

**The Impact of Corruption on the Cost of Equity:
The Role of ESG**

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Abstract

This study examines whether Environmental, Social, and Governance (ESG) performance mitigates the increase in the cost of equity associated with corporate corruption and whether this effect is further enhanced by board gender diversity. Using a panel dataset of publicly listed firms in the United States and Canada from 2013 to 2022, the analysis reveals that corruption is significantly and positively associated with the cost of equity, while ESG performance—both overall and across its environmental, social, and governance pillars—is negatively associated with it. The interaction terms between ESG and corruption are consistently negative and statistically significant, suggesting that ESG serves as an effective risk-mitigating mechanism in the presence of reputational and operational risk. The moderating role of ESG is more pronounced in firms with greater board gender diversity. These results are robust to various empirical strategies, including instrumental variable regression, theme-level decomposition, and propensity score matching based on anti-corruption policy disclosure. This study contributes to the literature by integrating ESG and corruption into a unified framework, highlighting the financial relevance of ESG practices and inclusive governance. The findings offer practical implications for investors, managers, and policymakers seeking to reduce financing costs and promote long-term value creation in corruption-prone environments.

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The Impact of Corruption on the Cost of Equity: The Role of ESG

1 Introduction

In recent years, the impact of corruption on corporate financial health has attracted significant attention, particularly due to its role in increasing financial Research shows that corruption, by increasing information asymmetry and raising investment risk, can lead to higher costs of equity for firms. Corruption not only disrupts future cash flows but also diminishes market confidence, reducing stock market participation and subsequently increasing equity costs (Banerjee, Gupta, & Krishnamurti, 2022). Companies engaged in corrupt activities are often linked with unethical practices such as earnings management, options backdating, accounting fraud, and opportunistic insider trading, further eroding investor trust and exacerbating the perceived risk (Liu, 2016). The effect of corruption on equity costs stems from its ability to undermine both current and future cash flows, while also increasing the required return demanded by investors to compensate for heightened risk. Additionally, the negative correlation between corruption and foreign direct investment highlights how corruption affects a firm's access to external capital and market confidence (Shleifer & Wei, 2000). As a result, firms tainted by corruption allegations experience higher costs of equity due to fluctuating share prices driven by increased risk (Banerjee et al., 2022).

In parallel, the importance of Environmental, Social, and Governance (ESG) performance has gained prominence within the corporate finance landscape. Numerous studies have established that strong ESG performance plays a crucial role in reducing

the cost of equity by improving transparency, mitigating information asymmetry, and fostering trust among investors (e.g., La & Bernini, 2022). ESG performance is composed of three pillars: environmental performance, which relates to resource usage, emissions, and environmental innovation; social performance, which addresses human capital management, human rights, and community engagement; and governance performance, which reflects corporate governance structures, shareholder relations, and transparency in management practices. Research indicates that strong environmental performance, for example, can help firms avoid fines and regulatory penalties, thereby reducing equity costs (Chava, 2014). Similarly, companies that invest in social capital and demonstrate strong governance practices tend to enjoy lower costs of equity due to reduced risks and greater investor trust (e.g., Gupta, Krishnamurti, & Tourani-Rad, 2018; Lu, Oh, Kleffner, & Chang, 2021).

Given these insights, this study aims to investigate whether ESG performance can mitigate the increase in the cost of equity caused by corruption. Although existing literature has explored the individual effects of corruption on equity costs and ESG's role in reducing such costs, research examining the interaction between ESG, and corruption is limited. This study seeks to fill that gap by analyzing whether strong ESG performance can act as a buffer, reducing the equity cost spikes typically associated with corporate corruption. To address this question, the analysis focus on publicly listed firms in the United States and Canada from 2013 to 2022, drawing on comprehensive datasets from Refinitiv, Beta Suite, and CompStat.

In addition to ESG performance, this study also examines the role of board gender diversity in influencing the relationship between ESG and corruption. Prior research suggests that gender-diverse boards enhance decision-making quality, reduce information asymmetry, and improve corporate governance, all of which contribute to lower equity costs (Srinidhi, Gul, & Tsui, 2011). Gender-diverse boards are less likely to engage in groupthink and are more capable of addressing complex issues, making them effective in reducing risks associated with corruption (Adams, Gray, & Nowland, 2010). Moreover, female directors are often more attuned to ESG reporting, especially in cases where boards include three or more women, which leads to higher-quality disclosures and greater investor confidence (Bear, Rahman, & Post, 2010; Gul, Srinidhi, & Ng, 2011). Thus, this study hypothesizes that firms with higher board gender diversity experience a stronger moderating effect of ESG on the cost of equity in corrupt environments.

The empirical analysis tests these hypotheses by constructing regression models that analyze the interaction between corruption, ESG performance, and board gender diversity. The primary hypothesis is that ESG mitigates the increase in the cost of equity caused by corruption. Furthermore, the study explores whether companies with higher environmental, social, or governance performance experience a greater reduction in the cost of equity. Additionally, the role of gender diversity is examined to determine if it amplifies the moderating effect of ESG in reducing equity costs for corrupt firms. To ensure robustness, this study employ various econometric techniques, including

propensity score matching and instrumental variable analysis, to account for potential endogeneity and selection biases.

From an academic perspective, this study fills a research gap regarding the interaction between corruption and ESG performance. Although previous studies have explored how corruption increases the cost of equity for firms and how ESG performance reduces financing costs, research on whether ESG can act as a buffer in corrupt contexts remains limited. Through empirical analysis, this study offers new insights into this area, enriching the theoretical framework surrounding corporate governance, corruption, and financial performance. Specifically, the research reveals which aspects of the three ESG pillars—environmental, social, and governance—are most effective in mitigating the financial impact of corruption, providing a foundation for future research to further expand and deepen the understanding of these interactions. Additionally, this paper's analysis of board gender diversity as a moderating variable introduces a new dimension to corporate governance research, highlighting how gender diversity plays a crucial role in the relationship between ESG and corruption. For investors, this study helps them better understand the relationship between ESG performance and corporate financial risk, especially in managing risks in corrupt environments. Investors can analyze a company's ESG performance, particularly its specific scores in the areas of environmental, social, and governance, to assess the company's financial health and reduce potential risk exposure in their investment decisions. For corporate management, this research assists in decision-making by demonstrating how strengthening ESG performance can help mitigate the financial

challenges posed by corruption. From the perspective of policymakers, this study provides empirical evidence to support the implementation of stricter ESG regulations and gender diversity policies. Policymakers can formulate stricter ESG reporting requirements and encourage companies to make improvements in environmental protection, social responsibility, and governance structures to reduce the overall market risk associated with corruption. Finally, from a social and environmental standpoint, this research explores whether ESG, while bringing broader positive impacts on society and the environment, also helps improve corporate financial performance. This not only helps promote the concept of sustainable development but also enhances a company's reputation and credibility in society, ultimately contributing to broader social welfare.

The structure of this thesis is as follows: Section 2 provides a comprehensive review of the existing literature and develops the research hypotheses, focusing on the relationships among corruption, ESG performance, board gender diversity, and the cost of equity. Section 3 describes the data sources, variable construction, and empirical methodology, including the baseline regression models and robustness checks. Section 4 presents the main empirical findings, including univariate tests, baseline regression results, and analyses based on board gender diversity. Section 5 concludes the study, and Section 6 discusses its limitations.

2 Literature Review and hypothesis development

2.1 Cost of equity and corruption

Corruption, which increases information asymmetry and elevates investment risk, can lead to higher costs of equity capital (Banerjee et al., 2022). Companies with a tendency toward unethical behavior are more likely to engage in earnings management, options backdating, accounting fraud, and opportunistic insider trading (Liu, 2016). Corruption may affect the cost of equity in two ways. First, corrupt behavior may impact a company's future cash flows. Second, low stock market participation is another channel. The present stock price is derived from expected future cash flows and is referred to as the cost of equity. On the other hand, the required rate of return for the business could be impacted by corrupt activity. Firms with high levels of corruption are likely to have different share prices than firms with low levels of corruption, as the riskiness of firms fluctuates according to corruption allegations (Banerjee et al., 2022). There is a negative correlation between corruption and foreign direct investment (Shleifer & Wei, 2000). When looking at metrics like revenue growth, revenue per employee, and revenue to assets ratio, Mironov (2015) finds evidence that companies with potentially corrupt management perform better. The literature on agency costs and corporate governance provides evidence that corrupt behavior is associated with a required rate of return (e.g., Boubakri, Guedhami, & Mishra, 2010; Chen, Chen, & Wei, 2009).

The cost of equity is also influenced by corrupt corporate behavior through low stock market participation (Banerjee et al., 2022). Investors may be less likely to put their money into the stock market if they don't trust the market (Guiso, Sapienza, & Zingales, 2008). In the same vein, Giannetti and Wang (2016) demonstrate that when corporations' fraud is disclosed, it causes market participants to lose trust in the stock market, which in turn causes them to reduce their stock market involvement. Additionally, the cost of equity rises, and institutional ownership becomes more concentrated as a result of fewer individual investors participating in the stock market (Merton, 1987). Banerjee et al. (2022) found that corruption significantly increases a company's implied cost of equity. Furthermore, if a company is found to be repeatedly engaging in unethical behavior, its cost of equity will further increase. Business ethics controversies and anti-competition disputes have a greater impact on the implied cost of equity than other types of unethical behavior.

2.2 Cost of equity and ESG

In recent years, there has been a growing emphasis on Environmental, Social, and Governance (ESG) performance within the financial sector. This shift towards sustainability and ethical business practices has led to inquiries into how these elements relate to traditional financial indicators, particularly the cost of equity. The current literature indicates an increasing interest from stakeholders in sustainability issues, such as ESG (Khan, Serafeim, & Yoon, 2016). Many studies suggest that ESG plays a crucial role in reducing the cost of equity capital (e.g., La & Bernini, 2022).

Much of the existing research on ESG focuses on firm-level analysis, investigating the overall ESG performance of companies. For instance, Tang (2022) argues that addressing ESG concerns can help firms reduce information asymmetry between shareholders and management, thereby lowering the cost of equity financing. By examining each ESG pillar separately, Temiz (2022) finds that environmental performance specifically leads to a decrease in the cost of equity capital. Similarly, studies on social performance and governance performance confirm the beneficial effects of ESG practices, showing that firms can capitalize on strong ESG performance (e.g., Friedrich & Schmidt, 2022). These findings suggest that companies not only benefit from their overall ESG performance but also from each individual pillar.

Several theories offer explanations for why firms with strong ESG performance tend to benefit. For instance, stakeholder theory (e.g. Freeman, Harrison, Wicks, Parmar, & De Colle, 2010), social responsibility investment theory (e.g. Sparkes & Cowton, 2004), and the triple bottom line (TBL) theory (Elkington, 1997) each provide unique perspectives on the future of sustainability. These theories collectively suggest that firms engaged in sustainable practices can potentially reap rewards. Stakeholder theory emphasizes that decisions should account for the interests of all stakeholders, including owners, employees, communities, and governments. Social responsibility investment theory argues that investments should not only yield financial returns but also contribute positively to society. The triple bottom line theory, on the other hand, posits that firms should prioritize three key areas—profit, people, and the planet—for sustainable development.

In terms of reducing equity costs, sustainability-related theories offer insights into the advantages of incorporating ESG practices. According to risk-reward theory, the benefits of ESG can be understood through the relationship between risk and return (Markowitz, 1991). For instance, corruption may lead to increased risk, prompting investors to demand higher returns, which in turn raises firms' equity costs. However, ESG performance can mitigate perceived risk, leading to lower expected returns from investors (Mio, Fasan, & Scarpa, 2023). Socially responsible investors are motivated by the belief that strong non-financial sustainability performance leads to better financial outcomes (Chatterji, Levine, & Toffel, 2009).

Following that, this study proposes that ESG acts as a moderator on the association between corruption and equity cost, as given in the hypothesis of this study as follows:

H1 ESG mitigates the increase in the cost of equity caused by corruption.

2.2.1 Cost of Equity and Environmental Performance

Companies that perform well in environmental areas tend to be less exposed to fines and penalties, especially as regulations become stricter. Stakeholders today are concerned not only with economic issues but also with legal and environmental matters (Chava, 2014). Firms that excel in environmental performance often exceed the basic legal requirements for emissions and resource use. Previous research indicates that companies with weaker environmental profiles tend to face higher costs of equity (Chava, 2014), suggesting that firms with stronger environmental performance benefit

from lower equity costs. This proactive approach to environmental management helps reduce regulatory risk and acts as a form of "insurance" against future changes in environmental regulations. Such resilience and protection can be attributed to the long-term efficiencies gained through sustainable environmental practices. I propose the following hypothesis.

H1-(a) Firms demonstrating stronger environmental performance experience enhanced reduction in the increase of the cost of equity driven by corruption.

2.2.2 Cost of Equity and Social Performance

Social performance offers the distinct advantage of reducing perceived risk by fostering trust through the development of social capital. Social capital is a broad concept that generally refers to the collective ability of individuals within a society or community to produce socially beneficial outcomes through collaboration (Putnam, 1993; Putnam, 2000). Firms can establish trust in two ways. "Endowed trust" is externally acquired when a firm operates in a high-trust environment or society (Guiso et al., 2004). On the other hand, "Earned trust" is internally generated when a company actively invests in social capital (Amiraslani, Lins, Servaes, & Tamayo, 2023). As Lins, Servaes, and Tamayo (2017) suggest, a firm's social performance can serve as a useful proxy for gauging its investment in social capital. Stronger social performance enables firms to build greater trust with both shareholders and stakeholders by enhancing their social capital. Gupta, Rahman, and Shang (2018) also emphasize the inverse relationship between social capital investment and the cost of equity.

Firms with high social performance are more likely to focus on aspects such as human capital, product safety, stakeholder relations, and social opportunities (MSCI, 2023). Companies that excel in social performance contribute to society while committing to ethical, sustainable, and socially responsible business practices. Their investments in human capital development, product quality, community engagement, and access to finance enhance their reputation, thus fostering trust with investors and customers. Furthermore, by investing in social capital and upholding social responsibility, firms can mitigate legal risks and avoid violations of labor laws.

