


“Unveiling the link of country compliance, risks, and cost of capital in socially responsible investing”

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UNVEILING THE LINK OF COUNTRY COMPLIANCE, RISKS, AND COST OF CAPITAL IN SOCIALLY RESPONSIBLE INVESTING

Abstract

The study provides empirical evidence on the cost implications of socially responsible investing (SRI) in relation to Environmental, Social, and Governance (ESG) preferences. Specifically, it examines whether socially responsible investors incur higher costs to meet non-pecuniary goals and how government involvement can offer rewards to socially responsible investors in supporting the realization of the United Nations' Sustainable Development Goals (SDGs). Using panel data regression, this study analyzes ESG scores and financial and return data of 1,450 firm-year observations in ASEAN-5 countries over the period 2015–2022. The findings reveal that firms implementing ESG practices experience an increase in their cost of capital (CoC), supporting the notion that ESG investment requires a sacrificial cost. Even firms with low operational risks face rising CoC when implementing ESG principles. However, the study also finds that firms located in countries with better government effectiveness and stronger control of corruption benefit from a reduction in CoC, despite ESG implementation. Conversely, country risks, particularly those related to environmental pollution, exacerbate the CoC for firms adhering to ESG criteria. Overall, the results suggest that while country-level governance can reward socially responsible investors by mitigating CoC, country risks such as pollution pose additional burdens, highlighting the need for government intervention to incentivize SRI and align it with global sustainability goals.

Keywords

cost of capital, environment, social, governance, government effectiveness, pollution, control of corruption, operational risk, socially responsible investors

JEL Classification

G31, G32, Q50

INTRODUCTION

Socially Responsible Investing (SRI) has gained prominence as investors increasingly prioritize Environmental, Social, and Governance (ESG) factors in their decision-making processes. While ESG integration aims to foster ethical and sustainable business practices, it often comes with financial trade-offs. Specifically, firms adopting ESG principles may face higher costs of capital (CoC), suggesting that socially responsible investments may require sacrifices in financial performance to achieve broader non-pecuniary goals. On the micro level, this phenomenon raises an important question of whether the existing company's risk factor such as operational risk would influence shaping the cost of capital when implementing ESG.

On the macro level, the financial trade-off issue raises important questions about the role of government in supporting SRI and encouraging alignment with the United Nations' Sustainable Development Goals

(SDGs). Given the varying country-level governance and risk factors, this study investigates how country characteristics, such as government effectiveness, control of corruption, environmental risks, and unemployment influence the CoC for firms engaged in ESG practices across ASEAN-5 countries.

This study contributes clearer analyses and interpretations of the issues of financial trade-offs of SRI from a financial economics perspective, by integrating market and operational perspectives of risks. In particular, the contribution to literature and society is highlighted by considering both pecuniary and non-pecuniary aspects of ESG. The non-pecuniary aspect is taken by socially responsible investors, and the pecuniary aspect is rewarded to SRI by the government. The ambiguity areas related to the notion of whether value enhancing or shareholder expense theory applies to ESG implementation have been addressed. The study offers an objective stance concerning costs, incentives, and benefits related to SRI, and provides empirical insights on the associated economic implications.

The results indicate that companies with high earnings persistence considered to have low operational risk, experience a higher cost of capital as they implement ESG, meaning that financial trade-offs occur as a consequence of SRI. The empirical evidence on the relationship between ESG implementation, CoC, and country-specific governance sheds light on the critical role of government involvement in rewarding SRI and promoting global sustainability efforts.

1. LITERATURE REVIEW AND HYPOTHESES

The concept of sustainability can be understood in different ways depending on the context (Starks, 2023). For some, it mainly emphasizes environmental aspects (Moldan et al., 2012). For others, it entails a wider perspective that includes the well-being of people, the planet, and economic profit (Wu, 2013). Additionally, some interpret the term to encompass not just humanity and the environment, but also prosperity, peace, and collaborative partnerships (Mansell & Tremblay, 2013; Mariani et al., 2022). Before investigating the impact of SRI, a clearer distinction between ESG pecuniary and non-pecuniary motivations needs to be made. This distinction can be difficult because the motivations for ESG investing often come from a mix of values and profits. ESG investing is important for both socially responsible and traditional financially oriented investors. While socially responsible investors view ESG investing primarily from a non-pecuniary perspective, financially oriented investors who adopt an ESG strategy do so primarily with a focus on the pecuniary aspect. In this study, SRIs are defined as investment activities driven by non-financial aspects, especially ESG. Their expectations are close to risk-adjusted market returns with a certain willingness to accept lower returns (Barber et al., 2021; Baker et al., 2022). In other words, they accept a higher cost of capital as long as ESG criteria are met.

Two competing theories explain the impact of ESG activities on a company's stock market value: the value-enhancing theory and the shareholder expense theory. The value-enhancing theory asserts that integrating socially responsible initiatives into corporate strategies creates competitive advantages that lead to long-term shareholder value. These advantages include improved brand reputation, increased employee productivity, enhanced operational efficiency, and better relationships with regulators and stakeholders (Miralles-Quiros et al., 2018). As a result, ESG initiatives by publicly listed companies are expected to be positively recognized by stock markets. In contrast, the shareholder expense theory argues that spending on ESG activities raises costs and may disadvantage companies financially, ultimately lowering their market values. Scholars such as Aupperle et al. (1985), Barnea and Rubin (2010), and Marsat and Williams (2014) suggest that a commitment to sustainability could lead to over-investment and activities that do not align with shareholder interests, indicating that adopting sustainability measures might not be economically viable and could undermine the company's value.

