MODERATING EFFECT OF FIRM SIZE ON THE RELATIONSHIP BETWEEN SUSTAINABILITY DISCLOSURES AND COST OF DEBT FOR LISTED NON-FINANCIAL FIRMS IN KENYA

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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ABSTRACT

The growing emphasis on corporate sustainability disclosures coincided with rising concerns about debt financing costs in emerging markets. Therefore, this study examined the moderating effect of firm size on the relationship between sustainability disclosures and cost of debt for listed non-financial firms in Kenya. The research addressed a critical knowledge gap regarding the influence of environmental, social, and governance (ESG) reporting on borrowing costs in developing economies, where access to cost-effective financing remained a key business challenge. Grounded in stakeholder and agency theories, the research analyzed 38 non-financial corporations listed on the Nairobi Securities Exchange during the 2018-2022 fiscal years. Employing panel data methodologies, including random effects regression and moderation analysis, the findings demonstrated that environmental, social, and governance disclosures significantly reduced corporations' cost of debt. Significantly, corporate size strengthened these relationships, particularly for social disclosures and environmental disclosures indicating enhanced benefits for larger corporations. The results indicated that corporations could optimize their financing costs through robust sustainability reporting, while regulatory bodies needed to strengthen ESG reporting frameworks to enhance market efficiency. This research contributed to the expanding literature linking corporate sustainability practices to financial performance in emerging markets and offered strategic insights for corporations seeking to optimize their capital costs through enhanced ESG disclosures.

Keywords: Corporate Sustainability; Cost of Debt Capital; Corporate Size; ESG Reporting; Listed Corporations; Emerging Markets.

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This dissertation is dedicating to my family

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ABBREVIATION AND ACROYNMS

CBK	Central Bank of Kenya
CMA	Capital Markets Authority
CSR	Corporate Social Responsibility
ESG	Environmental, Social, and Governance
IMF	International Monetary Fund
KNBS	Kenya National Bureau of Statistics
MENA	Middle East and North Africa
NSE	Nairobi Securities Exchange

DEFINITION OF TERMS

Cost of debt: Cost of debt represents a company's effective interest rate on its borrowings from various sources like bank loans and bonds, measured as the ratio of interest expense to total debt (Ding et al., 2022).

Environmental disclosure: Environmental disclosure refers to the practice of companies reporting information about their environmental effects, policies and performance, including data on energy usage, greenhouse gas emissions, water consumption, waste management and other biophysical effects (Maaloul et al., 2023).

Firm size: Firm size is measured as the natural logarithm of total assets, providing a standardized assessment of a company's scale of operations (Garzón-Jiménez & Zorio-Grima, 2021).

Governance disclosure: Governance disclosure encompasses the reporting of information about a firm's organizational structure, board composition, management compensation, shareholder rights, and risk management systems (Palea & Drogo, 2020).

Social disclosure: Social disclosure involves the communication of information about a company's effects on and relationships with its stakeholders, including labor practices, human rights, community engagement, product responsibility, and diversity initiatives (Hamrouni et al., 2020).

Sustainability disclosures: Sustainability disclosures represent the comprehensive reporting of a firm's environmental, social and governance (ESG) practices and performance metrics to stakeholders (Shad et al., 2020).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The cost of debt, or debt financing, is a critical component of a firm's capital structure and refers to the effective interest rate that a company pays on its borrowed funds, such as loans and bonds (Ding et al., 2022; Bhuiyan & Nguyen, 2020). It is the return that lenders demand for providing capital to a firm, which includes the risk-free rate, default risk premium, and other factors such as liquidity and duration (Shad et al., 2020; Caragnano et al., 2020). The cost of debt is a crucial metric for non-financial firms because it directly effects their profitability, cash flows, and overall financial performance (Garzón-Jiménez & Zorio-Grima, 2021; Palea & Drogo, 2020). Non-financial firms with higher costs of debt face greater interest expenses, which can reduce their net income and limit their ability to invest in growth opportunities (Maaloul et al., 2023; Raimo et al., 2021).

The cost of debt is important for listed non-financial firms because it influences their ability to access capital markets and secure funding for their operations and investments (Hamrouni et al., 2020; Shad et al., 2020). Globally, the cost of debt has been a concern for firms, particularly in the wake of the financial crisis of 2008-2009, which led to a tightening of credit markets and an increase in borrowing costs (Garzón-Jiménez & Zorio-Grima, 2021; Palea & Drogo, 2020). In recent years, the global trend in the cost of debt has been mixed, with some countries experiencing low-interest rates due to accommodative monetary policies, while others have seen rising borrowing costs amid economic uncertainties and geopolitical risks (KPMG, 2020). According to a study by the International Monetary Fund (IMF), the global average cost of debt for non-financial firms increased from 3.8% in 2010 to 4.6% in 2019, with significant variations across countries and sectors (IMF, 2020).

In the African context, the cost of debt is a major challenge for firms, particularly those in emerging and frontier markets (Maama & Marimuthu, 2022; Coleman & Wu, 2021). Many African countries have underdeveloped capital markets, limited access to long-term financing, and higher perceived risks, which translate into higher borrowing costs for firms (AfDB, 2021). Moreover, the cost of debt in Africa is often influenced by factors such as inflation, exchange rate volatility, and political instability, which can exacerbate the financial burden on firms (Maama, 2021; Osemene et al., 2021). A report by the African Development Bank (AfDB) estimates that the average cost of debt for African firms is around 10%, which is significantly higher than the global average (AfDB, 2020). This high cost of debt can hinder the growth and competitiveness of African firms, particularly small and medium-sized enterprises (SMEs), which often face greater barriers to accessing affordable financing (Aifuwa, 2020; Onoja et al., 2021).

In Kenya, the cost of debt is a pressing issue for listed firms, as they navigate a challenging business environment characterized by high-interest rates, limited access to long-term financing, and increasing competition (Kinyua, 2020; Githaiga & Kosgei, 2023). According to the Central Bank of Kenya (CBK), the average lending rate for commercial banks in Kenya was 12.1% in 2020, which is among the highest in the East African region (CBK, 2021). Moreover, the cost of debt for Kenyan firms varies widely depending on their size, sector, and creditworthiness, with smaller and riskier firms often facing higher borrowing costs (Kibunja & Fatoki, 2020; Kurawa & Shuaibu, 2022). A study by the Kenya National Bureau of Statistics (KNBS) found that the average cost of debt for listed firms in Kenya was 13.2% in 2019, with some firms paying as high as 20% on their borrowings (KNBS, 2020). This high cost of debt can erode the profitability and competitiveness of Kenyan firms, making it difficult for them to invest in growth and expansion (Opanyi et al., 2022). As such, there is a growing interest among Kenyan firms and policymakers in exploring strategies to reduce the cost of debt, such as improving credit risk assessment, developing alternative financing instruments, and promoting sustainable business practices (NSE, 2019; Kinyua, 2020).

1.1.1 Sustainability Disclosures

Sustainability disclosures aim at the disclosure of the environmental, social, and governance (ESG) performance, effects or activities of organisations (Ding et al., 2022; Raimo et al., 2021). These disclosures gives the stakeholders information on the sustainability management practices of a company and the ability of the company to mitigate ESG risks in creating long term value (Maaloul et al., 2023; Hamrouni et al., 2020). Sustainability disclosures typically include three main components: environmental report, social report, and governance report (Caragnano et al., 2020; Shad et al., 2020). Environmental disclosure deals with a company's effects on the physical surrounding, social disclosure covers its management of people and stakeholders, and governance disclosure covers the management structure and policies of the company (Garzón-Jiménez & Zorio-Grima, 2021; Gong et al., 2021).

Globally, there is a rising trend in the adoption of sustainability reporting due to the rising interest of investors in ESG information and the use of non-financial information reporting from the companies (KPMG, 2020; GRI, 2021). As reported in the KPMG survey of the year 2020, about 80% of the global 250 largest companies disclosed Sustainable development reporting, as against 35% in the year 1999 only. Two methods have risen to the top as the two most prominent sustainability reporting frameworks, offering companies a set of rules and requirements for ESG reporting (GRI, 2021; SASB, 2021). However, there are significant differences between countries and industries; some companies offer extensive ESG reports, while others provide only scarce or selective information (Palea & Drogo, 2020; Maaloul et al., 2023).

In the African context, sustainability reporting is still an emerging practice, but it is gaining momentum as more companies recognize the importance of ESG disclosure for attracting investors and managing risks (Maama, 2021; Osemene et al., 2021). The African Development Bank (AfDB) has highlighted the role of sustainability reporting in promoting sustainable development and has launched initiatives to support ESG disclosure among African companies (AfDB, 2021). However, the level of sustainability reporting in Africa varies significantly across countries and sectors, with some companies leading the way in ESG disclosure while others lag behind (Onoja et al., 2021; Aifuwa, 2020). Studies have shown that factors such as institutional environment, corporate governance, and industry-specific characteristics influence the extent and quality of sustainability reporting in African countries (Maama, 2021; Osemene et al., 2021).

In Kenya, sustainability reporting is still at a nascent stage, but there is growing awareness of its importance among listed companies (Kinyua, 2020; Githaiga & Kosgei, 2023). The Nairobi Securities Exchange (NSE) has introduced guidelines on ESG reporting for listed companies, encouraging them to disclose their sustainability performance (NSE, 2019). However, the uptake of sustainability reporting among Kenyan companies remains low, with only a handful of companies providing comprehensive ESG disclosures (Kibunja & Fatoki, 2020; Opanyi et al., 2022). Studies have explored the effect of sustainability reporting on various aspects of firm performance in Kenya, such as stock returns and firm value (Kinyua, 2020; Opanyi et al., 2022). However, the specific effect of sustainability disclosures on the cost of debt financing in the Kenyan context remains understudied (Kibunja & Fatoki, 2020; Kurawa & Shuaibu, 2022), highlighting the need for further research to understand the relationship between ESG disclosure and access to affordable financing for listed companies in Kenya.

1.1.2 Cost of Debt

The cost of debt has become a critical concern for firms globally, particularly in the wake of financial crises and economic uncertainties (Garzón-Jiménez & Zorio-Grima, 2021; Palea & Drogo, 2020). It represents the effective interest rate that a company pays on its borrowed funds, such as loans and bonds, and is a key component of a firm's capital structure (Ding et al., 2022; Bhuiyan & Nguyen, 2020). The cost of debt directly effects a company's profitability, cash flows, and overall financial performance, making it a crucial metric for financial management and strategic decision-making (Garzón-Jiménez & Zorio-Grima, 2021; Palea & Drogo, 2020). Firms with higher costs of debt face greater interest expenses, which can reduce their net income and limit their ability to invest in growth opportunities (Maaloul et al., 2023; Raimo et al., 2021).

In the African context, the cost of debt presents a significant challenge for firms, especially those in emerging and frontier markets (Maama & Marimuthu, 2022; Coleman & Wu, 2021). Many African countries have underdeveloped capital markets, limited access to long-term financing, and higher perceived risks, which translate into higher borrowing costs for firms (AfDB, 2021). Factors such as inflation, exchange rate volatility, and political instability often exacerbate the financial burden on firms, leading to higher costs of debt (Maama, 2021; Osemene et al., 2021). A report by the African Development Bank (AfDB) estimates that the average cost of debt for African firms is around 10%, which is significantly higher than the global average (AfDB, 2020). This high cost of debt can hinder the growth and competitiveness of African firms, particularly small and medium-sized enterprises (SMEs), which often face greater barriers to accessing affordable financing (Aifuwa, 2020; Onoja et al., 2021).

In Kenya specifically, the cost of debt is a pressing issue for listed firms as they navigate a challenging business environment characterized by high-interest rates, limited access to long-term financing, and increasing competition (Kinyua, 2020; Githaiga & Kosgei, 2023). According to the Central Bank of Kenya (CBK), the average lending rate for commercial banks in Kenya was 12.1% in 2020, which is among the highest in the East African region (CBK, 2021). The cost of debt for Kenyan firms varies widely depending on their size, sector, and creditworthiness, with smaller and riskier firms often facing higher borrowing costs (Kibunja & Fatoki, 2020; Kurawa & Shuaibu, 2022). A study by the Kenya National Bureau of Statistics (KNBS) found that the average cost of debt for listed firms in Kenya was 13.2% in 2019, with some firms paying as high as 20% on their borrowings (KNBS, 2020). This high cost of debt can erode the profitability and competitiveness of Kenyan firms, making it difficult for them to invest in growth and expansion (Opanyi et al., 2022).

1.1.3 Sustainability Disclosures and Cost of Debt

The relationship between sustainability disclosures and cost of debt has gained significant attention in recent years as lenders increasingly incorporate ESG factors into their risk assessment and lending decisions (Maaloul et al., 2023; Raimo et al., 2021). Studies have shown that comprehensive sustainability disclosures can reduce information asymmetry between firms and lenders, leading to more favorable borrowing terms and lower costs of debt (Ding et al., 2022; Bhuiyan & Nguyen, 2020; Caragnano et al., 2020). This relationship is supported by evidence from multiple markets, with research indicating that firms with higher quality ESG disclosures experience reductions in their cost of debt ranging from 2.4% to 5.3% (Garzón-Jiménez & Zorio-Grima, 2021; Hamrouni et al., 2020; Shad et al., 2020).

The mechanism through which sustainability disclosures affect the cost of debt operates through multiple channels. First, detailed ESG disclosures enable lenders to better assess a firm's risk profile, including environmental risks, social effects, and governance practices (Palea & Drogo, 2020; Ould Daoud Ellili, 2020). Second, sustainability reporting signals a firm's commitment to responsible business practices and long-term value creation, which can enhance its creditworthiness and reputation (Maaloul et al., 2023; L'Abate et al., 2024; Gong et al., 2021). Third, comprehensive ESG disclosures can indicate stronger risk management capabilities and regulatory compliance, factors that lenders consider when determining borrowing costs (Kilincarslan et al., 2020; Gerged et al., 2021; Coleman & Wu, 2021).

In developing markets, including Africa, the link between sustainability disclosures and cost of debt is particularly relevant given the challenges firms face in accessing affordable financing (Maama & Marimuthu, 2022; Osemene et al., 2021). Research indicates that firms in emerging markets can achieve significant reductions in their cost of debt through enhanced sustainability reporting, with studies showing improvements in borrowing terms ranging from 1.5% to 3.2% (Abdi & Omri, 2020; Kurawa & Shuaibu, 2022). However, the effectiveness of sustainability disclosures in reducing borrowing costs may be influenced by factors such as firm size, institutional environment, and market development (Opanyi et al., 2022; Githaiga & Kosgei, 2023; Kinyua, 2020), highlighting the need for context-specific research in markets like Kenya.

1.1.4 Listed Firms in Kenya

Listed firms in Kenya are companies whose securities are traded on the NSE, the primary stock exchange in the country (Kinyua, 2020). As of December 2021, there were 64 listed firms on the NSE, representing various sectors of the economy, including banking, manufacturing, telecommunications, energy, and agriculture (NSE, 2021). These firms are required to comply with the listing requirements and regulations set forth by the Capital Markets Authority (CMA) of Kenya, which is the regulatory body responsible for overseeing the capital markets in the country (Opanyi et al., 2022). The CMA's main objectives are to promote market efficiency, ensure investor protection, and maintain market integrity (Githaiga & Kosgei, 2023). Listed firms in Kenya are subject to various disclosure requirements, including the submission of annual reports, interim financial statements, and other material information that may affect investor decisions (Kibunja & Fatoki, 2020). The NSE has also introduced guidelines on ESG reporting for listed firms, encouraging them to disclose their sustainability performance and practices (NSE, 2019).