Therefore, investors perceive firms that invest in social capital as more trustworthy and less risky. This results in lower minimum returns for high CSR firms when corruption occurs. As trust becomes more valuable during crises, social capital serves as a more effective insurance mechanism, protecting firms from increased cost of equity. Thus, I propose the following hypothesis.

H1-(b) Firms demonstrating stronger social performance experience enhanced reduction in the increase of the cost of equity driven by corruption.

2.2.3 Cost of Equity and Governance Performance

A firm's governance performance plays a crucial role in shaping investors' risk perceptions and boosting confidence in future growth. Companies with strong governance are more likely to fully comply with requirements related to management, shareholders, and CSR strategies within corporate governance and corporate behavior

(MSCI, 2023; LSEG, 2023). Generally, firms that excel in the governance pillar are able to lower the expected losses by managing risks more effectively reducing the likelihood of risks before they occur and lessening the severity of losses after they happen (Lu, Oh, Kleffner, & Chang, 2021). Additionally, firms with exceptional governance performance make more transparent decisions, often involving more ethical business practices. Compared to firms with weaker governance, those with strong governance experience greater transparency in areas like board selection, compensation, ownership and control, and tax reporting (MSCI, 2023). This transparency reduces uncertainty about corporate structure and operational risks, thereby increasing investor trust.

These factors may explain why superior governance can activate an insurance-like protection mechanism that lowers a company's cost of equity, particularly during times of crisis, such as corruption. Therefore, I propose the following hypothesis.

H1-(c) Firms demonstrating stronger governance performance experience enhanced reduction in the increase of the cost of equity driven by corruption.

2.3 Cost of equity and board gender diversity

The first reason why gender diversity on boards may reduce the cost of equity capital is the reduction of information asymmetry. Agency theory posits that management can take advantage of information asymmetry to behave contrary to the interests of shareholders. A strategy to alleviate the agency problem involves reducing

information asymmetry between the management and shareholders. Consequently, the board serves as a crucial tool for supervising management behavior and evaluating the effectiveness of managerial decision-making (Mnif & Cherif, 2021). The interaction between gender diversity and corruption is particularly relevant in the context of equity capital costs. Corruption increases information asymmetry and uncertainty, which in turn raises the risk perceived by investors, leading to higher equity costs (Banerjee et al., 2022). Srinidhi et al. (2011) reported that gender-diverse boards are associated with higher earnings quality and a richer information environment. Their study suggests that diverse boards are better at mitigating risks associated with information asymmetry. Gender diversity in the boardroom has been associated with a reduction in agency conflicts, as diverse boards are less tended to groupthink and more likely to consider a wider range of perspectives (Adams, Gray, & Nowland, 2010).

Research has shown that having a diverse gender representation on a board is linked to improvements in the quality of board discussions, the ability to address difficult issues, and the effectiveness of board communication (Stephenson, 2004). These factors contribute to better dissemination of information from the board to investors (Gul et al., 2011). Research indicates that female directors play a significant role in promoting ESG reporting, particularly in boards that have three or more female directors (Bear et al., 2010). Enhanced ESG disclosure results in decreased information asymmetry amongst investors (Dhaliwal, Li, Tsang, & Yang, 2011). Enhanced public disclosure offers price safeguarding for uneducated investors and is expected to boost

their confidence and ownership, hence lowering the cost of stock (Amihud & Mendelson, 1986; Gul et al., 2011; Verrecchia, 2001).

Gender-diverse boards may be more conservative in their accounting disclosures and may attract more potential investors thereby reducing the cost of equity. Sociological, psychological, and economic research (Powell & Ansic, 1997; Vermeir & Van Kenhove, 2008) suggest that women tend to be more conservative than males. Firms can lower their systematic risk and cost of equity through conservative financial reporting, which also assists in reducing the uncertainty that comes with market estimates of future cash flows (Francis, Hasan, Park, & Wu, 2015; Francis, LaFond, Olsson, & Schipper, 2004). Companies with superior environmental, social, and governance (ESG) performance tend to have a broader pool of investors compared to other companies. (Fauver, Hung, Taboada, & Wang, 2022; Heinkel, Kraus, & Zechner, 2001; Hong & Kacperczyk, 2009). Boardroom diversity is a crucial social performance concern among various ESG factors (Fauver et al., 2022).

Following that, this study proposes that broad gender diversity acts as a moderator on the association between ESG in reducing the increase in the cost of equity caused by corruption, as given in the hypothesis of this study as follows:

H2 The enhanced effect of ESG in reducing the increase in the cost of equity caused by corruption is more significant for firms with higher board gender diversity.

3 Data and methodology

My research focuses on publicly listed companies from the United States and Canada, traded on the New York Stock Exchange and NASDAQ between 2013 and 2022. The study aims to bridge the gap by investigating whether ESG mitigates the increase in the cost of equity caused by corruption, particularly in the context of gender-diverse boards. In constructing the variables, the data primarily comes from Refinitiv (LSEG) , WRDS, Beta Suite, and CompStat. Some firm characteristics, such as earnings volatility, require data from the five years preceding the baseline year, so data from the five years prior to 2015 were also collected. When incorporating industry fixed effects, I used the NAICS sector code as the identification standard.

I have built different regression models for each hypothesis to address the research questions and hypotheses. I summarized descriptive statistics, identified correlations between key variables, and performed univariate tests before running the baseline regression model. After obtaining the baseline model results, I conduct robustness checks—such as examining each ESG indicator, checking for endogeneity, applying propensity score matching, adding additional control variables, and using alternative measures of corruption—to determine whether the hypotheses yield consistent conclusions.

3.1 Cost of Equity Construction

Several studies, including those by Banz (1981), Reinganum (1981), Keim (1983), Basu (1983), Rosenberg et al. (1985), and Fama and French (1992), have documented the influence of firm size and book-to-market (BM) ratios on U.S. equity returns. To explain these effects, Fama and French (1993) introduced a three-factor model incorporating the market, size, and BM factors. However, Fama and French (1996) noted that their model did not fully account for the momentum effects observed in Jegadeesh and Titman's (1993) research. In response, Carhart (1997) extended the Fama-French model by adding a momentum factor, forming a four-factor model.

The Carhart four-factor model expands upon the Fama-French three-factor model by introducing a momentum factor, which allows it to better capture stock return variations, particularly the momentum effects observed in previous studies (Jegadeesh & Titman, 1993). This momentum factor improves the model's ability to explain the performance of portfolios based on past stock returns, which the Fama-French model fails to fully account for (Fama & French, 1996; Nartea, Ward, & Djajadikerta, 2009). Carhart (1997) demonstrated that incorporating the momentum factor enhances the model's descriptive power for average stock returns across various markets, as seen in emerging markets like Hong Kong, where augmenting the model with a liquidity factor further improves explanatory power (Lam & Tam, 2011). The momentum factor is particularly useful in smaller and less liquid markets, such as African capital markets, where smaller firms dominate, and market liquidity significantly impacts momentum

profits (Pastor & Stambaugh, 2003; Appiah-Kusi & Menyah, 2003). Thus, the Carhart model provides a more comprehensive framework for analyzing stock returns, especially in markets where momentum is a relevant risk factor.

$$r_{i,t} - rf_t = \alpha_i + \beta_{i,mkt}(mktrf_t - rf_t) + \beta_{i,smb}SMB_t + \beta_{i,hml}HML_t + \beta_{i,umd}UMD_t + \varepsilon_{i,t}$$

Where $r_{i,t}$ represents the stock i return during period t , $mktrf_t$ represents the Fama-French excess returns on the Market during period t , SMB_t represents the Fama-French small minus big (Size) factor during period t , HML_t represents the Fama-French high minus low (Value) factor during period t , UMD_t represents the Carhart up minus down (Momentum) factor during period t .

The cost of equity estimates in this study are derived from the Fama-French and Carhart Four-Factor Model using data from WRDS Beta Suite. I utilized the Fama-French and Carhart Four-Factor data with a monthly frequency, applying a rolling 60-month estimation window, following prior research (e.g., Chen, Liu, & Zhang, 2020; Kinateder, Hofstetter, & Wagner, 2017; McNevin & Nix, 2018). To be considered for inclusion, a stock must have at least 36 months of available data within the 60-month window. This criterion ensures that there is sufficient historical data to accurately estimate the cost of equity. The estimated cost of equity covers the period from 2013 to 2022, with monthly returns. Since ESG data from LSEG is recorded annually, the monthly data are aggregated and converted into compounded annualized returns to align with the ESG data's reporting frequency using the transformation described below.

$$r_{i,ta} = (1 + r_{i,tm1})(1 + r_{i,tm2})(1 + r_{i,tm3}) \dots (1 + r_{i,tm11})(1 + r_{i,tm12}) - 1$$

After transfer the monthly data to yearly data, I use $CE_{i,t}$ to represent the cost of equity for firm i in year t in the following models.

3.2 Corruption variables

Following Banerjee et al. (2022), the model incorporates variables related to corruption, which can be found in the LSEG database. Two types of corruption measures are used in the baseline model. The first measure is the corruption dummy, a binary indicator that takes the value 1 if the firm is under media scrutiny for corruption charges and 0 otherwise. $Corruption\ Dummy_{i,t}$ is the corruption binary indicator for firm i in year t . Banerjee et al. (2022) argue that the corruption dummy does not capture the type of corruption or whether a firm has engaged in multiple unethical practices within a single year. Therefore, following Banerjee et al. (2022), I replace the corruption dummy with a continuous controversies variable in model 2, which is the second measure of corruption. In further analysis, I use a third measure of corruption, which is continuous and provides information on business ethics, media controversies related to public health, critical country controversies, tax fraud, and anti-competition issues.

3.3 ESG Construction

Environmental, Social, and Governance (ESG) scores were sourced from LSEG, a highly regarded institution known for its focus on transparency and precision in providing ESG data to the financial and investment sectors. LSEG is widely recognized as a reliable data provider, compiling and aggregating ESG information from publicly available sources (e.g., Li & Poluchronopoulos, 2020).

The ESG scores of North American firms were compiled using data from Refinitiv, broken down into three pillars. According to Refinitiv's definitions, Total ESG performance (the first layer) is composed of three pillars: Environmental, Social, and Governance (the second layer). The Environmental pillar evaluates resource use, emissions, and environmental innovation, while the social pillar evaluates workforce management, human rights, community engagement, and product responsibility. The Governance pillar evaluates management practices, shareholder relations, and CSR strategies. ESG scores for each pillar are reported on a scale from 0 to 100.

3.4 Construction of board gender diversity groups

Gender diversity on boards has certain advantages, which have garnered widespread attention in recent years. For instance, women often focus on issues that male directors may overlook, thereby enhancing the board's independence (Solakoglu & Demir, 2016). Studies indicate that female tend to exhibit higher moral standards, lower tendencies towards corruption, and a greater sensitivity to ethical issues (e.g.

Adams & Ferreira, 2009; Gul et al., 2011; Bernardi & Arnold, 1997). Women tend to prioritize ethical considerations more than men and are less inclined to participate in unethical actions for financial gain (e.g. Arioglu, 2020). Some researchers suggest that women are more sensitive to ethical issues than men in decision making (e.g. Cohen, Pant, & Sharp, 1998; Bernardi & Arnold, 1997). Women, in comparison to men, exhibit a lower tolerance for engaging in opportunistic behavior (Bernardi & Arnold, 1997; Krishnan & Parsons, 2008). Research indicates that female directors may be more sensitive to safeguarding the company's reputation (Srinidhi et al., 2011). Studies have shown that female board members tend to be less willing to take risks and more cautious when managing complex situations (e.g. Brooks & Zank, 2005; Jianakoplos & Bernasek, 1998). They may require more stringent monitoring to protect the board's reputation (Gilson, 1990). Boards with female directors are more likely to experience a significant impact on their reputational capital (Fama & Jensen, 1983).

Women's stronger tendency to avoid risk makes them less likely to engage in fraudulent behavior (e.g., Ho, Li, Tam, & Zhang, 2015; Lai, Srinidhi, Gul, & Tsui, 2017). According to Abdullah and Ismail (2016), women are more likely than men to emphasize fairness and prioritize maintaining interpersonal relationships. This distinction accounts for the differences in how women approach leadership, as well as their views on risk and ethical considerations. Similarly, Gul et al. (2011) assert that female leadership is characterized by a focus on collaboration and trust. Additionally, research has shown that gender-diverse boards are more likely to challenge the opinions of other directors and seek objective evidence to justify their positions (McInerney-

Lacombe, Billimoria, & Salipante, 2008). Furthermore, some researchers argue that gender-diverse boards are more diligent in their monitoring roles (Adams & Ferreira, 2009; Burke & Mattis, 2000).

Following previous studies (e.g., Srinidhi et al., 2011; Ongsakul, Jaroenjitrkam, Treepongkaruna, & Jiraporn, 2022; Gul et al., 2011), I measure board gender diversity by the percentage of female directors on the board. The Board Gender Diversity Percentage Score data is derived from Refinitiv database. I divide all target companies into two groups, one with higher board gender diversity and the other with lower board gender diversity, based on the median of the diversity related data.

