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COST OF EQUITY PRE AND DURING COVID-19 OUTBREAK: ENVIRONMENTAL, SOCIAL, AND GOVERNANCE PERFORMANCE IN INDONESIA

Saarce Elsye Hatane[1], Noorlailie Soewarno[2,*], and Isnalita[3]

Abstract

This study examines the influence of Environmental, Social, and Governance (ESG) performance on the cost of equity (COE), prior to and during the COVID-19 period. This study analyses 65 Indonesian public companies in the non-banking and financial sectors that disclosed all ESG information in 2019 and 2020. 2019 is taken as the pre-COVID-19 period, while 2020 is the year during COVID-19. The results reveal that ESG performance is favorable in lowering the COE. However, the effect of ESG performance on COE decreased during COVID-19, such that it was ineffective in mitigating the negative impacts of COVID-19 on the COE. The disclosure of ESG includes the firm's endeavors to be transparent to its stakeholders, thereby mitigating information asymmetry. The ability of companies to manage information asymmetry is substantial during high-uncertainty periods, such as the COVID-19 pandemic in 2020. However, this study is limited to Indonesian companies. As emerging markets, countries with characteristics similar to Indonesia may benefit from this study.

Keywords: COVID-19; ESG; sustainability; cost of equity; Indonesia

1. INTRODUCTION

Since the outbreak of the COVID-19 pandemic at the start of the year 2020, almost every industrial sector in the world has been affected by significant turmoil. Fernandes (2020); and Gurbaxani et al. (2021) explained that the pandemic made the world face various economic challenges, including Indonesia. The rise of the COVID-19 pandemic in Indonesia impacted physical health and caused a decline in economic conditions in Indonesia. As a result, Indonesia's GDP also experienced a decline of USD 61 billion, falling from USD 1,119 trillion in 2019 to USD 1,058 trillion in 2020 (World Bank, 2020). This situation impacted the Indonesian government's efforts to reduce the extent of COVID-19, which forced the government to establish a PSSB (Large-Scale Social Restrictions) policy to limit the public in their activities outside the home. As a result, the level of public demand for certain sector products or services, such as in the accommodation and food/drink sectors, transportation and warehousing, construction, the processing industry, and trade, experienced sharp declines

[1] Assoc. Prof. Saarce Elsye Hatane is currently working as a lecturer in the Department of Accounting, Petra Christian University, Indonesia. She obtained a master's degree in MBA finance from Assumption University (ABAC), Thailand. She is a Doctor Candidate in the Department of Accounting, Airlangga University, Indonesia. Email: saarce.elsye.hatane-2020@feb.unair.ac.id and elsyehat@petra.ac.id

[2,*] Prof. Dr. Noorlailie Soewarno (Corresponding Author) is currently working as a lecturer in the Department of Accounting, Airlangga University, Indonesia. She obtained a Doctoral in Accounting Science from Airlangga University, Indonesia. Email: noorlailie-s@feb.unair.ac.id.

[3] Assoc. Prof. Dr. Isnalita is currently working as a lecturer in the Department of Accounting, Airlangga University, Indonesia. She obtained a Doctoral in Accounting Science from Airlangga University, Indonesia. Email: isnalita@feb.unair.ac.id

(Bappenas, 2020).

Related to the previous fact, investors became more careful in investing. The decline in the composite stock price index in 2020, corrected by 5.13% from 2019 (Sembiring & Sidik, 2020), is evidence of investor caution. This situation happened because investors lacked confidence in companies' sustainability. World Bank data from the end of December 2020, recorded that around 60% of companies worldwide had become bankrupt. For this reason, investors demand more transparency in company reporting (IOSCO, 2021; Adams & Abhayawansa, 2021) in order to reduce risk. Thus, there is a need for other reports, in addition to financial and annual reports, providing more information about the company's sustainability. This stage is also confirmed by Hogeboom et al. (2018) and Chatzitheodorou et al. (2019), who disclosed that investors are currently more focused on non-financial matters that can support a company's sustainability when evaluating the performance of the company. The Environment, Social, Governance (ESG) score is deployed as a measure of Corporate Social Responsibility (CSR) in this study. Based on a 2020 survey conducted by the CFA Institute on 2,800 CFA Institute members, 85% of investors consider ESG reporting in the entire investment-related analysis and decision-making process (CFA Institute, 2020b). According to Fahad & Nidheesh (2020), ESG reporting is a form of reporting that has become a concern for many companies. As a result, the existence of ESG has become vitally essential. ESG can help increase transparency and investor confidence in the company in three aspects: environmental, social, and governance. Thus, ESG reporting has evolved into a tool that informs interested parties about a firm's ecological investments and activities. This is exemplified by KPMG's 2017 report which showed that 93 percent of the world's 250 largest enterprises disclosed their CSR activities (KPMG, 2017); this circumstance motivates all firms to increase their ESG score rating.

The increasing popularity of ESG has prompted this research which aims to further explore the impact of ESG reporting on the Cost of Equity (COE). The reason is that the COE is one of the company's value factors which plays an essential role in company funding and general operating decisions. In addition, corporate executives seem to believe that voluntarily communicating information can help decrease the firm's cost of capital. A number of past studies have also concluded that non-financial performance, such as ESG, is able to reduce the COE (Matthiesen & Salzmann, 2017; Zouari-Hadiji & Chouaibi, 2021; Chouaibi & Zouari, 2022). However, Ye & Zhang (2011) stated that ESG reporting negatively impacts the COE to a certain point. If it exceeds a certain threshold, then the impact of ESG on COE becomes positive. This statement leads to uncertainty and interest regarding the difference in the impact of ESG on the cost of shares before and during the COVID-19 pandemic. Therefore, this study examines the impact of ESG on COE before and during COVID-19.

