

ASSESSING THE INFLUENCE OF ESG
PERFORMANCE ON THE COST OF DEBT:
EVIDENCE FROM THE HOTEL INDUSTRY

SYDNEY SIEW JIA YING

BACHELOR OF FINANCE
(FINANCIAL TECHNOLOGY) WITH HONOURS

UNIVERSITI TUNKU ABDUL RAHMAN

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BY

SYDNEY SIEW JIA YING

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DECLARATION

I hereby declare that:

- (1) This undergraduate research project is the end result of my own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
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Name of Student:

Sydney Siew Jia Ying

Student ID:

2205382

Signature:

Sydney

Date: 17-12-2025

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DEDICATION

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Research framework

The study is based on stakeholder theory, which suggest that stronger ESG performance can influence a firm's cost of debt. In this framework, ESG performance is treated as the main explanatory factor affecting borrowing costs in hotel firms.

The independent variable is ESG performance. The overall ESG performance is analysed as an aggregated score. Besides, ESG is decomposed into ten sub-dimensions to capture the heterogeneous effects of specific environmental, social, and governance practices on the cost of debt. This disaggregated approach allows the study to identify which ESG aspects are most relevant to creditors in the hotel industry.

The dependent variable is the cost of debt, representing the borrowing cost faced by hotel firms. It reflects lenders' assessment of firm risk and is commonly measured using interest expenses relative to interest-bearing debt.

Firm size is included as a control variable, as larger hotel firms typically have greater access to capital markets, more diversified operations, and lower perceived default risk, all of which may influence borrowing costs independently of ESG performance.

A pandemic dummy variable is incorporated to account for structural changes in the lending environment caused by COVID-19. The dummy distinguishes between the pre-pandemic and post-pandemic periods, capturing shifts in credit risk assessment, financial constraints, and lenders' sensitivity to ESG factors during and after the crisis.

List of Abbreviations

ESG	Environment, Social and Governance
E	Environment
S	Social
G	Governance
CSR	Corporate Social Responsibility
RU	Resource used
EM	Emissions
IN	Innovations
WO	Workforce
HU	Human Right
CO	Community
PR	Product Responsibility
MA	Management
SH	Shareholders
UTAR	Universiti Tunku Abdul Rahman
POLS	Pooled Ordinary Least Squares
OLS	Ordinary Least Squares
FE	Fixed Effects
RE	Random Effects
F	Firm Size
COD	Cost of debt

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Preface

The research is being conducted as part of the Bachelor Of Finance (Financial Technology) With Honours at Universiti Tunku Abdul Rahman (UTAR) under the subject UKFN3026 Research project for Finance and Fintech. The main title of the research project is Assessing the Influence of ESG Performance on the Cost of Debt : Evidence from the Hotel Industry.

The objective of the research is to learn more about the relationship between ESG overall scores, ESG sub-dimensions scores, and debt costs in the worldwide hotel business.

The research plan is focused on looking into the most important aspect of ESG in relation to the global hotel industry's CoD. The three primary pillars of ESG are environment, social, and governance. ESG has 10 sub-dimensions: resource use, emissions, innovations, workforce, human rights, community, product responsibility, management, shareholders, and CSR.

Abstract

This study explores the effect of Environmental, Social, and Governance (ESG) performance on the cost of debt within the global hotel industry. While most of the previous studies have largely concentrated on the link between ESG and equity performance, limited attention has been given to its influence on borrowing costs, particularly at the disaggregated sub-dimension level. To bridge this gap, the study analyzes the hotel industry over the period 2017–2024. Panel data econometric techniques were employed to this study, with ESG ratings, both the overall scores and ten sub-dimensions. The financial indicators were obtained from Refinitiv Eikon/LSEG. The cost of debt was assessed using accounting-based measures. Pooled OLS models were applied in this study, supplemented by robustness checks in EViews.

The results reveal that ESG performance has a significant impact on firms' borrowing costs, although the direction of the effect varies across environmental, social, and governance sub-dimensions. The stronger ESG engagement is generally linked to lower debt costs. This study contributes to the broader ESG–finance literature by providing industry-specific evidence for the hotel sector and offering detailed insights into ESG sub-dimensions.

CHAPTER 1 INTRODUCTION

1.0 Introduction

Chapter 1 establishes the foundation of this study by outlining the context, defining the central research obstacles, and highlighting the significance of the study. This should build a clear and persuasive argument for why this research is necessary and explain a broad overview of the global context to the particular research questions that this thesis seeks to address.

1.1 Background of Study

With the increasing global priority for the corporate social responsibility (CSR), CSR performance of firms became heavily related to operating efficiency, long-term growth, and a mandatory consideration in investment strategies. Once closely associated with charitable work and philanthropy, CSR has evolved in to a strategic framework consisting of several initiatives along the lines of the Environmental, Social, and Governance (ESG) elements (Dahlsrud, 2006). ESG, in the operational form of CSR ideals, is increasingly becoming a powerful and widely accepted indicator of corporate value under the overall search for sustainable development. In today's global environment, the focus is now increasingly shifting away from rapid-growth but in favour of sustainable and high-value growth. Such growth has sparked a phenomenal scholarly interest mainly based upon accelerating stakeholder expectations, accelerating globalization, and ongoing industrial transformation. Furthermore, environmental and social elements now also figure in the financial and purchase decisions of all investors and consumers.

ESG is a unified framework for corporate sustainability analysis and long-term value creation. It is more comprehensive than shareholders and includes a larger group of stakeholders. The stakeholders include the employees, communities, and the natural environment. In previous empirical research work, ESG is primarily analysed in the following three related dimensions, which are the environmental, social, and governance.

Environmental pillar looks at how firms handle their impacts on the natural environment regarding the resource use, emissions, and innovation. Resource use examines efficiency in utilizing water, energy, and raw materials. Emissions consider pollutants released in the air, water, or soil, particularly greenhouse emissions such as carbon dioxide. Innovation reflects the product, service, or process improvement for the mitigation of environmental destruction. These areas in total include a firm's stake in environmental sustainability.

Social pillar considers a business's relationship with individuals and communities. This pillar of workforce, human rights, communities, and product responsibility. The workforce matters regarding the fair remuneration, workplace safety, diversification, and career development opportunities. The human rights are regarding the respect for dignity and the ethical business practices across the full supply chain. Example provided includes the avoidance of forced or child labor. The community's engagement include the investment in the well-being of the near communities. The product responsibility concerns the provision of safe, ethical, and social products and service. These together refer regarding a business's accountability for social good and ethics promotion.

The pillar of governance examines leadership in business corporations, monitoring, and accountability, in particular, the management, shareholders, and CSR strategy. Management examines organizational structure, policy, and practices that may achieve transparency, accountability, and ethical leadership. The shareholder consideration addresses protecting the rights of investors and balanced and fair reporting. CSR strategy encompasses the integration of environmental and social concerns in the long-term vision of corporations. Overall, the pillar of governance requires companies to carry out business responsibly, ethically, and accountably towards the different parties.

Earlier research underlines the point that high performance in one ESG dimension does not straightforwardly imply performance in the others. Thus, a multi-faceted approach including environmental, social, and governance elements is required for a business to reach a good composite ESG score and effectively capture a business's overall sustainability record (Nazarova & Лаврова, 2022).

Multiple empirical studies have presented the prominent advantages of ESG practices. These studies indicate the way in which ESG factors define organizational performance, stakeholder engagement, and survival (Clark, Feiner, & Viehs, 2015; Gillan, Koch, & Starks, 2021). In recent times, a visible global trend in the choices of investors, lenders, and other agential groups has seen a shift in favour of the integration of ESG elements in their framework. Such integration is subject to the quality and detail of the ESG-related disclosures presented by firms.

Despite a growing importance, current literatures highlight several challenges in ESG evaluation. The complexities of ESG have triggered significant divergence in ESG rating providers in terms of method of evaluation and scoring of companies (Christensen et al., 2021). Such divergence not only hinders empirical research but also limits the abilities of the stakeholders in making informed decisions. The lack of a common and transparent disclosure framework is also a source of concern for the credibility and comparability of the ESG ratings. These challenges have gathered a significant amount of emphasis in terms of more consistent, complete, and reliable ESG reporting frameworks (Feng & Wu, 2021).

Despite the growing importance of ESG, the empirical work regarding the relationship of ESG and financial performance, specifically the cost of debt remains limited. Only a few studies have taken a special emphasis on whether the borrowing institutions examine the ESG performance and the disclosure in analyzing the borrowers (Erragragui, 2018). The influence of the disclosure in the absence of substantive performance remains under-investigated. Furthermore, the previous research was carried out in one country or in small samples and hence the generalizations are limited (Erragragui, 2018; Hasan et al., 2017). It shows the need for additional empirical work, especially in the hotel space, in which the firms are under pressure for following the sustainability norms.

The literature also revealed the direct and indirect relationships between ESG performance and the cost of debt. Directly, high ESG performance reduces default risk by the decrease in the cost of borrowing (Jang et al., 2020). Indirectly, ESG engagement can build opportunities for growth and strengthen the cash flows

of the future. This subsequently can enhance lenders' risk perception and reduce the cost of finance (Luo & Bhattacharya, 2006). Corporations better in the practices of ESG are also better equipped in managing the risks related to climate risk, labor practices, and other exposures of non-financial risk. And then derive them in terms of better financial performance and better credit terms (Atif & Ali, 2021).

From a risk perspective, the ESG scores serve as default probability signals. These are used in favour of the risk expectations of adverse association between the ESG ratings and borrowing costs. Beyond the common risk models, the ESG indicators provide the lenders additional information which prove useful in refining the credit decisions (Clarkson et al., 2011). High ESG score can reveal lower risk exposures not revealed by the common indicators and also mitigate the existing information asymmetry between the lenders and borrowers. In this context, the ESG score is best viewed as a complement to the common financial indicators, providing value in the corporate creditworthiness analysis by providing forward-looking and the non-financial information which reinforce the risk analysis and lending decisions (Jang et al., 2020).

The relationship between the cost of debt and ESG performance is a significant research topic and numerous studies have indicated better ESG practices consistently led to a lower cost of debt. Precise nature and strength of this relationship is a complex one nevertheless and numerous studies report mixed or even positive relationships in specified scenarios (Hou & Zhang, 2023). Better ESG rankings are associated with lower downside risk such as default risk (Jang et al., 2020). ESG disclosures also provide useful non-financial disclosures which reduce the companyable asymmetry seen in the relationship between borrowing companies and credit providers. This provides lenders a more accurate assessment of a company's risk profile and hence reduced agency costs and more favourable credit terms (Barrak et al., 2023). Despite to the growing emphasis on ESG, the empirical data is still inconsistent and context dependent. Prior to the pandemic, financial performance was found to be positively impacted by social (S) and governance (G) variables (Meng-Tao et al., 2022), but the effect of environmental (E) elements was less clear (Chaudhry et al., 2021).

This study seeks to discover the evolving relationship between ESG performance and the cost of debt before and after the pandemic, with an emphasis on the global hotel industry. The extent to which ESG factors influence cost of debt in these markets is still poorly understood, particularly in reaction to economic shocks such as the COVID-19 outbreak. By incorporating panel data regression analysis, this study offers empirical insights into the sectoral and macroeconomic determinants influencing ESG-financial linkages in hotel industry. The findings contribute to both academic discourse and managerial decision-making, highlighting the strategic relevance of ESG integration.

1.2 Research Problems

In the recent years, Environmental, Social, and Governance (ESG) factors have been prominent in the business arena, the businesses have been under more and more pressure from stakeholder groups to consider the same in their approach. ESG performance has been solidified as a primary financial indicator of financial outcomes affecting the building of reputation, management of risk, and innovation potential. With the growing global attention, investors are paying more emphasis on corporations' ESG commitment while analyzing their business value and investment value (Gao et al., 2022). Although prior research works have examined the overall association of ESG and financial performance, more regarding individual elements of ESG influences various financial indicators still remains unclear in the context of the cost of debt in industries of a distinct nature such as the hotel business.

The current studies draw inspiration from the relative under-abundance of granular component-level studies of the influence of ESG's influence upon financial performance. Most of the prior research reduced ESG to a single aggregate construct. In the process, it delimits a deeper examination of the way in which different dimensions, or the more granularly broken-down sub-dimensions individually influence the cost of finance (Nazarova & Лаврова, 2022). Furthermore, previous research frequently was restricted by the use of single

country scenarios (Erragragui, 2018) or small samples (Hoepner et al., 2016) and hence delimits generalizability. In a move to fill these lacunae, the current research examines ESG at the pillar and the sub-dimension levels and therefore is filling the need for more granularly focused research capable of providing more precise indications regarding the relationship between ESG and the cost of debt finance (Yilmaz, 2022).

For instance, firms that perform well in the environment would enjoy lower default and reputational risk and thus lower borrowing costs (Zhou et al., 2018). Similarly, Eliwa et al. (2019) used a large European panel sample of listed firms and showed a negative association at the firm level between the debt cost and ESG performance and disclosure. However, various studies have shown the existence of positive or insignificant relationships. This showed no clear consensus in the relationship nature (Jang et al., 2020). This ambiguity implies the need for more systematic and industry specific research.

Despite the intensifying relevance of the hotel industry in the sustainability literature, it had not been subject to liberal empirical attention in the context of ESG finance links (Feng & Wu, 2021). Borrowing cost is one of the prime financial indicators for lenders and borrowers in common, and illumination regarding the agency of ESG in setting borrowing cost is the utmost necessity. With a specific focus on the hospitality sector and by untangling ESG drivers, this study tries to contribute sectoral evidence while filling in larger holes in the literature of ESG finance. In the process, it also tries to settle conflicting results in previous studies.

This study aims to fulfil significant research gap in ESG research by employing a multidimensional framework to assess the influence of ESG practices on the businesses' financial performance. Unlike previous research which analyse ESG as a single entity, this study separates the three core constituents, Environmental, Social, and Governance and the ten associated sub-dimensions and finally analyse their influences individually. In response to the limitations of prior studies, this research expands the focus to the global hotel industry, a sector that has received little attention despite its growing relevance in sustainability discussions. Methodologically, the study seeks to examine ESG-financial performance linkages

across varying economic environments, including emerging markets, where ESG dynamics may differ significantly. The goal is to provide robust empirical evidence that enhances understanding of the financial implications of ESG practices, ultimately supporting more informed investment decisions, strategic corporate planning, and evidence-based policymaking.

Cost of Debt is a key determinant of company's financing decisions, investment potential and long-term financial sustainability. In a hotel industry, every slight changes in borrowing costs can significantly impact profitability and survival. Jang et al. (2020) show the strong ESG performance lowers the cost of debt by perceiving credit risk while the empirical evidence remains mixed. The discrepancy may cause from the tendency of existing research to approach ESG as an aggregate construct and overlook the significant external shocks like the COVID-19 pandemic.

