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ESG Performance and Ownership Structure on Cost of Capital and Research & Development Investment

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ABSTRACT

This study aims to determine the effect of ESG performance, institutional ownership, insider ownership, block holder ownership, and foreign ownership on the cost of capital and investment of research and development (R&D). The sample of this study is companies listed on the Indonesia Stock Exchange (BEI) for 2016-2020. The sample selection uses the purposive sampling method and collects through the Thomson Reuters Database and annual report. The results of this study indicate that ESG performance, institutional ownership, and foreign ownership have a negative significant effect on the cost of capital, insider ownership has a positive significant effect on the cost of capital, but block holder ownership does not show a significant relationship to the cost of capital. As for the relationship to research and development investment, only ESG performance, institutional ownership, and foreign ownership have a positive significant effect, the other two types of ownership have a negative and significant effect.

Kata Kunci: ESG; Struktur kepemilikan; Biaya Modal, R&D

ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh kinerja lingkungan, sosial, kepeilikan institusi, kepemilikan orang dalam, kepemilikan block holder, serta kepemilikan investor asing terhadap biaya modal perusahaan dan investasi pada penelitian dan pengembangan. Sampel yang digunakan adalah seluruh perusahaan yang tercatat di Bursa Efek Indonesia (BEI). Periode pengamatan yang dilakukan selama periode 2016-2020. Metode dalam penentuan sampel menggunakan metode purposive sampling yang dikumpulkan melalui Thomson Reuters database dan pelaporan keuangan. Hasil penelitian ini menunjukkan bahwa kinerja ESG, kepemilikan institusional, dan kepemilikan oleh investor asing berpengaruh negatif dan signifikan terhadap biaya modal, kepemilikan orang dalam berpengaruh positif dan signifikan terhadap biaya modal, namun kepemilikan block holder tidak menunjukkan hubungan yang signifikan terhadap biaya modal. Sedangkan untuk hubungan terhadap investasi penelitian dan pengembangan, hanya kinerja ESG, kepemilikan institusional, dan kepemilikan asing yang berpengaruh positif signifikan, dua jenis kepemilikan lainnya berpengaruh negatif dan signifikan.

Keywords: ESG; Ownership Structure; Cost of Capital; R&D

INTRODUCTION

Since the 2009 financial crisis, the capital structure has increased due to the large number of companies that went bankrupt due to the crisis. The presence of this pandemic also requires companies to face serious financial problems and companies must learn how to manage the cost of capital and change financing decisions to maintain their performance (Gamlath, 2020). The capital structure decision is one of the most vital financial decisions in a company which is determined from the optimal combination of equity and optimal debt for the company which will reduce the cost of capital (Ellili, 2020). In addition, companies need innovation for survival and long-term success in the market. The “Innovate or Die” mantra has been echoed across industries from traditional consumer packaged goods to high-tech production (Caldbeck, 2016). Innovation can be earned internally by investing in research and development (R&D). The organization sees R&D as a means of survival, so it is expected that shareholders are very interested in ensuring the company will continue to grow. In recent years, national priorities have shifted to focus on innovation and research to promote economic growth (CNN Indonesia, 2019). Therefore, advances in science, research, and innovation are expected to play an important role in securing Indonesia's competitive position in the global economy.

Due to the Covid-19 pandemic, financial difficulties in Indonesia have resulted in financial constraints that have tightened public spending on research and development (RISTEK-BRIN, 2020). The relationship between public and private investment is still a hot issue in macroeconomics and has attracted the attention of economists and policymakers. The main question is whether the government raises the funds to participate in supporting the company's investment in research and development (R&D). When this happens, it will have a major impact on the company's performance, thereby achieving sustainable development in the long term. As the innovation-leading countries show, the current challenging economic situation requires countries in the world to provide the necessary facilities for companies to develop a more active role in R&D activities (López Iturriaga & López-Millán, 2017). Minister of Research and Technology/National Research Agency (Menristek/BRIN), Bambang Brodjonegoro said the domestic research funding strategy was moving in the wrong direction. Bambang thinks that so far, the government has dominated the research and development budget of 85.83%. Whereas in many other countries, they are more directed towards the dominant private sector.

The performance of non-financial, environmental, social, and governance reports, as well as ownership structure, are considered to be able to influence changes in the cost of capital and the level of investment in research and development. In recent years, environmental, social, and governance (ESG) performance reports have become an important component of corporate reporting. Since the emergence of the Global Reporting Initiative (GRI) in 2001, Corporate Social Responsibility (CSR) disclosures have grown to become increasingly common among listed companies. ESG analysis becomes even more important in these difficult times of COVID-19 as it reflects how companies should improve their non-financial reporting. Disclosure of non-financial information has the potential to mitigate information asymmetry between companies and investors as well as to save capital costs (Raimo et al. 2020). Responding to information asymmetry that affects and harms the capital market, companies continue to increase the amount of information disclosed from time to time to grow optimal funding for investment opportunities to reduce the cost of capital (Vena, Sciascia, & Cortesi, 2020). Recently, the CEO of the largest financial sector company in the United States, BlackRock Inc., stated in his annual letter that employees should consider non-financial benefits over financial benefits (Fink, 2019). Fink said that companies also need to consider the state of the world for the better in the future. This statement raises a lot of debate from various parties that when companies have to leave a better world for the next generation, the company's operations tend to be inefficient and effective. Stakeholders expect greater transparency and better communication about how businesses can create long-term value for customers, employees, and the wider stakeholder group (Serafeim, 2015). Stock markets around the world have also taken policy initiatives to increase the level of ESG performance. Companies labeled “green” generally tend to get more media exposure which can attract more investment from the capital market (Liu & Hamori, 2020). Based on ESG reports and ratings, company performance can be

assessed and measured from time to time by investors, managers, and other stakeholders (Limkriangkrai et al., 2017).