3.5 Control variables

The first control variable is used to control firm size. The ratio of a company's book value to its share price is called the book to market ratio (BM). I control firm size because stock returns are negatively correlated with firm size and positively related to book-to-market ratio (Fama & French, 1992). Svensson (2003) found that when political corruption is present, the cost of equity may be affected by the size of the firm. More resources and better monitoring systems are two advantages that larger organizations have (Beck, Demirgüç-Kunt, & Maksimovic, 2005). Choi and Thum (2005) found that smaller enterprises are less influenced by corruption activities because they face lower opportunity costs to bribe payments. The firm beta (Beta) is derived using at least 36 months of return data within the past five years, estimated via the Fama-French Four-Factor (FF4) model from the WRDS Beta Suite. Idiosyncratic risk is calculated as the

standard deviation of the residuals from the FF4 model regression, following the methodology outlined by Ke (2022), while Idiosyncratic Volatility (IVOL) is determined according to Ang, Hodrick, Xing, and Zhang (2006) by measuring the volatility of the difference between realized returns and expected returns. Momentum refers to the stock price trend, captured as the natural logarithm of the compounded monthly stock returns over the year preceding the cost of equity estimate (Ke, 2022). The variable Asset represents the natural logarithm of total assets, and Growth is the firm's earnings growth rate, measured by earnings before interest and taxes between year $t+1$ and year t . Due to limited access to I/B/E/S, a historical growth rate will be used as a substitute (Ke, 2022). Additionally, Earnings Volatility is calculated as the standard deviation of annual earnings divided by the mean over the prior five years, following Gebhardt et al. (2001) and Ke (2022). Asset is the natural log of the total asset. Leverage is the long-term debt over total asset ratio

3.6 Baseline model

I employed a panel data approach to compile cross-sectional observations of firms from 2015 to 2022. In studies focused on panel data, researchers often utilize the fixed effects model for analyzing regression results. This model is preferred as it effectively addresses individual heterogeneity and enhances the precision of estimating the relationship between the dependent and independent variables (e.g., Callaway & Karami, 2023). Recognizing the strengths of the fixed effects model, I applied it to all regression models in my research. After estimating the coefficients and standard errors

for both fixed effects and random effects models, I performed the Hausman test to consistently verify whether the fixed effects model was the appropriate choice (e.g., Mio, Fasan, & Scarpa, 2023).

My first hypothesis emphasizes whether ESG can mitigate the impact of corruption on the cost of equity. The first four models are built solely based on the key explanatory variables. Afterward, I expanded these models by adding control variables and incorporating fixed effects.

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Dummy}_{i,t} + \alpha_2 \text{ESG}(\text{total scores})_{i,t} + \\
& \alpha_3 \text{Corruption Dummy}_{i,t} \cdot \text{ESG}(\text{total scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{1.1}$$

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Dummy}_{i,t} + \alpha_2 \text{ESG}(\text{E Pillar scores})_{i,t} + \\
& \alpha_3 \text{Corruption Dummy}_{i,t} \cdot \text{ESG}(\text{E Pillar scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{1.2}$$

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Dummy}_{i,t} + \alpha_2 \text{ESG}(\text{S Pillar scores})_{i,t} + \\
& \alpha_3 \text{Corruption Dummy}_{i,t} \cdot \text{ESG}(\text{S Pillar scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{1.3}$$

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Dummy}_{i,t} + \alpha_2 \text{ESG}(\text{G Pillar scores})_{i,t} + \\
& \alpha_3 \text{Corruption Dummy}_{i,t} \cdot \text{ESG}(\text{G Pillar scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{1.4}$$

Since the corruption dummy may not capture the type of corruption or whether a firm has engaged in multiple unethical practices within a single year (e.g., Banerjee et al., 2022). Therefore, I replace the corruption dummy with a continuous controversies variable in model 2. Similarly, the first four models are built solely based on the key explanatory variables. Afterward, I expanded these models by adding control variables and incorporating fixed effects.

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Controversies}_{i,t} + \alpha_2 \text{ESG}(\text{total scores})_{i,t} + \\
& \alpha_3 \text{controversies variable}_{i,t} \cdot \text{ESG}(\text{total scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{2.1}$$

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Controversies}_{i,t} + \alpha_2 \text{ESG}(\text{E Pillar scores})_{i,t} + \\
& \alpha_3 \text{controversies variable}_{i,t} \cdot \text{ESG}(\text{E Pillar scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{2.2}$$

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Controversies}_{i,t} + \alpha_2 \text{ESG}(\text{S Pillar scores})_{i,t} + \\
& \alpha_3 \text{controversies variable}_{i,t} \cdot \text{ESG}(\text{S Pillar scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{2.3}$$

$$\begin{aligned}
CE_{i,t} = & \alpha_0 + \alpha_1 \text{Corruption Controversies}_{i,t} + \alpha_2 \text{ESG}(\text{G Pillar scores})_{i,t} + \\
& \alpha_3 \text{controversies variable}_{i,t} \cdot \text{ESG}(\text{Pillar scores})_{i,t} + \text{control variables} + \\
& \text{Fixed effects} + \varepsilon_0
\end{aligned} \tag{2.4}$$

My second hypothesis further explores Hypothesis 1 by focusing on two different board gender diversity groups. The regression models used are the same as those applied in the second hypothesis.

3.7 Robustness check

3.7.1 ESG measurement replacement

In my baseline model, the ESG construction includes the overall Environmental, Social, and Governance (ESG) performance of the company, as well as the individual performance of the Environmental (E), Social (S), and Governance (G) pillars. In my second robustness check, I was motivated to test the key themes of Refinitiv ESG under each pillar—Environmental (E), Social (S), and Governance (G) separately. Specifically, based on the third-tier classification of ESG from Refinitiv’s official website, I examined the themes of Resource Use, Emissions, and Innovation under the Environmental pillar; Workforce, Human Rights, Community, and Product Responsibility under the Social pillar; and Management, Shareholders, and Corporate Social Responsibility Strategy under the Governance pillar. By replacing the broader ESG variables with more specific ESG themes, I aim to generate more targeted insights for stakeholders, allowing a clearer understanding of the exact themes under the ESG framework that contribute to mitigating the impact of corruption on the cost of equity.

3.7.2 Instrumental variable (IV) analysis

To confirm the robustness of findings and address potential endogeneity concerns, I employ an instrumental variable (IV) analysis. This method helps mitigate biases associated with reverse causality, unobserved heterogeneity, and measurement errors. A valid instrument must meet two key conditions: relevance and exclusion. The relevance condition requires that the instrument has a direct impact on the independent variables, without influencing the cost of equity through any other pathways.

For the endogenous relationship between corruption and the cost of equity, following Banerjee et al. (2022), I use the log of total corporate donations as IV. Research by Godfrey (2005) and Godfrey, Merrill, and Hansen (2009) suggests that corporate donations build moral capital, which can protect the firm from future misconduct, indicating a negative relationship between corporate donations and corruption. This instrument also meets the exclusion condition, meaning that the impact of donations on the implied cost of equity should only occur through their relationship with corruption. There is no evidence to suggest that corporate donations would directly impact the cost of equity, as there are other reasons behind these donations, including promoting corporate image, gaining political connections, and strengthening management reputations (Banerjee et al., 2022). Indeed, Chang, Jo, and Li (2018) found no significant impact of corporate giving on financial performance.

3.7.3 Propensity score matching analysis

Previous research on the relationship between ESG and the cost of equity has shown that propensity score matching (PSM) helps alleviate selection bias (e.g., Tanjung, 2023). I use PSM as a robustness check for my baseline model to examine the benefits of ESG at different levels of corruption. In the baseline model, the dependent variable is the cost of equity, and the key explanatory variables are the corruption score, the ESG score, and the interaction between the corruption score and the ESG score. Control variables include various firm characteristics such as firm beta and firm size.

The matching is conducted based on the Policy Bribery and Corruption Score provided by Refinitiv, which captures the extent to which a firm formally articulates its stance and policies against bribery and corruption. Importantly, this score does not reflect a company's actual involvement in corrupt activities; rather, it measures the detail, clarity, and comprehensiveness of a firm's anti-corruption policy disclosures, including commitments outlined in corporate codes of conduct, internal compliance programs, and third-party relationship guidelines.

To implement the PSM procedure, all firms in the sample were first divided into two groups: those with strong anti-corruption policy disclosures and those with weaker disclosures, based on whether their Policy Bribery and Corruption score was above or below the sample mean. This classification allows the study to examine whether the effectiveness of ESG in mitigating the cost of equity due to corruption varies across firms with different levels of internal anti-corruption policy robustness.

Following this grouping, propensity scores were estimated using a logistic regression model, where the treatment variable is the high versus low anti-corruption policy group, and covariates include key firm-level characteristics—such as firm size (log total assets), financial leverage, idiosyncratic risk, momentum, earnings growth, earnings volatility, and book-to-market ratio. These variables align with those used in the baseline regression analysis and ensure comparability across matched firms.

Firms from the high and low policy groups were then matched based on their estimated propensity scores using a one-to-one nearest neighbor matching algorithm without replacement and with a caliper to ensure matching quality. This procedure generates a balanced subsample in which treated and control firms are similar across observable characteristics, thus minimizing the likelihood that systematic differences between the groups bias the estimated treatment effects.

By applying this matched sample approach, the study is able to isolate and more reliably assess the moderating role of ESG performance in the relationship between corruption exposure and the cost of equity. Specifically, the analysis investigates whether the risk-reducing effect of ESG is more pronounced among firms with weaker internal anti-corruption governance, as suggested by their lower Policy Bribery and Corruption disclosure scores. This matching-based design enhances the credibility of the findings by mitigating confounding influences that may otherwise distort the estimated relationships in observational data.

4 Main Results

4.1 Summary Statistics

Table 3 reports the descriptive statistics for the main variables used in this study. The average cost of equity (COE) is 13.2%, with a standard deviation of 0.548. The distribution is right-skewed, as indicated by a median of 8.6% and a maximum of 365.2%, suggesting that while most firms have relatively moderate equity financing costs, a small number face high cost. The corruption score, sourced from Refinitiv, has a mean of 54.6 and a relatively narrow interquartile range (IQR), with most firms falling between 59.0 and 60.7. This indicates that the majority of firms are associated with some degree of corruption-related media exposure, although a portion of firms (minimum = 0) remain free from such controversies. The average ESG score is 43.9, reflecting a moderate level of ESG performance among the sampled firms. Breaking this down into the three ESG pillars, the governance pillar shows the highest average score (52.4), followed by the social pillar (45.5), and finally the environmental pillar (33.4), which also exhibits the largest standard deviation (27.1). This suggests substantial heterogeneity in firms' environmental strategies and disclosure practices, whereas governance performance appears more emphasized among North American firms.

Turning to firm-level controls, the average Beta is 0.885, slightly below 1, indicating that the sampled firms are, on average, less sensitive to overall market fluctuations. This is consistent with prior empirical evidence, such as Fama and French

(1992), who show that firms with smaller size and higher book-to-market ratios typically exhibit lower market Betas. The distributions of idiosyncratic risk and momentum appear relatively stable, with values concentrated around their respective means. In contrast, leverage and growth exhibit substantial variability. The maximum leverage ratio reaches 385.2%, and the highest recorded earnings growth exceeds 880%, indicating the presence of extreme values or potential outliers. Furthermore, the earnings volatility variable ranges from -7.84 to 7.67 . To mitigate the influence of outliers and ensure the reliability of regression results, all continuous variables with extreme observations are winsorized at the 1st and 99th percentiles. This preprocessing step helps to reduce the impact of data distortion while preserving meaningful variation across the sample.

4.2 Matrix of Correlation

Table 4 presents the Pearson correlation coefficients for the key variables in this study. The dependent variable, cost of equity (COE), is significantly and positively correlated with the corruption score ($r = 0.101$, $p < 0.01$), suggesting that firms with higher exposure to corruption-related controversies face increased equity financing costs. This finding aligns with theoretical expectations that corruption increases perceived risk and information asymmetry, thereby raising investors' required returns. Conversely, COE is negatively correlated with ESG performance, both at the overall score level ($r = -0.140$, $p < 0.01$) and across each of the three ESG pillars: environmental ($r = -0.110$), social ($r = -0.091$), and governance ($r = -0.132$). These

preliminary results provide support for Hypotheses H1, H1(a), H1(b), and H1(c), which propose that strong ESG performance can mitigate the increase in the cost of equity caused by corruption.

The three ESG pillars are strongly and positively correlated with one another—environmental and social ($r = 0.747$), environmental and governance ($r = 0.681$), and social and governance ($r = 0.375$)—which is expected given that the overall ESG score is constructed from these components. However, such high correlations raise potential concerns about multicollinearity if all three pillars are included simultaneously in regression models. To address this issue and ensure more reliable estimation, this study adopts a four-model regression strategy in the baseline analysis. Each model includes one ESG dimension at a time (overall ESG, environmental, social, or governance), interacting with the corruption variable, to evaluate its individual moderating effect on the cost of equity. This modeling structure not only mitigates multicollinearity but also enables clearer identification of which ESG aspect plays the most significant role in corrupt settings.

In terms of control variables, idiosyncratic risk and momentum are both significantly and positively associated with the cost of equity, which is consistent with asset pricing theory. The log of total assets is negatively correlated with corruption ($r = -0.370$) and positively associated with ESG scores, indicating that larger firms tend to have stronger ESG performance and lower corruption exposure. Other variables such as leverage, book-to-market ratio, growth, and earnings volatility show weak or

inconsistent correlations with the dependent variable but are nonetheless retained in the regressions to account for firm-level heterogeneity.

Overall, the correlation results align well with the study's hypotheses and offer empirical motivation for the multivariate regression analysis that follows. They also support the chosen empirical design, particularly the need to separately examine each ESG pillar's interaction with corruption to isolate their individual moderating effects on equity financing costs.

4.3 Univariate Test Result

Table 5 reports the results of univariate comparisons between firms classified as corruption-exposed (Corruption Dummy = 1, N = 9,870) and firms not flagged for corruption (Corruption Dummy = 0, N = 4,570). The analysis compares the mean and median values of key variables across the two groups and includes tests of statistical significance.

The cost of equity (COE) is significantly higher in the corruption group, with a mean of 0.145 compared to 0.120 in the non-corruption group (mean difference = 0.025, $p < 0.01$). The difference in medians is also statistically significant. For ESG performance, the corruption group reports higher values in both the overall ESG score and each of its three pillar components. The mean difference in ESG score is 12.5 points, with environmental, social, and governance pillar scores differing by 15.4, 12.8, and

7.5 points respectively. All differences are statistically significant at the 1% level or better. Median values reflect similar patterns.

Among the control variables, the corruption group shows slightly higher values for market beta (Beta) and idiosyncratic risk, with mean differences of 0.09 and 0.015 respectively, both statistically significant. The book-to-market ratio (B2M) and firm size (logAsset) are also higher in the corruption group, and these differences are significant at conventional levels. Other variables such as momentum, leverage, growth, and earnings volatility also exhibit higher average values in the corruption group, although not all differences are statistically significant.