1.3 Research Questions

The research questions of this study are outlined as follows.

- I. What is the relationship between overall ESG performance and cost of debt (before tax and after tax) in the hotel industry, does this relationship differ between the pre-pandemic and post-pandemic periods?
- II. What is the relationship between the individual ESG pillars and the cost of debt (before tax and after tax) in hotel industry, and how has the strength or direction of these effects changed after the COVID-19 pandemic?
- III. What is the relationship between specific ESG sub-dimensions and the cost of debt (before tax and after tax) in the hotel industry, and are these effects more pronounced in the post-pandemic environment?
- IV. What is the relationship between stronger ESG governance and the lower cost of debt in the hotel firms, and is this effect different before vs. after the pandemic?

1.3 Research Objectives

The objective of this study is to investigate the impact of Environmental, Social, and Governance (ESG) factors on firms within the hotel industry. To address the research questions, the study is guided by the following specific research objectives.

- I. To analyse the relationship between overall ESG performance and cost of debt (before tax and after tax) in the hotel industry, does this relationship differ between the pre-pandemic and post-pandemic periods?
- II. To analyse the relationship between the individual ESG pillars and the cost of debt (before tax and after tax) in hotel industry, and how has the strength or direction of these effects changed after the COVID-19 pandemic?
- III. To analyse the relationship between specific ESG sub-dimensions and the cost of debt (before tax and after tax) in the hotel industry, and are these effects more pronounced in the post-pandemic environment?
- IV. To analyse the relationship between stronger ESG governance and the lower cost of debt in the hotel firms, and is this effect different before vs. after the pandemic?

1.5 Significance of the Study

The study holds significance because it addresses a relatively under-explored area in Environmental, Social, and Governance (ESG) research, particularly the impact of ESG performance in the cost of debt of hotel industry. Therefore, limited empirical work has investigated how ESG factors shape borrowing costs. By focusing on this dimension, the study aims to enhance understanding of how sustainability performance is recognized and internalized by debt markets and incorporated into credit risk assessments.

First, the relevance of this research is underscored by the growing trend among financial institutions and investors to integrate ESG considerations into lending and investment decision-making. Lenders increasingly perceived ESG performance as a proxy for risk mitigation, where strong ESG engagement signals reduced exposure to environmental liabilities, social controversies, and governance-related deficiencies (Devalle et al., 2017). As a result, firms with strong ESG ratings may benefit from more favourable financing terms, which includes lower interest rates or better access to debt capital. Conversely, weak ESG performance may result in perceptions of risk, leading to higher borrowing costs. By examining this dynamic within the hotel sector, this study provides valuable insights into the financial implications of ESG compliance and ESG disclosure, which offers both theoretical contributions to the ESG finance literature and practical implications for managers, investors, and policymakers.

Second, the hotel industry presents a compelling context for this investigation due to the exposure to ESG-related risks. Environmentally, hotels are energy and water intensive operations that face increasing pressure to adopt sustainable practices and reduce emissions (Abdou et al., 2020). Socially, the industry is labour dependent and subject to scrutiny over labour rights, employee welfare, and community impact. From a governance perspective, many hotel companies operate across diverse regulatory environments, raising concerns about ethical practices, corporate transparency, and board oversight. These industry specific ESG factors make the hotel sector particularly relevant for examining the

extent to which ESG performance influences creditworthiness and financing outcomes.

Third, this research is given the growth of sustainable finance and the rising use of ESG-linked instruments such as green bonds and sustainability-linked loans. As ESG factors become increasingly embedded in lending criteria, understanding their impact on borrowing costs is both academically relevant and practically important (Huang, 2024). Financial markets are gradually shifting toward aligning capital allocation with responsible corporate conduct, making it essential to understand how ESG could relate risks and opportunities are priced in the cost of capital. The study's findings are expected to inform the stakeholders, including corporate managers aiming to enhance financial strategy, investors and lenders incorporating ESG criteria into risk models, and policymakers advocating for standardized ESG disclosures.

This study is anticipated to hold substantial value for a range of stakeholders involved in the investment ecosystem. The findings and insights generated are expected to benefit various entities, including corporations, regulatory authorities, and corporate governance institutions. By exploring the impact of ESG factors on cost of debts, the study aims to enhance the understanding of how ESG considerations influence financial evaluation and risk assessment. The results are likely to support the development of more informed policy reforms, improved asset management strategies, and more robust risk management frameworks. Furthermore, the study will assist investors in making well informed decisions by incorporating ESG related risks and opportunities into their investment models. Importantly, it also aims to encourage the adoption of sustainable investment practices within the hotel industry, contributing to the ethical advancement of the sector.

1.6 Scope of the Study

The scope of this study is to examine the effects of ESG performance on the cost of debt among the 68 largest hotel companies worldwide from 2017 to 2024, focusing on the pre-pandemic and post-pandemic effect. Both overall ESG scores and their ten sub-dimensions are analysed to capture the multidimensional nature of ESG. This research contributes by assessing how environmental, social, and governance factors individually and collectively affect borrowing costs. The sample consists of the top 68 hotel firms by market capitalization, with ESG and financial data sourced from Refinitiv Eikon/LSEG. The cost of debt is measured using accounting-based indicators, specifically interest expense and total debt. To evaluate these relationships, panel data econometric techniques are used, including Fixed Effects, and Random Effects models, with estimations conducted in EViews.

1.7 Organization of the Thesis

The thesis consists of five chapters. Chapter 1 provides the study by laying down the background, research problem, knowledge gap, research questions, objectives and significance, particularly the relationship between ESG performance and the cost of debt. Chapter 2 outlines the relevant literature and theoretical foundation in the form of stakeholder, legitimacy, agency theory and signalling theory and existing empirical work. Chapter 3 gives the research design and method in the form of selection of the 68 largest publicly traded hotel companies in the world, the source of the data and measures of ESG sub-dimensions and cost of debt and the econometric models employed. Chapter 4 shows and interprets the findings of the empirical work and the implications of the effects of the ESG sub-dimensions for borrowing costs. Finally, Chapter 5 gives a summary of the research work findings, theoretical and practical implications and recommendation for policy makers and investors and companies and avenues for future research.

CHAPTER 2 REVIEW OF LITERATURE

2.0 Introduction

The chapter provides a comprehensive literature review of the Environmental, Social, and Governance (ESG) dimensions, sub-dimensions and how they specifically influence the cost of debt. The chapter begins by introducing the development and evolution of the ESG and the principal dimensions and proceeds by reviewing theoretical underpinnings and frameworks upon which current knowledge builds. To create a solid basis upon which the research builds, a conceptual framework is formed. Then, an empirical review and synthesizing current research findings regarding the interaction of the ESG dimensions and their sub-dimensions and firms' performance is conducted. Collectively, this review provides a basis on which the interlinkages of the ESG factors and the corporate implications of the cost of financing can be investigated.

2.1 Cost of Debt

The cost of debt refers to an effective interest rate a company pays on its outstanding borrowings, such as bonds and loans (Siwei & Chalermkiat, 2023). It indicates the return required by lenders in exchange for providing financing and serving as a measure of a company's financial risk. Factors such as credit quality, prevailing market interest rates, and the contractual terms of debt agreements influence the cost of debt (Fikru et al., 2024). In practice, it is often estimated using the yield to maturity on a firm's debt, which reflects on the return promised to investors (Fandella et al., 2023). Ultimately, the cost of debt is the compensation lenders demand for assuming the risks of borrowing credit to a company.

The cost of debt can be calculated using several methods. Common approaches include the marginal cost of debt (Caragnano et al., 2020), the average cost of debt (Chui et al., 2016), bond yields (Apergis et al., 2022), and credit spreads (Goss & Roberts, 2010). The bond yield approach applies only to firms with securitized debt, as it estimates the cost of debt from the maturities of issued bonds

(Alves & Meneses, 2024). In much of the literature, the cost of debt has also been proxied through accounting-based indicators, such as the ratio of interest expenses to total outstanding interest-bearing debt (La Rosa et al., 2018) or to total liabilities (Shi et al., 2024). Another frequently used measure is the weighted average interest rate, which captures overall borrowing costs (Feng & Wu, 2021). In this study, cost of debt calculated using the method interest expense divided by total debt (Cheng et al., 2013) and the theory that interest is tax-deductible (Goss & Roberts, 2010).

Several factors influence the cost of debt. At its core, the cost of debt represents the expense of borrowing an additional unit of debt and signals a firm's level of financial risk. It is shaped by elements such as the borrower's creditworthiness, prevailing market interest rates, and the contractual terms of debt agreements (Fikru et al., 2024). While debt financing provides benefits such as quick access to capital, lower costs, and lesser restrictive covenants (Bacha, 2019), the actual cost of debt depends on the macroeconomic conditions and firm-specific characteristics (Hou & Zhang, 2023).

At the macro level, factors such as interest rate liberalization and uncertainty of the policy affect how creditors evaluate business risk. When lenders and borrowers face information gaps, adverse problems can arise in bank lending (Stiglitz & Weiss, 1981). Firms that successfully mitigate this information asymmetry and reduce agency costs are therefore more likely to secure lower borrowing costs (La Rosa et al., 2018).

In this modern era, ESG performance and disclosure plays an important role in shaping borrowing costs. Firms with stronger ESG scores generally perceived as less risky, which allows them to secure a more favourable financing terms and a lower cost of debt. However, the impact may vary across individual ESG dimensions. While a firm's default risk remains the primary driver of borrowing costs, poor corporate governance or harmful social practices may also increase reputational risks linked to their clients' actions. In such cases, lenders may also require firms to address their sustainability-related risks as a safeguard against reputational damage (Gonçalves et al., 2022). As a result, lending institutions are

required to incorporate ESG information into their decision-making processes to more accurately assess both default and reputational risks (Eliwa et al., 2019).

2.2 Environmental, Social and Governance (ESG)

2.2.1 Environmental

The Environmental (E) dimension of Environmental, Social, and Governance (ESG) evaluates a firm's impact on natural ecosystems and its commitment to safeguarding the environment. It reflects both the company's capacity to manage environmental risks and its ability to seize opportunities that contribute to long-term shareholder value. Environmental factors generally include a company's initiatives to combat climate change, such as reducing emissions, minimizing waste, and promoting resource efficiency and restoration (Varvara et al., 2022). This dimension is typically measured as a weighted average of three sub-pillars, resource use, emissions reduction, and environmental innovation, which is scored on a scale from 0 to 100, with higher values that indicate a stronger performance (Fiorillo et al., 2025).

Resource use measures a company's ability to reduce its consumption of energy, water, and other materials, while adopting more sustainable practices across its operations and supply chain (Arora & Sharma, 2022). This aspect is particularly relevant for Real Estate Investment Trusts (REITs) and industries such as hospitality, where commercial properties account for a substantial share of energy consumption (Feng & Wu, 2021).

Emission reduction evaluate a firm's effectiveness in implementing operational and production changes to reduce pollutants, including greenhouse gases, carbon dioxide (CO₂), and other harmful substances (Ferriani, 2023). This sub-dimension also encompasses broader concerns related to climate change (Feng & Wu, 2021). Emissions are commonly

classified as Scope 1, direct emissions from sources owned or controlled by the firm ; Scope 2, results indirectly from purchased energy consumption (Owolabi et al., 2024).

Environmental innovation reflects the extent to which a company develops new market opportunities which reduces environmental costs for customers by introducing eco-friendly products, processes, technologies. It also highlights broader efforts in environmental innovation as part of a firm's sustainability strategy (Arora & Sharma, 2022).

Eliwa et al. (2019) identifies a negative relationship between environmental performance and the cost of debt. Firms with stronger environmental scores tend to secure lower bank loan spreads and more favourable lending terms. Environmental challenges such as climate change and water pollution are regarded as long-term risks, effective management of these risks can reduce financing costs, specifically for smaller firms (Jang et al., 2020). Among the ESG pillars, the environmental dimension is often found to exert the greatest influence on debt financing costs (Arora & Sharma, 2022; Eliwa et al., 2019). For example, Amiraslani et al. (2022) reported an increase in environmental performance reduced bond spreads by 49 basis points during a crisis, while Fiorillo et al. (2025) observed a 13.5 basis point decline in yield to maturity for a comparable improvement. Nonetheless, the findings are not uniform. Some studies suggest that high levels of environmental disclosure do not always translate into reduced financing costs, as companies may devote excessive resources to sustainability initiatives, offsetting the financial benefits (Shi et al., 2024).

Despite substantial evidence linking stronger environmental performance to lower borrowing costs, the relationship is not always consistent. Some studies emphasize that the impact of environmental initiatives on financing costs is more complex than initially assumed. For instance, Rong and Kim (2024) argue that the connection between environmental ratings and debt costs requires deeper investigation, as the effect may depend on how environmental practices are implemented and

measured. Similarly, Wahyuningtyas et al. (2024) report insignificant results, suggesting that challenges in evaluating diverse environmental practices may obscure their financial impact. Taken together, these findings indicate that while the environmental dimension often has the strongest influence among ESG components, its effect on the cost of debt depends on the firm characteristics, disclosure quality, and market perceptions.

2.2.2 Social

The Social (S) dimension of Environmental, Social, and Governance (ESG) evaluates a firm's impact on people and society, with particular emphasis on its relationships with employees, customers, communities, and other stakeholders (Amiraslani et al., 2022). Effective management and disclosure of social practices can strengthen a company's reputation and overall performance (Darsono et al., 2024). A company's social score captures how effectively it promotes a safe and a healthy workplace, supports equality and equal opportunities, fosters employee satisfaction and career development. It also considers adherence to fundamental human rights, the promotion of public health, compliance with ethical business standards, and the role of the firm as a responsible corporate citizen (Arora & Sharma, 2022).

Social pillar is commonly divided into four key sub-dimensions: workforce, human rights, community, and product responsibility (Fandella et al., 2023).

Workforce evaluates how effectively a company manages a safe and a healthy workplace that promotes equality and equal opportunities. It encompasses labor protection, workplace safety measures, employee satisfaction, and opportunities for professional growth (Yilmaz, 2022; Arora & Sharma, 2022). In some rating methodologies, the workforce sub-pillar is considered the most important element of the social category (Nazarova & Лаврова, 2022).

Human rights focuses on how firms integrate respect for fundamental human rights and ethical business practices across their operations and supply chains. This sub-dimension reflects the extent to which companies embed human rights policies into their activities and disclose related practices (Darsono et al., 2024).

Community reflects a company's role in supporting public health, upholding ethical standards, and fulfilling its responsibilities as a corporate citizen (Arora & Sharma, 2022). Strong performance in this area can strengthen relationships with governments, build trust among stakeholders, and enhance a firm's overall social reputation (Xu et al., 2024).

