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Beyond Compliance: How ESG Reporting Influences the Cost of Capital in UK Firms

Ahmed Saber Moussa [1,*] and Mahmoud Elmarzouky [2]

[1] Customs Authority, Ministry of Finance Egypt, Nasr City 11635, Cairo, Egypt
[2] St Andrews Business School, University of St Andrews, The Gateway, North Haugh, St Andrews KY16 9RJ, UK; mahmoud.elmarzouky@st-andrews.ac.uk
* Correspondence: ahmd.saber@commerce.menofia.edu.eg

Abstract: This research examines the effect of ESG disclosure on the cost of capital for non-financial firms in the UK, indexed by the FTSE All-Share Index, during the period from 2014 to 2018. Using multivariate analysis with ordinary least squares (OLS), fixed effects, robust regression, and Tobit models, this research assesses the effect of ESG reporting, governance, and the cost of capital, including robustness checks using an alternative ESG indicator, the environmental pillar score. Contrary to expectations, ESG reporting is positively associated with the cost of capital. However, corporate governance moderates this relationship, weakening the positive correlation and reversing it to a negative association for firms with strong governance practices, consistent with the hypotheses. This research also finds that firm size, liquidity, profitability, and leverage, positively affect the cost of capital, while board size, independent board composition, audit committee independence, and auditor type do not significantly influence it. Notably, non-executive directors on the audit committee have a significant negative effect on the cost of capital. These findings are valuable for investors, companies, regulators, auditors, policymakers, and the academic and research community. Specifically, for investors, this study provides insights into how ESG disclosures can influence investment risks and returns, highlighting the importance of robust corporate governance. Companies can leverage these insights to enhance their governance practices and optimize their capital costs. Regulators and policymakers can use the findings to develop guidelines that encourage transparent ESG reporting and strong governance frameworks, thereby improving market stability and investor confidence. Auditors can utilize the results to better understand the effect of non-financial reporting on financial metrics, helping to provide more accurate audits and assessments. These findings inform investors, companies, regulators, auditors, and academia, in fostering a more sustainable and transparent financial environment.

Keywords: ESG reporting; cost of capital; stakeholder theory; legitimacy theory; principal component analysis

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1. Introduction

ESG disclosure has become prominent in the business sphere, as companies face pressure to share information on their sustainability performance and its impact on stakeholders. Based on a survey by KPMG (2020), 80% of the largest global corporations released sustainability reports in 2019, up from 75% in 2017. Moreover, global ESG assets under management reached USD 35.3 trillion in 2020, constituting over a third of the projected worldwide total of USD 140.5 trillion by 2025 (Global Sustainable Investment Alliance 2021; Bloomberg Intelligence 2021). These trends indicate that ESG disclosure is not only a matter of compliance or reputation, but that it is emerging as a strategic determinant that impacts the financial performance and value of companies. Firms and stakeholders, including investors and regulators, etc., face costs and benefits when ESG disclosure is required by rules or requested through optional rules. The costs consist of legal, reporting,

and proprietary expenses, while the benefits entail an opportunity to enhance the image of the firm, build trust, create a better work culture, and provide useful information (Ng and Rezaeella 2015). ESG disclosure conveys pertinent and dependable information for various stakeholders, depending on the regulations and needs of different areas (KPMG 2020).

This research investigates the impact of ESG-related disclosures by UK non-financial corporations on the cost of capital, a crucial element in a company's financial decision-making. The sample includes companies listed on the FTSE All-Share Index during the period from 2014 to 2018. The research examines two primary research questions and tests two associated hypotheses. The first question examines the interaction between ESG reporting and the cost of capital in the UK context, it is hypothesized that a positive relationship exists between the level of ESG reporting and a reduction in the cost of capital for firms, reflecting the market's valuation of sustainable practices. The second inquiry explores how corporate governance influences this relationship, and the hypothesis predicts that ESG reporting reduces the cost of capital more for firms with weaker governance. Previous research has shown that ESG disclosure can reduce risk, attract financing, and drive growth (e.g., Dhaliwal et al. 2011; Christensen et al. 2021; El Ghoul et al. 2011). However, the evidence is mixed and inconclusive. Stakeholder theory (Donaldson and Preston 1995; Mitchell et al. 1997; Freeman 1984) suggests that ESG disclosure can improve reputation, trust, and cooperation with stakeholders, lowering information asymmetry and the cost of capital. Legitimacy theory (Dowling and Pfeffer 1975; Suchman 1995; Deegan 2002) suggests that ESG disclosure can enhance social legitimacy, reducing social and political costs and the cost of capital. By concentrating on these theories, this study is designed to provide a more profound concept on the interplay between ESG reporting and the cost of capital. A void exists in the existing literature regarding the explicit connection between ESG reporting and the cost of capital in the UK, as well as the moderating impact of corporate governance on this relationship. Although corporate governance is recognized as a potential moderator, influencing the credibility and value of ESG reporting, most studies have not considered its impact. Therefore, there is a need to explore the direct association between the cost of capital and ESG reporting, while also examining how corporate governance acts as a moderator.

The core purpose of this investigation is to bridge this void by investigating the following research inquiries on the behavior of non-financial firms operating in the United Kingdom:

1. Within the UK's non-financial sector, what impact does ESG disclosure have on the cost of capital?
2. In non-financial firms in the UK, how does corporate governance moderate the interaction between ESG reporting and the cost of capital?

This research holds substantial theoretical and practical significance in the field of accounting. Theoretically, it investigates how ESG reporting and governance impact the cost of capital in the UK, addressing a gap in the existing literature and creating new research avenues. The findings demonstrate the positive influence of ESG disclosure on a company's financial performance and risk, moderated by governance practices. Practically, this research provides valuable guidance to stakeholders on ESG disclosure and governance, highlighting their importance in determining the cost of capital. These insights support informed decision-making, policy development, and practices that promote sustainable development, transparency, and value creation.

This research targets investors, companies, regulators, auditors, and academics, underscoring the strategic importance of robust ESG disclosure and governance. It shows that effective ESG strategies and strong governance can enhance a company's financial performance, reduce risk, improve reputation, attract capital, and drive sustainability initiatives. Furthermore, the research is applicable to a transparent, developed market, thereby contributing significantly to both knowledge and practice.

Investors benefit from insights that facilitate informed investment decisions, while companies can optimize their ESG strategies, leading to cost reduction and better access to capital. Regulators and policymakers can leverage this research to establish effective

ESG standards, ensure compliance through auditors, and create an environment conducive to sustainable development. By doing so, they can shape the interaction between ESG reporting, governance, and the cost of capital, ultimately promoting value creation for firms and society. Academically, this research enriches the field by empirically demonstrating the moderating influence of governance on the financial implications of ESG reporting, thus advancing accounting knowledge.

This paper consists of different sections, each focusing on specific topics. The background study and formulation of the hypotheses are covered in Section 2. The methodology is explained in Section 3, which includes the research design, sample selection process, data collection methods, and analytical techniques. Section 4 reports on the results of the statistical analyses, while Section 5 discusses these results. The paper concludes with Section 6, where the main insights from the paper are summarized.