Table 5 reveals significant differences between firms with and without corruption exposure in terms of equity cost, ESG metrics, and several firm characteristics. These results provide a descriptive foundation for the multivariate regression analysis that follows. Table 6 presents the univariate comparison between firms with above-average and below-average board gender diversity scores, based on data from the Refinitiv database. The cost of equity (COE) is lower in the high gender diversity group, with a mean of 0.12, compared to 0.14 in the low diversity group. This difference of 0.02 is statistically significant, and the difference in median values is also significant.

On average, firms with higher board gender diversity exhibit lower corruption scores (mean = 50.5 and 58.0 in the high and low diversity groups, respectively) and higher ESG performance across both the overall ESG score and the individual pillar scores. The mean differences for the environmental, social, and governance pillars are

11.5, 8.7, and 3.1, respectively, all of which are statistically significant at the 1% or 5% level. These findings indicate clear differences in ESG performance between firms with more and less diverse boards.

In addition, several firm-level financial characteristics differ between the two groups. Firms in the high diversity group tend to have larger firm size, lower idiosyncratic risk, and lower book-to-market ratios, with these differences also reaching statistical significance. Other variables, including momentum, leverage, growth, and earnings volatility, display smaller differences that are not statistically significant.

Overall, the results in Table 6 indicate that firms with greater board gender diversity differ systematically from those with lower diversity, particularly with respect to equity cost, corruption exposure, and ESG-related metrics. These descriptive findings motivate further analysis of gender diversity as a potential moderating factor in the relationship between corruption, ESG performance, and the cost of equity.

4.4 Baseline Result

Table 7 reports the regression results using the corruption dummy variable, while Table 8 presents results using a continuous corruption score. Both sets of models examine the impact of ESG performance and its three pillars—Environmental, Social, and Governance—on the relationship between corruption and the cost of equity. The results are consistent across specifications, providing robust support for Hypothesis 1 and its sub-hypotheses (H1a, H1b, H1c).

In Table 7, the corruption dummy is positively and significantly associated with the cost of equity across all four models, indicating that firms exposed to corruption allegations face significantly higher equity financing costs (e.g. Banerjee et al., 2022). At the same time, the main effects of ESG and each of its pillars are negative and statistically significant, suggesting that firms with stronger ESG performance tend to experience lower costs of equity. These results are consistent with prior literature, which has documented that stronger ESG performance is associated with a lower cost of equity capital. These findings are consistent with prior studies that suggest stronger ESG performance is associated with a reduction in the cost of equity capital. For instance, Cheng, Ioannou, and Serafeim (2014) and Dimson, Karakaş, and Li (2015) highlight that ESG engagement can effectively lower firms' capital costs. Empirical evidence also confirms that good ESG performance significantly reduces the cost of equity (e.g. Chen, Li, Zeng, & Zhu, 2023).

More importantly, the interaction terms between the corruption dummy and ESG indicators are all negative and significant at the 1% level, indicating that ESG performance attenuates the increase in equity costs caused by corruption. For instance, the coefficient of Corruption Dummy \times ESG in Model 1 is -0.0003 ($t = -2.99$), while similar interaction effects are observed for environmental (-0.0002), social (-0.0002), and governance (-0.0002) pillars, respectively. These findings suggest that each component of ESG contributes to mitigating the adverse financial impact of corruption.

Table 8 shows the results of models using the continuous corruption score in place of the binary dummy, confirming the robustness of the results. The corruption score remains positively associated with the cost of equity, with coefficients ranging from 0.0018 to 0.0042 and significance levels from 10% to 1%. ESG performance and its individual pillars again exhibit negative and significant coefficients, showing their role in risk reduction. The interaction terms between the corruption score and ESG measures remain negative and statistically significant, further supporting the mitigating role of ESG. For example, the coefficient of Corruption Score \times ESG is -0.0005 ($t = -2.22$), while the coefficient of Corruption Score \times Governance is -0.0006 ($t = -2.81$).

The direction and significance of most control variables in our baseline model are consistent with prior literature. For example, the negative and significant coefficient on B2M aligns with Fama and French (1992), indicating a value premium. Idiosyncratic risk and earnings volatility are both positively associated with COE, as supported by Gode and Mohanram (2003), suggesting that higher risk levels raise the required return. Leverage and beta show positive signs but are not statistically significant, which is also a common pattern in capital cost literature (e.g. Dhaliwal, Radhakrishnan, Tsang, & Yang, 2006; Gode & Mohanram, 2003). Firm size has a negative but insignificant coefficient, in line with the findings of Francis, LaFond, Olsson, and Schipper (2005), who argue that larger firms benefit from greater transparency and lower financing costs.

The adjusted R-squared values for Table 7 are approximately 0.252, while those in Table 8 are slightly higher at around 0.305 (except for Model 3, the social pillar model, which yields a notably higher R² of 0.459).

In summary, the results of Table 7 and Table 8 provide strong evidence for the main hypothesis that better ESG performance—both overall and within each pillar—effectively mitigates the increase in the cost of equity resulting from corporate corruption. This moderating effect of ESG remains robust across different corruption measures, strengthening the empirical foundation of the theoretical framework proposed in this study.

To examine whether the mitigating effect of ESG on the cost of equity under corruption is stronger in firms with more gender-diverse boards, Tables 9 and 10 present regression results for subsamples split by board gender diversity. Table 9 reports results for firms with high board gender diversity, while Table 10 presents the results for firms with low board gender diversity.

Across both groups, corruption scores are positively and significantly associated with the cost of equity, in line with empirical evidence showing that corruption-related concerns raise firms' perceived risk and, consequently, their cost of equity capital (e.g., Banerjee et al., 2022). Likewise, the main effects of ESG and its three pillars are negative and statistically significant, in line with previous empirical research suggesting that improved ESG performance reduces the cost of equity capital across firms (e.g., La & Bernini, 2022; Chen et al. 2023).

The key difference, however, lies in the interaction terms between corruption and ESG. In the high diversity group (Table 9), the interaction terms—Corruption \times ESG, Corruption \times Environmental, Corruption \times Social, and Corruption \times Governance—are all negative and statistically significant, mostly at the 5% or 1% levels. For example, the coefficient on Corruption \times ESG is -0.0006 ($t = -2.411$), while Corruption \times Governance is -0.0007 ($t = -2.951$). These results strongly suggest that ESG practices are more effective in mitigating the rise in cost of equity caused by corruption when firms have more gender-diverse boards.

In contrast, the low diversity group (Table 10) shows weaker or statistically insignificant interaction effects. Although the signs of the interaction terms remain negative, only two of them—Corruption \times ESG and Corruption \times Governance—are statistically significant, and even then, at lower significance levels (e.g., -0.0004 and -0.0005 respectively). The interaction terms involving environmental and social performance are statistically insignificant, suggesting that the buffering effect of ESG under corruption pressure is less pronounced when board gender diversity is low.

In summary, these results offer robust empirical support for Hypothesis 2, which posits that board gender diversity amplifies the mitigating effect of ESG on the cost of equity in corrupt environments. The evidence from both sets of regressions confirms that ESG efforts are more impactful in firms with greater female representation on boards, which may be attributable to the tendency of gender-diverse boards to prioritize

transparency and to avoid risk (e.g., Brooks & Zank, 2005; Jianakoplos & Bernasek, 1998) .

5 Robust Check Result

5.1 ESG measurement replacement

To assess the robustness of the baseline results, this section replaces the aggregated ESG scores with disaggregated, theme-level ESG indicators classified under Refinitiv’s third-tier classification. By conducting separate regressions for each theme within the Environmental, Social, and Governance pillars, this analysis investigates which specific ESG practices are most effective in mitigating the increase in the cost of equity associated with corruption.

As shown in Table 11, the corruption score remains positively and significantly associated with the cost of equity across all model specifications, with coefficients ranging from 0.0039 to 0.0072. These findings are consistent with the baseline model and consistent with the theoretical prediction that corruption increases perceived firm risk, thereby leading investors to demand a higher required rate of return (e.g., La & Bernini, 2022; Chen et al. 2023).

The direct effects of ESG themes on the cost of equity vary across themes. Several ESG themes exhibit statistically significant negative associations with the cost of equity, suggesting that firms performing well in these areas benefit from lower financing costs. Among the environmental indicators, Emissions shows a negative and statistically

significant relationship with the cost of equity (-0.0036 , $p < 0.05$), indicating that firms with better carbon management tend to enjoy lower equity financing costs. Moreover, the interaction term between Corruption Score and Emissions is also significantly negative (-0.0002 , $p < 0.05$), suggesting that the beneficial effect of environmental performance exists in firms operating in more corrupt environments. This aligns with previous findings by Bui, Moses, and Houqe (2020), who find that firms with higher emission intensity face higher equity premiums, while extensive carbon disclosure can mitigate this effect and lower the cost of equity.

Within the social dimension, Product Responsibility is also significantly associated with lower equity costs (-0.0022 , $p < 0.05$). This suggests that firms demonstrating accountability in product quality, consumer safety, and information transparency are viewed as less risky by investors. This finding is consistent with Reverte (2012), which that the overall quality of CSR disclosure, measured using an index based on the GRI framework—which includes product responsibility among other social dimensions—is significantly and negatively associated with the cost of equity capital.

In contrast, other themes such as Workforce, Community, and Human Rights show expected negative coefficients but are not statistically significant. This may reflect either measurement limitations in these dimensions or cross-sector heterogeneity in how social issues affect investor perceptions. The governance themes (Management,

Shareholders, and CSR Strategy) do not exhibit significant relationships with the cost of equity in this specification.

In summary, the ESG measurement replacement analysis confirms the robustness of the core findings and sheds light on the differential moderating power of ESG subdimensions. These results show that not all ESG components exert equal influence on the cost of equity. Among them, environmental performance—particularly carbon emission management—and product responsibility stand out as the most influential themes. These findings underscore the importance of disaggregating ESG measures to better understand which specific corporate behaviors are rewarded by capital markets.

5.2 Instrumental variable (IV) analysis

To address potential endogeneity between corruption and the cost of equity, this study employs an instrumental variable (IV) approach. Following prior literature, the natural logarithm of total corporate donations is used as an instrument for corruption scores. This choice is theoretically grounded: while corporate donations are likely to be negatively associated with a firm's propensity toward unethical behavior, they are not expected to directly affect the firm's cost of equity through other channels (e.g. Banerjee et al., 2022; Godfrey et al., 2009; Chang et al., 2018). Hence, the instrument satisfies both the relevance condition, by significantly predicting corruption, and the exclusion restriction, by influencing the dependent variable only indirectly through corruption.

The results of the first-stage regressions confirm the statistical strength and economic validity of the selected instrument, Log Donations Total. Across all model specifications, the coefficient on charitable donations is negative and highly significant at the 1% level (e.g., -1.9324 , $t = -9.21$). In the second-stage regressions, the predicted corruption score remains positively associated with the cost of equity. Although the significance varies across specifications, the coefficient is statistically significant in Model (1) (0.0022 , $t = 2.36$) and significant in Model (4) (0.0013 , $t = 1.82$), reaffirming the central finding that corporate corruption is linked to rising equity financing costs.

This analysis further investigates whether ESG performance moderates this relationship. In Model (1), overall ESG performance is negatively and significantly associated with the cost of equity (-0.0014 , $t = -3.60$), indicating that firms with stronger ESG profiles face lower financing costs (e.g. Karakaş, & Li, 2015; Cheng et al., 2014; Chen et al., 2023). When ESG is decomposed into its three pillars, both environmental and social performance demonstrate statistically significant negative effects. Specifically, environmental performance is associated with lower cost of equity (-0.0012 , $t = -1.74$), as is social performance (-0.0010 , $t = -3.11$), while the effect of governance performance is slightly weaker but still meaningful in later specifications.

The interaction terms between corruption and ESG indicators reveal the moderating effect of ESG in corrupt environments. The interaction between the predicted corruption score and overall ESG performance in Model (1) is negative and significant (-0.0006 , $t = -1.94$), suggesting that firms with higher ESG engagement are

better able to mitigate the increase in risk premiums associated with corruption. This moderating effect persists when examining the ESG pillars individually. In Model (2), the interaction between corruption and environmental performance yields a negative and marginally significant coefficient (-0.0005 , $t = -1.75$), indicating that strong environmental performance mitigates the adverse financial consequences of corruption. Model (3) shows a similar effect for the social pillar, where the interaction term is negative and statistically significant (-0.0005 , $t = -1.77$), reinforcing the view that social capital can function as a form of reputational insurance in the face of corruption. Finally, Model (4) reports a negative and statistically significant interaction between corruption and governance performance (-0.0007 , $t = -2.23$), highlighting the critical role of robust corporate governance in alleviating perceived risks arising from corruption behavior.

Overall, the IV regressions support the robustness of the baseline results. The use of corporate donations as an instrument successfully addresses the potential endogeneity of corruption, confirming that the positive relationship between corruption and the cost of equity is not spurious. More importantly, the moderating role of ESG—particularly in its environmental, social, and governance dimensions—remains statistically significant. These findings support the argument that firms with stronger ESG practices are more resilient in the face of reputational and operational risks associated with corruption.

5.3 Propensity score matching

Table 14 presents the regression results based on the propensity score matched sample, where firms are grouped according to the detail and comprehensiveness of their anti-corruption policy disclosures. This robustness test confirms the key findings of the baseline analysis. Across all four model specifications, the coefficient on the Corruption Score remains positive and statistically significant, indicating that firms with higher exposure to corruption-related controversies consistently face increased costs of equity. These results reaffirm the argument that corruption heightens firm-specific risk and weakens investor confidence, thereby increasing the required return on equity capital.

In parallel, the coefficients on ESG performance—measured both as a composite score and through its environmental, social, and governance pillars—are negative and significant in all models. This indicates that stronger ESG performance is associated with lower cost of equity, consistent with the risk-mitigation hypothesis. Among the three pillars, the governance dimension exhibits the most pronounced effect, suggesting that robust governance structures are particularly valued by investors in mitigating capital market risks.

