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ESG Disclosure in Emerging Markets: Implications for Investment-Financing Maturity Mismatch in Non-Financial Firms Across ASEAN-4 (2019–2023)

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Abstract

Purpose – This study aims to empirically investigate the effect of Environmental, Social, and Governance (ESG) disclosure on investment-financing maturity mismatch using a fixed effects panel regression method.

Methodology – The sample consists of 76 publicly listed non-financial companies from developing countries in the ASEAN-4 region, Indonesia, Malaysia, Thailand, and the Philippines, during the period 2019–2023.

Findings – The results show that higher overall ESG disclosure and governance disclosure scores are associated with a reduced risk of investment-financing maturity mismatch, while the environmental and social aspects do not have a significant effect. Additionally, the findings indicate that during the COVID-19 pandemic, companies became more cautious in managing financing risks and there are variations in maturity mismatch management among ASEAN-4 countries.

Originality – This study focuses on the effect of sustainability disclosures on investment-financing maturity mismatch in non-financial firms across ASEAN-4, that has not been widely discussed.

Introduction

Sustainability is no longer merely an option but has become a necessity for companies to remain competitive in the continuously evolving global economy (World Economic Forum, 2022). The concept of Environmental, Social, and Governance (ESG), introduced by the United Nations Global Compact in 2004, builds upon the earlier framework of Corporate Social Responsibility (CSR) (Gillan et al., 2021; Wen et al., 2024). ESG has attracted growing global attention, in line with the expansion of sustainable investment, which reached USD 30.3 trillion in 2022 (Global Sustainable Investment Alliance, 2022). In Asia, ESG-related funds have also grown substantially, reaching USD 87 billion by the end of 2023 (United Nations Development Programme, 2024).

Countries within the ASEAN region, such as Indonesia, Malaysia, Thailand, and the Philippines, have implemented ESG disclosure policies to promote sustainable development (Otoritas Jasa Keuangan, 2017; PwC, 2023; SEC Philippines, 2019). These developments

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reflect an increasing awareness of the importance of sustainability in both corporate strategies and policymaking agendas (Apergis et al., 2022; Rojo-Suárez & Alonso-Conde, 2024). Transparent ESG disclosure is considered to enhance investor perception and broaden access to capital (Arif et al., 2021; Capital Group, 2023; Dhaliwal et al., 2012). Nevertheless, limited access to long-term financing remains a significant challenge in many developing countries. This condition often compels firms to depend more heavily on short-term debt, thereby increasing the risk of a mismatch between long-term investment needs and short-term funding sources (Xu et al., 2022a; OECD, 2024; Bai, 2022). According to the Maturity Matching Theory (Hart & Moore, 1994; Myers, 1977) and the Information Asymmetry Theory (Fazzari et al., 1987; Stiglitz & Weiss, 1981), such mismatches may arise from weak financial structures and limited transparency in financial information. Data presented in Figure 1 illustrate the average annual composition of short-term and long-term debt among firms in selected ASEAN developing countries, revealing a predominance of short-term debt. These findings are consistent with the OECD Economic Survey of Indonesia 2024, which highlights the ongoing challenges faced by financial markets in developing economies in ensuring adequate long-term financing.

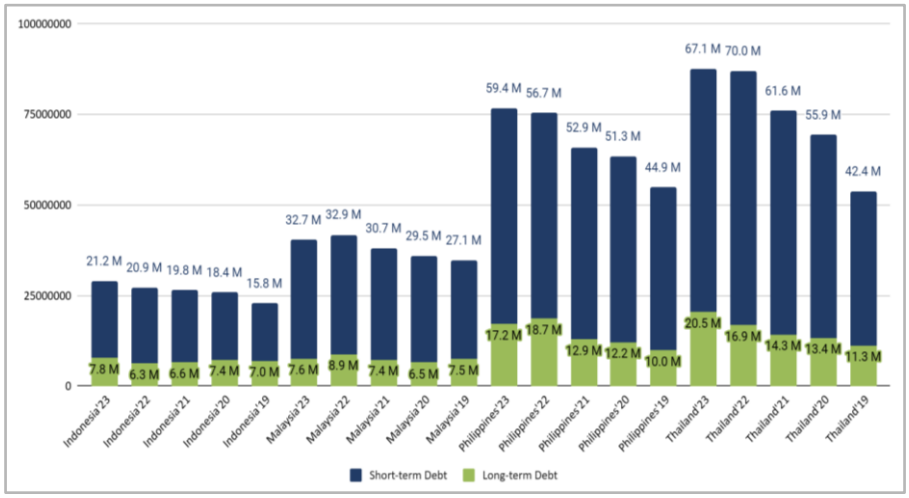

Figure 1. Average Annual Proportion of Short-Term and Long-Term Debt of ASEAN Companies (Billion IDR)
Source: Revinitif Eikon (2025)