In addition, this study was conducted as most studies examining this issue were conducted in developed countries, such as the U.S. (Ng & Rezaee, 2015; Lins et al., 2017; Esther, 2020; Alareeni & Hamdan, 2020). As developing countries have different characteristics from developed countries, in aspects such as institutional, economic, social, and legal arrangements, the limited literature discussing the impact of ESG on the COE in developing countries such as Indonesia encourages this research to be conducted precisely in Indonesia. The study utilizes a sample of 65 Indonesian companies, excluding financial institutions and banks, which are listed on Indonesia's IDX, and which have revealed their ESG scores from 2019 and 2020.

This research is expected to motivate companies to increase transparency in reporting their ESG scores, especially during crisis conditions such as the COVID-19 pandemic. Such action allows investors to reduce systematic risk when providing funding. Meanwhile, the results will also support companies in managing their COE level for improved business sustainability.

2. LITERATURE REVIEW

2.1 Environmental, Social, and Governance (ESG)

ESG reporting aims to ensure companies' sustainable performance. This goal aligns with the Triple Bottom Line (TBL) concept, which measures company sustainability (Buallay, 2019). The idea of the TBL is based not only on profit or loss factors but also on the welfare of people and the planet's health. Investors also adopt the TBL concept to improve the accuracy of their analysis (Cubas-Díaz & Martinez Sedano, 2018).

The CFA Institute (2020a) explained that the environmental dimension (E) assesses how a company manages and affects natural ecosystems, such as emissions (e.g., greenhouse gases); efficient use of natural resources in the production process (e.g., in terms of energy, materials, or water); waste and pollution (e.g., spills); and innovative product eco-design efforts. The environmental dimension affects the company's future performance and the planet as a whole. Alareeni and Hamdan (2020) stated that environmental problems such as global warming and climate change are among the most challenging issues in the world. Companies must establish environmental standards and publicly publish their commitments to address this worldwide challenge in order to raise public and investor awareness (Moody's, 2019; World Economic Forum, 2020; Buallay et al., 2021). Therefore, reporting on environmental information, such as the company's carbon footprint and risk management, can encourage a more profound analysis of investor decision-making (Carney, 2018).

The social dimension (S) consists of social expenditures covering various activities, such as health and safety, diversity, training and development, quality of work, product responsibility, society, and human rights. Each component shows a strong positive relationship with the company's market. Investment in the social dimension should refer to the behavior of companies seeking a good reputation among local communities, governments, or customers. This can lead to value creation, which in turn reduces risk.

The governance dimension (G) pertains to the mechanisms established for management to act in the best interests of its shareholders over the long term. This includes safeguarding shareholder rights, maintaining a well-functioning board (with independent, diverse, and experienced members), implementing a well-structured executive compensation policy, and avoiding unlawful activities such as bribery and fraud (CFA Institute, 2020a). Good corporate governance practices can restore investor confidence in accounting information (Melgarejo, 2019). In addition, investors value corporate governance practices in the equity market in the long term, as there is confidence that these good corporate governance practices provide strategies that can maximize value over the long term.

2.2 Determinant Factors of Cost of Equity

Research examining the factors that influence the cost of equity is still limited. Most studies use cost of capital rather than cost of equity as the dependent variable. Cost of capital is the total cost of debt and cost of equity. Examining the factors that can influence the cost of equity is important as it will help companies estimate the expected returns from investors in the stock market.

Shafizal and Mansur (2013) argued that firm-specific factors can determine the cost of equity. Firm-specific factors can be categorized into two main groups: accounting-based variables, which are determined exclusively using accounting information, and market-based variables, which are evaluated based on correlations between market data and accounting data. Assets, leverage, liquidity, and sales growth, are the main accounting-based characteristics determining a firm's operating risk. On the other hand, the company's market value, stock

returns, and stock risk, are market-based characteristics. Thus, these factors are commonly employed as control variables when predicting the cost of capital, including the cost of equity.

The research suggests that non-financial performance is a leading indicator of financial performance, including company transparency in disclosing information related to sustainability activities. Alkebsee et al. (2023) revealed a detrimental correlation between green innovation and the cost of equity, particularly in financially unconstrained companies and in the presence of an effective internal control framework. Disclosure regarding governance and quality performance is essential in managing the cost of equity (Bhatia & Kaur, 2023; Sajid et al., 2023). Yeh et al. (2023) showed that corporate social responsibility (CSR) has the impact of rising the cost of equity.

2.3 ESG and COE

Companies operating in communities have rights and responsibilities as members (or citizens) of those communities. This situation is in line with the theory of Corporate Citizenship. Therefore, companies will issue ESG reports as a form of commendable behavior allowing the company to be identified as having good corporate citizenship (Fifka, 2013; Mackey, 2014). Companies with robust ESG practices are more likely to share information to establish a positive corporate reputation among investors and stakeholders. (Cho et al., 2013; Fifka, 2013; Mackey, 2014).

