Is being a green firm benefit the company during the COVID-19 pandemic? Examining ESG and non ESG-based firms in Indonesia

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ABSTRACT

"Does it pay to be green in times of crisis?". The question merits an answer from academics and practitioners. Hereafter, the study specifically explores the interplay between a firm's cost of capital and financial performances among publicly traded firms by incorporating the effect of the COVID-19 pandemic into the examination model. The study employs the Driscoll-Kraay estimator for panel regression and fixed-effect regression with robust standard error for the analysis. Top-rated ESG and non-ESG listed companies on the Indonesian stock exchange in 2017-2020 are studied separately in two categories for the tests. The study discovers two key findings: (1) cost of capital harms ESG firm's ROE and (2) cost of capital has a negative influence on non-ESG firm's market value (Tobin's q). The results from the study could serve as a reference for academics and practitioners to understand the pandemic-caused crisis effect on firm's capital structure and financial performance. The study also explains how firms with superior ESG might perform differently from non-ESG-based firms in terms of surviving during a crisis such as the COVID-19 pandemic. Result from the study also indicates that lenders, investors, key stakeholders in the Indonesian market have not been as attentive as market participants and investors in the developed markets in responding to ESG issues and ESG-related risks. By carefully considering environmental and social issues in their capital budgeting and investment decision, business enterprises and financial institutions can optimize their assets and achieve higher efficiency ratios while avoiding investments and projects that will not pay off in the long run due to longer-term social and environmental concerns.

ABSTRAK

"Apakah penerapan nilai ESG membantu perusahaan dikala krisis?". Pertanyaan tersebut patut mendapat jawaban dari akademisi dan praktisi. Penelitian ini secara khusus mengeksplorasi interaksi antara biaya modal perusahaan dan kinerja keuangan perusahaan publik dengan memasukkan efek pandemi COVID-19 ke dalam model. Studi ini mengeksplorasi dampak COVID-19 pada indikator keuangan perusahaan dengan menggunakan estimator Driscoll-Kraay dan *fixed-effect regression* dengan *robust standard error* untuk panel analisis. Perusahaan ESG dan non-ESG dengan peringkat teratas yang terdaftar di Bursa Efek Indonesia pada 2017-2020 dipelajari secara khusus dalam dua kategori sebagai perbandingan. Studi ini

menemukan dua temuan utama: (1) biaya modal berdampak negative pada ROE perusahaan ESG dan (2) biaya modal memiliki pengaruh negatif terhadap nilai pasar perusahaan non-ESG. Implikasi dari penelitian dapat menjadi referensi bagi akademisi dan praktisi untuk memahami dampak krisis akibat pandemi terhadap struktur modal dan kinerja keuangan perusahaan. Studi ini juga menjelaskan bagaimana kinerja perusahaan berlandaskan ESG yang unggul dapat berbeda dari perusahaan non-ESG selama krisis COVID-19. Hasil studi juga menunjukkan bahwa pemberi pinjaman, investor, pemangku kepentingan utama di pasar Indonesia belum memberikan perhatian yang sama seperti pelaku pasar dan investor di pasar negara maju (misalnya *U.S.* dan Inggris) dalam menanggapi isu-isu ESG dan *sustainable finance*. Dengan mempertimbangkan dengan lebih serius isu-isu lingkungan dan sosial dalam penganggaran modal dan keputusan investasi, perusahaan dan lembaga keuangan dapat mengoptimalkan aset mereka dan mencapai rasio efisiensi yang lebih tinggi sambil menghindari investasi dan proyek yang tidak akan berdampak positif dalam jangka panjang karena isu sosial dan dampak kerusakan lingkungan.

Keywords: Environmental, Social, Governance (ESG); Cost of Capital; Capital Structure; COVID-19 Pandemic; Sustainability
JEL Classification: G15; F63

I. Introduction

The following question posed by past scholars could still be difficult to answer: Does it pay to be green? (Hart & Ahuja, 1996; Hoang et al., 2020). We also can ask further questions: "Does it pay to be green in times of pandemic or crisis?" or "Will a pandemic halt the economic and business growth?". The paper addresses the question by examining the impact of capital structure and the COVID-19 pandemic on a firm's financial benefits (profitability ratio, values, and sustainability) by taking into account the role of environmental, social, and governance (ESG).

COVID-19 infections have severely hit countries around the globe since early 2020. The impacts are catastrophic as the pandemic has not just impacted the global mortality rate and people's health conditions, but the impact also hit the global economy and corporations. Recent studies identified the impacts such as (1) bleak global economic growth (Weiss et al., 2020), (2) corporate credit crunch (Mojon et al., 2021), and the disruption of sustainable development goals (Hörisch, 2021).

Capital structure, ESG, COVID-19 crisis, and its impacts have motivated the author to conduct the study by taking into account the relatively limited research on the Indonesian setting. The aim focuses on finding significant differentials in the level of cost of capital and the impact of the pandemic on an enterprise's financial performance, particularly in two sets of groups: ESG and non-ESG firms. Past studies during 2020-2021 have addressed the issue of the COVID-19 crisis's impacts on global health, economic and social conditions, however, little is known about the effect of the pandemic on financial performances between ESG and non-ESG firms in an emerging country such as Indonesia. Reflecting on past evidence, previous literature exhibits that high ESG firms obtain a lower cost of capital (Chava, 2014) and ESG information and disclosures negatively affect the cost of capital (Gjergji et al., 2021; Raimo et al., 2021). Other studies, focusing on the CSR dimension, examine the linkage between stock market returns and CSR during the COVID-19 period (Bae et al., 2021). As a result, this study

seeks to close any gaps in the limited literature on Indonesian firms concerning the influence of the pandemic on the link between the cost of capital and a firm's financial performance.

The study attempts at confirming if there exists a relationship between a firm´s cost of capital, financial performance, and business efficiency. Secondly, this study also aims to evaluate whether there are significant differentials in the impact of the cost of capital and crisis on two groups namely, the superior ESG firms and low ESG performing firms. The study covers firms listed on the Indonesia Stock Exchange (IDX). The results will be the foundation for both the discussions and the analysis of how the cost of capital may affect a firm´s financial performance and sustainability in 2017-2020. There is previous literature on the subject, but most research focuses on the developed European or U.S. markets while coverage of Indonesian corporations is still relatively limited. Furthermore, although in line with past empirical studies, the research objective and the results of the study offer different implications and perspectives. The study differs from past research by specifically examining the linkage between WACC and the financial performance of ESG and non-ESG firms during the COVID-19 pandemic. Thus, results from the study fill the gaps on the subject and could help further research to study the issue.