The performance of listed firms in Kenya has been mixed in recent years, with some companies experiencing growth and profitability while others have faced challenges (Kinyua, 2020). According to the NSE (2021), the total market capitalization of listed firms in Kenya stood at KES 2.6 trillion (approximately USD 23 billion) as of December 2021, representing a 13.5% increase from the previous year. However, the market has also been affected by various factors, such as economic slowdown, regulatory changes, and the effect of the COVID-19 pandemic (Opanyi et al., 2022). In terms of sustainability performance, the adoption of ESG reporting among listed firms in Kenya remains low, with only a few companies providing comprehensive ESG disclosures (Kibunja & Fatoki, 2020). However, there is growing awareness of the importance of sustainability among listed firms, and some companies have taken steps to integrate ESG considerations into their business strategies and operations (Githaiga & Kosgei, 2023). The NSE has been working to promote sustainable business practices among listed firms, through initiatives such as the NSE ESG Disclosures Guidance Manual and the NSE ESG Index (NSE, 2019).

1.2 Problem Statement

In an ideal scenario, listed firms in Kenya would have access to optimal cost of debt financing, which would enable them to fund their operations, invest in growth opportunities, and contribute to the overall development of the economy. Affordable and sustainable debt financing would allow listed firms to maintain a healthy capital structure, reduce financial distress, and enhance their competitiveness in the market (Kinyua, 2020; Opanyi et al., 2022). Moreover, optimal cost of debt would attract more investors to the capital markets, increase market liquidity, and promote the efficient allocation of resources in the economy (Kibunja & Fatoki, 2020). This, in turn, would lead to job creation, income generation, and improved living standards for the Kenyan population (Githaiga & Kosgei, 2023).

However, the actual situation of cost of debt for listed firms in Kenya is far from optimal. Many listed firms face high and unsustainable debt financing costs, which hinder their ability to grow and compete effectively in the market (Kinyua, 2020). According to the Central Bank of Kenya (2021), the average lending rate for commercial banks in Kenya was 12.1% in 2020, which is among the highest in the East African region. Moreover, the cost of debt for Kenyan firms varies widely depending on their size, sector, and creditworthiness, with smaller and riskier firms often facing higher borrowing costs (Kibunja & Fatoki, 2020; Kurawa & Shuaibu, 2022). For instance, in 2020, Kenya Airways, the national carrier, reported a net loss of KES 36.2 billion (approximately USD 333 million), largely due to high debt financing costs and the effect of the COVID-19 pandemic (Kenya Airways, 2021). In addition, while sustainability disclosures aim to reduce information asymmetry, practices like greenwashing and the complexities of debt covenants obscure their true effect on cost of debt

Several listed firms in Kenya have been placed under receivership or faced financial difficulties due to high debt levels, with companies like Mumias Sugar Company, ARM Cement Limited, and Deacons East Africa Plc accumulating significant debts (The East African, 2021). These examples highlight the severe consequences of high cost of debt for listed firms in Kenya. Sustainability disclosures have been proposed as a potential solution to this problem, as they can reduce information asymmetry, improve risk assessment, and enhance the creditworthiness of listed firms (Maaloul et al., 2023; Raimo et al., 2021).

Significant research gaps exist in understanding the relationship between sustainability disclosures and cost of debt, particularly in emerging markets. Contextually, while Opanyi et al. (2022) examined corporate voluntary disclosures and firm value in Kenya, and Kinyua (2020) investigated sustainability reporting's effect on stock returns, neither addressed the critical aspect of debt financing costs. Similarly, Githaiga and Kosgei (2023) studied board characteristics and sustainability reporting in East Africa, but overlooked its financial implications. Conceptually, studies in developed markets such as Ding et al. (2022) and Raimo et al. (2021) analyzed sustainability disclosures using aggregate ESG scores, without decomposing the distinct effects of environmental, social, and governance components. Methodologically, while Maaloul et al. (2023) considered corporate reputation's mediating role in the US market, and Garzón-Jiménez and Zorio-Grima (2021) examined cost of equity effects in developing markets, they did not explore how firm characteristics like size moderate the relationship between individual ESG components and cost of debt. In Kenya specifically, studies by Kibunja and Fatoki (2020) focused solely on debt financing's effect on financial performance, while Injeni et al. (2022) examined institutional factors affecting sustainability disclosures, leaving unexplored the critical relationship between discrete ESG components, firm size, and debt financing costs in Kenya's unique emerging market context.

This study addressed these specific gaps by providing a comprehensive analysis of how individual ESG components influence the cost of debt while considering the moderating effect of firm size in Kenya's corporate environment.

1.3 Research Objectives

The general objective of the study is to determine the moderating effect of firm size on the relationship between sustainability disclosures and the cost of debt for listed non-financial firms in Kenya.

1.3.1 Specific Research Objectives

i. To determine the effect of environmental disclosure on the cost of debt for listed firms in Kenya
ii. To assess the effect of social disclosure on the cost of debt for listed firms in Kenya
iii. To evaluate the effect of governance disclosure on the cost of debt for listed firms in Kenya
iv. To determine the moderating effect of firm size on the relationship between sustainability disclosures and the cost of debt for listed firms in Kenya

1.4 Research Hypotheses

H_{01}: Environmental disclosure has no significant effect on the cost of debt for listed firms in Kenya

H_{02}: Social disclosure has no significant effect on the cost of debt for listed firms in Kenya

H_{03}: Governance disclosure has no significant effect on the cost of debt for listed firms in Kenya

H_{04}: Firm size does not significantly moderate the relationship between sustainability disclosures and the cost of debt for listed firms in Kenya

1.5 Significance of the Study

1.5.1 Listed Firms

The findings of this study will help listed firms in Kenya make informed decisions about their sustainability disclosure practices, potentially leading to improved financial performance and competitiveness. Moreover, this study will assist firms in understanding the specific dimensions of ESG performance that are most relevant to lenders, allowing them to focus their reporting efforts on areas that are likely to have the greatest effect on their cost of debt.

1.5.2 Investors

This research presents critical implications for investors navigating Kenya's capital markets by empirically establishing the relationship between sustainability disclosures and debt financing costs. Investors can leverage these findings to conduct more sophisticated risk assessments of Kenyan listed firms, identifying those organizations whose robust ESG reporting practices correlate with enhanced access to affordable capital—a key determinant of long-term investment returns. Beyond immediate portfolio optimization, this study advances the scholarly discourse on ESG materiality in emerging markets, providing investors with substantive evidence to integrate sustainability metrics into their fundamental analysis frameworks and strategic allocation decisions. The quantifiable link between disclosure practices and borrowing costs offers investors a tangible mechanism to evaluate the financial relevance of sustainability performance in the Kenyan market context.

1.5.3 Lenders

Lenders, including banks and other financial institutions, wasnefit from the insights provided by this study. By understanding the effect of sustainability disclosures on the cost of debt, lenders will make more informed decisions about their lending practices and risk assessment processes. This study will help lenders identify firms that are more likely to have strong ESG performance, which can be an indicator of lower credit risk. Moreover, the findings of this study will assist lenders in developing sustainability-linked lending products, which will incentivize borrowers to improve their ESG performance and ultimately reduce the risk of default.

1.5.4 Policymakers

This research offers consequential insights for Kenyan policymakers tasked with developing sustainability disclosure frameworks and regulatory structures. By empirically demonstrating the relationship between ESG transparency and debt financing costs, the study provides an evidence-based foundation for policy decisions aimed at promoting sustainable business practices while simultaneously enhancing capital access for listed companies. Policymakers can strategically leverage these findings to design targeted incentives and reporting requirements that encourage adoption of optimal sustainability disclosure practices, thereby strengthening both firm-level competitiveness and system-wide economic resilience. The data-driven recommendations from this research support the calibration of Kenya's regulatory environment to capitalize on the demonstrated financial benefits of sustainability reporting within the unique context of an emerging African economy.

1.5.5 Academia

The academic literature on sustainability reporting and its effects on financial performance has benefited greatly from the work that this research has contributed. This paper fills up a number of research gaps by investigating the link between environmental, social, and governance disclosures and the cost of debt in the Kenyan setting. It also offers fresh data from the standpoint of emerging markets. Future research on sustainability reporting and its financial ramifications in Kenya and other developing nations was built upon the results of this study. Additionally, this research will add to the continuing discussion on the importance of sustainability disclosures and how they support corporate responsibility and transparency.

1.6 Scope of the study

This study focused on listed non-financial corporations at the Nairobi Securities Exchange (NSE) during the fiscal years 2018-2022. The research scope encompassed 38 non-financial corporations, excluding financial institutions due to their distinct regulatory requirements and unique capital structures that could potentially distort the analysis of sustainability disclosures and cost of debt relationships. The study examined three key dimensions of sustainability reporting: environmental disclosures (including energy usage, emissions, and waste management), social disclosures (covering employee relations, community engagement, and stakeholder management), and governance disclosures (encompassing board structure, transparency, and risk management). The analysis utilized secondary data from annual reports, sustainability reports, and other corporate documents. Additionally, the study incorporated firm size, measured by the natural logarithm of total assets, as a moderating variable to understand its influence on the relationship between sustainability disclosures and cost of debt within Kenya's corporate environment.

CHAPTER TWO

LITARTURE REVIEW

2.1 Introduction

Chapter 2 presents a comprehensive synthesis of existing research on sustainability disclosures and their financial implications for Kenyan listed firms, specifically focusing on debt financing costs. The chapter employs a systematic structure comprising four integrated components: an introduction establishing the research context; a theoretical review examining stakeholder theory, agency theory, and legitimacy theory as conceptual foundations for understanding ESG disclosure effects; an empirical review critically analyzing existing literature on the relationships between environmental, social, and governance disclosures and debt costs; and a conceptual framework that visually maps the hypothesized relationships between variables. This methodical organization establishes both the theoretical underpinnings and empirical precedents for investigating how sustainability reporting practices influence financing costs within Kenya's unique market environment.

2.2 Theoretical review

This theoretical framework section deploys three foundational theories—stakeholder theory, agency theory, and legitimacy theory—to establish the conceptual underpinnings for examining the relationship between sustainability disclosures and debt financing costs. These complementary theoretical perspectives illuminate how ESG reporting influences lenders' risk assessments and decision-making processes, while explaining the potential moderating effect of firm size. Stakeholder theory positions lenders as key stakeholders whose information needs can be addressed through comprehensive sustainability disclosures, reducing information asymmetry and perceived risk. Agency theory suggests that sustainability reporting functions as a monitoring mechanism that mitigates agency conflicts between managers and capital providers, potentially lowering borrowing costs through enhanced transparency. Meanwhile, legitimacy theory proposes that firms strategically use ESG disclosures to demonstrate conformity with societal expectations, thereby enhancing their credibility with financial institutions. Collectively, these theoretical frameworks provide a multidimensional lens for analyzing how sustainability reporting practices influence debt financing terms for firms of varying sizes within Kenya's corporate landscape.

2.2.1 Stakeholder theory

Stakeholder theory was initially developed by Freeman (1984). The theory posits that companies should consider the interests of all stakeholders, not just shareholders, when making decisions. A stakeholder is any group or people who might have an effect on or affect the achievement of the organization's goals (Freeman, 1984). This include the environment, communities, suppliers, workers, shareholders, and customers. Stakeholder theory's central tenet is that an organization's capacity to provide value for all of its stakeholders—rather than merely maximising shareholder returns—is what determines its viability and success (Freeman et al., 2010). Companies may enhance their legitimacy, reputation, and access to resources—including a reduced cost of debt—by attending to the expectations and concerns of different stakeholders (Maaloul et al., 2023; Raimo et al., 2021).

The stakeholder idea includes a number of advantages and disadvantages. The theory's ability to give a more broad and thorough understanding of business's social function than just maximising shareholder wealth is one of its key advantages (Freeman et al., 2010). Companies may better comprehend and manage the intricate web of linkages and interactions that define their operational environment by taking into account the interests of numerous stakeholders (Bhuiyan

& Nguyen, 2020). Stakeholder theory also highlights how important it is to conduct business ethically and responsibly as these actions may improve a company's legitimacy and reputation (Caragnano et al., 2020). Stakeholder theory's primary drawback, however, is that it can be difficult to strike a balance between the frequently at odds interests of many stakeholders (Kinyua, 2020). In order to meet the needs of different stakeholders, managers may have to make challenging trade-offs and prioritisation decisions (Opanyi et al., 2022). Furthermore, the theory has come under fire for lacking clarity and useful recommendations for operationalizing stakeholder management in real-world settings (Githaiga & Kosgei, 2023).

According to the idea, businesses may enhance their legitimacy, reputation, and access to resources—including a reduced cost of debt—by making environmental, social, and governance (ESG) disclosures and attending to the concerns of different stakeholders (Maaloul et al., 2023; Raimo et al., 2021). ESG considerations are becoming more and more important for lenders as essential stakeholders when making risk assessments and lending choices (Bhuiyan & Nguyen, 2020; Caragnano et al., 2020). Companies can cut borrowing costs by reducing information asymmetry, improving their creditworthiness, and improving their risk profile by showcasing their commitment to sustainable business practices through sustainability disclosures (Ding et al., 2022; Raimo et al., 2021). As a result, the proposed connections between environmental, social, governance, and debt costs may be better understood via the lens of stakeholder theory. Furthermore, bigger organisations may be subject to increased stakeholder pressure and expectations about ESG performance, which is why the theory may assist explain the possible moderating influence of company size (Kurawa & Shuaibu, 2022; Palea & Drogo, 2020).

2.2.2 Agency theory

Agency theory was developed by Jensen and Meckling in 1976 and is focused on the relationship that may arise between shareholders, or principals, and managers, or agents, as well as any potential conflicts of interest between them. According to the theory, managers' and shareholders' interests are at odds since ownership and control are separated in contemporary organisations (Eisenhardt, 1989). As principles, shareholders assign managers the duty of managing the business and making choices on their behalf. But as agents, managers might have personal objectives and motivations that aren't necessarily in line with those of the stockholders (Fama & Jensen, 1983). According to Jensen and Meckling (1976), this misalignment of interests can result in agency issues like moral hazard and adverse selection, which can lead to less-than-ideal decision-making and decreased company value.

Agency theory has several strengths and weaknesses. One of the main strengths of the theory is that it provides a useful framework for understanding the complex relationships and incentives within organizations (Eisenhardt, 1989). The theory highlights the importance of monitoring and bonding mechanisms, such as corporate governance and compensation structures, in aligning the interests of principals and agents (Fama & Jensen, 1983). Moreover, agency theory emphasizes the role of information in reducing uncertainty and improving decision-making (Jensen & Meckling, 1976). However, one of the main weaknesses of agency theory is that it assumes a narrow view of human motivation, focusing primarily on self-interest and economic incentives (Kinyua, 2020). The theory may overlook other factors that influence behavior, such as social norms, ethics, and intrinsic motivation (Opanyi et al., 2022). Additionally, agency theory has been criticized for its limited ability to explain the complex social and political dynamics within organizations (Githaiga & Kosgei, 2023).

Agency theory provides a pertinent and useful paradigm for the investigation of how company size and sustainability disclosures affect the cost of financing for Kenyan listed companies. According to the argument, because ownership and control are separated, larger businesses may have greater agency costs, which might result in higher bonding and monitoring expenses (Kurawa & Shuaibu, 2022; Palea & Drogo, 2020). To manage ESG risks and participate in sustainability disclosures, bigger companies often have greater resources and experience, which lessens information asymmetry and enhances their access to debt financing (Ding et al., 2022; Raimo et al., 2021). Businesses may improve their creditworthiness and lower borrowing costs by demonstrating their commitment to ethical business practices and mitigating agency difficulties through the provision of thorough and reliable ESG disclosures (Bhuiyan & Nguyen, 2020; Caragnano et al., 2020). Consequently, the link between the cost of debt and sustainability disclosures (environmental, social, and governance) is thought to be moderated by business size, a moderating effect that is informed by agency theory. Theoretically, depending on the size and resources of the company, the effect of ESG performance on borrowing costs may vary; larger companies stand to gain more from sustainability disclosures because they can lower agency costs and increase information transparency (Kinyua, 2020; Opanyi et al., 2022).