Product responsibility evaluates how effectively a company ensures the quality and safety of its products and services while managing their broader impact on customers. It encompasses areas such as consumer protection, data privacy, and health and safety standards (Amiraslani et al., 2022).

In relation to the cost of debt, the social dimension possible to have both positive and negative effects. On one hand, strong social performance is associated with a lower cost of debt. For example, Piotr and Grzegorz (2021) find that greater involvement in social initiatives yields benefits for both short-term and long-term debt, while Eliwa et al. (2019) report an inverse relationship between social disclosure and borrowing costs. In China, a one standard deviation increase in social performance reduces debt financing costs by 6.36%, as effective social responsibility practices enhance corporate reputation and attract investor support (Shi et al., 2024). Similarly, in EU countries, higher levels of social disclosure are linked to significantly lower borrowing costs (Eliwa et al., 2019). In Korea, firms with weak social responsibility practices face a higher cost of debt (Rong & Kim, 2024). In certain contexts, social initiatives may be perceived as a source of risk, contributing to higher borrowing costs. Roggi et al. (2024) note that in developing and emerging markets, socially oriented projects are sometimes

viewed as financially burdensome or risky, which can drive up debt financing costs.

Firms can strengthen their social capital by investing in environmental and social (E&S) initiatives, which in turn may influence their cost of debt especially in contexts where agency conflicts with bond investors are more pronounced (Amiraslani et al., 2022). Overall, social dimension of ESG emphasizes a firm's ethical and responsible treatment of its workforce and its broader societal relationships. Although its financial impact varies across markets and empirical studies, substantial evidence indicates that strong social performance contributes to lowering both the cost of debt and equity, while also enhancing corporate reputation and stakeholder trust. These effects are particularly significant during periods of crisis, when stakeholder confidence plays a crucial role in financial resilience.

2.2.3 Governance

The Governance (G) dimension of Environmental, Social, and Governance (ESG) examines a firm's leadership, internal controls and overall management practices (Ok & Kim, 2019). It evaluates the systems and processes designed to ensure that boards and executives act in the best interests of long-term shareholders and other stakeholders (Fiorillo et al., 2025). Governance emphasizes the corporate principles and regulatory mechanisms that shape and guide managerial conduct, making it a critical element of sustainable development and corporate accountability (Ernst & Woithe, 2024).

The governance pillar is assessed across several sub-dimensions, including management, shareholders, and corporate social responsibility (CSR) strategy (Fandella et al., 2023).

Management reflects a firm's adherence to best-practice corporate governance principles and the effectiveness of its oversight structures (Piotr

& Grzegorz, 2021). This includes the role of boards and commissioners in supervising impact management, ensuring accountability, and embedding policy commitments into the organization's operations (Darsono et al., 2024).

Shareholders evaluate how effectively a company upholds shareholder rights and ensures equal treatment of all investors. It also considers the use of anti-takeover mechanisms and the degree of shareholder involvement in corporate decision-making processes (Piotr & Grzegorz, 2021; Fiorillo et al., 2025).

CSR strategy reflects how a company integrates economic, social, environmental considerations into its core business activities and its decision-making processes. This sub-dimension could assess not only the adoption of sustainability-oriented strategies but also how effectively the firm communicates these practices to stakeholders (Piotr & Grzegorz, 2021).

In the context of the cost of debt, numerous studies find that stronger corporate governance is associated with lower borrowing costs (Ok & Kim, 2019; Eliwa et al., 2019). This effect is often attributed to effective governance mechanisms that reduce agency conflicts, limit information asymmetry, and mitigate default or reputational risks as perceived by lenders (Shi et al., 2024). By demonstrating strong oversight and managerial integrity, firms are able to signal reliability to lending institutions, thereby improving their financing conditions (Eliwa et al., 2019). However, the evidence is not entirely consistent. Some studies report insignificant or mixed results. In the Korean stock market, for instance, portfolio analysis revealed a significant reduction in the cost of equity for companies with strong governance, but regression models found the relationship to be insignificant once additional controls were applied (Ok & Kim, 2019). Similarly, a study on EU countries found that while the environmental and social dimensions of ESG performance were significantly and negatively associated with the cost of debt, the governance dimension was not. Yet, when considering ESG disclosure, all three dimensions, including

governance, showed significant inverse relationships with borrowing costs (Eliwa et al., 2019). Findings from Saudi Arabia also reflect this complexity. While overall ESG disclosure and the environmental and social pillars were significantly linked to lower debt costs, governance disclosure was negative but not statistically significant. This may suggest that lenders already perceive firms in the region as having strong governance, such that further disclosure does not materially influence borrowing costs (Barrak et al., 2023).

In conclusion, while there is broad agreement that strong corporate governance is beneficial, its direct impact on financial outcomes such as the cost of debt remains complex and highly context dependent. The effect often interacts with factors including the quality of disclosure, the level of market development, and specific regional characteristics.

2.5 Theoretical Framework

2.5.1 Stakeholder Theory

Stakeholder theory is a foundational concept in business scholarship that argues firms not only hold responsibilities of their shareholders but also a broader range of stakeholders (Ok & Kim, 2019). First introduced by Freeman (2010), the theory shows that a company's long-term success depends on its relationships with customers, suppliers, employees, and society at large, in addition to shareholders and management (Siwei & Chalermkiat, 2023). It emphasizes that firms should maximize value for all stakeholders including customers, creditors, employees, shareholders, and communities in which they operate (Fandella et al., 2023) while maintaining balance among these diverse groups as a prerequisite for sustained profitability (Arora & Sharma, 2022).

Stakeholder theory challenges the traditional shareholder primacy view, which holds that a firm's sole responsibility is to maximize

shareholder wealth (Friedman, 2007). Instead, it broadens corporate objectives to encompass non-financial considerations (Hou & Zhang, 2023). Businesses are seen as “networks of relationships” in which executives manage interactions to create and distribute value among stakeholders (Gonçalves et al., 2022). By engaging in ethical practices, protecting human rights, fostering community engagement, and upholding fair labour standards, firms can enhance social capital and stakeholder loyalty (Flammer, 2015). This form of “moral capital” also functions as a risk-management tool, offering an “insurance-like” effect during crises or adverse events (Ghoul & Karoui, 2016). Corporate disclosure, particularly in relation to ESG practices, provides an important mechanism for managers to communicate with stakeholders, including shareholders, debtholders, regulators, employees, and NGOs (Barrak et al., 2023). Such transparency helps to reduce information asymmetry (Dhaliwal et al., 2012) and enables stakeholders to better evaluate firm-specific risks (Cho et al., 2012).

Stakeholder theory provides a strong theoretical foundation to understand Environmental, Social, and Governance (ESG) practices (Goss & Roberts, 2010). ESG can be seen both as a response to external pressures for sustainable economic development (Wahyuningtyas et al., 2024) and as a means for companies to fulfill their responsibilities toward the wider public (Arora & Sharma, 2022). By addressing stakeholder concerns, ESG activities enhance corporate reputation and can indirectly foster long-term performance growth (Yu & Van Luu, 2021). In this sense, aligning with stakeholder interests through ESG initiatives not only improves corporate image but can also increase shareholder wealth and overall firm value. Strong ESG performance signals a commitment to sustainable practices, building trust and cooperation among stakeholders. ESG scores, often used as a proxy for corporate social responsibility (CSR), provide a comprehensive measure of performance across the environmental, social, and governance pillars, based on reported information and controversies (Fandella et al., 2023).

Consistent with stakeholder theory, many studies document a negative relationship between ESG performance or ESG disclosure and the cost of debt (Xu et al., 2024; Eliwa et al., 2019; Owolabi et al., 2024). This reduction in borrowing costs is often attributed to ESG practices mitigating both default risk and reputational risk as perceived by lenders (Barrak et al., 2023), as well as reducing information asymmetry between firms and investors (Bryl & Fijałkowska, 2020). Moreover, strong ESG performance signals managerial efficiency and integrity, which further increases creditors' confidence. Evidence from EU countries shows that both ESG performance and ESG disclosure are associated with a lower cost of debt, with the effect being more pronounced in stakeholder oriented economies (Eliwa et al., 2019). During the 2008–2009 financial crisis in the U.S., firms with high environmental and social (E&S) performance enjoyed lower bond spreads and greater access to funding, demonstrating the “insurance-like property” of social capital during crises of trust (Owolabi et al., 2024). However, findings are not uniformly conclusive. Some studies indicate that, in certain contexts, particularly during financial crises, lenders may view sustainability spending as a potential drain on resources, thereby increasing the cost of debt (Gonçalves et al., 2022). Others report insignificant or mixed effects, or even a positive association, which aligns with the overinvestment theory, suggesting that excessive resource allocation to ESG activities may undermine financial performance.

2.5.2 Legitimacy Theory

Legitimacy theory is a key concept in social accounting, emphasizing that firms strive to ensure their operations are perceived as consistent with societal norms and expectations. In this sense, businesses actively seek to be viewed as legitimate by external stakeholders (Eliwa et al., 2019). The theory highlights that an organization's survival ultimately depends on society's approval, creating an implicit “social contract” between business and the broader community (Amarna et al., 2024). Legitimacy is thus

pursued through aligning corporate practices and disclosures with prevailing social values and beliefs (Darsono et al., 2024).

To maintain legitimacy, firms adopt both substantive practices and symbolic disclosures to shape stakeholder perceptions (Eliwa et al., 2019). These actions help protect corporate reputation and secure long-term sustainability (O'Donovan, 2001). Societal expectations often include commitments to environmental protection, workplace safety, and the safeguarding of stakeholder well-being (Tinker & Neimark, 1987). Failure to meet these expectations can result in sanctions, such as regulatory penalties, restricted access to resources, or higher borrowing costs, ultimately influencing outcomes like the cost of debt

Legitimacy theory identifies two key approaches firms adopt in their social and environmental disclosures. The first is the substantive approach, where firms make genuine changes to their operations and strategies to align with societal norms. The second is the symbolic approach, where companies present their behaviour as consistent with social expectations, even if underlying practices or policies have not significantly changed (Ashforth et al., 1990). Symbolic disclosure can be used to convince stakeholders, including lending institutions of firm's commitment to societal values, regardless of the actual extent of that commitment.

In the context of Environmental, Social, and Governance (ESG) practices, legitimacy theory provides an important lens for understanding corporate behavior. Firms frequently engage in ESG activities and disclosures as a strategic response to societal pressures, aiming to influence public perception, protect their reputation, and ensure long-term survival (Suchman, 1995). Within this framework, the substantive approach reflects disclosure that genuinely communicates improvements in ESG performance, while the symbolic approach may involve practices such as greenwashing or camouflaging. These symbolic strategies allow firms to manage stakeholder perceptions and potentially secure legitimacy related benefits, such as a reduced cost of debt, even when their ESG commitment

is limited. When legitimacy is threatened, companies may resort to “hypocrisy strategies” to reconcile conflicting stakeholder demands (Cho et al., 2015). Financial stakeholders, particularly banks and other lending institutions, play a critical role in this legitimacy dynamic. Firms often tailor their disclosures to address the expectations of these stakeholders, recognizing their influence on access to financing (Eliwa et al., 2019). At the same time, lenders are cautious to avoid being perceived as supporting companies engaged in harmful ESG practices, as this could undermine their own legitimacy (Alves & Meneses, 2024).

Lending institutions integrate ESG information into credit decisions to evaluate two primary types of risks posed by borrowing companies (Weber et al., 2012). Default risk refers to the possibility of losing the principal amount of the loan, along with any associated remediation costs for the lender (Thompson & Cowton, 2004). Strong ESG practices can signal stability and lower financial risk, thereby reducing the perceived likelihood of default. Reputational risk arises when lenders are associated with financing firms that engage in poor ESG practices, which can trigger negative stakeholder reactions and reputational damage for the lending institution itself (Gonçalves et al., 2022). To mitigate these risks, lenders increasingly incorporate ESG considerations into their assessments of corporate creditworthiness. ESG disclosure, as a key component of legitimacy-seeking behavior, plays a critical role in this process. By providing transparent information on their sustainability activities, firms can reduce information asymmetry, mitigate adverse selection, and lower agency costs, all of which contribute to a reduced cost of debt (Darsono et al., 2024; La Rosa et al., 2018).

Empirical evidence consistent with legitimacy theory shows that lenders reward firms with stronger ESG performance and ESG disclosure by offering lower borrowing costs (Eliwa et al., 2019; Yilmaz, 2022; Adeneye & Kammoun, 2022). This relationship has been observed in multiple contexts, including EU countries and Saudi-listed firms (Barrak et al., 2023). Integrating ESG information enables lenders to better evaluate

default and reputational risks, thereby justifying lower interest rates and reducing financing frictions (Amarna et al., 2024). Legitimacy theory thus provides a strong theoretical explanation for why firms engage in ESG practices and disclosures. Whether through substantive improvements or symbolic strategies, these actions directly influence lenders' perceptions of risk and transparency, shaping the cost of debt available to the firm.

2.5.3 Agency Theory

Agency theory explains how different stakeholders behave when making financing decisions for businesses and how these behaviours influence capital structure. The theory is based on the idea that the interests of managers, shareholders, and creditors are often misaligned. Managers, who generally have superior access to information, may prioritize their own interests rather than focusing on the primary objective of maximizing shareholder wealth. One mechanism to mitigate such conflicts is the issuance of debt, which can reduce free cash flow available for managerial discretion and thereby limit agency costs (Jensen & Meckling, 1976). However, debt issuance may also create new conflicts between shareholders and creditors, potentially increasing agency costs. Thus, the optimal capital structure reflects a trade-off between the benefits and the agency costs of debt (Jensen, 1986).

At its core, agency theory highlights the inherent divergence of interests between managers (agents), shareholders and creditors (principals). Managers who with informational advantages, may pursue self-interested strategies, giving rise to agency costs and information asymmetry. Creditors, acting as principals, provide financial resources to the firm with the expectation of both capital repayment and adequate risk-adjusted returns. Their lending decisions are therefore shaped by assessments of a firm's financial health, expected cash flows, and ability to honour commitments (Jensen & Meckling, 1976).

Agency problems can be mitigated through ESG practices and transparent disclosure. ESG reporting, consistent with legitimacy theory, reduces information asymmetry between borrowing firms and lending institutions (Xu et al., 2024). By providing credible information about sustainable activities, companies lower agency costs and adverse selection risks, which can in turn reduce the cost of debt (Bryl & Fijałkowska, 2020). Transparent reporting also mitigates lenders' concerns about default and reputational risks, while strong ESG performance signals managerial integrity and efficiency. Allocating resources to meet stakeholder demands while enhancing financial outcomes reflects trustworthy behavior, enabling lenders to better assess risk and offer lower financing costs (Eliwa et al., 2019). From this perspective, good ESG performance is consistent with value maximization, as it lowers both risk exposure and agency costs (Ferrell et al., 2016). Conversely, weak governance and elevated risk exacerbate agency problems, which lenders often price in through higher borrowing costs (Palmieri et al., 2024). Debt itself can act as a disciplinary mechanism, constraining managerial opportunism and aligning actions with creditor and shareholder interests (Jensen, 1986).