Stakeholder theory reveals that companies are responsible for meeting the needs and desires of stakeholders, including not only shareholders (Hatane & Soewarno, 2022) but also six stakeholder groups: investors, employees, customers, communities, suppliers, and the environment (Xu et al., 2015). Therefore, companies must build good relationships with stakeholders to reduce transaction costs, increase their competitive advantage, and reduce shocks to cash flows when adverse events occur. Therefore, a strong presence in ESG activities is expected to result in higher output or income with a lower level of risk; the existence of ESG, which is a form of disclosure of sustainability reports, can be one of the tools to satisfy stakeholders (Arjaliès & Mundy, 2013; Hatane & Soewarno, 2022), establishing greater transparency with community stakeholders (Buallay, 2019).

Transparency in ESG reporting can be a signal to improve communication with stakeholders such as investors and creditors by reducing information asymmetry (Cui et al., 2016; Yang et al., 2018). This information asymmetry reduction will impact the information costs investors incur (Cuadrado-Ballesteros et al., 2016; Cho et al., 2013), allowing them to make decisions that attract new investors to invest in the company. Therefore, better disclosure results in a reduced level of risk for investors and a lower expected return on investments and the company's COE (Kazemi & Rahmani, 2013; Bhuiyan & Nguyen, 2020). This explanation aligns with several research results, which show that decreasing information asymmetry can reduce the company's COE (Ferris et al., 2017; Matthiesen & Salzmann, 2017; Ng & Rezaee, 2015).

In addition, clear and transparent communication about ESG reporting enables companies to maintain the trust of investors and other stakeholders (Fahad & Nidheesh, 2020). This situation occurs because ESG involves long-term relationships with stakeholders which ensure the company's survival in the community. Positive stakeholder perceptions will lead to the maintenance of organizational legitimacy (She & Michelon, 2019). Therefore, ESG can be a powerful tool to gain legitimacy (Ozdora et al., 2016). With credible ESG communication, stakeholders can establish a good relationship with legitimacy to maintain a license from the community to operate (Gold & Heikkurinen, 2018; Reber et al., 2021). Furthermore, it can improve the status of the company (Seele & Lock, 2014; Khlif et al., 2015). As a result, the company will ultimately achieve a good reputation in society (Vlastelica et al., 2018; Hou,

2019). The company's reputation will then influence the decisions of investors to buy or not to buy a stock (Blajer-Gołębiewsk, 2021). The better the company's reputation, the more interested investors will be in providing funding, so the company does not need to spend much money to obtain funding from investors (Hatane & Soewarno, 2022).

2.4 ESG and COE during COVID-19

The COVID-19 pandemic has caused an increase in uncertainty in the market (Gostin & Wiley, 2020). This widespread uncertainty results in greater risk and an increase in the returns demanded by investors. Investors will consider various possible future returns for their investments, leading to an increase in the COE (PwC, 2020). Therefore, one indicator that companies can use to mitigate risk in times of uncertainty is ESG performance (Broadstock et al., 2021). Consequently, ESG can be a crucial resilience factor during a period of heightened financial instability, such as that brought on by the COVID-19 pandemic (Albuquerque et al., 2020; Demers et al., 2020; Hoang et al., 2020; Amankwah-Amoah, 2021).

During the COVID-19 pandemic crisis, stakeholders demanded greater ESG reporting (Bae et al., 2020). To further satisfy stakeholder interests and increase trust, companies must grow their ESG reporting (Lins et al., 2017). During a pandemic, companies that can rise above their competitors are companies that care about their employees, customers, and communities, inspiring confidence and fostering loyalty. This situation is also supported by Whieldon et al. (2020), who stated that companies which have been prudent in managing environmental or other social risks are prepared in any condition and react reasonably well.

During times of crisis, companies are also expected to maintain their legitimacy and increase public perception and trust in the organization (Christensen et al., 2016; He & Harris, 2020; Corbera et al., 2020). However, during the pandemic crisis, stakeholders' trust in companies diminished (Baker et al., 2020). Therefore, companies became increasingly transparent in disclosing their sustainability performance through ESG during the crisis. Giannarakis & Theotokas (2011) explained that ESG reporting helps to regain the trust lost in businesses during a crisis. According to the legitimacy theory, the company's sustainability practices are motivated by the company's concern for society (Hummel & Schlick, 2016; Boiral et al., 2019; Boiral et al., 2021). During the pandemic, there was an increased concern for the sustainability element in society: 3P (people, planet, and profit), particularly between health, poverty, climate change, and global financial system stability (Adams & Abhayawansa, 2021). Therefore, ESG transparency shows that the company has acted environmentally and socially responsibly (Dai et al., 2018). Transparency in ESG reporting during COVID-19 is considered to alleviate the pandemic's negative impact (Hoang et al., 2020). Transparency of ESG disclosure during this pandemic will reduce the company's systematic risk (Broadstock et al., 2021). If the company's systematic risk decreases, it is believed that its COE capital will also decrease (Ali et al., 2019).