2.2.3 Legitimacy Theory

Legitimacy theory was proposed by (Suchman, 1995), and posits organisations work hard to make sure that their activities are viewed as legal and acceptable in accordance with societal norms, values, and beliefs. The theory suggests that organizations need to maintain legitimacy in order to survive and thrive, and they can achieve this by aligning their activities with societal expectations (Dowling & Pfeffer, 1975; Lindblom, 1994). Legitimacy theory recognizes the importance of maintaining a "social contract" between organizations and society, which can be beneficial for both parties (Deegan, 2002). However, the theory can be criticized for being overly broad and vague, making it difficult to operationalize and test empirically (Gray, Kouhy, & Lavers, 1995). Additionally, it assumes that organizations are proactive in managing their legitimacy, whereas in reality, they may be reactive or even resistant to societal pressures (O'Donovan, 2002).

Legitimacy theory is relevant to this study because it provides a theoretical basis for understanding why firms may engage in sustainability disclosures. Legitimacy theory informs the study's focus on environmental, social, and governance disclosures as potential legitimacy-enhancing strategies. These disclosures represent the firm's efforts to align its operations with societal expectations and norms related to sustainability and responsible business practices (Neu, Warsame, & Pedwell, 1998). Furthermore, legitimacy theory may also shed light on the potential moderating effect of firm size on the relationship between sustainability disclosures and the cost of debt. Larger firms may face greater societal scrutiny and pressure to maintain legitimacy, making sustainability disclosures more critical for them in terms of managing their legitimacy and potentially influencing their cost of debt financing.

2.3 Empirical Review

The empirical review section presents a critical analysis of the existing research on the effect of environmental disclosure, social disclosure, and governance disclosure on the cost of debt, as well as the moderating effect of firm size on these relationships, to identify gaps in the literature and provide a basis for the current study.

2.3.1 Effect of Environmental disclosure on the cost of debt

Ding et al. (2022) used a sample of 2,746 firm-year data from 2008 to 2018 to investigate the effects of environmental administrative fines and company environmental disclosures on the cost of debt in China. According to the study, the cost of debt increased by 5.3% for every standard deviation rise in environmental administrative penalties and decreased by 2.7% for every standard deviation increase in environmental disclosures. These results demonstrate how critical environmental disclosures are to reducing the detrimental effects of environmental fines on borrowing costs.

Maaloul et al. (2023) study the effect of ESG performance and disclosure on the cost of debt, controlling for corporate reputation as a mediating factor on a sample of 2,252 US firm years from 2007 to 2018. For example, this study found that having a unit increase in the environmental disclosure score lowered cost of debt by 2.8 percent, although to some extent firm repute mediated this relationship. The findings confirm that environmental disclosures help businesses to portray a good image and earn more creditworthiness and lower expenditure on borrowing.

Raimo et al. (2021) have investigated the advantages of ESG disclosure focusing on how environmental disclosure affects the cost of debt financing among a sample of European businesses. According to the study, the cost of the debt fell by 2.4% for each standard deviation increase in environmental disclosure. The research finds that environmental disclosures reduce information imbalance between lenders and businesses, and improve risk assessment and better borrowing conditions.

Shad et al. (2020) used a sample of businesses, across many countries, to study the effect of sustainability reporting on the reduction in the cost of debt and equity. The researchers did not specifically examine the effect of environmental disclosure on the cost of borrowing, but did find that generally the cost of debt and equity is reduced by sustainability reporting, with a one unit increase in the sustainability disclosure score associated with a 3.5% reduction in cost of debt.

In an effort to study how transparency with respect to circular economy facilitates the cost of debt, L'Abate et al. (2024) analysed social media data obtained from a sample of Italian businesses through signalling theory. The study found that every standard deviation jump in the amount of circular economy transparency shared on social media costs debt by 1.9%. The findings suggest that social media may be a potential instrument for businesses to express their environmental sustainability support while decreasing information asymmetry and expanding funding availability.

In developing markets, Garzón-Jiménez and Zorio-Grima (2021) used a sample of 855 firm-year data from 2011 to 2016 to examine the effect of carbon emissions, environmental disclosures, and CSR assurance on the cost of equity. For every standard deviation rise in environmental disclosure, the study found that the cost of equity decreased by 1.2%. The research finds that environmental disclosures reduce information asymmetry and increase investor trust, reducing the costs of financing.

Kilincarslan et al. (2020) examined the effect of governance systems on environmental disclosures in the Middle East and Africa from 2009 to 2015, based on a sample of 99 businesses from 11 different nations. Organisations with stronger governance characteristics, including independent and diverse boards, also had higher levels of environmental disclosure, the study found. Injeni et al. (2022) explored the variability of sustainability and integrated report information disclosures by looking at the agency and institutional factors that may affect them using 187 firm year data in 2010 to 2015 in Kenya. It demonstrates that corporations with higher institutional ownership and independent boards disclose sustainability information more transparently, including their environmental data..

2.3.2 Effect of Social disclosure on the cost of debt

The empirical literature reveals substantial evidence linking social disclosure to reduced debt financing costs across diverse markets. Hamrouni et al. (2020) analyzed 90 French listed companies (2010-2014), demonstrating that each standard deviation increase in CSR disclosure corresponded with a 1.5% reduction in debt costs. Their analysis confirmed a robust negative relationship between comprehensive social reporting and borrowing expenses, suggesting that such disclosures provide lenders with valuable information that enhances risk assessment capabilities and reduces information asymmetry.

Maaloul et al. (2023) further explored this relationship using 2,252 U.S. firm-years (2007-2018), identifying that each unit increase in social disclosure score yielded a 1.9% reduction in financing costs. Their study highlighted corporate reputation as a partial mediating factor, indicating that social transparency enhances firm image, thereby improving creditworthiness and securing more favorable borrowing terms. The protective function of social disclosure emerged clearly in Gong et al.'s (2021) examination of 3,221 Chinese firms (2009-2018), which revealed that strong social responsibility performance mitigated the negative financial effect of regulatory penalties. This finding suggests that proactive social disclosure serves as a risk management tool that can buffer firms against adverse regulatory events and their associated borrowing cost implications. In the United Arab Emirates context, Ould Daoud Ellili (2020) documented a substantial 3.2% reduction in debt costs for each unit increase in social disclosure among 58 listed companies (2010-2018). This pronounced effect underscores how social transparency builds investor confidence and diminishes information asymmetry in emerging market environments.

The African market perspective from Maama and Marimuthu (2022) confirmed social disclosure's significance within integrated reporting frameworks across 382 sub-Saharan firm-years (2010-2019). Their findings established that social components substantially contributed to reduced capital costs by enhancing financial statement value and decreasing perceived risk profiles for capital market participants. Complementing these direct examinations, Abdi and Omri (2020) identified a negative relationship between web-based disclosure intensity and borrowing costs across 320 MENA firm-years (2008-2017), suggesting that multiple disclosure channels can effectively communicate social performance to capital providers.

2.3.3 Governance transparency and Cost of Debt

The empirical literature reveals compelling evidence concerning the relationship between governance transparency and debt financing costs across diverse global markets. Gong et al. (2021) conducted a comprehensive analysis of 3,221 Chinese firm-years (2009-2018), documenting that companies penalized for governance violations experienced a substantial 10.6% increase in debt costs, while those demonstrating superior corporate social responsibility achieved a 4.8% reduction. This stark contrast underscores how proactive governance management and transparent disclosure practices can effectively mitigate the adverse financial consequences of regulatory interventions, thereby preserving favorable borrowing conditions even in challenging regulatory environments.

The relationship between governance transparency and financing costs demonstrates nuanced complexity, as illustrated by Gerged et al. (2021) in their examination of 1,058 UK firm-years (2009-2018). Their findings revealed a curvilinear relationship between governance disclosure and equity costs, with optimal outcomes at moderate transparency levels. This U-shaped pattern suggests that while governance disclosure generally reduces information asymmetry and enhances investor confidence, excessive disclosure might paradoxically signal potential governance weaknesses—an important consideration for firms calibrating their optimal disclosure strategy to minimize capital costs.

European evidence further substantiates the financial benefits of governance transparency, with Palea and Drogo (2020) analyzing 475 Eurozone firm-years (2013-2017) to demonstrate that enhanced corporate governance—specifically measured through board independence and diversity—corresponded with a 2.3% reduction in debt costs per standard deviation improvement in governance score. Their findings establish that governance disclosures provide lenders with valuable information that effectively reduces perceived risk and enhances access to financing on favorable terms, highlighting the practical financial advantages of transparent governance practices.

The Middle Eastern perspective offered by Ould Daoud Ellili (2020), examining 58 UAE listed firms (2010-2018), reinforces these patterns by documenting a substantial 2.7% reduction in debt costs for each unit increase in governance disclosure score. This research further demonstrates how governance transparency functions to diminish information asymmetry and strengthen investor trust, ultimately translating into tangible financing cost advantages for transparent firms. Complementary African studies from Osemene et al. (2021) and Coleman and Wu (2021), while not directly examining debt cost implications, establish important linkages between governance quality, environmental disclosure comprehensiveness, and overall business performance—suggesting potential indirect pathways through which governance practices might influence financing terms in African markets.

2.3.4 Effect of firm size on the relationship between sustainability disclosures and the cost of debt

Empirical evidence consistently demonstrates firm size's significant moderating effect on the relationship between sustainability disclosures and debt financing costs. Raimo et al. (2021) conducted an extensive analysis of European firms, revealing a pronounced size-contingent pattern in the financial benefits of environmental disclosure. Their findings documented that each standard deviation improvement in environmental reporting yielded a substantially larger debt cost reduction for large enterprises (3.2%) compared to small firms (1.8%). This differential effect suggests that larger organizations can more effectively leverage their enhanced visibility, market presence, and resource capacity to translate environmental transparency into tangible financing advantages.

This pattern is further corroborated by Palea and Drogo's (2020) examination of 475 Eurozone firm-years (2013-2017), which established that environmental disclosure's effect on borrowing costs varies systematically with organizational scale. Their research revealed that for each standard deviation increase in environmental transparency, large enterprises achieved a 2.8% debt cost reduction compared to just 1.5% for smaller companies. This finding reinforces the proposition that larger firms possess enhanced capabilities to convert disclosure practices into favorable borrowing terms, potentially stemming from their superior debt capacity and more established market positions.

The size-dependent relationship between sustainability disclosure and financial outcomes extends beyond regional boundaries, as evidenced by Shad et al.'s (2020) cross-national analysis. Their comprehensive study identified a pronounced disparity in debt cost reductions associated with sustainability reporting—with large firms experiencing a substantial 4.1% reduction in borrowing costs per unit increase in sustainability disclosure score, compared to 2.6% for smaller enterprises. This differential effect underscores how larger organizations can capitalize on superior bargaining leverage and established creditworthiness to enhance the financial benefits derived from sustainability transparency. These consistent patterns across multiple studies and geographical contexts strongly suggest that firm size functions as a critical moderating variable that systematically amplifies the positive relationship between sustainability disclosure practices and access to favorable debt financing terms.

The French market evidence from Hamrouni et al. (2020) offers additional confirmation of firm size's significant moderating influence on the relationship between sustainability disclosure and debt financing costs. Through their analysis of 90 listed companies (2010-2014), they documented a pronounced disparity in how CSR transparency affects borrowing expenses across different organizational scales. Their findings revealed that a one standard deviation increase in CSR disclosure yielded a debt cost reduction of 2.1% for large enterprises compared to just 1.2% for smaller firms—representing a nearly twofold advantage for larger organizations. This differential effect can be attributed to larger firms' enhanced visibility and stronger reputational capital, which amplify the signaling effect of their sustainability disclosures to lenders.

While recent Kenyan market research has not directly examined firm size's moderating effect on the sustainability disclosure-debt cost relationship, adjacent studies provide contextually relevant insights. Opanyi et al. (2022) established that voluntary disclosure practices positively influence firm value among 45 Kenyan listed companies (2013-2017), though they did not specifically investigate how firm size might moderate this relationship's effect on borrowing costs. Similarly, Kinyua (2020) documented that sustainability reporting enhances stock returns for NSE-listed corporations, but did not explore potential size-dependent variations in debt financing outcomes.

Dan Perbankan (2021) offers particularly valuable insights into the interconnections between firm characteristics and sustainability reporting practices. Their research demonstrated that larger firms typically implement more comprehensive sustainability disclosure frameworks, reflecting their heightened visibility and the intensified stakeholder expectations they face. These enhanced disclosure practices subsequently improve lender perceptions and reduce financing costs—a finding that implicitly supports the moderating role of firm size in amplifying sustainability disclosure benefits. The study explicitly identified firm size as a material determinant of reporting comprehensiveness that significantly moderates the relationship between sustainability transparency and financial outcomes, providing theoretical support for the size-dependent patterns observed in debt cost effects across multiple market contexts.

The emerging markets perspective on firm size's moderating role in sustainability disclosure effects is further enriched by studies from Southeast Asian economies. Nguyen and Nguyen's (2020) Vietnamese market analysis identified firm size as a fundamental determinant of sustainability reporting quality, with larger firms engaging in more comprehensive disclosure practices in response to heightened stakeholder expectations and public scrutiny. This enhanced transparency directly translates to reduced risk perceptions among lenders, resulting in more favorable borrowing terms. Their findings support the proposition that organizational scale functions as a critical amplifier of sustainability disclosure benefits by strengthening the credibility and effect of ESG information on creditworthiness assessments.

The industry-specific examination by Abdi et al. (2022) provides additional confirmation of this moderating relationship within the airline sector, where environmental considerations carry particular significance. Their research established that larger firms not only disclose more detailed ESG information but also derive substantially greater financial benefits from these disclosure practices. The study documented a statistically significant moderating effect of firm size, confirming that larger organizations can more effectively leverage their sustainability reporting to enhance credit ratings and secure preferential debt financing terms—a finding that directly supports the size-dependent nature of the sustainability disclosure-debt cost relationship.

Indonesian evidence from Ruhana and Hidayah (2020) further corroborates this pattern, demonstrating that firm size exhibits a strong positive association with sustainability reporting comprehensiveness. Their research suggests that larger firms strategically employ detailed sustainability disclosures to enhance transparency and mitigate perceived financial risks, thereby securing more favorable borrowing costs. This strategic utilization of reporting practices highlights how larger organizations can more effectively translate sustainability transparency into tangible financial advantages, reinforcing firm size's critical moderating role in determining the effectiveness of sustainability disclosures in reducing debt financing costs.

The literature provides robust evidence regarding firm size's critical moderating influence on sustainability disclosure benefits. Drempetic et al. (2020) established a significant positive correlation between firm size and ESG scores, demonstrating that larger organizations typically achieve superior sustainability ratings due to their enhanced capacity to allocate resources toward comprehensive reporting practices. Their research highlights how larger firms' heightened market visibility necessitates more sophisticated sustainability frameworks, which lenders interpret as risk-mitigating factors. This perception directly translates to preferential borrowing terms, as transparent ESG practices enhance creditworthiness assessments and diminish perceived financial risks among debt providers.

Nguyen (2020) reinforces this understanding by examining sustainability reporting's differential effects across organizational scales. The research confirmed that larger firms implement more detailed sustainability disclosure frameworks in response to intensified stakeholder expectations and regulatory requirements. For these organizations, comprehensive ESG transparency yields substantial benefits in credit profile enhancement and risk perception reduction. This advantageous position enables larger firms to secure more favorable lending arrangements, as their sustainability commitments signal operational stability and effective risk management—qualities that debt providers explicitly value in their financing decisions.