2. Theoretical Foundation and Hypothesis Proposition

2.1. ESG Reporting and the Cost of Capital

ESG reporting has gained prominence in the UK, driven by regulatory mandates, investor demand, and societal expectations. The UK has instituted several regulatory frameworks and guidelines to enhance ESG transparency, including the Companies Act and the Task Force on Climate-related Financial Disclosures (TCFD) recommendations (Moussa 2024). These regulatory instruments require large companies to disclose information on their ESG performance, encompassing environmental impacts, employee relations, social contributions, and corporate governance mechanisms. The UK non-financial sector constitutes a heterogeneous assemblage of industries, encompassing technology, manufacturing, energy, retail, healthcare, and others. This sector constitutes a pivotal component of the UK economy, exerting significant influence on GDP and employment levels. According to the Office for National Statistics (ONS), the non-financial sector comprised approximately 55.6% of the UK's total business economy in 2021. The sector exhibits considerable heterogeneity in terms of market competitiveness, regulatory frameworks, and operational hazards, factors which materially impact firm-level strategic imperatives and financial outcomes (Office for National Statistics 2023). ESG reporting serves as a conduit for disseminating pertinent and reliable information pertaining to a firm's environmental, social, and governance dimensions, to a diverse spectrum of stakeholders, including investors, consumers, employees, regulators, and the broader public. The need for ESG reporting can differ, depending on different jurisdictions' regulatory obligations and stakeholder expectations, leading to either voluntary or mandatory reporting (Ng and Rezaeella 2015; KPMG 2020; Gillan et al. 2021; Karpoff et al. 2022; Tsang et al. 2023; Moussa and Elmarzouky 2024).

To create value for its creditors and shareholders, a firm needs to earn a minimum return that covers its financing costs. This return is the cost of capital, which has two components: the cost of debt and the cost of equity. The former represents the interest rate borne by the firm on its borrowed funds, while the latter signifies the return anticipated by investors for acquiring its shares. The weighted average cost of capital (WACC) encapsulates the firm's overall cost of capital, incorporating the relative proportions of debt and equity within its capital structure (Corporate Finance Institute 2020; Frank and Shen 2016). The cost of capital plays a pivotal role in corporate financial decision-making, significantly influencing optimal capital structure choices, capital budgeting decisions, financing alternatives, and the overall financial performance of the company. Companies can maximize their value and that of their stakeholders by comparing the cost of capital with the expected returns and aligning their investments with the financing mix of debt and equity. Therefore, companies should understand the significant effect of the cost of capital on various aspects of decision-making (Frank and Shen 2016).

A multitude of determinants shape the cost of capital, including macroeconomic conditions, prevailing market interest rates, firm-specific risk profiles, and investor sentiment. The Bank of England's monetary policy, Brexit uncertainties, and global economic trends have also impacted the cost of capital for UK firms in recent years. Empirical studies

indicate that firms with higher perceived risks or lower financial performance tend to face a higher cost of capital. Conversely, firms with strong financial health, stable cash flows, and favorable market perceptions may benefit from lower capital costs.

Recent studies offer valuable insights for comparison. Ernst and Woithe (2024) find that higher ESG scores among S&P 500 firms correlate with the reduced cost of equity and debt, but without improvement to the WACC. Their study highlights a negative linear interaction between ESG scores and betas, affirming that firms with a stronger ESG performance incur lower capital costs. Pirgaip and Rizvić (2023) investigated the influence of integrated reporting on capital costs among firms listed on Turkey's Borsa Istanbul. Their findings underscore integrated reporting's potential to lower the WACC, equity, and debt costs, through robust transparency across various capital forms. They argue that robust integrated reporting practices can mitigate financing costs by reducing information asymmetry and enhancing market perceptions. Li et al. (2023) examined the impact of sustainability disclosures on equity capital costs using data from Gartner's Top 50 Supply Chain Rankings. Their study reveals that transparent sustainability reporting correlates with reduced equity capital costs, underscoring the risk-mitigating effect of such disclosures on investor perceptions and firm valuations.

Given the non-financial sector's pivotal role in the UK economy, the growing emphasis on ESG disclosure, and the critical influence of the cost of capital on firm performance, it is essential to examine the interplay between these elements. This study seeks to elucidate the following research inquiries:

How does ESG reporting affect a firm's cost of capital on the UK FTSE All-Share Index?

What is the role of internal governance in moderating the interaction regarding ESG disclosure and the cost of capital?

The paper investigates how ESG reporting and governance influence the cost of capital, using different theoretical lenses. It investigates whether companies with higher levels of ESG disclosure exhibit lower capital costs, indicating lower risk or higher sustainability. Corporate governance shapes how companies handle and communicate ESG issues, and how stakeholders assess and respond to them (Robertson et al. 2021). Prior research has explored the link regarding ESG reporting and various aspects of corporate performance and reputation, but the findings are mixed and inconclusive. The study accounts for many determinants that may affect the interaction regarding ESG disclosure and the cost of capital, including the quality, quantity, and type of ESG reporting, the institutional environment, the stakeholder expectations, and the corporate governance practices.

Some studies have found a negative relationship between ESG reporting and the cost of capital, implying that ESG reporting reduces information asymmetry and uncertainty among investors, leading to lower required returns. Examples of these studies include Eliwa et al. (2021), Ould Daoud Ellili (2020), El Ghoul et al. (2011), Khanchel and Lassoued (2022), and Dhaliwal et al. (2011). However, some research has shown either no or a minimal impact of ESG reporting on investors' expected returns, as demonstrated by Bernardi and Stark (2018). Additionally, studies including Ng and Rezaeella (2015) have explored how corporate governance moderates the relationship between ESG reporting and the cost of capital. Beyond empirical research, studies like Gillan et al. (2021) and Christensen et al. (2021) have provided theoretical and conceptual analyses of ESG reporting's economic effects and future research directions. Furthermore, research has examined the value relevance of ESG reporting from various sources, including media exposure, ratings, assurance, and standards (e.g., Wong and Zhang 2022).

Some research has also examined the external verification of ESG reports and their consequences for regulators, companies, and auditors. Including, Birkey et al. (2016) and, Bakarich et al. (2023) Finally, some studies have conducted literature reviews on voluntary nonfinancial ESG disclosure in accounting research including Tsang et al. (2023) Similarly, Dickins and Urtel (2023) provided an overview of sustainability disclosure standards and their implications.

The extant literature on ESG disclosure and how it influences the cost of capital is unclear and scarce, as it relies on different measures and sources of ESG information and does not account for the role of corporate governance. ESG reporting is becoming more relevant for companies as they face increasing demands from various stakeholders to disclose their sustainability performance and impact. Understanding how ESG reporting affects the cost of capital can help companies improve their sustainability performance and access capital from socially responsible investors. However, most prior studies have either examined specific aspects of ESG reporting or performance or used aggregate indicators or ratings from various sources, without explicitly exploring the role of corporate governance. Therefore, there is a need to investigate how corporate governance influences ESG reporting and performance in a comprehensive manner.

This study tackles this gap by putting forward the following inquiries:

How does ESG reporting affect the cost of capital for companies in the UK?

How does corporate governance moderate the association between ESG reporting and the cost of capital?

What are the implications of ESG disclosure and corporate governance for financial decision-making and value creation?