Limited access to long-term financing in developing countries is frequently linked to the perception that these countries have underdeveloped financial markets and face significant financial constraints (C. Lee, Wang, & Lou, 2022; Love, 2003; E. Z. Wang & Lee, 2023; Wen et al., 2024). As a result, banks and other financial institutions tend to offer short-term loans to firms in these countries to mitigate default risk (Bharath et al., 2008; C. C. Lee, Wang, Thinh, et al., 2022; Wen et al., 2024). Consequently, many firms are compelled to use short-term debt to finance long-term investments, which increases the risk of investment-financing maturity mismatch (Xu et al., 2024).

A prominent example of the adverse effects of investment-financing maturity mismatch is the Evergrande crisis in China. The company's dependence on short-term borrowing to fund long-term real estate projects resulted in a default that triggered broader systemic disruptions (Altman et al., 2022). This case illustrates the potential risks of structural imbalances in corporate financing strategies. Within this context, ESG disclosure emerges as a mechanism to reduce information asymmetry and bolster a firm's credibility among investors, thereby

facilitating improved access to long-term financing (Dhaliwal et al., 2012; Goss & Roberts, 2011; Lai & Zhang, 2022).

Empirical studies have shown that ESG disclosure may alleviate financing constraints and reduce the likelihood of maturity mismatches between investments and funding sources (Fatemi et al., 2018; Lai & Zhang, 2022; Zhang et al., 2024). However, the positive impact of ESG disclosure may be weakened by greenwashing, which undermines the reliability of disclosed ESG information (Uyar et al., 2020; Yu et al., 2020). For example, Zhang et al. (2024) find that ESG disclosure can mitigate investment-financing maturity mismatch, although their analysis is limited to firms operating within the Chinese market. Given the structural financing challenges in developing ASEAN countries and the tightening of ESG disclosure regulations since 2019, this study aims to investigate the influence of ESG disclosure on investment-financing maturity mismatch among non-financial firms in the ASEAN-4 (Indonesia, Malaysia, Thailand, and the Philippines) during the period 2019 to 2023. This research extends the findings of Zhang et al. (2024) by examining a broader regional context with distinct regulatory and institutional characteristics.

Literature Review

The maturity matching theory suggests that firms should align the maturity of their financing with the lifespan of their assets to minimize liquidity risks and the potential for default (Hart and Moore, 1994; Morris, 1976). However, mismatches between the maturity of investment and financing are prevalent in developing countries due to limited access to long-term financing (Xu et al., 2023; Ji and Nie, 2024). Two hypotheses explain this mismatch practice. Two competing hypotheses explain this mismatch. The Capital Cost Hypothesis argues that firms prefer short-term debt because it tends to be less expensive (Ju et al., 2013), while The Alternative Choice Hypothesis emphasizes the underdevelopment of financial markets as a key barrier to securing long-term financing (Hung et al., 2013; Benlemlih, 2017).

Shareholder theory holds that a firm's primary objective is to maximize shareholder value (Friedman, 1970; Rappaport, 1997). However, this approach has been criticized for overlooking social and environmental issues that may threaten long-term sustainability (O'Connell and Ward, 2020). In contrast, stakeholder theory argues that companies should consider the interests of all stakeholders to ensure long-term performance and stability (Freeman, 1984; Donaldson and Preston, 1995). This broader accountability has driven increased demand for sustainability disclosures related to environmental, social, and governance (ESG) issues (D'Angelo et al., 2023; Kalia and Aggarwal, 2023).

Information asymmetry theory explains that gaps in information between corporate insiders and external investors can create financing constraints, especially for long-term debt (Stiglitz and Weiss, 1981; Cheng et al., 2014). These constraints often lead firms to rely more heavily on short-term borrowing, increasing the risk of maturity mismatch (Wen et al., 2024). In this context, signaling theory becomes relevant, as ESG disclosure can act as a positive signal that builds investor trust and reduces the cost of capital (Spence, 1973; Connelly et al., 2011; Fernando et al., 2019).