This study is divided into six parts. Section 2 expands on the literature review and theoretical foundations of the study. The third section describes the data set and methodology. Section 4 goes over the findings of the empirical analysis. Finally, Sections 5 and 6 present the discussion, conclusion of the study including the limitations and policy implications of the research.

II. Literature review and hypotheses development

II.1. SRI index in Indonesia

SRI-KEHATI can be defined as a Sustainable and Responsible Investment (SRI) stock index which is the result of a collaboration between the Indonesian Biodiversity Foundation (KEHATI Foundation) and the Indonesia Stock Exchange and was released on June 8, 2009. This stock index is used as one of the indicators of the Indonesian stock market development. With a larger role of the index in the investment climate in Indonesia, the index is often used as a benchmark for investors and investment managers to construct their investment portfolios. Through SRI-KEHATI, investors or investment managers will evaluate public companies. Companies that perform well in terms of sustainable financial, social, and environmental are certainly worthy of investment.

There are 25 issuers (companies) that are important parts (constituents) of SRI-KEHATI. The issuer selection process is conducted twice a year, in April and October. The names of issuers that passed the selection were then publicized by the Indonesia Stock Exchange (IDX) on the website www.idx.co.id. Furthermore, the issuer is authorized to compile the next SRI-KEHATI index. A public listed firm must pass three stages of selection to become a constituent of the SRI-KEHATI index. The selection mechanism for SRI-KEHATI constituents is including three criteria: (1) the core business aspect selection, (2) financial aspect, and (3) corporate fundamental assessment (e.g., corporate governance, environment, society participation, business behavior, human rights). SRI-KEHATI is the first green investment index in the South East Asian regions and the second one in the Asia market.

The daily operations and management processes of the SRI-KEHATI index are the responsibility of IDX and the KEHATI Foundation. KEHATI Foundation also forms a special committee to handle the SRI-KEHATI index. The committee acts as an advisory body in the constituent selection and preparation process. The establishment of SRI-KEHATI objective is to support sustainable business for all participants in the financial market based on sound financial and sustainable aspects. The working pattern of the SRI-KEHATI index is carried out

based on global investment trends since investors and market participants are not only seeing economic aspects, but also social, environmental, and sustainable development principles. Their investment decision is strongly influenced by these important aspects.

II.2. The IDX30 index

To contrast the ESG-rated companies, the study takes public listed firms rated in the IDX30 for the Group 2 formation. In the regression model, Group 2 will be coded by a dummy variable of 1. ESG firms, on the other hand, will be a dummy variable of 0. IDX30 represents the price measurement of the stock price performance of 30 top Indonesian companies with the highest liquidity and large market capitalization. The companies also are supported by solid company fundamentals. IDX30 is the most widely used index which become the reference for index-based mutual funds and stock-based exchange-traded funds (ETFs). IDX carries out weighting and evaluation of stock indices and which issuers are in and out of the IDX30 list every six months. The evaluation will be valid for the period February-July and August-January in the respective year.

II.3. Theoretical review and hypothesis development

This study incorporates 4 proxies to measure the financial performances of the selected Indonesian public listed enterprises: (1) ROA and ROE to measure profitability, (2) Tobin's q as a measurement of the firm's value, and (3) the ratio of revenue over total assets to represent business efficiency. As explained earlier in the first section of this paper, the study selects two firm datasets of ESG and non-ESG-based firms in which the regression model will be tested on each of the groups (Group 1 and 2).

II.3.1. The link between the cost of capital, financial performance, and business efficiency

The firm’s cost of capital is determined by its capital structure which consists of a combination of debt, equity, and retained earnings. The trade-off theory (Brennan & Schwartz, 1978), pecking order theory, and asymmetric information theory are some of the most popular theories on the optimal capital structure (Jensen & Meckling, 1976; Myers, 1984). According to the trade-off hypothesis, the best capital structure is found by considering the costs and advantages of borrowing. The primary benefit of debt, according to previous empirical studies (Brennan and Schwartz, 1978; DeAngelo and Masulis, 1980), is the tax shelter it provides. This is because interest rewarded to lenders is deducted from gross profits before determining a company's tax liability. However, certain costs linked with debt, such as liquidation and bankruptcy charges, must also be considered. These debt benefits and costs are weighed to determine the best capital structure. Chang and Rhee (1990) add to this idea by claiming that the interplay between corporate tax and differential personal tax rates on interests and dividend income define the capital structure of enterprises. As a result, the trade-off theory offers an ideal gearing ratio at which the total firm’s WACC will be reduced to the lowest level possible. Numerous research works have been conducted to empirically test the trade-off theory (Abel, 2018; Fama & French, 2002; Frank & Goyal, 2008).

Myers (1984) and Myers and Majluf (1984) in the Pecking Order theory, argues that firms will utilize debts and internal equity first, followed by external equity, to finance business expansion. According to the theory, there are asymmetric information problems between agents and investors, with equity issues posing a greater problem than debt issues. This is because managers know more than outside investors, who only invest money and do not actively participate in the management process. Investors would prefer to account for this asymmetric information problem before giving their funds to the firm, and equity would be discounted more than debt later on. Firms rely on equity as a last resort to avoid this discounting problem.

As a result, firms prefer to issue capital in a hierarchical fashion. First, firms choose to use retained earnings and then issue debt because it is considered less expensive. As a result, firms will utilize equity when debt size is depleted.