On the other hand, ESG during a pandemic can be seen as costly for shareholders or investors. Breuer et al. (2018) argued that ESG is an expensive form of diversion of scarce resources. The existence of ESG reporting also raises concerns that managers will sacrifice or waste resources within the company to upgrade the personal fame and reputation of the manager himself (Buchanan et al., 2018). Investors who believe that companies should concentrate solely on their economic viability may view ESG activities during times of crisis as redundant or unnecessary (Petitjean, 2019). Investors may assume that managers may invest in ESG activities to earn profits, enjoy praise from the public, and self-satisfaction by providing benefits to other people or society. Managerial behavior that promotes self-interest will increase the company's level of risk. This increase in company risk will lead to a rise in the company's COE. Based on the description above, the following hypotheses were developed:

H0: There is no difference in the effect of ESG during COVID-19 and before COVID-19 on the COE.

H1: There is a difference in the effect of ESG during COVID-19 and before COVID-19 on the COE.

3. RESEARCH METHODOLOGY

3.1 Data

The samples used in this study are all non-financial companies listed on the Indonesia Stock Exchange (IDX) and those with ESG scores from 2019 and 2020. This study's data collection category is secondary data with a balanced number of data panels. The data in the study were obtained from the Bloomberg Website. Based on Table 1, the total research sample is 65 companies observed during 2019 and 2020, yielding a total of 130 observations.

Table 1 Summary in Determining Research Sample

Criteria Sampling	No. of Observations
Non-Financial and Non-Bank Companies which are listed on IDX from 2019 through 2020	609
(-) Companies that do not have complete ESG scores from 2019 and 2020	(544)
Companies used as the sample	65
Research period (2019-2020)	2
Total observations	130 observations

3.2 Variable Measurement

Independent Variable

This study uses the ESG score obtained from the Bloomberg database, where the ESG score ranges from 1 to 100. The higher the ESG value, the more ESG data the company discloses. To see the ESG scores during the pandemic, this study uses the results of multiplying the ESG scores with the COVID-19 period, which is calculated using a dummy variable: 0 before COVID-19, 1 for the COVID-19 period.

There are several reasons why this study uses the ESG score as an independent variable. Referring to Diez-Cañamero et al. (2020), the relationship between various social and environmental variables and complex stakeholder interactions triggers more complex instruments to estimate CSR performance. This situation then encourages the emergence of sustainability reporting, performance indicators, and environmental and social standards, which are included in the ESG score. Second, the ESG score in the form of Corporate Sustainable Systems (CSSs) is one of the most valuable and direct instruments companies use to demonstrate their contribution to the sustainable development of all their stakeholders. In addition, we obtained the ESG measurements used in this study from the Bloomberg Computex Website. This study chose to use ESG Bloomberg because the ESG Bloomberg rating is in the top ten ESG ratings, as measured by Rate the Raters (The Sustainability Institute, 2020).

Under the category of environmental issues, is the disclosure of carbon footprint, energy efficiency, renewable energy usage, water usage, pollution, waste management and biodiversity impact. Social issues includes revealing labor practices, pro-diversity efforts, human rights, community relations, and health and safety. Governance scores are derived from board diversity and structure, executive compensation, shareholder rights, business ethics, risk management, and supply chain management. Bloomberg offers diverse data and exclusive

ratings that investors may utilize to evaluate the transparency and effectiveness of companies or governments in relation to various ESG and thematic matters. Bloomberg's exclusive quantitative model incorporates sustainability and industry frameworks, research, and analysis to minimize irrelevant information, standardize data, mitigate biases related to company size, and bridge gaps in disclosure. Investors employ ESG scores to gain insights for investment decision-making, assess the sustainability of a company's operations, and evaluate its long-term prospects. A firm with high ESG scores is likely to manage environmental, social, and governance issues well, which can improve financial performance and reduce investment risk. These scores can help investors who value environmental, social, and governance issues, effectively choosing which possible investments are worth making and which ones should be avoided.

Dependent Variable

The cost of equity (COE) is measured using the Capital Assets Pricing Model (CAPM) approach. COE represents the investor's expected return on the financial assets. Since most investors have diversified portfolios from which unsystematic risk has been virtually eliminated, the CAPM only takes systematic risk into account (Baldridge & Curry, 2023). Given that it explicitly considers a company's degree of systematic risk in relation to the stock market as a whole, CAPM is widely regarded as a far superior tool for determining the cost of equity compared to the dividend growth model. The formula is:

$$ke_i = R_f + [\beta_i \, x \, (R_m - R_f)]$$

where:

ke_i is the expected return on the financial assets of company i. It is the cost of equity of company i

R_f is the risk-free rate of return. The reference for risk-free rate investment in Indonesia is the return rate of Indonesian Government Bonds.

β_i is the beta value of the financial assets of company i.

β_i = covariance/variance

Covariance is the variance of a share's return for company i relative to the market's return.

Variance is the variance of the market's return. The market return is the return of the Jakarta Stock Exchange Composite Index

R_m is the average return on the capital market, which in this study is the Indonesian Stock Exchange (IDX), also known as Jakarta Stock Exchange Composite Index.

To test the robustness of ESG and the COVID-19 period on cost of equity, this study replaced the cost of equity with cost of capital. Cost of capital employed in this study is the weighted average of the cost of capital with the formula:

$$WACC_i = \left(\frac{Debt_i}{Debt_i + Equity_i} x kd_i\right) + \left(\frac{Equity_i}{Debt_i + Equity_i} x ke_i\right)$$

where:

$WACC_i$ is the weighted average cost of capital for company i

$Debt_i$ is the total book value of debt of company i

$Equity_i$ is the total market value of shareholder capital of company i

The market value of shareholder capital results from the formula:

= share price at the end of year x number of shares issued and outstanding

ke_i is the cost of equity resulting from the CAPM

$kd_i$is the cost of debt of company i
The cost of debt is the cost of debt after tax.