Nonetheless, agency issues can increase the cost of debt when left unchecked. Under conditions of information asymmetry, lenders struggle to distinguish “good” from “bad” borrowers, often charging higher interest rates to compensate for risk evaluation and potential losses (Feng & Wu, 2021). Opportunistic managerial behaviour, such as real earnings management (REM), further intensifies these agency problems. Firms engaging in REM are more likely to face higher borrowing costs, as such practices increase information asymmetry and reduce lender confidence (Kim & Sohn, 2013). Managers may also use REM to secure additional debt financing, which can drive up leverage (Adeneye & Kammoun, 2022). High leverage, particularly when firms risk violating debt covenants, creates incentives for earnings manipulation and risky investment decisions. Managers may pursue projects that benefit shareholders at the expense of creditors, avoid value-creating opportunities that favor debtholders, or misuse free cash flow for personal benefit (Jensen & Meckling, 1976).

Anticipating such risks and moral hazards, lenders demand higher yields to offset potential agency costs (Amiraslani et al., 2022).

2.5.4 Signalling Theory

Signalling theory, originally proposed by Spence in 1973, provides a framework for understanding on how companies communicate their quality and intentions to external stakeholders, specifically in markets characterized by information asymmetry (Spence, 1973). In this context, firms (agents) possess superior information compared to external parties like lenders and investors (principals) (Wang & Li, 2015). To overcome this information disadvantage, firms engage in signalling activities to convey their true quality, commitment, and risk profile, aiming to influence stakeholders' perceptions and decisions.

Derived from information economics, signal transmission theory (SGT) studies how signalling might lessen information asymmetries between parties. ESG disclosure is one of the mechanisms, in which by reporting on environmental, social, and governance practices, firms communicate their reliability, sustainability commitment, and managerial integrity. Effective ESG reporting reduces perceived risks and enhances transparency, which builds trust among lenders and investors. This will not only improve a company's reputation and market standing but also lowers financing costs, as it reassures stakeholders of long-term stability (Spence, 1973). This is supported by a study which sees a higher borrowing cost due to a higher risk perception in the situation where lenders and investors have limited access to firm-specific information (Amarna et al., 2024). By providing credible and consistent ESG signals, companies reduce this information asymmetry and demonstrate their alignment with stakeholder expectations (Xu et al., 2024). Thus, ESG disclosure operates as a powerful signalling device, enabling firms to attract capital under more favorable conditions by highlighting their commitment to sustainable and responsible practices.

ESG practices also serve as a powerful signal to lending institutions about the management's integrity and long-term focus, which demonstrates a commitment to sustainable operations and responsible practices beyond short-term profitability (Eliwa et al., 2019; Krueger, 2020). Strong ESG performance, which reflects transparency in environmental, social, and governance aspects, fosters a perception of lower default risk among creditors (Xu et al., 2024; Ghouli & Karoui, 2016). This allows lenders to assess risks more accurately, leading to a reduced risk premium and, hence, a lower cost of debt (Amarna et al., 2024; Jang et al., 2020). Empirical studies confirm that firms with credible ESG signals often benefit from lower borrowing costs, even when faced with financial risk (Aleksnevičienė & Stralkutė, 2023; La Rosa et al., 2018). In conclusion, for these signals to be effective, credibility is crucial. Strong ESG performance, rather than just a symbolic disclosure, ensures lenders view the signals as trustworthy, reducing concerns of greenwashing and enhancing the long-term value proposition of the firm (Alves & Meneses, 2024).

2.6 Conceptual Framework

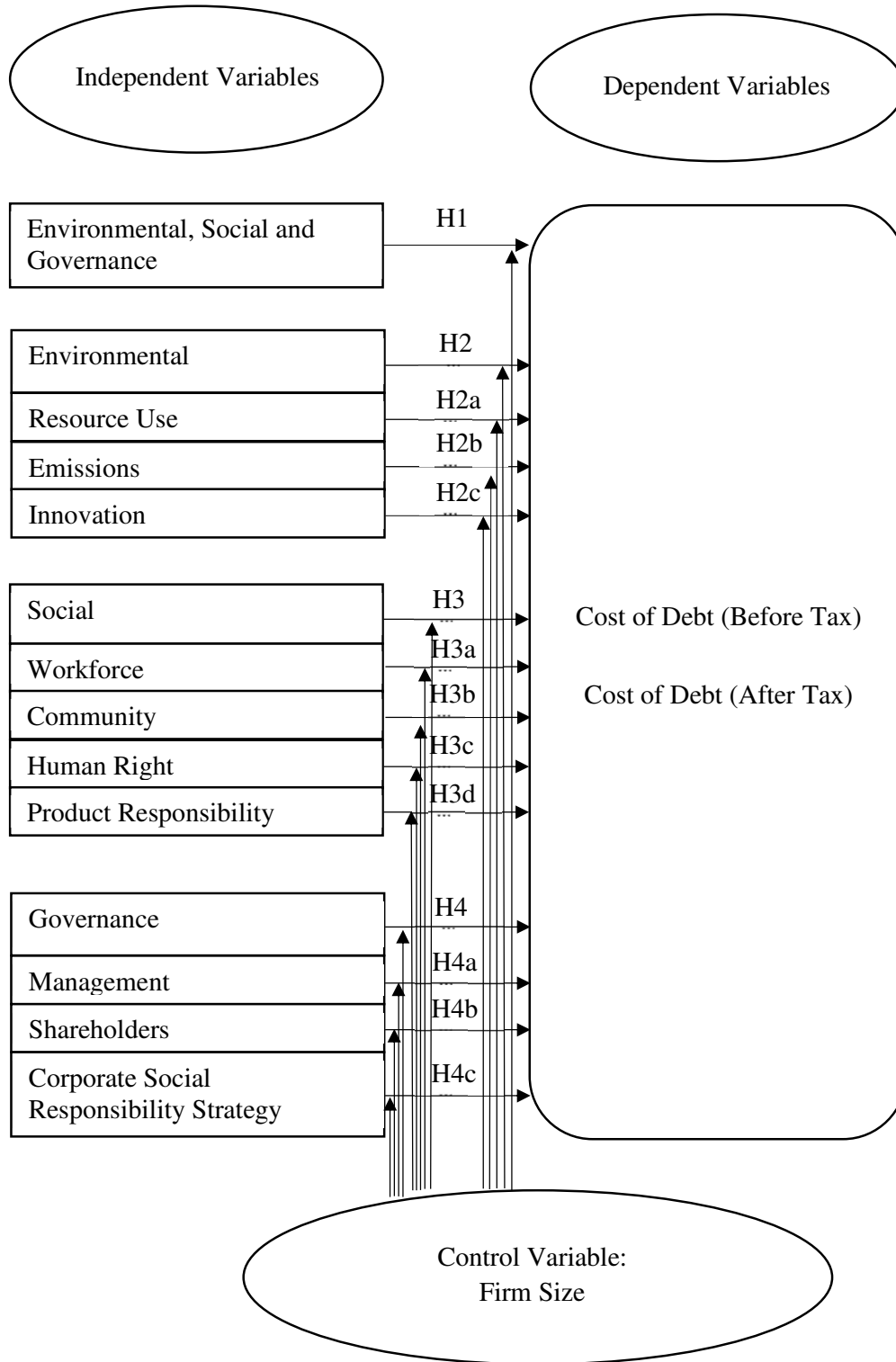


Figure 1: Conceptual Framework

The Figure 1 shown above is deeply rooted in several interconnected theoretical perspectives that explains why the firms engage in ESG practices and how the practices affect the cost of borrowing.

According to Yilmaz (2022), firms engage in ESG practices to build goodwill among stakeholders, improve relationships, and respond to societal pressures for sustainable development. This proactive engagement is seen as a strategy to maximize value for all stakeholders (Fandella et al., 2023). Gidage et al. (2024) found that when firms demonstrate strong ESG performance, they will signal to lenders their commitment to responsible operations and risk mitigation. Lenders avoid being associated with firms engaging in negative ESG practices, are incentivized to reward firms with strong ESG with a lower cost of debt (Barrak et al., 2023). Therefore, the conceptual framework's focus on disaggregated ESG sub-dimensions directly reflects the varied concerns and interests of different stakeholder groups.

Firms engage in ESG practices and disclosures as a strategic option to influence societal appraisal and enhance their legitimacy. This involve a substantive approach, where the disclosures reflect actual changes and improvements in ESG performance; symbolic approach, where firms portray their behavior to manage perceptions and gain benefits like a lower cost of debt, even if the actual performance hasn't substantially changed (Arora and Sharma, 2022). Alves & Meneses (2024) stated that lending institutions are a critical stakeholder group, and they aim to avoid being linked as financial facilitators to a firm's negative ESG practices due to potential reputational risks. The conceptual framework investigates whether firms are rewarded for their ESG performance and disclosure (implicitly covering both substantive and symbolic efforts) through a reduced cost of debt, which is a direct outcome predicted by legitimacy theory.

ESG practices, particularly good governance, can serve as a mechanism to alleviate agency conflicts and costs (Adeneye & Kammoun, 2022). Barrak et al. (2023) shows that ESG reduces information asymmetry between firms and lenders

by fostering transparency and accountability. This reduction in information asymmetry and perceived managerial opportunism enables lenders to more accurately assess the firm's risk profile, leading to lower agency costs embedded in loan contracts and, consequently, a lower cost of debt. ESG practices can signal to lending institutions the efficiency and integrity of management (Eliwa et al., 2019). Hence, a commitment to ESG demonstrates that management considers a broader set of stakeholders beyond just short-term shareholder wealth, which suggests a lower chance for opportunistic behaviours that might harm debtholders. The conceptual framework implicitly tests whether ESG practices serve as an effective governance tool to mitigate agency problems, thereby reducing the risk premium demanded by creditors.

ESG performance and disclosure act as a credible signal from the firm to the market. By investing in and reporting on ESG, a firm demonstrates its dedication to sustainable practices, responsible management, and long-term value creation (Gidage et al., 2024). Lenders, receiving these positive and credible signals through ESG, perceive the firm as less risky. This reduced uncertainty and improved confidence lead them to demand a lower risk premium, resulting in a lower cost of debt for the borrowing firm (Xu et al., 2024). The conceptual framework, by examining how ESG will influence the cost of debt, tests whether the ESG activities effectively serve as signals that reduce financing costs in the hotel industry.

In summary, the conceptual framework Figure 1 is underpinned by the four theories, which collectively predict a negative relationship between ESG performance (overall and its sub-dimensions) and the cost of debt. Stakeholder and legitimacy theories explain the motivations of driving such engagement, emphasizing the need for companies to meet stakeholder expectations, then align their activities with societal norms to maintain credibility and long-term survival. Meanwhile, agency and signalling theories highlight the mechanisms through which ESG initiatives influence financial outcomes, specifically by reducing perceived risk and mitigating information asymmetry between firms and external stakeholders such as lenders and investors. Together, these perspectives illustrate both the rationale for adopting ESG practices and the pathways through which they

shape firms' financial standing and cost of capital. Ultimately, the financial reward from lenders in the form of lower borrowing costs.

2.7 Empirical Review

According to Table 1, higher ESG scores are associated with a lower cost of debt financing, with the effect being particularly strong for small firms. Jang et al. (2020) demonstrate that ESG acts as a complement to credit ratings in assessing credit quality. Among the three pillars, only the environmental score shows a significant impact on bond returns when interacted with firm size, while governance and social scores exhibit no meaningful effect. Nevertheless, promoting all three ESG aspects simultaneously is found to be beneficial. Eliwa et al. (2019) further reveal that ESG disclosure may act as a substitute rather than a complement to ESG performance in lowering the cost of debt, suggesting that firms with weaker ESG performance may rely on disclosure as a symbolic tool. Moreover, the impact of ESG performance and disclosure is found to be stronger in stakeholder-oriented countries. Similarly, Arora and Sharma (2022) provide evidence of a negative relationship between ESG scores and the cost of debt, with the social and governance dimensions being statistically significant. Overall, ESG performance enhances creditworthiness metrics, particularly for small and medium-sized firms.

According to Table 2, the environmental pillar plays a central role in reducing the cost of debt. Gonçalves et al. (2022) report that the environmental score has a negative and statistically significant coefficient (-0.02746*, t-stat -3.65), indicating that improvements in environmental sustainability performance directly contribute to lowering debt costs. Likewise, Barrak et al. (2023) find that the estimated coefficient of ENV is negative and significant at the 1% level, demonstrating that increased environmental disclosure reduces borrowing costs. This effect is consistent with findings from EU countries, as environmental reporting reduces information asymmetry, enhances transparency, and improves lenders' ability to evaluate default risk.

According to Table 3, the evidence on the social (S) dimension remains mixed and often limited in significance. Ferriani (2023) reports very limited

informativeness of ESG subcomponents on the cost of debt. When all three subcomponents were included simultaneously, *Refinitiv S* was not significant, while *Robeco S* showed a significant positive effect (0.156*), indicating that higher social scores were associated with higher bond spreads (and thus higher cost of debt). Similarly, *Sustain. S* displayed a positive coefficient (0.060), though not robust. However, when the analysis was replicated using only S-ratings, the estimates were “mostly not significant.” By contrast, Amiraslani et al. (2022) demonstrate that when environmental and social (E&S) scores are combined into a joint index, the relationship becomes significantly negative, lowering bond spreads. Yet, the effect of the individual social score becomes insignificant once firm and time fixed effects are controlled for, suggesting that the standalone influence of social performance on debt costs is weak compared to when it is assessed in combination with other ESG dimensions.

According to Table 4, governance (G) emerges as a more consistent determinant in influencing debt-related outcomes. Xu et al. (2024) find a significant positive association between governance and surplus sustainability. Firms fulfilling their ESG responsibilities including the governance dimension which achieve greater surplus persistence through reduced debt financing costs and increased institutional investor ownership, with debt costs acting as a mediating mechanism. Similarly, Pirgaip and Rizvić (2023) highlight that the interaction variable $GOV \times IRit$ exerts a significant negative effect on the governance, WACC relationship, indicating that stronger governance scores can lower the weighted average cost of capital, but primarily for integrated reporting (IR) preparers. Their findings further suggest that the cost of debt can also be reduced by enhancing governance quality, again particularly within IR-preparing firms.