While existing literature on ESG's impact on shareholder value presents mixed results, a growing body of research supports the value-enhancing theory (e.g., Dhaliwal et al., 2011; Christensen et al., 2021; Eliwa et al., 2021; El Ghouli et al., 2011; Huang et al., 2017; Oikonomou et al., 2014; Du et al., 2017). This

study aims to provide additional empirical evidence for the shareholder expense theory by examining the behavior of socially responsible investors willing to financially sacrifice for their investment preferences. This study explores the relationship between ESG implementation and the cost of capital to assess how SRI influences investment risks. It is expected that adopting ESG practices does not automatically enhance firm value. The necessary infrastructure and increased expenditures related to ESG lead to higher costs, placing companies at a financial disadvantage and diminishing market values. To address ESG-related issues, companies need external support, which could come from governments promoting ESG initiatives.

Previous studies supporting the shareholder expense theory also indicate that higher ESG scores result in higher costs of capital (e.g., Kristianthy & Ekawati, 2024; Magnanelli & Izzo, 2017; Huang et al., 2018; Menz, 2010). To articulate the empirical support for this theory, this study introduces earnings persistence as a moderating variable, reflecting earnings quality. The companies that have earnings persistence reflect low operational risk, posit to their stable earnings. This study will test whether the positive effect of ESG on the cost of capital is intensified in companies with low operational risk. Even these companies require substantial investment to integrate ESG, leading to increased costs of capital. Thus, companies with lower operational risks would experience a higher increase in the cost of capital, compared to those that are already at a higher level of risk.

Furthermore, the disparities observed in ESG implementations across different countries highlight the significant influence of various country characteristics on ESG outcomes. Cai et al. (2016) indicate that differences in ESG scores are primarily driven by country-specific factors – such as per capita income, the legal system, cultural harmony, and cultural autonomy – rather than firm-specific characteristics. The role of sustainable development capability in firms' financing activities may vary with changes in the economic environment (Ghoul, et al., 2017). These insights highlight the importance of the broader socio-economic and legal contexts in shaping ESG responsibility practices. Beyond the management decisions made by individual firms, these differences also influence investors' choices in ESG funds. This study incorporates country-specific characteristic

variables to provide empirical evidence on whether these corresponding variables could support SRI by reducing the firms' cost of capital. Government effectiveness and control of corruption are employed to represent country compliance with governance, while environmental pollution and unemployment are used to proxy country-specific risk factors related to environment and socio-economic issues.

Effective government encompasses essential elements such as political stability, regulatory transparency, and the rule of law, all of which are fundamental drivers of economic health and can significantly influence corporate behavior and investor perception (Maghdid et al., 2024; Nathania & Ekawati, 2024). Effective government creates a favorable environment that diminishes uncertainties. This stability is essential for firms striving to implement robust ESG practices. Government effectiveness facilitates the formulation and consistency of economic policies that favor sustainable practices, further reinforcing the connection between ESG implementation and financial performance. According to prior studies (Zhao et al., 2022; Tarkom & Ujah, 2023), robust government policies lead to more substantial, liquid, and operationally efficient stock markets. Firms operating in an environment with strong governance are more likely to see their ESG efforts rewarded with lower capital costs due to diminished risks of regulatory changes or political instability. Conversely, in contexts where governance is weak, the risks associated with ESG investments may be perceived as higher, translating into higher costs of capital. Investors in such environments may remain wary of potential fallout from environmental violations, social backlash, or governance failures, leading them to demand a higher return for the increased perceived risk. Thus, the effectiveness of government plays a crucial role in reducing the positive effect of a firm's ESG implementation on its cost of capital.

Existing research highlights how local corruption cultures impact multinational firms' ESG performance (Zhang & So, 2024). Amore and Bennesen (2013) and Johnson and Mitton (2003) state that corruption manifests in both developed and emerging economies. It influences informal and formal institutional frameworks (Husted, 1999; Shleifer & Vishny, 1993). Acemoglu and Verdier (2000) articulate that there exists an inherent risk of corruption when governments have control of economic resources.

Consequently, firms operating in corruption-prone environments often face additional financial burdens related to bribery and lobbying costs to secure favorable market positions. On the other hand, when governments take active measures to control corruption, the business environment becomes more stable and predictable. This diminished corruption risk creates a favorable landscape for ESG companies, often scrutinized for their corporate practices and commitment to social responsibility. A reduction in corruption allows these firms to channel resources towards sustainable practices rather than diverting funds to corrupt activities. Therefore, the control of corruption by government entities plays a crucial role in fostering socially responsible investing by potentially lowering the cost of capital for ESG companies.

Environmental pollution poses significant risks to firms, ranging from regulatory penalties and legal liabilities to reputational damage and loss of consumer trust. Taylor (2008) reported that the complexities surrounding the impact of environmental policies, especially related to climate change and emission reductions, have made retrospective evaluations challenging. However, this uncertainty amplifies the importance of proactive ESG practices within the firms, as stakeholders increasingly focus on how companies mitigate environmental risks. Supportive government policies emphasizing environmental sustainability are key to fostering an environment conducive to responsible corporate behavior. Ramiah et al. (2013) find that markets are sensitive to environmental policy announcements. Positive announcements regarding clean environment policies can lead to favorable stock market reactions, signaling that investors are increasingly seeking out ESG firms as viable, low-risk investment options. Pham et al. (2023) suggest that the effectiveness of environmental policies can vary depending on their nature, whether they are tightening or loosening regulations. This variability indicates that a strong, consistent policy aimed at environmental improvement can significantly benefit SRI by either increasing the expected return on investment or lowering the cost of capital. Therefore, environmental pollution resulting from weak environmental regulations increases uncertainties that lead to a higher cost of capital for ESG firms. In this condition, the sacrificial costs of SRI increase and make the investment less attractive.

