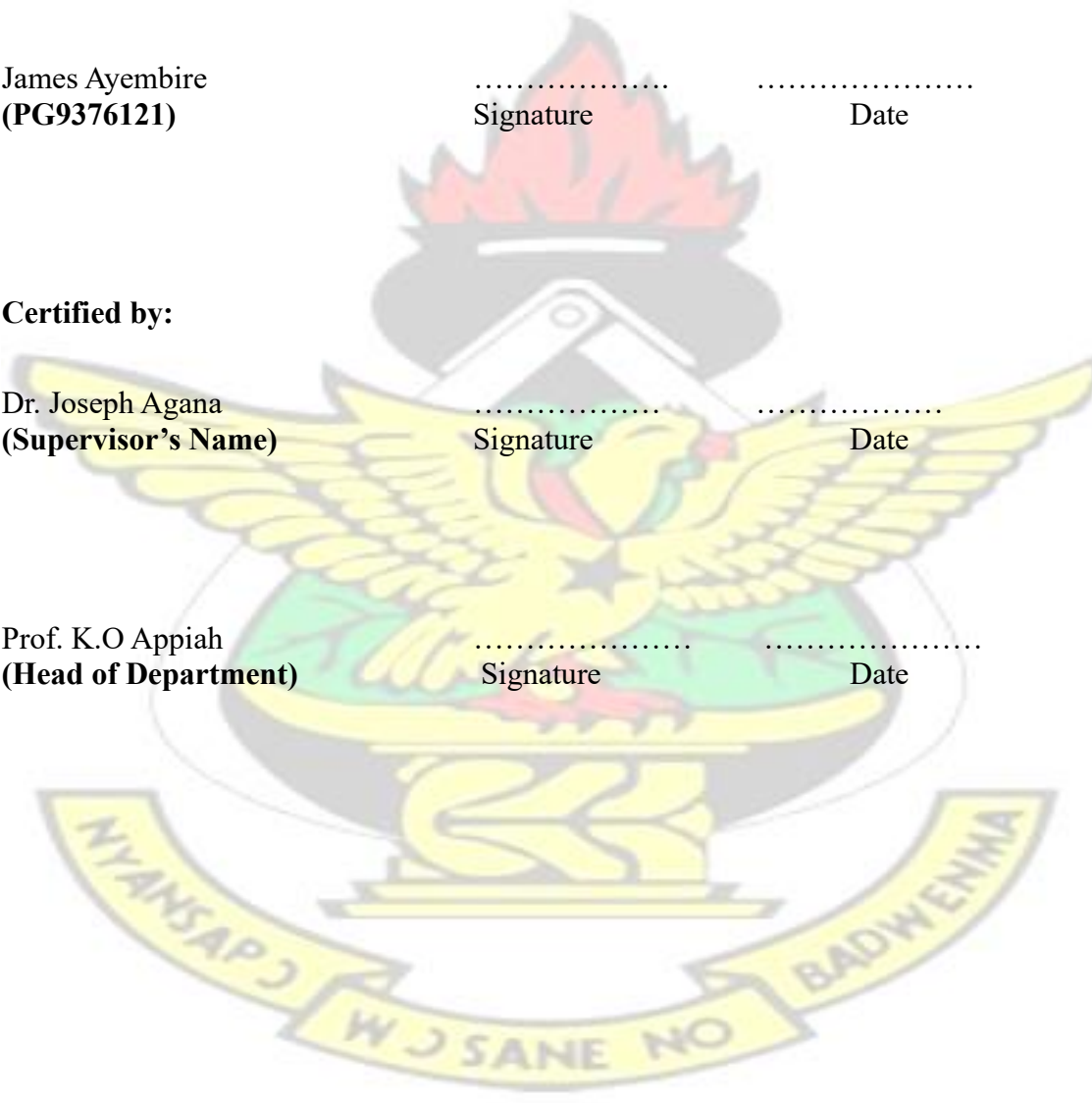
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Signature Date



## DEDICATION

I dedicate my thesis to my parents for their endless love, support and encouragement throughout my pursuit for education. I hope this achievement will fulfil the dream they envisioned for me.

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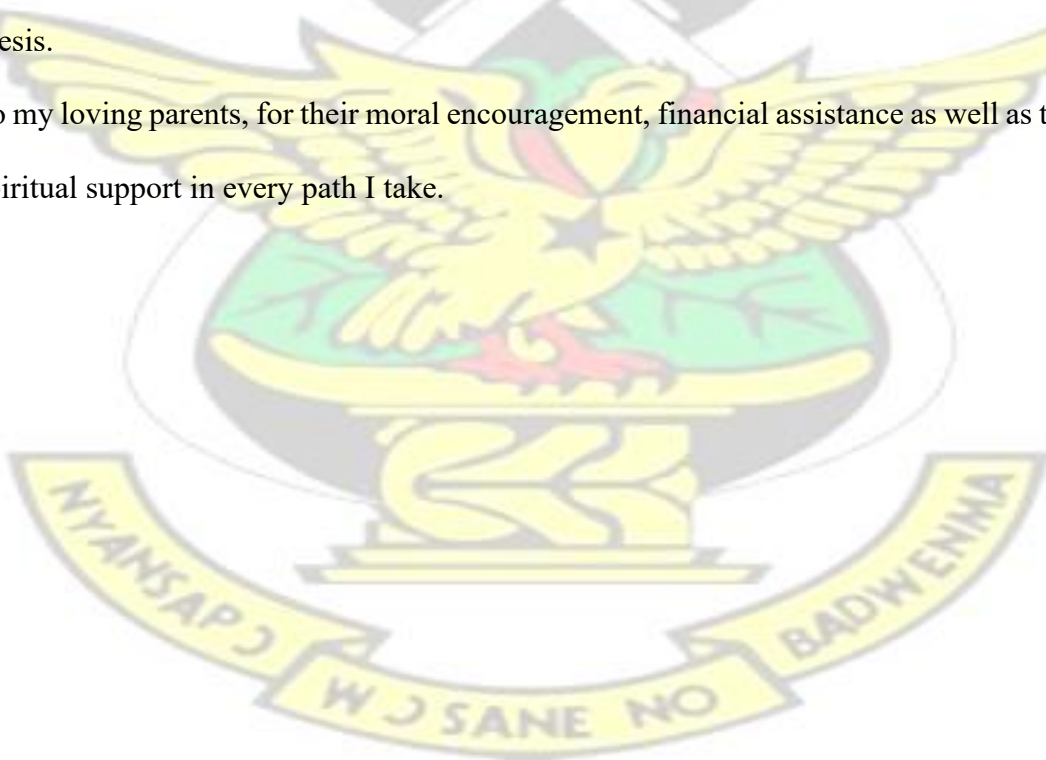
## ACKNOWLEDGMENT

To Jesus Christ, our Lord and saviour for giving me the wisdom, strength, support and knowledge in exploring things, for the guidance in helping surpass all the trails that I encountered and for giving determination to pursue my study and to make this study possible.

I would like to extend my deepest sincerest gratitude to all the people who helped me in any manner, who have shared their effort and knowledge in order to make this research a reality.

Also, I would like to express my sincere gratitude to my supervisor Dr. Joseph Agana for his continuous support to my study and research, for his patience, motivation, enthusiasm and immense knowledge which helped me at all time of my research and writing of this thesis.

To my loving parents, for their moral encouragement, financial assistance as well as their spiritual support in every path I take.



## ABSTRACT

The capital structure of a firm is crucial to its survival hence the right balance between debt and equity is important to investors. Corporate governance mechanisms are to ensure that managers make the best decision with firm finances to ensure shareholder value. This study therefore investigated the moderating effect of corporate governance mechanisms on the relationship between capital structure and firm performance. The study examined the effect of capital structure on firm performance; the moderating effect of board size on the relationship between capital structure and firm performance; the moderating effect of board independence on the relationship between capital structure and firm performance; the moderating effect of board gender diversity on the relationship between capital structure and firm performance. This research relied on data from 18 non-financial enterprises listed on the Ghana Stock Exchange. The study's data spanned the period from 2010 to 2021. The data was analysed using panel data regression techniques. The study found the following; Capital Structure was found to have a negative correlation with Return on Assets (ROA) and a positive correlation with Tobin's Q ratio (TQ), both statistically significant, while Board Size had no moderating effect, Board Independence negatively moderated the relationship with TQ, and Board Gender Diversity had no moderating effect on the relationships between these variables. Ghanaian firms should be circumspect in their leveraging decisions. While debt can potentially enhance market valuation (as indicated by TQ), it may also put a strain on operational efficiency or profitability (as indicated by ROA). Firms must carefully assess their ability to service debt to prevent any negative impact on operational performance.

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# CHAPTER ONE

## INTRODUCTION

### 1.0 Background of the Study

Modigliani and Miller's (1958) work are widely recognized and influential contribution to the field of corporate finance. They proposed the "capital structure irrelevance principle," which states that in a frictionless market, a company's value is independent of its capital structure. However, it is important to note that in the real world, markets are not frictionless, and there are costs associated with debt financing such as interest and bankruptcy costs. Therefore, the decision of how much debt or equity to use in a company's capital structure is an important consideration for management and can affect the firm's value (Noreen (2019).

Determining how a company's capital structure and financing options may be adjusted to maximize its value and the variables that influence this link is critical element of financial management. A company's capital structure refers to its combination of debt and equity to fund its activities. When it comes to financing, the primary issue of a company's management is choosing the best financial mix or capital structure (Abdullah and Tursoy, 2021). The company's management must make the decision on the capital structure that optimizes the company's worth. Capital structure optimization has been a challenge for financial managers in the past and present. Finding an appropriate combination of stock and debt to lower the cost of capital and maximize shareholder returns has been a challenging undertaking. It is argued that debt financing may be utilized to handle the issue of overinvestment in order to lower agency costs, according to Jensen (1986). Managers might be encouraged to work more and, as a result, increase

the value of their firms by using debt financing, which impacts free cash flow while also lowering the danger of bankruptcy. Debt-ridden companies are more likely to go bankrupt if their cash flow declines, but debt-free companies are more likely to escape bankruptcy even if their cash flow declines.

One of the most important and oldest goals of a firm has always been to maximize profits. When it comes to measuring a company's performance, profit may be defined as the difference between revenue and costs involved in producing the same amount of money. A company's profit is defined as the difference between revenue and expenditure (Sutomo, Wahyudi, Pangestuti and Muharam, 2020). Companies have become more essential to retain a competitive advantage in their respective sectors. This can only happen if they have the requisite finances, which may be earned from either internal earnings or externally funded loans (Doehring, 2018). Even though a firm relies on debt funding, its capacity to repay the loan must be taken into account. As a result of this decision, it is probable that businesses who are not profitable may be denied financing.