Aside from the pecking order theory, corporate finance literature also has the asymmetric information theory. Firms can use the capital structure as a market signaling device according to the theory. Previous research (see Bharath et al., 2009) suggests that asymmetric information between corporate actors may have an impact on corporate capital structure. The empirical findings on the mix of debt and equity in the capital structure are inconclusive. On the one hand, it is evident that firms with higher levels of debt are perceived as having higher quality than firms with lower debt levels. This is rational since firms with a consistent earnings stream can easily meet their interest obligations on time. Firms with unpredictable or seasonal earnings are more likely to face financial trouble and to be exposed to increased bankruptcy risks. Other findings, however, indicate that a high gearing ratio may harm a firm's performance and worsen financial ratios (Campello, 2006). These two contradictory pieces of evidence are signals that may aid firms in managing impending capital supplies. Therefore, the following research questions are proposed:

- What is the relationship between a firm's cost of capital and financial performance in the context of ESG-rated and non-ESG-rated firms in Indonesia?
- Is there a major cost of capital difference between ESG and non-ESG-rated firms?

To represent the profitability ratio, two proxies, ROA and ROE, are used as dependent variables. Previous scholars have extensively used variables in the literature to test the impact of the cost of capital on firm financial performance. However, the results are still inconclusive. It has been discovered that the cost of debt and equity has a negative, positive, and no impact on firm profitability. The identification of the optimal debt and capital structure of a firm has been debated, as scholars and corporate actors offer different answers for the most optimal and low cost of capital. The preceding discussion emphasizes that the cost of capital is a critical issue for business organizations. To this extent, the issue of identifying the impact of cost of capital on economic performance of ESG and non-ESG-rated firms has yet to be thoroughly investigated, particularly in the Indonesian context. The current study seeks evidence that implementing ESG values pays off as firms operate with lower-cost capital. As a result, the following is the first hypothesis that was tested:

H_1: Cost of capital correlates negatively with a firm's profitability ratio.

The study also investigates the possible relationship between the cost of capital and business efficiency, as represented by the asset turnover ratio. The efficiency of a company can be measured by how well it uses its resources to generate higher returns for its stakeholders. The asset turnover ratio is a critical financial ratio that can be used to assess management efficiency. Hence, it is expected that there will be a negative relationship between the cost of capital and asset turnover. The hypothesis to be tested in this case is:

H_2: Cost of capital correlates negatively with a firm's efficiency ratio.

II.3.2. Cost of capital and firm value

Tobin's q is used to test the effect of WACC on firm value, as proposed by Atan *et al.*, (2018). The interrelationship between corporate financial sustainability and capital structure, both theoretically and empirically, has been the subject of many academic debates. Through extensive studies, the discussions have centered on whether there is an optimal capital structure

for each firm (J. Chen et al., 2014) or whether the level of debt usage ratio is relevant or irrelevant to the firm's value (Graham & Harvey, 2001)

Under optimal financial market conditions, Modigliani and Miller (1963) made two propositions. Their first claim is that a firm's value is independent of its capital structure. Their second proposition states that the cost of equity for a leveraged firm is the same as the cost of equity for an unleveraged firm plus a financial risk premium. In addition, the trade-off theory (Myers,1984), pecking order theory (Myers and Majluf,1984), and agency cost theory (Jensen and Meckling, 1976), contend that if capital structure decisions are irrelevant in a perfect market, then deficiency in the real world can be used to rationalize their relevance. From this current perspective, it is clear that the cost of capital influences firm's value (Chowdhury & Mavrotas, 2006). The choice between debt and equity aims to find the optimal capital structure that maximizes stockholder wealth. The cost of capital is used to calculate a company's value by discounting future cash flows. Thereby, the value of the firm will be maximized if its WACC is kept to a minimum level (Bruner et al., 1998). As a result, the following hypothesis is proposed:

H_3: Cost of capital correlates negatively with firm value.

II.3.3. Cost of capital of ESG firms and non-ESG firms.

The value of ESG within a firm is intensely debated among investors. One view believes that a higher ESG rating is beneficial to a company through fewer agency frictions, reduced information asymmetry, lower litigation and regulation risks, more loyal customers, and a better firm reputation. Based on an extensive literature review by (Friede et al., 2015), most empirical evidence supports the view of a positive ESG impact on corporate financial performance. Ferrell et al., (2016) find that firms that engage more in CSR have fewer agency problems and waste of corporate resources. Cassely *et al.*, (2021) postulate that CSR engagement could help companies to remedy the harmful effect of economic crisis. Likewise, Harjoto *et al.*, (2015) conclude that CSR activities are associated with better internal and external corporate governance. Another study as reported by Deng et al., (2013) shows that high CSR acquirers in merger and acquisition events get higher merger announcement returns and increases in post-merger long-term operating performance.

An alternative view argues that ESG destroys shareholder value. ESG investments are a diversion of scarce resources, and firms with high ESG ratings suffer from agency problems. Managers involved in CSR activities to benefit themselves at the expense of shareholders (Krüger, 2015). Furthermore, several papers find that the benefits to stakeholders from CSR activities come at the direct expense of firm value (Chahine et al., 2019; Manchiraju & Rajgopal, 2017), future profitability (Y.-C. Chen et al., 2018), and a higher cost of equity (Dahiya & Singh, 2020). Other studies highlight the findings that there is evidence to support the argument that large corporations executives enjoy private benefits from investing in CSR (Barnea & Rubin, 2010).

The empirical literature investigating the relationship between ESG and firm value is mixed and has left this debate largely unresolved. Although theoretical literature on this topic is still sparse, a few recent papers all suggest better ESG performance is associated with a lower cost of capital. Pástor et al., (2021) present a general equilibrium investment model based on ESG criteria. Based on the paper, green assets have negative CAPM alphas stemming from investors' preferences for green holdings; however, green assets can outperform brown assets during the ESG factor's good performance. In that way, the out-performance can lead firms to make more green real investments that have positive externalities on society. Following that, Derrien et al., (2021) present a finding indicating that negative ESG scores have a negative impact on a firm's earnings forecast. In addition, Irawan & Tatsuyoshi (2021) discovered a significant positive influence of ESG ratings on firm values. Next, they provide findings that a

firm's earnings forecast is negatively influenced by negative ESG scores. To add, another finding reported provided an avenue of a significant positive influence of ESG ratings and disclosures on firm cost of capital (Wong et al., 2021). Along this line, the present study posits the following hypothesis:

H_4: ESG firms have a lower cost of capital than non-ESG firms.