Additionally, unemployment has serious negative effects, including reducing GDP and worsening living conditions. It brings high environmental costs and fosters poor governance. According to Leogrande et al. (2023), countries with high unemployment rates are less likely to effectively implement ESG models. Similarly, Bialkowski et al. (2022) found a significant correlation between a country's ESG fund industry size – measured both in relation to the conventional fund industry and GDP – and the country's cultural norms. Their study shows that as countries become wealthier, indicated by a higher GDP per capita, the prominence and importance of the ESG sector increase, reflecting a societal shift towards sustainable investment practices. Countries with high unemployment are often less responsive to the challenges posed by ESG models. These countries have higher pollution levels, widespread poverty, and poor public governance. Consequently, governments in these nations are unlikely to offer incentives for sustainable and responsible investment, making it less attractive and unable to achieve lower capital costs.

This study attempts to analyze the relationship between ESG scores and firms' cost of capital and add earnings persistence as a moderating variable to test the sacrificial costs incurred in SRI. Other moderating variables are country-specific characteristics, comprised of Country Compliance (CC) and Country Risk (CR) variables to test the role of government in rewarding SRI. Figure 1 pictures the conceptual framework employed to test the research hypotheses.

This study aims to test the relationship between ESG implementation and firms' cost of capital and employ a company's operational risk as a moderating variable to show the sacrificial costs incurred on SRI. Government effectiveness, control of corruption, environmental pollution, and unemployment are incorporated as moderations to test the effectiveness of country characteristics in rewarding SRI resulting in cost of capital reduction.

The hypotheses are formulated as follows:

H1: ESG implementation increases a firm's cost of capital.

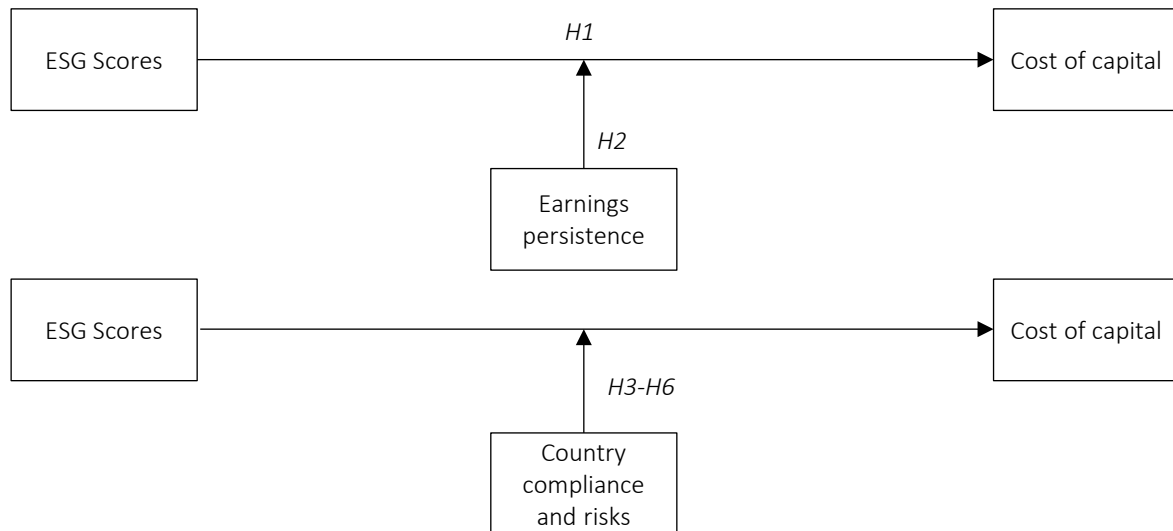


Figure 1. Conceptual framework

H2: The positive effect of ESG implementation on the firm's cost of capital is higher in companies with lower operational risk.

Statistical Model 2:

$$COC = \alpha_1 + \beta_1 ESG + \beta_2 EP + \beta_3 ESG \cdot EP + \gamma_1 SIZE + \gamma_2 LEV + \gamma_3 ROA + \sum_{i=1}^4 \delta_i C_i \quad (2)$$

H3: Government Effectiveness weakens the positive effect of ESG implementation on the firm's cost of capital.

$$+ \sum_{i=1}^4 \delta_i Ind_i + \varepsilon.$$

H4: Control of Corruption weakens the positive effect of ESG implementation on the firm's cost of capital.

Hypothesis 2 is supported if $\beta_3 > 0$ and significant.

Statistical Model 3:

H5: Environmental Pollution strengthens the positive effect of ESG implementation on the firm's cost of capital.

$$COC = \alpha_1 + \beta_1 ESG + \beta_2 CC + \beta_3 ESG \cdot CC + \gamma_1 SIZE + \gamma_2 LEV + \gamma_3 ROA + \sum_{i=1}^4 \delta_i C_i \quad (3)$$

H6: Unemployment strengthens the positive effect of ESG implementation on the firm's cost of capital.

$$+ \sum_{i=1}^4 \delta_i Ind_i + \varepsilon.$$

Hypotheses 3 and 4 are supported if $\beta_3 < 0$ and significant.