ESG disclosure is increasingly recognized as a key indicator of non-financial performance, covering environmental, social, and governance dimensions (Zhang et al., 2024; Del Gesso and Lodhi, 2024). High-quality ESG disclosure has been shown to reduce market uncertainty, lower debt costs, and improve firms' access to financing (El Ghoul et al., 2018;

Gonçalves et al., 2022). Within the ASEAN region, countries such as Indonesia, Malaysia, the Philippines, and Thailand have implemented sustainability reporting regulations to enhance ESG transparency (Wanqi et al., 2020).

Hypotheses

A maturity mismatch between investment and financing arises when firms rely on short-term debt to fund long-term investments, a condition referred to as corporate long-term investment with short-term financing (Bao et al., 2020). According to Fatemi et al. (2018), ESG disclosure can reduce information asymmetry, which in turn increases investor confidence, and allowing companies to access more stable long-term financing. ESG indicators improve transparency and help narrow the information gap between firms and financial institutions. They also facilitate better post-loan monitoring, lowering the risk of opportunistic behavior (Ahmed et al., 2018; Cheng et al., 2014; Chen and Xie, 2022).

Based on signaling theory, strong ESG performance sends a positive signal about a company's environmental and social responsibility and its ability to grow sustainably. This, in turn, increases the confidence of financial institutions in extending long-term credit (Tan and Zhu, 2022; Zhang et al., 2020). However, Bao et al. (2020) found that corporate social responsibility (CSR) efforts may worsen investment-financing maturity mismatches, especially for firms with high pollution levels. On the other hand, recent studies by Zhang et al. (2024) and Wen et al. (2024) show that overall ESG performance can help reduce maturity mismatches and improve liquidity management by enabling better access to suitable financing options.

H1: ESG disclosure has a significant effect on investment-financing maturity mismatch.

The environmental pillar of ESG includes key aspects such as carbon emissions, energy efficiency, and waste management. Firms with strong environmental performance tend to attract investors who prioritize long-term value and sustainability. This is because such performance signals a company's commitment to managing environmental risks and indicates a lower likelihood of future regulatory burdens (Refinitiv, 2021; Friede, Busch, and Bassen, 2015). Zhang et al. (2024) provide empirical evidence that environmental performance contributes significantly to reducing investment-financing maturity mismatches. Additionally, Zhang et al. (2025) show that green bond issuance, as part of environmental strategy, serves as an effective tool for minimizing the gap between investment horizons and financing terms. These findings highlight the importance of environmental initiatives in supporting more sustainable financing decisions.

H2: Environmental performance disclosure has a significant effect on investment-financing maturity mismatch.

The social pillar of ESG reflects a company's responsibility toward its employees, communities, and broader society. Although social initiatives are important, their direct impact on financing structure is often less immediate, as the benefits of social performance typically unfold over the long term and may not directly influence short-term financial decisions (Zhang et al., 2024). However, other studies suggest that strong social performance can significantly reduce investment-financing maturity mismatches by strengthening social capital and market trust. Social engagement under ESG helps reduce information asymmetry and default risk, thereby supporting a company's ability to secure more stable long-term financing (Zhou et al., 2024).

H3: Social performance disclosure has a significant effect on investment-financing maturity mismatch.

The governance pillar of ESG encompasses key aspects such as transparency, risk management, and shareholder protection. Tan and Zhu (2022) find that firms with strong governance practices tend to have better access to long-term credit compared to those that focus solely on environmental factors. Strong governance enhances investor confidence and facilitates more stable and long-term financing. With effective governance structures, firms are also better positioned to mitigate financial risks associated with investment-financing maturity mismatches (Fatemi et al., 2018; Zhang et al., 2024). Furthermore, Zhang et al. (2024) and Wen et al. (2024) emphasize that governance capacity plays a crucial role in reducing such mismatches by strengthening financial structures and improving risk management.

H4: Governance performance disclosure has a significant effect on investment-financing maturity mismatch.