Most importantly, the interaction terms between Corruption Score and ESG indicators are uniformly negative and statistically significant at conventional levels across all specifications. These results provide robust empirical support for the moderating role of ESG: firms with stronger ESG performance are better able to

attenuate the adverse financial effects of corruption exposure. Overall, the PSM-based results validate the conclusions drawn from the baseline models. By accounting for potential sample selection bias through matching on observable firm characteristics, the findings highlight the robustness of the relationship between corruption, ESG performance, and the cost of equity. The evidence suggests that ESG engagement—particularly in governance—is not only valued by the market but also instrumental in reducing financing costs under conditions of corruption risk.

6 Conclusion

This study investigates whether Environmental, Social, and Governance (ESG) performance mitigates the increase in the cost of equity induced by corporate corruption, and whether this moderating effect is further strengthened in firms with higher board gender diversity. Using a panel dataset of publicly listed firms in the United States and Canada from 2013 to 2022, the results confirm that corruption is positively associated with the cost of equity, as it increases information asymmetry, increases perceived risk, and reduces market participation (Banerjee, Gupta, & Krishnamurti, 2022; Guiso, Sapienza, & Zingales, 2008). In contrast, ESG performance—both overall and across its environmental, social, and governance dimensions—exhibits a negative association with the cost of equity, consistent with the literature suggesting that ESG reduces risk premiums by improving transparency and investor trust (e.g., Cheng, Ioannou, & Serafeim, 2014; La & Bernini, 2022; Chen et al., 2023).

Importantly, the interaction terms between corruption and ESG are significantly negative across all model specifications, suggesting that ESG performance serves as a moderating factor that mitigate the adverse financial effects of corruption. Among the three pillars, governance performance shows the strongest effect, aligning with prior findings that strong internal control systems and transparent governance structures play a central role in reducing capital market risk (e.g., Lu et al., 2021). These results remain robust across various empirical strategies, including instrumental variable regressions using corporate donations as instruments, theme-level ESG decomposition, and propensity score matching based on anti-corruption policy disclosure.

Moreover, this study demonstrates that the mitigating effect of ESG is more pronounced in firms with greater board gender diversity. This finding is in line with existing research that highlights the role of female directors in promoting ethical behavior, enhancing disclosure quality, and reducing agency costs (e.g., Srinidhi, Gul, & Tsui, 2011; Bear, Rahman, & Post, 2010; Gul, Srinidhi, & Ng, 2011). Gender-diverse boards appear to enhance the credibility and effectiveness of ESG initiatives, especially under conditions of reputational or governance-related risk, such as those posed by corruption (Adams, Gray, & Nowland, 2010).

This research contributes to the literature in several important ways. First, it integrates and extends two previously separate strands of research: the impact of corruption on the cost of equity (e.g., Banerjee et al., 2022; Liu, 2016) and the risk-mitigating role of ESG (e.g., La & Bernini, 2022; Khan, Serafeim, & Yoon, 2016), by

examining how ESG modifies the corruption–equity cost relationship. Second, it adds to the growing literature on board gender diversity by empirically confirming its amplifying effect on the efficacy of ESG in financial risk management (e.g., Fauver et al., 2022). Third, it offers a detailed analysis of ESG performance across its three pillars and theme-level components, identifying governance and emission-related indicators as particularly salient in reducing equity costs in corrupt contexts (Bui, Moses, & Houque, 2020; Reverte, 2012).

From a practical perspective, the findings hold important implications for investors, managers, and regulators. Investors can use ESG performance—especially governance and emission indicators—as signals of risk resilience when evaluating firms with potential exposure to corruption. For corporate managers, the results emphasize the value of ESG investment not only for reputational purposes but also as a strategic financial decision to reduce capital costs. For policymakers, this study provides empirical support for promoting stronger ESG disclosure frameworks and board diversity policies to enhance market transparency and stability.

In summary, this study shows that ESG performance can effectively reduce the higher cost of equity caused by corruption, and this effect becomes even stronger when a company has a more gender-diverse board. These results highlight the practical value of strong ESG practices and board diversity in helping firms manage risk and improve investor confidence. As companies face growing attention from investors and regulators,

focusing on ESG and having diverse leadership may help them lower financing costs and build long-term stability in challenging environments.

7 Limitations and Future Research

While this study provides some insights into the moderating role of ESG performance and board gender diversity in mitigating the cost of equity under corruption, several limitations should be noted.

First, the sample is restricted to publicly listed firms in the United States and Canada, where institutional environments and ESG disclosure practices are relatively well developed. As a result, the findings may not generalize to firms in emerging or less transparent markets, where corruption and ESG enforcement mechanisms differ substantially (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998).

Second, the corruption measures are derived from Refinitiv's media-based controversy scores. While these proxies are commonly used in the literature, they may not fully capture the intensity, legal resolution, or timing of corrupt behavior. Moreover, inconsistencies or underreporting in media coverage may lead to measurement error (Dyck, Morse, & Zingales, 2010).

Third, ESG performance is assessed using Refinitiv's aggregated scores and thematic indicators, which rely heavily on firms' public disclosures. These scores may reflect strategic reporting or greenwashing rather than actual performance (Kim, Park,

& Wier, 2012; Hartzmark & Sussman, 2019), potentially biasing the observed relationships.

Fourth, although the study addresses endogeneity concerns through control variables, instrumental variable regression, and propensity score matching, unobservable factors such as corporate culture, managerial ethics, or board dynamics may still influence both ESG performance and corruption exposure (Armstrong, Jagolinzer, & Larcker, 2010), raising the possibility of residual bias.

Fifth, the analysis of board gender diversity uses the percentage of female directors as a binary grouping variable (high vs. low), based on the sample median. This method, while widely used, may overlook more nuanced dimensions of gender inclusion, such as gender balance, or intersectional attributes like age, expertise, and tenure. Future research could adopt alternative diversity measures to better capture the full spectrum of board gender composition and its governance implications.

Finally, it is worth noting that board gender diversity is itself a component of corporate governance. Therefore, when this study treats gender diversity as a separate moderator between ESG and corruption, it may partially overlap with the governance dimension of ESG. This overlap means that the effect of gender diversity may not be completely distinct from the governance effects already captured by ESG scores. Future research could further explore how different aspects of governance (such as board independence, CEO duality, or ownership concentration) compare or interact with gender diversity in influencing the cost of equity.

Building on these limitations, future research could take several directions. First, scholars may consider extending the analysis to cross-country settings, particularly in emerging or transition economies, to assess whether institutional differences moderate the ESG–corruption–equity cost relationship (Ioannou & Serafeim, 2012). Second, future work could explore alternative measures of corruption, such as legal outcomes or regulatory enforcement records, to address potential limitations in controversy-based metrics. Finally, future studies could investigate whether the risk-mitigating effect of ESG varies across industries with different environmental sensitivities. In particular, heavily polluting industries such as energy, mining, and manufacturing may face stronger external scrutiny from regulators and stakeholders, making ESG performance more salient in these contexts.

References

- Abdullah, S. N., & Ismail, K. N. I. K. (2016). Women directors, family ownership and earnings management in Malaysia. *Asian Review of Accounting*, 24(4), 525-550.
- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of financial economics*, 94(2), 291-309.
- Adams, R. B., Gray, S., & Nowland, J. (2010, August). Is there a business case for female directors? Evidence from the market reaction to all new director appointments. In *23rd Australasian finance and banking conference*.
- Adams, R. B., Gray, S., & Nowland, J. (2010, August). Is there a business case for female directors? Evidence from the market reaction to all new director appointments. In *23rd Australasian finance and banking conference*.
- Amihud, Y., & Mendelson, H. (1986). Asset pricing and the bid-ask spread. *Journal of financial Economics*, 17(2), 223-249.
- Amiraslani, H., Lins, K. V., Servaes, H., & Tamayo, A. (2023). Trust, social capital, and the bond market benefits of ESG performance. *Review of accounting studies*, 28(2), 421-462.
- Ang, A., Hodrick, R. J., Xing, Y., & Zhang, X. (2006). The cross-section of volatility and expected returns. *The journal of finance*, 61(1), 259-299.
- Appiah-Kusi, J., & Menyah, K. (2003). Return predictability in African stock markets. *Review of financial economics*, 12(3), 247-270.
- Arioglu, E. (2020). The affiliations and characteristics of female directors and earnings management: evidence from Turkey. *Managerial Auditing Journal*, 35(7), 927-953.
- Armstrong, C. S., Jagolinzer, A. D., & Larcker, D. F. (2010). Chief executive officer equity incentives and accounting irregularities. *Journal of Accounting Research*, 48(2), 225-271.
- Banerjee, R., Gupta, K., & Krishnamurti, C. (2022). Does corrupt practice increase the implied cost of equity?. *Journal of Corporate Finance*, 73, 102191.
- Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of financial economics*, 9(1), 3-18.

Basu, S. (1983). The relationship between earnings' yield, market value and return for NYSE common stocks: Further evidence. *Journal of financial economics*, 12(1), 129-156.

Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of business ethics*, 97, 207-221.

Beck, T., Demirgüç-Kunt, A. S. L. I., & Maksimovic, V. (2005). Financial and legal constraints to growth: does firm size matter?. *The journal of finance*, 60(1), 137-177.

Bernardi, R. A., & Arnold Sr, D. F. (1997). An examination of moral development within public accounting by gender, staff level, and firm. *Contemporary Accounting Research*, 14(4), 653-668.

Boubakri, N., Guedhami, O., & Mishra, D. (2010). Family control and the implied cost of equity: Evidence before and after the Asian financial crisis. *Journal of International Business Studies*, 41, 451-474.

Bui, B., Moses, O., & Houqe, M. N. (2020). Carbon disclosure, emission intensity and cost of equity capital: multi-country evidence. *Accounting & Finance*, 60(1), 47-71.

Burke, R. J., & Mattis, M. C. (2000). Women on corporate boards of directors: Where do we go from here?. *Women on corporate boards of directors: International challenges and opportunities*, 3-10.

Callaway, B., & Karami, S. (2023). Treatment effects in interactive fixed effects models with a small number of time periods. *Journal of econometrics*, 233(1), 184-208.

Cao, Y., Myers, L. A., Tsang, A., & Yang, Y. G. (2017). Management forecasts and the cost of equity capital: International evidence. *Review of Accounting Studies*, 22, 791-838.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of finance*, 52(1), 57-82.

Chang, K., Jo, H., & Li, Y. (2018). Is there informational value in corporate giving?. *Journal of Business Ethics*, 151, 473-496.

Chatterji, A. K., Levine, D. I., & Toffel, M. W. (2009). How well do social ratings actually measure corporate social responsibility?. *Journal of Economics & Management Strategy*, 18(1), 125-169.

Chava, S. (2014). Environmental externalities and cost of capital. *Management science*, 60(9), 2223-2247.

Chen, G., Liu, Y., & Zhang, Y. (2020). Can systemic risk measures predict economic shocks? Evidence from China. *China Economic Review*, 64, 101557.

Chen, K. C., Chen, Z., & Wei, K. J. (2009). Legal protection of investors, corporate governance, and the cost of equity capital. *Journal of corporate finance*, 15(3), 273-289.

Chen, Y., Li, T., Zeng, Q., & Zhu, B. (2023). Effect of ESG performance on the cost of equity capital: Evidence from China. *International Review of Economics & Finance*, 83, 348-364.

Chen, Y., Li, T., Zeng, Q., & Zhu, B. (2023). Effect of ESG performance on the cost of equity capital: Evidence from China. *International Review of Economics & Finance*, 83, 348-364.

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic management journal*, 35(1), 1-23.

Choi, J. P., & Thum, M. (2005). Corruption and the shadow economy. *International Economic Review*, 46(3), 817-836.

Claus, J., & Thomas, J. (2001). Equity premia as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stock markets. *The journal of finance*, 56(5), 1629-1666.

Cohen, J. R., Pant, L. W., & Sharp, D. J. (1998). The effect of gender and academic discipline diversity on the ethical evaluations, ethical intentions and ethical orientation of potential public accounting recruits. *Accounting Horizons*, 12(3), 250.

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The accounting review*, 86(1), 59-100.

Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The accounting review*, 87(3), 723-759.

Dhaliwal, D., Judd, J. S., Serfling, M., & Shaikh, S. (2016). Customer concentration risk and the cost of equity capital. *Journal of Accounting and Economics*, 61(1), 23-48.

Dimson, E., Karakaş, O., & Li, X. (2015). Active ownership. *The Review of Financial Studies*, 28(12), 3225-3268.

Dyck, A., Morse, A., & Zingales, L. (2010). Who blows the whistle on corporate fraud?. *The journal of finance*, 65(6), 2213-2253.

Easton, P. D. (2004). PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The accounting review*, 79(1), 73-95.

Elkington, J. (1997). The triple bottom line. *Environmental management: Readings and cases*, 2, 49-66.

Environmental, social and governance scores from LSEG. (2023). London Stock Exchange Group.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *the Journal of Finance*, 47(2), 427-465.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *the Journal of Finance*, 47(2), 427-465.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *the Journal of Finance*, 47(2), 427-465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of financial economics*, 33(1), 3-56.

Fama, E. F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. *The journal of finance*, 51(1), 55-84.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The journal of law and Economics*, 26(2), 301-325.

Fauver, L., Hung, M., Taboada, A. G., & Wang, E. J. (2024). Boardroom gender

diversity reforms and institutional monitoring: global evidence. *Review of Accounting Studies*, 29(1), 621-664.

Francis, B., Hasan, I., Park, J. C., & Wu, Q. (2015). Gender differences in financial reporting decision making: Evidence from accounting conservatism. *Contemporary Accounting Research*, 32(3), 1285-1318.

Francis, J., LaFond, R., Olsson, P. M., & Schipper, K. (2004). Costs of equity and earnings attributes. *The accounting review*, 79(4), 967-1010.

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of accounting and economics*, 39(2), 295-327.

Freeman, R. E. (2010). *Stakeholder theory: The state of the art*. Cambridge University Press.

Friedrich, C., Quick, R., & Schmidt, F. (2024). Auditor-provided non-audit services and perceived audit quality: Evidence from the cost of equity and debt capital. *International Journal of Auditing*, 28(2), 388-407.

Gebhardt, W. R., Lee, C. M., & Swaminathan, B. (2001). Toward an implied cost of capital. *Journal of accounting research*, 39(1), 135-176.