2. METHOD

The following are the statistical models used to test the hypotheses:

Statistical Model 1:

$$COC = \alpha_1 + \beta_1 ESG + \gamma_1 SIZE + \gamma_2 LEV + \gamma_3 ROA + \sum_{i=1}^4 \delta_i C_i + \sum_{i=1}^4 \delta_i Ind_i + \varepsilon. \quad (1)$$

Hypothesis 1 is supported if $\beta_1 > 0$ and significant.

Statistical Model 4:

$$COC = \alpha_1 + \beta_1 ESG + \beta_2 CR + \beta_3 ESG \cdot CR + \gamma_1 SIZE + \gamma_2 LEV + \gamma_3 ROA + \sum_{i=1}^4 \delta_i C_i \quad (4)$$

$$+ \sum_{i=1}^4 \delta_i Ind_i + \varepsilon.$$

Hypotheses 5 and 6 are supported if $\beta_3 > 0$ and significant.

Table 1. Sample of firms with ESG scores

Countries	2015	2016	2017	2018	2019	2020	2021	2022
Indonesia	18	20	22	26	30	35	39	49
Malaysia	25	26	28	32	32	37	63	156
Philippines	9	11	12	13	13	14	17	20
Thailand	17	21	22	26	40	76	103	135
Singapore	17	17	17	21	28	48	55	60
Sub Total	86	95	101	118	143	210	277	420
Total	1.450 firm-year observations							

Purposive sampling procedures were used to gather data on non-financial companies listed on stock exchanges in ASEAN-5 countries with available ESG scores from 2015 to 2022. The selected years align with the availability of ESG score data provided by the Refinitiv Thomson Reuters database. Table 1 displays the distribution of non-financial companies with ESG scores by country

and year. Notably, the number of companies with ESG scores has been steadily increasing over the years, reflecting a growing commitment among the ASEAN-5 countries to implement ESG practices in support of the United Nations SDGs.

Table 2 shows the descriptive statistics for all research variables used to test the hypotheses.

Table 2. Descriptions of all research variables

Variables	Descriptions	Indicators
ESG	Score of Environmental, Social, and Governance The Refinitiv ESG scores are data-driven, accounting for the most material industry metrics, with minimal company size and transparency biases. The scores are based on the relative performance of ESG factors with the company's sector (for environmental and social) and country of incorporation (for governance)	0% to 100%
E	Score of Environmental Pillar Environmental pillar comprised of companies' resource use, emissions, and innovations	0% to 100%
S	Score of Social Pillar Social pillar comprised of companies' workforce, human rights, and community services	0% to 100%
G	Score of Governance Pillar Governance pillar comprised of companies' management, shareholders, and CSR strategies	0% to 100%
CoC	Cost of Capital A financial metric used to calculate a firm's cost of capital in which each category of capital is proportionately weighted. All sources of capital, including equity stock, preferred stock, and debt, are included in the calculation (Thomson Reuters Database)	percentage
EP	Earnings Persistence Following the EP estimation model by Lipe (1990) and (Sloan (1996). Time-series regression of each firm's annual earnings from 2015 to 2019: $Earnings_{t+1} = \alpha + \beta Earnings_t + e$	Regression Slope: β Predictability: R^2 (the higher the lower operational risk)
GOVEFF	Government Effectiveness Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution (World Bank Data, 2023)	-2.5 to 2.5 (the higher, the better)
CCOR	Control of Corruption Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution (World Bank Data, 2023)	-2.5 to 2.5 (the higher, the better compliance)
POLLUT	Pollution Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during the consumption of solid, liquid, and gas fuels and gas flaring (Climate Watch, 2023)	metric tons (the higher the riskier)
UNEMPL	Unemployment Unemployment refers to the share of the labor force that is without work but available for and seeking employment (World Bank Data, 2023)	% of the total labor force (the higher, the riskier)
SIZE	Firm Size $\ln(\text{Total Assets})$	Ratio
LEV	Leverage Total Debt divided by Total Equity	Ratio
ROA	Return on Assets Net Income divided by Total Assets	Ratio

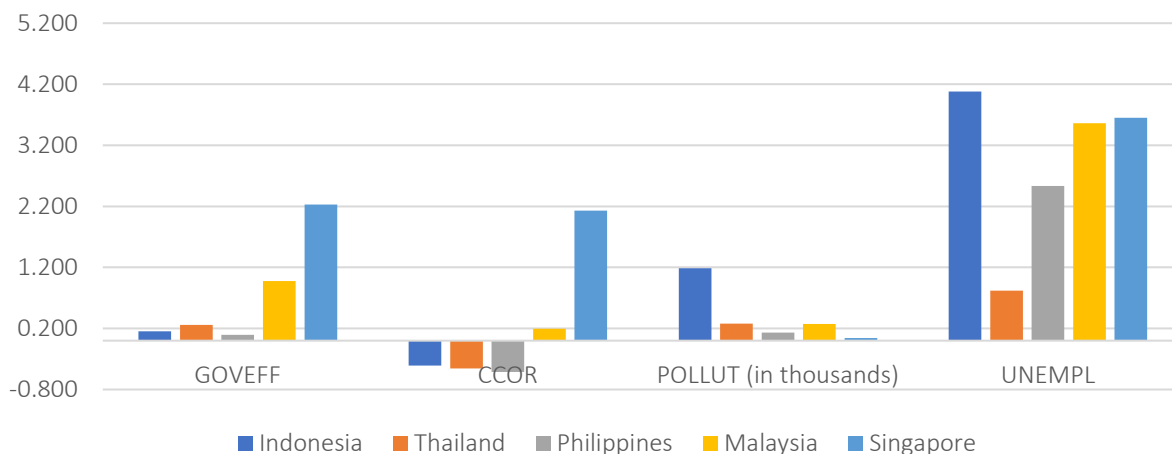


Figure 2. Country characteristics across ASEAN-5 countries

ESG scores and CoC data are obtained from the Thomson Reuters database. EP data are estimated according to Lipe (1990) and Sloan (1996) using time-series annual earnings for each company. POLLUT data are derived from the Climate Watch database, while UNEMPL, CCORR, and GOVEFF are provided by World Bank ESG Data. All financial data used as control variables, SIZE, LEV, and ROA are available from the Osiris database.