Corporate governance may have an impact on the link between a company's financial structure and its performance. The term "corporate governance" refers to firms' organizational structures, procedures, and linkages to regulate and lead their activities (Matei and Drumasu, 2015). Corporate governance mechanisms could encourage firms to take more external financing or less financing depending on the corporate governance structure in place. Debt and equity are the two types of external financing that are accessible. According to Modigliani and Miller (1958), a firm's value rises as a consequence of the usage of debt until a limit is reached beyond which the tax advantages associated with debt are negated by the costs associated with bankruptcy. A company

creates a corresponding dollar in profits for every dollar made in sales. It is still necessary to have a higher rise in income than an increase in spending. It is the opinion of Jensen and Meckling (1976) that profitability and capital structure have a favourable correlation. Chechet and Olayiwola (2014), on the other hand, found a link between a company's capital structure and its profitability that was negative. A company's choice to finance its assets is critical; hence the capital structure of a firm, on the other hand, must be designed to maximize the value of the company.

### **1.1 Statement of the Problem**

In the realm of financial management within firms, the strategic selection of a capital mix is of paramount importance. This decision becomes especially critical when firms embark on new projects, as the chosen capital structure — a blend of debt, common stock, and preferred stock — directly impacts the firm's market value (Detthamrong, Chancharat, and Vithessonthi, 2017). The significance of this decision-making process, and its implications on firm performance, has been underscored in studies such as those by Mireku and Mensah (2014). However, there is an intricate aspect often overlooked: the influence of corporate governance. Corporate governance mechanisms can either mitigate or amplify the effects of capital structure on firm performance. For instance, independent board members, with their specialized expertise and networks, might encourage strategies that increase external funding and debt, potentially exacerbating the negative aspects of certain capital structures (Detthamrong, Chancharat, and Vithessonthi, 2017). On the other hand, the risk-averse nature of women board members (Ngatno Apriatni and Youlianto, 2021) could prompt a shift towards reduced debt acquisition, favoring retained earnings and thus, potentially alleviating the adverse impacts of high leverage.

Despite these nuances, the Ghanaian academic discourse has primarily concentrated on the direct effects of capital structure on firm performance, with seminal works like Appiadjei (2014), Akomeah et al. (2018), MacCarthy and Ahulu (2019), and Abor (2005) focusing on this linear relationship. This prevalent focus creates a notable gap in the literature: the absence of an exploration into how corporate governance plays a moderating role in this dynamic.

This study aims to fill this critical gap by investigating the role of corporate governance as a moderating factor in the relationship between capital structure and firm performance within the context of Ghanaian firms. By doing so, this research seeks to unravel the nuanced ways in which governance structures can shape, influence, and potentially redefine financial decision-making processes and their resultant impact on firm performance.

## **1.2 Research Objectives**

This study investigates capital structure-firm performance relationship with corporate governance as a moderator. The following are the specific objectives.

1. To examine the effect of capital structure on firm performance
2. To assess the moderating effect of board size on the relationship between capital structure and firm performance
3. To explore the moderating effect of board independence on the relationship between capital structure and firm performance
4. To determine the moderating effect of board gender diversity on the relationship between capital structure and firm performance

### **1.3 Research Questions**

1. What is the effect of capital structure on firm performance?
2. What is the moderating effect of board size on the relationship between capital structure and firm performance?
3. What is the moderating effect of board independence on the relationship between capital structure and firm performance?
4. What is the moderating effect of board gender diversity on the relationship between capital structure and firm performance?

### **1.4 Significance of the Study**

Based on the findings presented in this research, the capital structure of a company may have a significant impact on the company's profitability. However, it can be tempered by certain corporate governance mechanisms. This can help organizations establish a robust structure of corporate governance devices.

Using the findings of this research, managers, business consultants, and investors will have the knowledge they need to combine debt and equity in order to enhance their firms' success. As a result, better policy choices on debt and equity capital may be made by public and private sector corporate finance managers and public policy planners, resulting in increased shareholder value and decreased costs of bankruptcy, which will benefit all stakeholders.

Financial managers and other finance officers of publicly listed firms would benefit from this study, which will help them identify the most profitable source of funding that can

be utilized to help the company grow. After reading this report, investment bankers and other corporate parties will have a better understanding of a company's profitability and capital structure indicators.

### **1.5 Scope of the Study**

This study investigates the moderating effect of corporate governance mechanisms on the relationship between capital structure and firm performance. This analysis employs Ghana Stock Exchange, publicly-traded companies due to availability of data which a requirement for listed companies to publish their annual reports.

### **1.6 Brief Overview of Research Methodology**

The design for the study is quantitative due to the numerical nature of the data and the statistical testing of the relationship between the variables of the study. The independent variable is capital structure. The control variables are size, liquidity and age. The dependent variable is firm performance and the moderating variables are board gender diversity, board independence and board size. Panel data regression techniques is used to analyse the data.

### **1.7 Organization of the Study**

There are five sections to this research. The first chapter is an overview of the research that provides context for the inquiry and describes the research's rationale and its intended outcomes. The second chapter is devoted to a literature review, which covers a wide range of topics, including a discussion of different theories, ideas, and empirical studies. The methodology is described in Chapter 3. This section includes information on the study's layout, population, sampling strategies, data gathering procedures, and



analytic strategy. Section four presents the findings and discusses them. Findings, conclusions, and suggestions are all summed up in chapter five.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter includes a significant literature review on the topic. The chapter is divided into the following four (4) sections. Section 2.1 gives the Conceptual review of the study, which examines the concepts that relate to the study. They include Capital Structure, Corporate governance, Firm Performance and few others, 2.2 presents the theoretical review encompassing Agency theory, Trade – off theory and Pecking order theory. The Empirical review and Hypotheses also makes references to previous studies on the topic 2.3, while the Conceptual framework is offered in section 2.4.

#### **2.1 Conceptual Review**

The concepts that relate to the study are reviewed. They include capital structure, corporate governance and firm performance.

##### **2.1.1 Capital Structure**

According to Noreen (2019) the capital structure of a company refers to the mix of debt and equity that the company uses to finance its operations. The capital structure is an important aspect of a company's financial health because it can affect the company's ability to generate income and cash flow, as well as its overall risk profile.

Capital structure, as defined by Rani, Yadav, and Tripathy (2019), is the mix of long-term financing, short-term liquidity, and working capital used to support a firm's ongoing activities and future expansion. These sources can include debt, such as bonds and loans, and equity, such as common and preferred stock. The optimal capital structure for a company will depend on a variety of factors, including the industry it operates in, the state of the economy, and its own unique business model and objectives.

Nguyen and Nguyen (2020) explain that a well-designed capital structure can help a company to maximize its return on investment and minimize its cost of capital, which can ultimately improve its competitiveness and profitability. On the other hand, a poorly designed capital structure can increase a company's risk of financial distress and insolvency. For these reasons, it is important for companies to carefully consider and manage their capital structure.

The mix of debt and equity in a company's capital structure can affect its cost of capital, the amount of interest and dividends it must pay to investors, and its ability to generate cash flow to repay its debts. A company's capital structure can also impact its credit rating, which can affect its ability to access capital markets and raise funds for growth (Neves, Serrasqueiro, Dias and Hermano, 2020). Therefore, companies must carefully consider their capital structure and manage it strategically to maximize their financial performance and minimize their risk.

### **2.1.2 Corporate Governance**

Corporate governance is a term used in business to describe how organizations are run. In addition, it improves overall company performance by managing the relationships of

all stakeholders, both internal and external. In corporate governance, the interaction between management and shareholders is the most critical (Maranho and Leal, 2018).

A corporate governance system, according to Vo and Phan (2013) is a system that monitors and votes on the administration of a company. With these tools, a firm may shape its ownership structure, stakeholder interactions, financial transparency and information disclosure, the image of the board of directors as well as their remuneration. Accountability and justice to all stakeholders, including shareholders, workers, consumers, and the community are at the heart of good corporate governance practises. With the right corporate governance in place, a business can be certain that its operations are directed toward achieving its stated objectives and are consistent with the needs of its many constituencies. Some of the fundamental principles of corporate governance are openness, accountability, fairness, and personal responsibility. There are several key components of corporate governance, including the following:

**Board of directors:** The board of directors is in charge of looking over the management of the company and making important decisions on its behalf. Usually, the board is made up of people who have experience in a wide range of fields, such as finance, operations, and strategy (Moursli, 2020).

**Shareholders:** Shareholders own the company and have a financial interest in how well it does. They have the right to vote on important things, such as the election of directors and the approval of big transactions (Al-Saidi, 2020).

### **2.1.2.1 Board Independence**

Moursli (2020) defines Board independence as the separation between the board of directors and the company's management. This means that the board members are not employed by the company and do not have any personal or financial stake in the company

that could potentially conflict with their ability to make unbiased decisions on behalf of the company's shareholders. A board of directors that is considered to be independent is typically seen as more effective in carrying out its duties of overseeing the management of the company and representing the interests of the shareholders. This can help to prevent conflicts of interest and ensure that the company is being run in a fair and transparent manner.

Bansal (2021) also explains that a board of directors is considered independent when its members do not have any direct financial or personal ties to the company they are overseeing. This means that they are not employed by the company, do not own a significant amount of shares in the company, and do not have any personal relationships with the company's executives or management.

Al-Saidi (2020) asserts that Board independence can also refer to the lack of bias or conflict of interest in the decision-making process of the board of directors. This means that the board members are not influenced by outside forces and are able to make objective and fair decisions for the benefit of the company and its shareholders. According to Almashhadani and Almashhadani (2022) some organizations also consider board of directors to be independent when it is not controlled by a single group or individual, and when its members represent a diverse range of perspectives and backgrounds. This allows for a balanced and inclusive decision-making process. According to Maier and Yurtoglu (2022) board independence refer to the ability of the board to operate autonomously and without interference from the company's management or other stakeholders. This means that the board is able to make decisions and take actions without fear of retribution or negative consequences.

### 2.1.2.2 Board Size

The size of a board in a firm refers to the number of members who serve on the board of directors (Maier and Yurtoglu, 2022). The size of the board also refers to the group of individuals who are elected by the shareholders of a company to represent their interests and provide strategic guidance to the company (Raimo, Vitolla, Marrone and Rubino, 2020). The size of the board can vary depending on the size and structure of the company, but it is typically composed of a small group of people with diverse backgrounds and expertise. Board size is important because it can impact the decision-making process and the overall effectiveness of the board. Larger boards may be more diverse and able to provide a wider range of perspectives, but they may also be less agile and less efficient at making decisions. Smaller boards may be more efficient, but they may also be less diverse and may not have the same depth of expertise (Boateng, Liu and Brahma, 2019).

The size of a company's board of directors can affect the decision-making process and the balance of power within the firm (Almashhadani and Almashhadani, 2022). According to the authors some of the ways in which board size can be relevant include:

**Efficiency:** A larger board may be more difficult to manage and may take longer to make decisions, as there are more people to consult and consider. On the other hand, a smaller board may be more nimble and able to make decisions more quickly.