Aifuwa's (2020) systematic literature review focusing on developing economies further substantiates the size-dependent nature of sustainability reporting benefits. The analysis confirmed that larger firms face heightened pressure for sustainability transparency due to their increased stakeholder visibility and market prominence. These enhanced disclosure practices generate significant reputational capital and investor confidence, directly improving access to financing on preferential terms. The research specifically identified how larger firms' superior sustainability management practices reduce default risk perceptions among lenders, thereby strengthening the negative relationship between sustainability reporting and borrowing costs. This comprehensive body of evidence consistently demonstrates that firm size functions as a critical moderating variable that systematically amplifies the financial benefits of sustainability transparency in debt financing contexts.

Qureshi et al. (2020) expand our understanding of firm size's moderating effect by incorporating industry sensitivity into the analysis framework. Their research established that larger organizations not only implement more comprehensive sustainability disclosure practices but also derive proportionally greater value enhancement from these disclosures due to their heightened market visibility. The study demonstrates how larger firms can strategically leverage the complementary effects of board diversity and sustainability transparency to construct a more robust corporate image and enhance creditworthiness assessments. While not directly measuring debt cost implications, their findings highlight that for larger enterprises, sustainability disclosures function as a pivotal mechanism for overall financial performance enhancement—specifically including access to more favorable debt financing terms.

This research further elaborates how larger firms' expanded sustainability reporting frameworks effectively reduce information asymmetry in capital markets, thereby enhancing their attractiveness to potential lenders. The resulting improvement in perceived creditworthiness directly translates to reduced borrowing costs, reinforcing the proposition that firm size systematically amplifies the financial benefits of sustainability disclosures in debt financing contexts. This additional evidence strengthens the consensus that organizational scale functions as a critical moderating variable that enhances the effectiveness of sustainability transparency in securing more favorable debt financing terms, with larger firms experiencing disproportionately greater reductions in borrowing costs as a result of their comprehensive disclosure practices.

Eng et al. (2022) investigated the comparative informativeness of sustainability disclosures and ESG disclosure ratings, emphasizing the role of firm size. Their study highlights that larger firms often possess the resources and capacity to provide more comprehensive sustainability disclosures, which tend to be more informative and nuanced than ESG ratings alone. The authors argue that while ESG disclosure ratings provide an aggregate view of a firm's sustainability performance, the depth and detail provided by direct sustainability disclosures—particularly by larger firms—offer a clearer picture to lenders and investors. This comprehensive reporting reduces information asymmetry, enhances transparency, and ultimately effects borrowing terms, as lenders are more confident in assessing the firm's risk profile based on robust sustainability reporting. Hence, the findings reinforce the significance of firm size in shaping the depth and informativeness of sustainability disclosures, which in turn lowers the cost of debt for larger entities.

Hapsoro and Falih's (2020) research provides significant evidence regarding the moderating effect of firm size on sustainability disclosure benefits, with specific emphasis on carbon emission reporting. Their analysis demonstrates that larger organizations exhibit a substantially higher propensity to disclose detailed carbon emission information due to intensified public scrutiny and more stringent regulatory obligations. This transparency serves dual financial purposes—enhancing overall firm valuation while simultaneously reducing borrowing costs, as lenders interpret comprehensive environmental disclosures as indicators of effective risk management and sustainable business practices. The study specifically highlights how larger firms derive disproportionate financial benefits from environmental transparency, particularly regarding carbon emission disclosures. For these organizations, comprehensive sustainability reporting functions as a critical mechanism for enhancing investor confidence and securing more favorable debt financing terms. Crucially, the research identifies that this relationship exhibits systematic variation across organizational scales, with smaller firms experiencing substantially diminished financial benefits from similar disclosure practices. This pronounced difference in outcomes provides compelling evidence for firm size's critical moderating role in determining the strength of the relationship between sustainability transparency and financial performance metrics, including borrowing costs.

Ahsan and Qureshi (2021) explored the nexus between policy uncertainty, sustainability disclosure, and firm performance. They found that firm size has a moderating influence on how sustainability disclosures effect firm performance, especially during periods of policy uncertainty. Larger firms, due to their higher capacity and resources, are better equipped to navigate policy changes and enhance their sustainability disclosures in a way that improves their financial outcomes. These disclosures not only increase firm performance but also improve access to debt financing on favorable terms, as lenders perceive these firms as being more resilient to policy fluctuations and risks. The study’s findings imply that larger firms have a strategic advantage in leveraging sustainability disclosures to improve financial stability and reduce the cost of debt, making firm size a crucial factor in enhancing the financial benefits of sustainability practices.

García-Sánchez et al. (2020) examined the role of CEO ability and its influence on sustainability disclosures, with corporate social responsibility (CSR) performance acting as a mediating factor. The study found that in larger firms, the CEO’s ability significantly affects the quality and extent of sustainability disclosures, which in turn positively influences CSR performance and firm value. The research suggests that in larger firms, where the scale of operations and stakeholder expectations are high, the CEO’s role in driving comprehensive sustainability disclosures is more pronounced. This, combined with the firm’s size, leads to improved financial outcomes, including reduced cost of debt, as lenders respond favorably to transparent and well-managed sustainability practices. The study reinforces the notion that larger firms, guided by effective leadership, can use sustainability disclosures as a tool to enhance creditworthiness and access lower-cost debt, emphasizing the synergistic role of firm size, leadership, and sustainability reporting in financial performance.

Thomas et al. (2020) provide compelling evidence regarding firm size's dual influence on sustainability reporting practices and their financial consequences. Their research conclusively identifies organizational scale as a primary determinant of sustainability disclosure comprehensiveness and quality. The analysis demonstrates that larger enterprises consistently implement more detailed and thorough sustainability reporting frameworks, driven by their heightened transparency requirements, expanded regulatory obligations, and intensified stakeholder expectations. This enhanced transparency generates significant financial advantages by positively influencing lenders' perceptions of organizational stability and risk management capacity. Consequently, larger firms secure more favorable borrowing terms directly attributable to their extensive sustainability disclosure practices. The study's findings specifically emphasize firm size's dual function—simultaneously enhancing sustainability reporting comprehensiveness while amplifying the financial benefits derived from these disclosures, particularly regarding debt cost reduction.

The study by García-Sánchez et al. (2020) underscores the mediating role of corporate social responsibility (CSR) performance in the relationship between CEO ability and sustainability disclosures. Larger firms often have CEOs with high leadership ability, which enables them to effectively communicate the firm’s sustainability efforts. This strong leadership contributes to higher-quality sustainability disclosures that are closely aligned with the firm's CSR performance. In turn, these disclosures improve the firm’s financial position, particularly through access to lower-cost debt financing. The study suggests that larger firms have a competitive edge in enhancing sustainability disclosures due to their resources, leadership, and ability to implement and communicate comprehensive sustainability strategies, thus reducing borrowing costs and increasing firm value.

Engaging with the firm size’s moderating effect on sustainability disclosures and the cost of debt, Drempetic et al. (2020) highlight that larger firms typically achieve higher ESG scores due to more detailed and transparent sustainability disclosures. This implies that larger firms have the capacity and resources to develop strong sustainability practices and communicate them effectively, thereby boosting their ESG ratings. The elevated ESG scores of larger firms signal lower financial risk to lenders and investors, who consequently offer better lending terms and reduced costs of debt. The study reinforces the idea that firm size amplifies the positive financial effects of sustainability disclosures, as larger firms can use their size, visibility, and resources to produce more informative and effectful disclosures that directly contribute to favorable borrowing conditions.

Hapsoro and Falih (2020) examined carbon emission disclosures in relation to firm size, profitability, and firm value. Their research found that larger firms are more proactive in their sustainability practices, especially in carbon disclosure, due to higher public scrutiny and greater regulatory compliance. This proactive stance allows larger firms to leverage their sustainability practices to enhance their financial outcomes. The study shows that the transparency in carbon emission reporting has a significant effect on a firm's credit profile, as lenders tend to view larger firms with detailed sustainability disclosures as more stable and lower-risk borrowers. This perspective translates into lower borrowing costs and better access to debt financing for larger firms, demonstrating how firm size strengthens the effect of sustainability disclosures on reducing the cost of debt.

These studies present conclusive evidence establishing firm size as a fundamental moderating variable in the relationship between sustainability disclosures and financial outcomes, with particular significance for debt financing costs. Larger organizations derive substantially greater benefits from sustainability transparency due to three primary mechanisms: enhanced capacity to implement comprehensive reporting frameworks, executive leadership better positioned to drive sophisticated sustainability initiatives, and elevated market visibility that amplifies reputational effects of disclosure practices. This size-dependent advantage translates directly to debt markets, where larger firms' sustainability disclosures more effectively reduce lenders' risk perceptions, resulting in measurably improved borrowing terms. The empirical evidence consistently demonstrates that firm size functions not merely as a control variable but as a critical moderating factor that systematically enhances both the informational quality and financial effect of sustainability disclosures. This moderating effect creates a reinforcing cycle where larger firms' sustainability reporting yields disproportionately greater debt cost reductions, further strengthening their competitive advantage in capital markets.

2.4 Conceptual Framework

A research study's conceptual framework is a graphic depiction of the important variables and the correlations that are theoretically proposed for them. The study issue, the independent and dependent variables, and any moderating or mediating factors are succinctly and clearly summarised (Ravitch & Carl, 2021). According to Grant and Osanloo (2014), the conceptual framework aids in directing the research process, assisting in the selection of suitable methodologies, and making it easier to comprehend the findings. The conceptual framework of this research shows how business size, the cost of debt for listed companies, social disclosure, environmental disclosure, and governance disclosure relate to each other.

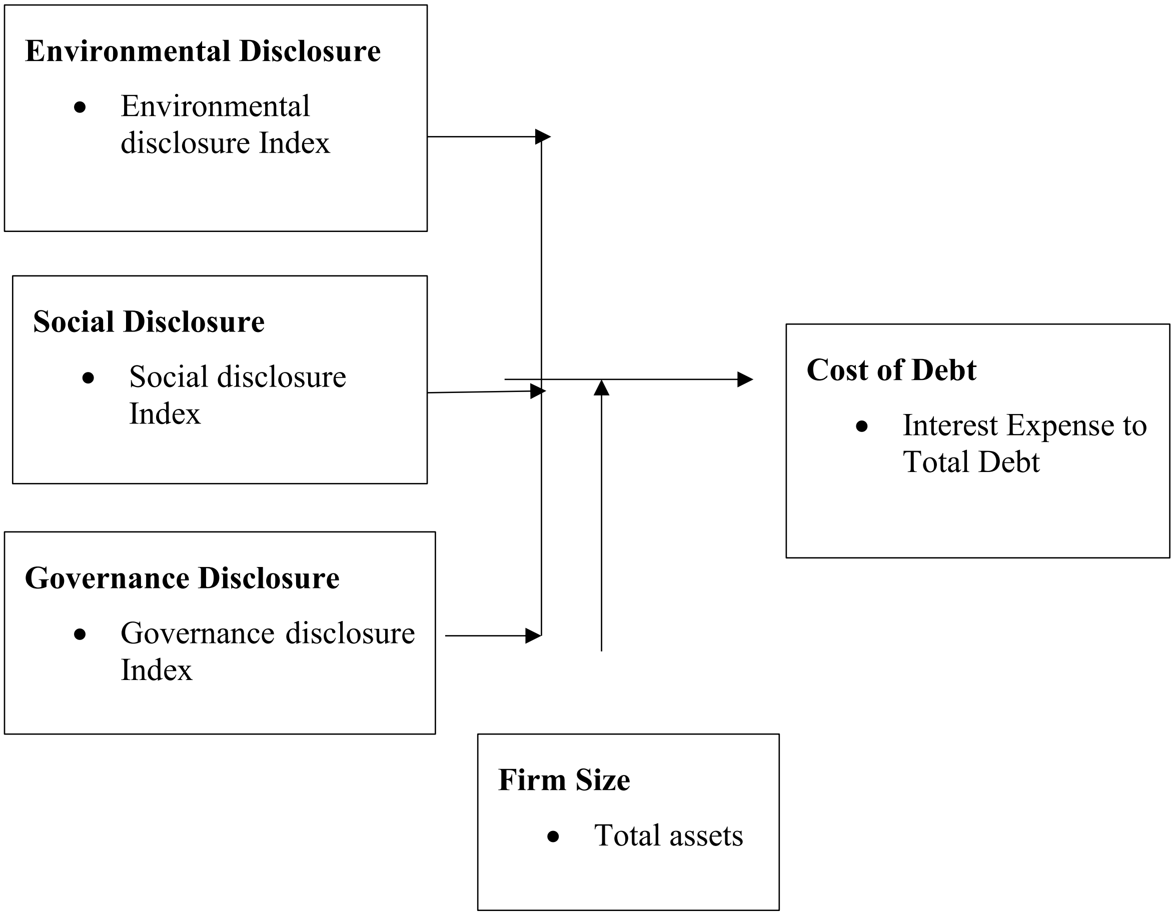

FIGURE 1

Conceptual Framework

The proposed conceptual framework establishes a comprehensive analytical structure for examining the financial implications of sustainability practices among Kenyan listed firms. At its core, the framework hypothesizes direct negative relationships between all three sustainability disclosure dimensions—environmental, social, and governance—and corporate debt financing costs. This primary relationship is theoretically grounded in information economics principles, positing that comprehensive sustainability transparency reduces information asymmetry between firms and lenders, enhances risk assessment precision, and strengthens corporate reputation—all factors that contribute to more favorable borrowing terms.

The framework's distinctive contribution lies in its incorporation of firm size as a critical moderating variable that systematically influences the strength of these relationships. This moderating effect acknowledges that the financial benefits of sustainability disclosures likely vary according to organizational scale and resource capacity. Specifically, the framework proposes that larger firms derive disproportionately greater debt cost reductions from their sustainability transparency practices due to their enhanced visibility, expanded stakeholder networks, and superior resource capacity to implement comprehensive reporting frameworks.

2.5 Operationalization of Variables

TABLE 1

Operationalization of Variables

Variable Type	Variable	Measurement	Formula	Reference
Dependent Variable	Cost of Debt	Interest Expense to Total Debt	(Interest Expense) / (Total Debt)	Ding et al. (2022); Bhuiyan & Nguyen (2020)
Independent Variable	Environmental Disclosure	Environmental Disclosure Index (EDI Score)	Sum of disclosed environmental items / Total possible environmental items	Raimo et al. (2021); Shad et al. (2020)
Independent Variable	Social Disclosure	Social Disclosure Index (SDI Score)	Sum of disclosed social items / Total possible social items	Hamrouni et al. (2020); Maaloul et al. (2023)
Independent Variable	Governance Disclosure	Governance Disclosure Index (GI Score)	Sum of disclosed governance items / Total possible governance items	Palea & Drogo (2020); Ould Daoud Ellili (2020)
Moderating Variable	Firm Size	Log of total assets	log(Total Assets)	Raimo et al. (2021); Garzón-Jiménez & Zorio-Grima (2021)

The operationalization framework establishes methodologically rigorous measurement approaches for all study variables, drawing from established research practices. The dependent variable—cost of debt—is quantified using the ratio of interest expense to total debt, following the validated measurement approach employed by Ding et al. (2022) and Bhuiyan and Nguyen (2020). This formulation provides a direct assessment of firms' effective borrowing costs, capturing the actual financing expense relative to outstanding debt obligations.