Figure 2 illustrates the country-specific characteristics related to CC and CR. When measuring CC through GOVEFF and CCOR, Singapore scores the highest. In contrast, the Philippines has the lowest GOVEFF, while Indonesia has the lowest CCOR. These characteristics are utilized to examine the influence of CC and CR on the reduction and appreciation of CoC, respectively, for SRI for which investors are willing to make sacrificial costs to prioritize investments in ESG firms.

3. RESULTS

Table 3 shows the comparable descriptive statistics of dependent and independent variables, presented by country. The highest mean of ESG score of 47.80% belongs to Indonesia, while Thailand has the lowest ESG score, which is 38.98% Observing

each component of ESG, out of five countries the lowest scores are on the environmental factor. It means that the ASEAN-5 countries need to pay more attention to improving the environmental aspect. The CoC is estimated using USD returns, thus the indicators are comparable among countries. Singapore has the lowest mean of CoC, while Indonesia has the highest one. Thus, the highest risk factors observed in Indonesia reflect the highest returns on investments. The EP measured by the slope has a positive direction in all countries. The highest slopes and R² were observed in Indonesia and Malaysia. These reflect the high predictability of the earnings stream. EP is used to proxy operational risk, the positive slope and the high R² reflect the predictability of future earnings, the more predictable the earnings, the lower operational risk the companies have.

Table 4 summarizes the descriptive statistics for the full set of variables in the sample, including control variables such as company SIZE, LEV, and ROA, along with dummy variables used to account for variations across different countries and industries in the regression models. The dataset consists of 1,450 observations derived from an unbalanced panel of companies' data with ESG scores. Each company begins receiving ESG scores in different years, and we included companies in the sample

Table 3. Descriptive statistics of all research variables

Variable		Indonesia	Malaysia	Philippines	Thailand	Singapore
ESG	Mean	47.800	44.967	44.313	38.981	47.348
	Minimum	13.223	5.138	11.163	2.081	6.442
	Maximum	85.646	90.985	89.029	92.124	85.223
	Std. dev	18.360	17.489	18.273	26.241	16.659
	N	239	399	109	440	263
E	Mean	38.862	38.748	43.975	47.640	47.278
	Minimum	0.116	0.761	3.947	1.209	1.164
	Maximum	89.990	91.462	87.242	97.231	91.209
	Std. dev	22.916	23.506	20.865	25.007	23.181
	N	239	399	109	440	263
S	Mean	54.080	50.723	47.197	60.174	49.036
	Minimum	10.161	5.268	8.920	8.623	3.886
	Maximum	95.764	97.475	93.754	96.855	97.127
	Std. dev	21.326	20.959	19.535	20.332	19.116
	N	239	399	109	440	263
G	Mean	50.546	48.612	44.844	51.531	49.286
	Minimum	2.977	3.689	7.564	5.370	7.535
	Maximum	94.013	95.220	93.483	95.347	89.106
	Std. dev	22.777	21.060	24.269	20.209	19.024
	N	239	399	109	440	263
COC	Mean	10.784	6.998	8.104	5.940	5.461
	Minimum	3.555	0.396	3.566	1.477	0.952
	Maximum	36.582	19.560	11.837	13.899	13.172
	Std. dev	4.352	2.878	1.651	2.341	1.943
	N	239	399	109	440	263
EP (slope)	Mean	0.398	0.404	0.352	0.289	0.187
	Minimum	-0.448	-0.249	-0.441	-0.477	-0.727
	Maximum	2.300	1.652	1.304	1.551	3.286
	Std. dev	0.564	0.469	0.616	0.444	0.865
	N	23	26	12	20	18
EP (R ²)	Mean	0.208	0.264	0.237	0.190	0.184
	Minimum	0.000	0.000	0.000	0.000	0.000
	Maximum	0.636	0.929	0.992	0.733	0.879
	Std. dev	0.208	0.289	0.300	0.225	0.264
	N	23	26	12	20	18

Notes: * EP is estimated using time-series earnings data; therefore, the earnings data have to be available each year consecutively.

that maintained their ESG scores until the end of the sample period. This approach was taken to avoid survival-biased sample selection.

Tables 5, 7, and 8 display the regression results for the analysis. First, the study focuses on the regression results examining the effect of ESG scores on firms' CoC to validate the shareholders' expense theory. Table 5 presents the regression findings for both the combined ESG scores and each individual ESG component in relation to CoC while controlling for company SIZE, LEV, ROA, and using dummy variables for country and industry. The regression models outlined in

Table 5 present pooled Ordinary Least Squares (OLS) regression and the best alternative model for panel data regression. The model specification tests conducted include the Chow, Hausman, and Breusch-Pagan Lagrange Multiplier tests, all of which are reported in Table 6. The analysis using both pooled OLS and fixed effects models (FEM) reveals that the combined ESG scores have a positive and significant impact on firms' CoC. However, none of the individual ESG components shows a significant effect on CoC based on the selected model. These results support hypothesis 1 indicating that ESG scores positively influence firms' CoC.