Table 1: Empirical Studies (ESG scores)

Study/ Author (Year)	Independent Variable	Key Focus/ Methodology	Key Findings
Jang et al. (2020)	ESG scores by KCGS	Analyzes relationship between ESG scores and bond returns using corporate bond data in Korea (2010-2015).	Higher ESG scores lower the cost of debt financing, particularly for small firms.
Eliwa et al. (2019)	ESG performance (Thomson Reuters ESG ratings) and ESG disclosure (Bloomberg ESG disclosure scores).	Investigates whether lending institutions reward firms in 15 EU countries for ESG performance and disclosure by lowering their cost of debt capital (2005-2016).	Significant negative association between the cost of debt and both ESG performance and disclosure.
Arora and Sharma (2022)	ESG disclosure score (Bloomberg database)	Examines how ESG ratings affect the company's capital market cost of debt in India.	The overall ESG score has a negative impact on the cost of debt.

Table 2: Empirical Studies (ESG scores : E pillar)

Study/ Author (Year)	Independent Variable	Key Focus/ Methodology	Key Findings
Gonçalves et al. (2022)	Environmental (ENV) pillar score	Examines the association between sustainability performance and the cost of debt for STOXX Europe 600 firms from 2002 to 2018.	The Environmental pillar has a negative and statistically significant coefficient on the cost of debt.
Barrak et al. (2023)	ENV (Environmental disclosure)	Examines the impact of companies' ESG disclosure practices on their borrowing costs for publicly traded companies in Saudi Arabia during the period 2013-2021.	The estimated coefficient of ENV is negative and statistically significant at the 1% level, indicating that increased levels of environmental disclosure led to reduced borrowing costs.

Table 3: Empirical Studies (ESG scores : S pillar)

Study/ Author (Year)	Independent Variable	Key Focus/ Methodology	Key Findings
Ferriani (2023)	Social pillar score ("S pillar", "S score")	Individual social scores (Refinitiv S, Robeco S, Sustainalytics S)	Generally found "very limited informativeness of ESG subcomponents" on the corporate cost of debt. All three subcomponents were included simultaneously.
Amiraslani et al. (2022)	Social score (as part of E&S index, and individually)	Investigates the role of social capital (E&S index) on bond credit spreads (secondary market and at-issue) for US firms from 2006 to 2019.	The social score's relation to credit spreads became insignificant once firm and time fixed effects were included.

Table 4: Empirical Studies (ESG scores : G pillar)

Study/ Author (Year)	Independent Variable	Key Focus/ Methodology	Key Findings
Xu et al. (2024)	Governance (G) dimension of ESG performance	Analyzes the impact of corporate ESG performance (overall and by E, S, G dimensions) on corporate surplus persistence, including the mediating role of debt financing costs to 2022.	Found a significant positive correlation between the governance (G) dimension and surplus sustainability.
Pirgaip and Rizvić (2023)	Governance pillar score (GOV)	Investigates the impact of ESG and its pillars, and Integrated Reports (IR), on the cost of debt (COD), for BIST Sustainability Index companies (Turkey) from 2015 to 2020.	The direct impact of GOV on WACC was insignificant. It was also inferred that COD can be alleviated by increasing GOV pillar scores for IR preparers.

2.8 Hypothesis Development

2.8.1 ESG Rating and Firms' Cost of Debt

H1: There is a negative relationship between firms' ESG performance and their cost of debt.

In European Union countries, Eliwa et al. (2019) find a significant negative association between ESG performance, disclosure, and the cost of debt using a sample of 6,018 firm-year observations from 2005 to 2016. Specifically, ESG performance displayed a statistically significant coefficient of -0.011 (t -statistic = -2.76), confirming that stronger ESG engagement reduces borrowing costs. Similarly, Arora and Sharma (2022) show that higher ESG scores are associated with lower costs of debt, with one of their models yielding significance at the 10% level. Evidence from emerging markets further supports this pattern. For instance, in India, ESG scores for firms between 2015 and 2020 exhibit a negative coefficient with cost of debt, significant at the 6% level, highlighting that ESG engagement improves financing conditions. In China, particularly among heavy-polluting industries, higher ESG performance is linked to lower debt financing costs. Likewise, firms with stronger CSI (China Securities Index) ESG scores benefited from significantly reduced borrowing costs (Barrak et al., 2023; Shi et al., 2024; Hou & Zhang, 2023).

2.8.2 Environment Rating and Firms' Cost of Debt

H2 : There is a negative relationship between firms' Environmental (E) performance and their cost of debt.

In European Union (EU) countries, Eliwa et al. (2019) show that the environmental dimension exerts the strongest and most significant negative effect on the cost of debt, with a coefficient of -0.012 . This suggests that lending institutions in the EU place particular emphasis on environmental information when assessing creditworthiness, largely due to the reputational

risks tied to environmental concerns. Similarly, Jang et al. (2020) find that high environmental scores significantly reduce the cost of debt financing in the bond market, especially for small firms in Korea, highlighting the salience of environmental disclosure for firms with higher financing constraints. Evidence from China also underscores this relationship. Hou and Zhang (2023) report that in heavy-polluting industries, stronger ESG performance, including environmental practices which leads to lower debt financing costs. However, Shi et al. (2024) note that while environmental factors do reduce borrowing costs in China, their influence may be weaker relative to social and governance dimensions in certain contexts.

H2 (a): Resource efficiency will reduce firm's cost of debt.

The environmental dimension of ESG performance and disclosure, particularly aspects such as a firm's capacity to reduce energy, water, and other material consumption. These has been shown to significantly lower debt financing costs (Arora & Sharma, 2022). Fikru et al. (2024) highlight that ESG practices generate cost savings, resource efficiency, and improved operational performance, all of which are associated with reduced borrowing costs. Similarly, Rong and Kim (2024) argue that enhanced environmental performance, through reduced energy use and resource conservation, not only lowers production costs but also boosts labor productivity, thereby indirectly contributing to a lower cost of debt. Collectively, these findings suggest that efficient resource utilization strengthens a firm's financial stability, reduces perceived credit risk, and makes the firm more attractive to lenders.

H2 (b): Emissions reduction will reduce firm's cost of debt.

Environmental performance and disclosure, particularly regarding emissions, are critical determinants of lowering the cost of debt (Arora & Sharma, 2022). Eliwa et al. (2019) show that within the European Union, the environmental dimension exhibits the strongest negative association with borrowing costs, underscoring lenders' heightened sensitivity to carbon-related risks. Lending institutions increasingly incorporate a firm's

exposure to such risks into credit assessments, with disclosure of mitigation strategies such as investments in green technologies which are helping firms avoid higher debt costs (Aleksnevičienė & Stralkutė, 2023). Conversely, firms with higher carbon emissions or greater carbon risk tend to face higher interest rates (Owolabi et al., 2024). For instance, Jung et al. (2016) find that Australian firms with elevated carbon risk and lower awareness of risk management practices pay significantly more on their loans. Similarly, evidence from China indicates that firms effectively managing environmental challenges, including emissions reduction, enjoy lower debt financing costs (Shi et al., 2024).

H2 (c): Environmental innovation will reduce firm's cost of debt.

Green innovation behaviour is recognized as a key factor that strengthens the positive effect of ESG performance on debt financing costs, particularly in heavily polluting industries (Hou & Zhang, 2023). As Arora and Sharma (2022) explain, innovation, an integral component of the environmental dimension of ESG captures a firm's ability to generate new market opportunities and reduce environment-related costs for customers through eco-friendly products or advanced environmental technologies. Empirical evidence from Hou and Zhang (2023) shows that green innovation not only enhances corporate reputation but also attracts critical stakeholders, thereby lowering the cost of debt financing. Moreover, high-intensity green innovation, which integrates both economic and environmental benefits, is consistently associated with reduced borrowing costs as ESG ratings improve.

2.8.3 Social Rating and Firms' Cost of Debt

H3: There is a negative relationship between social performance and cost of debt

Eliwa et al. (2019), analysing firms across 15 EU countries, find a significant negative association between the social dimension of ESG performance and the cost of debt. Their results also show that social

disclosure has a similar effect, indicating that both actual social engagement and transparent communication are valued by lenders in reducing perceived credit risk. However, findings are more nuanced in other contexts. Amiraslani et al. (2022) observe that while environmental and social (E&S) performance showed no consistent relationship with bond spreads during general periods, the 2008–2009 financial crisis revealed a different dynamic. In this time of heightened default risk and diminished trust, high-social-capital firms enjoyed lower bond spreads and were able to issue debt at more favorable terms, including reduced at-issue spreads and longer maturities. Fiorillo et al. (2025) further emphasize that this effect was especially pronounced for firms with greater expected agency costs of debt, underscoring the insurance-like role of social capital in periods of financial stress.

H3 (a): Strong workforce will reduce firms' cost of debt

The social dimension of ESG performance, which explicitly covers workforce-related aspects, has been shown to have a significant negative association with the cost of debt in a multi-country study of 15 European Union firms (Eliwa et al., 2019). Evidence from emerging markets supports this relationship as well. Arora and Sharma (2022), examining Indian firms, find that social reputation, particularly relating to workforce conditions. This negatively correlates with the cost of debt. Similarly, Nazarova and Лаврова (2022) argue that companies demonstrating a commitment to employees and broader society are perceived as ensuring the continuity and sustainability of operations, which strengthens debtholders' confidence and reduces the cost of capital. From a credit-risk perspective, lenders often view firms that invest in employee relations as more resilient to external shocks, thereby reducing default risk and justifying lower interest rates (Fiorillo et al., 2025).

H3 (b): Strong human rights performance will reduce firms' cost of debt

Similar to workforce considerations, the social dimension of ESG performance also explicitly encompasses human rights. Eliwa et al. (2019), examining firms in EU countries, found a significant negative association between this social dimension and the cost of debt. Evidence from emerging markets is consistent: Arora and Sharma (2022) show that for Indian firms, social reputation, including human rights management, exerts a significant negative effect on debt financing costs. Lenders tend to view companies committed to protecting human rights as more resilient, which reduces the perceived probability of default and, in turn, lowers interest rates (Fiorillo et al., 2025). Beyond performance, social disclosure which particularly regarding human rights policies and business ethics plays a key role. Transparent reporting in this area strengthens corporate image and stakeholder trust, thereby enhancing creditworthiness and contributing to a reduced cost of debt (Darsono et al., 2024).

H3 (c): Strong community performance will reduce firms' cost of debt

The "social" dimension of ESG performance also encompasses community involvement. Empirical evidence from EU countries reveals a significant negative relationship between this social dimension and the cost of debt (Eliwa et al., 2019). Fiorillo et al. (2025) reviewed that firms committed to community engagement are perceived by lenders as more resilient to external shocks, lowering their default risk and resulting in lower interest rates. Active commitment to social responsibility (including community involvement) can alleviate financing constraints by attracting support from external investors and establishing a good social image, leading to lower costs (Xu et al., 2024). Barrak et al. (2023) have found that higher levels of social capital (often built through community relations) incur lower bank loan spreads.

H3 (d): Product responsibility will reduce firm's cost of debt

Research in EU countries demonstrates a significant negative association between the social dimension and the cost of debt (Eliwa et al., 2019). Arora

and Sharma (2022) show that, for Indian firms, social reputation, which includes the ability to deliver goods and services that respect customer integrity, data privacy, health, and safety. This also has a significant negative relationship with debt costs. Similarly, Fiorillo et al. (2025) argue that the overall reduction in borrowing costs linked to the social dimension in international bond markets highlights the role of product responsibility as a key contributor. Strong ESG performance, particularly through product responsibility, enhances a firm's reputation, stabilizes cash flows, and boosts net income, thereby lowering its cost of debt (Xu et al., 2024).

2.8.4 Governance Rating and Firms' Cost of Debt

H4: There is a negative relationship between governance performance and cost of debt

Fiorillo et al. (2025) found that the social pillar, alongside the environmental pillar, significantly contributed to lower bond yields for high-ESG firms, with a negative and statistically significant coefficient. Similarly, Arora and Sharma (2022), in their study of Indian firms, reported that social reputation, as measured by social component scores, had a significant negative relationship with the cost of debt ($b = -0.0015$, $p = 0.08$). Among the three ESG components, the social score showed the strongest influence in reducing debt costs. Consistent with this, Shi et al. (2024) observed that the social factor negatively influences debt financing costs when ESG dimensions are disaggregated. Specifically, a one standard deviation increase in social responsibility performance was associated with a 6.36% reduction in debt financing costs. These findings suggest that robust social responsibility practices cultivate a positive social image, attract investor favor, and allow firms to secure financing at reduced costs.

H4 (a): Management will reduce firms' cost of debt

Effective management plays a critical role in lowering a firm's cost of debt by enhancing transparency, strengthening governance, and cultivating a trustworthy reputation. ESG practices serve as a signal of managerial

integrity to lending institutions, reassuring creditors about the firm's long-term stability (Eliwa et al., 2019). Such trustworthy behavior enables lenders to more accurately assess risks, which translates into a lower capital cost. Lavin and Montecinos-Pearce (2022) also emphasized that detailed ESG disclosures reduce information asymmetry and agency costs, which further demonstrates the firm's commitment to responsible practices. As a result, this directly contributes to reducing debt financing costs by providing a reliable gauge of managerial quality and reducing perceived risks for investors and creditors.

H4 (b): Shareholder will reduce firms' cost of debt

While traditionally linked with the cost of equity, shareholder and broader investor preferences, particularly those of institutional investors plays an important role in shaping a firm's cost of debt. Institutional investors increasingly regard ESG disclosures as a proxy for management quality and a signal of long-term stability (Lavin & Montecinos-Pearce, 2022). This growing demand for ESG-aligned investments exerts pressure on firms to enhance their sustainable practices and transparency, which in turn can lower their debt costs (Jang et al., 2020). Firms with stronger ESG ratings are able to access debt at more favourable terms, which reflects investors' preference for sustainable and lower-risk assets (Ferriani, 2023). Moreover, institutional investors actively pushing for ESG disclosure contributes to reducing information asymmetry, thereby lowering perceived risk and further decreasing the cost of debt (Feng & Wu, 2021).

H4 (c): CSR strategy will reduce firms' cost of debt

A firm's CSR strategy, encompassing its Environmental, Social, and Governance (ESG) performance and disclosure. CSR is generally associated with a lower cost of debt, though nuances remain. CSR and ESG activities contribute to building intangible assets such as reputation capital, which serve as an "insurance-like property" that cushions firms against negative events (Jang et al., 2020). Lending institutions increasingly integrate ESG information into their risk assessments, using it to evaluate and mitigate

both default risk and reputational risk (Yilmaz, 2022). By investing in CSR projects and sustainable practices, firms enhance their reputation, which is viewed favorably by creditors and bondholders, resulting in reduced borrowing costs (Barrak et al., 2023). The development of “moral capital” through CSR activities further fosters stakeholder trust, particularly valuable in periods of financial instability, such as the 2008–2009 crisis (Amiraslani et al., 2022). Moreover, ESG practices those tied to strong corporate governance signal managerial efficiency and integrity to lending institutions, strengthening lender confidence and lowering the cost of debt (Eliwa et al., 2019).