II.3.4. Crisis, Firm's Financial Performances, and Cost of Capital

Regarding the specific role of ESG performance during times of crisis, research is relatively limited, yet some insights have been gleaned from the 2008-09 global financial crisis and COVID-19 pandemic crisis in 2020-2021. Broadstock et al., (2020) found U.S. non-financial firms with high ESG scores have better financial performance than other firms during the period. Focusing on the COVID-19 crisis, Albuquerque et al., (2020) and Garel and Petit-Romec, (2020) test a relationship between a firm's stock return and environmental and social performance by using the Refinitiv and MSCI's environment and social (ES) datasets. Hence, the following question is proposed: "Did the 2020 pandemic affect financial performance?". Since empirical findings seem inconclusive across countries and industries, the present study aims to take the Indonesian ESG-rated and non-ESG-rated public firms as the samples by testing the possible significant influence of pandemic on firm's financial performances. Following the notion, the study tests the following hypothesis:

H_5: Crisis has a detrimental effect on firm's financial performance.

II.3.5. Would being an ESG firm help in achieving a lower cost of capital?

As explained earlier in the previous section, the study argues that benefits are coming from being a strong ESG corporation, thanks to firm's effort and willingness to implement all three aspects of the environment, social, and governance into a short-term and long-term strategy. Built upon the nexus, the study, hence, expects that there is the moderating impact of being an ESG firm on the relationships between firm financial performances and the cost of funds. The paper empirically examines the moderating impact of ESG on firm's cost of capital and whether it leads to higher efficiency, profitability ratio, and value for the firm. Regrettably, there is no extant literature that specifically discusses the moderating impact of ESG on the cost of capital and financial performances for Indonesian companies. However, few papers test the moderating role of a firm's debt ratio on the link between the cost of capital and corporate social responsibility as found in Yeh et al., (2020). In addition, Chouaibi et al., (2022) investigate the moderating effect of social and ethical practices on the relationships between environmental disclosure and financial performance. Therefore, the authors believe that the empirical examination is considered necessary to further explore the role of active ESG implementation rewarded in times of crisis by helping business entities to achieve higher profit and values while maintaining a lower cost of funds (WACC).

H_6: Being an ESG firm would strengthen the connection between the cost of capital and firm financial performance.

III. Data and Methodology

III.1. Construction of the Dataset

The sample of the study begins with public listed firms in the SRI-KEHATI and IDX30 index database. As one of the objectives of the paper is to examine the influence of the pandemic in 2020, the study uses firm-level data from 2017 to 2020. Dataset is extracted from various sources, including financial data from the Indonesian Stock Exchange (IDX) and corporate websites. Selected firms are firms that consistently rated in the SRI-KEHATI index

and IDX30 from 2017 to 2020 (four consecutive years). Consistent with this method, the sample consists of 16 ESG-rated firms (rated in the SRI-KEHATI) and 17 non-ESG-rated firms (rated in the IDX30). With the method, the data set covers 132 firm-year observations.

The study defines the crisis period as the full year of 2020, considering the limitation of collecting full-year firm-financial data of 2021 when the paper was written. To test the proposed hypothesis, the study compares two groups of firms listed in the ESG index and the non-ESG index. As Coded with Group 1, the dataset consists of 16 firms rated in the ESG-based index in the IDX while Group 2 is dedicated to large corporations as rated by the IDX30. First, the study analyses whether there are significant discrepancies in the cost of capital's impact on financial performances between Group 1 and 2 respectively. Second, the study also tests the impact of the pandemic in 2020 on firm's financial performances by running separate regressions on those two groups. Descriptive statistics and descriptions of variables are presented in Table 1.

Table 1 Definition of the variables and T-test results

Variable	Definition	Group	Means	Std. Dev	Significance
WACC	Firm's weighted average cost of capital	ESG	.0689625	.0200344	t= -1.5962
		Non-ESG	.0745362	.0200653	p= 0.1129
TQ	Tobin's q (ratio of market value to total asset)	ESG	.8455074	.0254723	t = -3.2912
		Non-ESG	.9752941	.0298117	p = 0.0013*
ROA	Ratio of net earnings after tax over total assets	ESG	.0634744	.0960511	t = -1.3889
		Non-ESG	.0833794	.0668138	p = 0.1672
ROE	Ratio of net earnings after tax over total equity	ESG	.1898695	.3368775	t = 0.8099
		Non-ESG	.1544926	.1239211	p = 0.4195
Efficiency	Ratio of revenues over total assets	ESG	.7319887	.4785373	t = 0.3215
		Non-ESG	.7023443	.5731614	p = 0.7483
Age	Age of the firm (in year)	ESG	62.25	35.76733	t = 3.5680
		Non-ESG	42.55882	27.30282	p = 0.0005*
Beta	Beta of the firm	ESG	1.271875	.7422336	t = 1.5916
		Non-ESG	1.078824	.6504454	p = 0.1139
Debt	Total debt (in million IDR)	ESG	18154.48	23888.08	t = 1.0945
		Non-ESG	14371.43	15089.85	p = 0.2758
Eqy	Total debt (in million IDR)	ESG	3.86e+10	4.64e+10	t = 1.0945
		Non-ESG	2.37e+10	1.65e+10	p = 0.2758
Ke	Cost of equity	ESG	.0791708	.0222161	t = 1.1555
		Non-ESG	.0750543	.018649	p= 0.2500
Kd	Cost of debt	ESG	.0632342	.030943	t = -3.0812
		Non-ESG	.0866141	.052753	p= 0.0025*

MCAP	Market capitalization (in billion IDR)	ESG	46.5578	48.17997	t = 2.4444
		Non-ESG	30.8933	21.07952	p= 0.0158*
Revenues	Revenues (in billion IDR)	ESG	47.73648	54.82793	t = 2.1022
		Non-ESG	31.68717	30.03485	p= 0.0118*
Ebitda	Earnings before interest, tax, depreciation and amortization ((in billion IDR)	ESG	2.155981	1.72e+10	t = 2.1911
		Non-ESG	1020.077	8.41e+12	p= 0.0302*
Size	Total assets of the firm ((in billion IDR)	ESG	8.39e+10	8.56e+10	t= 3.4589
		Non-ESG	4.57e+10	3.02e+10	p= 0.0007*
IPO	The year of the IPO minus the year of the observation period	ESG	21.625	8.241398	t = 2.1668
		Non-ESG	18.32353	9.200002	p= 0.0321*