Research Methods

This study employs a panel data regression method using the Fixed Effect Model (FEM). The sample consists of non-financial firms in four emerging ASEAN countries (Indonesia, Malaysia, Thailand, and the Philippines) over the period 2019 to 2023. Secondary data are sourced from Refinitiv Eikon, annual reports, and sustainability reports published by the firms. Data processing is conducted using Stata version 15. To address the research objectives, the regression model is specified as follows:

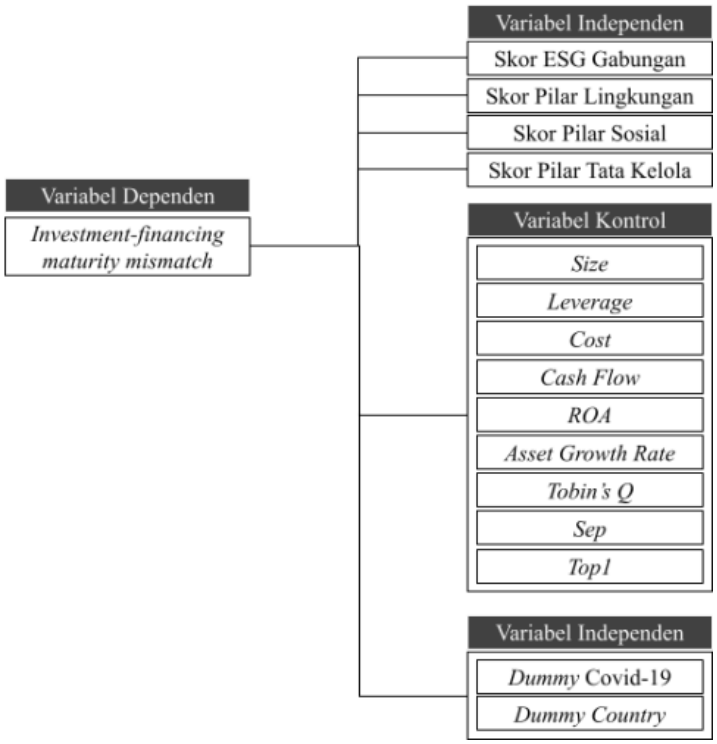

Figure 2. Research Model Framework
Source: Author (2025)

Regression Model 1

$$SLLI_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 CASH_{it} + \beta_6 GROWTH_{it} + \beta_7 COST_{it} + \beta_8 TQ_{it} + \beta_9 SEP_{it} + \beta_{10} TOP1_{it} + \beta_{10} COVID19_{it} + \beta_{10} COUNTRY_{it} + \varepsilon_{it} \quad (1)$$

Equation 3.2 Research Model Regression 2

$$SLLI_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 CASH_{it} + \beta_6 GROWTH_{it} + \beta_7 COST_{it} + \beta_8 TQ_{it} + \beta_9 SEP_{it} + \beta_{10} TOP1_{it} + \beta_{10} COVID19_{it} + \beta_{10} COUNTRY_{it} + \varepsilon_{it} \quad (2)$$

Equation 3.3 Research Model Regression 3

$$SLLI_{it} = \beta_0 + \beta_1 SOC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 CASH_{it} + \beta_6 GROWTH_{it} + \beta_7 COST_{it} + \beta_8 TQ_{it} + \beta_9 SEP_{it} + \beta_{10} TOP1_{it} + \beta_{10} COVID19_{it} + \beta_{10} COUNTRY_{it} + \varepsilon_{it} \quad (3)$$

Equation 3.4 Research Model Regression 4

$$SLLI_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 CASH_{it} + \beta_6 GROWTH_{it} + \beta_7 COST_{it} + \beta_8 TQ_{it} + \beta_9 SEP_{it} + \beta_{10} TOP1_{it} + \beta_{10} COVID19_{it} + \beta_{10} COUNTRY_{it} + \varepsilon_{it} \quad (4)$$

Table 1 provides a detailed explanation of each variable.

Table 1. Variable Operationalization

Variable	Description	Source
Short-term Loans for Long-term Investments **(SLLI)**	Degree of mismatch between investment maturity and financing maturity	Thomson Reuters
ESG Combined Score **(ESG)**	Combined score of environmental, social, and governance performance	Thomson Reuters
Environmental **(ENV)**	Environmental performance score	Thomson Reuters
Social **(SOC)**	Social performance score	Thomson Reuters
Governance **(GOV)**	Governance performance score	Thomson Reuters
Firm Size **(SIZE)**	Company size based on the natural logarithm of total assets	Thomson Reuters
Leverage **(LEV)**	Ratio of total liabilities to total assets	Thomson Reuters
Return on Assets **(ROA)**	Ratio of net income to total assets	Thomson Reuters
Cash Flow **(CASH)**	Ratio of cash flow to total assets	Thomson Reuters
Operating Cost to Asset Ratio **(COST)**	Proportion of operating costs to total assets	Thomson Reuters
Asset Growth Rate **(GROWTH)**	Annual asset growth rate	Thomson Reuters
Tobin's Q **(TQ)**	Ratio of a firm's market value to its replacement cost	Thomson Reuters
Top 1 Ownership **(TOP1)**	Shareholding ratio of the largest shareholder to total shares	Annual Report
Separation Level of Ownership and Control **(SEP)**	Degree of separation between ownership rights and control rights	Annual Report

Source: Author (2025)

Results and Discussion

This part explains the results, starting with the descriptive statistics, classical assumption test, and regression analysis.