**Representation:** A larger board may be more diverse and better able to represent a wider range of perspectives, which can be beneficial in terms of decision-making and ensuring that the interests of all stakeholders are taken into account. A smaller board may be less representative and more prone to groupthink.

**Influence:** The size of the board can also affect the balance of power within the firm. A larger board may be more diffuse, with fewer individuals holding significant influence.

A smaller board may be more centralized, with a few individuals holding more power and sway.

### **2.1.2.3 Board Gender Diversity**

According to Al Fadli, Sands, Jones, Beattie, and Pensiero (2019) board gender diversity refers to the representation of men and women on a company's board of directors. Companies with diverse boards may have a higher level of gender diversity, meaning that both men and women are represented on the board in equal or near-equal numbers. Companies with low levels of gender diversity may have a board that is predominantly male or female. Board gender diversity is often seen as important for a number of reasons, including providing a wider range of perspectives and experiences, promoting diversity and inclusion in the workplace, and increasing the company's appeal to investors and customers (Yarram, and Adapa, 2021).

According to research done by Wang (2020), boards with a mix of men and women may assist firms understand the market better because most purchasing power is held by women. Equal representation of both sexes on the board may also help attract and retain top female talent. According to Martinez-Jimenez, Hernández-Ortiz and Fernández (2020), a board with more women on it may be more autonomous, which is good for the company's standing among investors and the board's overall credibility and reputation. Women's representation on a firm's board of directors has been shown to increase the likelihood of that corporation engaging in socially responsible practises (Yarram, and Adapa, 2021).

Wicker, Feiler and Breuer (2022) state that women are qualified for board seats, but are under-represented in such roles due to biases that have nothing to do with their actual abilities. The critical mass theory suggests that a certain minimum number of individuals from a particular group is necessary in order for that group to have a significant influence within a decision-making body. In the context of board gender diversity, this means that having a critical mass of women on a board of directors or other decision-making group is necessary in order for their perspectives and experiences to be adequately represented and considered in decision-making processes. Without a critical mass of women, it is likely that decisions will continue to be made predominantly from the perspective of men, leading to potential biases and missed opportunities for diverse perspectives.

### **2.1.3 Firm Performance**

How an organization's finances evolve over time or the implications of management decisions and staff execution of those policies are referred to as financial performance measures (Cantele and Zardini, 2018). Measures of success are chosen depending on a company's particular situation, which is why these objectives are contextual. When a metric is chosen, the excellent or negative results are shown. Organizational performance is based on the voluntary affiliation of an organization with productive assets, including people, and physical and financial resources, in order to achieve a common goal (Wani, and Ahmad, 2015).

They will not commit their resources until they are pleased with their trade for the assets in terms of return value compared to other uses for those resources they may have received in the future. Value creation has always been a crucial component of successful performance, and here is why. For as long as the value provided by donating assets

exceeds the value anticipated by the contributors, the assets will continue to be accessible for use by the organization, and the organization will continue to exist (Abubakar, 2015).

### ***Tobin's Q***

Several research (Wang, 2020; Kadioglu and Yilmaz, 2017; Wang and Sarkis, 2017) used this performance metric. For a company to be at a level of investment that optimizes its value, it must have Tobin's Q of more than 1, while Tobin's Q of less than 1 shows characteristics of a company with no growth potential. These studies back up the use of Tobin's Q to assess growth opportunities (Tamayo-Torres, Gutierrez-Gutierrez, and Ruiz-Moreno, 2019; Ayuba, Bambale, Ibrahim, and Sulaiman, 2019).

### ***Return on Equity (ROE) and Return on Assets (ROA)***

With their broad applicability and relevance, ROE and ROA are fundamental ratios used in the current research to assess a company's performance. According to Danoshana and Ravivathani (2019), these indicators may be used in both developed and developing countries to assess the performance of a corporation. ROE and ROA are often used to show how an organization uses investment capital to expand its profits. According to Shatnawi, Eldaia, Marei, and Aaraj (2021), ROEs of 15% to 20% are regarded as ideal.

## **2.2 Theoretical Review**

This section presents the theories relevant to the study. The specific theories are agency theory, trade-off theory and pecking order theory.



### 2.2.1 Agency Theory

In big businesses, principals and agents are often separated based on a fundamental level of ownership and control (especially in publicly listed organizations). A partnership designates managers to administer the firm on their behalf, and they are compensated with a salary as well as extra prizes (such as stock options) for their efforts (e.g., bonuses) in the partnership (Jensen and Meckling, 1976). As a result of the disparity between the interests of management and those of shareholders, there may be conflicts of interest in the organization.

Agency theory has helped us better understand how agents and principals interact and how this relationship may be problematic (Fama and Jensen, 1983; Jensen and Meckling, 1976). Whenever managers' and investors' interests diverge, the agency theory says that there will be conflicts of interest. There are a variety of reasons why managers may not be concerned with increasing shareholder value, including the fact that contracts are expensive to draft and enforce, knowledge is dispersed unevenly between the principal and agent, and the parties have restricted or constrained rationality among other factors. Shareholders are unable to evaluate the performance of managers who are intimately familiar with every facet of a company's operations on a day-to-day basis since they have various degrees of access to data.

A common principal-agent relationship occurs between shareholders and managers, in which the owner hires an employee or consultant to run the business on their behalf, and the employee or consultant receives compensation in return for their services (Jensen and Meckling, 1976). Given that risk-averse agents have less motivation to exert effort due to the lack of knowledge from the principal, it is more lucrative for them to engage in

this activity. However, since the principal cannot observe the agent's efforts as their whole, the agent's success or outcome is tightly related to their efforts and risks. As a result, the principal cannot completely reward the agent (Panda and Leepsa, 2017). In order to overcome the incentive-risk conundrum inherent in agency interactions, an optimal balance between efficiency and risk-bearing must be struck between two (Rashid, 2015). It is possible for a principal to restrict an agent's planned behaviour by using alternate monitoring techniques or by paying a monitoring charge in order to remove information asymmetry (Vitolla, Raimo and Rubino, 2020).

Adverse selection and moral hazard are both caused by asymmetric knowledge in the marketplace. When principals are unable to verify an agent's competency or talents at the time of contracting, this is referred to as adverse selection (i.e. hiring). As a consequence, they may be unable to choose the most qualified applicant or assess if the agent is carrying out their responsibilities appropriately (Panda and Leepsa, 2017). Moral hazard concerns, which were first proposed by Jensen and Meckling (1976), arise when managers fail to make the necessary managerial efforts to guarantee that the best interests of their companies are served. As a result, the principal must be constantly informed about the situation for their efforts to be suitably recognized if the principal is unaware of them.

To be more specific, Jensen and Meckling (1976) discovered that managers' stock ownership provided them with a mechanism for striking a balance between their interests and the interests of the company's shareholders. According to Fama and Jensen (1983), conflicts within organizations may be addressed more efficiently if they are handled in accordance with institutional processes (such as ownership structure and organizational

structures). When studying principal-agent interactions, it is necessary to take into consideration the influence that the distribution of property rights has on the persons involved in the interaction. There are many features of principal-agent relationships, including the following: In this paradigm, there are many different factors to consider, including the ones listed below. A dispute avoidance method and a conflict resolution technique are provided by developing incentives aligned with organizational goals and governance structures tailored to a range of agency issues. When it comes to board governance tools like as board size and CEO duality, non-executive directors, according to agency theory, play a vital role in monitoring and managing CEOs since they are thought to be impartial and care about their own reputations (Fama and Jensen, 1983). Non-executive directors may be an advantage to a firm because of their external expertise and monitoring and reporting responsibilities (Fama and Jensen, 1983).

According to agency theory, because of the separation of ownership and control that occurs in modern firms, agents are less likely to behave in the best interests of their principals on a consistent basis. It is the responsibility of shareholders to put in place internal corporate governance measures to guarantee that managers are more likely to meet their promise to increase shareholder value by removing this divergence of interests. In order to reinforce this structural trait, it is necessary to implement corporate governance mechanisms that alert management when there is a possible problem. A board of directors can utilise debt as a weapon to maintain control over management and prevent them from acting in their own self-interest. Also, independent board members could balance the use of debt to ensure long-term sustainability of the firm.

### 2.2.2 Trade-off Theory

According to the trade-off theory, every company should use the most optimal capital structure available. The case is strengthened by acknowledging that debt financing has both positive and negative aspects (Kraus and Litzenberger, 1973; Myers, 1984). Leverage may be beneficial for enterprises, according to Modigliani and Miller (1963), since interest paid on pre-tax profits can be written off. As a result of interest payments reducing their taxable income, companies may be eligible for tax breaks.

Tax breaks provide an incentive for firms to increase their debt levels, as pointed out by Myers (1984) and Cornett and Travlos (1989), but each company should choose its own optimal capital structure, which may include either increasing or decreasing its debt levels. The negative effects of debt on a company's bottom line are also included into the trade-off theory. Borrowers commit to eventually repaying their loans plus interest. For this reason, interest payments reduce a business' cash flow and negatively impact its financial performance, increasing the likelihood that it may fail and so default on its loans (Kraus and Litzenberger, 1973; Myers, 1984). According to the trade-off theory, corporations in a healthy economy should increase their debt levels if the potential gains from doing so outweigh the potential losses from insolvency. However, the danger of insolvency increases considerably during crises, increasing the likelihood that debt costs would exceed debt benefits. In other words, even in hard circumstances, there are good reasons for businesses to reduce their debt levels. However, the trade-off theory demonstrates that debt financing may be advantageous if the firm is able to strike a good balance between the advantages and disadvantages of debt. To rephrase, the tax cuts should improve the company's bottom line. Filing for bankruptcy does have certain expenses, but Kipesha and James (2014) show that they are much outweighed by the tax

benefits. Therefore, according to the trade-off theory, there is a positive correlation between leverage and firm performance.

### **2.2.3 Pecking Order Theory**

This theory was initially proposed by Donaldson (1961), however, it became popular through Myers and Majluf (1984). The theory tells us that firms prefer retained earnings or internally generated cash flow to external finance. It is the safest and comes at no cost. The use of such funds does not have obligations accompanying it. If internal funds are inadequate, firms may consider external sources of funding. The first source is debt, and then equity is the last option. The order is arranged in order of safety. Factors that determine the financing choice are unknown, but on average, the pecking order theory tells us this is how firms behave. According to this theory, the optimal capital structure for a company is the one that follows the hierarchy of financing outlined by the theory, with internal sources of financing being used before external sources.

This can help companies avoid the high costs and risks associated with external financing, such as interest payments on debt, and improve their overall performance. Based on this the theory proposes a negative relationship between capital structure and firm performance. By extension of this theory, based on the risk-averse nature of women female directors on the board will prefer the use of internal funds compared to external funds to prevent the firm from becoming highly levered hence the weakening the firm's external funding strategy.