Table 4. Descriptive statistics for the full sample (2015–2022)

Variable	N	Minimum	Maximum	Mean	St. Deviation
ESG	1450	2.081	92.124	44.042	20.867
E	1450	0.116	97.231	43.446	23.991
S	1450	3.886	97.475	53.570	20.908
G	1450	2.977	95.347	49.693	21.071
COC	1450	0.396	36.582	7.107	3.337
SIZE	1450	7.217	18.409	14.630	1.510
DER	1450	0.029	24.849	1.314	1.606
ROA	1450	-23.400	78.820	5.632	7.444
C1_SIG	1450	0.000	1.000	0.181	0.385
C2_PIL	1450	0.000	1.000	0.075	0.264
C3_THAI	1450	0.000	1.000	0.303	0.460
C4_MLY	1450	0.000	1.000	0.275	0.447
Y_2022	1450	0.000	1.000	0.290	0.454
Y_2021	1450	0.000	1.000	0.191	0.393
Y_2020	1450	0.000	1.000	0.145	0.352
Y_2019	1450	0.000	1.000	0.099	0.298
Y_2018	1450	0.000	1.000	0.081	0.274
Y_2017	1450	0.000	1.000	0.070	0.255
Y_2016	1450	0.000	1.000	0.066	0.248
I_SEN	1450	0.000	1.000	0.405	0.491
I_CDS	1450	0.000	1.000	0.237	0.425
I_CSI	1450	0.000	1.000	0.131	0.338
I_RES	1450	0.000	1.000	0.174	0.380

Table 5. Regression results for Model 1

Independent Variables	Dependent Variable CoC							
	Pooled OLS	FEM	Pooled OLS	FEM	Pooled OLS	FEM	Pooled OLS	FEM
ESG	0.025** (2.787)	0.033*** (8.521)						
E			0.018** (2.325)	0.001 (0.166)				
S					0.011 (1.328)	0.003 (0.870)		
G							0.007 (0.897)	0.007* (1.889)
SIZE	-0.916*** (-7.743)	-0.287*** (-4.990)	-1.101*** (-8.712)	-0.149** (-2.448)	-1.039*** (-8.339)	-0.131** (-2.292)	-1.029*** (-8.436)	-0.156** (-2.757)
LEV	-0.108 (-1.316)	-0.1334** (-2.910)	-0.045 (-0.475)	-0.109** (-2.317)	-0.044 (-0.480)	-0.112** (-2.377)	-0.061 (-0.648)	-0.110** (-2.359)
ROA	-0.191*** (-11.094)	0.009 (0.948)	-1.181*** (-10.658)	0.021** (2.249)	-0.176*** (-10.425)	0.022** (2.110)	-0.180*** (-10.387)	0.020* (1.955)
Constant	26.891*** (12.220)	12.673*** (14.239)	29.714*** (13.074)	11.723*** (12.991)	28.698*** (12.766)	11.781*** (13.429)	29.066*** (12.988)	11.783*** (12.954)
Country-fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed	Yes	-	Yes	-	Yes	-	Yes	-
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of Obs	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450
R-squared	0.354	0.354	0.321	0.320	0.322	0.312	0.323	0.322

Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

Table 6. Model specification test of Model 1

Test	Selection Criteria	Chi-Squared	P-value	Model Choice
Chow	Pooled vs FEM	45.378	0.000	FEM
Hausman	FEM vs REM	42.237	0.000	FEM
Breusch-Pagan LM	REM vs Pooled	N/A	N/A	N/A

Notes: ***, **, and * indicate significant at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

Table 7 presents the regression results of EP as a measure of firms' operational risk. Operational risk was estimated by time-series regression of annual previous earnings on future earnings. The Slope and R² indicate the EP. As described in Table 3, the mean of the slope is positive and the R² is on average more than 20%. The coefficients of interaction between ESG*EP on the firms' CoC of the years 2019, 2020, and 2021 are all positive and significant, except for the year 2022. Interestingly, these can be explained by the method of estimation on EP that employs historical time-series regression. Thus, for the year 2022, the coefficient of ESG*EP is still positive but no longer significant. The magnitude of the ESG*EP coefficients is increasing over the year 2019 and 2020, then decreasing from 2021 to 2022. These results are consistent for both the slope and the R². The findings still indicate that firms with lower operational risks experience a stronger positive relation between ESG and firms' CoC. Therefore, hypothesis 2 is supported.

Table 8 shows the results of the interaction of ESG and CC represented by GOVEFF and

CCOR, respectively. The best model for testing the ESG*GOVEFF is Fixed Effect Model (FEM) as presented in Table 9, while the ESG*CCOR is the Random Effect model (REM) as displayed in Table 10. The coefficients of ESG*GOVEFF and ESG*CCOR are -0.014 and -0.009, respectively, and both are significant at 1%. Thus, hypotheses 3 and 4 are supported, which indicate that GOVEFF and CCOR can strengthen the positive relation between ESG and CoC.

Table 11 shows the results of the interaction of ESG and CR represented by POLLUT and UNEMPL, respectively. The best model for testing the ESG*POLLUT is REM as shown in Table 12, while for the ESG*UNEMPL is FEM as displayed in Table 13. The coefficient of ESG*POLLUT is 3.480 and is significant at a 1% level, while ESG*UNEMPL is 0.003 but not statistically significant. Thus, only hypothesis 5 indicating that POLLUT can strengthen the positive relation of ESG and CoC is supported; hypothesis 6 related to UNEMPL as CR cannot be supported by the empirical evidence.