Descriptive Statistics

The results of the descriptive analysis show that the Short-term Loans for Long-term Investments variable in the four developing ASEAN countries ranges from -34.7% to 20.1%, with an average of -8.1%. A positive value indicates the presence of a maturity mismatch, thereby increasing liquidity risk. In contrast, a negative value reflects a more appropriate funding structure, associated with a lower mismatch risk.

Table 2. Descriptive Statistics

Variable	Obs.	Mean	Std. Deviation	Min.	Max.
Dependent Variable					
SLLI	363	-0.081	15.862	-0.347	0.201
Independent Variable					
ESG	363	58.218	15.862	20.152	91.914
ENV	363	54.512	19.708	4.006	97.304
SOC	363	64.441	17.362	13.942	97.327
GOV	363	52.674	21.774	2.977	98.701
Control Variable					
SIZE	363	7.359	0.844	5.131	9.178
LEV	363	0.208	0.237	0.001	0.845
COST	363	0.071	0.063	0.004	0.352
CASH	363	0.118	0.074	0.010	0.505
ROA	363	0.293	0.284	0.013	0.954
GROWTH	363	0.088	0.207	-0.256	1.763
Variable	**Obs.**	**Mean**	**Std. Deviation**	**Min.**	**Max.**
TQ	363	1.392	1.786	0.089	7.719
SEP	363	1.433	1.168	0.541	5.855
TOP1	363	0.486	0.199	0.085	0.924
Dummy Variable					
COVID19	363	0..617	0.487	0	1
COUNTRY	363	2.218	1.085	1	4

Notes:
1) Indonesia is used as the baseline; the dummy value is 0 for all country dummies;
2) Malaysia = 1 if the company is from Malaysia, 0 otherwise;
3) Thailand = 1 if the company is from Thailand, 0 otherwise;
4) Philippines = 1 if the company is from the Philippines, 0 otherwise.
Source: Stata 15 Output and Author (2025)

Based on the analysis in Table 3 regarding the average Short-term Loans for Long-term Investments (SLLI) in each ASEAN-4 country (Indonesia, Malaysia, Thailand, and the Philippines) during the period 2019 to 2023, the maturity mismatch between investment and financing (SLLI) for non-financial firms shows a shifting pattern in line with the dynamics of the global economic environment. From 2019 to 2022, companies in these countries generally

adopted financing structures aligned with the maturity matching principle, indicating better risk management. However, in 2023, there was an increase in the use of short-term debt to finance long-term investments in several countries, potentially raising maturity mismatch risk.

The ESG scores of firms also showed significant variation across countries. A higher overall ESG score indicates that more companies are adopting sustainable practices. Conversely, companies with lower scores reflect a lack of attention to sustainability aspects, whether environmental, social, or governance-related. Meanwhile, the control variables showed reasonable variation across firms, reflecting differences in financial structure and economic performance. These variables function to control for other factors that may influence the relationship between investment-financing maturity mismatch and firm performance.

Table 3. Average Value of Short-term Loans for Long-term Investments (SLLI) Across ASEAN-4 Countries During 2019–2023

Year	Indonesia	Malaysia	Thailand	Philippines
2019	-0.093	-0.046	-0.166	-0.066
2020	-0.127	-0.143	-0.097	-0.076
2021	-0.172	-0.091	-0.033	-0.056
2022	-0.170	-0.146	-0.131	-0.090
2023	-0.056	0.086	0.134	0.082

Source: Author (2025)

Model Selection

As shown in the test results presented in Table 4.3 and Table 4.4, all models have Prob > F values below the 5% significance level. This reflects that the most appropriate model to be used is the Fixed Effect Model.