## **2.3 Empirical Review and Hypothesis**

Previous studies on the topic are summarised below.

### **2.3.1 Capital structure and Firm Performance**

The relationship between capital structure and firm performance has been a focal point of financial research, yielding varied findings across different studies. This essay delves into several empirical studies to explore how capital structure influences firm performance, underlining the complexity and diversity of findings in this area of study.

Subaii (2012) conducted a study focusing on Kuwaiti public shareholder companies across various sectors. The research highlighted a positive correlation between debt financing and return on investment (ROI), suggesting that leveraging can be beneficial in certain contexts. This positive relationship echoes the findings of Nirajini and Priya (2013), who also observed a significant and favorable impact of capital structure on firm profitability. They concluded that optimal decisions regarding debt financing could enhance a firm's financial success.

Contrastingly, Iqbal (2022) examined non-financial companies listed on the Pakistan Stock Exchange and found that leverage adversely affects a company's performance. This negative perspective is further supported by the research of Nguyen and Nguyen (2020) in Vietnam, where a significant negative effect of capital structure on firm performance was observed among state-owned and non-state firms. Similarly, a study by Owusu-Antwi et al. (2016) involving Ghanaian-listed banks indicated that while long-term debt (LTD) was positively related to return on assets (ROA), it negatively affected return on equity (ROE), and overall debt (TD) was negatively linked to both ROE and ROA.

In contrast to these findings, Appiadjei (2014) in Ghana discovered a positive correlation between both short-term debt (STD) and LTD with ROE and ROA, suggesting that debt could potentially enhance firm performance. This positive view was also seen in the research of Nasimi (2016), who studied companies from the FTSE-100 index and found a positive relationship between total debt (TD) and ROE, albeit with a negative correlation to ROA.

Saedi and Mahmoodi (2011) provided a comprehensive analysis of companies listed on the Tehran Stock Exchange, showing that capital structure had a significant and positive correlation with performance as measured by earnings per share (EPS) and Tobin's Q, but a negative relationship with ROA. Ebaid (2009) investigated Egyptian firms and found a negative connection between ROA and both STD and LTD, while the relationship with ROE and gross profit margin (GPM) was not significantly impacted by capital structure.

Finally, Farhan et al. (2020) in their study of the Indian service sector showed that STD negatively affected firm performance as measured by ROA, return on capital employed (ROCE), and EPS. Tebourbi et al. (2020) in the UAE found a statistically significant inverse correlation between capital structure and profitability, indicating that a higher degree of debt often leads to reduced profitability.

These diverse findings from different geographical regions and sectors indicate that the relationship between capital structure and firm performance is complex and context-dependent. While some studies suggest a positive impact of leveraging, others indicate a negative effect, and yet others find mixed results. This suggests that the optimal capital

structure is not a one-size-fits-all solution but varies depending on numerous factors including the economic environment, industry sector, and specific characteristics of the firm. Based on the above the following hypothesis is proposed:

***Hypothesis 1: there is a relationship between capital structure and firm performance***

### **2.3.2 Moderating Effect of Board Size on the Relationship Between Capital Structure and Firm Performance**

The relationship between board size and firm performance in the context of capital structure presents varied findings. Ngatno et al. (2021) assert that a larger board size positively influences this relationship, suggesting that more board members can contribute to a more effective decision-making process regarding capital structure. However, Pham and Nguyen (2019) found a negative impact of board size on firm profitability in emerging markets, indicating that larger boards might lead to inefficiencies or conflicts in decision-making. Anwar, Liaqat, and Waris (2022) also observed a positive influence of board size on firm performance, suggesting that the benefits of diverse perspectives and expertise may outweigh the potential drawbacks of larger boards.

***Hypothesis 2: Board size significantly moderates the relationship between capital structure and firm performance, with a larger board size either enhancing or diminishing firm performance.***

### **2.3.3 Moderating Effect of Board Independence on the Relationship Between Capital Structure and Firm Performance**

The impact of board independence on the capital structure-performance relationship is also mixed. Ngatno et al. (2021) found no significant effect of board independence,



suggesting that the independence of board members might not be a critical factor in determining this relationship. In contrast, Pham and Nguyen (2019) identified a significant impact, although the nature of this impact (positive or negative) was not explicitly defined. This suggests that while board independence can influence firm performance, its exact role may vary based on other contextual factors.

***Hypothesis 3: Board independence has a moderating effect on the relationship between capital structure and firm performance, but the direction of this influence is not uniform across different contexts***

#### **2.3.4 Moderating Effect of Board Gender Diversity on the Relationship Between Capital Structure and Firm Performance**

Board gender diversity's role in influencing the relationship between capital structure and firm performance has garnered attention, with mixed results. Ngatno et al. (2021) did not find significant evidence that board gender diversity impacts this relationship. However, Anwar, Liaqat, and Waris (2022) observed a positive influence of gender diversity on the board, suggesting that diverse perspectives can lead to better decision-making and improved firm performance. This indicates that gender diversity might play an important role in enhancing the quality of decisions regarding capital structure.

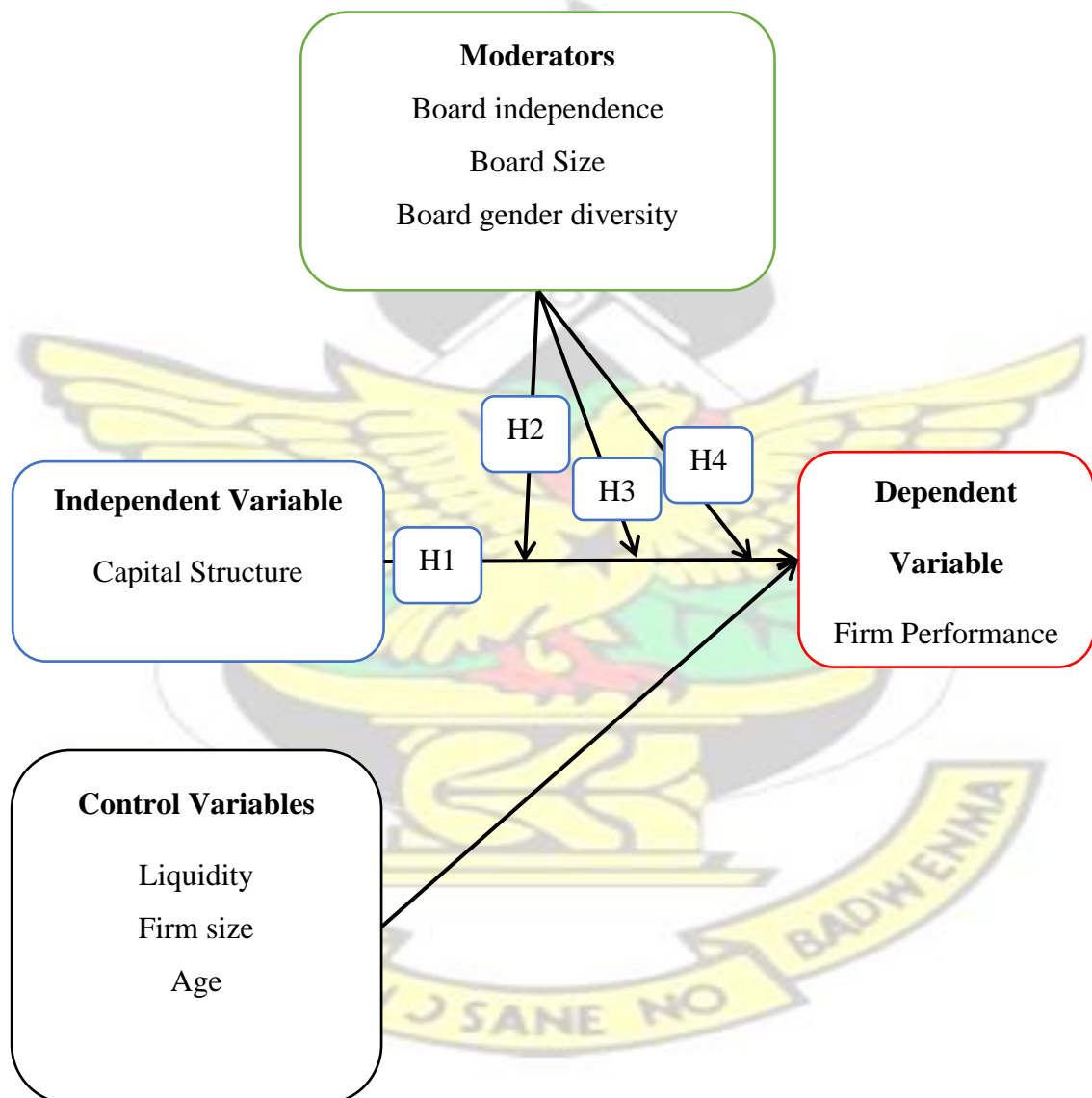
***Hypothesis 4: Board gender diversity significantly moderates the relationship between capital structure and firm performance, with increased diversity likely leading to improved firm performance.***

#### **2.4 Conceptual Framework**

Figure one shows the relationship between the dependent variable, independent variable, moderators and control variables. The independent variable is capital structure. The

moderator variables are board independence, board size, and gender diversity. The control variables are liquidity, age and firm size. The dependent variable is firm performance. The independent variable is linked to the dependent variable. The moderators are associated to the link between the independent and dependent variables. The control variables are linked to the dependent variable.

**Figure 1: Conceptual Framework**



Source: Author's construction (2023)

## CHAPTER THREE

### RESEARCH 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), Population (3.2), Sample size and Sampling Techniques (3.3), Data Collection Method (3.4), Data Analysis (3.5), Specification Test (3.6), Regression Mode (3.7), Measurement of variable (3.8).

#### 3.1 Research Design

According to Tetnowski (2015), a research design is a conceptual framework for doing research that provides direction for data collection, measurement, and analysis. Since the data was numerical, and since statistical analyses were performed to determine whether or not a correlation existed, the research adapted a quantitative design. According to Walsh (2015), the quantitative design makes use of a number of different types of statistical analysis to provide more accurate results in terms of measurement, dependability, and generalizability. According to Rahman (2020), larger samples and longer time periods are no problem for quantitative approaches, making them ideal for inferences.

#### 3.2 Population

The term "population" is used to describe all possible units from which data might be collected in order to answer the questions posed by the study (Tran, 2019). A population

usually contains many characters to study suitably, so an investigation is often limited to one or more samples extracted from it. Based on the objective, Ghanaian companies are suited for this study, and for the basis of comparison, companies listed on the Ghana Stock Exchange (GSE) were selected for the current study as the total population. Thirty-nine (39) companies are listed on the Ghana stock exchange.