The formula for cost of debt is:

$$After - tax\ cost\ of\ debt_i = \frac{Annual\ interest\ expense_i}{Total\ debt}\ x\ (1 - tax\ rate)$$

The weighted average cost of equity and the weighted average cost of capital are taken from the Bloomberg Compustat Website.

Control Variables

Based on previous studies (Xu et al., 2015; Breuer et al., 2018; Desender et al., 2020; Chen & Zhang, 2021), this study used control variables: Beta, Firm Size, and Leverage. This study adds two control variables: Liquidity (Xu et al., 2015) and Sales Growth. Moreover, the liquidity variable was measured using CR (Current Ratio), Firm Size by the log of total assets, and Leverage by the ratio of debts to assets. According to previous research, the Firm Size and Firm Liquidity are expected to be negative, while Beta and Leverage should yield positive results. The low correlation effect of Beta on the weighted average of COE is also supported by previous study (Bhatia and Kaur, 2023); this study takes Beta as the control variable although it is also part of the COE calculation. In addition, this study preferred to measure firms' growth based on operating revenue rather than operating income since there is a high probability of a decrease in operating income during the COVID-19 pandemic.

This study presents four equations to investigate the role of each ESG and COVID-19 period on COE. The fourth equation is the key equation to answer the hypothesis. The statistical model specification of this study is:

$$COE_{i,t} = \beta_0 + \beta_1\, ESG_{i,t} + \beta_2\, Firm\ Size_{i,t} + \beta_3\, Growth_{i,t} + \beta_4\, Liquidity_{i,t} + \beta_5\, Leverage_{i,t} + \beta_6\, BETA_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$COE_{i,t} = \beta_0 + \beta_1\, COVID\text{-}19_{i,t} + \beta_2\, Firm\ Size_{i,t} + \beta_3\, Growth_{i,t} + \beta_4\, Liquidity_{i,t} + \beta_5\, Leverage_{i,t} + \beta_6\, BETA_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$COE_{i,t} = \beta_0 + \beta_1\, ESG_{i,t} + \beta_2\, COVID\text{-}19_{i,t} + \beta_3\, Firm\ Size_{i,t} + \beta_4\, Growth_{i,t} + \beta_5\, Liquidity_{i,t} + \beta_6\, Leverage_{i,t} + \beta_7\, BETA_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$COE_{i,t} = \beta_0 + \beta_1\, ESG_{i,t} + \beta_2\, COVID\text{-}19_{i,t} + \beta_3\, ESG{*}COVID\text{-}19_{i,t} + \beta_4\, Firm\ Size_{i,t} + \beta_5\, Growth_{i,t} + \beta_6\, Liquidity_{i,t} + \beta_7\, Leverage_{i,t} + \beta_8\, BETA_{i,t} + \varepsilon_{i,t} \quad (4)$$

In addition, to test the strength of the results of this study, the cost of equity variable was replaced with the cost of capital. The reason for using the cost of capital is that the cost of equity is a fairly dominating part of the cost of capital. The equations used in the robustness test are as follows:

$$WACC_{i,t} = \beta_0 + \beta_1\, ESG_{i,t} + \beta_2\, Firm\ Size_{i,t} + \beta_3\, Growth_{i,t} + \beta_4\, Liquidity_{i,t} + \beta_5\, Leverage_{i,t} + \beta_6\, BETA_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$WACC_{i,t} = \beta_0 + \beta_1\, COVID\text{-}19_{i,t} + \beta_2\, Firm\ Size_{i,t} + \beta_3\, Growth_{i,t} + \beta_4\, Liquidity_{i,t} + \beta_5\, Leverage_{i,t} + \beta_6\, BETA_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$WACC_{i,t} = \beta_0 + \beta_1\, ESG_{i,t} + \beta_2\, COVID\text{-}19_{i,t} + \beta_3\, Firm\ Size_{i,t} + \beta_4\, Growth_{i,t} + \beta_5\, Liquidity_{i,t} + \beta_6$$

$$Leverage_{i,t} + \beta_7 BETA_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$WACC_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 COVID\text{-}19_{i,t} + \beta_3 ESG*COVID\text{-}19_{i,t} + \beta_4 Firm\ Size_{i,t} + \beta_5 Growth_{i,t} + \beta_6 Liquidity_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 BETA_{i,t} + \varepsilon_{i,t} \quad (4)$$

4. RESEARCH RESULTS AND DISCUSSION

4.1 Statistical Results

Table 2 Descriptive Statistics

Variable	Mean	Median	S.D.	Min	Max
COE	0.12	0.11	0.05	0.03	0.27
ESG (normal)	33.10	32.20	12.10	12.40	54.50
ESG (LnESG)	3.43	3.47	0.39	2.52	4.00
ESG*Covid	1.72	1.35	1.75	0.00	4.00
Firm Size	9.30	9.31	0.49	7.75	10.40
Growth	-0.05	-0.03	0.19	-0.59	0.70
Liquidity	1.95	1.52	1.29	0.23	5.96
Leverage	0.27	0.25	0.19	0.00	0.74
Beta	1.10	1.14	0.27	0.46	1.80
WACC COE	0.08	0.08	0.03	0.01	0.18
WACC COD	0.01	0.01	0.02	0.00	0.10
WACC	0.09	0.01	0.09	0.02	0.19

Table 2 shows the statistical description of the dependent, independent, and control variables. The minimum ESG score shows that some companies have deficient ESG performance. Using the standard from CSR Hub, there are 18 observations (13.85%) categorized as high performance; 26 observations (20.00%) of middle performance, 29 observations (22.31%) of low performance, and 57 observations (43.85%) of deficient performance. Due to the high standard deviations, the ESG scores are transformed by the natural logarithm. The ESG used in the following statistical tests is the transformed ESG score (LnESG).