Giannetti, M., & Wang, T. Y. (2016). Corporate scandals and household stock market participation. *The Journal of Finance*, 71(6), 2591-2636.

Gilson, S. C. (1990). Bankruptcy, boards, banks, and blockholders: Evidence on changes in corporate ownership and control when firms default. *Journal of financial economics*, 27(2), 355-387.

Gode, D., & Mohanram, P. (2003). Inferring the cost of capital using the Ohlson–Juettner model. *Review of accounting studies*, 8, 399-431.

Godfrey, P. C. (2005). The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of management review*, 30(4), 777-798.

Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. *Strategic management journal*, 30(4), 425-445.

- Guiso, L., Sapienza, P., & Zingales, L. (2008). Trusting the stock market. *the Journal of Finance*, 63(6), 2557-2600.
- Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices?. *Journal of accounting and Economics*, 51(3), 314-338.
- Gupta, A., Raman, K., & Shang, C. (2018). Social capital and the cost of equity. *Journal of Banking & Finance*, 87, 102-117.
- Gupta, K., Krishnamurti, C., & Tourani-Rad, A. (2018). Financial development, corporate governance and cost of equity capital. *Journal of Contemporary Accounting & Economics*, 14(1), 65-82.
- Hartzmark, S. M., & Sussman, A. B. (2019). Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance*, 74(6), 2789-2837.
- Heinkel, R., Kraus, A., & Zechner, J. (2001). The effect of green investment on corporate behavior. *Journal of financial and quantitative analysis*, 36(4), 431-449.
- Ho, S. S., Li, A. Y., Tam, K., & Zhang, F. (2015). CEO gender, ethical leadership, and accounting conservatism. *Journal of business ethics*, 127, 351-370.
- Hong, H., & Kacperczyk, M. (2009). The price of sin: The effects of social norms on markets. *Journal of financial economics*, 93(1), 15-36.
- Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of international business studies*, 43(9), 834-864.
- Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of finance*, 48(1), 65-91.
- Jun, C., Qiyuan, L., Xiaofang, M., & Zhang, F. F. (2023). Board gender diversity and cost of equity: evidence from mandatory female board representation. *International Review of Economics & Finance*, 88, 501-515.
- Ke, Y. (2022). The impact of COVID-19 on firms' cost of equity capital: Early evidence from US public firms. *Finance Research Letters*, 46, 102242.

- Keim, D. B. (1983). Size-related anomalies and stock return seasonality: Further empirical evidence. *Journal of financial economics*, 12(1), 13-32.
- Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. *The accounting review*, 91(6), 1697-1724.
- Kim, Y., Park, M. S., & Wier, B. (2012). Is earnings quality associated with corporate social responsibility?. *The accounting review*, 87(3), 761-796.
- Kinateder, H., Hofstetter, B., & Wagner, N. (2017). Do liquidity variables improve out-of-sample prediction of sovereign spreads during crisis periods?. *Finance Research Letters*, 21, 144-150.
- Knyazeva, A., Knyazeva, D., & Masulis, R. W. (2013). The supply of corporate directors and board independence. *The Review of Financial Studies*, 26(6), 1561-1605.
- Krishnan, G. V., & Parsons, L. M. (2008). Getting to the bottom line: An exploration of gender and earnings quality. *Journal of business ethics*, 78, 65-76.
- La Rosa, F., & Bernini, F. (2022). ESG controversies and the cost of equity capital of European listed companies: the moderating effects of ESG performance and market securities regulation. *International Journal of Accounting & Information Management*, 30(5), 641-663.
- Lai, K. M., Srinidhi, B., Gul, F. A., & Tsui, J. S. (2017). Board gender diversity, auditor fees, and auditor choice. *Contemporary Accounting Research*, 34(3), 1681-1714.
- Lam, K. S., & Tam, L. H. (2011). Liquidity and asset pricing: Evidence from the Hong Kong stock market. *Journal of banking & finance*, 35(9), 2217-2230.
- Lesmond, D. A., Ogden, J. P., & Trzcinka, C. A. (1999). A new estimate of transaction costs. *The review of financial studies*, 12(5), 1113-1141.
- Li, F., & Polychronopoulos, A. (2020). What a difference an ESG ratings provider makes. *Research affiliates*, 24, 1-15.
- Li, S. (2010). Does mandatory adoption of International Financial Reporting Standards in the European Union reduce the cost of equity capital?. *The Accounting Review*, 85(2), 607-636.

Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *the Journal of Finance*, 72(4), 1785-1824.

Liu, X. (2016). Corruption culture and corporate misconduct. *Journal of Financial Economics*, 122(2), 307-327.

Lu, H., Oh, W. Y., Kleffner, A., & Chang, Y. K. (2021). How do investors value corporate social responsibility? Market valuation and the firm specific contexts. *Journal of Business Research*, 125, 14-25.

Markowitz, H. M. (1991). Foundations of portfolio theory. *The journal of finance*, 46(2), 469-477.

McInerney-Lacombe, N., Bilimoria, D., & Salipante, P. F. (2008). Championing the discussion of tough issues: How women corporate directors contribute to board deliberations. *Women on corporate boards of directors: International research and practice*, 123-139.

McNevin, B. D., & Nix, J. (2018). The beta heuristic from a time/frequency perspective: A wavelet analysis of the market risk of sectors. *Economic Modelling*, 68, 570-585.

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information.

Mio, C., Fasan, M., & Scarpa, F. (2023). Materiality investor perspectives on utilities' ESG performance. An empirical analysis of ESG factors and cost of equity. *Utilities Policy*, 82, 101555.

Mironov, M. (2015). Should one hire a corrupt CEO in a corrupt country?. *Journal of Financial Economics*, 117(1), 29-42.

Mishra, D. R. (2014). The dark side of CEO ability: CEO general managerial skills and cost of equity capital. *Journal of Corporate Finance*, 29, 390-409.

Mnif, Y., & Cherif, I. (2021). Female board directorship and earnings management. *Pacific Accounting Review*, 33(1), 114-141.

MSCI Methodology Handbook. (2023). <https://www.msci.com/esg-and-climate-methodologies>

- Nartea, G. V., Ward, B. D., & Djajadikerta, H. G. (2009). Size, BM, and momentum effects and the robustness of the Fama-French three-factor model: Evidence from New Zealand. *International Journal of Managerial Finance*, 5(2), 179-200.
- Ohlson, J. A., & Juettner-Nauroth, B. E. (2005). Expected EPS and EPS growth as determinants of value. *Review of accounting studies*, 10, 349-365.
- Ongsakul, V., Jaroenjitrkam, A., Treepongkaruna, S., & Jiraporn, P. (2022). Does board gender diversity reduce 'CEO luck'?. *Accounting & Finance*, 62(1), 243-260.
- Pástor, L., & Stambaugh, R. F. (2003). Liquidity risk and expected stock returns. *Journal of Political economy*, 111(3), 642-685.
- Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of political economy*, 106(6), 1113-1155.
- Powell, M., & Ansic, D. (1997). Gender differences in risk behaviour in financial decision-making: An experimental analysis. *Journal of economic psychology*, 18(6), 605-628.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon Schuster.
- Putnam, R. D., Nanetti, R. Y., & Leonardi, R. (1994). Making democracy work: Civic traditions in modern Italy.
- Reinganum, M. R. (1981). Misspecification of capital asset pricing: Empirical anomalies based on earnings' yields and market values. *Journal of financial Economics*, 9(1), 19-46.
- Reverte, C. (2012). The impact of better corporate social responsibility disclosure on the cost of equity capital. *Corporate Social Responsibility and environmental management*, 19(5), 253-272.
- Rosenberg, B., Reid, K., & Lanstein, R. (1985). Persuasive evidence of market inefficiency. *Journal of portfolio management*, 11(3), 9-16.
- Shleifer, A., & Vishny, R. W. (2003). Stock market driven acquisitions. *Journal of financial Economics*, 70(3), 295-311.

Solakoglu, M. N., & Demir, N. (2016). The role of firm characteristics on the relationship between gender diversity and firm performance. *Management Decision*, 54(6), 1407-1419.

Sparkes, R., & Cowton, C. J. (2004). The maturing of socially responsible investment: A review of the developing link with corporate social responsibility. *Journal of business ethics*, 52, 45-57.

Srinidhi, B. I. N., Gul, F. A., & Tsui, J. (2011). Female directors and earnings quality. *Contemporary accounting research*, 28(5), 1610-1644.

Stephenson, C., & Nt, M. (2004). Leveraging diversity to maximum advantage: The business case for appointing more women to boards. *Ivey Business Journal*, 69(1), 1-5.

Svensson, L. E. O. (2003). What is wrong with Taylor rules? Using judgment in monetary policy through targeting rules. *Journal of Economic Literature*, 41(2), 426-477.

Tang, H. (2022). ESG performance, investors' heterogeneous beliefs, and cost of equity capital in China. *Frontiers in Environmental Science*, 10, 992559.

Tanjung, M. (2023). Cost of capital and firm performance of ESG companies: what can we infer from COVID-19 pandemic?. *Sustainability Accounting, Management and Policy Journal*, 14(6), 1242-1267.

Temiz, H. (2022). Environmental performance and cost of finance: evidence from emerging markets. *Sustainability Accounting, Management and Policy Journal*, 13(5), 1229-1250.

Vermeir, I., & Van Kenhove, P. (2008). Gender differences in double standards. *Journal of Business Ethics*, 81, 281-295.

Verrecchia, R. E. (2001). Essays on disclosure. *Journal of accounting and economics*, 32(1-3), 97-180.

Wei, S. J., & Shleifer, A. (2000). Local corruption and global capital flows. *Brookings papers on economic activity*, 2000(2), 303-354.

Appendix

Table 1 Variables Construction

This appendix reports the definition of the important variables in my study.

Cost of Equity (COE)	COE is the estimated annual cost of equity based on the FF4 model
ESG Score	Refinitiv's ESG Score is an overall company score based on the self-reported information in the environmental, social and corporate governance pillars.
Environmental Pillar Score	Refinitiv's Environment Pillar Score is the weighted average relative rating of a company based on the reported environmental information and the resulting three environmental category scores.
Social Pillar Score	Refinitiv's Governance Pillar Score is the weighted average relative rating of a company based on the reported governance information and the resulting three governance category scores.
Governance Pillar Score	Refinitiv's Social Pillar Score is the weighted average relative rating of a company based on the reported social information and the resulting four social category scores.
Beta	Beta is the firm beta estimated by the Fama-French four-factor model.
Idiosyncratic Risk	Idiosyncratic risk refers to the firm-specific volatility that cannot be explained by common risk factors. It is measured as the standard deviation of the residuals from the Fama-French four-factor model using monthly returns over the past five years.
Momentum	Momentum is the capacity of the stock price trend, which is the natural logarithm of the compounded monthly stock returns one year before the cost of equity estimate (Calculated by the author).
Leverage	Leverage is the long-term debt over total asset ratio.
B2M	B2M (Book-to-Market ratio) is a financial indicator that compares a company's book value to its market value. The book value is derived by multiplying the number of common shares outstanding by the closing stock price, while the market value represents the company's total market capitalization.
Log Asset	Log Asset is the nature log of the total asset from the firm.

Growth	Growth refers to the firm's earnings growth rate, calculated as the percentage change in earnings from one period to the next(Calculated by the author).
Earning Volatility	Earning Volatility is the standard deviation of annual earnings divided by the mean over the preceding five years (Calculated by the author).
Donations Total	The nature log of total amount of all donations divided by net sales or revenue in million.
Board Gender Diversity Score	Refinitiv's Board Gender Diversity Percent Score measures the percentage of female on the board
Policy Bribery and Corruption	Refinitiv's Policy Bribery and Corruption measures the policy company describe in the code of conduct that it strives to avoid bribery.

Table 2: ESG Structure

This table depicts the Refinitiv ESG framework, where overall ESG performance is structured around three core pillars: Environmental, Social, and Governance. Each pillar is evaluated based on underlying indicators. The environmental pillar includes resource use, emissions, and innovation; the social pillar covers workforce, human rights, community, and product responsibility; and the governance pillar focuses on management practices, shareholder relations, and CSR strategy.

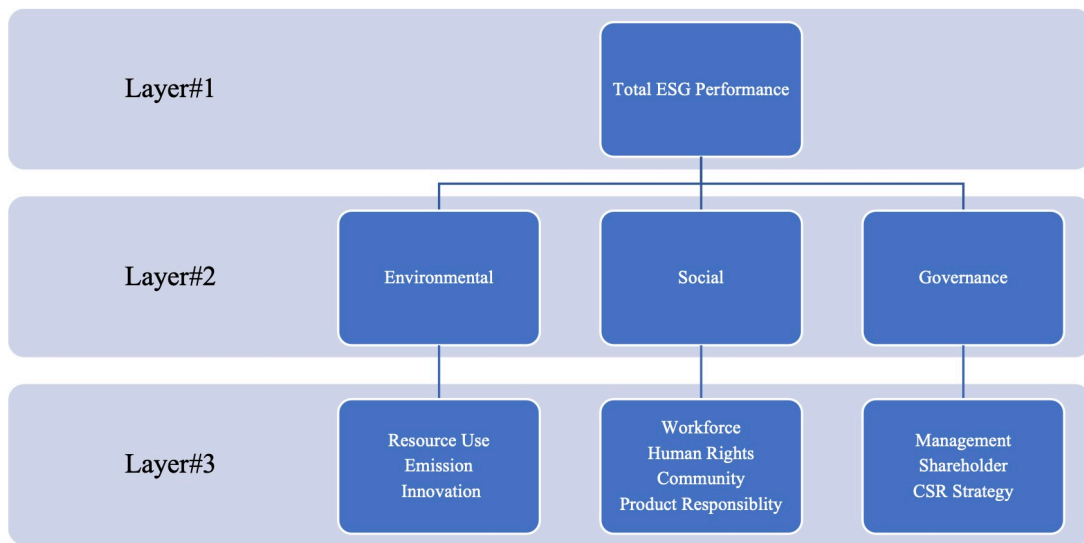


Table 3: Summary Statistics

The summary statistics reports the number of observations, the 25% percentile, the median, the 75% percentile, the mean, the minimum value, the maximum value, and the standard deviation for the dependent variable (COE), the key independent variables, and the control variables on the baseline model.