### **3.3 Sample Size and Sampling Technique**

The study selected 18 non-financial firms as the sample for the study. Due to the distinctive nature of their business and organisational structure, financial sector organisations, such as banks, were excluded from this thesis. This is similar with previous studies, such as those conducted by Anwar, Liaqat, and Waris (2022) and Pham and Nguyen (2019). Because the firms possessed some unique information that would prove to be beneficial to the research, it necessitated the use of purposive sampling to choose the eighteen non-financial businesses. Twelve years, from 2010 to 2021, were selected in order to offer accurate and current data and also it was the period that the researcher was able to access data from the sampled firms. Two criteria led to the selection of the eighteen firms; that annual reports are published in Ghanaian cedis and the data of the firm is available to the researcher.

### **3.4 Data Collection Methods**

This study employed secondary data obtained from previous financial reports as published by the companies concerned. The choice of secondary data was because the data required for the study could not be procured through a primary source as the secondary data can only be provided by the firms under the study, which has been

verified by licensed auditors. This data was obtained from the firms' annual reports. The annual reports were downloaded, and the relevant portions extracted into MS excel.

### 3.5 Data Analysis

The data was analysed using panel regression. The software utilised for the analysis was Stata 15. Panel data is a kind of data that combines cross-sectional and time series information (Roodman, 2020). More complex regression investigations that account for both of these aspects are required to determine the relative importance of each independent variable in influencing the dependent variable. Most sources (Iqbal and Javed (2017; Tebourbi et al., 2020) agree that the following methods are the most often used when dealing with panel data:

- The Pooled OLS-Model
- The Fixed-Effects-Model (FEM)
- The Random-Effects-Model (REM)

A "pooled regression" combines the results of many cross-sections taken at different times into a single, larger cross-section without consideration to the differences between the units or the effects of time (Semykina and Wooldridge, 2013). The ability to easily combine data from multiple time periods is a fundamental benefit of this strategy. It is particularly useful when there's just a limited quantity of cross-sectional data from a specific time period and several factors need to be added to the regression equation to account for the data. The regression coefficients may be computed with higher precision and reliability when more degrees of freedom are used. However, OLS-regression estimators become inconsistent and biased when there is heterogeneity in the dataset (Semykina and Wooldridge, 2013).

It is assumed in the pooled OLS model that the error terms for each period are independent of the explanatory variables, although this may be too strong for certain data sets. According to Semykina and Wooldridge (2013), the "omitted variable problem" is the primary motivation for using panel data models. Important linear panel data models that account for these unobserved person or company characteristics are the FE Model and the RE Model (i.e. unobserved heterogeneity). The FE model is a popular kind of regression analysis for studies of financial reserves. The FE model has been utilised by several researchers (Iqbal and Javed 2017; Ngatno, Apriatni and Arief, 2021; Pham and Nguyen, 2019). The two models diverge in their assumptions regarding the connection between explanatory variables and unobserved firm-specific characteristics.

Both forms of regressions are still used in the research community, with a focus on finding statistically significant variations in the coefficients of time-varying explanatory factors (Moon and Weidner, 2017). To determine between the two, the Hausman test is used. This test was first used by Hausman (1978), and it is now routinely used by a number of econometrics programmes working with data assuming a random effects structure. Until further testing disproves the assumption, the random effects model will continue to be employed. To sum up, the alternative hypothesis states that the unobserved firm-specific characteristics are related to the explanatory variables, whereas the null hypothesis states that there is no such relationship. So, in the analysis phase, the sample data is put through this test in the statistical programme STATA, and either the fixed-effects or random-effects mode is selected.

### **3.6 Specification Tests**

Before conducting the multiple regression analysis, this study checked to see whether the general assumption required for OLS regression holds true.

### **3.6.1 Multicollinearity**

First, the variables were checked to see if they are multicollinear. Multicollinearity happens when two or more variables are linked in a way that could change the estimate of regression parameters (Müller et al., 2018). Bai and Wang (2016) showed that it is hard to estimate and test hypotheses about regression coefficients when there is multicollinearity. Because of multicollinearity, the regression coefficient is unstable and hard to understand. The standard errors of the coefficients are also increased, making them statistically meaningless. Also, coefficient sign changes can be caused by multicollinearity, which makes it harder to find the right model. Most of the time, the variance inflation factor (VIF) is used to find out if there is multicollinearity. VIF shows how much each independent variable can be explained by another independent variable. This helps get rid of collinear variables. In other words, if one of the variables changes, the coefficient will also change. Multicollinearity is a problem if the VIF is more than 10 (Bai and Wang, 2016).

### **3.6.2 Serial Correlation**

Second, a test for serial correlation was performed. Serially linked panel data models provide skewed and subpar outcomes. Serial correlation describes the relationship between the error terms of two separate observations (Müller et al. 2018). In this way, one error leads to the next. Therefore, the connection between error terms over time periods is known as serial correlation (or cross-section data). This means the error term has a serial dependence. When the same errors from one term keep recurring in subsequent periods, this is known as a serial correlation in time-series analyses. Time series data, which consist of measurements of the same variables at different times, and

cluster sampling, which consist of measurements of the same variables on related subjects (such as multiple members of the same family or multiple firms operating within the same company), both exhibit this phenomenon (Müller et al. 2018). In order to determine whether or not there is a serial correlation, the Wooldridge serial correlation test was used.

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### **3.6.3 Heteroskedasticity**

This criterion is violated when the error variances of distinct observations vary, a phenomenon known as heteroskedasticity. Heteroskedasticity is present when the variance of a disturbance does not stay the same over time. If the squared residuals go up or down as a certain independent variable goes up or down, the model probably has a problem called heteroskedasticity. The Breusch-Pagan test for heteroscedasticity is used in this study (Lunde et al., 2016).

### **3.7 Regression Model**

Panel regression was a suitable methodology for this study due to several key reasons that align with the study's design and its comparison with previous research in the field. First, the use of panel regression is supported by the precedent set in similar studies, such as those by Ngatno et al. (2021), Pham and Nguyen (2019), and Anwar, Liaqat, and Waris (2022). These studies effectively utilized panel regression to analyze similar kinds of data, providing a robust methodological foundation for this study.

The study's focus on non-financial firms further justifies the choice of panel regression. The selected sample comprises 18 non-financial firms, chosen for their unique characteristics and information that are deemed beneficial to the research. This approach



mirrors the methodology of previous studies like those by Anwar et al. (2022) and Pham and Nguyen (2019), which also concentrated on non-financial entities due to their distinct business and organizational structures. Such a focus is crucial as financial sector organizations, like banks, have different operational dynamics and regulatory environments, which could skew the results and insights if included in this study.

$$FP_{it} = \alpha + \beta_1 CS_{it} + \beta_2 LIQ_{it} + \beta_3 FS_{it} + \beta_4 AGE_{it} + \epsilon_{it} \dots\dots(1)$$

$$FP_{it} = \alpha + \beta_1 CS_{it} + \beta_2 BID_{it} + \beta_3 (BID * CS)_{it} + \beta_4 LIQ_{it} + \beta_5 FS_{it} + \beta_6 AGE_{it} + \epsilon_{it} \dots\dots(2)$$

$$FP_{it} = \alpha + \beta_1 CS_{it} + \beta_2 BS_{it} + \beta_3 (BS * CS)_{it} + \beta_4 LIQ_{it} + \beta_5 FS_{it} + \beta_6 AGE_{it} + \epsilon_{it} \dots\dots(3)$$

$$FP_{it} = \alpha + \beta_1 CS_{it} + \beta_2 BGD_{it} + \beta_3 (BGD * CS)_{it} + \beta_4 LIQ_{it} + \beta_5 FS_{it} + \beta_6 AGE_{it} + \epsilon_{it} \dots\dots(4)$$

The first equation serves as the foundational model. In this equation, Firm Performance (FP) is the dependent variable, analyzed in relation to several independent variables: Capital Structure (CS) and Liquidity (LIQ). Firm Size (FS) and the Age of the firm (AGE) are included as control variables. This model primarily addresses the study's first objective, which is to examine the direct impact of capital structure on firm performance. The constant ( $\alpha$ ) in the equation represents the intercept, indicating the expected value of FP when all independent variables are zero, while the error term ( $\epsilon_{it}$ ) captures the unobserved heterogeneity and measurement error.

The subsequent equations introduce moderating variables. In the second equation, Board Independence (BID) is added as a moderator, examining its potential influence on the relationship between capital structure (CS) and firm performance (FP). This equation

aligns with the study's third objective, exploring the moderating effect of board independence on the capital structure-firm performance nexus. Additionally, the interaction term between Board Independence and Capital Structure (BID\*CS) allows for an analysis of how the impact of capital structure on firm performance might vary with different levels of board independence.

Similarly, the third equation incorporates Board Size (BS) as a moderator, in line with the second objective of assessing the moderating effect of board size on the capital structure-firm performance relationship. The inclusion of an interaction term between Board Size and Capital Structure (BS\*CS) provides insights into whether and how the size of a firm's board influences the effect of its capital structure on performance.

Lastly, the fourth equation introduces Board Gender Diversity (BGD) as the moderating variable, addressing the fourth objective of determining the impact of board gender diversity on the capital structure-firm performance relationship. The interaction term between Board Gender Diversity and Capital Structure (BGD\*CS) in this equation explores the potential differential impact that gender diversity in the boardroom might have on how capital structure affects firm performance.

FP: firm performance, CS: capital structure, LIQ: liquidity, FS: firm size, BS: board size, BID: board independence, BGD: board gender diversity

### **3.8 Measurement of Variables**

The variables of the study are presented in Table 3.1. The independent variable is capital structure. The moderator variables are board independence, board size, and gender

diversity. The control variables are liquidity, age, firm size, and inflation. The dependent variable is firm performance.

**Table 3.1: Variables and Measurements**

<b>Variable</b>	<b>Measure</b>	<b>Supporting Studies</b>	<b>Sign</b>
<b><u>Independent Variable</u></b>			
Capital Structure	Total debt divided by total assets	Iqbal and Javed (2017)	-
<b><u>Moderating Variables</u></b>			
Board independence	Non-executive directors divided by the number of board members	Ngatno, Apriatni, and Arief (2021)	+
Board Size	Total number of board members	Pham and Nguyen (2019)	+
Board Gender Diversity	The percentage of female directors to the total number of directors	Brahma et al. (2021)	-
<b><u>Control Variables</u></b>			
Size	Natural log of total assets	Tebourbi et al. (2020)	+
Age	Age of the firm	Tebourbi et al. (2020)	
Liquidity	Current assets divided by current liability	Farhan et al. (2020)	+
<b><u>Dependent Variable</u></b>			
Firm performance	Return on Assets (pre-tax profit divided by total assets) and Tobin's Q ratio (market value plus total debt divided by total assets)	Uremadu and Onyekachi (2018)	

Source: Author's construction (2023)

## CHAPTER FOUR

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### RESULTS AND DISCUSSION

#### 4.0 Introduction

This chapter presents the findings of the study. The data was extracted from annual reports of the sampled firms and analysed using Stata 15. It also consists of descriptive statistic (4.1), Correlation matrix (4.2), Diagnostic Test (4.3), and Presentation and Discussion of Finding (4.4).