H5: Whether the relationship of ESG (overall, pillars, sub-dimension) and cost of debt are differs between pre & post pandemic period

K. Chiu (2022) evidenced that the world became aware of COVID-19. The World Health Organisation (WHO) formally designated the Covid-19 outbreak to be a global pandemic on March 11, 2020. This epidemic affects more than 170 nations and has an impact on the entire economy in addition to our physical health. Numerous studies have shown that firms that prioritise sustainability are more robust during times of turbulence and are better able to manage adverse risk (K. Chiu, 2022). The empirical results not only revealed that higher EG portfolios outperform lower ESG portfolio in the normal period but also evidenced that ESG performance of firms helps to alleviate financial risk when the financial crisis happened (Broadstock et al., 2020).

2.9 Research Gap

2.9.1 Geographical Gap

Prior studies have extensively examined that most of the studies in the ESG's impact on the cost of debt has been concentrated on specific developed markets such as China (Siwei & Chalermkiat, 2023), India (Arora & Sharma, 2022), United State (Amiraslani et al. (2022), South Korea (Rong and Kim, 2024) and Asean Countries (Adeneye & Kammoun, 2022). In contrast, global research remains relatively underexplored, particularly within the hotel industry. By addressing this geographical gap, this study defines the relationship between ESG practices with the sub dimensions and the cost of debt among the global publicly listed hotel companies.

2.9.2 Specific Industry Focus

There is a notable gap in the literature regarding how each ESG component individually affects specific financial metrics, particularly the cost of debt within specific sectors such as the hotel industry (Ok & Kim, 2019). While there are existing studies for other industries like energy (Yilmaz, 2022), Real Estate Investment Trusts (REITs) (Feng & Wu, 2021), mining (Fikru et al., 2024) and IT (Nazarova & Лаврова, 2022), there are limited research which has focused on the hospitality industry, particularly the hotels industry. This research will study and fulfil these gaps by investigating the relationship between ESG practices, the sub dimensions and the cost of debt within the hotel industry.

2.9.3 Disaggregated ESG Analysis (Sub-dimensions)

Previous studies often employ a composite ESG score when analysing the impact of sustainability practices on financing outcomes. This approach provides a broad overview of the research, but obscures the distinct contributions of Environmental, Social and Governance practices. Beyond the three main pillars, there are sources suggest a need to further separate ESG measures to identify the detailed item scorings to draw an accurate conclusion, which could help develop better policy implications (Yilmaz, 2022). As a result, there is limited understanding of how each ESG dimension individually influences the cost of debt, particularly in the hotel industry. This study addresses the gap by disaggregating ESG into the sub dimensions, which will provide deeper insights into the aspects of ESG in reducing debt financing costs within the hotel industry, contribute to reducing debt financing costs in the hotel sector.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

Research methodology represents a systematic and rigorous approach to investigating relevant information, involving key stages such as defining and refining the research problem, developing theories or hypotheses, gathering, organizing, and analyzing data, and drawing conclusions. The results are then evaluated to determine their consistency with the study's initial assumptions.

The core objectives of this research is to explore the relationship between the principal dimensions of Environmental, Social and Governance (ESG) practices, their subdimensions, and the cost of debt in the hotel industry. This chapter covers several critical elements of the study, including the research design, data collection techniques, sampling strategy, choice of research instruments, construct measurement, data processing, and data analysis.

3.2 Research Method

This study adopts a quantitative research design, using panel data econometric analysis to examine the relationship between ESG performance and the cost of debt with the effect of post and pre pandemic. The sample comprises the 68 largest publicly listed hotel companies worldwide, selected based on market capitalization, covering the period from 2017 to 2024.

Market capitalization defines as to represent the total market value of a listed company and is calculated as the product of its share price and the number of outstanding shares.

Data on ESG performance, including both aggregate ESG scores and ten sub-dimension indicators, along with firms' financial information, are from Refinitiv Eikon/LSEG.

The dependent variable is the debt cost before tax and after tax, measured by accounting-based proxies such as the proportion of the interest expense relative to total debt. The independent variables are the total ESG score and the individual environmental, social, and governance factors and their corresponding sub-dimensions. The dummy variables is pre and post pandemic. Firm-specific attributes are controlled by the control variables provided by the firms' size.

The study applies panel data regression methods, using Pooled Ordinary Least Squares (POLS) to identify the best-fitting model. To ensure reliability, robustness checks are carried out. All statistical analyses are conducted with EViews software.

3.3 Data Source and Sample Selection

The study focuses on the top 68 hotel companies worldwide, selected according to their market capitalization rankings. According to the Appendix 1, only publicly listed hotel firms are included, while non-listed companies are excluded. Fikru et al. (2024) found that companies with larger market capitalizations tend to engage more actively in Environmental, Social, and Governance (ESG) practices, which in turn enhances their ESG performance and the quality of their disclosures. Concentrating on the largest firms ensures the inclusion of companies with strong capital market visibility, relatively extensive disclosure, and consistent ESG data availability. Market capitalization figures are sourced from *Companies Market Cap*, a financial platform that offers real-time rankings of the world's largest firms.

The study spans the years 2017–2024, a period chosen to capture the impact of the Covid-19 pandemic. The disruption in 2020 provides a quasi-experimental setting (Feng & Wu, 2021). This timeframe enables a comparison of pre- and post-pandemic dynamics, facilitates the assessment of ESG resilience during crisis and recovery, and provides sufficient longitudinal data for robust statistical evaluation.

3.4 Operationalization of Variable

The study examines the impact of ESG performance on the cost of debt among the world's top 68 hotel companies.

3.4.1 Dependent Variable

In this study, the dependent variable is the cost of debt, representing the total interest expense a firm incurs when raising borrowed capital. It reflects the effective interest rate paid on outstanding liabilities, such as loans and other forms of debt. It is closely tied to a firm's creditworthiness, higher costs indicate that lenders perceive the firm as carrying greater risk. This measure can be calculated either on a pre-tax basis or adjusted to reflect the tax advantages of interest deductibility.

3.4.2 Independent Variable

The key independent variable is the ESG score, obtained from Refinitiv's database. This measure is broken down into three core dimensions, environmental, social, and governance along with ten sub-dimensions:

Environmental Score : Evaluates a company's impact on natural systems, including air, land, water, and ecosystems.

Social Score : Reflects the company's commitment to social responsibility and ethical practices.

Governance Score : Assesses the extent to which corporate systems and processes ensure that executives and board members act in the best interests of long-term shareholders.

Environmental Sub-dimensions

Resource Use Score : Efficiency in reducing environmental resource consumption (e.g., energy, water).

Emissions Score : Effectiveness in reducing environmental emissions, particularly carbon and CO₂.

Innovation Score : Ability to develop environmentally friendly products, services, and opportunities.

Social Sub-dimensions

Workforce Score : Covers employee relations, health and safety, diversity, labour standards, training, and overall employment quality.

Human Rights Score : Commitment to upholding human rights and avoiding controversial sourcing.

Community Score : Engagement with local communities and contribution to social programs.

Product Responsibility Score : Accountability for product quality, safety, and ethical considerations.

Governance Sub-dimensions

Management Score : Effectiveness of management structure, leadership, and executive compensation practices.

Shareholder Score : Protection of shareholder rights and equitable treatment.

CSR Strategy Score : Integration of corporate social responsibility principles into strategy and operations.

Table 5: Variables of Study

Independent Variable	Definition	Source
ESG	Environmental, social, and governance scores	LSEG
ESG – 10 sub dimension	Resources used, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholder and corporate social responsibility strategy	LSEG
Dependent Variable	Definition	Source
Cost of Debt	Effective annual interest rate a company pays on its borrowed funds, such as loans and bonds	Income Statement / Balance Sheet

3.4.3 Control Variable

Firm size is an important control variable in research exploring the link between Environmental, Social, and Governance (ESG) practices and financial outcomes such as the cost of capital and firm performance (Ok & Kim, 2019). Different proxies are commonly employed to capture firm size. For instance, Ok & Kim (2019) use the natural logarithm of total assets, while Gonçalves et al. (2022) suggest the natural logarithm of market capitalization, or market value of equity.

3.5 Model Specification

Model 1A: Overall ESG score Model

$$COD_{bt} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Post\ Pandemic_t + \beta_3 (ESG_{it} \times Post\ Pandemic_t) + \beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 Probability_{it} + \epsilon_{it}$$

- COD_{bt} : Cost of debt before tax for firm
 ESG_{bt} : ESG score (overall)
 $Post\ Pandemic_t$: Dummy variable (0 = pre-pandemic, 1 = post-pandemic)
 $ESG_{bt} \times Post\ Pandemic_t$: Interaction term to capture difference in ESG impact after the pandemic
 Controls : Firm size

Model 2A: Overall ESG score Model

$$COD_{at} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Post\ Pandemic_t + \beta_3 (ESG_{it} \times Post\ Pandemic_t) + \beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 Probability_{it} + \epsilon_{it}$$

- COD_{at} : Cost of debt after tax for firm
 ESG_{at} : ESG score (overall)
 $Post\ Pandemic_t$: Dummy variable (0 = pre-pandemic, 1 = post-pandemic)
 $ESG_{at} \times Post\ Pandemic_t$: Interaction term to capture difference in ESG impact after the pandemic
 Controls : Firm size

Interpretation:

β_1 = ESG effect on COD before pandemic

β_3 = Change in ESG effect after pandemic

$\beta_1 + \beta_3$ = ESG effect after pandemic

Model 1B: ESG Pillars Model (E, S, G)

$$COD_{bt} = \beta_0 + \beta_1 Env_{it} + \beta_2 Soc_{it} + \beta_3 Gov_{it} + \beta_4 PostPandemic_t + \beta_5(Env_{it} \times PostPandemic_t) + \beta_6(SOC_{it} \times PostPandemic_t) + \beta_7(GOV_{it} \times PostPandemic_t) + \beta_8 Controls_{it} + \epsilon_{it}$$

- COD_{bt}** : Cost of debt before tax for firm
 $Env_{bt}, Soc_{bt}, Gov_{bt}$: ESG pillar scores
 $Post Pandemic_t$: Dummy variable (0 = pre-pandemic, 1 = post-pandemic)
Controls : Firm size

Model 2B: ESG Pillars Model (E, S, G)

$$COD_{at} = \beta_0 + \beta_1 Env_{it} + \beta_2 Soc_{it} + \beta_3 Gov_{it} + \beta_4 PostPandemic_t + \beta_5(Env_{it} \times PostPandemic_t) + \beta_6(SOC_{it} \times PostPandemic_t) + \beta_7(GOV_{it} \times PostPandemic_t) + \beta_8 Controls_{it} + \epsilon_{it}$$

- COD_{at}** : Cost of debt after tax for firm
 $Env_{at}, Soc_{at}, Gov_{at}$: ESG pillar scores
 $Post Pandemic_t$: Dummy variable (0 = pre-pandemic, 1 = post-pandemic)
Controls : Firm size

$Env_{it}, Soc_{it}, Gov_{it}$ = ESG pillar scores

Interaction terms test whether each pillar's effect on COD changes after the pandemic

Interpretation:

$\beta_1, \beta_2, \beta_3$ = ESG pillar effects pre-pandemic

$\beta_5, \beta_6, \beta_7$ = Change in each pillar's effect post-pandemic

$Sum (\beta_1 + \beta_5, etc.)$ = Post-pandemic effects

Model 3A: Full Sub-Dimension Model (Optional)

$$\begin{aligned}
 COD_{bt} = & \beta_0 + \sum_{k=1}^{10} \beta_k ESGSubDim_{bt}^k + \beta_{11} PostPandemic_t \\
 & + \sum_{k=1}^{10} \gamma_k (ESGSubDim_{bt}^k \times PostPandemic_t) \\
 & + \beta_{12} Controls_{it} + \epsilon_{it}
 \end{aligned}$$

$ESGSubDim_{it}^k$ = Each of the 10 sub-dimensions (Resource Use, Emissions, Innovation, Workforce, etc.)

Interaction terms (γ_k) show whether the influence of each sub-dimension changed post-pandemic.

Model 3A: Full Sub-Dimension Model (Optional)

$$\begin{aligned}
 COD_{at} = & \beta_0 + \sum_{k=1}^{10} \beta_k ESGSubDim_{at}^k + \beta_{11} PostPandemic_t \\
 & + \sum_{k=1}^{10} \gamma_k (ESGSubDim_{at}^k \times PostPandemic_t) \\
 & + \beta_{12} Controls_{it} + \epsilon_{it}
 \end{aligned}$$

$ESGSubDim_{it}^k$ = Each of the 10 sub-dimensions (Resource Use, Emissions, Innovation, Workforce, etc.)

3.6 Software Used

The statistical analysis will be conducted using EViews, which provides comprehensive tools for panel data analysis, including fixed effects, random effects, and the Hausman test. The software also enables robust standard error estimation and diagnostic checks for panel models. ESG and financial variables are sourced from LSEG/Refinitiv Datastream, while EViews is also employed for data preprocessing and generating basic descriptive statistics.

3.7 Data Analysis Plan

3.7.1 Descriptive Analysis

Descriptive statistics will be reported for the key variables: cost of debt (COD), ESG scores (overall, pillars, and sub-dimensions), and firm-level controls such as size. Indicators including the mean, median, minimum, maximum, and standard deviation will be presented to illustrate the distribution and variability of the data across the sample of 40 hotel companies. This approach provides insights into the general characteristics of the dataset. For example, whether COD levels are relatively high or low in the sector and how ESG performance differs across firms.

To assess the potential changes brought by the COVID-19 pandemic, the dataset will be split into two periods:

- Pre-pandemic (2017–2019)
- Post-pandemic (2020–2023)

Including pre and post-pandemic is to account for a structural changes in the hotel industry and to examine do ESG performance will affect cost of debt differently before and after COVID-19.

Mean values of COD and ESG scores (overall, pillar, and sub-dimensions) will be compared across the two periods.

3.7.2 Inferential Analysis

Hausman Test

- Purpose** :To determine whether the Fixed Effects (FE) model or Random Effects (RE) model is more appropriate for the panel regression.
- Method** :The Hausman Specification Test compares the coefficients of the FE and RE models.
- Implication** :Choosing the correct model ensures unbiased and consistent estimators. If FE is selected, the analysis controls for unobserved firm-specific characteristics. If RE is selected, it assumes these characteristics are random and uncorrelated with the regressors, allowing for more efficient estimators.