The table presents t-test results for the selected variables of two different groups: Group 1 (ESG firms) and Group 2 (non-ESG rated firms). Group 1 = 64 observations, Group 2 = 68 observations. **** p<0.05***

III.2. Variables and Model Specifications

The dependent variable is the cost of capital (calculated with the weighted average cost of capital estimation) over 2017-2020. The study employs two regression methods to test the hypotheses. The first is by using the STATA-based command, *xtscc*, which is a standard error for panel regression with cross-sectional dependence based on the Driscoll-Kraay estimator (Driscoll & Kraay, 1998). Following past literature (Le et al., 2020; Wan Mohammad et al., 2022), the method was chosen since it is heteroskedasticity consistent and the standard error estimates are robust to general forms of cross-sectional and temporal dependence surpassing the deficiencies of traditional panel data statistical approaches (Hoechle, 2007). As a comparison, the paper also presents the fixed-effect regression with robust standard error for the analysis. The following specification is tested:

$$\boldsymbol{Financial\ Performance_{i,t} = \alpha_i + \alpha_1 CoC_{i,t} + \alpha_2 Control\ Variables_{i,t} + \varepsilon_i} \quad [1]$$

Following past studies (Grewatsch & Kleindienst, 2017; Li et al., 2018), the present study tests the two-way interactions between main variables. Specifically, the study introduces ESG as a moderating variable for the relationships between cost of capital and financial performance. The interactions incorporated in the second model are as follows:

$$\boldsymbol{Financial\ Performance_{i,t} = \alpha_i + \alpha_1 CoC * i.Group_{i,t} + \alpha_2 COVID * i.Group_{i,t} + \alpha_n X_{i,t} + \varepsilon_i} \quad [2]$$

Since the examination needs to employ the COVID-19 pandemic and updated corporate information, data sets were collected to cover the period from 2017 to 2020. Thus, this study takes the year 2020 as a dummy variable (coded by "0") to represent the pandemic, on the other hand, the rest of the observation periods (2017, 2018, and 2020) are coded by "1".

III.3. Robustness Check

The study conducts several robustness tests. First, the study incorporates additional firm-level controlling variables including (1) age of the firm, (2) total debt, (3) market capitalization, (4) revenue, and (5) earnings before interest, tax, depreciation, and amortization (EBITDA). The reports are illustrated in Tables 3-4. Second, the study constructs a full firm-year database as reported in Tables 7 and 8. This is to contrast findings from regression run for Group 1 and 2 with the full-year data sample.

IV. Empirical Result of the Study

IV.1. Cost of capital, profitability, and efficiency

Table 1 presents t-test results to test the question of whether ESG-rated firms have a lower cost of capital than non-ESG-rated firms. This concludes Hypothesis 4 that there are no significant means differentials of cost of capital between ESG and non-ESG-rated firms. This finding is not consistent with past studies (Mackey et al., 2007; Sharfman & Fernando, 2008). The authors argue that the responsible practices and environmentally-centric strategy borne by ESG firms are penalized with a higher cost of debt and cost of equity by the lenders as postulated by studies of Chava (2014 and Kim *et al.* (2015).

To test Hypothesis 1, which predicts a lower cost of capital would allow the firm to improve its economic performance, the present study uses financial performances (ROA and ROE) as dependent variables and regress the control variables plus the COVID-19 dummy variable on it. The regression results are presented in Tables 2 and 3. Tables 2 and 3 list the results of the fixed-effect model (FEM) and FEM with Driscoll-Kraay standard errors on the firm's return on asset (ROA) and return on equity (ROE). Based on Table 3, corporate cost of capital (WACC) has no influence on ROA under the fixed-effect model with Driscoll-Kraay standard errors (see model 1). However, the result shows that market capitalization and EBITDA have a positive and significant impact on ROA of ESG-based firms. We do not find similar evidence in non-ESG firms (Group 2). In addition, Table 2 shows that a non-ESG firm's age has a sizeable influence on corporate ROA. This means that the older firms are struggling to utilize their assets to create higher profits. We find an interesting result of the pandemic impact on ROA. As shown in Table 2, the pandemic year dummy (coded 1) for Group 1, ESG firms, is found to be negative and significant (under 5% statistical significance). Thus, it is evident that the crisis and challenging time brought by the pandemic possibly put ESG firms in a more difficult situation than non-ESG firms. The coefficient of the crisis-year dummy for Group 2 is found to be insignificant.

Table 3 presents the results of the model for ROE. Differ from the results for the ROA, we find a negative and significant influence of the cost of capital on corporate return of equity. Thus, ESG firms can manage their cost of capital to deliver higher earnings for the company. Again, revenues and EBITDA significantly influence firm’s ROE. This is consistent with results from past studies documented in Consistent with the result of Table 3, the age of the firm has a deteriorating impact on ROE for the non-ESG group. In addition, we also find that the COVID-19 pandemic brought a negative impact on ESG firms' ROE. By those findings, there is inconclusive evidence that lower WACC will consistently and significantly help in improving firm's profitability ratios as indicated by ROA.