#### 4.1 Descriptive Statistics

Table 4.1 shows the statistical description of the variables for the study. Starting with Return on Assets (ROA), a measure of profitability, the data reveals an average return of 5.7%. In simpler terms, for every GHS 100 of assets that these firms own, they are generating GHS 5.7 in profit. However, this average figure disguises substantial variability, as evidenced by a standard deviation of 16.4%. Delving deeper, it seen that while the best-performing firm in the sample boasted a ROA of 60.7%, the worst-performing firm registered a concerning -91%. This negative return on assets for the underperforming firm could signal significant challenges, perhaps stemming from operational inefficiencies or external market factors.

Next, the Tobin's Q ratio (TQ) offers a window into the market's valuation of these firms relative to the replacement cost of their assets. A TQ value of 1 would mean that the

market values a firm's assets exactly at their replacement cost. If TQ is greater than 1, it indicates the market values the assets at a premium to their replacement cost. Conversely, a TQ value of less than 1 indicates the market values the assets below their replacement cost. With an average TQ of 1.573, the market, on average, values the assets of these firms at 57.3% more than their replacement cost. This suggests a potential market sentiment that these firms hold growth opportunities or intangible assets not reflected purely in their balance sheet. However, with a broad range from min 0.411 to a 12.835 max, and a standard deviation of 1.458, it is evident that not all firms are perceived equally. Some might be seen as ripe with opportunity, while others might be undervalued or facing challenges that dampen market enthusiasm.

The Capital Structure (CS) metric shines a light on the leverage strategies of these firms. On average, these firms finance about 58.9% of their assets using debt suggests a moderate reliance on debt. The broad range from 4.9% to 143.3% suggests different approaches to debt and financing among these firms. A company with a CS value exceeding 100% implies that its debt surpasses its assets, signaling potential financial distress and elevated bankruptcy risk.

**Table 4.1: Descriptive statistics**

Variable	Mean	Std. Dev.	Min	Max
Return on Assets	0.057	0.164	-0.910	0.607
Tobin's Q ratio	1.573	1.458	0.411	12.835
Capital structure	0.589	0.262	0.049	1.433
Board size	7.411	1.961	3.000	13.000
Board independence	0.753	0.154	0.286	0.923
Board gender diversity	0.172	0.152	0.000	0.600
Size	18.109	2.107	13.787	23.587
Liquidity	1.560	1.478	0.075	7.685

Age	42.292	13.476	18.000	70.000
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Source: Author's construction (2023)

The average board size is 7.411, indicating that on average, firms in this sample have about 7 to 8 board members. The standard deviation of 1.961 reveals a moderate variability in board size across the sample. This suggests that while many firms may hover around the average, there are still significant differences in board size among these firms. The smallest board consists of 3 members, whereas the largest board has 13 members. This range suggests diverse corporate governance strategies and potentially differing complexities of business operations that may necessitate larger boards.

The average board independence measure is 0.753 or 75.3%. This implies that, on average, about 75.3% of board members in these firms are independent, non-executive directors. Such a high proportion indicates a commitment to objective and unbiased decision-making at the board level. A standard deviation of 0.154, or 15.4%, indicates some variability, but not extreme. This means most firms maintain a significant proportion of independent directors, but there's variation to what degree. The firm with the least board independence has 28.6% of its members as independent directors, while the one with the most has 92.3%. The average board gender diversity is 0.172 or 17.2%. This suggests that, on average, women constitute 17.2% of the board members in these firms. While this indicates the presence of women in decision-making roles, it also reveals there's room for improvement in gender representation. With a standard deviation of 0.152 or 15.2%, there's considerable variation in gender diversity across firms.: Some firms have no female representation on their board (0%), while the most gender-diverse board comprises 60% women.

## 4.2 Correlation Matrix

Table 4.2 shows that the highest correlation among the independent variables is between board size and firm size at 0.65. However, this value is acceptable since it indicates that the explanatory variables of the study are not highly correlated. Brooks (2014) suggests that correlation above 80 per cent could be considered a sign of high correlation. ROA (Return on Assets) has a positive and significant correlation with TQ (Tobin's Q ratio) at the 1% significance level. This suggests that as ROA increases, TQ also tends to increase. CS (Capital Structure) has a positive and significant correlation with TQ at the 1% significance level. This indicates that companies with a higher capital structure tend to have a higher Tobin's Q ratio. BI (Board Independence) has a negative and significant correlation with BS (Board Size) at the 10% significance level. This suggests that as board independence increases, board size tends to decrease, though the correlation is not very strong. BGD (Board Gender Diversity) has a positive and significant correlation with CS (Capital Structure) at the 10% significance level. This implies that companies with more gender-diverse boards tend to have a higher capital structure. SIZE (Size of the company) has a positive and significant correlation with BS (Board Size) at the 1% significance level. This indicates that larger companies tend to have larger boards. LIQ (Liquidity) has a negative and significant correlation with CS (Capital Structure) at the 1% significance level. This suggests that companies with higher liquidity tend to have a lower capital structure. Age has a positive and significant correlation with CS (Capital Structure) at the 10% significance level. As companies age, their capital structure tends to increase.

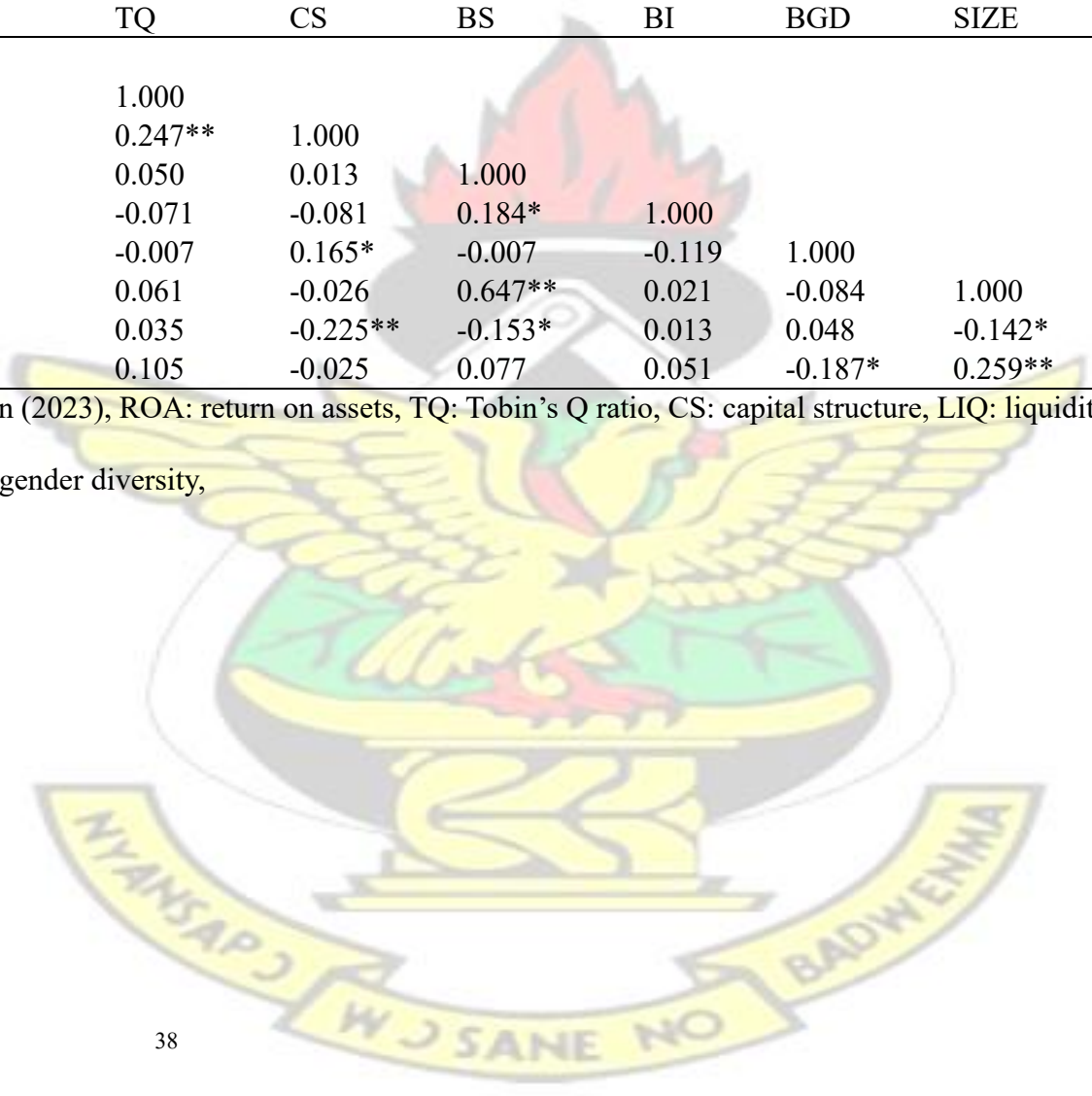
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**Table 4.2: Correlation Matrix**

	ROA	TQ	CS	BS	BI	BGD	SIZE	LIQ	Age
ROA	1.000								
TQ	0.443**	1.000							
CS	0.559**	0.247**	1.000						
BS	-0.023	0.050	0.013	1.000					
BI	-0.167*	-0.071	-0.081	0.184*	1.000				
BGD	0.080	-0.007	0.165*	-0.007	-0.119	1.000			
SIZE	0.043	0.061	-0.026	0.647**	0.021	-0.084	1.000		
LIQ	0.046	0.035	-0.225**	-0.153*	0.013	0.048	-0.142*	1.000	
Age	0.143*	0.105	-0.025	0.077	0.051	-0.187*	0.259**	-0.079**	1.000

Source: Author's construction (2023), ROA: return on assets, TQ: Tobin's Q ratio, CS: capital structure, LIQ: liquidity, BID: board independence,

BS: board size, BGD: board gender diversity,





### 4.3 Diagnostic Tests

The data in Table 4.3 shows that the p-values for equations 1, 2 and 4 for ROA and TQ are below the 5 percent significance level. This means that the appropriate model for equation 1, 2 4 is the FE model. For equation 3 the p-value for ROA is below 5% and that of TQ is above 5%; the FE model is appropriate for ROA and RE model is appropriate for TQ. The auto correlation test reveal that the p-value is below the 5 percent significance level which means there is presence of auto correlation. However, the p-value of the Cook-Weisberg test for heteroskedasticity indicates that there is no heteroskedasticity since the p-value is above the 5 percent significance level. This problem of auto-correlation is controlled for using the Drisc/Kraay standard errors.