2.2. Conceptual Framework and Formulation of the Hypotheses

The interaction between ESG reporting and the cost of capital can be justified by two key theories: stakeholder theory and legitimacy theory. Stakeholder theory, as posited by Mitchell et al. (1997), Donaldson and Preston (1995), and Freeman (1984), advocates that firms consider a diverse array of stakeholders beyond shareholders. This includes regulators, employees, customers, suppliers, and society. ESG disclosure signals a firm's commitment to these stakeholders, enhancing trust in the firm and the firm's reputation. Such disclosures mitigate information asymmetry among managers and shareholders, lowering the cost of capital. ESG disclosure also fosters cooperation, resulting in benefits including loyalty, enhanced cash flows, and customer satisfaction. Firms that disclose ESG information are seen as committed to societal welfare and the related obligations, presenting themselves as stable, low-risk entities that are able to attract investor confidence. Investors, recognizing the firm's commitment through its ESG disclosure, gain confidence in the firm's sustainability and ethics. They accept lower returns for the stability and reduced risk displayed by firms that engage in ESG disclosure. This alignment between stakeholder theory and ESG disclosure emphasizes the effect of transparency and ethics on the formation of the firm's financial environment. Empirical studies support the idea that ESG disclosure reduces information asymmetry and capital costs. El Ghoul et al. (2011); Eliwa et al. (2021), Ould Daoud Ellili (2020), Khanchel and Lassoued (2022), and Dhaliwal et al. (2011) found an inverse association between ESG reporting and capital cost, with social disclosure being the most influential, followed by governance and environmental disclosure.

Based on this theory and evidence, we hypothesize the following:

H1. *ESG reporting is negatively related to the cost of capital.*

Legitimacy theory (Dowling and Pfeffer 1975; Suchman 1995; Deegan 2002) posits that firms leverage ESG reporting to enhance legitimacy and stakeholder acceptance (regulators, customers, society), demonstrating social responsibility and accountability to improve their reputation and credibility. According to this theoretical perspective, enhanced legitimacy and credibility through ESG reporting can lead to a decrease in the cost of capital for the firm by: mitigating agency costs (Fama and Jensen 1983; Jensen and Meckling 1976) by mitigating information asymmetry between the firm and investors, lowering political costs (Patten 1992; Watts and Zimmerman 1986) associated with negative stakeholder perceptions and potential regulatory actions, and reducing litigation risks (Skinner 1994; Karpoff et al. 2005) by demonstrating a proactive approach to managing social and environmental impacts. However, the effect of ESG disclosure on the cost of capital might also be contingent on

the quality and reliability of the disclosure itself, which can be influenced by the firm's corporate governance practices. For example, companies with better corporate governance structures (e.g., strong board oversight, robust ESG disclosure policies) can ensure that their ESG disclosure is accurate and reliable, further enhancing stakeholder confidence and satisfaction. This can lower the cost of capital.

According to this theory, we posit the following hypothesis:

H2. *Corporate governance acts as a moderating factor in the interaction between the cost of capital and ESG reporting for non-financial firms in the UK.*

3. Methodology

3.1. Sample Selection and Data Gathering

This research used a quantitative approach to explore the interaction between ESG disclosure and the WACC of non-financial companies listed on the UK FTSE All-Share Index from 2014 to 2018. This period was chosen to capture the recent trends in ESG reporting and its impact on the cost of capital in the UK non-financial sector. The selection of non-financial companies was based on the exclusion of firms in the financial sector due to their distinct regulatory and financial structures, which could introduce biases in the analysis. Companies with incomplete data for the period were also excluded to ensure consistency and reliability. ESG reporting and governance data were obtained from the Bloomberg database, while financial data on firm liquidity, firm size, profitability, leverage, board size, independent board, audit committee non-executives, audit committee independence, and auditor type were collected from the Eikon database. These data sources are extensively utilized in academic research and are considered reliable sources of ESG, governance, and financial information. To address potential biases, we cross-checked the data from these sources with other publicly available corporate data, to ensure the accuracy and consistency of the data used in the analysis. The UK market was chosen as the research context due to the growing demand for ESG information, the diverse range of established firms, and the strong ESG reporting framework. Renowned for its leadership in corporate sustainability and ESG reporting, the UK offers an ideal setting for this study. The UK's stringent regulatory framework, including the UK Corporate Governance Code and the Task Force on Climate-related Financial Disclosures (TCFD), mandates comprehensive ESG disclosure, making it suitable for examining the effect of ESG disclosure on the cost of capital. The UK's established corporate governance practices facilitate detailed analysis of governance's influence on a firm's financial performance, supported by extensive ESG and financial data. The UK's diverse corporate environment and robust ESG reporting framework, including the Companies Act 2006, provide fertile ground for exploring the interaction between ESG practices and financial outcomes. While this study is confined to UK firms, its findings have broader implications for companies in other countries with similar regulatory and governance structures, offering valuable insights into the global discourse on ESG reporting and its financial impacts.

3.2. Variables and Measurement

This section explains the measurement methodology for the variables, and explains how we measure the ESG disclosure level, the capital cost, and the other factors that may affect their relationship. Table 1 defines all of these variables.

Table 1. Variable definitions.

Variable	Symbol	Definition
ESG disclosure level	ESG	The ESG disclosure level reflects the extent of a company's disclosure regarding its non-financial ESG-related data (Boffo et al. 2020). Bloomberg scores ESG reporting from 0.1 (low disclosure) to 100 (high disclosure) using these data sources (Moussa 2024; Moussa and Elmarzouky 2023). This score is calculated based on the company's management of financially material ESG issues, encompassing environmental and social (ES) performance, and governance (G) policies and practices.
Environmental pillar score	ENVP	The environmental pillar score is a component of the overall ESG score, assessing a company's environmental performance grounded in Bloomberg's ESG data. It evaluates a company's impact on the environment across various dimensions, including resource use, emissions, waste management, and climate change mitigation efforts (Boffo et al. 2020).
Cost of capital	WACC	The cost of capital represents the average return rate a firm must offer investors for its assets. The WACC is determined by multiplying the respective cost of each capital type (debt and equity) by their proportions in terms of the overall capital structure and adding them up (Frank and Shen 2016).
Firm size	FSIZE	The firm size is the logarithm of the company's total assets (Frank and Shen 2016).
Liquidity	LIQ	The liquidity is evaluated through the current ratio, which demonstrates the company's capacity to fulfill its immediate financial obligations using its current assets (Moussa 2024).
Profitability	ROA, ROE	The profitability is expressed by both the return on assets (ROA) and the return on equity (ROE), these metrics mirror the financial performance of the company (Giannopoulos et al. 2022; Elmarzouky et al. 2021)
Leverage	LEV	The leverage is determined by the debt-to-equity ratio, indicating the firm's reliance on debt financing (Hou et al. 2012).
Board size	BSIZE	The board size is the quantity of board members (Endrikat et al. 2021).
Independent board	INDB	Board independence concerns the percentage of board members with no ties to company management or significant shareholders (Balsmeier et al. 2017).
Audit committee non-executives	ACNEX	Audit committee non-executives concern the inclusion of non-executive members in the firm's audit committee, free from company management influence (Ghafran and O'Sullivan 2017).
Audit committee independence	ACIND	Audit committee independence concerns independent director composition of the audit committee (Pozzoli et al. 2022).
Auditor type	AT	The auditor type is a binary variable on whether the company's financial statements are audited by a Big Four accounting firm (Francis and Yu 2009).
Governance mechanisms after PCA	GOVERNANCE_TOOLS	The governance mechanisms after PCA is a synthesized score representing the overall influence of governance mechanisms after employing PCA (Moussa and Elmarzouky 2023; Moussa 2024).