Table 2 Relationships between Cost of Capital and ROA

VARIABLES	Driscoll-Kraay estimator		Fixed-effect Model	
	Group 1 ESG	Group 2 Non-ESG	Group 1 ESG	Group 1 Non-ESG
WACC	0.0856	0.338	0.0856	0.338**
	(0.103)	(0.208)	(0.291)	(0.157)
Age	-0.00350	-0.0105***	-0.00350	-0.0105*
	(0.00225)	(0.000941)	(0.00347)	(0.00538)
LDEBT	-0.000231	-0.0122	-0.000231	-0.0122
	(0.000806)	(0.00714)	(0.000464)	(0.00856)
MCAP	0.000544**	-0.000201	0.000544	-0.000201
	(0.000136)	(9.11e-05)5	(0.000492)	(0.000120)
Revenue	-0.000499*	0.000556***	-0.000499	0.000556
	(0.000204)	(8.61e-05)	(0.000299)	(0.000491)
EBITDA	0.0218***	0.0448***	0.0218***	0.0448***
	(0.00372)	(0.00374)	(0.00501)	(0.0141)
Covid-19	-0.0219**	-0.0112	-0.0219*	-0.0112
	(0.00648)	(0.00573)	(0.0123)	(0.00975)
Constant	-0.215	-0.456**	-0.215	-0.456
	(0.216)	(0.143)	(0.192)	(0.300)
Observations	62	68	62	68
R-squared	0.4682	0.558	0.468	0.558
Number of firms	16	17	16	17

Estimation: FE with robust standard error correction and Driscoll-Kraay estimator for robust standard errors. The table presents results of the relationships between WACC and ROA for each firm-groups namely ESG-firm (Group 1) and non-ESG firms (Group 2). Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3 Relationships between Cost of Capital and ROE

VARIABLES	Driscoll-Kraay estimator		Fixed-effect Model	
	Group 1 ESG	Group 2 Non-ESG	Group 1 ESG	Group 1 Non-ESG
WACC	-0.525**	0.0120	-0.525	0.0120
	(0.137)	(0.419)	(1.181)	(0.443)
Age	0.0330**	-0.0380***	0.0330	-0.0380
	(0.00698)	(0.00469)	(0.0198)	(0.0246)
LDEBT	0.00145	-0.0181	0.00145	-0.0181
	(0.00162)	(0.0125)	(0.00538)	(0.0150)
MCAP	-0.00231	-0.000846**	-0.00231	-0.000846
	(0.00164)	(0.000192)	(0.00227)	(0.000531)
Revenue	-0.00249***	0.000909	-0.00249	0.000909
	(0.000287)	(0.000688)	(0.00169)	(0.00123)
EBITDA	0.0729***	0.0919***	0.0729***	0.0919***
	(0.00477)	(0.0109)	(0.0125)	(0.0297)
Covid-19	-0.117***	0.0260	-0.117	0.0260
	(0.00403)	(0.0205)	(0.0718)	(0.0385)
Constant	-3.116***	-0.122	-3.116**	-0.122
	(0.446)	(0.413)	(1.246)	(1.414)
Observations	62	68	62	68
R-squared			0.337	0.261
Number of firms	16	17	16	17

The table presents results of the relationships between WACC and return on equity for ESG-firms (Group 1) and non-ESG firms (Group 2). The estimations are based on fixed-effect model with robust standard error and

Driscoll-Kraay estimator for robust standard errors correction. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

IV.2. Cost of capital and business efficiency

To test Hypothesis 2, Table 4 reports regression results for the fixed-effect (with robust standard errors) and fixed-effect with Driscoll-Kraay standard errors. The regressions run for the two firm groups: ESG-rated firms listed on the SRI Index (Group 1) and the non-ESG-rated firms listed on the IDX30 Index (Group 2). Based on the table, we have confirmation that the cost of capital has no impact on business efficiency. The proxy for efficiency is a ratio of revenues over total assets. For both groups, Table 5 reports firm's debt and revenues are linked to higher financial performance. However, non-ESG-rated firms should cope with problems with operating efficiency as assets have a negative impact on performance. In terms of business efficiency, we do not find any linkage between a pandemic and a firm's efficiency ratio.

Table 4 Relationships between Cost of Capital and Business Efficiency

	Driscoll-Kraay estimator		**Fixed-effect Model**	
VARIABLES	**Group 1 ESG**	**Group 2 Non-ESG**	**Group 1 ESG**	**Group 1 Non-ESG**
WACC	-1.186	-0.640*	-1.186	-0.640
	(0.697)	(0.245)	(1.008)	(0.719)
Age	-0.0176	0.00291	-0.0176	0.00291
	(0.0190)	(0.00673)	(0.0109)	(0.0122)
Beta	0.643	-4.898***		
	(1.551)	(0.305)		
Logsize	-0.00719***	-0.0255***	-0.00719*	-0.0255***
	(0.00117)	(0.00266)	(0.00347)	(0.00486)
LDEBT	0.00547**	0.173**	0.00547	0.173**
	(0.00147)	(0.0473)	(0.00321)	(0.0697)
MCAP	-0.00286	-0.000195	-0.00286	-0.000195
	(0.00373)	(0.000221)	(0.00571)	(0.000540)
Revenue	0.0116**	0.0238***	0.0116*	0.0238***
	(0.00341)	(0.00252)	(0.00658)	(0.00653)
EBITDA	0.0116	0.159**	0.0116	0.159**
	(0.0553)	(0.0374)	(0.0532)	(0.0696)
Covid-19	-0.0329	0.0288	-0.0329	0.0288
	(0.0198)	(0.0155)	(0.0586)	(0.0726)
Constant	0	0	0.808	-5.284***
	(0)	(0)	(1.072)	(1.758)
Observations	62	68	62	68
R-squared			0.622	0.827
Number of firms	16	17	16	17

The table presents results of the relationships between WACC and the efficiency ratio (revenue over total assets) for ESG-firms (Group 1) and non-ESG firms (Group 2). The estimations are based on fixed-effect model with robust standard error and Driscoll-Kraay estimator. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

IV.3. Cost of capital and firm value

Regression results (see Hypothesis 3) for WACC and firm value is presented in Table 5. Model (2) shows that cost of capital in Group 2 has a negative influence on a firm's value (1% statistical level), however, there is no such evidence for the ESG firms. It means non-ESG firms could enjoy higher Tobin's q with every decreasing level of WACC, while, at least under some conditions as reported in this study, ESG metrics and its expenditures do not pay off in the form of higher market valuation (Fatemi et al., 2015). Additionally, total assets correlate negatively with firm values (Group 1) as reported in Table 6. Finally, there is no evidence that COVID-19 years significantly influence firm values. The findings, again, are inconsistent with past studies on US corporations (El Ghoul et al., 2011).