	N	mean	std	min	25%	50%	75%	max
COE	14443	0.132	0.548	-0.980	-0.110	0.086	0.292	3.652
Corruption Score	14443	54.595	17.669	0.000	58.995	60.106	60.729	63.595
ESG Score	14443	43.919	19.222	0.440	29.007	41.249	58.159	95.162
Environmental Pillar Score	14443	33.351	27.136	0.000	11.574	24.482	55.442	98.546
Social Pillar Score	14443	45.453	21.119	0.629	28.679	42.606	61.203	98.258
Governance Pillar Score	14443	52.443	21.774	0.166	35.951	54.271	69.736	99.408
Beta	14443	0.885	0.490	-3.133	0.552	0.885	1.214	10.780
Idiosyncratic Risk	14443	0.063	0.039	0.020	0.044	0.063	0.096	1.832
Momentum	14443	0.057	0.194	-0.938	-0.068	0.057	0.194	2.229
Leverage	14443	0.158	0.232	0.000	0.032	0.158	0.345	3.852
B2M	14443	0.054	0.060	0.017	0.027	0.054	0.108	1.227
logAsset	14443	3.456	2.269	2.575	2.939	3.456	6.002	9.573
growth	14443	0.047	0.337	-0.718	-0.198	0.047	0.257	8.876
Earning Volatility	14443	0.243	0.276	-7.842	0.112	0.243	0.485	7.669

Table 4: Matrix of Correlation

The matrix of the correlation table reports the relationship among the dependent variable (COE), the key independent variable, and the control variables on the baseline models. The significance of the correlation has also been reported, followed by the correlations. Three stars indicate that the p-value is less than 0.01. Two stars indicate that the p-value is less than 0.05. One star indicates that the p-value is less than 0.1.

	Returns	Corruption Score	ESG Score	Environmental Pillar Score	Social Pillar Score	Governance Pillar Score	Beta	Idiosyncratic Risk	Momentum	Leverage	B2M	logAsset	Growth	Earning Volatility
Returns														
Corruption Score	0.101***													
ESG Score	-0.140***	-0.264***												
Environmental Pillar Score	-0.110***	-0.275***	0.872***											
Social Pillar Score	-0.091**	-0.256***	0.889***	0.747***										
Governance Pillar Score	-0.132***	-0.111***	0.681***	0.423***	0.375***									
Beta	0.032	0.022	-0.044	-0.037	-0.013	-0.055								
Idiosyncratic Risk	0.134***	0.084**	-0.294***	-0.307***	-0.216***	-0.221***	0.333**							
Momentum	0.499***	-0.006	0.001	0.001	0.007	-0.006	0.058	0.073*						
Leverage	0.040	-0.034	0.069*	0.075*	0.074*	0.020	0.065*	0.024	-0.002					
B2M	-0.100**	0.076*	-0.235***	-0.227***	-0.217***	-0.133***	0.070*	0.310***	-0.014	0.022				
logAsset	-0.036	-0.370***	0.589***	0.642***	0.529***	0.301***	-0.011	-0.422***	-0.031	0.132***	-0.323**			
Growth	-0.031	-0.001	-0.008	0.002	-0.006	-0.016	0.004	0.010	0.014	0.018	0.000	0.007		
Earning Volatility	0.100**	-0.003	-0.004	-0.004	-0.009	0.002	0.000	-0.023	-0.017	-0.003	-0.007	0.003	-0.021	

Table 5: Univariate Comparison (Based on Corruption Exposure)

This table reports the univariate comparison between firms flagged for corruption (Corruption Dummy = 1, N = 9,870) and those not flagged (Corruption Dummy = 0, N = 4,570). The comparison covers the dependent variable (COE), the key independent variable (Total ESG), its three pillars (Environmental, Social, and Governance), and the control variables (Firm Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-Market ratio, LogAsset, Growth rate, and Earnings Volatility). Observations are grouped based on the Corruption Dummy, with “Corruption = 1” representing corruption-exposed firms and “Corruption = 0” representing non-corruption firms. Differences in means and medians are calculated by “(1) – (0)”. Three stars indicate the p-value is less than 0.01. Two stars indicate the p-value is less than 0.05. One star indicates the p-value is less than 0.1.

Variable	Corruption Dummy = 1			Corruption Dummy = 0			Difference (1) – (0)	
	N	Mean	Median	N	Mean	Median	Mean	Median
COE	9870	0.14	0.11	4570	0.12	0.078	0.025**	0.032**
ESGScore	9870	50.2	48.5	4570	37.7	39.5	12.5***	9***
Environmental Pillar Score	9870	40.5	36	4570	25.1	22.4	15.4***	13.6***
Social Pillar Score	9870	52	50.1	4570	39.2	36.8	12.8***	13.3***
Governance Pillar Score	9870	56	58.2	4570	48.5	50.6	7.5***	7.6**
Beta	9870	0.93	0.93	4570	0.84	0.84	0.09*	0.09*
Idiosyncratic Risk	9870	0.071	0.07	4570	0.056	0.055	0.015**	0.015**
Momentum	9870	0.08	0.08	4570	0.04	0.04	0.04	0.04
Leverage	9870	0.19	0.18	4570	0.13	0.13	0.06	0.05
B2M	9870	0.06	0.058	4570	0.048	0.048	0.012**	0.01*
logAsset	9870	3.65	3.6	4570	3.25	3.25	0.4*	0.35*
Growth	9870	0.06	0.06	4570	0.03	0.03	0.03	0.03
Earning Volatility	9870	0.27	0.26	4570	0.21	0.21	0.06	0.05

Table 6: Univariate Comparison (Based on Board Gender Diversity)

This table reports the univariate comparison between firms with above-average and below-average board gender diversity scores, as measured by Refinitiv. Firms with diversity scores above the sample mean are assigned to “High Diversity = 1”, while those below the mean are assigned to “High Diversity = 0”. The comparison includes the dependent variable (COE), the key explanatory variables (Corruption Score, Total ESG, and ESG pillar scores), and a set of control variables (Firm Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-Market ratio, LogAsset, Growth rate, and Earnings Volatility). The differences in mean and median values between the two groups are calculated by “(1) – (0)”. Three stars indicate the p-value is less than 0.01. Two stars indicate the p-value is less than 0.05. One star indicates the p-value is less than 0.1.

Variable	High Diversity = 1			High Diversity = 0			Difference (1) – (0)	
	N	Mean	Median	N	Mean	Median	Mean	Median
COE	7120	0.12	0.09	7320	0.14	0.105	-0.02***	-0.015***
Corruption Score	7120	50.5	52.4	7120	58	60.2	-7.5**	-7.8***
ESGScore	7120	47	45	7120	41	38.7	6***	6.3***
Environmental Pillar Score	7120	38.5	33.5	7120	27	23.5	11.5***	10***
Social Pillar Score	7120	49.8	47.6	7120	41.1	39.8	8.7***	7.8**
Governance Pillar Score	7120	54	55.3	7120	50.9	49.4	3.1**	5.9**
Beta	7120	0.89	0.89	7120	0.88	0.88	0.01*	0.01
Idiosyncratic Risk	7120	0.06	0.06	7120	0.066	0.066	-0.006**	-0.006*
Momentum	7120	0.065	0.065	7120	0.05	0.05	0.015	0.015
Leverage	7120	0.14	0.14	7120	0.17	0.17	-0.03	-0.03
B2M	7120	0.051	0.051	7120	0.057	0.057	-0.006*	-0.006
logAsset	7120	3.6	3.58	7120	3.3	3.3	0.3*	0.28*
Growth	7120	0.045	0.045	7120	0.048	0.048	-0.003	-0.003
Earning Volatility	7120	0.23	0.23	7120	0.25	0.25	-0.02	-0.02

Table 7: Results for Hypothesis 1 (Corruption Dummy, ESG variables, and COE with Controls)

This table reports the coefficients and the statistical significance of the regression outcomes for four models evaluating the relationship between ESG performance, Corruption, and COE based on all observations to support the first hypothesis. Models (1) to (4) respectively analyze overall ESG performance, environmental pillar performance, social pillar performance, and governance pillar performance. Key independent variables include Corruption Dummy, ESG variables, their interaction, and a set of firm-level controls: Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-market ratio, Log-transformed Assets, Growth potential, and Earnings Volatility. The number of observations and the corresponding R-square are reported at the end of the table. * statistically significant at the 10%, ** statistically significant at the 5% and *** statistically significant at the 1% level. t-stats are given in parenthesis and are based on robust standard errors.

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
Corruption Dummy	0.0026*** (11.45)	0.0027*** (11.56)	0.0021*** (10.82)	0.0023*** (11.02)
ESG	-0.00528*** (-3.82)			
Corruption Dummy*ESG	-0.0003*** (-2.99)			
Environmental		-0.00482*** (-3.67)		
Corruption Dummy*Environmental		-0.0002*** (-2.75)		
Social			-0.00457*** (-3.59)	
Corruption Dummy*Social			-0.0002*** (-2.62)	
Governance				-0.00503*** (-3.72)
Corruption Dummy*Governance				-0.0002*** (-2.83)
B2M	-0.9738*** (-11.34)	-0.9706*** (-11.36)	-0.9777*** (-11.36)	-0.9717*** (-11.36)
Beta	0.0037 (0.15)	0.0037 (0.15)	0.0038 (0.16)	0.0036 (0.13)
Idiosyncratic Risk	0.3029** (2.56)	0.3026** (2.54)	0.3061*** (2.72)	0.3018** (2.51)
Momentum	0.9005* (1.87)	0.9005* (1.86)	0.9004* (1.86)	0.9006* (1.86)
Growth	-0.0579*** (-7.64)	-0.0579*** (-7.65)	-0.0579*** (-7.64)	-0.0578*** (-7.63)

Leverage	0.011 (0.73)	0.0109 (0.73)	0.0112 (0.75)	0.0107 (0.72)
Earning Volatility	0.1033*** (9.49)	0.1034*** (9.51)	0.1029*** (9.44)	0.1036*** (9.53)
Log Asset	-0.0285 (-0.45)	-0.0284 (-0.438)	-0.0278 (-0.445)	-0.0295 (-0.414)
Constant	0.266*** (4.23)	0.266*** (4.22)	0.264*** (4.20)	0.269*** (4.30)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	14440	14440	14440	14440
Adjusted R-squared	0.2528	0.2525	0.2525	0.2526

Table 8: Results for Hypothesis 1 (Corruption Score, ESG variables, and COE with Controls)

This table reports the coefficients and the statistical significance of the regression outcomes for four models evaluating the relationship between ESG performance, Corruption, and COE based on all observations to support the first hypothesis. Models (1) to (4) respectively analyze overall ESG performance, environmental pillar performance, social pillar performance, and governance pillar performance. Key independent variables include Corruption Scores, ESG variables, their interaction, and a set of firm-level controls: Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-market ratio, Log-transformed Assets, Growth potential, and Earnings Volatility. The number of observations and the corresponding R-square are reported at the end of the table. * statistically significant at the 10%, ** statistically significant at the 5% and *** statistically significant at the 1% level. t-stats are given in parenthesis and are based on robust standard errors.

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
Corruption Score	0.0037*** (2.631)	0.0018* (1.931)	0.0028** (2.199)	0.0042*** (3.089)
ESG	-0.0039*** (-2.971)			
Corruption Score*ESG	-0.0005** (-2.221)			
Environmental		-0.0019** (-2.022)		
Corruption Score*Environmental		-0.0002** (-2.441)		
Social			-0.0028** (-2.487)	
Corruption Score*Social			-0.0003* (-1.774)	
Governance				-0.0040*** (-3.302)
Corruption Score*Governance				-0.0006*** (-2.809)
B2M	-0.5103*** (-17.281)	-0.5052*** (-17.111)	-0.5078*** (-17.175)	-0.5085*** (-17.245)
Beta	0.0084 (0.261)	0.0003 (0.011)	0.0047 (0.148)	0.0167 (0.518)
Idiosyncratic Risk	1.1623** (2.131)	1.2289** (2.225)	1.2177** (2.234)	1.3175** (2.468)
Momentum	0.6136** (2.497)	0.6139*** (2.651)	0.6133** (2.428)	0.6131** (2.458)
Growth	-0.0011* (-2.395)	-0.0013* (-2.421)	-0.0011* (-2.429)	-0.0011* (-2.395)
Leverage	0.0629 (1.517)	0.0630 (1.542)	0.0625 (1.596)	0.0640 (1.535)

Earning Volatility	0.0981*** (-4.771)	0.1002*** (-4.780)	0.1034*** (-4.741)	0.0992*** (-4.856)
Log Asset	-0.0071 (-1.351)	-0.0085 (-1.569)	-0.0025 (-0.490)	-0.0010 (-0.231)
Constant	0.2845*** (2.919)	0.1422*** (2.974)	0.2176*** (3.454)	0.2958*** (3.182)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	14440	14440	14440	14440
R-squared	0.3052	0.3052	0.4592	0.3052

Table 9: Results for Hypothesis 2 (High Board Gender Diversity Group)

This table reports the coefficients and the statistical significance of the regression outcomes for four models evaluating the relationship between ESG performance, Corruption, and COE based on the subsample of firms with high board gender diversity. Models (1) to (4) respectively analyze overall ESG performance, environmental pillar performance, social pillar performance, and governance pillar performance. Key independent variables include the Corruption Score, ESG-related variables, their interaction terms, and a consistent set of firm-level controls: Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-market ratio (B2M), Log-transformed Assets, Growth potential, and Earnings Volatility. The number of observations and the R-squared statistics are reported at the end of the table. * statistically significant at the 10%, ** statistically significant at the 5%, and *** statistically significant at the 1% level. t-statistics are shown in parentheses and are based on robust standard errors.