Unit Root Test

- Purpose** :To determine whether the panel data variables are stationary over time. Non-stationary variables may produce spurious regression results.
- Method** : Panel unit root tests, Levin–Lin–Chu (LLC), Im–Pesaran–Shin (IPS) will be applied.
- Implication** :Stationarity helps improve the reliability of regression estimates and prevents misleading relationships.

Heteroskedasticity Test

- Purpose** : To test whether the variance of the error terms remains constant across observations.
- Method** : Breusch–Pagan test or White’s test will be applied to detect the presence of heteroskedasticity.
- Implication** : The presence of heteroskedasticity results in inefficient estimators and biased standard errors. If detected, robust standard errors such as White-Huber will be applied.

3.7.3 Diagnostic Analysis

Autocorrelation Test

- Purpose** : To test whether residuals are correlated across time, which violates regression assumptions.
- Method** : Durbin–Watson (DW) test will be used for time-series data; for panel data, the Wooldridge test will be applied.
- Threshold** : DW values close to 2 suggest no autocorrelation.
- Implication** : If autocorrelation is present, standard errors may be biased. Solutions include using clustered standard errors or applying a panel-corrected standard error model.

Multicollinearity Test

- Purpose** : To assess whether the independent variables (ESG, its pillars, sub-dimensions, and control variables) exhibit high correlations with one another.
- Method** : Variance Inflation Factor (VIF) and tolerance values will be calculated.
- Threshold** : VIF > 10 (or tolerance < 0.1) indicates multicollinearity.
- Implication** : Severe multicollinearity inflates standard errors, making it difficult to interpret individual variable effects.

VIF Value	Interpretation
1 – 5	Acceptable → No multicollinearity problem
5 – 10	Moderate → Could be concern
> 10	Severe → Serious multicollinearity

3.8 Ethical Considerations

This study is carried out in line with established ethical research standards. All data are secondary data obtained from Refinitiv, which is a widely recognized financial and ESG database. The platform is accessible through subscription. Therefore, all data, analysis and findings are presented with integrity, without any manipulation or misrepresentation of results. Proper academic referencing will be applied to avoid plagiarism. All data is cited, ensure the studies is transparent, ethical and reliable. The study is conducted independently and seeks to contribute to the understanding of ESG practices and financing in the hotel industry.

3.9 Summary

Chapter 3 presents the methodology employed in this study. It begins with an introduction to the purpose of research methodology, emphasizing its role in aligning the investigation with the study's objectives. A quantitative approach using panel data regression is applied to examine the relationship between ESG and the cost of debt. The study conducted using the 68 largest global hotel firm. The hotel firms was chosen by market capitalization, covering 2017 – 2024. This used to account the pre and post COVID-19 effects. The ESG and financial data were retrieved from Refinitiv. The dependent variable is the cost of debt, while the independent variables consist of the overall ESG score, its environmental, social, and governance dimensions, and ten sub-dimensions. The study applies pooled OLS regression, supplemented with diagnostic tests for multicollinearity, heteroskedasticity, autocorrelation, and model specification. Robust standard errors were used where necessary. The secondary data from Refinitiv, a reliable databases was analyzed with transparency, proper referencing, and without manipulation.

CHAPTER 4 DATA ANALYSIS

4.0 Introduction

This chapter offers a comprehensive examination of the empirical findings attained in this study. This section defined the procedures used to interpret the data collected, ensure that the analysis is in conformity with the research objectives and methodological framework. This chapter presents the data in an organised way using suitable analytical approaches. This structure makes it possible to identify important insights.

This chapter also offers critical analysis that links the empirical results to the research question and existing literature. It not only emphasises the significance of the findings but also establishes the foundation for the discussion and conclusion chapter. This data analysis chapter is an essential part of the research since it offers evidence-based perspectives that contribute to a deeper understanding of the research topic.

4.1 Descriptive Statistics

Table 4 presents the descriptive statistics for the variables. This section presents every variable used in the study, including the dependent variables (Cost of Debt Before Tax and After Tax), the independent variables (ESG scores and their sub-pillars), and the control variable (Firm Size). The analysis includes mean, standard deviation, maximum, and minimum values, providing an overview of the distribution and variability within the dataset.

The results show that the mean cost of debt before tax is 0.0427, indicating that firms incur an average borrowing cost of approximately 4.27%, while the after-tax cost of debt averages slightly lower at 0.0393 due to the tax shield effect. Both measures exhibit considerable variation, particularly the after-tax cost of debt, which ranges from 0.2478 to 0.4567, suggesting substantial differences in firms' financial structures and tax environments.

The ESG score has a mean of 60.97, which the businesses are performing moderately in terms of sustainability. A standard deviation of 16.50 reflects noticeable variation in ESG engagement. The values range from 17.12 to 90.86, showing that firms in the sample differ widely in their ESG practices.

The average Environmental score is 66.69, showing relatively strong environmental initiatives. However, the high standard deviation (24.05) and wide range (1.11 to 98.67) indicate substantial differences across firms. The standard deviation for resource usage is 27.58, while the mean is 69.12. This implies significant variation in resource utilisation efficiency. The mean for emission is 71.85 while the standard deviation is 25.40. This shows significant heterogeneity and a moderately high emission-related performance. The mean for innovation is 23.70 while the standard deviation is 30.52. The significantly low mean and high variability imply that enterprises' innovation practices are comparatively inadequate and inconsistent.

The Social score averages 64.20, also reflecting moderate to strong performance, with a standard deviation of 18.71. Workforce has the mean of 70.36 which indicates generally good employee-related practices. The mean of human rights is 56.31 and 34.31 for the standard deviation. This indicates large variation with uneven performance in protecting human rights across firms. Community has a mean of 73.18 which indicates firms score high in community-related initiatives. The mean of the product responsibility of 58.35. This shows a moderate performance with considerable variability.

The Governance score has a mean of 58.31, reflecting average governance quality with a standard deviation of 19.98. The mean of the management is 59.08, shows a moderate management quality but with wide variation. The mean of the shareholders is 57.47 while the standard deviation is 25.42 indicating the variability in shareholder protection and rights. CSR strategy has the mean of 55.68 and standard deviation of 30.18. The wide range (1.01 to 99.02) suggests that commitment to CSR strategy differs drastically among firms.

Table 6: Descriptive Analysis of the Variables

Variable	Mean	Std Dev	Maximum	Minimum
Cost of Debt (Before Tax)	0.042675	0.023449	0.287500	-0.009500
Cost of Debt (After Tax)	0.039332	0.052937	0.456700	-0.247800
ESG	60.968431	16.504202	90.860000	17.120000
E	66.686439	24.049070	98.670000	1.106546
Resource Use	69.116461	27.578945	99.460000	0.320000
Emission	71.851845	25.397006	99.670000	0.330000
Innovation	23.703396	30.517319	93.750000	1.003338
S	64.199876	18.711162	95.050000	20.020000
Workforce	70.364809	24.246885	99.780000	4.580000
Human Rights	56.308487	34.314004	98.190000	0.440000
Community	73.176658	23.138368	99.810000	4.400000
Product Responsibility	58.346409	25.238224	99.730000	1.479766
G	58.310025	19.981808	95.050000	9.160000
Management	59.084917	26.707226	99.780000	0.670000
Shareholders	57.468452	25.418294	99.680000	1.000000
CSR Strategy	55.676388	30.182123	99.020000	1.009922
Firm Size	9.557139	1.772918	15.363210	6.896998

4.2 Inferential Statistic

4.2.1 Hausman Test Results

In this study, the structure of the dependent variables and the connection between unobserved company characteristics and ESG indicators influenced the decision in this study between Fixed Effects (FE) and Random Effects (RE) models. Table 7 shows that hausman test is performed and its results reveal that the p-value of the Model 1A, 1B, 2A, 2B are more than 0.05. which means that the null hypothesis is failed to reject and the random effects model is preferred. The p-value of the Model 1C, 2C are less than 0.05. which means that the null hypothesis is rejected, and the fixed effects model is preferred.

Table 7: Hausman Test Result

	P – value	Decision Rule
Model 1A	0.5754	RE is preferred
Model 1B	0.5121	RE is preferred
Model 1C	0.0000	FE is preferred
Model 2A	0.3480	RE is preferred
Model 2B	0.4006	RE is preferred
Model 2C	0.0000	FE is preferred

4.2.2 Unit Root Test Results

Table 8 shows the results of the unit root test of the variables. There are two unit root test conducted, which is the Levin–Lin–Chu (LLC) and Im–Pesaran–Shin (IPS) W stat. Both the panel unit root tests show that all ESG-related variables are stationary at level, as indicated by significantly negative test statistics and p-values below 1%. The null hypothesis of a unit root is rejected and conclude that the variables do not require differencing. This confirms that the panel regression can be estimated using level data without concerns of non-stationarity.

Table 8: Unit Root Test Result

	Levin, Lin & Chu	Im, Pesaran and Shin-W stat
ESG	-18.7980*** (0.0000)	-2.47288*** (0.0067)
E	-11.1446*** (0.0000)	-3.60630*** (0.0002)
Resource Use	-28.8113*** (0.0000)	-4.05669*** (0.0000)
Emission	-79.6120*** (0.0000)	-9.65861*** (0.0000)
Innovation	-33.9166*** (0.0000)	-6.88253*** (0.0000)
S	-23.7030*** (0.0000)	-5.74361*** (0.0000)
Workforce	-8.24605*** (0.0000)	-2.45655*** (0.0070)
Human Rights	-22.8192*** (0.0000)	-9.19803*** (0.0000)
Community	-20.6496*** (0.0000)	-4.15256*** (0.0000)
Product Responsibility	-120.325*** (0.0000)	-11.4497*** (0.0000)
G	-9.53863*** (0.0000)	-3.63173*** (0.0001)
Management	-16.1999*** (0.0000)	-4.15153*** (0.0000)
Shareholder	-15.4283*** (0.0000)	-4.43037*** (0.0000)
CSR Strategy	-21.0873*** (0.0000)	-7.38224*** (0.0000)

Note: ***, ** and * denote that the test statistic is significant at the 0.01, 0.05 and 0.10 levels, respectively.

4.2.3 Heteroskedasticity Test Results

Table 9 shows the heteroskedasticity result of Model 1C and Model 2C. Heteroskedasticity tests were only performed for Model 1C and Model 2C because only 2 of these models are the fixed effects models. The fixed effects model requires checking whether the error variance is constant. The p-values for both models 0.0000 and 0.0109 are below 0.05, indicating heteroskedasticity. Therefore, robust standard errors were applied to ensure valid inference. Robust standard errors will be fixed using the panel correlated standard errors (PCSE).

Table 9: Heteroskedasticity Test Results

	P – value	Decision Rule
Model 1C	0	Heteroskedasticity
Model 2C	0.0109	Heteroskedasticity

4.3 Diagnostic Statistic

4.3.1 Autocorrelation Test Results

Table 10 shows that autocorrelation test is performed. The Lagrange Multiplier (LM) serial correlation test was applied to all six panel regression models. The test results of p-values is 0.0000 for every model. This indicates a strong rejection of the null hypothesis of no serial correlation. This demonstrates the error term in all models. Serial correlation may bias the standard errors and lead to invalid statistical inferences. Therefore, the robust standard errors will be fixed using the panel correlated standard errors (PCSE).

Table 10: Autocorrelation Test Results

	P – value	Decision Rule
Model 1A	0.0000	Serial correlation is present.
Model 1B	0.0000	Serial correlation is present.
Model 1C	0.0000	Serial correlation is present.
Model 2A	0.0000	Serial correlation is present.
Model 2B	0.0000	Serial correlation is present.
Model 2C	0.0000	Serial correlation is present.

4.3.2 Multicollinearity Test Results

Table 11 shows that multicollinearity test is performed. The multicollinearity is tested using the Variance Inflation Factor (VIF) for all variables. The results show that all VIF values are below the commonly accepted threshold of 5, indicating the absence of harmful multicollinearity among the independent variables. Therefore, multicollinearity is not a concern in this study, and all variables were retained in the regression models. The coefficients are stable, and the estimated effects can be interpreted reliably.

Table 11: Multicollinearity Test Result

Variables	VIF
ESG	1.079387
E	2.183066
Resource Use	4.475376
Emission	3.066613
Innovation	1.182716
S	1.930584
Workforce	2.77201
Human Rights	2.090787
Community	1.245526
Product Responsibility	1.344891
G	1.074073
Management	1.089213
Shareholder	1.122628
CSR Strategy	2.773881
Firm Size	1.460532

4.4 Model Result

Table 12 shows the findings of this study show an unexpected but significant trend regarding the relationship between ESG performance and the cost of debt in the hotel industry. The findings show that higher ESG performance is linked to higher cost of debt, contradicting the widely held notion that higher ESG performance lower the cost of debt. Model 1A shows overall ESG score significantly increases the cost of debt. Model 1B shows both Social and Governance significantly increase the cost of debt. This suggest that investments in community projects, ethical practices and community projects may be perceived as costly endeavours with uncertain short term financial rewards. Model 1C shows several number of ESG activities continue to exhibit positive and significant effects on cost of debt. The emission management, workforce initiatives, product responsibility pressure and governance-related pressures will all contribute to higher cost of debts. These findings highlight that hotel industry engaging in more extensive ESG practices may be signalling greater spending, compliance obligations. Lenders may therefore include a larger risk premium when making lending decisions.