The maximum value of the COE variable is 26.9%, while the minimum value of the COE variable is 3%. Indirectly, this result shows that several companies incurred high costs to obtain their capital. The standard deviation of the COE is relatively low as it shows a lower number than the average. This finding indicates that COE has low variation from 2019 to 2020.

Table 3 exhibits the correlation matrix among the independent and control variables. These results lead to the conclusion that there is no high correlation among the variables. Table 3 also shows the variance inflation factor (VIF) of each variable is less than 10, thus, there is no multicollinearity problem.

Table 3 Correlation Matrix

Variables	ESG	COVID-19	Firm Size	Growth	Liquidity	Leverage	Beta
ESG	1	0.033	0.285***	-0.125	-0.147*	0.066	0.212**
COVID-19		1	0.016	-0.443***	-0.059	0.079	-0.025
Firm Size			1	-0.168*	-0.281***	0.387***	0.486***
Growth				1	0.196**	-0.066	-0.176**
Liquidity					1	-0.546***	-0.088
Leverage						1	0.321***
Beta							1
Collinearity (VIF)	1.124	1.288	1.522	1.388	1.575	1.721	1.456

Notes. *** 0.01 significance level, ** 0.05 significance level, * 0.1 significance level

Table 4 Panel Test

Tests	Chow Test	Breusch-Pagan Test	Hausman Test	Heteroscedasticity Test
P-Values	0.404306	0.00047	0.72873	P(Chi-square(40)> 50.105823) =
Results	**Common Effect**	**Random Effect**	**Random Effect**	**0.131391**

The results shown in Table 4 lead to the conclusion that the final panel effect model to answer the hypotheses is a random effect. The chow-test selects the common effect (pooled least square) or fixed effect. Since the p-value is higher than 5%, the chow-test shows that the appropriate model is the common effects model. In contrast, the Breusch-pagan test indicates that the random effects model is better than the common effects model (p-value 0.00047 is less than 5%). This is also supported by the results of the Hausman test which indicate that the random effects model is more suitable than the fixed effects model (p-value 0.72873 is higher than 5%).

This study presents four equations to explain the process to analyze the hypothesis. Under the first equation it is found that ESG has an insignificant effect on COE (standard error = 0.0078; p-value = 0.2827). The first and third equation show that ESG has the ability to reduce the COE although it is insignificant. The second equation, aimed to verify the stand-alone effect of COVID-19, with results indicating that COVID-19 has a significant impact on COE (standard error = 0.0062; p-value = 0.0001). Meanwhile, in the third equation, ESG and COVID-19 are tested as independent variables. It is found that only COVID-19 has a significant impact on COE (standard error = 0.0061; p-value = 0.0001). It is interesting that COVID-19 has a positively significant impact on COE in the second and third equation. This implies that the COVID-19 period leads to an increase in the COE. This result supports the interaction result given in the fourth equation. The fourth equation explains that ESG is significant in reducing the COE (standard error = 0.0097; p-value = 0.0113). Meanwhile, regarding the interaction of ESG and the COVID-19 period (ESG*COVID-19) is it shown that there is a positive and significant impact on COE (standard error = 0.0136; p-value = 00174). This indicates that ESG is able to reduce COE, however, during the COVID-19 period, the ability of ESG in mitigating COE is weak. These results verify a different influence of ESG before and during COVID-19. Therefore, the null hypothesis can be rejected.

Table 5 Regression Results of Hypothesis Testing

Independent Variables	Dependent Variable			
	COE	COE	COE	COE
ESG	-0.0084		-0.0089	-0.0247**
	(0.0078)		(0.0073)	(0.0097)
COVID-19		0.0268***	0.0269***	-0.0834*
		(0.0062)	(0.0061)	(0.0468)
ESG*COVID-19				0.0323**
				(0.0136)
Firm Size	-0.0161**	-0.0168**	-0.0151**	-0.0148**
	(0.0074)	(0.0068)	(0.0069)	(0.0068)
Growth	-0.0842***	-0.0493***	-0.0500**	-0.0473***
	(0.0159)	(0.0169)	(0.0168)	(0.0166)
Liquidity	0.0009	0.0002	-0.0002	-0.0005
	(0.0028)	(0.0026)	(0.0026)	(0.0026)

Table 5 (Continued)

Independent Variables		Dependent Variable			
		COE	COE	COE	COE
Leverage	0.0528	0.0439**	0.0412**		0.0408**
	(0.0202)	(0.0189)	(0.0191)		(0.0187)
Beta	0.0981***	0.1034***	0.1050***		0.1054***
	(0.0128)	(0.0119)	(0.0120)		(0.0118)
Cons	0.1708***	0.1349**	0.1494**		0.2005***
	(0.0642)	(0.0591)	(0.0602)		(0.0628)
F-test	132.011	168.4	170.62		182.79
P-value F-test	4.85E-26	9.82E-34	1.86E-33		2.67E-35
Adjusted R2	0.5177	0.5779	0.5831		0.6017

Notes. *** 0.01 significance level, ** 0.05 significance level, * 0.1 significance level. Standard errors are written in parentheses.