The ownership structure is considered to be able to influence changes in the cost of capital (Hu, Yao, & Zhou, 2020). One of the basic assumptions in corporate governance is emphasizing the role of shareholders in monitoring the behavior of executives in managing the company. By choosing a company with a good ownership structure, investors can reduce the risk of loss and reduce uncertainty in investing. In addition, the existence of a corporate ownership structure is a way to reduce agency conflict (Park, Chae, & Cho, 2016). Diversification through ownership structure will also reduce the company's idiosyncratic or unsystematic risk. When companies can minimize idiosyncratic risk, investor confidence will also increase, thereby reducing investor uncertainty in investing their funds into the company (Levy & Kroll, 1978). The risk of investing in company shares can also affect the company's cost of capital. Therefore, having an ownership structure will result in lower agency costs and lower costs of equity (Aubert, Kern, & Hollandts, 2017).

In testing the hypothesis, this study uses a sample of all companies listed in Indonesia for the 2016-2020 period. The ESG ranking in Indonesia is still a concern, which is in the 36th position in the world (Uky, 2020). This condition indicates that much remains to be done to improve the level of ESG reporting. In addition, in April 2019, the Indonesia Stock Exchange was appointed to become a member of the United Nations Sustainable Stock Exchange (SSE) Initiative, and through various initiatives that have been outlined in the sustainable finance action plan (Prima & Dewi, 2020). At the end of 2020, IDX has launched a new index IDX ESG which is expected to spur practices related to the environment, social, and governance of issuers in implementing sustainable investment in Indonesia. This launch can reinforce IDX's commitment to encourage ESG practices and become one of the milestones in implementing sustainable investment in Indonesia (Prima & Dewi, 2020). This study from the first model concludes that ESG performance, institutional ownership, and foreign ownership have a negative and significant effect on the cost of capital. Insider ownership has a positive effect, while block holder ownership does not show a significant relationship. In the second model, all variables are positively related to R&D except for insider ownership and block holder which show a negative and significant relationship.

This study contributes to the literature and practice, (1) adds to the literature on ESG and ownership structure on the cost of capital and investment in research and development; (2) filling this gap in the ESG literature; (3) resolving the knowledge gap between developed economies and emerging markets; (4) resolving knowledge gaps for both local and international investors; (5) offers useful new insights for managers who are looking for strategies to improve the company's financial performance; and (6) help guide the development of the government's capital market ownership system and the establishment of a sound ownership structure for companies listed on the stock exchange.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Several studies have found evidence that companies involved in environmental, social, and governance reporting will have an impact on lower costs of capital (Ellili, 2020; Raimo et al., 2020; Cantino et al., 2017). When the company's transparency increases, it will minimize the level of asymmetric information and lower risk. Therefore, with this high level of environmental, social, and governance reporting the company will have a lower cost of capital. However, Gjergji, Vena, Sciascia, & Cortesi (2021) found different evidence. They show that environmental, social, and governance performance can increase the cost of capital. This is because ESG performance can eliminate competitive advantage due to the leakage of important information to competitors so that it will increase the company's cost of capital.

In addition to ESG performance, other factors can affect the high and low cost of capital, namely ownership structure. This study uses four aspects of ownership structure, namely institutional investor ownership, insider ownership, block holder ownership, and foreign investor ownership. Ellili (2020)

found that the ownership of institutional investors, insiders, and foreign investors has a negative and significant effect on the cost of capital, while block holder ownership has an insignificant relationship with the cost of capital. The results of this study are in contrast to other studies which have found that the proportion of equity ownership of insiders and block holders can make the company's cost of capital higher (López Iturriaga & López-Millán, 2017; Jensen & Meckling, 1976). Not only the cost of capital, the level of research and development investment in the company also has different research results even though the determinants are the same. López Iturriaga & López-Millán (2017) find that institutional investor ownership has a positive impact on the level of research and development investment in companies classified as civil law countries. Meanwhile, for the other three aspects of the ownership structure, namely insider ownership, block holder, and foreign investors, research results are still inconsistent (AlHares et al., 2018; Rapp & Udoieva, 2017; Chen et al., 2017; Tereshchenko & Stepanova, 2017). 2016; Wang, 2016).

Agency theory has been introduced in the literature on corporate governance and its financial model which focuses on the relationship between shareholders (as principals) and managers (as agents) (Jensen & Meckling, 1976). Managers can take an opportunistic approach and seek to derive personal benefits from agency relationships. The choice of the capital structure according to this theory can affect the way a company operates its business (Jensen, 1986). According to Jensen (1986), agency costs are divided into two categories, namely equity agency costs, and debt agency costs. The agency cost of equity is based on the fact that the manager bears responsibility for all costs of the activities carried out and the manager cannot take advantage of all the profits earned by the company. Another possible problem is the agency's cost of debt. The cost of debt focuses on the relationship between shareholders, bondholders, and managers. The problem of these two agency costs can be minimized by optimal management of the cost of capital (Cantino, Valter Devalle & Fiandrino, 2017). The agency theory approach also provides useful insights for studying financial issues related to corporate R&D (Zhang, Chen, & Feng, 2014). Consistent with agency theory, conflicts of interest within firms explain how the mechanisms of ownership structure and corporate governance affect R&D.