**Table 4.3: Diagnostic tests**

		Hausman		Autocorrelation	Heteroscedasticity
		ROA	TQ		
Equation 1	stat	18.58	17.35	364.219	0.34
	p-value	0.00***	0.00***	0.00***	0.55
Equation 2	stat	26.85	17.29		
	p-value	0.00***	0.00***		
Equation 3	stat	41.37	5.12		
	p-value	0.00***	0.52		
Equation 4	stat	21.06	14.38		
	p-value	0.00***	0.03**		

Source: Author's construction (2023), \*\*\*: 1% significance level

## **4.4 Presentation and Discussion of Findings**

The findings of the study are presented in this section together with the discussions.

### **4.4.1 Capital Structure and Firm Performance**

The data in Table 4.4 shows that the r-square for ROA is 0.28 and 0.12 for TQ. This suggests that the independent variables explain 28 percent variance in ROA and 12 percent variance in TQ. Again the table shows that capital structure has a negative coefficient for ROA and a positive coefficient for TQ. Also the p-value of capital structure for ROA is 0.00 and TQ is 0.03. This means that the relationship is significant at the 1 percent level for ROA and 3% level for TQ. The finding implies that there is a significant positive effect between capital structure and firm performance. The negative relationship supports the finding of Iqbal (2022). The positive relationship is in line with previous studies Subaii (2012) and Appiadjei (2014).

A negative relationship between capital structure (proportion of debt to assets) and ROA (Return on Assets) could be explained by the fact that as firms increase their leverage, they incur higher interest expenses, which can negatively impact net income, leading to a decrease in ROA. Also, firms that are highly leveraged might face pressures from creditors and lenders, leading to possible short-term decision-making or operational constraints that affect profitability.

A positive relationship between capital structure and Tobin's Q (market valuation over replacement cost of assets) can be explained by the fact that the market might perceive leveraged firms as more aggressive or as having significant growth opportunities, leading

to a higher Tobin's Q. This could be due to the belief that firms are leveraging up to invest in profitable projects. In some cases, the ability of a firm to secure debt could be perceived as a positive signal about its future prospects. The market might interpret this as the firm having reliable cash flows or profitable growth opportunities, leading to a higher valuation.

The negative relationship between CS and ROA supports the agency theory. As firms increase their leverage, the interests of shareholders and debt holders might diverge. While shareholders benefit from the upside and might prefer riskier projects, debt holders prefer stability and timely interest and principal payments. This divergence can lead to inefficiencies in decision-making, possibly causing increased costs or missed high-return opportunities. Furthermore, the pressure to meet debt obligations might lead firms to take short-term decisions that are not necessarily in the best long-term interest of the firm, thereby adversely affecting profitability.

This positive effect between CS and TQ supports trade-off theory. When firms in Ghana leverage up, the market might anticipate the firm to realize significant tax benefits. These anticipated benefits can enhance the firm's valuation since post-tax profits are expected to be higher, all else being equal. A higher post-tax profit expectation would naturally boost Tobin's Q, a ratio reflecting the market's valuation of a firm relative to the replacement cost of its assets.

**Table 4.4: Capital Structure and Firm Performance**

	ROA				TQ			
	Coef.	Std. Err.	T-stat	P-value	Coef.	Std. Err.	T-stat	P-value
Capital Structure	-0.366***	0.061	-6.020	0.000	1.143**	0.456	2.510	0.029
SIZE	0.048	0.041	1.170	0.266	-0.378	0.295	-1.280	0.227
Liquidity	0.003	0.010	0.300	0.773	0.131	0.086	1.520	0.156
AGE	-0.016*	0.008	-2.080	0.062	-0.043	0.046	-0.930	0.375
Constant	0.072	0.432	0.170	0.871	9.332 **	3.923	2.380	0.037
r-square	0.28				0.12			

Source: Author's construction (2023), \*\*\*: 1% significance level, \*\*: 5% significance level, \*: 10% significance level, ROA: return on assets, TQ:

Tobin's Q ratio

#### 4.4.2 Capital Structure, Board Size and Firm Performance

The data in Table 4.5 shows that the r-square for ROA is 0.24 and 0.17 for TQ. This suggests that the independent variables explain 24 percent of the variance in ROA and 17 percent of the variance in TQ. Moderation occurs when the relationship between two variables is influenced or changed by a third variable. In regression, moderation is typically tested by including an interaction term (the product of the moderator and the independent variable) in the regression model. In Table 4.5, for ROA, the coefficient for the interaction term "board size\*capital structure" is 0.008 with a p-value of 0.795. This p-value is much higher than the conventional significance level (e.g., 0.1), suggesting that the interaction term is not statistically significant in predicting ROA.

For TQ, the coefficient for the interaction term "board size\*capital structure" is -0.102 with a p-value of 0.600. Again, this p-value is much higher than the conventional significance level, indicating that the interaction term is not statistically significant in predicting TQ. Given the above analysis, there is no evidence of moderation of the relationship between board size and capital structure on either ROA or TQ, as the interaction terms are not statistically significant for either dependent variable. The finding confirms the study of Ngatno et al. (2021).

**Table 4.5: Capital Structure, Board Size and Firm Performance**

	ROA				TQ			
	Coef.	Std. Err.	T-stat	P-value	Coef.	Std. Err.	T-stat	P-value
Capital Structure	-0.404*	0.194	-2.080	0.061	2.097	1.370	1.530	0.154
Board size	0.010	0.024	0.440	0.665	0.327	0.206	1.590	0.140
Board size*capital structure	0.008	0.031	0.270	0.795	-0.102	0.189	-0.540	0.600
Size	0.041	0.039	1.050	0.318	-0.474*	0.267	-1.770	0.104
Liquidity	0.004	0.010	0.370	0.717	0.152*	0.075	2.030	0.067
Age	-0.015**	0.007	-2.190	0.051	-0.026	0.034	-0.740	0.474
Constant	0.069	0.556	0.120	0.904	7.792**	3.527	2.210	0.049
r-square	0.24				0.17			

Source: Author's construction (2023), \*\*: 5% significance level, \*: 10% significance level, ROA: return on assets, TQ: Tobin's Q ratio

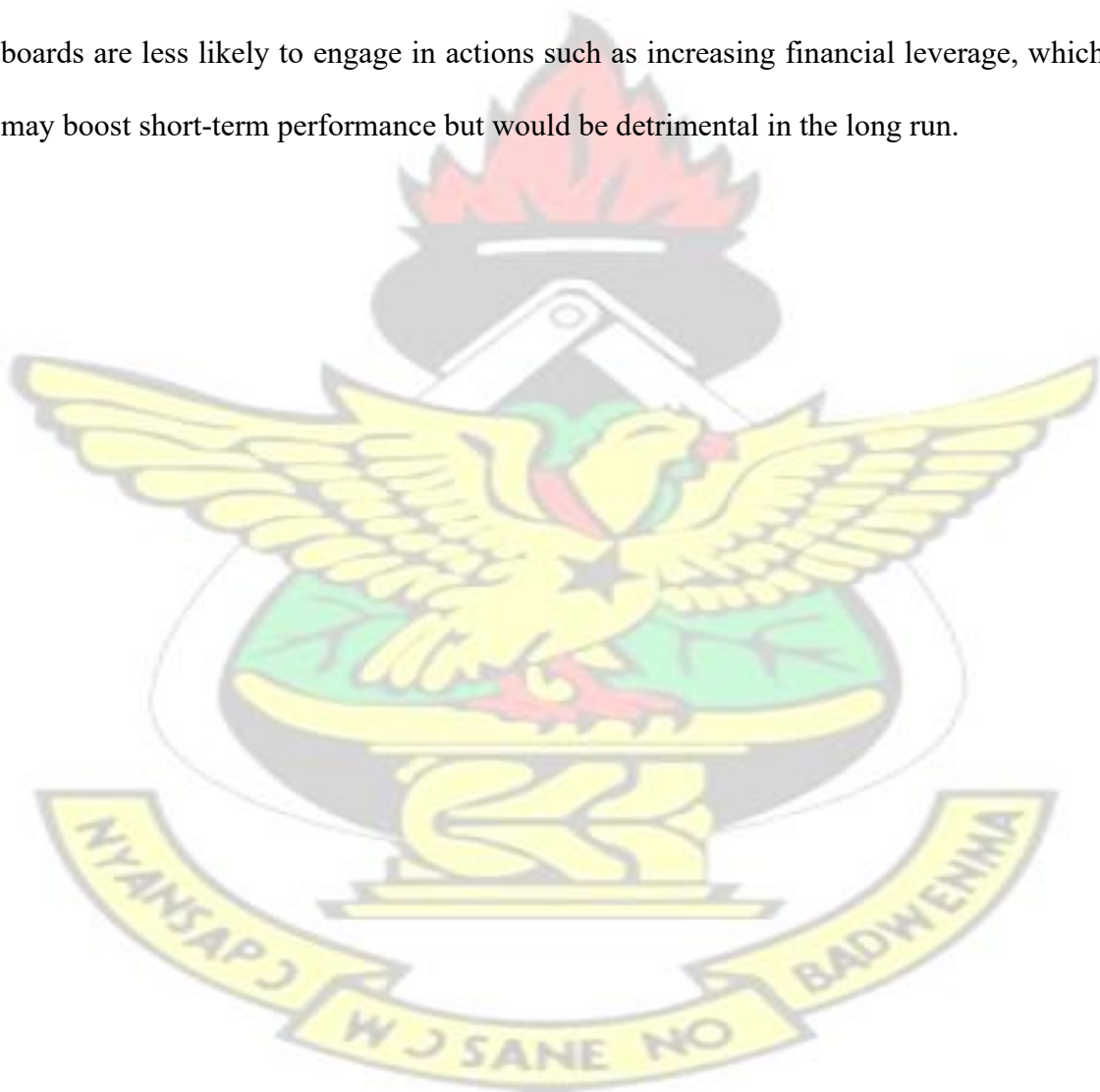
#### 4.4.3 Capital Structure, Board Independence and Firm Performance

The data in Table 4.6 shows that the r-square for ROA is 0.24 and 0.04 for TQ. This suggests that the independent variables explain 24 percent of the variance in ROA and 4 percent of the variance in TQ. For ROA, the regression coefficient for the interaction term was found to be 0.496. However, with a p-value of 0.211, which is above the conventional significance threshold of 0.10, the interaction effect is deemed not statistically significant. This implies that, in the context of ROA, board independence does not moderate the relationship between capital structure and company performance.

For TQ, a contrasting picture emerges. The coefficient for the interaction term stands at -9.239, and with a p-value of 0.003, it is well below the 0.10 threshold, indicating statistical significance. This finding suggests a clear moderating effect of board independence on the relationship between capital structure and TQ. The negative coefficient further implies that as board independence increases, the effect of capital structure on TQ diminishes, or vice versa. The finding is in line with the study of Pham and Nguyen (2019).