Table 4. Chow Test Results

Hypothesis	Result	Decision	Best Model
H1	Prob > F = 0.0000	Reject H_0	*Fixed Effect Model*
H2	Prob > F = 0.0000	Reject H_0	*Fixed Effect Model*
H3	Prob > F = 0.0000	Reject H_0	*Fixed Effect Model*
H4	Prob > F = 0.0000	Reject H_0	*Fixed Effect Model*

Source: Author (2025)

Table 5. Hausman Test Results

Hypothesis	Result	Decision	Best Model
H1	Prob > F = 0.0014	Reject H_0	*Fixed Effect Model*
H2	Prob > F = 0.0044	Reject H_0	*Fixed Effect Model*
H3	Prob > F = 0.0076	Reject H_0	*Fixed Effect Model*
H4	Prob > F = 0.0075	Reject H_0	*Fixed Effect Model*

Source: Author (2025)

Classical Assumption Testing

The results in Table 6 indicate that all Prob > F values fall below the 5% significance level, leading to the rejection of the null hypothesis of homoscedasticity. This suggests the presence of heteroscedasticity in the regression model. Therefore, adjustments are necessary to ensure more efficient and valid parameter estimates.

Based on Table 7, the results show that the Prob > F values for each model are greater than 0.05. Therefore, the decision is to fail to reject the null hypothesis, which states that there is no autocorrelation in each model. This finding indicates that the classical assumption of no autocorrelation in the regression model is satisfied, suggesting that the regression model used in this study is valid and free from autocorrelation issues.

Table 6. Results of the Heteroskedasticity Test

Hypothesis	Result	Decision	Conclusion
H1	Prob > F = 0.0027	Reject H_0	Heteroskedasticity
H2	Prob > F = 0.0022	Reject H_0	Heteroskedasticity
H3	Prob > F = 0.0021	Reject H_0	Heteroskedasticity
H4	Prob > F = 0.0030	Reject H_0	Heteroskedasticity

Source: Author (2025)

Table 7. Autocorrelation Test Results

Hypothesis	Result	Decision	Conclusion
H1	Prob > F = 0.8261	Do Not Reject H_0	No Autocorrelation
H2	Prob > F = 0.8085	Do Not Reject H_0	No Autocorrelation
H3	Prob > F = 0.6914	Do Not Reject H_0	No Autocorrelation
H4	Prob > F = 0.6963	Do Not Reject H_0	No Autocorrelation

Source: Author (2025)

Treatment for Classical Assumption Violations

The results of the classical assumption tests indicate that the regression model in this study violates the assumptions of heteroskedasticity and autocorrelation. These violations render the estimates obtained using the Ordinary Least Squares (OLS) method less efficient, less effective, and lead to invalid statistical inference. To address these issues, this study employs the Robust Standard Error method. This approach allows for the calculation of valid standard errors even in the presence of classical assumption violations, particularly heteroskedasticity and autocorrelation (Gujarati, 2009). Therefore, the application of Robust Standard Errors enhances the reliability of parameter estimates and the validity of statistical tests, without requiring structural transformations of the regression model. Consequently, this method is considered appropriate to ensure the quality of regression analysis results and support more accurate and reliable scientific decision-making.

Regression Analysis

Table 8 presents the regression analysis results on the effect of ESG disclosure and its four pillars on the investment-financing maturity mismatch. The analysis includes four regression models, as shown in the Table 8.

Table 8. Regression Test Results

Model	Model 1	Model 2	Model 3	Model 4
	SLLI	**SLLI**	**SLLI**	**SLLI**
	Coef. ***(P-value)***	**Coef.** ***(P-value)***	**Coef.** ***(P-value)***	**Coef.** ***(P-value)***
ESG	-0.0023*** (0.012)			
ENV		0.0006 (0.363)		