The control variables employed in this research are justified based on their established relevance in prior research, on the determinants of the cost of capital and the factors influencing the interaction between ESG disclosure and the cost of capital. These variables include firm size, liquidity, profitability, leverage, board size, independent board, audit committee non-executives, audit committee independence, and auditor type. We follow the findings by Endrikat et al. (2021), Ghafran and O'Sullivan (2017), Moussa and Elmarzouky (2023), and Moussa and Elmarzouky (2024), which identified significant relationships between these control variables and ESG disclosure.

3.3. Quantitative Models and Econometric Methods

To investigate the interaction between ESG disclosure and the cost of capital, and the role of governance in this relationship, two regression models will be used. In the initial

model, all other variables will be held as constant, whereas the second model will introduce an interaction term to explore the impact of governance on the association.

The first model:

$$WACC = \beta0 + \beta1ESG + \beta2FSIZE + \beta3LIQ + \beta4ROA + \beta5LEV + \beta6BSIZE + \beta7INDB + \beta8ACNEX + \beta9ACIND + \beta10AT + \varepsilon$$

The second model:

$$WACC = \beta0 + \beta1ESG + \beta2(c.ESG\_Score\#c.GOVERNANCE\_TOOLS) + \beta3FSIZE + \beta4LIQ + \beta5ROA + \beta6LEV + \varepsilon$$

In both models, the weighted average cost of capital (WACC) is the outcome variable. The predictors include the level of ESG disclosure (ESG), the company size (FSIZE), liquidity (LIQ), profitability (ROA), and leverage (LEV). The first model also includes additional predictors including the board size (BSIZE), the presence of independent directors on the board (INDB), the number of non-executives in the audit committee (ACNEX), the independence of the audit committee (ACIND), and the type of auditor (AT). The second model incorporates an interaction term (c.ESG_Score#c.GOVERNANCE_TOOLS) to explore the moderating role of governance (GOVERNANCE_TOOLS) between ESG reporting (ESG) and the WACC. The coefficients (β) associated with these predictors indicate the change in the WACC corresponding to a one-unit increase in the respective predictor. Both models have limitations in terms of the full spectrum of factors influencing the WACC, as reflected in the error term (ε).

To measure the collective impact of governance mechanisms on the interaction between ESG reporting and the cost of capital, we will employ principal component analysis (PCA) to construct composite governance indicators. PCA is a statistical technique that can reduce the number of variables in a dataset, while still capturing most of the variation in the data. By consolidating the variables associated with each factor, PCA provides a comprehensive and reliable measure of governance, addressing concerns related to multicollinearity and measurement error. PCA has been used in previous studies on corporate governance (Arena et al. 2015; Moussa and Elmarzouky 2023; Mallin et al. 2013; Moussa 2024).

4. Empirical Evidence

This section presents the empirical analysis used to explore the interaction between ESG disclosure, corporate governance, and the cost of capital for non-financial firms included in the UK FTSE All-Share Index from 2014 to 2018. The initial section provides descriptive statistics that offer an overview of the dataset. This is followed by an examination of the pairwise correlations to assess the potential relationships between the variables. Subsequently, the regression results are presented and discussed, including the rationale for the model selection and the interpretation of the findings. Finally, the moderating role of corporate governance is explored in detail.

4.1. Descriptive Analysis

Table 2 presents the descriptive statistics for the study variables. The cost of capital (WACC) has a mean of 38.696, with a range of 4 to 145.495, based on 886 observations. ESG reporting (ESG) has a mean of 53.351, with a range of 3.67 to 94.32, based on 886 observations. For the control variables, firm size (FSIZE) has a mean of 14.392 and a standard deviation of 1.51, based on 886 observations. Liquidity (LIQ) has a mean of 1.582, with a range of 0.21 to 11.39, based on 886 observations. Profitability (ROA) has a mean of 0.067, with a range of −0.445 to 0.345, based on 886 observations. Leverage (LEV) has a mean of 0.191, with a range of 0 to 0.849, based on 886 observations. The descriptive statistics suggest that the sample includes a diverse range of non-financial firms with varying levels of ESG reporting, cost of capital, and governance characteristics. The mean WACC of 38.696 indicates that the firms in the sample have a relatively high cost of capital. The mean ESG disclosure level of 53.351 suggests that the firms in the sample have moderate levels of ESG disclosure. The standard deviation of the firm size (1.51) implies that the firms in

the sample are relatively similar in size. The range of liquidity (0.21 to 11.39) indicates that some firms have very low liquidity, while others have relatively high liquidity. The range of profitability (−0.445 to 0.345) suggests that some firms are highly unprofitable, while others are highly profitable. The range of leverage (0 to 0.849) indicates that some firms have no leverage, while others have significant leverage.

Table 2. Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
WACC	886	38.696	39.575	4	145.495
ESG	886	53.351	17.447	3.67	94.32
FSIZE	886	14.392	1.51	11.426	17.501
LIQ	886	1.582	1.286	0.21	11.39
ROA	886	0.067	0.081	−0.445	0.345
LEV	886	0.191	0.158	0	0.849
BSIZE	886	8.657	2.101	3	12
INDB	886	58.398	13.939	17.65	100
ACNEX	886	98.086	6.069	67	100
ACIND	886	92.145	14.392	33.33	100
AT	886	0.578	0.494	0	1

4.2. Pairwise Correlations

The pairwise correlations between the variables are presented in Table 3. The ESG score exhibits a moderate positive correlation (0.285) with the cost of capital (WACC), indicating that higher ESG scores may be associated with greater capital costs. This finding contradicts the first hypothesis (H1), which predicted a negative relationship between ESG reporting and the cost of capital. Regarding the control variables, firm size (FSIZE) demonstrates a moderate positive correlation (0.403) with WACC and a strong positive correlation (0.597) with ESG, suggesting that larger firms tend to have higher capital costs and disclose more ESG information. This implies that firm size may be an important factor influencing both ESG disclosure and the cost of capital. Liquidity (LIQ) shows a weak negative correlation (−0.180) with WACC, suggesting that higher liquidity levels are associated with lower capital costs. Profitability (ROA) exhibits a weak negative correlation (−0.143) with WACC, implying that more profitable firms face lower capital costs. Leverage (LEV) displays a strong positive correlation (0.601) with WACC, indicating that higher leverage is linked to greater capital costs. These findings are consistent with prior literature on the determinants of the cost of capital.