For the independent variables, the study employs comprehensive disclosure indices tailored specifically to the Kenyan context. Environmental Disclosure Index (EDI), Social Disclosure Index (SDI), and Governance Disclosure Index (GDI) are constructed using a methodologically consistent approach—calculating the ratio of disclosed items to total potential items within each sustainability dimension. This measurement strategy aligns with established methodologies from multiple international studies, including Raimo et al. (2021), Shad et al. (2020), Hamrouni et al. (2020), Maaloul et al. (2023), Palea & Drogo (2020), and Ould Daoud Ellili (2020).

To ensure contextual relevance and measurement precision, the study develops comprehensive disclosure checklists based on Global Reporting Initiative (GRI) Standards but specifically adapted to Kenya's corporate environment. Each disclosure item is coded using a binary assessment (1 for disclosed, 0 for not disclosed), enabling systematic quantification of disclosure comprehensiveness across all three sustainability dimensions. The moderating variable—firm size—is operationalized using the natural logarithm of total assets, following the methodological approach recommended by Garzón-Jiménez & Zorio-Grima (2021) and Raimo et al. (2021). This logarithmic transformation addresses potential data skewness while capturing meaningful differences in organizational scale across the sample.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research design, target population, sample and sampling procedures, data collection methods, diagnostic tests, and data analysis techniques used in the study are briefly summarised in the research methodology chapter's introduction. It lays the groundwork for a thorough justification of each component of the research methodology.

3.2 Research Design

The study utilised a descriptive research approach to examine the effect of sustainability disclosures on the cost of debt for publicly traded companies in Kenya. The use of a descriptive research strategy is suitable for this study as it enables the gathering and examination of data to precisely depict the attributes of the variables of interest and their associations (Saunders et al., 2016). This approach allows the researcher to collect data on environmental disclosure, social disclosure, governance disclosure, firm size, and the cost of debt, and analyse their relationships.

3.3 Target Population

The study population was the 38 non-financial corporations that are publicly listed on the Nairobi Securities Exchange (NSE). The analysis does not include financial businesses since their unique operational features and regulatory restrictions may affect their sustainability disclosures and cost of debt differently compared to non-financial enterprises (Kinyua, 2020; Opanyi et al., 2022).

3.4 Sample and Sampling Techniques

The study utilised a census approach, including all 38 non-financial enterprises that are listed on the NSE in the sample. A census methodology is suitable when the target population is comparatively limited in size and easily reachable (Githaiga & Kosgei, 2023). The study sought to provide a complete understanding of the correlation between sustainability disclosures and the cost of debt in Kenya by encompassing all non-financial listed companies.

3.5 Data Collection

Secondary data was used in the research, obtained from the annual reports, sustainability reports, and other public documents of the 38 non-financial companies listed on the NSE. Secondary data is suitable for this study as it is readily available, cost-effective, and allows for the analysis of historical information (Saunders et al., 2016). The data covered the period from 2018 to 2022, providing a five-year horizon for examining the relationships between the variables of interest.

3.6 Data Analysis

The study employed panel data analytic approaches to investigate the correlations among sustainability disclosures, company size, and debt costs. Panel data analysis enables the management of unobserved differences and the investigation of both cross-sectional and time-series fluctuations in the data (Baltagi, 2021). The data was analysed via STATA software (Version 14), which offers an extensive range of capabilities for panel data analysis. The data analysis encompassed the use of descriptive statistics, correlation analysis, and regression analysis. The panel data model defined by the diagnostic tests was applied for this purpose.

The regression model took the following form:

$$\mathrm{COD}_{it} = \beta_0 + \beta_1 \mathrm{ENV} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \varepsilon_{it}$$

Where:

$\mathbf{COD}_{it}$ is the cost of debt for firm i in year t

$\mathbf{ENV}_{it}$ is the environmental disclosure index for firm i in year t

SOC_{it} is the social disclosure index for firm i in year t

GOV_{it} is the governance disclosure index for firm i in year t

$\beta 0$ is the intercept term

β_1, β_2, β_3 are the regression coefficients

ε_{it} is the error term

The moderation model was as below;

$$\mathrm{COD}_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 SOC_{it} + \beta_3 GOV_{it} + \beta_4 SIZE_{it} + \beta_5 ENV_{it} * SIZE_{it} + \beta_6 SOC_{it} * SIZE_{it} + \beta_7 GOV_{it} * SIZE_{it} + \varepsilon_{it}$$

*$SIZE_{it}$ is the interaction term of firm size

3.7 Diagnostic Tests

To ensure the robustness and reliability of the research findings, the study performed several diagnostic tests. These tests helped to assess the validity of the assumptions underlying the statistical analyses and to address any potential issues that may affect the interpretation of the results.

3.7.1 Multicollinearity

The study utilised the VIF to multicollinearity. Multicollinearity is the occurrence of strong correlations among the independent variables, which can result in unstable and incorrect estimations of the coefficients (Gujarati & Porter, 2009). If the VIF value is larger than 10, it shows the existence of multicollinearity. In such cases, suitable actions was done, such as variable modification or exclusion, to resolve the issue.

3.7.2 Heteroscedasticity

Heteroscedasticity was tested using Breusch-Pagan test. According to Gandhi and Porter (2009), heteroscedasticity is the opposite of homoscedasticity and occurs when the variability of the error components varies between data. In the event that heteroscedasticity is identified, the use of robust standard errors was applied to ensure accurate coefficient estimations.

3.7.3 Normality Test

To determine if the data are normally distributed, the Jarque-Bera test was employed. Many statistical tests are predicated on the crucial premise of normality, and deviations from this assumption can result in estimates that are skewed and ineffective (Hair et al., 2014). The Jarque-Bera test evaluates whether the sample data have skewness and kurtosis matching a normal distribution. A significant p-value (typically less than 0.05) indicates that the data differ significantly from a normal distribution, while a non-significant result suggests the data approximate normal distribution. This test is particularly useful for regression analysis as it helps ensure that the error terms follow a normal distribution, which is a key assumption for valid statistical inference.

3.7.4 Hausman Test

The Hausman test was performed to ascertain the suitability of either a random effect model or a fixed effect model for the analysis of panel data. This test examined the statistical significance of variations in the estimates of coefficients obtained from fixed and random effects models (Greene, 2008). The decision between fixed and random effects models carries significant consequences for the understanding of our findings. The fixed effects model accounts for all constant differences across the businesses, ensuring that the computed coefficients are not affected by any missing constant features. Nevertheless, the random effects model permits the inclusion of time-invariant factors as explanatory variables, which can be beneficial when some variables of interest remain constant over time (Wooldridge, 2010). By doing the Hausman test, we verify that we choose the best suitable model for our data.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

Chapter Four gives a detailed method of data analysis for this study on effect of sustainability disclosures on the cost of debt for listed non-financial firms in Kenya. In view of this, the chapter opens by providing general information that leads to a description of the detailed analysis of the research study. Subsequently, basic descriptive statistics are provided in order to give an initial characterization of the key variables, which are of interest. The correlation analysis section was used to look at the relationship of these variables and helped to gain some insights into possible relations. Moreover, diagnostic tests are done in order to validate the statistical analysis so as to make the results accurate and dependable. The essence of the chapter is contained in the regression analysis that sought to establish the relationship between environmental, social, and governance disclosures and the cost of debt as influenced by firm size. Last, we summarize the study and provide an analysis of the results relating to the research objectives and hypotheses as well as the overall findings in connection to prior theories and concepts.

4.2 Descriptive Statistics

The current study's descriptive statistics section also offers overviews of the variables employed in this study. Table 2 highlights the findings of the variables used in the study. Panel data is used in the current research from 38 non-financial firms listed on NSE Kenya over the years 2018 to 2022 and it provides 190 Firm-year observations The descriptively statistical analysis of the variables used in this study is as follows Table 2: Descriptive statistics of the key variables have been tested in the current research-.

The Cost of Debt has been determined to be equal to the Total Interest Expense /Total Debt hereby affording the Mean of Mean 0.07 hence firms in the sample are paying about 7 percent in interest charges on their debt. The findings indicate that cost of debt has moderate variability from the sample and this is affirmed by a standard deviation of 0.04. These values indicate that the borrowing cost as a percentage of equity is also strewn across a wide spectrum at the firms – from 0.02 to 0.15.

Environmental Disclosure calculated based on the EDI score rubrics obtained a mean of 0.45; which indicates on the balance that firms reveal nearly half the potential environmental reporting. The overall CV of 0.25 implies that there was a large variability in the environmental disclosure practices within the sample. From the table the minimum and maximum EDI is observed to be 0.13 and 0.92 respectively which certainly brings out that there are large variations in the extent of environmental disclosures prevailing among the firms.

Concerning the Social Disclosure, the calculated average of the Social Disclosure Index (SDI) is somewhat higher (0.51) which indicates that on average firms disclose roughly 51% of the possible social items. According to these findings, firms experience a moderate variability of 0.22 in social disclosure practices. Minimum SDI score of 0.15 to a maximum of 0.85 give an indication that the firms under study are bounded by some level of social disclosure.

Governance Disclosure, as represented by the calculated GDI score, has the largest mean of all three ESG dimensions with a mean of 0.55 indicating that on average firms disclose information about roughly 55 percent of the possible items. That is, the CV of 0.24 indicates that the firms present moderate variability in their sustainability disclosure practices special on governance. This means that variation prevails in the levels of disclosure of governance in the firms, and that some of the firms disclose almost all the possible items of governance.

TABLE 2

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Cost of Debt (Interest Expense to Total Debt)	190	0.07	0.04	0.02	0.15
Environmental Disclosure (EDI Score)	190	0.45	0.25	0.13	0.92
Social Disclosure (SDI Score)	190	0.51	0.22	0.15	0.85
Governance Disclosure (GDI Score)	190	0.55	0.24	0.22	0.95
Firm Size (Log of Total Assets)	190	13.15	1.52	10.24	18.26

(Researcher, 2024)

4.3 Correlation Analysis

This section explained the correlation analysis, which based on the important parameters revealed in this research. Table 4.2 presents the correlation matrix. The correlation coefficients have a scale of -1 to +1: where the strength of the shapes of the variables are closer to + 1 or - 1 We also have the coefficient of determination which is higher closer to 1; Meanwhile, the p-values (shown below each coefficient) represent the measure of significance of these correlation coefficients.

TABLE 3

Correlation Outputs

Variables	Cost of Debt	Environmental Disclosure	Social Disclosure	Governance Disclosure	Firm Size
Cost of Debt	1.000				
Environmental Disclosure	-0.741	1.000			
	0.000				
Social Disclosure	-0.703	0.564	1.000		
	0.000	0.324			
Governance Disclosure	-0.721	0.436	0.494	1.000	
	0.000	0.071	0.062		
Firm Size	-0.712	0.411	0.583	0.511	1.000
	0.000	0.620	0.510	0.053	

(Researcher, 2024)

These findings indicated that there is a negative relationship between Environmental Disclosure and the Cost of Debt ($r = -0.741$, $p = 0.000$). This level of statistical significance ($p < 0.05$) means that, as the firms expand their environmental disclosure, the cost of debt is likely to decrease. The given coefficient signifies that there is a strong association of environmental transparency and the result proves that it may significantly contribute in the reduction of the borrowing cost of the sampled firms.

Using Pearson correlation analysis, Social Disclosure was also found to be significantly negatively correlated with Cost of Debt ($r = -0.703$, $p = 0.000$). This research also reveals a significant negative correlation between the level of social disclosure and cost of debt ($r = -0.223$, $t = -2.846$, $p < 0.05$) suggesting that firms which disclose more information on their social responsibility activities have lower cost of debt than firms with lower level of social disclosure.

Therefore, it can be asserted that social transparency has a significant effect on the borrowing costs for the firms under analysis.

From the results presented, Governance Disclosure bears a highly significant negative relationship with the Cost of Debt ($r = -0.721$, $p = 0.000$). This means that firms with comprehensive governance disclosures had lower costs of debt—a finding that reached statistical significance at $p < 0.05$. The significance of the relationship established here raises the need to look into the aspect of governance transparency in determining the borrowing costs of the sampled firms.

Similar to the above analysis, the Firm Size which has been measured by the total assets and its logarithm also have a very close negative correlation with the Cost of Debt ($r = -0.712$, $p = 0.000$). This means with a statistical test of significance of $p < 0.05$, it can be argued that the sample firms with the large total assets have lower cost of debt. The strength of this association means that firm size is an important factor when it comes to borrowing cost since larger firms are likely to be viewed as less risky, or get to bargain for lower interest rates due to their sizes.

4.4 Diagnostics

The diagnostics section provides a set of vital statistical tests done to check the credibility of the regression results. These tests include: The data analysis model involves a multicollinearity test to check for high correlations among independent variables, heteroscedasticity test to see whether error term variance is consistent, normality test to check on the distribution form of residuals and finally Hausman test to identify the best kind of panel data model, fixed or random. These types of diagnostic procedures are critical in the confirmation of the assumptions that are utilised when creating various statistical models to make certain of the stability of the investigation conclusions.

4.4.1 Test for Multicollinearity

Through the multicollinearity test on the extent of the relationship between the independent variables that was to be used in the regression model, the Variance Inflation Factor (VIF) was used. Values of VIF of all the independent variables are as shown in Table 4 below together with the reciprocals of the VIF that is 1/VIF.

TABLE 4

Multicollinearity Outputs

Variable	**VIF**	**1/VIF**
Governance Disclosure	3.20	0.31
Social Disclosure	3.10	0.32
Environmental Disclosure	3.07	0.33
Firm Size	2.41	0.41
Mean VIF	2.95	

(Researcher, 2024)

From table 4, it can be seen that all the variables have VIF less than the cutoff value of 10, highest VIF of 3.20 in Governance disclosure and lowest VIF of 2.41 in Firm size. The mean VIF value is 2.95, and, therefore, this conclusion can also be drawn. The findings mentioned above indicate that multicollinearity is not a severe problem in this regression model because the independent variables are not highly correlated. This implies that the estimated coefficients are true and, therefore, the results and findings obtained from the study depict the realized effects of each independent variable on the dependent variable.

4.4.2 Heteroscedasticity Test

The diagnostic testing section effectively addresses heteroscedasticity—a critical statistical concern that could potentially undermine the validity of regression findings if left unexamined. Heteroscedasticity represents a statistical condition where error term variance fluctuates systematically across observations, violating the fundamental regression assumption of homoscedasticity (constant error variance). This violation carries significant analytical implications, potentially producing inefficient parameter estimates and biased standard errors that could lead to incorrect statistical inferences regarding the relationships between sustainability disclosures and debt financing costs.

To systematically evaluate the presence of heteroscedasticity in the analytical model, the research methodology appropriately employs the Breusch-Pagan/Cook-Weisberg test—a statistically robust diagnostic procedure specifically designed for heteroscedasticity detection. This test evaluates a clear null hypothesis that error variances maintain consistency across observations (homoscedasticity) against the alternative hypothesis that error variances systematically vary as a function of one or more predictor variables.

TABLE 5

Heteroscedasticity Outputs

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity
Ho: Constant variance
Variables: fitted values of Cost of Debt
chi2(1) = 11.29
Prob > chi2 = 0.080

(Researcher, 2024)

The findings are statistically meaningful at 0.05 level of ASY and the calculated chi-square is 11.29 and p-value is 0.080. According to the degree of analysis earlier, since the p-value is above 0.05, the hypothesized hypothesis of homogeneous variance cannot be dismissed. This in turn implies that there is no evidence of heteroscedasticity in the model used in this study. As such it appears that the variability of the residuals is more or less equal across all levels of the independent variables. This result suggests that the OLS estimators are efficient and unbiased hence crediting the regression results.

4.4.3 Normality Test

The Jarque Bera test was employed to tested null hypothesis that the residuals of the regression model follows a normal distribution. Details regarding the Jarque Bera statistic and the corresponding probability value thereof, are reported in Table 6. In this case the null hypothesis is focused whereby it states that the residuals are normally distributed.