ESG Performance and Cost of Capital

According to several previous studies, the ESG factor can make the cost of capital lower and the main cause is a decrease in asymmetric information. In addition, the higher the non-financial performance, the greater the transparency, the lower the risk, and ultimately the lower the cost of capital (Ferris, Javakhadze, & Rajkovic, 2017; Ng & Rezaee, 2015). Ferris et al., (2017) found that social capital as a projection of the intensity of corporate social responsibility leads to a higher level of corporate value and will be able to share information in communities or networks which can reduce information asymmetry between companies. Cuadrado-Ballesteros, Garcia-Sanchez, & Martinez Ferrero (2016) confirm that asymmetric information reduction plays an important role. Raimo et al., (2020) explain how ESG performance can affect the cost of equity in addition to reducing information asymmetry between companies and investors. Another reason is that high ESG performance can result in lower investor uncertainty and risk valuation. In addition to reducing information asymmetry, high ESG performance can also reduce agency conflict and can limit managerial discretion (Gjergji et al., 2021). From the explanation above, the writer formulates the hypothesis as follows:

H₁ : Environmental, social, and governance performance has a negative effect on the cost of capital

Ownership Structure and Cost of Capital

Pound (1988) found that institutional investors are more efficient in monitoring managers and thus have a positive impact on financial performance. Based on the efficient monitoring hypothesis, institutional investors have more expertise and experience in monitoring managers. In addition, institutional investors are also more efficient in managing the company and making the most appropriate financial decisions. Institutional investors usually have more control than minority shareholders, which in the end

are expected to play an important role and force managers to make decisions in the best interests of all shareholders (Faysal, Salehi, & Moradi, 2020). Prowse (1992) showed that the ownership structure of Japanese firms in the mid-1980s strongly encouraged institutional ownership and this ownership played a positive role in controlling managers (Faysal et al., 2020). This opinion is in line with the research of Suto & Takehara (2017) which states that institutional ownership reduces the cost of capital and improves corporate social performance in Japan by reducing information asymmetry. Not only that, (Lin & Fu, 2017) show that institutional ownership positively affects firm performance and is effective in lifting regulatory restrictions and lowering the cost of capital.

According to Jensen & Meckling (1976), managerial ownership has a negative impact on firm performance (Morck, Shleifer, & Vishny, 1988). Jensen & Meckling (1976) stated that managerial ownership can cause several conflicts in addition to conflicts of interest between managers and shareholders, namely conflicts between shareholders and creditors. Shareholders can expropriate creditors' wealth by investing in projects and making financial decisions that will reduce the value of the company's debt. Owner managers can invest in risky projects and transfer that risk to creditors so that it will lead to higher debt costs when managerial ownership is also high.

Block holder is defined as external shareholders who own at least 5% of the company's capital (Shleifer & Vishny, 1997). In the context of the UAE, it was found that the presence of block holder in the company's ownership structure does not always guarantee good performance, which indicates that block holder is not always efficient in monitoring managers (Ellili, 2012). In examining the relationship between block holders and the cost of bank debt, Lin, Ma, Malatesta, & Xuan (2011) found that the excess control rights of block holder have facilitated tunneling activities and moral hazard within the company to increase monitoring costs and bank credit risk as well as debt costs. Ellili (2020) also believes that block ownership and insider ownership are positively related to a firm's cost of capital.

The presence of foreign investors is positively associated with audit quality and can minimize information asymmetry (Bena, Ferreira, Matos, & Pires, 2017). According to Hamand (2018), foreign ownership promises to reduce agency costs and can increase pressure on management to serve the interests of shareholders which will ultimately contribute to the company's competitive advantage. The presence of foreign investors is also more likely to incur less informed costs than non-foreign shareholders. This will result in less informed costs will also be lower when foreign investors invest in equity shares of companies with lower information asymmetry. In addition, foreign shareholders may have easy access to global capital markets so that the cost of capital will be lower. Therefore, there is a negative relationship with the cost of capital because foreign investors efficiently control the company's cost of capital. (Jiang & Kim, 2004). Based on the development of the hypotheses above, the hypotheses of this research are

- H_{2a}** : The ownership of the proportion of equity by institutional investors has a negative effect on the cost of capital
- H_{2b}** : Ownership of the proportion of equity by insiders has a positive effect on the cost of capital
- H_{2c}** : Ownership of the proportion of equity by block holder investors has a positive effect on the cost of capital
- H_{2d}** : Ownership of the proportion of equity by foreign investors has a negative effect on the cost of capital

ESG Performance and R&D Investment

A high level of ESG performance is expected to increase R&D investment. The company's ESG program will allow to build wider and deeper relationships with various stakeholders, facilitate the sharing of knowledge from stakeholders, and ultimately complement the company's internal knowledge and will

trigger innovation (Sharma & Vredenburg, 1998). Socially responsible companies tend to gain greater trust, higher levels of satisfaction and loyalty among stakeholders, including customers, employees, investors, businesses, and various existing communities (Lee & Min, 2015). Thus, competitive pressure will motivate companies to be more vigilant and more enthusiastic about utilizing external knowledge and ideas triggered by the level of ESG performance to generate new product innovations. R&D investment will increase from leveraging the knowledge facilitated by ESG reporting to generate innovation. Therefore, the third hypothesis of this study is:

H₃ : Environmental, social, and governance performance has a positive effect on the level of investment in research and development.