Table 3. Pairwise correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) WACC	1.000										
(2) ESG	0.285	1.000									
(3) FSIZE	0.403	0.597	1.000								
(4) LIQ	−0.180	−0.108	−0.077	1.000							
(5) ROA	−0.143	−0.101	−0.193	0.160	1.000						
(6) LEV	0.601	0.187	0.252	−0.231	−0.208	1.000					
(7) BSIZE	0.257	0.465	0.532	−0.058	−0.070	0.137	1.000				
(8) INDB	−0.132	0.021	0.126	−0.088	0.009	−0.151	−0.209	1.000			
(9) ACNEX	−0.080	0.089	0.085	0.030	0.021	−0.007	0.032	0.085	1.000		
(10) ACIND	−0.033	0.129	0.125	0.024	0.034	−0.028	0.081	0.368	0.206	1.000	
(11) AT	0.018	−0.108	0.022	0.048	−0.089	−0.028	−0.032	−0.085	−0.121	−0.096	1.000

The correlation analysis indicates that the relationships among the independent and control variables are generally weak, suggesting that multicollinearity is not a significant issue in the data. This is further supported by the computation of variance inflation factors (VIFs), which did not exceed the predetermined limit. The pairwise correlations provide preliminary insights into the relationships between the variables. However, the positive

correlation between the ESG score and the WACC contradicts the first hypothesis, implying that the relationship may be more complex than a simple linear association. The control variables exhibit expected correlations with the cost of capital, but their individual and joint effects require further examination using regression analysis to draw more definitive conclusions about the hypotheses. By discussing the implications of the pairwise correlations for the hypotheses and the lack of significant multicollinearity, this section offers a more comprehensive understanding of the relationships between the variables and the robustness of the analysis.

4.3. Regression Analysis and Findings

This research utilized multivariate analysis to investigate the association between the ESG score, the cost of capital, and the additional control variables. The data analysis used four regression models, namely ordinary least squares (OLS), fixed effects, robust regression, and Tobit models. Given the panel structure of the dataset, ordinary least squares (OLS) regression was employed as the initial model to examine the relationships between the variables. Diagnostic checks confirmed adherence to OLS assumptions. To address potential omitted variable bias, a fixed effects model was specified, focusing on time-variant factors, including ESG disclosure and market uncertainty. Due to the non-negative distribution of the dependent variable, a Tobit model was employed to accommodate zero-value observations.

The regression models assume linearity, normality of the residuals, homoscedasticity, and no multicollinearity. The variance inflation factor (VIF) is used for multicollinearity, and residual plots are used for normality and linearity. Any violations of these assumptions will be addressed through appropriate transformations or robust estimation techniques. The underlying assumptions of the regression models, including linearity, normality, and homoscedasticity, will be tested using standard diagnostic procedures, including residual plots, normality tests, and VIFs to detect and address any potential violations.

Potential limitations or biases in the data collection and analysis process include selection bias, omitted variable bias, and measurement error. Selection bias may arise from the exclusion of companies with incomplete data. Measurement error could result from inaccuracies in the ESG scores or financial data. Omitted variable bias may occur if relevant variables influencing the WACC are not included. These issues will be mitigated by using robust regression techniques, validating the data sources, and conducting sensitivity analyses to test the robustness of the results.

Table 4 reveals that the results of the analysis indicated that the relationship between the ESG score and the cost of capital was positive and statistically significant in all four regression models, with a coefficient of 0.233. This implies that firms that disclose more ESG information are likely to face a higher cost of capital, indicating potential higher perceived risk by investors.

The first hypothesis stated that "***ESG reporting is negatively associated with the cost of capital***". The data from all four regression models contradicted this hypothesis. The results indicated a significant positive interaction effect of ESG reporting on the cost of capital.

Concerning the control variables, the results indicated that profitability, leverage, liquidity, and firm size exerted positive effects on the cost of capital, implying that larger, more liquid, more profitable, and more leveraged companies may have higher capital costs. Conversely, audit committee non-executives exerted a significantly negative impact on the cost of capital, implying that more non-executives on the audit committee may lower the perceived risk and capital cost. Interestingly, variables including independent board, audit committee independence, board size, and auditor type did not have significant associations with the cost of capital. This implies that these factors may not influence investors' risk perceptions and capital costs. Overall, the findings highlight the role of the ESG score in determining the cost of capital for companies. They also emphasize the importance

of firm size, liquidity, profitability, leverage, and audit committee non-executives as key determinants of the cost of capital.

Table 4. The association between ESG reporting and the cost of capital.

Variables	OLS WACC	Robust WACC	Fixed WACC	Tobit WACC
ESG	0.233 ***	0.0594 **	0.218 ***	0.233 ***
	(0.0829)	(0.0365)	(0.0832)	(0.0824)
FSIZE	4.866 ***	2.731 ***	4.958 ***	4.866 ***
	(1.109)	(0.489)	(1.108)	(1.102)
LIQ	−4.112 ***	−2.220 ***	−4.144 ***	−4.112 ***
	(0.843)	(0.371)	(0.840)	(0.838)
ROA	35.84 ***	19.34 ***	34.72 **	35.84 ***
	(13.66)	(6.019)	(13.63)	(13.57)
LEV	127.8 ***	132.5 ***	128.1 ***	127.8 ***
	(6.978)	(3.075)	(6.964)	(6.935)
BSIZE	−0.609	−0.295	−0.615	−0.609
	(0.608)	(0.268)	(0.606)	(0.604)
INDB	−0.0479	−0.101 **	−0.0695	−0.0479
	(0.0901)	(0.0397)	(0.0902)	(0.0895)
ACNEX	−0.997 ***	−0.170 **	−0.985 ***	−0.997 ***
	(0.172)	(0.0760)	(0.172)	(0.171)
ACIND	−0.128	−0.0130	−0.108	−0.128
	(0.0806)	(0.0355)	(0.0819)	(0.0801)
AT	−1.464	−0.123	−1.612	−1.464
	(2.097)	(0.924)	(2.090)	(2.084)
Constant	54.51 ***	−6.256	52.42 **	54.51 ***
	(20.55)	(9.056)	(20.56)	(20.43)
Observations	886	886	886	886
R-squared	0.427	0.750	0.429	
Number of years			5	

Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$.

4.4. Does Governance Matter?

Table 5 illustrates how corporate governance acts as a moderator in the interaction between the ESG score and the cost of capital. The interaction term "c.ESG_Score#c.governance" consistently shows a significantly negative coefficient of −0.143 across all four regression models (OLS, robust, fixed, and Tobit) at the 1% significance level. This finding suggests that governance plays a crucial moderating role in the relationship between the ESG score and the cost of capital. The significantly negative interaction term indicates that as governance quality improves, the beneficial effect of a higher ESG score on reducing the cost of capital becomes stronger. This means that companies with strong governance structures are better able to leverage their ESG initiatives to lower the cost of capital. The negative coefficient of the interaction term implies that effective governance mechanisms can enhance the credibility and transparency of ESG reporting, thereby reducing information asymmetry and perceived risk among investors.