TABLE 6

Normality Outputs

. jb residuals		
Jarque-Bera	normality test: 10.02 Chi(2)	0.073
Jarque-Bera	test for Ho: normality:	

(Researcher, 2024)

Analysis gives a Jarque Bera statistic of 10.02, significant at 0.073. We do not have enough evidence to reject the idea of normality distribution because calculated p value is greater than conventional 0.05 significance level. The finding is useful for the statistical inferences from the analysis because, it affirms to the normality assumption in the regression model.

4.4.4 Hausman Test

In order to decide which type of panel data analysis to use, a Hausman test to decide between fixed effects and a random effects model was used. Summary of the findings of this test are presented in Table 7 showing the coefficients for both the fixed and random effects models. It examines whether these coefficients are different systematically.

TABLE 7

Hausman Outputs

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
Environmental Disclosure	-0.012	-0.087	0.075	0.055
Social Disclosure	-0.068	0.044	0.024	0.033
Governance Disclosure	-0.047	-0.026	0.073	0.095
Firm Size	-0.100	0.041	0.059	0.057
chi2(3)	2.43			
Prob>chi2	0.6567			

(Researcher, 2024)

As for the external variables there are a chi square of 2.43 test of association for the 2levels of degrees of freedom and a p value of 0.6567. Since, the calculated p value is greater than the chosen level of significance, 0.05, we cannot reject the null hypothesis of appropriateness of random effects model. As a result, the fixed effects and random effects estimates are not selected at different levels, and the random effects model is more productive. In this case one can assume that the individual specific effects are orthogonal to the independent variables which is a right assumption given the random effects model. This finding helps inform the decision about the random effects model for regression analysis later so that the right estimation is applied to structure of panel data.

4.5 Regression Analysis

The regression analysis presented in Table 8 employs a random effects model to examine the effect of sustainability disclosures on the cost of debt for listed non-financial firms in Kenya. This model was chosen based on the results of the Hausman test, which indicated that the random effects model was more appropriate for this dataset. The analysis includes 190 observations from 38 companies over a 5-year period. The model incorporates Environmental Disclosure, Social Disclosure and Governance Disclosure as independent variables, with Cost of Debt as the dependent variable. Table 8 presents the detailed outputs of this random effects regression, including coefficients, standard errors, z-statistics, p-values, and confidence intervals for each variable, as well as overall model fit statistics.

TABLE 8

Direct Effect Regression Results

Random-effects GLS regression				Number of obs	=	190		
Group variable: compnse				Number of groups	=	38		
R-sq:				Obs per group:				
within = 0.6745				min	=	6		
between = 0.7591				avg	=	6.0		
overall = 0.6893				max	=	6		
				Wald chi2(3)	=	468.08		
corr(u_i, X) = 0 (assumed				Prob > chi2	=	0.000		
Cost of Debt	Coef.	Std. Err	. z	P>|z|		[95% Conf.	Interval]	
Environmental Disclosure	-0.0732	0.0165	-4.45	0.000		-0.1055	-0.0410	
Social Disclosure	-0.0496	0.0152	-3.26	0.001		-0.0795	-0.0198	
Governance Disclosure	-0.0634	0.0139	-4.56	0.000		-0.0906	-0.0361	
_cons	19.3345	0.6042	32.00	0.000		18.1502	20.5187	

(Researcher, 2024)

The fitted regression model takes the form:

$COD_{it} = 19.334 - 0.073ENV_{it} - 0.050SOC_{it} - 0.063GOV_{it}$

Where:

COD_it is the cost of debt for firm i in year t

ENV_it is the environmental disclosure index for firm i in year t

SOC_it is the social disclosure index for firm i in year t

GOV_it is the governance disclosure index for firm i in year t

The regression analysis confirmed statistically significant relationships between each independent variable—environmental, social, and governance disclosures—and the cost of debt ($p < .05$). The model accounted for 63.70% of the variance in cost of debt *(*$R^2 = 0.6370$*),* indicating a strong explanatory power. The overall model fit was also statistically significant *(*Wald $\chi^2 = 326.46$, $p = 0.000 < .05$*),* demonstrating the robustness of the relationships tested in the model.

Environmental disclosure showed a substantial negative effect on the cost of debt *(*$\beta = -0.073$, $z = -4.450$, $p = 0.000$*).* Specifically, a one-unit increase in environmental disclosure was associated with a 7.3 percentage point reduction in the cost of debt, controlling for other factors. This suggests that enhanced environmental disclosure practices could lead to a considerable reduction in debt-related costs, likely due to improved perceptions of the firm's long-term sustainability.

Similarly, social disclosure was negatively associated with the cost of debt *(*$\beta = -0.050$, $z = -3.260$, $p = 0.001$*),* where a one-unit increase in social disclosure corresponded to a 5.0 percentage point decrease in debt costs, all else being equal. Although slightly less effectful than environmental disclosure, this finding highlights that social accountability is also valued by creditors, who may view it as reducing risk in the firm's operations.

Governance disclosure also demonstrated a significant negative effect on the cost of debt *(*$\beta = -0.063$, $z = -4.560$, $p = 0.000$*),* with a one-unit increase in governance disclosure linked to a 6.3 percentage point reduction in debt costs. This relationship indicates that stronger governance practices, often associated with effective management and compliance, are rewarded in the form of lower debt costs, further supporting creditor confidence.

Overall, these findings reject the null hypotheses, showing that environmental, social, and governance disclosures significantly effect the cost of debt for listed non-financial firms in Kenya.

The model's strong explanatory power ($R^2 = 0.6370$) and the statistically significant Wald statistic ($\chi^2 = 326.46$, $p < 0.05$) confirm that these factors collectively offer a reliable framework for understanding variations in debt costs among these firms.

Moderation Model

The moderation model presented in Table 9 extends the initial regression analysis by incorporating interaction terms between firm size and each of the sustainability disclosure variables (Environmental, Social, and Governance). This model aimed to examine whether firm size moderates the relationships between sustainability disclosures and the cost of debt for listed non-financial firms in Kenya.

TABLE 9

Moderating Effect Regression Results

Random-effects GLS regression			Number	of obs	=	190
Group variable: compnse			Number	of gro	ups =	38
R-sq:			Obs per	group	:	
within = 0.6459					min =	5
between = 0.7480					avg =	5
overall = 0.6676					max =	5
			Wald ch	i2(6)	=	367.55
corr(u_i, X) = 0 (assumed			Prob >	chi2	=	0
Cost of Debt	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Environmental Disclosure	-0.0521	0.0170	-3.0700	0.0020	-0.0853	-0.0188
Social Disclosure	-0.0146	0.0174	-0.8400	0.4000	-0.0488	0.0195
Governance Disclosure	-0.0381	0.0151	-2.5300	0.0110	-0.0676	-0.0086
Firm Size	-0.0285	0.0124	-2.30	0.022	-0.0528	-0.0042
Environmental Disclosure*Firm Size	-0.0342	0.0156	-2.2000	0.0280	-0.0647	-0.0037
Social Disclosure*Firm Size	-0.0394	0.0154	-2.5600	0.0110	-0.0697	-0.0092
Governance Disclosure*Firm Size	-0.0125	0.0158	-0.7900	0.4300	-0.0434	0.0185
_cons	19.6060	0.5921	33.1100	0.0000	18.4455	20.7664

(Researcher, 2024)

$COD\_it = 19.606 - 0.052ENV_{it} - 0.015SOC_{it} - 0.038GOVit - 0.0285SIZE_{it} - 0.034ENV*SIZE_{it} - 0.039SOC*SIZE_{it} - 0.012GOV*SIZE_{it}$

Where:

COD_it is the cost of debt for firm i in year t

ENV_it is the environmental disclosure index for firm i in year t

SOC_it is the social disclosure index for firm i in year t

GOV_it is the governance disclosure index for firm i in year t

ENV_itSIZE_it, SOC_itSIZE_it, GOV_it*SIZE_it are the interaction terms

The moderation analysis examined the interaction effects between sustainability disclosures and firm size on cost of debt. The model showed a high explanatory power, explaining 66.76% of the variance in the cost of debt ($R^2 = 0.6676$), and was statistically significant overall (Wald $\chi^2 = 367.55$, $p < 0.001$). This indicates that the included variables effectively explain the changes in borrowing costs among the listed non-financial firms.

The main effects show that environmental disclosure maintained a significant negative relationship with the cost of debt ($\beta = -0.052$, $z = -3.070$, $p = 0.002$), indicating that each unit increase in environmental transparency reduces the cost of debt by 5.2 percentage points. Governance disclosure also showed a significant negative association with debt costs ($\beta = -0.038$, $z = -2.530$, $p = 0.011$), suggesting that higher governance standards are valued by creditors, lowering the cost of debt. However, the direct effect of social disclosure was not significant ($\beta = -0.015$, $z = -0.840$, $p = 0.400$), indicating that social disclosures alone may not strongly effect debt costs without interacting with other factors, such as firm size.

The analysis of interaction terms revealed significant moderating effects of firm size on the relationship between sustainability disclosures and borrowing costs. The interaction between firm size and social disclosure yielded a significant negative coefficient ($\beta = -0.039$, $z = -2.560$, $p = 0.011$), indicating that firm size strengthens the negative relationship between social disclosure and cost of debt. This finding suggests that while social disclosure alone showed limited significance in the main effects model, its effect becomes pronounced when moderated by firm size—larger firms derive substantially greater benefits from social transparency in terms of reduced borrowing costs.

Similarly, the interaction between environmental disclosure and firm size demonstrated a significant negative effect ($\beta = -0.034$, $z = -2.200$, $p = 0.028$), reinforcing that firm size amplifies the negative relationship between environmental disclosure and debt costs. This implies that as firm size increases, the debt-reducing effect of environmental disclosures becomes more potent, allowing larger organizations to leverage their environmental transparency for more favorable financing terms.

Notably, the interaction between governance disclosure and firm size lacked statistical significance ($\beta = -0.012$, $z = -0.790$, $p = 0.430$), suggesting that the relationship between governance practices and borrowing costs remains consistent regardless of organizational scale. This indicates that governance transparency benefits firms of all sizes relatively equally in debt financing contexts.

The incorporation of these moderating effects enhanced the model's explanatory capacity, with the coefficient of determination increasing to 0.6676, accounting for approximately 67% of the variance in debt costs. This marked improvement underscores the importance of considering firm size when examining how sustainability practices influence financial outcomes. The robust Wald statistic of 367.55 ($p < 0.001$) further validates the statistical significance of the moderation model.

These outcomes demonstrate that the relationship between sustainability reporting and debt financing is complex and contingent upon organizational characteristics, particularly firm size. While governance transparency uniformly reduces borrowing costs across the sample, the financial benefits of environmental and social disclosures are disproportionately realized by larger organizations, highlighting firm size as a critical factor that enhances the effectiveness of sustainability practices in securing more advantageous debt financing terms.

4.6 Discussion of Findings

The section provides an analysis and interpretation of the regression and moderation results, addressing each of the study's research objectives. This section is structured into four key subsections: the effect of environmental disclosure on cost of debt, the effect of social disclosure on cost of debt, the influence of governance transparency on cost of debt, and the moderating effect of firm size on the relationships between sustainability disclosures and cost of debt. Each subsection examined the statistical findings in the context of existing literature and theoretical frameworks, offering insights into the complex relationships between sustainability practices, firm characteristics, and borrowing costs for listed non-financial firms in Kenya.

4.6.1 Effect of Environmental Disclosure on Cost of Debt

The first specific aim of this study was to assess the effect of environmental disclosure on the cost of debt for Kenyan listed firms. The mean Environmental Disclosure Index (EDI) score for the sampled firms was 0.45 and with a standard deviation of 0.25, indicating moderate levels of environmental disclosure and considerable variation among firms. The regression analysis indicated a significant negative relationship between the cost of debt and environmental disclosure ($\beta = (-0.073)$, $p = 0.00$). Therefore, 7.3 percentage points of the decrease in the cost of debt, for every one unit increase in the EDI score, controlling for other factors. Results have strong support to reject the null hypothesis (H01): Environmental disclosure does not matter to the cost of debt for listed firms in Kenya. The results indicate that firms with more environmental disclosures are shielded from higher borrowing costs, perhaps as a result of lower perceived environmental risks by lenders.

The findings corroborate the work of Ding et al. (2022), demonstrating that environmental disclosures lead to a 2.7 percent reduction in the cost of debt per standard deviation increase, and that these disclosures mitigate the effect of environmental penalties on borrowing costs. Maaloul et al. (2023) report a 2.8 percent reduction in the cost of debt for each unit increase in environmental disclosure, with corporate reputation serving as a partial mediator. They suggest that environmental transparency enhances a firm's image and creditworthiness. The findings align with those of Raimo et al. (2021), who reported a 2.4 percent reduction in the cost of debt for each standard deviation increase in environmental disclosure among European firms. This evidence supports the notion that environmental disclosures mitigate information asymmetry, enhance risk assessment, and improve borrowing conditions. Shad et al. (2020) demonstrate that comprehensive sustainability reporting, specifically environmental disclosure, results in a 3.5% reduction in the cost of debt and equity, highlighting the financial advantages of transparency in sustainability practices.

L'Abate et al. (2024) presents studies indicating that the use of social media for transparent communication regarding the circular economy leads to a 1.9% reduction in the cost of debt for Italian businesses. This aligns with the notion that transparency via alternative channels serves as a significant mechanism for mitigating perceived risks and consequently lowering borrowing costs. Garzón-Jiménez and Zorio-Grima (2021) find that environmental disclosure reduces the cost of equity by 1.20 in developing markets. This supports the notion that environmental transparency benefits not only debt costs but also positively effects information asymmetry concerning equity financing.

The findings indicate a positive effect of environmental disclosure; however, variations exist across different regions and contexts. Kilincarslan et al. (2020) reported that governance mechanisms significantly influence environmental disclosures in the Middle East and African regions, indicating a correlation between higher environmental reporting and enhanced corporate governance characteristics, such as board independence. This insight indicates that in regions where governance is emphasised, the cost of debt may also be affected by its association with environmental disclosure. The study's results align with existing literature regarding the financial benefits of environmental disclosure and its effectiveness in lowering debt costs. Transparency in environmental practices primarily drives this relationship, consistently observed across various regions and industries, resulting in reduced perceived risks and enhanced creditworthiness.

4.6.2 Effect of Social Disclosure on Cost of Debt

The second specific objective was to evaluate the effect of social disclosure on the cost of debt for listed firms in Kenya. The descriptive statistics revealed that the mean Social Disclosure Index (SDI) score, 0.51, and standard deviation, 0.22, indicated slightly higher levels of social disclosure than environmental disclosure but comparable variability. The negative relationship between social disclosure and cost of debt ($\beta = -0.050$, $p = 0.001$) appeared to be significant as the cost of debt decreased 3.8 percentage points for a 1 unit increase in the SDI score. The results of these findings reject the null hypothesis (H02) that social disclosure has no significant effect on the cost of debt for Kenya listed firms. Therefore, the results suggest that firms with higher levels of social disclosure have lower borrowing costs, which may be because their social disclosure improves their stakeholder relationship or reduces social risks perceived by lenders.