Ownership Structure and R&D Investment

Eng & Shackell (2001) and Hall & Weinstein (1996) suggest that institutional investors have a more long-term orientation than other investors and are likely to increase firms in developing new technologies. Since R&D investments usually take longer than other investments, institutional investors as shareholders tend to promote investment in R&D. In addition, compared to banks or insurance companies, institutional shareholders have different incentives because they do not maintain commercial relationships but only maintain investment relationships with companies whose shares, they own. Institutional ownership can diversify investment portfolios to reduce R&D risk and convince managers to invest in R&D projects (Scott, 2014).

According to Jensen & Meckling (1976), managers who have shares in the companies they lead will always be reluctant to spur company resources in R&D implementation because this innovation project is risky and has a high intensity of long-term failure. This risky project will ultimately affect the company's short-term profit returns. Thus, there will be a high risk of job loss if the R&D project planned by the manager fails. Therefore, management is more likely to behave in choosing short-term projects compared to long-term innovation projects that can jeopardize the profitability of the current year. Bhatta (2020) adds that dominant insider shareholders tend to engage in tunneling activities and insider investors can extract personal benefits by increasing ownership in a company. Therefore, managerial ownership will reduce R&D investment (Tereshchenko & Stepanova, 2016). These arguments lead to the notion that an increase in insider ownership leads to a lower percentage of investment in R&D.

Previous research has shown that there is a positive relationship between investors in the block holder category and corporate R&D investments (Eng & Shackell, 2001). Block holder ownership can pressure managers to enter company resolutions which ultimately increases the company's R&D spending. Tribbo, Berrone, & Surroca (2007) argue that although increased R&D investment can reduce short-term cash flows, the presence of this block holder can provide beneficial information about the company's long-term goals. In addition, they argue that the ownership of block holder investors can reduce information asymmetry and minimize the company's underinvestment problem.

The company's innovation activities will be constrained by various factors such as capital constraints, company incentive problems, and other constraints. However, the introduction of foreign investment can get some relief on these constraints to promote corporate innovation (Park et al., 2016). Wang (2016) explains 3 reasons why the presence of foreign investors can increase the percentage of investment in R&D. First, foreign investors can provide financial support for companies. When there are innovation activities, this fund will provide a little relief to the company, and at the same time when the company's performance improves it will encourage other investors to invest their funds in the company. Second, foreign ownership can provide direction for innovation. Foreign companies and investors can combine foreign advanced technology with companies to guide innovation. Third, foreign ownership can

provide value risk pricing for companies. Therefore, based on the above analysis, the following hypotheses are formulated:

- H_{4a}**: The ownership of the proportion of equity by institutional investors has a positive effect on investment in research and development
- H_{4b}**: Insider ownership of a proportion of equity has a negative effect on investment in research and development
- H_{4c}**: Ownership of the proportion of equity by block holder has a positive effect on investment in research and development
- H_{4d}**: Ownership of the proportion of equity by foreign investors has a positive effect on investment in research and development

Cost of Capital and R&D Investment

From an investment point of view, R&D has several characteristics that differ from investment in general. In practice, 50% or more of R&D expenditure is spent on the salaries of highly educated scientists and engineers. Thus, when the company's resources are incompetent, the company needs to avoid risks related to R&D by terminating the work of these scientists. This implies that R&D expenditures at the firm level usually behave as if they have high adjustment costs (Hall & Lerner, 2010). In addition, this investment in research and development has a level of uncertainty with its output which tends to be large, so it can be said that this investment has a large risk as well. (Hall, 2015) found that firms with a high cost of capital tend to be reluctant to invest in the long term because they face diminishing corporate cash flows while long-term investors require higher returns to compensate for their risk. Banks and debt holders also prefer to provide loans to invest in physical assets compared to projects that involve R&D investments. This reason is that assets are reusable making them more suitable for debt-related governance structures. Debt payments also usually require a stable source of cash flow so that it will be difficult to disburse funds for R&D programs. Payment of this debt requires a stable source of cash flow and this is what causes companies to be unable or reluctant to invest in R&D projects because it can increase the cost of capital. Therefore, based on the above analysis, the following hypothesis is formulated:

- H₅**: The cost of capital has a negative effect on investment in research and development