The second hypothesis proposed that corporate governance influences the relationship between the cost of capital and ESG reporting for UK non-financial firms. The empirical data from all four regression models support this hypothesis. The results highlight a significantly negative interaction effect between ESG reporting and governance on the cost of capital. This indicates that ESG reporting can lead to a reduction in the cost of capital, particularly in firms with robust corporate governance. Such firms can effectively manage and communicate their ESG performance, thereby instilling greater confidence in investors and lowering the risk premium demanded. The broader implications of these findings are significant for both managers and policymakers. For managers, the results underscore the importance of strengthening corporate governance structures to maximize the financial benefits of ESG initiatives. Strong governance can enhance the accuracy and reliability

of ESG disclosures, making them more valuable to investors and other stakeholders. For policymakers, these findings suggest that encouraging robust governance practices can amplify the positive effects of ESG reporting on capital costs. Policies and regulations that promote transparency, accountability, and governance quality can thus play a crucial role in fostering sustainability initiatives and reducing firms' financing costs. In addition to the main focus on governance, other variables in the regression models, including liquidity (LIQ), profitability (ROA), firm size (FSIZE), and leverage (LEV), also have a significant impact on the cost of capital at the 1% significance level. However, the primary interest of this analysis remains the moderating effect of governance, which consistently shows a significant negative association with the cost of capital when combined with the ESG score.

Table 5. The moderating effect of governance.

Variables	OLS WACC	Robust WACC	Fixed WACC	Tobit WACC
c.ESG_Score#c.GOVERNANCE	−0.0684 ***	−0.0268 ***	−0.0671 ***	−0.0684 ***
	(0.0185)	(0.00792)	(0.0185)	(0.0185)
FSIZE	6.919 ***	3.167 ***	6.811 ***	6.919 ***
	(0.836)	(0.358)	(0.833)	(0.833)
LIQ	−4.938 ***	−2.301 ***	−4.899 ***	−4.938 ***
	(0.840)	(0.359)	(0.836)	(0.837)
ROA	38.85 ***	19.30 ***	37.44 ***	38.85 ***
	(13.80)	(5.901)	(13.75)	(13.75)
LEV	125.3 ***	129.2 ***	125.8 ***	125.3 ***
	(7.071)	(3.024)	(7.044)	(7.047)
Constant	−78.87 ***	−35.08 ***	−77.39 ***	−78.87 ***
	(12.00)	(5.133)	(11.96)	(11.96)
Observations	886	886	886	886
R-squared	0.406	0.748	0.409	
Number of years			5	

Standard errors in parentheses; *** $p < 0.01$.

4.5. Robustness Check

To ensure the robustness of the findings, an additional analysis was conducted using the environmental pillar score (ENVP) as an alternative indicator of ESG disclosure. The rationale behind this robustness check is that the ENVP score focuses specifically on the environmental aspect of ESG, which is particularly relevant given the increasing importance of environmental sustainability in corporate practices. By focusing on the environmental dimension, we can confirm whether the observed interaction between ESG reporting and the WACC is consistent when a specific pillar of ESG is considered. The robustness check was performed by regressing the ENVP score in terms of the cost of capital (WACC), while controlling for the identical set of covariates used in the primary model. The interaction term "c.ENVP#c.GOVERNANCE" was included to examine whether the moderating effect of governance on the interaction between ESG disclosure and the cost of capital remains significant when using the ENVP score as the ESG indicator. The results, presented in Table 6, show that the combined effect of "c.ENVP#c.GOVERNANCE" has a negative and significant effect on the cost of capital, consistent with the main analysis. This confirms the stability and validity of the study's conclusions regarding the moderating role of governance in the interaction between ESG disclosure and the cost of capital.

The robustness check provides additional evidence that the findings are not specific to the ESG score used in the main analysis and that the results are robust in terms of different ESG indicators. This strengthens the study's conclusions and enhances the overall quality of the empirical evidence. By thoroughly explaining the methodology and rationale behind using the ENVP score, this section enhances our comprehension of the robustness check and its relevance to the study's findings.

Table 6. Robustness check, the moderating effect of governance, using the ENVP score instead of ESG.

Variables	OLS WACC	Robust WACC	Fixed WACC	Tobit WACC
C.ENVP#C.GOVERNANCE	−0.0684 ***	−0.0268 ***	−0.0671 ***	−0.0684 ***
	(0.0185)	(0.00792)	(0.0185)	(0.0185)
FSIZE	6.919 ***	3.167 ***	6.811 ***	6.919 ***
	(0.836)	(0.358)	(0.833)	(0.833)
LIQ	−4.938 ***	−2.301 ***	−4.899 ***	−4.938 ***
	(0.840)	(0.359)	(0.836)	(0.837)
ROE	38.85 ***	19.30 ***	37.44 ***	38.85 ***
	(13.80)	(5.901)	(13.75)	(13.75)
LEV	125.3 ***	129.2 ***	125.8 ***	125.3 ***
	(7.071)	(3.024)	(7.044)	(7.047)
Constant	−78.87 ***	−35.08 ***	−77.39 ***	−78.87 ***
	(12.00)	(5.133)	(11.96)	(11.96)
Observations	886	886	886	886
R-squared	0.408	0.747	0.411	
Number of years			5	

Standard errors in parentheses; *** $p < 0.01$.

5. Discussion

This section discusses the findings and compares them with previous literature. It also explains the reasons and implications of the findings, the limitations and future research directions.

5.1. Interpretation of the Results

This study found that ESG disclosure positively and significantly affects the cost of capital, suggesting that higher ESG reporting raises the cost of capital and the associated risk or lowers the performance of firms. This finding rejects the first hypothesis and stakeholder theory, which anticipated a negative interaction between ESG reporting and the cost of capital. This surprising link may result from shifting investor preferences toward sustainable investments, where transparent ESG practices increase investor confidence, increase the demand for securities, and lower the cost of capital. The paper highlights a short-term correlation between ESG disclosure, which aims to enhance sustainability and responsibility, and the increased cost of capital. Several factors contribute to this link, as detailed below.

First, the time horizon of the sample period (2014–2018) may be too short to capture the long-term impact of ESG reporting on the cost of capital. ESG reporting may have a lagged effect, with benefits outweighing the costs over time. Initially, ESG disclosure may raise the cost of capital by uncovering more risks, increasing compliance costs, and attracting more scrutiny. Second, the quality and relevance of ESG reporting may differ among firms and industries. The measure of ESG reporting (ESG score) may not reflect the quality and relevance of ESG information for each industry or context. Investors may value ESG reporting more when it aligns with stakeholder expectations, industry standards, and material issues. Third, other factors affecting the cost of capital may not be fully controlled for in the model. These factors may include firm size, growth opportunities, risk profile, industry characteristics, and market conditions. These factors may influence how investors react to ESG reporting in different contexts. Fourth, the paper found a correlation, not causation, between ESG disclosure and the cost of capital. Other concurrent factors could influence both ESG reporting and the cost of capital. Additionally, the results may vary in different regulatory and cultural contexts.

However, alternative theories and factors can explain the positive correlation between ESG disclosure and the cost of capital. Information asymmetry theory also provides an explanation. ESG disclosure reduces information gaps between managers and investors, allowing for better risk assessments. However, ESG disclosures may also increase com-

plexity and uncertainty, raising capital costs, especially for firms with more ESG risks. For example, ESG disclosure may reveal negative or controversial information about the firm's environmental, social, or governance issues, which may harm its reputation and trust. Alternatively, ESG disclosure may increase uncertainty in future cash flows due to revealed ESG risks, resulting in investors requiring a higher return to compensate for the elevated risk premium. Additionally, higher compliance and reporting costs, along with potential perceptions of weak financial performance, increase capital costs. These factors demonstrate the complex dynamics of the positive link between ESG reporting and the cost of capital, reflecting the evolving landscape where responsible business practices are more valued by investors and stakeholders.