Model	Model 1	Model 2	Model 3	Model 4
	SLLI	SLLI	SLLI	SLLI
	Coef. *(P-value)*	Coef. *(P-value)*	Coef. *(P-value)*	Coef. *(P-value)*
SOC			-0.0003 (0.635)	
GOV				-0.001*** (0.072)
SIZE	-0.0151 (0.129)	-0.0088 (0.357)	-0.0115 (0.238)	-0.0143 (0.159)
LEV	0.0783** (0.028)	0.0635*** (0.072)	0.0694*** (0.053)	0.0791** (0.025)
CASH	-1.1264*** (0.000)	-1.1506*** (0.000)	-1.1639*** (0.000)	-1.1394*** (0.000)
ROA	-0.0816** (0.043)	-0.0735* (0.067)	-0.0768* (0.058)	-0.0719* (0.067)
GROWTH	-0.0736 (0.200)	-0.0689 (0.243)	-0.0693 (0.242)	-0.0633 (0.281)
TQ	-0.0021 (0.799)	-0.0002 (0.977)	-0.0005 (0.950)	0.0005 (0.951)
TOP1	0.7536*** (0.000)	0.7233*** (0.000)	0.7301*** (0.000)	0.7921*** (0.000)
COVID19	-0.0312** (0.027)	-0.0307** (0.025)	-0.0303** (0.029)	-0.0278** (0.046)
COUNTRY				
2	-0.2465* (0.002)	-0.2175** (0.016)	-0.2246** (0.011)	-0.2443* (0.005)
3	-0.0803 (0.261)	-0.0853 (0.298)	-0.0830 (0.292)	-0.0878 (0.255)
4	-0.0176 (0.815)	-0.0081 (0.925)	-0.0132 (0.874)	-0.0199 (0.806)
Model	*Fixed*	*Fixed*	*Fixed*	*Fixed*
Obs.	363	363	363	363
R-square	0.2796	0.2654	0.2635	0.2725
Prob F	0.0000	0.0000	0.0000	0.0000

Notes:
* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level
Source: Stata 15 Output and Author (2025)

The Effect of ESG Performance on Investment-Financing Maturity Mismatch

The regression results indicate that ESG disclosure, as measured by the ESG Combined Score, has a negative and statistically significant effect on the investment-financing maturity mismatch (SLLI) at the 1% significance level. This finding suggests that firms with higher ESG disclosure levels are less likely to experience a mismatch between short-term financing and long-term investments. The R-squared value of 27.96% implies that ESG disclosure explains a considerable portion of the variation in maturity mismatch.

This result aligns with the Maturity Matching Theory, which emphasizes the importance of aligning the maturity of financing with the maturity of assets to mitigate liquidity risks. Furthermore, in line with the Asymmetric Information Theory, robust ESG disclosure can reduce information asymmetries between firms and external stakeholders (e.g., investors and

creditors), thereby enhancing trust and facilitating access to long-term financing. This also resonates with the Signaling Theory, wherein ESG disclosure serves as a positive signal of the firm's commitment to sustainability and sound risk management practices. The finding is further supported by empirical evidence from previous studies, which highlight the role of ESG transparency in improving market confidence, easing access to long-term capital, and enhancing the quality of information and corporate reputation in the eyes of investors (Bilyay-Erdogan et al., 2024; Luo & Wu, 2022; Chen et al., 2023).

The Effect of The Environmental Pillar on Investment-Financing Maturity Mismatch

The results of the second regression model indicate that environmental disclosure (ENV) has a positive but statistically insignificant effect on the short-term loans for long-term investments (SLLI). This suggests that although greater environmental disclosure is associated with an increased tendency to use short-term debt for long-term investments, the relationship lacks statistical significance. In other words, improvements in environmental transparency do not appear to significantly reduce maturity mismatches in corporate financing structures. This finding aligns with previous studies, such as Wen et al. (2024) and Xu & Kim (2022), which argue that the costs associated with environmental initiatives are often not matched by immediate financial returns. As a result, firms may face increased financial pressure when investing in environmental improvements, particularly in the absence of effective environmental risk management.

From the perspective of Shareholder Theory, rising investor expectations regarding sustainability can encourage firms to improve environmental performance. However, if a firm's environmental strategy is still underdeveloped or lacks efficiency, such pressure may lead to short-term financial adjustments, including increased reliance on short-term debt to manage liquidity constraints. Moreover, although environmental disclosure improves transparency and signals long-term sustainability, the high initial costs and uncertain returns of green investments often lead firms to prefer short-term debt for its greater flexibility and lower immediate burden.

The Effect of The Social Pillar on Investment-Financing Maturity Mismatch

The third regression model shows that social disclosure (SOC) has a negative but statistically insignificant effect on the mismatch between investment and financing maturities (SLLI). This suggests that while SOC tends to reduce mismatch risk, the effect is not strong enough to be confirmed empirically. This finding is consistent with Zhang et al. (2024), who argue that social disclosure can enhance reputation and stakeholder trust, thereby reducing information asymmetry. However, its impact largely depends on the company's consistency in meeting stakeholder expectations and is influenced by external factors such as regulations, market conditions, and industry characteristics. The R-square value of 26.35% indicates that social performance explains part of the variation in SLLI, although much of the variation remains influenced by factors outside the model.