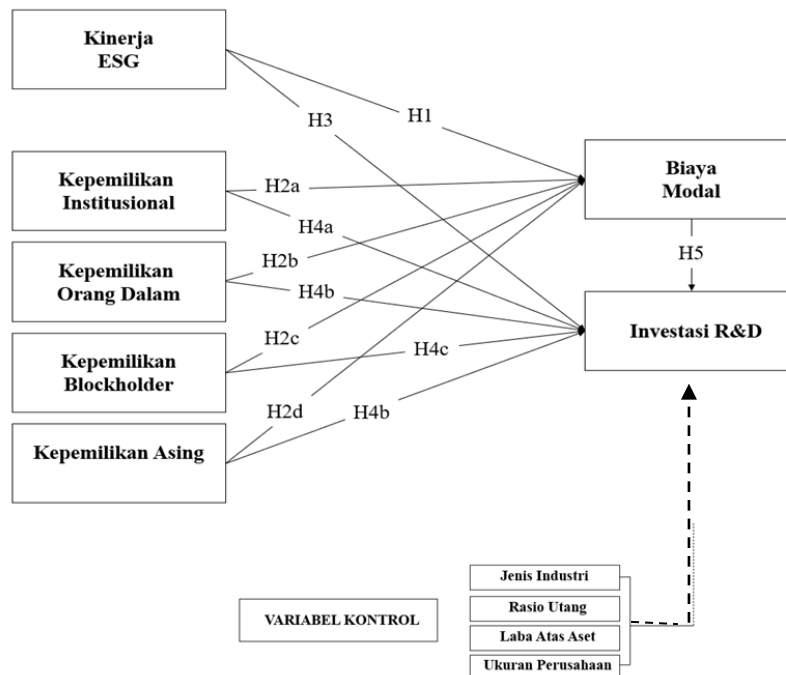


Figure 1. Research Model

RESEARCH METHODS

This study is included in a quantitative study with an explanatory research design because the purpose of this study is to explain the causal relationship that occurs between the existing variables by testing the hypothesis. The sample used is all companies in Indonesia that are listed on the Indonesia Stock Exchange in 2016-2020. The results of the 2016 Global Sustainability Benchmark Survey report revealed that sustainability issues are on the rise in Asia. According to him, more and more investors are requesting information about ESG performance from companies in Asia. Stock exchanges in various countries have also begun to require ESG reporting for companies listed on the stock exchange (Bachdar, 2016). In addition, in 2016, Indonesia received international support, UK's Newton Fund Indonesia, to encourage the growth of R&D in Indonesia (Oxford Business Group, 2016). The sample selection in this study used purposive sampling with the following criteria:

1. All companies listed on the Indonesia Stock Exchange (IDX) for the 2016-2020 period
2. All companies that disclose annual reports during the 2016-2020 period
3. All companies that have ESG scores during the 2016-2020 period
4. All companies that present financial statements using the rupiah currency during the 2016-2020 period

ESG Score Variable

In this analysis, the researcher used the total ESG score (ESG) obtained from the Thomson Reuters Database to measure ESG performance. The database provides an ESG score that ranges from 0-100.

Ownership Structure Variable

In this study, there are four ownership variables, namely institutional ownership, insider ownership, block holder ownership, and foreign ownership. The annual value of this percentage of ownership is obtained through the Thomson Reuters Database and the company's annual financial statements. The definition of the ownership variable is presented in table 1 (Ellili, 2020).

Variable	Notation	Measurement
Institutional Ownership	Ins	Institutional shareholders who have a share of capital in the company
Insider Ownership	Io	Insider shareholders who have a share of capital in the company
Block holder Ownership	Bo	External shareholders who have a share of capital more than 5%
Foreign Ownership	Fo	Foreign shareholders who have a share of capital in the company

Source: (Ellili, 2020)

Cost of Capital Variable

To measure the first dependent variable, namely the cost of capital using the weighted average cost of capital (WACC). This ratio can be said to be a fairly comprehensive ratio because it averages all existing sources of capital including long-term debt, stocks, and bonds. According to Reilly & Wecker (1973) management must use this ratio to balance stock prices, investors' expected returns, and the total cost of purchasing assets. On the other hand, investors and creditors use this WACC to evaluate whether a company is worth investing in or being given a loan or not. Table 2 shows a description of the WACC calculation.

Table 2. The formula of Weighted Average Cost of Capital

Variable	Notation	Measurement
Cost of Equity	CE	Risk-free Rate + Beta (Expected Market Return - Risk Free Rate)
Cost of Debt	CD	$\{(\text{Note Rate} \times \text{Short Debt} / \text{Total Debt}) + (\text{Bond Rate} \times \text{Long Term Debt} / \text{Total Debt})\} + (1 - \text{Effective Tax Rate})$
Cost of Preferred Equity	CPE	Preferred Dividend/Preferred Equity
Weighted average cost of capital	WACC	$CE \times (\text{Equity} / \text{Equity} + \text{Debt}) + CD \times (\text{Debt} / \text{Equity} + \text{Debt}) + CPE \times (\text{Preferred Equity} / \text{Equity} + \text{Debt})$

Source: Reilly & Wecker (1973)

R&D Investment Variable

The second dependent variable for R&D investment is R&D intensity (RDI). RDI is defined to measure company inputs related to innovation (Han, Dong, & Dresner, 2013). Consistent with previous research (Chen & Miller, 2007), researchers calculated RDI as the ratio of R&D expenditures to total company assets (Compustat item RD/AT). We excluded observations with missing R&D information in the Thomson Reuters Database.

Control Variables

Following the previous literature, this study uses four control variables that can affect the cost of capital and the level of investment in research and development including the type of industry, debt to total assets ratio or debt to assets ratio, return on assets, or return on assets, and company size. or size, (Hackston & Milne, 1996; Ellili, 2020; Duque-grisales et al., 2020).

Table 3. The formula of Control Variables

Variables	Notation	Measurement
Type of Industry	Ind	Dummy, 0 = low profile industry; 1 = high profile industry
Debt Ratio	Dr	Total of Liability / Total of Asset
Return on Asset	ROA	Net Income / Total of Asset
Firm Size	Size	Log (Total of Asset)

Source: Hackston & Milne (1996); Ellili (2020); Duque-grisales et al. (2020)

Data Collection and Technic Analysis

The data collection method used in this research is by uploading data from the Thomson Reuters Database and the IDX.co.id website. The sample of this study is all companies listed on the Indonesia Stock Exchange for the period 2016-2020 with a total of 735 companies. Not all samples of companies can meet the criteria by the research objectives, so samples that do not meet the criteria must be excluded from the data processing process. The following is the sample selection process used for data processing:

Table 4. Sample Selection

Description of Sample Criteria	Sample
Companies listed on the IDX for the period 2016-2020	735
Excluded from the sample, because the company:	
No annual report is available for the period 2016-2020	(6)
Have no ESG score during the period 2016-2020	(664)
Using a currency other than Rupiah	(19)
Number of samples processed	46

Source: Otoritas Jasa Keuangan & Thomson Reuters Database

The data analysis method used in this study is a quantitative analysis method that aims to analyze the effect of ESG reporting and ownership structure on the cost of capital and investment in the company's R&D. The method used in this research is multiple linear regression analysis (multiple regressions analysis). According to Cramer & Howitt (2006), the general form of the multiple linear regression equation is:

$$WACC = \alpha - \beta_1 ESG_{i,t} - \beta_2 Insi_{i,t} + \beta_3 loi_{i,t} + \beta_4 Boi_{i,t} - \beta_5 Foi_{i,t} + \mathcal{E}$$

$$R\&D = \alpha + \beta_1 ESG_{i,t} + \beta_2 Insi_{i,t} - \beta_3 loi_{i,t} + \beta_4 Boi_{i,t} + \beta_5 Foi_{i,t} + \mathcal{E}$$

$$WACC = \alpha - \beta_1 RDli_{i,t} + \mathcal{E}$$

RESULT AND DISCUSSION

Result

The coefficient of determination is used to determine the close relationship between the independent variable and the dependent variable. Meanwhile, the goodness of fit is used to determine the suitability of the research model. The table below also presents data for the multiple regression equation used to test the effect of two or more independent variables on one dependent variable.

Table 5. Regression Analysis

	Model 1			Model 2		
(Constant)		7,731			0,020	
	β	<i>t-value</i>	<i>Sig.</i>	β	<i>t-value</i>	<i>Sig.</i>
ESG	-0,027	-2,607	0,010	0,010	3,982	0,000
INS	-1,873	-2,374	0,018	0,010	1,603	0,010
IN	6,366	2,909	0,004	-0,016	-2,075	0,039
BO	-1,528	-0,856	0,393	-0,015	-5,239	0,000
FO	-2,117	-2,219	0,027	0,016	4,641	0,000
<i>Adj. R²</i>		0,239			0,156	
<i>F-stat</i>		1,825			5,972	
<i>Sig. F</i>		0,029			0,002	
n		230			230	

Model 3			
(Constant)		7,184	
	β	<i>t-value</i>	<i>Sig.</i>
WACC	-1,245	-1,895	0,039
Adj. R^2		0,114	
<i>F-stat</i>		3,590	
<i>Sig. F</i>		0,027	
n		230	

Source: processed data (2021)

Based on table 5, the results show that the Adjusted R Square value of each model is 0.239; 0.156; and 0.114. This figure means that ESG performance and ownership structure can explain the cost of capital and the level of investment in research and development are 23.9% and 15.6%, respectively, after adjusting for the sample and independent variables. While the cost of capital can explain the R&D investment of 11.4% after adjusting for the sample and independent variables. For the results of the F test, the calculated F value of each model is 1.825; 5,972; and 3,590 with a less significant level of 0.029, respectively; 0.002; and 0.027 (p-value 0.05), it can be concluded that both model 1, model 2, and model 3 of this study are fit to predict both the cost of capital, as well as investment in research and development. By the results of the multiple linear regression model for each research model are as follows:

$$WACC = 7,731 - 0,027ESGi,t - 1,1873Insi,t + 6,366loi,t - 1,1528Boi,t - 2,117Foi,t + \mathcal{E}$$

$$R\&D = 0,020 + 0,010ESGi,t + 0,010Insi,t - 0,016loi,t - 0,015Boi,t + 0,016Foi,t + \mathcal{E}$$

$$WACC = 7,184 - 1,245RDli,t + \mathcal{E}$$

“The t-test is useful for testing the presence or absence of the influence of each independent variable on the dependent variable.” “Ha will be supported if the significance value is < 0.05. Meanwhile, to determine the positive or negative effect is to look at the value of t.” If the t coefficient shows a positive result, then there is a positive effect. Conversely, if it shows a negative result, then there is a negative effect of the independent variable on the dependent variable. Following are the results of processing partial t analysis:

Table 6. Partial T-Test

Model 1			
	t_{value}	<i>p-value</i>	Decision
ESG	-2,607	0,010	<i>p-value</i> < α : negative and significant., H1 supported
INS	-2,374	0,018	<i>p-value</i> < α : negative and significant., H2a supported
IN	2,909	0,004	<i>p-value</i> < α : positive and significant., H2b supported
BO	-0,856	0,393	<i>p-value</i> > α : not significant., H2c not supported
FO	-2,219	0,027	<i>p-value</i> < α : negative and significant., H2d supported
Model 2			
ESG	3,982	0,000	<i>p-value</i> < α : positive and significant., H3 supported
INS	1,603	0,010	<i>p-value</i> < α : positive and significant., H4a supported
IN	-2,075	0,039	<i>p-value</i> < α : negative and significant., H4b supported
BO	-5,239	0,000	<i>p-value</i> < α : negative and significant., H4c not supported
FO	4,641	0,000	<i>p-value</i> < α : positive and significant., H4d supported

Source: processed data (2021)

Based on table 6, it can be concluded that all research hypotheses are supported except for H2c and H4c. H2c is not supported because the p-value is more than 0.05. While H4c is not supported because the direction is opposite to the formulated hypothesis even though the results are statistically significant.