Table 12: Model Result Cost of Debt Before Tax

Dependent Variable: Cost of Debt (Before Tax)			
Variable	Model 1A	Model 1B	Model 1C
ESG	0.366457 (0.127679) ***		
ESG_P	0.074027 (0.116266)		
E		-0.006111 (0.041336)	
S		0.352232 (0.151205) **	
G		0.314633 (0.123939) **	
E_P		-0.029031 (0.066477)	
S_P		0.004304 (0.201009)	
G_P		0.188735 (0.110474) *	
Resource Use			0.064139 (0.063735)
Emission			0.112806 (0.035022) ***
Innovation			-0.014947 (0.035551)
Workforce			0.283931 (0.130982) **
Human Rights			0.007265 (0.036960)
Community			-0.001397 (0.087102)
Product Responsibility Management			0.034950 (0.064848) 0.078427 (0.064970)
Shareholders			0.059575 (0.080439)
CSR Strategy			0.067739 (0.057212)
Resource Use _ P			0.228227 (0.194182)
Emission_P			-0.208011 (0.194905)
Innovation_P			0.091685 (0.030736) **
Workforce_P			0.079550 (0.166942)
Human Rights_P			-0.179939 (0.144069)
Community_P			-0.059738 (0.242742)
Product Responsibility_P Management_P			0.308220 (0.100840) ** 0.130759 (0.079487) *
Shareholders_P			-0.044584 (0.038041)
CSR Strategy_P			-0.090867 (0.152319)
Firm Size	-0.145867 (0.042683) ***	-0.134187 (0.045112) ***	-0.224972 (0.133583) *
C	-3.551898 (0.508137) ***	-4.847990 (0.726688) ***	-3.601847 (1.238743) ***

	Weighted Statistic.		
R-squared	0.136781	0.178401	0.726806
Adjusted R-squared	0.125785	0.157198	0.661962
F-statistic	12.43868***	8.414125***	11.20859***
Durbin Watson Statistic	1.637902	1.650173	2.054595

Table 13 shows the findings of the after-tax cost of debt models reveal a consistent pattern, higher ESG performance is associated with higher cost of debt among hotel industry firms. This finding runs contrary to most prior studies, which indicating that higher ESG performance reduces firm risk and thus lowers financing costs. Instead, the positive and significant coefficient in Model 2A shows that hotel industry may view ESG engagement as a cost-increasing activity. Model 2B reveal that the analysis of ESG pillars provides deeper insight into this relationship. Among the three pillars, the Social (S) pillar displays a strong and positive relationship with after-tax cost of debt. This shows that socially driven initiatives could increase operational expenses in the hotel sector. Meanwhile, the Environmental (E) and Governance (G) pillars do not show significant effects, indicating that broad ESG assessments may mask the cost implications specific to social commitments. Model 2C further disaggregates ESG into sub-dimensions, offering a more granular explanation for the observed positive relationship. Emission, Emission_P, Innovation_P, Product Responsibility_P, and Management_P show significant positive associations with cost of debt. This trend suggests that specific ESG investments may require substantial capital expenditure. Additionally, the significant negative effect of Shareholders_P shows that firms rated poorly in shareholder-related governance practices face lower borrowing costs.

Table 13: Model Result Cost of Debt after Tax

Dependent Variable: Cost of Debt (After Tax)			
Variable	Model 2A	Model 2B	Model 2C
ESG	0.415780 (0.131959) ***		
ESG_P	-0.073275 (0.156619)		
E		0.007952 (0.068946)	
S		0.369887 (0.144445) ***	
G		0.226331 (0.160906)	
E_P		-0.080567 (0.150960)	
S_P		0.039615 (0.258209)	
G_P		0.201545 (0.159566)	
Resource Use			-0.038553 (0.055296)
Emission			0.096945 (0.047279) **
Innovation			0.013533 (0.050181)
Workforce			0.226496 (0.281681)
Human Rights			0.001323 (0.045206)
Community			0.059085 (0.119896)
Product Responsibility Management			0.039605 (0.103360)
Shareholders			0.041146 (0.088276)
CSR Strategy			-0.011019 (0.085720)
Resource Use_P			0.066964 (0.078353)
Emission_P			0.359668 (0.318805)
Innovation_P			0.508968 (0.302749) **
Workforce_P			0.103012 (0.052908) **
Human Rights_P			0.052790 (0.259723)
Community_P			-0.215681 (0.160153)
Product Responsibility Management_P			-0.043676 (0.325646)
Shareholders_P			0.374611 (0.135222) ***
CSR Strategy_P			0.170505 (0.097774) *
Firm Size	-0.151366 (0.039311) ***	-0.138015 (0.037724) ***	-0.209371 (0.185146)
C	-3.806307 (0.600367) ***	-4.696496 (0.768344) ***	-3.534158 (1.740542) **

Weighted Statistics			
R-squared	0.082508	0.103712	0.636538
Adjusted R-squared	0.070515	0.079969	0.547497
F-statistic	6.879510***	4.378143 ***	7.148817 ***
Durbin Watson Statistic	1.756248	1.767007	2.239054

CHAPTER 5 CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter provides an extensive conclusion to the study by summarizing the key empirical findings from the analysis of ESG performance and the relationship with cost of debt among hotel industry firms. This chapter summarizes the important findings to answer the research objectives in the preceding chapters. Furthermore, limitations found during the research process are highlighted to provide transparency of the study. This chapter concludes with suggestions for future research, emphasizing possible areas for additional investigation and methodological advancements that can strengthen the validity and generalizability of later investigations.

5.1 Summary of Major Findings

This study examined how Environmental, Social, and Governance (ESG) performance affected hotel industry enterprises' debt costs before and during the COVID-19 pandemic.

The significant ESG coefficients in Model 1A (before tax) and Model 2A (after tax) indicate that overall ESG performance is positively and significantly associated with both before-tax and after-tax cost of debt in the pre-pandemic period. Contrary to the generally anticipated negative association seen in earlier research, this suggests that hotels with higher ESG scores had higher borrowing costs. However, the post-pandemic ESG impacts (ESG_P in Models 1A and 2A) become insignificant. This indicates that lenders no longer consider overall ESG scores a relevant predictor of credit risk (Bonacorsi et al., 2024). This shift suggests that the significance of aggregated ESG ratings diminished in the post-pandemic environment. ESG increases cost of debt pre-pandemic, but ESG has no significant effect on cost of debt post-pandemic.

Before the pandemic, the cost of debt in Model 1B is positively and significantly correlated with the Social (S) and Governance (G) pillars. This

suggests that higher social spending and stronger governance structures increased operational costs, lead lenders to charge higher interest rates (Goss & Roberts, 2010). The pre-pandemic shows no significant impact to the Environmental pillar (E). Only the Social (S) pillar remain significant for the after-tax cost of debt after the pandemic (Model 2B). This suggest that lenders still consider to view social obligation as costly activities in the post-pandemic period (Chiu et al., 2021). The shift in ESG focus during the pandemic did not significantly affect lenders' credit risk assessments, as all post-pandemic pillar variables (E_P, S_P, and G_P) are statistically insignificant. The cost of debt of Social (S) and Governance (G) is increase before pandemic. After pandemic, Social (S) after-tax remains significant, but all pillar post-pandemic effects (E_P, S_P, G_P) are insignificant.

The analysis of the ESG sub-dimensions (Models 1C and 2C) provides the significant effect that specific ESG activities rather than aggregated ESG scores play a central role in influencing firms' borrowing costs. In the before-tax models, several pre-pandemic sub-dimensions are significant, including Emission, Workforce, and the post-pandemic interaction terms for Innovation, Product Responsibility, and Management. All are associated with higher cost of debt. This suggests that lenders perceive these ESG initiatives as resource-intensive, potentially increasing operational or financial risks (Kandpal et al., 2024). Emission, Emission_P, Innovation_P, Product Responsibility_P, and Management_P all continue to raise the cost of debt for businesses in the after-tax models. Interestingly, Shareholders_P exhibits a negative and significant relationship, suggesting that shareholder-oriented activities produce risk-reducing signals in the post-pandemic period. Overall, the results emphasize the importance of ESG sub-dimensions over the total ESG score and the fact that lenders evaluate ESG components individually, particularly after the pandemic.

The expectation that stronger governance mechanisms reduce the cost of debt is not supported by the findings. In the before-tax pre-pandemic period, the Governance pillar (G) shows a positive and significant impact on cost of debt (Model 1B), indicating that stronger governance is associated with higher borrowing costs. Therefore, the governance actions might be seen as costly interventions is further supported by the fact that governance-related sub-

dimensions like Management_P and Product Responsibility_P considerably raise the cost of debt. The governance pillar become insignificant in the after-tax models (Model 2B), but a number of governance-related sub-dimensions still exhibit positive significance. This indicates that lenders continue to view governance activities as costly rather than risk-reducing (Tung, 2009). This results in two clear conclusions where stronger governance does not lower firms' borrowing costs, and post-pandemic governance actions continue to be viewed as cost-increasing.

ESG theory argues that stronger ESG performance should reduce a firm's cost of debt. However, the empirical findings in this study show opposite to theory. Several ESG sub-dimensions increase firms' borrowing costs.

Hotels rely on energy-intensive operations, run physically huge facilities, and need ongoing upkeep (Singh et al., 2024). A significant upfront investment is necessary for emissions reduction programmes, digital innovation, workforce development, or governance upgrades. Higher ESG scores may be interpreted by lenders as requiring more capital, more funding, and more operational uncertainty throughout implementation. Besides, COVID-19 severely affected the hotel industry, making lenders extremely cautious (Kozhamzharova et al., 2022). Post-pandemic ESG engagements especially Innovation_P, Product Responsibility_P, and Management_P may be interpreted as, costly restructuring or resource allocation away from core survival activities. As a result, lenders may penalize firms that invest heavily in ESG instead of conserving liquidity

5.2 Implications of the Study

5.2.1 Practical Implication

First, business should understand that ESG initiatives may initially increase the cost of debt because of the capital-intensive nature of environmental and social investments even if they are crucial for long-term sustainability, stakeholder trust, and corporate reputation. Hotels should carefully plan and phase their ESG initiatives activities to balance short-term financial impacts with long-term value creation. Businesses should give priority to ESG sub-dimensions that convey favorable signals to creditors, like shareholder related governance procedures, which were linked in this study to lower borrowing costs after taxes. Businesses can improve financial results and sustainability performance at the same time with this focused approach.

5.2.2 Managerial Implication

Managers must assess the financial implications of ESG initiatives particularly those related to emissions management, workforce initiatives, and innovation projects. Aligning ESG strategies with operational efficiency and profitability is therefore crucial to prevent unforeseen rises in financing costs. Managers should consider that lenders' assessment criteria have evolved post-pandemic. Lenders are increasingly examining the financial impact of ESG actions rather than depending only on aggregate ESG scores. This shift suggests that managers need to design ESG strategies that are not only comprehensive but also demonstrate clear financial justification for each sub-dimension.

5.3 Limitations of the Study

This study has several numbers of limitations that should be acknowledged. First, the sample is limited to hotel firms only, which limits the findings' applicability to other industries where ESG practices, regulatory pressures, and financing structures may differ substantially. Compared to other industries, the hotel industry is service-oriented and asset-heavy, which could affect how lenders view ESG activities. Second, the dataset is limited by the availability of financial data and ESG scores, particularly regarding post-pandemic observations. This may limit the ability to fully capture long-term shifts in lender behavior after COVID-19. Third, the study relies on secondary ESG ratings, which could introduce measurement bias due to differences in scoring, weighting, and accuracy. Fourth, the study concentrates on conventional financial indicators and does not account for qualitative factors, such as management credibility, lender–borrower relationships, or firm-level ESG disclosure quality, which may also influence credit assessments.

5.4 Recommendations for Future Research

To strengthen the robustness and generalizability of ESG Cost of Debt research, future study may consider several enhancements. First, researchers should broaden the sample to include a variety of industries or conduct cross-industry comparisons to determine whether the relationships observed in the hotel industry hold in broader contexts. Second, it would be better to capture long-term changes in lender perceptions of ESG performance if the timeframe was expanded to cover more post-pandemic years. Third, future studies may improve measurement accuracy by incorporating multiple ESG rating providers or using firm-level ESG disclosures to reduce reliance on a single rating system. Finally, future research could examine moderating or mediating factors, like firm profitability, the quality of ESG disclosure, or regulatory frameworks to better understand the circumstances under which ESG contributes to higher or lower borrowing costs.

5.5 Conclusion

This study provides empirical findings that higher ESG performance in hotel companies is typically linked to higher borrowing costs, both before and after taxes, and both before and after the pandemic. Although pre-pandemic overall ESG scores were significant, post-pandemic studies show that lenders prioritise particular ESG sub-dimensions over total ratings. Lenders view ESG as a capital-intensive and operationally difficult investment, which is why social efforts, environmental emission management, innovation investments, and governance-related activities consistently raise the cost of loans. The sole exception is shareholder-related governance (Shareholders_P), which reduces the after-tax cost of debt, indicating certain ESG components can signal lower risk. ESG does not currently function as a risk-reducing factor in the hotel industry. Instead, it is seen as a strategic but costly commitment that may raise lenders' risk perception. Larger hotels benefit from cheaper borrowing costs since they are more financially stable, thus firm size is still a significant mitigating factor.

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Appendix

Appendix 1: List of the Sampled Firms

Rank	Name	Country
1	Marriott International	United States
2	Hilton Worldwide	United States
3	Oriental Land	Japan
4	Las Vegas Sands	United States
5	Galaxy Entertainment	Hong Kong
6	InterContinental Hotels Group	United Kingdom
7	Hyatt Hotels	United States
8	Wynn Resorts	United States
9	Indian Hotels Company	India
10	Host Hotels & Resorts	United States
11	Huazhu Hotels	China
12	Accor	France
13	MGM Resorts	United States
14	MGM China Holdings	Macau
15	Whitbread	United Kingdom
16	Genting Singapore	Singapore
17	Wyndham Hotels & Resorts	United States
18	Ryman Hospitality Properties	United States
19	Vail Resorts	United States
20	Choice Hotels International	United States
21	Atour Lifestyle	China
22	Wynn Macau	Macau
23	Covivio Hotels	France
24	Minor International	Thailand
25	Hilton Grand Vacations	United States
26	Melco Resorts & Entertainment	Hong Kong
27	NH Hotel Group	Spain
28	EIH Limited	India
29	Genting Malaysia Berhad	Malaysia

30	SJM Holdings	Hong Kong
31	Resorttrust	Japan
32	Fattal Holdings (Leonardo Hotels)	Israel
33	Mandarin Oriental	Hong Kong
34	Kangwon Land	South Korea
35	Genting Berhad	Malaysia
36	Chalet Hotels	India
37	Hotel Properties Limited	Singapore
38	Shangri-La	Hong Kong
39	Meliá Hotels International	Spain
40	Isrotel	Israel
41	Sunstone Hotel Investors	United States
42	Melco International Development	Hong Kong
43	Playa Hotels & Resorts	United States
44	Abu Dhabi National Hotels	United Arab Emirates
45	Dalata Hotel Group	Ireland
46	Xenia Hotels & Resorts	United States
47	Pebblebrook Hotel Trust	United States
48	Hongkong and Shanghai Hotels	Hong Kong
49	Central Plaza Hotel	Thailand
50	National Corporation for Tourism & Hotels	United Arab Emirates
51	Dan Hotels	Israel
52	Fujita Kanko	Japan
53	Miramar Hotel and Investment	Hong Kong
54	Summit Hotel Properties	United States
55	Marcus Corporation	United States
56	Skycity Entertainment Group	New Zealand
57	Delta Corp	India
58	Gulf Hotels Group	Bahrain
59	Hong Kong Ferry	Hong Kong
60	GreenTree Hospitality	China

61	Braemar Hotels & Resorts	United States
62	Millennium & Cophorne Hotels New Zealand	New Zealand
63	Banader Hotels Company	Bahrain
64	National Hotels Company (Bahrain)	Bahrain
65	Regal Hotels International	Hong Kong
66	Kuwait Hotels Company K.S.C.P.	Kuwait
67	Sotherly Hotels	United States
68	LuxUrban Hotels	United States