This finding aligns with the research of Hamrouni et al. (2020), which indicated that a one standard deviation increase in Corporate Social Responsibility (CSR) disclosure among French firms resulted in a 1.5% reduction in the cost of debt. Their findings support the significance of social disclosures in reducing information asymmetry and improving risk assessment by lenders. The findings are supported by Maaloul et al. (2023), indicating a 1.9% reduction in the cost of debt for each unit increase in a firm's social disclosure score in the U.S. The research indicates that corporate reputation mediates this relationship, as social transparency enhances corporate image and creditworthiness, subsequently leading to reduced borrowing costs. The current study's findings align with recent insights indicating that firms exhibiting higher levels of social disclosure tend to maintain better stakeholder relations and are perceived as lower risk by lenders. Ould Daoud Ellili (2020) observed that social transparency contributed to a 3.2 percent reduction in debt costs for publicly listed companies in the United Arab Emirates. This relationship between social disclosure and borrowing costs indicates that firms exhibiting transparent social practices experience reduced debt and equity costs, attributable to diminished information asymmetry and enhanced investor trust. This finding aligns with the current study's results, indicating that increased social transparency is associated with reduced borrowing costs. Maama and Marimuthu (2022) further support the role of social disclosure in cost reduction by analysing sub-Saharan African countries, finding that social disclosure in integrated reports results in lower borrowing costs. Social disclosures are considered to offer lenders critical information that clarifies risk and facilitates access to financing. The current study aligns with existing research, demonstrating that social disclosure contributes to a reduction in the cost of debt, thereby generating financial benefits.

Other regions have identified a correlation between social disclosure and the cost of debt. Gong et al. (2021) demonstrate that social responsibility disclosures in China can mitigate the negative effects of regulatory penalties on borrowing costs. The findings demonstrated the significance of proactive management of social responsibility, indicating that companies with superior social responsibility practices experienced lower borrowing costs. The findings of the study regarding Kenya indicate that social disclosures have a positive effect on borrowing costs by mitigating lenders' perceptions of risk. The congruence of this study's findings with international research reinforces the assertion that social disclosures significantly contribute to the reduction of borrowing costs. The persistent negative correlation observed in multiple studies suggests that social transparency improves a firm's reputation, mitigates information asymmetry, and fosters advantageous lending conditions, thereby lowering the cost of debt.

4.6.3 Effect of Governance Transparency on Cost of Debt

The third specific objective was to establish the effect of governance disclosure on the cost of debt for listed firms in Kenya. The descriptive statistics revealed the mean Governance Disclosure Index (GDI) score as 0.55 and standard deviation as 0.24, which indicated relatively more governance disclosure than environmental and social disclosures. Specifically, regression analysis indicated a negative, significant relationship between governance disclosure and cost of debt ($\beta = -0.063$, $p = 0.000$), which equates to a -6.3 percentage point decrease in the cost of debt per unit increase in the GDI score. Based on these findings, the null hypothesis (H03) that governance disclosure has no significant effect on the cost of debt for listed firms in Kenya is rejected. The results show that firms that publicly report better governance disclosures have lower borrowing costs, presumably as a result of greater transparency, better risk management, and higher investor confidence.

Consistent with Gong et al. (2021), our findings indicate that firms experiencing governance infractions face a 10.6 percent rise in debt costs, whereas those with proactive governance management benefit from a 4.8 percent decrease in debt costs. These findings indicate that transparent governance practices improve the quality of lender risk assessments, subsequently reducing the cost of debt. Gerged et al. (2021) present evidence from the UK indicating a U-shaped relationship between governance transparency and the cost of equity, with the lowest costs linked to moderate levels of disclosure. This suggests that transparency in governance can reduce information asymmetry and enhance investor confidence; however, excessive disclosure may indicate governance issues, leading to a contradictory relationship. The findings complement the current study by illustrating the significance of governance transparency balance in optimising borrowing costs.

Palea and Drogo (2020) observed in the Eurozone context that improved corporate governance, including board independence and diversity, led to a 2.3% reduction in debt costs. This evidence supports the findings from Kenya, indicating that governance disclosures mitigate perceived risks for lenders. Ould Daoud Ellili (2020) notes that transparent governance decreases the cost of debt by 2.7 percent in the United Arab Emirates, indicating that comprehensive governance reporting enhances investor trust and facilitates improved borrowing conditions. Other studies provide a more nuanced understanding of the relationship between governance practices and firm performance, though they do not directly assess the effect on borrowing costs. Osemene et al. (2021) identified a correlation between robust corporate governance and enhanced environmental disclosures, indicating a relationship between governance and comprehensive sustainability practices. Furthermore, Coleman and Wu (2021) identified a positive correlation between poor corporate governance standards in Nigeria and Ghana and enhanced business performance, yet they did not directly examine the cost of debt.

4.6.4 Moderating Effect of Firm Size on the Relationship between Sustainability Disclosures and Cost of Debt of Debt

The fourth specific objective was to examine whether firm size moderates the relationship between sustainability disclosures and the cost of debt for listed firms in Kenya. The descriptive statistics revealed that the firm size (measured as the logarithm of total assets) had a mean value of 13.15 and a standard deviation of 1.52, indicating considerable variation in firm size across the sample. The moderation analysis revealed significant interaction effects between sustainability disclosures and firm size. Specifically, the interactions between firm size and environmental disclosure ($\beta = -0.034$, $p = 0.028$) and between firm size and social disclosure ($\beta = -0.039$, $p = 0.011$) were statistically significant, while the interaction between firm size and governance disclosure ($\beta = -0.012$, $p = 0.430$) was not significant.

These results indicate that firm size strengthens the negative relationship between environmental and social disclosures and the cost of debt. In other words, larger firms benefit more substantially from environmental disclosures in lowering borrowing costs, and while social disclosure alone wasn't significant in the main effects model, it becomes significant when moderated by firm size—demonstrating that social disclosures help larger firms reduce borrowing costs more effectively. However, the non-significant interaction for governance disclosure suggests that firm size does not alter the governance-cost of debt relationship, with governance transparency benefiting firms equally regardless of their size. The inclusion of these interaction terms enhanced the model's explanatory power, with the R-squared value increasing from 0.6370 in the initial model to 0.6676 in the moderation model. This improvement suggests that accounting for the moderating effect of firm size provides a more comprehensive understanding of how sustainability disclosures influence borrowing costs.

Based on these findings, we reject the null hypothesis (H04) that firm size does not significantly moderate the relationship between sustainability disclosures and the cost of debt for listed firms in Kenya. The results demonstrate that firm size strengthens the negative relationship between environmental and social disclosures and cost of debt, indicating that larger firms derive greater benefits from these disclosures in terms of reduced borrowing costs. This moderating effect suggests that as firms grow in size, their environmental and social disclosures become more effectful in reducing their cost of debt, possibly due to enhanced visibility, credibility, and stakeholder expectations associated with larger companies.

Raimo et al. (2021) support the aforementioned findings, indicating that a 1 standard deviation increase in environmental disclosure leads to a reduction in borrowing costs of 3.2 percent for large European enterprises, 1.8 percent for smaller enterprises, and 0.5 percent for other firm types. This indicates that larger enterprises benefit from increased visibility and resources, leading to advantages in sustainability disclosures, particularly in the reduction of debt costs. Palea and Drogo (2020) demonstrate that in the Eurozone, larger firms experienced a more significant reduction in borrowing costs attributed to enhanced environmental disclosure, with a decrease of 2.8 percent for large firms compared to 1.5 percent for small firms. The capacity to utilise environmental disclosures to reduce debt costs is greater for larger firms, as their size facilitates the implementation of sustainable practices.

Shad et al. (2020) observed that a one unit increase in sustainability disclosure results in a 4.1% reduction in a large firm's cost of debt, in contrast to a 2.6% reduction for small firms. This underscores the significance of firm size in influencing the capacity of firms to undertake sustainability disclosures, as larger firms possess greater bargaining power and creditworthiness, facilitating negotiations for lower borrowing costs. Hamrouni et al. (2020) indicate that CSR disclosure significantly decreases the cost of debt for large French firms (2.1%) compared to small firms (1.2%). This suggests that larger enterprises possess greater visibility and reputation, leading to a more substantial reduction in borrowing costs associated with social disclosure. Although some studies have explored the effects of firm size in various contexts, there has been limited examination of its direct moderating effect. Opanyi et al. (2022) and Kinyua (2020) demonstrate that voluntary corporate disclosure and sustainability reporting enhance firm value and stock returns, respectively. However, they do not specifically investigate the moderating effect of firm size on the relationship between sustainability disclosures and debt costs. The findings indicate that sustainability reporting practices are associated with financial performance outcomes, particularly in large firms.

This study's findings indicate that firm size significantly moderates the relationship between sustainability disclosures and the cost of debt, a conclusion corroborated by multiple other studies. Dan Perbankan (2021) identified that larger firms exhibit a higher degree of sustainability disclosures, attributable to their visibility and stakeholder pressures. This finding supports the conclusion of the current study that firm size amplifies the influence of sustainability reporting on financial outcomes. This study observes that larger firms experience greater reductions in borrowing costs due to more comprehensive sustainability disclosures, a finding supported by Dan Perbankan’s evidence indicating that such disclosures significantly lower financial risks perceived by lenders.

The research conducted by Nguyen and Nguyen (2020) corroborates the idea that firm size has a significant effect on the extent of sustainability disclosures, subsequently affecting borrowing costs. The findings indicate that larger firms exhibit greater transparency in sustainability practices, driven by increased stakeholder demands and scrutiny, which in turn mitigates information asymmetry and improves creditworthiness. The current study's findings support the notion that larger firms achieve more significant reductions in debt costs via sustainability reporting. The convergence of these findings highlights that firm size acts as an amplifier for the advantages of sustainability disclosures, enabling larger firms to utilise their transparency and stakeholder engagement to secure improved financial terms.

Consistent with the present study, Abdi et al. (2022) identified that firm size significantly moderates the relationship between sustainability (ESG) disclosures and financial performance, especially in industries with substantial environmental effect, like the airline sector. The research concluded that larger firms derive greater advantages from sustainability disclosures, attributable to their enhanced resources, visibility, and ability to engage in and report on sustainable practices. The conclusion aligns with the study's findings, indicating that larger firms experience a more significant effect of sustainability disclosures on lowering borrowing costs. Abdi et al. provide additional evidence that firm size enhances the financial benefits linked to sustainability transparency, reinforcing the conclusion that larger firms can reduce their cost of debt through improved sustainability practices.

Ruhana and Hidayah (2020) offer further evidence for the moderating effect of firm size on the relationship between sustainability disclosures and the cost of debt. The study revealed that larger firms in Indonesia exhibited a greater propensity to disclose sustainability practices, which positively influenced their financial performance and borrowing conditions. This supports the findings of the current study, indicating that firm size significantly amplifies the effect of sustainability disclosures on decreasing the cost of debt. This relationship is based on the perception that larger firms possess greater capabilities in risk management and sustainability compliance, thereby enhancing lender confidence and diminishing perceived financial risks. This agreement in findings highlights that firm size significantly affects a firm's ability to leverage sustainability disclosures in influencing its cost of debt. These studies collectively support the idea that firm size influences the extent of sustainability reporting and significantly contributes to the financial advantages linked to these disclosures.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

A summary of the research findings, inferences from the analysis, and practical suggestions based on the findings are presented in Chapter five, which is a synthesis of the study. The five sections that make up this chapter are an introduction, a synopsis of the main findings, the study's conclusions, actionable advice for interested parties, and recommendations for additional research to fill in any gaps or take on new challenges within the study's framework.

5.2 Summary of Findings

Four primary goals were pursued by the study: to ascertain how environmental disclosure affects debt costs; to appraise the effect of social disclosure on debt costs; to analyse the influence of governance transparency on debt costs; and to investigate the moderating role of firm size in the relationship between sustainability disclosures and debt costs for Kenyan listed companies. Every goal sought to disentangle the relationship between several facets of sustainability reporting and the businesses' financial consequences, especially with reference to borrowing expenses.

5.2.1 Effect of Environmental Disclosure on Cost of Debt

The first research objective examined how environmental transparency influences borrowing costs for Kenyan listed firms. The empirical findings revealed a statistically significant negative relationship between environmental disclosure and cost of debt, demonstrating that firms practicing greater environmental transparency consistently secure more favorable financing terms. This relationship operates through several mechanisms: lenders perceive environmentally transparent firms as presenting lower risk profiles due to their proactive management of environmental liabilities and regulatory compliance.

This risk reduction effect translates directly into enhanced creditworthiness assessments, with environmentally responsible firms rewarded through preferential borrowing conditions. The findings align with established theoretical frameworks suggesting that environmental disclosure functions as a signaling mechanism that reduces information asymmetry between firms and capital providers. By transparently communicating environmental performance metrics, risk management practices, and compliance standards, firms effectively mitigate lender uncertainty, leading to more accurate risk assessments and ultimately more favorable financing terms. The relationship observed in the Kenyan market mirrors patterns documented in various international contexts, confirming the global relevance of environmental transparency for financial outcomes across diverse economic environments. These findings provide practical validation for the strategic value of environmental disclosure as a mechanism for optimizing capital costs in Kenya's emerging market context.

5.2.2 Effect of Social Disclosure on Cost of Debt

The second objective aimed to assess the effect of social disclosure on the cost of debt. The analysis revealed a negative relationship between social disclosure and borrowing costs, implying that firms with higher levels of social transparency experience reduced costs of debt. This finding underscores the importance of social responsibility in shaping a firm's risk profile and lender perceptions. Firms that actively disclose their social practices are perceived to maintain strong stakeholder relations and social compliance, which in turn enhances trust and reduces the perceived social risks, ultimately leading to lower borrowing costs.

5.2.3 Effect of Governance Transparency on Cost of Debt

The third objective examined the effect of governance transparency on the cost of debt. The results demonstrated that stronger governance disclosures were associated with a reduction in borrowing costs, highlighting the crucial role of governance practices in risk assessment by lenders. Firms with transparent governance structures, such as effective board oversight and accountability mechanisms, are likely to inspire greater investor confidence, improving their credit profile and reducing the cost of debt.

5.2.4 Effect of Firm Size on Sustainability Disclosures and Cost of Debt

The fourth objective explored the moderating effect of firm size on the relationship between sustainability disclosures and the cost of debt. The findings demonstrated that firm size significantly strengthens the negative relationship between sustainability disclosures and borrowing costs, particularly for environmental and social disclosures. For environmental disclosures, the moderating effect indicates that larger firms experience a more pronounced reduction in debt costs when they enhance their environmental transparency. Similarly, while social disclosures alone showed limited effect, they became significant when moderated by firm size, revealing that larger firms derive substantially greater benefits from social reporting in terms of reduced borrowing costs. However, the moderating effect was not significant for governance disclosures, suggesting that governance transparency benefits firms of all sizes relatively equally. These findings highlight that firm size plays a critical role in amplifying the financial benefits of sustainability practices, with larger organizations leveraging their visibility, resources, and stronger credit standing to translate sustainability disclosures into more favorable debt financing terms.

5.3 Conclusion

The study concludes that environmental disclosure has a significant and negative effect on the cost of debt for listed firms in Kenya. Firms that engage in comprehensive environmental reporting benefit from lower borrowing costs, suggesting that lenders consider environmental transparency as a key factor in risk assessment. Enhanced environmental disclosure is associated with increased creditworthiness, which translates into favorable borrowing terms and reduced financial burdens.

The study concludes that social disclosure also plays a pivotal role in reducing the cost of debt for Kenyan firms. The transparency in social practices and activities helps build a positive reputation and strengthen stakeholder relations, which are critical to the perception of lenders. Social disclosures provide an indication of a firm's commitment to social responsibility and ethical practices, thereby lowering the perceived social risks and, consequently, the cost of borrowing.

The study further concludes that governance transparency significantly reduces the cost of debt, highlighting the importance of strong governance structures and practices. Firms that maintain transparent governance, including board oversight, accountability, and management practices, are likely to inspire confidence in lenders. This assurance of good governance and reduced risk exposure enables firms to access lower-cost debt financing, emphasizing the value of clear governance disclosures.