Discussion

Block holder Ownership and Cost of Capital

Several studies have provided evidence showing that companies with good governance will reduce the company's cost of capital. Likewise, companies that have weak governance perform very poorly and lower market performance so that they must incur a higher cost of capital. For example, when external investor monitoring is inadequate, managers are more likely to borrow excessively to finance the expansion of the company's development which increases the company's exposure to risks in the market. This of course will increase the cost of capital will soar. In addition, a company's cost of capital that is not well regulated can also reduce company transparency and result in higher issuance and transaction costs.

The results of this study indicate the opposite. The existence of block holder ownership, namely the ownership of company shares by outside investors who have ownership of more than 5% does not encourage more optimal supervision of the company's capital expenditures. This causes the agent monitoring function carried out by the block holder to be not optimal. So, the increase in block holder shareholding does not affect management's decision to reduce the company's cost of debt. This condition can be caused because the majority of public companies in Indonesia are still family-owned companies so that monitoring by block holders tends not to influence the decisions of creditors or other investors in determining the company's cost of capital (PwC Indonesia, 2018). If the company does not implement strong governance, the large number of block holder ownership does not guarantee a reduction or increase in the company's cost of capital.

Suta (2000) stated that in general, the composition of share ownership of companies that have gone public in Indonesia is still not balanced between founders and public shareholders. Around 70% of the shares are still owned by the founder and the remaining 30% is owned by the public. This difference in ownership composition causes public shareholders to have a weak bargaining position. Because the percentage of share ownership is dominated by founders, they have faster and smoother access to information and financial resources, and of course have stronger bargaining power, one of which is in terms of funding, both debt, and equity funding. Managers and founders may think of themselves as parties who are more aware of the state of the company so that in determining the proportion of equity and debt, they will consider all risks of using debt and equity as funding used by the company (Patricia, 2014). In addition, family share ownership will determine the direction in controlling the actions of large shareholders, ownership of more than 5%, to avoid the transfer of wealth from minority shareholders (Manzaneque, Priego, et al., 2016). Perhaps this condition causes that block holder ownership in countries with weak governance, such as Indonesia, does not influence the company's funding decisions.

Block holder Ownership and R&D Investment

Innovation activities are an important component for several reasons: they determine long-term economic growth at the country level, are the main engine of growth at the company level, and are an important element of corporate competitive advantage and sustainability (Honoré, Munari, & de La Potteria, 2015). Thus, decisions about investment in research and development funds, the main source of innovation, are important for companies to remain innovative and sustainable. However, the decision is complex and carries a high risk due to the high level of uncertainty (Coluccia, Dabić, Del Giudice, Fontana, & Solimene, 2019).

Hypothesis 4c in this study is not supported. The results of this study state that the ownership of equity proportions by block holders has a negative effect on investment in research and development. When this block holder ownership is high, managers tend to reduce investment in R&D activities (Bushee, 1998). Corporate governance is one of the main factors considered by block holder investors when

making investment decisions (Gianneti & Simonov, 2006). From the perspective of monitoring costs and benefits, it would be optimal if this type of investor invests more in companies with good governance qualities. When companies have weak governance, the costs of monitoring and accessing information will be more expensive. Thus, not all block holder investors monitor the invested company. Block holder investors will monitor only when the benefits outweigh the costs. The cost of this monitoring will be reduced if the disclosure is made higher and the company's transparency is also managed properly to reduce the cost of information acquisition (Chen & Miller, 2007).

Governance in Indonesia is at a weak level because there are still many family companies listed on the Indonesia Stock Exchange (PwC Indonesia, 2018). When blocking holder investors with an ownership percentage rate of 5% or more investment in companies with weak governance, these investors are not getting a fair return on their risk. This is in contrast to company insiders who get abnormal returns (Gompers, Ishii, & Metrick, 2003). Because investment in research and development is a risky investment, block holder investors will tend to support management's decision to think more about short-term profits than long-term (Chung & Zhang, 2011). Companies in emerging markets are often characterized by the takeover of minority shareholders by large shareholders which can exacerbate agency (Rapp & Udoieva, 2017). In addition, board members who are assigned on the recommendation of the controlling shareholder (representing their interests) are less likely to align with outside shareholders. Thus, active monitoring by block holder investors is not effective. This condition also causes block holder investors to tend to sell their shares compared to direct intervention in the company's management. Thus, the presence of block holder investors tends to have a short-term strategy compared to a long-term focus. Ownership block holders will engage in myopic behavior by encouraging managers to reduce investment in research and development and increase short-term profits.

Additional Analysis

In this study, additional analysis was carried out related to the cost of capital as well as investment in research and development. This analysis is done by changing the order of the year for testing. The independent variable for 2016 will be tested with the dependent variable in 2017, the independent variable in 2017, 2018, and 2019 will be tested with the dependent variable in 2018, 2019, and 2020. However, the independent variable in 2020 is still tested with the dependent variable in 2020 because there is no complete data availability in 2021.