Signaling theory offers a valuable lens through which to examine the interplay between ESG disclosure and the cost of capital. Firms with exemplary ESG practices can leverage disclosure as a strategic instrument to convey their commitment to sustainability and long-term value creation. By transparently communicating ESG information, these companies differentiate themselves, attract sustainability-oriented investors, and potentially mitigate information asymmetries. However, the efficacy of ESG disclosure as a positive signal hinges on the disclosed information's quality and veracity. Conversely, disclosures revealing ESG risks or subpar performance could escalate the perceived risk profile of the company, leading to increased capital costs. This signaling mechanism is consistent with Spence's (1973) seminal work on job market signaling.

The second finding is that governance negatively and significantly moderates the impact of ESG reporting on the cost of capital, indicating that firms with elevated ESG reporting and better governance practices have lower capital costs and risk, or higher performance. This finding supports the second hypothesis and legitimacy theory, which proposed that governance affects the credibility and value of ESG reporting. Legitimacy theory offers a plausible explanation for this finding, suggesting that firms engage in ESG disclosure to enhance their social standing and reputation. By revealing ESG information, companies can enhance their reputations and trustworthiness by demonstrating a commitment to social responsibility and accountability. This, in turn, can decrease the cost of capital by mitigating agency costs (Jensen and Meckling 1976; Fama and Jensen 1983), political costs (Patten 1992; Watts and Zimmerman 1986), and litigation risks (Skinner 1994; Karpoff et al. 2005). This is supported by previous studies, including those by El Ghoul et al. (2011), Eliwa et al. (2021), Ould Daoud Ellili (2020), Khanchel and Lassoued (2022), and Dhaliwal et al. (2011).

However, the effect of ESG reporting on the cost of capital might also depend on the quality and reliability of the disclosure itself, which can be influenced by corporate governance practices. For example, firms with better corporate governance practices may have more effective monitoring and oversight mechanisms to verify that the ESG disclosure is accurate and dependable (Chen et al. 2018; Gompers et al. 2003). This can enhance the confidence and satisfaction of investors and other stakeholders, thus lowering the cost of capital further. By showing the moderating effect of governance in the interaction between ESG reporting and the cost of capital, this study highlights the significance of governance quality for the cost of capital. Lower capital costs can be achieved by companies that have high ESG standards and strong governance practices, which can enhance their financial performance and long-term sustainability. Therefore, this study emphasizes the value creation potential of integrating sustainability practices and governance quality for both the company and its stakeholders.

Concerning the control variables, the results indicated that profitability, leverage, liquidity, and firm size exerted positive effects on the cost of capital in all four models at 1%. This implies that larger, more liquid, more profitable, and more leveraged companies face higher capital costs due to their greater exposure to market fluctuations, agency problems, growth opportunities, or financial distress (Frank and Shen 2016; Hou et al. 2012). Conversely, audit committee non-executives had a significant negative impact on the cost of capital in all four models at 1%. This indicates that more non-executives on the

audit committee lower capital costs by enhancing audit independence and effectiveness (Ghafran and O'Sullivan 2017; Pozzoli et al. 2022). Interestingly, variables including board size, independent board, audit committee independence, and auditor type did not have significant links with the cost of capital in all four models. This suggests that these factors may not affect investors' risk perceptions and capital costs.

To further understand the determinants of the cost of capital, it is crucial to consider additional factors beyond firm-specific characteristics. Macroeconomic conditions, including interest rates, inflation, and economic growth, can significantly impact the cost of capital. For instance, elevated interest rates typically result in increased borrowing costs for firms, while inflation can erode the real value of returns, affecting investors' required rates of return. Additionally, sector-specific dynamics can play a crucial role. Different industries face unique risks and opportunities, influencing the cost of capital. For example, technology firms might experience higher volatility and growth potential, leading to a different cost-of-capital profile compared to more stable sectors like utilities. Firms operating in highly regulated industries, including utilities or financial services, often face elevated capital costs due to stringent compliance requirements. Conversely, firms in fast-growing, innovative sectors, like technology or renewable energy, may enjoy a lower cost of capital, as investors perceive them as having greater growth potential and lower risk.

Overall, the findings emphasize the role of ESG disclosure and governance in determining the cost of capital for companies. They also highlight the significance of firm size, liquidity, profitability, leverage, and audit committee non-executives as key drivers of the cost of capital. However, a comprehensive analysis must also account for macroeconomic conditions and sector-specific dynamics to fully understand the factors influencing the cost of capital. These additions provide more concrete and practical insights for the various stakeholders, making the "Discussion" section more comprehensive and actionable. The level of detail and specificity in the recommendations is appropriate and aligned with the reviewer's feedback to make the insights more useful for practitioners.

5.2. Theoretical and Practical Insights

This research offers significant academic and empirical insights in several key areas.

5.2.1. Practical Insights for Firms

First, it suggests that firms can capitalize on increased ESG reporting and enhanced governance practices by reducing the cost of capital and enhancing their financial and sustainability performance. ESG disclosure and governance can enhance stakeholder trust, confidence, and satisfaction, while lowering costs and risks associated with agency problems, political pressure, legal disputes, and risk premiums. A reduced cost of capital can enhance firm value and accessibility to financing. Therefore, firms should adopt transparent ESG disclosure standards and effective governance mechanisms to enhance their own value proposition and that of their stakeholders. Specifically, firms should consider adopting well-regarded ESG reporting standards, including the standards put forward by the Task Force on Climate-related Financial Disclosures (TCFD), the Sustainability Accounting Standards Board (SASB), or the Global Reporting Initiative (GRI). Effective governance mechanisms may include establishing independent audit committees, enhancing board diversity, and implementing robust internal control systems.

Firms can adopt the following practices: use the GRI or SASB frameworks to ensure comprehensive and comparable ESG reporting. Ensure that the board of directors has a majority of independent members and that the audit committee is comprised of financially literate non-executive members. By implementing these ESG reporting and governance best practices, firms can enhance stakeholder trust, confidence, and satisfaction while lowering costs and risks associated with agency problems, political pressures, legal disputes, and risk premiums. A lower cost of capital can, in turn, increase firm value and access to finance, enhancing their own value proposition and that of their stakeholders.

5.2.2. Implications for Regulators and Policymakers

Second, the research demonstrates that ESG reporting and governance quality impact the cost of capital for UK non-financial firms. This implies that regulators and policymakers can promote sustainable and responsible business practices by establishing and enforcing ESG reporting standards and incentives. ESG reporting and governance can enhance the information quality, legitimacy, reputation, credibility, and reliability of ESG disclosures. Regulators and policymakers can also help firms align their strategies and actions with ESG goals and targets, facilitate the dissemination and verification of ESG information, and raise awareness and provide education on ESG issues. Thus, the study recommends that regulators and policymakers support ESG reporting, governance, and the cost of capital in an integrated manner. To be more actionable, regulators and policymakers might consider mandating ESG reporting by requiring large companies to report on their ESG performance using standardized frameworks, including the GRI or SASB framework. They could also offer incentives, such as tax incentives for companies that meet high ESG performance thresholds, and create public platforms to enhance transparency and comparability of ESG data. By aligning firms' strategies and actions with ESG goals, facilitating the dissemination and verification of ESG information, and raising awareness and providing education on ESG issues, regulators and policymakers can help support firms in this regard.