Finally, the study concludes that firm size plays a moderating role in the relationship between sustainability disclosures and the cost of debt. The analysis reveals that firm size significantly strengthens the negative relationship between environmental disclosures and borrowing costs, meaning larger firms experience more substantial debt cost reductions when they enhance their environmental transparency. Similarly, while social disclosures alone showed limited significance, when moderated by firm size, they became highly significant—indicating that larger firms derive considerably greater benefits from social reporting in terms of reduced borrowing costs. However, the moderating effect was not significant for governance disclosures, suggesting that governance transparency benefits firms equally regardless of their size. These findings demonstrate that firm size selectively amplifies the financial benefits of environmental and social disclosures in the context of listed firms in Kenya, with larger organizations able to more effectively translate these sustainability practices into favorable debt financing terms due to their enhanced visibility, resources, and established credit standing.

5.4 Recommendation

The study recommends that listed firms in Kenya enhance their environmental disclosure practices to improve their creditworthiness and reduce borrowing costs. Firms should consider implementing comprehensive environmental policies, actively tracking environmental performance, and transparently reporting such data. By doing so, firms can improve their sustainability profiles, which will not only align them with global standards but also position them more favorably in the eyes of lenders, who often associate environmental responsibility with reduced risk.

It is also recommended that firms place a strong emphasis on social disclosures to strengthen stakeholder relationships and further decrease their cost of debt. This could involve greater transparency in areas such as employee welfare, community engagement, and customer relations. By actively sharing social responsibility activities and commitments, firms can build trust with lenders and other stakeholders, thereby improving their overall credit profile and benefiting from lower borrowing costs.

The study suggests that governance practices be given priority within corporate disclosures, as transparent governance structures play a crucial role in securing favorable borrowing terms. Firms should aim to establish strong governance mechanisms such as independent boards, effective audit committees, and sound managerial practices. Clearly communicating these governance standards and practices to lenders and investors will enhance the firm's reputation for ethical management and risk mitigation, thereby lowering the perceived financial risks and access to credit.

Lastly, the study recommends that both policymakers and firm managers acknowledge the moderating effect of firm size on the relationship between sustainability disclosures and borrowing costs. Larger firms should leverage their size and visibility to amplify the benefits of sustainability disclosures. However, smaller firms should not neglect sustainability reporting; instead, they should find cost-effective ways to enhance their sustainability practices and disclosures, as they can still gain financial benefits, even if to a lesser extent than larger firms. Overall, the emphasis on sustainability disclosures as a strategic tool for financial performance enhancement should be a key priority for all firms, regardless of size.

5.5 Suggestions for Further Research

The study suggests that future research could explore the long-term effects of sustainability disclosures on borrowing costs across different industries and regions to identify any sector-specific trends or contextual variations. Additionally, research could investigate other potential moderating factors, such as firm profitability, market dynamics, and regulatory frameworks, to understand their influence on the relationship between sustainability disclosures and financial performance. Expanding the scope to unlisted firms or conducting comparative analyses between listed and unlisted entities could also offer valuable insights into the broader financial implications of sustainability practices.

REFERENCES

Abdi, H., & Omri, M. A. B. (2020). Web-based disclosure and the cost of debt: MENA countries evidence. *Journal of Financial Reporting and Accounting*, *18*(3), 533-561.

Abdi, Y., Li, X., & Càmara-Turull, X. (2022). Exploring the effect of sustainability (ESG) disclosure on firm value and financial performance (FP) in airline industry: the moderating role of size and age. *Environment, Development and Sustainability*, *24*(4), 5052-5079.

African Development Bank (AfDB). (2021). African Development Bank Group's Strategy for Economic Governance in Africa (2021-2025). African Development Bank Group.

Ahsan, T., & Qureshi, M. A. (2021). The nexus between policy uncertainty, sustainability disclosure and firm performance. *Applied Economics*, *53*(4), 441-453.

Aifuwa, H. O. (2020). Sustainability reporting and firm performance in developing climes: A review of literature. *Copernican Journal of Finance & Accounting*, *9*(1), 9-29.

Bhuiyan, M. B. U., & Nguyen,. (2020). Effect of CSR on cost of debt and cost of capital: Australian evidence. *Social Responsibility Journal*, *16*(3), 419-430.

Caragnano, A., Mariani, M., Pizzutilo, F., & Zito, M. (2020). Is it worth reducing GHG emissions? Exploring the effect on the cost of debt financing. *Journal of Environmental Management*, *270*, 110860.

Central Bank of Kenya. (2021). Bank Supervision Annual Report 2020. Central Bank of Kenya.

Coleman, M., & Wu, M. (2021). Corporate governance mechanisms and corporate performance of firms in Nigeria and Ghana. *International Journal of Productivity and Performance Management*, *70*(8), 2319-2351.

Dan Perbankan, J. K. (2021). The effect of firm size, leverage, firm age, media visibility and profitability on sustainability report disclosure. *Jurnal Keuangan dan Perbankan*, *25*(1), 36-47.

Ding, X., Appolloni, A., & Shahzad, M. (2022). Environmental administrative penalty, corporate environmental disclosures and the cost of debt. *Journal of Cleaner Production*, *332*, 129919.

Drempetic, S., Klein, C., & Zwergel, B. (2020). The influence of firm size on the ESG score: Corporate sustainability ratings under review. *Journal of business ethics*, *167*(2), 333-360.

Eng, L. L., Fikru, M., & Vichitsarawong, T. (2022). Comparing the informativeness of sustainability disclosures versus ESG disclosure ratings. *Sustainability Accounting, Management and Policy Journal*, *13*(2), 494-518.

García-Sánchez, I. M., Aibar-Guzmán, B., Aibar-Guzmán, C., & Azevedo, T. C. (2020). CEO ability and sustainability disclosures: The mediating effect of corporate social responsibility performance. *Corporate Social Responsibility and Environmental Management*, *27*(4), 1565-1577.

Garzón-Jiménez, R., & Zorio-Grima, A. (2021). Effects of carbon emissions, environmental disclosures and CSR assurance on cost of equity in emerging markets. *Sustainability*, *13*(2), 696.

Gerged, A. M., Matthews, L., & Elheddad, M. (2021). Mandatory disclosure, greenhouse gas emissions and the cost of equity capital: UK evidence of a U-shaped relationship. *Business Strategy and the Environment*, *30*(2), 908-930.

Githaiga, P. N., & Kosgei, J. K. (2023). Board characteristics and sustainability reporting: a case of listed firms in East Africa. *Corporate Governance: The International Journal of Business in Society*, *23*(1), 3-17.

Global Reporting Initiative (GRI). (2021). GRI Standards. Global Reporting Initiative.

Gong, G., Huang, X., Wu, S., Tian, H., & Li, W. (2021). Punishment by securities regulators, corporate social responsibility and the cost of debt. *Journal of business ethics*, *171*, 337-356.

Hamrouni, A., Uyar, A., & Boussaada, R. (2020). Are corporate social responsibility disclosures relevant for lenders? Empirical evidence from France. *Management Decision*, *58*(2), 267-279.

Hapsoro, D., & Falih, Z. N. (2020). The effect of firm size, profitability, and liquidity on the firm value moderated by carbon emission disclosure. *Journal of Accounting and Investment*, *21*(2), 240-257.

Houqe, M. N., Ahmed, K., & Richardson, G. (2020). The effect of environmental, social, and governance performance factors on firms' cost of debt: International evidence. *The International Journal of Accounting*, *55*(03), 2050014.

Injeni, G., Mangena, M., Mathuva, D., & Mudida, R. (2022). Agency and institutional-related factors and the heterogeneity of sustainability and integrated report information disclosures in Kenya. *Journal of Financial Reporting and Accounting*, *20*(5), 809-840.

Kibunja, P. N., & Fatoki, O. I. (2020). Effect of debt financing on financial performance of listed non-financial firms in Kenya. *Archives of Business Review–Vol*, *8*(7), 485-496.

Kilincarslan, E., Elmagrhi, M. H., & Li, Z. (2020). Effect of governance structures on environmental disclosures in the Middle East and Africa. *Corporate Governance: The international journal of business in society*, *20*(4), 739-763.

Kinyua, S. M. (2020). *Effect of Corporate Sustainability Reporting on Stock Returns of Firms Listed at the Nairobi Securities Exchange* (Doctoral dissertation, university of Nairobi).

KPMG. (2020). The time has come: The KPMG Survey of Sustainability Reporting 2020. KPMG International.

Kurawa, J. M., & Shuaibu, K. (2022). Environmental disclosure and financial performance of listed non-financial companies in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, *10*(2), 31-52.

L'Abate, V., Raimo, N., Esposito, B., & Vitolla, F. (2024). Examining the effect of circular economy disclosure on the cost of debt: A signaling theory approach via social media. *Corporate Social Responsibility and Environmental Management*.

Maaloul, A., Zéghal, D., Ben Amar, W., & Mansour, S. (2023). The effect of environmental, social, and governance (ESG) performance and disclosure on cost of debt: The mediating effect of corporate reputation. *Corporate reputation review*, *26*(1), 1-18.

Maama, H. (2021). Institutional environment and environmental, social and governance accounting among banks in West Africa. *Meditari Accountancy Research*, *29*(6), 1314-1336.

Maama, H., & Marimuthu, F. (2022). Integrated reporting and cost of capital in sub-Saharan African countries. *Journal of Applied Accounting Research*, *23*(2), 381-401.

Muttakin, M. B., Mihret, D., Lemma, T. T., & Khan, A. (2020). Integrated reporting, financial reporting quality and cost of debt. *International Journal of Accounting & Information Management*, *28*(3), 517-534.

Nairobi Securities Exchange (NSE). (2019). ESG Disclosures Guidance Manual. Nairobi Securities Exchange.

Nairobi Securities Exchange (NSE). (2020). NSE Sustainability Report 2020. Nairobi Securities Exchange.

Nairobi Securities Exchange (NSE). (2021). Listed Companies. Nairobi Securities Exchange. Retrieved from https://www.nse.co.ke/listed-companies/list.html

Nguyen, A. H., & Nguyen, L. H. (2020). Determinants of sustainability disclosure: Empirical evidence from Vietnam. *The Journal of Asian Finance, Economics and Business*, *7*(6), 73-84.

Nguyen, D. T. T. (2020). An empirical study on the effect of sustainability reporting on firm value. *Journal of Competitiveness*.

Onoja, A. A., Okoye, E. I., & Nwoye, U. J. (2021). Global reporting initiative and sustainability reporting practices: a study of Nigeria and South Africa oil and gas firms. *Res. J. Manag. Pract*, *2782*, 7674.

Opanyi, R. O., Omoro, N., Wanjare, J. M., & Luther, O. O. (2022). Effect of Corporate Voluntary disclosure on Firm value of listed Companies at the Nairobi Securities Exchange. *African Development Finance Journal*, *3*(1), 40-68.

Osemene, O. F., Adinnu, P., Fagbemi, T. O., & Olowookere, J. K. (2021). Corporate governance and environmental accounting reporting in selected quoted African companies. *Global Business Review*, 09721509211010989.

Ould Daoud Ellili, N. (2020). Environmental, social, and governance disclosure, ownership structure and cost of capital: Evidence from the UAE. *Sustainability*, *12*(18), 7706.

Palea, V., & Drogo, F. (2020). Carbon emissions and the cost of debt in the eurozone: The role of public policies, climate-related disclosure and corporate governance. *Business Strategy and the Environment*, *29*(8), 2953-2972.

Qureshi, M. A., Kirkerud, S., Theresa, K., & Ahsan, T. (2020). The effect of sustainability (environmental, social, and governance) disclosure and board diversity on firm value: The moderating role of industry sensitivity. *Business Strategy and the Environment*, *29*(3), 1199-1214.

Raimo, N., Caragnano, A., Zito, M., Vitolla, F., & Mariani, M. (2021). Extending the benefits of ESG disclosure: The effect on the cost of debt financing. *Corporate Social Responsibility and Environmental Management*, *28*(4), 1412-1421.

Raimo, N., de Nuccio, E., Giakoumelou, A., Petruzzella, F., & Vitolla, F. (2020). Non-financial information and cost of equity capital: An empirical analysis in the food and beverage industry. *British Food Journal*, *123*(1), 49-65.

Ruhana, A., & Hidayah, N. (2020, February). The effect of liquidity, firm size, and corporate governance toward sustainability report disclosures (Survey on: Indonesia Sustainability Report Award Participant). In *4th International Conference on Management, Economics and Business (ICMEB 2019)* (pp. 279-284). Atlantis Press.

Shad, M. K., Lai, F. W., Shamim, A., & McShane, M. (2020). The efficacy of sustainability reporting towards cost of debt and equity reduction. *Environmental Science and Pollution Research*, *27*, 22511-22522.

Sustainability Accounting Standards Board (SASB). (2021). SASB Standards. Sustainability Accounting Standards Board.

Thomas, G. N., Aryusmar, A., & Indriaty, L. (2020). The effect of company size, profitability, and leverage on sustainability report disclosure. *Journal of Talent Development & Excellence*, *12*(1), 4700-4706.

United Nations (UN). (2015). Transforming our world: the 2030 Agenda for Sustainable Development. United Nations General Assembly, A/RES/70/1.

World Bank. (2021). Kenya Economic Update, April 2021: Rising Above the Waves. World Bank.

Zhang, M., Zhang, X., Song, Y., & Zhu, J. (2022). Exploring the effect of green credit policies on corporate financing costs based on the data of Chinese A-share listed companies from 2008 to 2019. *Journal of Cleaner Production*, *375*, 134012.

APPENDICES

Appendix 1: Data Collection Template

Company	Year	Interest Expense	Total Debt	EDI Score										SDI Score										GDI Score										Total Assets	Total Equity	Net Income
				1. Environmental policy	2. Environmental management systems	3. Energy consumption	4. Water usage	5. Greenhouse gas emissions	6. Waste management	7. Environmental compliance	8. Biodiversity effects	9. Environmental investments	10. Environmental targets and performance	1. Employee health and safety	2. Employee training and development	3. Diversity and equal opportunity	4. Human rights policy	5. Community engagement	6. Customer satisfaction	7. Product safety	8. Supply chain management	9. Labor practices	10. Social effect assessments	1. Board structure and composition	2. Executive compensation	3. Shareholder rights	4. Ethics and anti-corruption policies	5. Risk management	6. Audit committee	7. Compliance with governance codes	8. Whistleblower policy	9. Stakeholder engagement	10. Transparency in reporting			
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ESG Indicators

Environmental Disclosure Items	**Disclosed (1) / Not Disclosed (0)**
1. Environmental policy	
2. Environmental management systems	
3. Energy consumption	
4. Water usage	
5. Greenhouse gas emissions	
6. Waste management	
7. Environmental compliance	
8. Biodiversity effects	
9. Environmental investments	
10. Environmental targets and performance	
Total Environmental Items Disclosed	____ / 10
Environmental Disclosure Index (EDI) Score	
Social Disclosure Items	**Disclosed (1) / Not Disclosed (0)**
1. Employee health and safety	
2. Employee training and development	
3. Diversity and equal opportunity	
4. Human rights policy	
5. Community engagement	
6. Customer satisfaction	
7. Product safety	
8. Supply chain management	
9. Labor practices	
10. Social effect assessments	
Total Social Items Disclosed	____ / 10
Social Disclosure Index (SDI) Score	

Governance Disclosure Items	**Disclosed (1) / Not Disclosed (0)**
1. Board structure and composition	
2. Executive compensation	
3. Shareholder rights	
4. Ethics and anti-corruption policies	
5. Risk management	
6. Audit committee	
7. Compliance with governance codes	
8. Whistleblower policy	
9. Stakeholder engagement	
10. Transparency in reporting	
Total Governance Items Disclosed	___ / 10
Governance Disclosure Index (GDI) Score	