The Effect of The Governance Pillar on Investment-Financing Maturity Mismatch

The fourth regression model indicates that corporate governance disclosure (GOV) has a negative and statistically significant effect on the maturity mismatch between investment and financing (SLLI). This finding suggests that higher governance quality is associated with a lower risk of mismatch. Strong governance practices enhance transparency, accountability, and internal oversight, which collectively support more effective management of investment and

financing structures. In contrast to the environmental and social pillars, which did not exhibit statistically significant effects, only the governance pillar demonstrates a clear and measurable influence on maturity mismatch. This underscores the notion that governance plays a more direct role in financial decision-making, while environmental and social dimensions primarily serve reputational and legitimacy functions. These results align with previous studies (Chen & Xie, 2022; Wen et al., 2024; Ferrero et al., 2018), which emphasize that strong corporate governance contributes to long-term financial stability and reduces the likelihood of maturity mismatches. The R-square value of 27.25% further indicates that the governance variable explains a substantial portion of the variation in SLLI, although additional external factors outside the model may also play a role and warrant further investigation.

The Effect of Control and Dummy Variables on Investment-Financing Maturity Mismatch

The analysis of control variables reveals that larger firms (SIZE) tend to have more stable funding structures and stronger managerial capabilities in managing maturity mismatch risks. In contrast, higher leverage (LEV) suggests that a greater proportion of debt in the capital structure increases the likelihood of mismatch between investment and financing maturities. The cash variable (CASH) indicates that firms with higher cash liquidity are better able to meet short-term obligations, thereby reducing the risk of mismatch.

Meanwhile, return on assets (ROA) and Tobin's Q show that company profitability and market valuation do not directly influence the alignment between funding sources and investment uses. In other words, even with high earnings or strong market value, firms may still make funding decisions that do not adequately avoid maturity mismatch. Asset growth (GROWTH) suggests that companies with healthy growth are more capable of aligning their financing strategies with their investment needs. Conversely, the TOP1 variable (majority ownership) indicates that a higher concentration of ownership is associated with greater mismatch risk, likely due to dominant shareholders pushing for aggressive expansion without considering long-term funding alignment.

The dummy variable for the COVID-19 crisis period shows that firms became more cautious, avoiding reliance on short-term debt to finance long-term investments. This implies that economic uncertainty encouraged more conservative financial management. Additionally, the results show that firms in Malaysia experienced significantly lower maturity mismatch than those in Indonesia, while no significant differences were found for Thailand and the Philippines. These findings suggest variations in managerial practices and the effectiveness of financial policies across the ASEAN-4 countries.

Conclusion

Based on the analysis conducted, it can be concluded that ESG disclosure significantly influences the maturity mismatch between corporate investment and financing. Overall, ESG disclosure has a significant negative effect on the risk of using short-term financing for long-term investments, suggesting that higher levels of ESG transparency are associated with a lower likelihood of mismatch. However, environmental performance disclosure does not have a statistically significant impact, although the positive coefficient suggests a potential increase in

mismatch risk. Similarly, social performance disclosure does not show a significant effect, but tends to reduce the risk, though the effect is not strong enough to be deemed reliable.
In contrast, governance performance disclosure shows a significant negative association with maturity mismatch. This indicates that strong corporate governance enhances transparency and oversight, thereby improving financial management and facilitating access to long-term financing.

This study has several limitations. First, the sample size was constrained due to incomplete ESG data, which may lead to self-selection bias, particularly given the reliance on a single ESG rating source. Second, the dependent variable (SLLI), constructed using a specific formula, requires careful interpretation as it lacks standardized benchmark ranges commonly found in traditional financial indicators. Future research should consider extending the study period and increasing the sample size to enhance generalizability. Additionally, it is recommended to examine the individual effects of each ESG pillar to better understand their distinct contributions.

The findings offer several implications for academics, investors, corporations, and policymakers. For researchers, this study highlights the need to deepen the understanding of ESG disclosure and to use broader datasets for more robust analysis. For investors, transparent ESG reporting can serve as a valuable indicator of firm risk. For companies, strong governance practices can help mitigate maturity mismatch risks by improving financial oversight and access to long-term financing. Policymakers are encouraged to develop standardized ESG reporting frameworks to enhance transparency and accountability. Furthermore, effective ESG practices contribute to achieving the Sustainable Development Goals (SDGs), support inclusive economic growth, and promote environmental protection.

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