Table 5 Relationships between Cost of Capital and Tobin's q

	Driscoll-Kraay estimator		**Fixed-effect Model**	
VARIABLES	**Group 1 ESG**	**Group 2 Non-ESG**	**Group 1 ESG**	**Group 1 Non-ESG**
WACC	-0.290	-0.553**	-0.290	-0.553*
	(0.146)	(0.165)	(0.229)	(0.267)
Age	0.00482***	0.000917	0.00482	0.000917
	(0.000689)	(0.000474)	(0.00562)	(0.00530)
Logsize	-0.00286***	-0.000204	-0.00286**	-0.000204
	(0.000336)	(0.000615)	(0.000998)	(0.000812)
LDEBT	0.000421	0.0243	0.000421	0.0243
	(0.00112)	(0.0157)	(0.00127)	(0.0199)
MCAP	0.00590***	0.000105	0.00590***	0.000105
	(0.000420)	(5.21e-05)	(0.00152)	(9.18e-05)
Revenue	-3.88e-06	-0.000113	-3.88e-06	-0.000113
	(0.000228)	(0.000595)	(0.000974)	(0.00127)
Covid-19	-0.00117	-0.000889	-0.00117	-0.000889
	(0.00369)	(0.00314)	(0.0168)	(0.00983)
Constant	0.650***	0.879**	0.650*	0.879***
	(0.0399)	(0.189)	(0.359)	(0.285)
Observations	64	68	64	68
R-squared			0.561	0.330
Number of firms	16	17	16	17

The table presents results of the relationships between WACC and firm value (Tobin's q) for ESG-firms (Group 1) and non-ESG firms (Group 2). The estimations are based on fixed-effect model with robust standard error and Driscoll-Kraay estimator. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

IV.4. Cost of capital and financial performance

In addition, this study also tests the regression models on a full firm dataset. The results are reported in Tables 6 and 7. In the table, we run the full dataset to test any linkage between the cost of capital and financial performance. We have 33 firms for 4 years that lead to a final 130 firm-year observation. As reported by Table 6 model (3), the only significant influence of WACC is found only on firm value (Tobin's q). There is no relationship between WACC, ROA, and ROE. To add, we found a significant influence of a firm's beta on financial

performances in which higher beta is linked to lower earnings (ROA, ROE) but not with Tobin's q.

As for the crisis year of 2020, it is evident that the pandemic brought a deteriorating impact on all financial performance variables: ROA, ROE, efficiency ratio, and Tobin's q. In Table 7, we run the model using the *xtscc* command of STATA. In model (4) from the table, the biggest coefficient of a crisis-year dummy is on a firm's efficiency ratio. Based on that result, we assume that corporations are struggling to keep their operational efficiency afloat amid weaker demand and sluggish sales figures.

Table 6 Relationships between Cost of Capital and Efficiency using FEM

	Using Fixed-effect Model: Full Datasets			
VARIABLES	**(1) ROA**	**(2) ROE**	**(3) TQ**	**(4) Efficiency**
WACC	0.215	-0.290	-0.757***	-0.747
	(0.143)	(0.519)	(0.223)	(0.664)
Age	-0.00345	0.00309	0.00786	0.00901
	(0.00371)	(0.0169)	(0.00466)	(0.0191)
Logsize	0.000118	-0.00122	0.000225	-0.0121***
	(0.000268)	(0.00104)	(0.000404)	(0.00259)
LDEBT	-0.000664	0.000421	0.00250	0.000444
	(0.000595)	(0.00467)	(0.00185)	(0.00396)
MCAP	-3.49e-06	-0.000214	0.000497**	0.000365
	(0.000119)	(0.000342)	(0.000202)	(0.000820)
Revenue	-0.000323	-0.000663	-0.00120	0.0147**
	(0.000357)	(0.00107)	(0.000764)	(0.00620)
EBITDA	0.0288***	0.0649***	-0.00757	0.0561
	(0.00730)	(0.0132)	(0.0117)	(0.0572)
Covid-19	-0.0219**	-0.0452	-0.00708	-0.0578
	(0.00938)	(0.0386)	(0.0114)	(0.0482)
Constant	-0.425*	-1.234	0.902***	-1.901
	(0.230)	(0.992)	(0.309)	(1.477)
Observations	130	130	130	130
R-squared	0.423	0.223	0.284	0.653
Number of firms	33	33	33	33

The table presents results of the fixed-effect model (FEM) with robust standard error. Standard errors in parentheses *** p<0.01, **p<0.05, * p<0.1

IV.5. Moderating impact of being an ESG firm

To test Hypothesis 6, we run a separate regression to evaluate the potential moderating impact of being an ESG over a non-ESG firm. By this method, the study constructs a model which incorporates the interaction between the ESG firm dummy with the cost of capital. The results are reported in Table 8 (model 1-4) by employing the fixed-effect model since the *xtscc* model does not allow any interaction terms in its operation. Therefore, Table 8 shows that there is no moderating impact of ESG firms on the linkage between the cost of capital and financial performance indicators. With this result, we conclude that we cannot find strong support that being an ESG firm would bring additional benefits in terms of economic performance. This finding, hence, is not in line with previous studies on ESG (Mariani et al., 2021). In terms of

accounting profit estimates, the pandemic has a significant harmful effect on ESG firms. This finding differs from past studies and market expectation that SRI and ESG-derived companies might be able to reap benefits from being compliant with the environmental, social, and governance values including in times of financial crisis and pandemic. The reported results of this study provide different evidence from past research including Bose *et al.*, (2022), Koçak *et al.*, (2022), and Schroders (2020). The findings of the study imply that the implementation of ESG values and being a "green" company do not inevitably bring any immediate financial impact, at least in the short term. However, this implication should not be interpreted that being an ESG firm does not bring any payoff, and vice versa. Additionally, the study finds that results for WACC and firm value (Tobin's q) are found to be negative and significant. This highlights results found in Tables 6 and 7. To add, from Table 6, we get evidence that non-ESG firms experience higher values with a decreasing rate of their WACC. Presumably, this significant result also influences the model run for Tables 7 and 8 respectively.