Table 7. Additional Analysis Result

		Model 1			Model 2		
(Constant)		4,645			1,432		
	<i>β</i>		<i>t-value</i>	<i>Sig.</i>	<i>β</i>	<i>t-value</i>	<i>Sig.</i>
ESG	-0,048		-2,761	0,021	0,022	2,788	0,000
INS	-1,487		-2,263	0,032	0,024	1,303	0,010
IN	4,581		1,890	0,004	-0,164	-2,066	0,039
BO	-0,986		-0,761	1,764	-0,013	-4,441	0,000
FO	-1,997		-2,091	0,022	0,011	2,095	0,000
		Model 3					
(Constant)					3,712		
	<i>β</i>			<i>t-value</i>			<i>Sig.</i>
WACC	-2,367			-1,099			0,027
n	230						

Source: Processed data (2021)

Table 7 presents the results of additional analyzes for model 1, model 2, and model 3. All models in this study are consistent with the results of the main analysis. In model one, ESG performance, institutional ownership, and foreign ownership have a negative and significant effect on the cost of capital (p-value 0.05), while insider ownership has a positive and significant effect on the cost of capital. However, block holder ownership does not have a significant effect on the cost of capital because the p-value is 0.05. In line with model 1, model 2 also has a consistent relationship with the main analysis which shows that the variables of ESG performance, institutional ownership, and foreign ownership have a positive and significant effect on investment in research and development. However, the variables of insider ownership and block holder ownership showed a negative and significant direction (p-value 0.05). Likewise, with model 3 which examines the effect of the variable cost of capital on investment in research and development, the results show a negative and significant direction with a value of -2.367 and a significance value of 0.027 (p-value 0.05).

CONCLUSION

The purpose of this study was to examine the effect of environmental, social, and governance performance, as well as ownership structure on the cost of capital and investment in research and development. Based on the results of hypothesis testing, it is concluded that:

1. The proportion of equity ownership by insiders has a positive and significant effect on the company's cost of capital. This indicates that the higher the percentage of ownership by the manager, the higher the possibility of the company's cost of capital to be incurred.
2. Environmental, social, and governance performance, the proportion of equity ownership by institutional investors, block holders, and foreign investors have a negative and significant effect on the cost of capital. The results of this study mean that when environmental, social, and governance performance is high, it is likely that the company's cost of capital will decrease. Likewise, the proportion of ownership of institutional investors, block holders, and foreign investors. When the percentage of ownership by the three types of investors is high, it is likely to be followed by a reduction in the company's cost of capital.
3. Environmental, social, and governance performance, the proportion of equity ownership by institutional investors, and the proportion of equity ownership by foreign investors have a positive and significant impact on the level of investment in research and development. This result means that higher environmental, social, and governance performance is likely to be followed by an increase in the level of investment in research and development. This condition is in line with the proportion of ownership by institutional investors and foreign investors. When investor ownership is high, likely, the level of investment in research and development will also increase.
4. The proportion of equity by insiders and block holder investors has a negative and significant effect on the level of investment in research and development. This means that if the proportion of the two types of investors increases, then there is a possibility that the level of investment in research and development will decrease.

Limitations

Based on this research, there are several limitations of research writing funding, namely:

1. In this study, the author does not examine how much the percentage of ownership is profitable and detrimental to the company. When the author succeeds in testing this, it will provide better insight, especially to managers in terms of the right proportion of ownership for each type of investor. For example, in the type of insider investor, this study shows that a high percentage of insider ownership can increase (decrease) the company's cost of capital (research and development investment level). These results indicate that the company should not need to give the proportion of company ownership to managers. However, on the other hand, with such ownership, managers may be more enthusiastic about improving the company's performance (in a reasonable proportion). This study does not identify that the company should give the proportion

of what percentage to managers to improve the company's performance but without harming the company in the long term or harming other investors.

2. This study uses only company data in Indonesia. Companies in Indonesia that have reported three non-financial aspects such as environmental, social, and governance are still minimal. It is better if the data used in this study uses data that has a wider scope, such as Southeast Asia, Asia Pacific, or even companies around the world that have reported on the three non-financial aspects. When the scope of research data used is wider, this research will be able to generalize better.

Implications

Based on the research results, there are two aspects of implications that can be considered for related parties, including:

1. Theoretical Implications; Based on the results of this study, it is hoped that it can add insight to the new literature for various parties related to the relationship between environmental, social, and governance performance, as well as ownership structure to the cost of capital and the level of research and development investment. This is not in line with previous research which states that block holder ownership can increase the cost of capital and the level of investment in research and development. This research finds the opposite result which states that a high percentage of block holder ownership will reduce the company's cost of capital and the level of R&D. This study has also examined the four aspects of ownership structure directly, which in previous studies had not included all four aspects at once in developing countries. Moreover, the results of this study are expected to resolve the knowledge gap between developed economies and emerging markets.
2. Practical parties are who are expected to benefit from this research. First, for the management and owners of the company, this research can be used as a consideration in regulating the proportion of ownership so that the percentage of ownership can provide added value for the company. In addition, this research can be used as a guide for companies that have not reported environmental, social, and governance reports, that reporting ESG can have a positive impact on companies. The intended positive impact is lowering the cost of capital and increasing investment in research and development. Second, for both domestic and foreign investors, this research can be used as a guide for making investment decisions. With this study, investors may be able to control management to be able to report ESG, increase the intensity of R&D, or take actions that are in line with the prosperity of other shareholders. Third, the government is expected to guide the development of the government's capital market ownership system and the establishment of a sound ownership structure for companies listed on the Indonesian stock exchange. This is because the majority of foreign investors are interested in investing in companies that have strong governance. When the government can assist in strengthening corporate governance in Indonesia, it is expected that foreign investment will also increase. What's more, strong corporate governance can help companies limit the uncertainty and information asymmetry faced by their investors. Thus, the company can reduce systematic risk and increase the value of the company by reducing its cost of capital. Finally, regulators are expected to take regulations seriously related to environmental, social, and governance reporting.

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