Table 7. Regression results of operational risk proxied by earnings persistence as a moderating variable

Independent Variable	2022		2021		2020		2019	
	Slope	R2	Slope	R2	Slope	R2	Slope	R2
EP Proxy								
ESG	-0.056 (-0.941)	-0.027 (-0.627)	-0.009 (0.393)	0.008 (0.357)	0.006 (0.256)	-0.016 (-0.646)	0.061 (-1.625)	0.029 (0.779)
EP	-1.698 (-0.885)	-3.195* (-1.732)	-4.381*** (-7.405)	-6.019*** (-3.714)	-3.701*** (-5.934)	-7.424*** (-5.136)	-2.142** (-2.218)	-6.445** (-2.910)
ESG*EP	0.018 (0.617)	0.014 (0.271)	0.088** (-3.079)	0.124** (-2.328)	0.089*** (-3.324)	0.182*** (-3.481)	0.046** (-2.023)	0.161*** (-3.564)
SIZE	-1.129* (-1.802)	-0.900 (-1.393)	-0.091 (-0.159)	-0.088 (-0.412)	-0.486 (-0.832)	-0.725 (-1.157)	-5.293*** (-5.358)	-5.163*** (-5.559)
LEV	-1.542 (0.179)	-2.215** (-2.041)	-1.479** (-2.578)	-1.462** (-2.544)	-1.662** (-3.019)	-1.646** (-3.073)	-0.526 (-1.182)	-0.561 (-1.348)
ROA	0.908*** (-4.919)	0.843*** (-4.729)	0.167 (0.703)	-0.004 (-0.016)	0.159 (-0.821)	-0.298* (-1.660)	-0.958*** (-5.898)	-1.016*** (-6.725)
Constant	14.835*** (-3.376)	15.128*** (-3.518)	16,321*** (-3,536)	16.670*** (-3.613)	18.945*** (-4.092)	19.675*** (-4.274)	27.955*** (-4.945)	-27.866*** (-4.970)
Country-fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No of obs	99	99	99	99	99	99	95	95
R-squared	0.482	0.489	0.465	0.471	0.460	0.473	0.490	0.503

Notes: ***, **, and * indicate significant at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

Table 8. Regression results of country compliance as a moderating variable

Independent Variables	(1) COC		(1) COC	
	Pooled OLS	FEM	Pooled OLS	REM
ESG	-0.008 (-1.081)	0.036*** (7.137)	0.019*** (3.246)	0.017*** (3.451)
GOVEFF	0.387 (1.488)	6.472*** (8.397)		
CCOR			-0.072 (-0.467)	-6.209*** (-5.561)
ESG* GOVEFF	0.050*** (4.742)	-0.014*** (-2.698)		
ESG* CCOR			-0.028*** (-3.114)	-0.009*** (-1.669)
SIZE	-1.075*** (-9.184)	-0.283*** (-5.003)	-0.249*** (-2.703)	-0.087 (-1.126)
LEV	-0.160** (-2.029)	-0.128*** (-2.854)	-0.121* (-1.750)	-0.098** (-1.978)
ROA	-0.199*** (-11.660)	0.009 (0.931)	-0.050*** (-2.944)	0.023** (2.248)
Constant	30.806*** (14.305)	11.166*** (12.315)	14.604*** (8.683)	7.881*** (6.097)
Country-fixed	Yes	Yes	Yes	Yes
Year-fixed	Yes	No	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
No of Obs	1,448	1,448	1,418	1,418
R-squared	0.520	0.393	0.298	0.315

Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

Table 9. Model specification test (Government Effectiveness)

Test	Selection Criteria	Chi-Squared	P-value	Model Choice
Chow	Pooled vs FEM	62.502	0.000	FEM
Hausman	FEM vs REM	0.000	1.000	REM
Breusch-Pagan LM	REM vs Pooled	490.632	0.000	REM

Table 10. Model specification test (Control of Corruption)

Test	Selection Criteria	Chi-Squared	P-value	Model Choice
Chow	Pooled vs FEM	62.502	0.000	FEM
Hausman	FEM vs REM	0.000	1.000	REM
Breusch-Pagan LM	REM vs Pooled	490.632	0.000	REM

Notes: ***, **, and * indicate significant at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

Table 11. Regression results of country risks as a moderating variable

Independent Variables	(1) COC		(1) COC	
	Pooled OLS	REM	Pooled OLS	FEM
ESG	-0.015** (-2.068)	-0.010 (-1.151)	0.003 (0.417)	-0.006 (-0.171)
POLLUT	0.000 (0.223)	-0.001 (-0.222)		
UNEMPL			-0.063 (-0.681)	-0.754** (-2.575)
ESG* POLLUT	3.039*** (0.004)	3.480** (2.479)		
ESG* UNEMPL			0.002 (0.715)	0.003 (0.963)

Table 11 (cont.). Regression results of country risks as a moderating variable

Independent Variables	(1) COC		(1) COC	
	Pooled OLS	REM	Pooled OLS	FEM
SIZE	-0.221* (-1.754)	-0.080 (-0.689)	-0.432*** (-4.674)	-0.224*** (-3.865)
LEV	-0.117 (-1.182)	-0.212*** (-3.179)	-0.137** (-1.875)	-0.151*** (-3.358)
ROA	0.004 (0.190)	0.026* (1.687)	-0.041** (-2.596)	0.013 (1.314)
Constant	11.887*** (5.540)	10.089*** (4.995)	17.984*** (11.121)	15.855*** (10.567)
Country-fixed	Yes	Yes	Yes	Yes
Year-fixed	No	Yes	Yes	No
Industry-fixed	Yes	Yes	Yes	Yes
No of Obs	750	750	1,447	1,447
R-squared	0.207	0.250	0.305	0.347

Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

Table 12. Model specification test (Pollution)

Test	Selection Criteria	Chi-Squared	P-value	Model Choice
Chow	Pooled vs FEM	47.102	0.000	FEM
Hausman	FEM vs REM	16.274	0.131	REM
Breusch-Pagan LM	REM vs Pooled	286.063	0.000	REM

Table 13. Model specification test (Unemployment)

Test	Selection Criteria	Chi-Squared	P-value	Model Choice
Chow	Pooled vs FEM	58.802	0.000	FEM
Hausman	FEM vs REM	31.928	0.002	FEM
Breusch-Pagan LM	REM vs Pooled	N/A	N/A	N/A

Notes: ***, **, and * indicate significant at 1%, 5%, and 10%, respectively. Numbers in parentheses are t-values.

4. DISCUSSION

This study shows that ESG implementation by non-financial companies listed on the stock exchanges of ASEAN-5 countries results in an increased CoC. Starks (2023) identifies four types of investor preferences: traditional investing; classic ESG investing; socially responsible investing (SRI); and impact investing. The findings demonstrate that responsible investors in these countries fall under the SRI category, as they are willing to accept sacrificial costs to include ESG companies in their portfolios. Even firms with low operational risks experience higher capital costs when adopting ESG principles. These findings support the shareholders' expense theory, aligning with prior research by Kristianthy and Ekawati (2024), Magnanelli and Izzo (2017), Huang et al. (2018), and Menz (2010). To grow the SRI investor base, it is vital to adequately reward these investors, with

the government playing a key role in creating a support system that encourages the shift toward impact investing.

To foster SRI in the ASEAN-5 countries, governments, regulators, and policymakers must create an investment environment that promotes ESG firms. This study highlights that effective governance and control of corruption can reduce the CoC for SRI, while environmental pollution increases it. Specifically, government effectiveness diminishes the positive relationship between firms' ESG implementation and their CoC. Achieving this effectiveness requires establishing stable governance frameworks, enhancing investor confidence, and promoting consistent economic policies, which, in turn, incentivize ESG efforts and lower capital costs for sustainable firms. Consequently, investors can better assess the value of firms committed to ESG practices in

a governance-rich environment, contributing to overall economic stability and growth. These findings also align with previous studies by Kwok and Tadesse (2006), Ioannou and Serafeim (2012), and Khojastehpour (2015), which emphasize the negative impact of corruption on corporate behavior. Pham et al. (2023) also note that the effectiveness of environmental policies largely depends on government policies regarding regulatory changes. By addressing corruption and environmental pollution, governments can enhance conditions for ESG performance and reduce associated risks for investors, thereby lowering the cost of capital for ESG companies and making them more appealing to SRI.

Practically, the results of the study could guide each ASEAN-5 country in improving the SRI environment to be in line with the ESG issues and, in turn, support the United Nations SDGs. As displayed in Figure 3, Singapore as a developed country has taken the lead in terms of country compli-

ance and maintaining low pollution risk. The governments of Indonesia, the Philippines, Malaysia, and Thailand need to work hard to increase government effectiveness, control corruption, and reduce environmental pollution.

Collectively, along with the existing studies (e.g. Liang and Renneboog, 2017; Dyck et al., 2019, Bose et al., 2023, Rahmaniati & Ekawati, 2024; Kristianthy & Ekawati, 2024), this study confirms that country's characteristics, including its legal framework, economic wealth, and cultural context, are pivotal in determining the effectiveness of ESG implementations and, consequently, the returns achieved by socially responsible investors. From the theoretical point of view, this study can transform the notion of shareholders' expense to the value-enhancing theory in SRI. Understanding these dynamics is essential for investors seeking to navigate the complexities of global investment landscapes while aligning their portfolios with sustainable principles.

CONCLUSION

This study aims to explore how ESG implementation affects firms' cost of capital in ASEAN-5 countries, focusing on the moderating role of operational risk. The findings indicate that, at the company level, implementing ESG practices is associated with a higher cost of capital, even for firms with low operational risk. This suggests that SRI may incur costs because of the non-financial motives behind their preference for ESG investments. To better understand this dynamic, the study incorporates country-specific factors that may influence the relationship between ESG implementation and cost of capital. This study also reveals the way to shift from shareholders' expense to value-enhancing theory in SRI.

The results reveal that government effectiveness and strong control of corruption in a country can reduce the positive correlation between ESG implementation and firms' cost of capital. Conversely, environmental pollution, serving as a proxy for country risk, appears to strengthen this relationship. Interestingly, unemployment rates show no significant impact on this dynamic. The reason is possibly because this factor cannot be independently analyzed from the other specific country characteristics. Overall, these findings highlight the critical role that government actions play in shaping the effectiveness of ESG initiatives and the potential rewards for socially responsible investors.

It is important to note that this study is limited to non-financial companies in ASEAN-5 countries, focusing on compliance and risk at the country level. A more in-depth analysis at the company level is needed to identify additional moderating variables that could enhance ESG implementation and better support SRI to achieve the United Nations' SDGs. While this study provides valuable empirical evidence regarding the relationship between ESG scores and cost of capital, alternative analytical approaches are necessary to capture the evolving impacts of ESG implementation, such as how changes in ESG scores over time affect business practices. Such comprehensive analysis would prompt companies, investors, and governments to address the impacts of ESG both at micro and macroeconomic levels.

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