Variables	(1) ESG	(2) Environmental	(3) Social	(4) Governance
Corruption Score	0.0029*** (2.871)	0.0029*** (2.844)	0.0026*** (2.746)	0.0040*** (2.951)
ESG	-0.0042*** (-3.045)			
Corruption Score*ESG	-0.0006** (-2.411)			
Environmental		-0.0021** (-2.210)		
Corruption Score*Environmental		-0.0003* (-1.791)		
Social			-0.0030** (-2.580)	
Corruption Score*Social			-0.0004* (-1.944)	
Governance				-0.0043*** (-3.405)
Corruption Score*Governance				-0.0007*** (-2.951)
B2M	-0.5092*** (-17.167)	-0.5078*** (-17.162)	-0.5274*** (-17.009)	-0.5042*** (-17.416)
Beta	0.0037 (0.002)	0.0022 (0.468)	0.0043 (0.138)	0.0132 (0.877)
Idiosyncratic Risk	1.2632** (2.206)	1.2499** (2.565)	1.2422** (2.382)	1.2356* (1.701)
Momentum	0.6042** (2.172)	0.6347** (2.069)	0.6185** (2.423)	0.6256** (2.548)
Growth	-0.0184 (-1.032)	-0.0156 (-1.360)	-0.0023* (-1.651)	-0.0083* (-1.805)

Leverage	0.0822 (1.374)	0.0798 (1.246)	0.0676 (0.971)	0.0742 (1.361)
Earning Volatility	0.0915*** (4.398)	0.1013*** (4.369)	0.0913*** (4.888)	0.1117*** (5.113)
Log Asset	-0.0112 (-1.242)	-0.0162 (-1.052)	-0.0044 (-0.996)	-0.0204 (-1.194)
Constant	0.2660*** (3.089)	0.2663*** (2.717)	0.2946*** (3.077)	0.2712*** (3.064)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	7120	7120	7120	7120
R-squared	0.3451	0.3682	0.461	0.3528

Table 10: Results for Hypothesis 2 (Low Board Gender Diversity Group)

This table presents the regression results for the sub-sample of firms with low board gender diversity. Models (1) through (4) examine the impact of overall ESG performance, environmental pillar performance, social pillar performance, and governance pillar performance on the cost of equity (COE), while accounting for the influence of corruption. Main explanatory variables include the Corruption Score, ESG metrics, and their interaction terms. All regressions control for firm-level characteristics including Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-market ratio (B2M), Log-transformed Assets, Growth, and Earnings Volatility. The number of observations and the R-squared statistics are reported at the end of the table. * statistically significant at the 10%, ** statistically significant at the 5%, and *** statistically significant at the 1% level. t-statistics are shown in parentheses and are based on robust standard errors.

	(1)	(2)	(3)	(4)
Variables	ESG	Environmental	Social	Governance
Corruption Score	0.0027** (2.562)	0.0023** (2.474)	0.0021*** (2.954)	0.0025*** (2.851)
ESG	-0.0036** (-2.650)			
Corruption Score*ESG	-0.0004* (-1.955)			
Environmental		-0.0017* (-1.895)		
Corruption Score*Environmental		-0.0001 (-1.210)		
Social			-0.0026* (-1.955)	
Corruption Score*Social			-0.0002 (-1.444)	
Governance				-0.0037*** (-3.102)
Corruption Score*Governance				-0.0005** (-2.312)
B2M	-0.4905*** (-16.638)	-0.4914*** (-17.391)	-0.4913*** (-17.111)	-0.4976*** (-16.949)
Beta	0.014 (0.606)	0.0191 (0.471)	0.0157 (0.155)	0.0182 (0.802)
Idiosyncratic Risk	1.2462* (1.687)	1.2692** (2.247)	1.2681* (1.780)	1.2495* (1.656)
Momentum	0.6173** (1.985)	0.6315*** (2.642)	0.6171** (1.973)	0.5952** (1.970)
Growth	-0.0029* (-1.692)	-0.0094 (-1.179)	-0.0111 (-1.103)	-0.0050* (-1.783)
Leverage	0.0763 (1.436)	0.0685* (1.831)	0.0707* (1.727)	0.0807 (1.197)
Earning Volatility	0.1102***	0.0973***	0.1091***	0.0875***

	(4.303)	(4.815)	(4.706)	(4.481)
Log Asset	-0.0164	-0.0058	-0.0093	-0.0266
	(-1.251)	(-1.397)	(-1.631)	(-1.007)
Constant	0.3001***	0.2815***	0.3013***	0.2959***
	(3.544)	(2.722)	(3.164)	(2.646)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	7320	7320	7320	7320
R-squared	0.3065	0.3127	0.3925	0.3052

Table 11: Results for ESG Measurement Replacement

This table reports OLS regression results from a robustness check that replaces baseline ESG variables with specific ESG theme-level indicators based on Refinitiv's third-tier classification. Environmental themes (Model 1 to Model 10) include Resource Use, Emissions, and Innovation; Social themes include Workforce, Human Rights, Community, and Product Responsibility; and Governance themes include Management, Shareholders, and CSR Strategy. All models control for firm characteristics and include industry and year fixed effects. * statistically significant at the 10%, ** at the 5%, and *** at the 1% level. t-stats are given in parenthesis and are based on robust standard errors.

	Model Specification	Corruption Score	ESG Theme Effect	Corruption × ESG Theme	Control Variables	Industry and Year Fixed Effects	Adjusted R-squared	N
(1)	Resource Use	0.0061** (2.219)	-0.0021 (-1.249)	-0.0003 (-1.321)	Included	Included	0.2878	13836
(2)	Emissions	0.0066** (2.374)	-0.0036** (-2.019)	-0.0002 ** (-2.115)	Included	Included	0.2866	13836
(3)	Innovation	0.0039** (2.024)	0.0024 (1.426)	0.0005 (1.106)	Included	Included	0.2859	13836
(4)	Workforce	0.0068** (2.451)	0.0006 (0.443)	0.0001 (0.512)	Included	Included	0.2854	13836
(5)	Human Rights	0.0051** (2.326)	-0.0060 (-0.911)	-0.0006 (-0.701)	Included	Included	0.2862	13836
(6)	Community	0.0072*** (2.982)	-0.0022 (-1.348)	-0.0002 (-1.036)	Included	Included	0.2855	13836
(7)	Product Responsibility	0.0054** (2.171)	-0.0022** (-2.061)	-0.0006 (-0.408)	Included	Included	0.2869	13836
(8)	Management	0.0067** (2.246)	-0.0020 (-1.645)	-0.0003 (-1.124)	Included	Included	0.2852	13836
(9)	Shareholders	0.0044** (2.087)	-0.0020 (-1.118)	-0.0003 (-1.362)	Included	Included	0.2856	13836
(10)	CSR Strategy	0.0049* (1.748)	0.0011 (0.792)	0.0002 (1.051)	Included	Included	0.285	13836

Table 12: Results for Instrumental Variable (IV) Analysis

This table reports the IV regression results examining the effect of ESG performance, Corruption, and their interaction on COE. Log Donations Total is used as the instrument for Corruption Scores. Models (1) to (4) analyze overall ESG, environmental, social, and governance performance, respectively. Controls include Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-market ratio, Log Assets, Growth potential, and Earnings Volatility. The number of observations, first-stage F-statistics, and R-squared are reported at the bottom. * statistically significant at the 10%, ** statistically significant at the 5% and *** statistically significant at the 1% level. t-stats are given in parenthesis and are based on robust standard errors.

Dependent Variable	(1)		(2)	
	1st Stage Corruption Score	2nd Stage COE	1st Stage Corruption Score	2nd Stage COE
Log Donations Total	-1.9324*** (-9.21)		-1.9324*** (-9.21)	
(Predicted) Corruption Score		0.0022** (2.36)		0.0019 (1.16)
ESG		-0.0014*** (-3.60)		
Corruption Score*ESG		-0.0006* (-1.94)		
Environmental				-0.0012* (-1.74)
Corruption Score*Environmental				-0.0005* (-1.75)
B2M	-7.4658 (-0.85)	-1.2819*** (-10.04)	-7.4658 (-0.85)	-1.2670*** (-9.96)
Beta	2.1936*** (2.87)	0.0059 (0.49)	2.1936*** (2.87)	0.0070 (0.59)
Idiosyncratic Risk	-53.8796*** (-4.65)	1.0763*** (5.71)	-53.8796*** (-4.65)	1.0804*** (5.74)
Momentum	-2.1340* (-1.70)	0.8917* (2.30)	-2.1340* (-1.70)	0.8924** (2.35)
Growth	-0.0171 (-0.40)	-0.0019*** (-3.04)	-0.0171 (-0.40)	-0.0019*** (-3.08)
Leverage	0.0285 (0.018)	0.0283 (1.24)	0.0285 (0.018)	0.0291 (1.27)
Earning Volatility	-0.003 (-0.36)	0.0010*** (8.80)	-0.003 (-0.36)	0.0010*** (8.80)

Log Asset	-12.0877*** (-15.68)	-0.0255 (-0.92)	-12.0877*** (-15.68)	-0.0176 (-0.63)
Constant	130.9105*** (42.43)	0.3264*** (3.66)	130.9105*** (42.43)	0.2581*** (3.34)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	7048	7048	7048	7048
R-squared	0.194	0.426	0.194	0.426

Table 13: Results for Instrumental Variable (IV) Analysis (Continued)

This table reports the IV regression results examining the effect of ESG performance, Corruption, and their interaction on COE. Log Donations Total is used as the instrument for Corruption Scores. Models (1) to (4) analyze overall ESG, environmental, social, and governance performance, respectively. Controls include Beta, Idiosyncratic Risk, Momentum, Leverage, Book-to-market ratio, Log Assets, Growth potential, and Earnings Volatility. The number of observations, first-stage F-statistics, and R-squared are reported at the bottom. * statistically significant at the 10%, ** statistically significant at the 5% and *** statistically significant at the 1% level. t-stats are given in parenthesis and are based on robust standard errors.

Dependent Variable	(3)		(4)	
	1st Stage	2nd Stage	1st Stage	2nd Stage
	Corruption Score	COE	Corruption Score	COE
Log Donations Total	-1.9324*** (-9.21)		-1.9324*** (-9.21)	
(Predicted) Corruption Score		0.0022 (1.34)		0.0013* (1.82)
Social		-0.0010*** (-3.11)		
Corruption Score*Social		-0.0005* (-1.77)		
Governance				-0.0007** (-2.45)
Corruption Score*Governance				-0.0007** (-2.23)
B2M	-7.4658 (-0.85)	-1.2819*** (-10.11)	-7.4658 (-0.85)	-1.2510*** (-9.83)
Beta	2.1936*** (2.87)	0.0057 (0.47)	2.1936*** (2.87)	-0.009 (0.76)
Idiosyncratic Risk	-53.8796*** (-4.65)	1.0918*** (5.80)	-53.8796*** (-4.65)	1.1386*** (6.08)
Momentum	-2.1340* (-1.70)	0.8915** (2.26)	-2.1340* (-1.70)	0.8926** (2.32)
Growth	-0.0171 (-0.40)	-0.0019*** (-3.09)	-0.0171 (-0.40)	-0.0019*** (-3.08)
Leverage	0.0285 (0.018)	0.0273 (1.19)	0.0285 (0.018)	0.0265 (1.16)
Earning Volatility	-0.003 (-0.36)	0.0010*** (8.79)	-0.003 (-0.36)	0.0010*** (8.71)
LogAsset	-12.0877*** (-15.68)	-0.0307 (-1.11)	-12.0877*** (-15.68)	-0.0205 (-0.74)
Constant	130.9105***	0.3253***	130.9105***	0.2123***

	(42.43)	(3.64)	(42.43)	(3.10)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	7048	7048	7048	7048
R-squared	0.194	0.425	0.194	0.421

Table 14: Results for Propensity Score Matching

This table reports OLS regression results after applying propensity score matching (PSM) based on firms' anti-corruption policy disclosure, as indicated by the "Policy Bribery and Corruption" variable from Refinitiv. Firms with and without explicit anti-corruption policies are matched based on observable firm characteristics. Models (1) to (4) follow the baseline specifications, assessing the effects of corruption, ESG performance, and their interactions on the cost of equity. Robust standard errors are used, and t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1)	(2)	(3)	(4)
	ESG	Environmental	Social	Governance
Corruption Score	0.0034**	0.0031**	0.0029**	0.0036***
	-2.122	(2.016)	(2.053)	(2.707)
ESG	-0.0035***			
	(-2.711)			
Corruption Score*ESG	-0.0004**			
	(-2.011)			
Environmental		-0.0016*		
		(-1.794)		
Corruption Score*Environmental		-0.0002*		
		(-1.731)		
Social			-0.0025**	
			(-2.108)	
Corruption Score*Social			-0.0003*	
			(-1.751)	
Governance				-0.0036***
				(-3.015)
Corruption Score*Governance				-0.0005**
				(-2.304)
B2M	-0.5021***	-0.5007***	-0.5019***	-0.5035***
	(-16.512)	(-16.431)	(-16.723)	(-16.932)
Beta	0.0062	0.0011	0.0046	0.0142
	(0.354)	(0.091)	-0.231	-0.538
Idiosyncratic Risk	1.1289**	1.1512**	1.1021**	1.1753**
	(2.087)	(2.235)	(2.115)	(2.248)
Momentum	0.5991**	0.6082**	0.5935**	0.6019**
	(2.401)	(2.509)	(2.382)	(2.450)
Growth	-0.0010	-0.0094	-0.0015	-0.0010
	(-1.121)	(-1.044)	(-1.097)	(-1.083)
Leverage	0.0572	0.0584	0.0561	0.0589
	(1.391)	(1.430)	(1.411)	(1.408)

Earning Volatility	0.0882***	0.0895***	0.0901***	0.0873***
	(4.312)	(4.407)	(4.491)	(4.281)
LogAsset	-0.0062	-0.0074	-0.0045	-0.0052
	(-1.211)	(-1.331)	(-0.901)	(-1.018)
Constant	0.2782***	0.2631***	0.2717***	0.2829***
	(3.015)	(2.611)	(2.899)	(2.974)
Industry Fixed Effect	Included	Included	Included	Included
Year Fixed Effect	Included	Included	Included	Included
N	7120	7120	7120	7120
R-squared	0.2923	0.2951	0.3985	0.3014