Table 7 Relationships between Cost of Capital and Financial Performances using *XTSCC*

	Using Driscoll-Kraay estimator: Full Datasets			
VARIABLES	**ROA**	**ROE**	**TQ**	**Efficiency**
WACC	0.215	-0.290	-0.757***	1.686*
	(0.116)	(0.207)	(0.0609)	(0.640)
Age	-0.00345***	0.00309	0.00786***	-0.208
	(0.000402)	(0.00627)	(0.00129)	(0.0990)
Beta	-0.366***	-1.060**	0.775**	
	(0.0366)	(0.292)	(0.137)	
Logsize	0.000118	-0.00122	0.000225	
	(0.000109)	(0.000845)	(0.000119)	
LDEBT	-0.000664	0.000421	0.00250	-0.000198
	(0.000475)	(0.00159)	(0.00182)	(0.00300)
MCAP	-3.49e-06	-0.000214	0.000497**	-0.00127*
	(2.15e-05)	(0.000279)	(0.000138)	(0.000527)
Revenue	-0.000323**	-0.000663*	-0.00120**	0.00810**
	(7.37e-05)	(0.000225)	(0.000220)	(0.00140)
EBITDA	0.0288***	0.0649***	-0.00757	0.0344
	(0.00222)	(0.00295)	(0.00357)	(0.0493)
Covid-19	-0.0219***	-0.0452***	-0.00708**	-0.232***
	(0.00330)	(0.00705)	(0.00185)	(0.0145)
Constant	0	0	0	-1.202
	(0)	(0)	(0)	(1.456)
Observations	130	130	130	130
Number of firms	33	33	33	33
R-squared	0.4228	0.2233	0.2837	0.4184

The table presents regression results using the Driscoll-Kraay estimator. Independent variables include: ROA, ROE, Tobin's q, and the efficiency ratio. Dependent variable is the firm's WACC. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 8 The Moderating Role of ESG using the Fixed-Effect Model

VARIABLES	Using Fixed-effect Model (FEM)			
	(1) ROA	**(2) ROE**	**(3) TQ**	**(4) Efficiency**
group#wacc	-0.0396	0.614	0.227	-2.156
	(0.244)	(1.062)	(0.308)	(1.849)
WACC	0.217	-0.0485	-0.828***	2.309
	(0.134)	(0.468)	(0.226)	(1.457)
Year-2018	-0.000171	-0.00460	-0.000367	-0.00293
	(0.00561)	(0.0223)	(0.00789)	(0.0261)
Year-2019	-0.00521	-0.00290	0.00908	-0.0340
	(0.00605)	(0.0256)	(0.00882)	(0.0447)
Year-2020	-0.0343***	-0.0663**	0.0204	-0.333***
	(0.00933)	(0.0321)	(0.0168)	(0.0821)
Constant	0.0311	0.126	1.131***	-0.814***
	(0.0372)	(0.167)	(0.0509)	(0.258)
Observations	132	132	132	132
R-squared	0.228	0.098	0.145	0.364
Number of firms	33	33	33	33

The table presents regression results which tested the moderating impact of ESG on firm's cost of capital.

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

V. Discussion

The study tries to answer the following questions: "Does it pay to be an ESG firm during a crisis?". By examining corporations' data from 2017-2020, the study tests the influence of a firm's cost of capital on financial performance. Datasets employed in this present study cover two different firm-group namely ESG and non-ESG public listed firms. Previous studies reported mixed findings on this issue. However, this topic is relatively under-researched in the context of the Indonesian business environment in which the ESG market and sustainable finance are still in their early-stage development. To the best of our knowledge, this is among the very first study to directly document the impact of the cost of capital on financial performance by taking into account the impact of being an ESG-based firm. With the above-mentioned findings, the current paper is expected to contribute to the body of knowledge, both academic and practitioner, in several ways. First, the study identifies the link between the cost of capital and financial performances of ESG-based and non-ESG firms. The study differentiates ESG and non-ESG firms in light of theories on ESG and sustainable finance. Second, the study explores how the pandemic affects financial performance.

Could we confidently conclude that ESG firms would generate superior business performance and efficiency? The study only finds strong support that ESG-rated firms are getting economic benefit in getting higher ROE with every decreasing basis point of its cost of capital. On the contrary, non-ESG-rated firms enjoy superior market valuation (see Table 6) with decreasing cost of capital. This evidence suggests that lenders, investors, and other key participants in the Indonesian market have not been as sensitive as market participants and

investors in the developed market (e.g., the U.S and U.K environment) in responding to ESG issues and ESG-related risks.

Based on past existing literature, firms that conscientiously pay attention to environmental, social, and governance would have a greater opportunity to generate values for their stakeholders. Firms with strong ESG propositions have a chance to obtain top-line business growth and ensure higher efficiency in terms of their turnover ratio ((Ahmad et al., 2021; De Lucia et al., 2020). How is this possible? Solid ESG firms would be very likely to attract customers and investors who seek and put weight on sustainability and ESG issues in their business and investment decisions. ESG firms, on the other hand, also would be made to have better access to get relatively cheaper funds from financial institutions and the government. This would be possible if there is greater support from the governments, regulators, and financial market actors that implement comprehensive actions in promoting sustainable finance and green investment in the country.

By what means ESG firm could outperform its non-ESG-rated peers? We suggest that firms get asset optimization and a higher efficiency ratio by carefully taking into account environmental and social issues in their capital budgeting and investment decision as they avoid investments and projects that do not pay off in the long run due to longer-term social and environmental concerns. As one can see, this study finds that ESG firms could attain economic benefit by getting a higher accounting-based profitability ratio, ROE. However, there is no support yet to conclude that ESG firms in Indonesia could attain higher ROA, efficiency, and market valuation by keeping lower capital costs.

VI. Conclusion

The study offers some implications for academics and practitioners. First, the findings can be used by academics and practitioners to understand the pandemic-caused crisis effect on firm's capital structure and financial performance. Second, it also explains how firms with superior ESG might perform differently from non-ESG-based firms in terms of surviving during a crisis such as the COVID-19 pandemic. In conclusion, this study expects to contribute to the literature evaluating the relationship between ESG and corporate financial performances even though further study is encouraged to explore more ESG in the model considering the complexity of ESG criteria and metrics and its relationship with economic performance. Besides that, it would be interesting to investigate the connection between an ESG news-based rating and stock market performance with regard to a larger dataset (e.g., all stock market constituents) and cross-country analysis over the same or longer observation period. With this in mind, the current study is left to be further explored in the future.

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