The significant moderation could be explained by the fact that independent boards of directors are associated with better corporate governance and improved firm performance. Board independence may act as a check against excessive leveraging. When firms have high levels of debt (or are overleveraged), it can be seen as risky by the market, potentially depressing the firm's valuation (TQ). An independent board might steer the firm away from extreme financial policies, especially overleveraging, to maintain or enhance firm valuation. The negative interaction suggests that as board independence increases, the potential positive effect of capital structure on TQ decreases.

Also, agency theory suggests that the agents (management) may not always act in the best interest of the principals (shareholders) and may instead prioritise their own interests. This can lead to a "principal-agent problem," where the management may take on more risk than shareholders would like, such as increasing financial leverage, in order to boost their own performance metrics and compensation. A highly independent board of directors acts as a "monitor" of management's actions and can help align the interests of management with those of the shareholders. Therefore, firms with more independent boards are less likely to engage in actions such as increasing financial leverage, which may boost short-term performance but would be detrimental in the long run.





**Table 4.6: Capital Structure, Board Independence and Firm Performance**

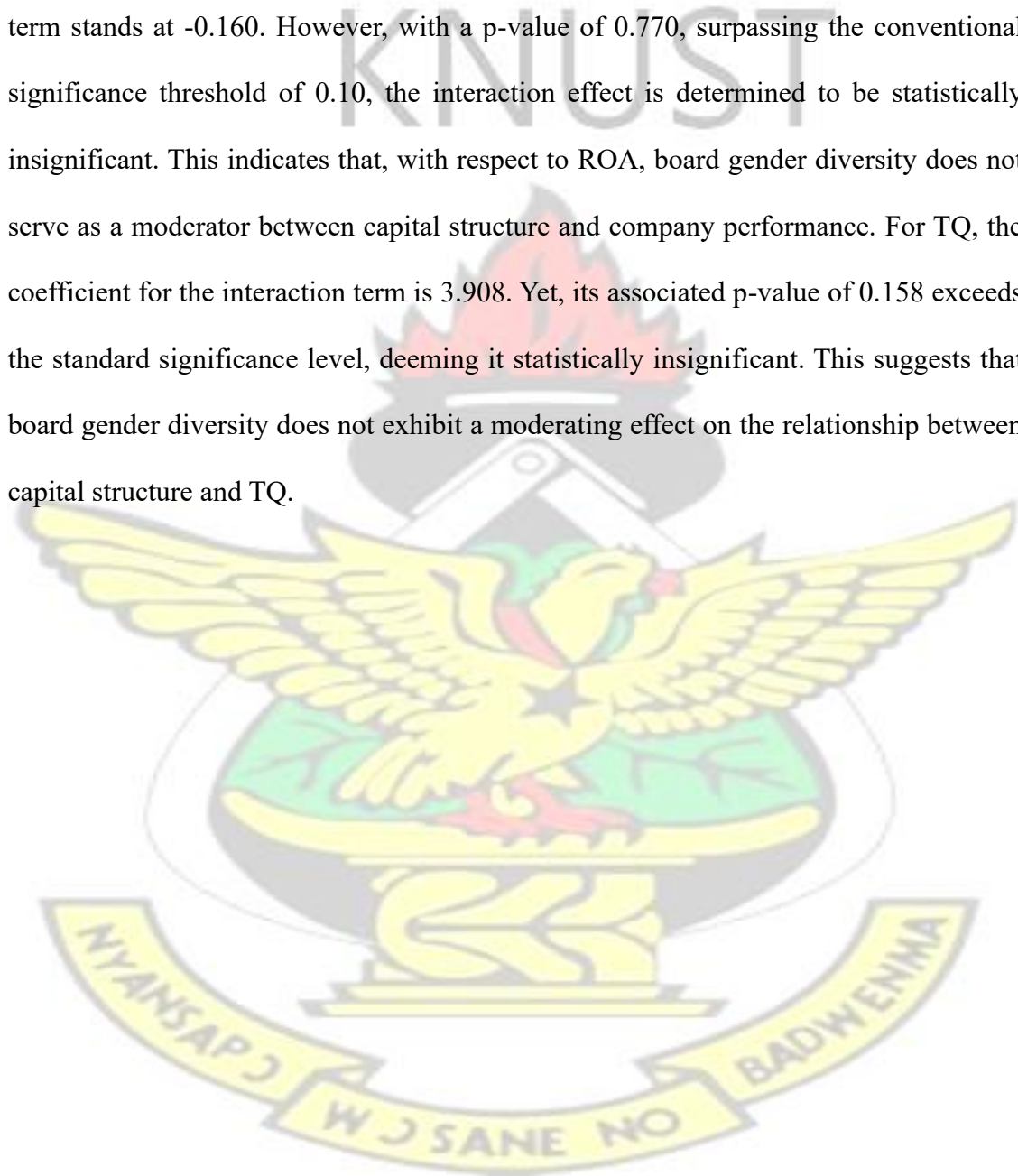
	ROA				TQ			
	Coef.	Std. Err.	T-stat	P-value	Coef.	Std. Err.	T-stat	P-value
Capital structure	-0.723**	0.299	-2.420	0.034	7.546***	1.613	4.680	0.001
Board Independence	-0.506**	0.189	-2.680	0.021	5.702***	1.218	4.680	0.001
Board Independence *Capital structure	0.496	0.373	1.330	0.211	-9.239***	2.396	-3.860	0.003
Size	0.057	0.042	1.340	0.207	-0.090	0.064	-1.400	0.188
Liquidity	0.007	0.011	0.600	0.564	0.119	0.109	1.090	0.299
Age	-0.018**	0.008	-2.360	0.038	-0.013	0.023	-0.540	0.600
Constant	0.361	0.504	0.720	0.489	-1.117*	0.574	-1.950	0.077
r-square	0.25				0.04			

Source: Author's construction (2023), \*\*\*: 1% significance level, \*\*: 5% significance level, \*: 10% significance level, ROA: return on assets, TQ:

Tobin's Q ratio

#### 4.4.4 Capital Structure, Board Gender Diversity and Firm Performance

The data in Table 4.7 shows that the r-square for ROA is 0.24 and 0.14 for TQ. This suggests that the independent variables explain 24 percent of the variance in ROA and 14 percent of the variance in TQ. For ROA, the regression coefficient for the interaction term stands at -0.160. However, with a p-value of 0.770, surpassing the conventional significance threshold of 0.10, the interaction effect is determined to be statistically insignificant. This indicates that, with respect to ROA, board gender diversity does not serve as a moderator between capital structure and company performance. For TQ, the coefficient for the interaction term is 3.908. Yet, its associated p-value of 0.158 exceeds the standard significance level, deeming it statistically insignificant. This suggests that board gender diversity does not exhibit a moderating effect on the relationship between capital structure and TQ.



**Table 4.7: Capital Structure, Board Gender Diversity and Firm Performance**

	ROA				TQ			
	Coef.	Std. Err.	T-stat	P-value	Coef.	Std. Err.	T-stat	P-value
Capital structure	-0.343***	0.072	-4.750	0.001	0.550**	0.212	2.600	0.025
Board gender diversity	0.305	0.403	0.760	0.466	-3.982**	1.645	-2.420	0.034
Board gender diversity *Capital structure	-0.160	0.536	-0.300	0.770	3.908	2.580	1.510	0.158
Size	0.041	0.038	1.060	0.312	-0.320	0.303	-1.060	0.314
Liquidity	0.002	0.011	0.170	0.872	0.137	0.083	1.650	0.127
Age	-0.016**	0.007	-2.290	0.043	-0.048	0.053	-0.900	0.390
Constant	0.154	0.449	0.340	0.738	9.106**	3.457	2.630	0.023
r-square	0.24				0.14			

Source: Author's construction (2023), \*\*\*: 1% significance level, \*\*: 5% significance level, ROA: return on assets, TQ: Tobin's Q ratio

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

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

#### 5.1 Summary of Findings

The study found that capital structure had a negative coefficient for ROA and a positive coefficient for TQ. Also, the p-value of capital structure for ROA was 0.00 and TQ was 0.03. This means that the relationship was significant at the 1 percent level for ROA and 3% level for TQ.

The study found that board size does not moderate the relationship between capital structure and firm performance. For ROA: The coefficient for the interaction term "Board size and capital structure" was 0.008 with a p-value of 0.795. For TQ: The coefficient for the interaction term "Board size and capital structure" was -0.102 with a p-value of 0.600. The p-values were much higher than the conventional significance level, indicating that the interaction terms were not statistically significant.

The study further found that board independence does not moderate the relationship between capital structure and ROA. However, it negatively moderates the relationship

between CS and TG. For ROA: The regression coefficient for the interaction term was found to be 0.496. However, with a p-value of 0.211, which is above the conventional significance threshold of 0.10, the interaction effect was deemed not statistically significant. For TQ: A contrasting picture emerges. The coefficient for the interaction term stood at -9.239, and with a p-value of 0.003, it is well below the 0.10 threshold, indicating statistical significance.

The study found that board gender diversity does not moderate the relationship between capital structure and firm performance. FOR ROA: The regression coefficient for the interaction term stood at -0.160. However, with a p-value of 0.770, surpassing the conventional significance threshold of 0.10, the interaction effect was determined to be statistically insignificant. For TQ: The coefficient for the interaction term was 3.908. Yet, its associated p-value of 0.158 exceeds the standard significance level, deeming it statistically insignificant.

## **5.2 Conclusion**

The study found that increased leverage might be detrimental to the operational profitability (ROA) of Ghanaian non-financial firms, the broader market might view leveraged firms more optimistically, rewarding them with higher valuations (Tobin's Q). Board size and gender diversity do not seem to influence the capital structure-performance relationship. However, board independence plays a differential role, especially in how the market perceives firm value in the context of leverage. These insights are instrumental for corporate policymakers, investors, and scholars aiming to decipher the complex tapestry of corporate finance and governance.

### **5.3 Recommendation**

Capital structure had a significant negative relationship with ROA and a positive relationship with TQ. The relationship was significant at the 1 percent level for ROA and 3% level for TQ. Ghanaian firms should be circumspect in their leveraging decisions. While debt can potentially enhance market valuation (as indicated by TQ), it may also put a strain on operational efficiency or profitability (as indicated by ROA). Firms must carefully assess their ability to service debt to prevent any negative impact on operational performance.

Board independence negatively moderates the relationship between capital structure and TQ. The coefficient for the interaction term stood at -9.239, and with a p-value of 0.003, it is well below the 0.10 threshold, indicating statistical significance. Non-financial Ghanaian firms should consider enhancing board independence. Independent boards may provide a more balanced perspective on financial decisions, potentially reducing the risks associated with high leverage. While it may temper the positive valuation effects of debt, it can also signal to the market a more prudent and risk-averse governance mechanism, which might be valued in the long run.

### **5.4 Suggestion for Further Research**

The study considered the gender diversity, board independence and board size due to its limited research in Ghana. Future studies could consider other variables that could also moderate the financial structure and performance of firms. Further studies could look at moderated mediated relationships of other corporate governance variables.

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