Table 6 Robustness Test Results

Independent Variables	Dependent Variable			
	WACC	WACC	WACC	WACC
ESG	0.0043		0.0042	-0.0127*
	(0.0057)		(0.0057)	(0.0072)
COVID-19	0.0467665	0.0049	0.0048	-0.1136**
		(0.0046)	(0.0046)	(0.0334)
ESG*COVID-19				0.0347***
				(0.0097)
Firm Size	-0.0139***	-0.0129**	-0.0137**	-0.0134**
	(0.0054)	(0.0052)	(0.0054)	(0.0052)
Growth	-0.0233**	-0.0173	-0.0169	-0.0141
	(0.0113)	(0.0128)	(0.0129)	(0.0124)
Liquidity	0.002	0.0016	0.0018	0.0015
	(0.002)	(0.0020)	(0.0020)	(0.0019)
Leverage	-0.0488***	-0.0523***	-0.0509***	-0.0509***
	(0.0146)	(0.0146)	(0.0147)	(0.0143)
Beta	0.0721***	0.0742***	0.0734***	0.0735***
	(0.0092)	(0.0092)	(0.0093)	(0.0091)
Cons	0.1314***	0.1343***	0.1276***	0.1823***
	(0.0465)	(0.0457)	(0.0467)	(0.0479)
F-test	88.5637	89.5475	89.6063	107.203
P-value F-test	6.02E-17	3.76E-17	1.49E-16	1.43E-19
Adjusted R2	0.4275	0.4299	0.4325	0.4837

Notes. *** 0.01 significance level, ** 0.05 significance level, * 0.1 significance level. Standard errors are written in parentheses.

Table 6 provides the statistical results of the influence of ESG, the COVID-19 period and the interaction of ESG and COVID-19 on cost of capital. The results of the fourth equation are consistent with the fourth equation in Table 5. ESG is significant in mitigating the cost of capital (p-value 0.0806 < 0.1). The interaction between ESG and the COVID-19 period is significant, and given the positive trend, the impact of ESG in mitigating the cost of capital

during this period is lessened. In conclusion, the results shown in Table 6 indicate that the statistical results in this study are robust.

4.2 Discussion

The results in Table 5 show that ESG reporting before COVID-19 had a significant negative impact on COE in Indonesia (p-value 0.0113 < 0.05), meaning that greater ESG reporting, lowers the COE. These results align with several previous studies (Ng & Rezaee, 2015; Xu et al., 2015; Breuer et al., 2018; Reber et al., 2021; Chen & Zhang, 2021; Zouari-Hadiji & Chouaibi, 2021; Chouaibi & Zouari, 2022). During the COVID-19 period, there is evidence that ESG practices have positively impacted the cost of equity (COE). The statistical analysis shows a significant effect with a p-value of 0.0113, which is less than the threshold of 0.05, suggesting that the effectiveness of ESG reporting in reducing COE diminished during the COVID-19 outbreak. This study composed an independent sample t-test of ESG scores and COE before and during COVID-19, as illustrated in Table 5. The findings indicate that ESG scores and COE during COVID-19 are increasing. However, the rise in ESG scores is insignificant, while the increased COE is significant (p-value 0.0000 < 0.01). These results suggest that investors' attention during the pandemic is not focused on ESG but other factors outside ESG reporting. While the escalation of ESG-related reporting would raise the cost of equity, corporations are obligated to openly disclose their ESG actions (Esther, 2020). Amidst the COVID-19 pandemic, organizations bear a heightened obligation to assist all their stakeholders in surmounting the outbreak, which can ultimately yield advantages for businesses (World Economic Forum, 2020).

The results in Table 5 also show an association between the control variables and the COE, where Firm Size has a significant negative impact on COE (p-value 0.0293 < 0.05). These results align with previous studies (Xu et al., 2015; Chen & Zhang, 2021; Alkebsee et al., 2023). Likewise, firm growth significantly reduces COE (p-value 0.0043 < 0.01). In addition, liquidity, as measured by the current ratio, has an insignificant impact on COE (p-value 0.8478 > 0.1). The other control variables, Beta (p-value 0.0001 < 0.01) and Leverage (p-value 0.0293 < 0.05), have a significant positive impact on COE. These results are consistent with previous studies (Xu et al., 2015; Yeh et al., 2020; Chen & Zhang, 2021). These findings indicate that companies with large size and operating revenue growth, high liquidity levels, low systematic risk, and low leverage have a low COE.

The regression model indicates that ESG and ESG during the COVID-19 outbreak significantly affect the cost of equity. The adjusted R squared value shows a value of 60.17%, which suggests that the independent and control variables employed in this study can explain the dependent variable (COE) by 60%. Other factors not demonstrated in this study also affect about 40% of the variance in the COE.