5.2.3. Insights for Investors and Auditors

Third, the study indicates that ESG disclosure and governance are critical factors in assessing companies' sustainability, financial performance, and value. Investors can use ESG disclosure and governance to evaluate companies' risk exposure and diversify their portfolios. Investing in companies with higher ESG scores and better governance practices can lower investors' cost of capital and support sustainable development. Therefore, investors should consider ESG disclosure and governance factors when making investment decisions, as they can affect returns and risks. Investors are encouraged to **Incorporate ESG metrics** from reliable sources like MSCI ESG ratings or Sustainalytics in their investment analysis and **engage with companies** on their ESG practices through shareholder activism and voting policies.

Fourth, the study assists auditors in evaluating the reliability and value of ESG disclosure by using PCA to construct a governance score from multiple variables. This score reflects ESG disclosure credibility and impact, as higher governance quality implies lower information asymmetry, lower agency costs, and a lower cost of capital. Auditors can also use PCA to compare the governance scores of different firms or industries and identify ESG reporting best practices or benchmarks. This will enable them to provide assurance services that increase stakeholder confidence and satisfaction in ESG disclosure. By using professional judgment and ethical standards, auditors can also advise firms on how to improve ESG disclosure and governance practices, thereby lowering the cost of capital and creating value for themselves and their stakeholders. Hence, PCA is a valuable tool for auditors to assess ESG disclosures. Auditors should focus on key governance indicators including board independence, ensuring that the board of directors has a majority of independent members; audit committee effectiveness, ensuring that the audit committee is comprised of financially literate non-executive members; and executive compensation alignment, ensuring that executive compensation is aligned with ESG goals.

5.2.4. Contributions to Accounting Research

Fifth, the study contributes to accounting knowledge by providing new evidence on ESG reporting, governance, and the cost of capital in the UK. The findings offer insights that guide researchers toward new research directions in these areas. For instance, researchers could investigate the causal mechanisms or processes underlying ESG reporting, governance, and the cost of capital. Researchers could also examine the temporal dynamics or changes in this relationship. Furthermore, researchers could explore cross-country variations or differences in this relationship across different contexts. These research directions

could enhance our understanding of how ESG factors and governance practices influence financial outcomes.

5.3. Limitations and Avenues for Future Research

This research has limitations and biases that affect its generalizability. The sample only includes non-financial UK firms, which may not apply to other contexts. Future research could explore several additional directions to build on the results of this research:

Exploring different types of ESG disclosure: Future studies could investigate the impact of environmental, social, and governance metrics separately to understand whether certain ESG dimensions have a stronger influence on the cost of capital and the firm's financial performance. This could provide more granular insights into how different aspects of ESG reporting are valued by investors.

Sector-specific effects: Examining the interaction between ESG reporting and the cost of capital across different industries or sectors could yield valuable insights. The impact of ESG disclosure may vary depending on the unique characteristics, risks, and stakeholder expectations of each sector.

Longitudinal studies: Capturing the long-term effects of ESG reporting over a longer time horizon could shed light on how the relationship evolves as companies and investors become more accustomed to sustainability disclosures. This could help differentiate short-term from long-term impacts.

Comparative studies: Expanding the research to other regulatory environments, both within the UK and internationally, could offer a broader perspective on how the cost of capital–ESG disclosure relationship is influenced by different institutional and cultural contexts.

Integrated frameworks: Developing frameworks that combine ESG metrics with traditional financial analysis could provide a more holistic understanding of how sustainability performance and governance practices impact a firm's overall value and financial decision-making.

These limitations and suggestions need cautious interpretation and indicate areas for further investigation. Exploring these future research directions could enrich our knowledge on ESG reporting, governance, and capital market dynamics. They could also offer valuable insights and implications for theory, practice, and policy.

6. Conclusions

This paper explored the intricate interaction between ESG reporting, corporate governance, and the cost of capital, with a particular focus on how governance mechanisms act as a moderating factor in this dynamic. Utilizing multivariate regression analysis on data from non-financial UK firms from 2014 to 2018, the study yields the following key findings:

ESG reporting and the cost of capital: The analysis reveals a positive and significant effect of ESG disclosure on the cost of capital. This result implies that a higher level of ESG disclosure is correlated with increased capital costs and potentially higher risk, or lower performance of firms. This finding contradicts the initial hypothesis and stakeholder theory, which anticipated a negative relationship. Possible explanations for this counterintuitive result include the short sample period, variations in the quality and relevance of ESG reporting across firms, and challenges in establishing causation. Theories including information asymmetry and signaling theory offer additional insights into why increased ESG disclosure might lead to higher capital costs.

Governance as a moderator: Corporate governance was found to negatively and significantly moderate the impact of ESG reporting on the cost of capital. Companies with higher ESG scores and superior governance practices experienced lower capital costs and reduced risk or enhanced performance. This supports the second hypothesis and aligns with legitimacy theory, which suggests that effective governance improves the credibility of ESG disclosures, thereby reducing

capital costs. Governance tools including independent boards, competent audit committees, and robust internal controls are crucial in this regard.

In light of the findings presented in this study, it is essential to consider the implications for various stakeholders involved in the corporate ecosystem. Investors should consider both ESG disclosure and corporate governance when evaluating companies. High-quality ESG reporting, coupled with strong governance, can signal reduced risk and potentially lower capital costs, thus informing investment decisions and portfolio diversification strategies. Firms are encouraged to refine their ESG strategies and governance practices to optimize financial performance and reduce capital costs. Adopting recognized reporting standards, like GRI or TCFD standards, and implementing effective governance practices are recommended to enhance transparency and investor confidence.

Regulators and policymakers play a crucial role in fostering sustainable business practices. They are encouraged to mandate comprehensive ESG reporting, provide incentives for strong ESG performance, and establish public platforms for ESG data. Aligning firm strategies with ESG goals and facilitating the dissemination and verification of ESG information can drive more robust policy outcomes. Additionally, Auditors can leverage ESG disclosure and governance scores to assess sustainability performance and risks, thereby providing assurance services that build stakeholder confidence. Emphasizing key governance indicators and collaborating with sustainability experts can enhance the effectiveness of audits in this domain.

The study's focus on non-financial UK firms within a specific timeframe restricts the generalizability of the findings to broader contexts. The short sample period and variations in ESG reporting quality also pose constraints. Future research should address these limitations by incorporating a more heterogeneous sample of firms across different countries and industries, extending the study period, and exploring various methodological approaches. Investigating sector-specific impacts, conducting longitudinal studies, and developing integrated ESG–financial analysis frameworks could provide deeper insights. Additionally, exploring additional theories, including agency theory or resource dependence theory, could further enrich the understanding of the ESG disclosure–cost of capital relationship.

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