This study presents additional information indicating a substantial rise in ESG and COE during the COVID-19 pandemic, as presented in Table 7. Despite a substantial increase in ESG efforts throughout the COVID-19 period, this did not resulted in a reduction of COE. During the COVID-19 era, the fall in COE was not effectively mitigated by ESG performance, as there are additional variables contributing to the increase in COE. During the COVID-19 pandemic, it is imperative for companies to prioritize the enhancement of their ESG practices. The significant morbidity and mortality rates observed during the COVID-19 pandemic prompted companies to enhance their social initiatives, not just for their workforce but also for the local community. Furthermore, a rise in COE can be attributed to variations in company share prices and the Indonesian Stock Exchange Composite Index. Sherin et al. (2023) provide evidence that the public disclosure of COVID-19 cases and fatalities lowered Indonesia's stock market liquidity, hence driving up the cost of equity.

Table 7 also reveals that the total weighted average cost of capital (WACC) during COVID-19 significantly increased. The data show that the increase in the weighted average of COE drove the increase in WACC. Meanwhile, during COVID-19, the weighted average of COD decreased. During COVID-19, monetary and fiscal policies were more flexible than ever before, in order to try to calm the financial markets, lower the cost of borrowing money, and support credit expansion (Kose, et al., 2021). In 2020, the Bank of Indonesia (BI) reduced its interest rate (BI7DRR) by 1.25 percent. Subsequently, there was a decrease in the savings interest rate by an average of 1.43 percent. This was then accompanied by a fall in the interest rate for investment credit by 0.94 percent, capital credit by 0.77 percent, and consumer credit by 0.061 percent (Hendranata, 2021).

Table 7 Results of Paired Sample T-Test

Mean of Variables	ESG	COE	WACC COE	WACC COD	WACC
Before COVID-19	3.4141	0.1039	0.069	0.018	0.087
During COVID-19	3.4400	0.1385	0.083	0.009	0.092
Number of observations	65	65	65	65	65
One-Sided p-value	0.016**	<0.001***	<0.001***	<0.001***	0.083*
Two-sided p-value	0.032**	<0.001***	0.001**	<0.001***	0.093*

Notes. *** 0.01 significance level; ** 0.05 significance level; * 0.1 significance level

The results of this study support the argument of Bhatia & Kaur (2023). Initially, increased disclosure enhances the reputation of the organization among its stakeholders. Companies which provide more reliable and transparent information can expand their pool of investors. Furthermore, company transparency mitigates investors' risk. Disclosure from companies improves the performance of the stock market. Reliable disclosures assist investors in appropriately valuing a company's shares. Consequently, the performance of market stocks rises, and firms' cost of capital falls.

5. CONCLUSION AND SUGGESTION

This study examines the role of ESG scores on the cost of equity before and during COVID-19 using a sample of 65 non-financial and non-banking companies for two periods (2019 and 2020). The independent variables used were ESG, COVID-19, and ESG*Covid, while COE was the dependent variable. This study operated five control variables to minimize bias in the calculation results: Firm Size, Growth, Beta, Liquidity, and Leverage. The results of this study indicate that ESG reporting is able to mitigate the cost of equity before the COVID-19 period. Meanwhile, the interaction of ESG and the COVID-19 period has positive signs, which is opposite to the negative influence of ESG towards the cost of equity. This positive sign in the interaction of ESG and the COVID-19 period implies that the ability of ESG to reduce the cost of equity is weakening during the COVID-19 period. In other words, ESG raises the cost of equity during COVID-19. However, the rise of COE during COVID-19 does not mean that ESG during COVID-19 will become unimportant for investors and only increase the COE. This can be because the ESG scores in the observation period are not significantly different before and during COVID-19. Therefore, the positive impact of ESG during the COVID-19 period on the cost of equity indicates that the maintenance of ESG performance drives a more expensive cost of equity during the COVID-19 pandemic.

The results of this study provide practical and academic implications. Firstly, regarding the practical aspects on the company, companies are increasingly encouraged to disclose higher ESG scores. Even though during the COVID-19 period ESG led to a more expensive cost of equity, this study does not recommend companies to reduce their ESG performance. The

financial catastrophe caused by COVID-19 is not a reason for companies to reduce ESG activities or weaken the transparency of their ESG reporting. Maintaining corporate responsibility to all stakeholders is a form of corporate sustainability which stakeholders will positively appreciate. Investors view sustainability as one consideration in making investment decisions, both in situations before and during the pandemic. This suggestion is essential, especially for companies engaged in the coal and consumable fuel industries, which are very sensitive to environmental matters. Secondly, this study also contributes to empirical evidence regarding the legitimacy of stakeholder theory in the impact of ESG practices on firms' operations, in this case, the cost of equity. High ESG performance can increase the value perceived by stakeholders, including investors, on the company's sustainability performance. Ultimately, it will give legitimacy to companies; companies with advanced ESG performance are more responsible and deserve appreciation.

This study still has some limitations. The range of the study is limited to non-financial companies and non-banks in Indonesia, so it is likely to produce different results in other countries. For this reason, further research can conduct a comparative analysis between countries as each country has distinct characteristics which should be followed up. Thus, future studies could find differences in characteristics, leading to variance in the role of ESG on the cost of equity in each country. From a theoretical point of view, this study focuses on the effect of ESG on the cost of equity. It compares how the COVID-19 period affects the impact of ESG on the cost of equity. This study also fills a gap in the literature discussing the impact of ESG on the cost of equity, which is still limited in Indonesia, especially regarding a comparison of impacts before and during COVID-19. Future studies can also be applied to examine several Asian countries with similar characteristics.

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