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DETERMINANTS OF ENVIRONMENTAL DISCLOSURES: GREEN INITIATIVES BY LISTED COMPANIES IN MALAYSIA

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Abstract: In an era of heightened emphasis on sustainability and transparency, it is essential to understand the factors that drive effective environmental disclosure to advance Environmental, Social, and Governance (ESG) practices. This study aimed to identify the determinants of environmental disclosure and assess the impact of Firm Size, Leverage, Liquidity, Profitability, and Stakeholder Engagement score on environmental disclosure, both collectively and individually, within the context of ESG green initiatives among corporate companies listed on Bursa Malaysia for the period 2020 to 2024. The data analysis, involving 357 companies, was conducted using panel regression analysis, and the analysis was performed with EViews 13. The findings show that while firm size, profitability, and stakeholder engagement significantly impact environmental disclosure individually, leverage and liquidity do not. Collectively, all variables influence disclosure. These results highlight the importance of specific firm characteristics and stakeholder engagement in enhancing corporate transparency and sustainability reporting, offering actionable insights for policymakers, corporate leaders, and investors to strengthen ESG practices.

Keywords: Environmental Disclosure, ESG practices, Firm Size, Leverage, Liquidity, Profitability, Stakeholder Engagement Score, Sustainability

1. Introduction

Businesses are increasingly integrating ESG practices to advance Sustainable Development Goals (SDGs) by addressing issues like waste management, enhancing long-term value through sustainability reporting, and improving financial performance (Radu et al., 2023). However, challenges like greenwashing, market competition, and financial constraints require strategic approaches to drive sustainable practices and ensure accurate environmental scores (Muniba, 2023; Ren, 2024).

Integrating climate change strategies into corporate governance is crucial. Commitment to reducing greenhouse gas emissions and setting carbon targets improves environmental performance, with larger firms showing greater transparency due to their resources and visibility (Littlewood et al., 2018). Transparent disclosures enhance corporate accountability and performance, emphasising the role of managerial competencies in addressing climate risks (Ismail et al., 2024).

In Malaysia, companies are increasingly adopting green initiatives and improving environmental reporting, driven by institutional pressures and government strategies. Larger, more profitable, and connected firms demonstrate greater transparency and commitment to sustainability, reflecting proactive climate actions (Ahmad & Hossain, 2019).

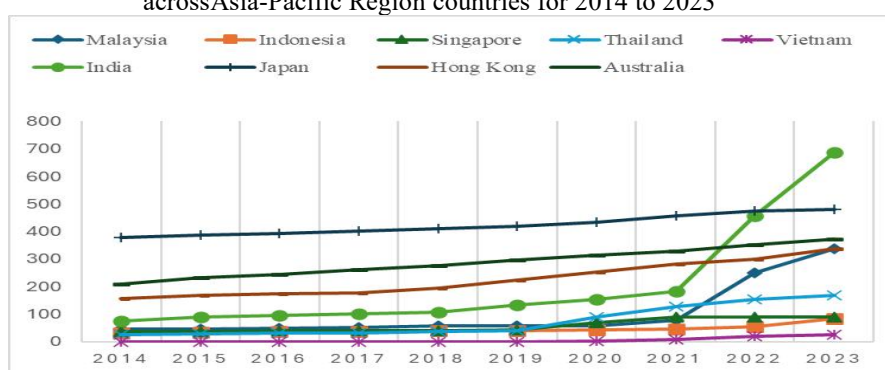
Despite progress, Malaysian companies still face gaps in the quality and extent of environmental disclosures. While ESG practices enhance financial performance and corporate value, stronger governance, timely disclosures, and stakeholder engagement are needed to improve transparency and

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accountability (Said et al., 2019; Mohd Ali et al., 2023). Addressing these gaps will better align Malaysia's corporate sector with global sustainability standards.

From 2014 to 2023, Malaysia showed steady growth in environmental disclosures, with a notable rise from 2021 (Figure 1). However, it lags behind regional leaders like India and Japan. Countries like Australia and Singapore also showed progress, while Thailand and Vietnam made modest gains. As a key Southeast Asian economy, Malaysia has the potential to lead regional sustainability practices by strengthening environmental reporting and attracting environmentally conscious investors.

Figure 1: Frequencies of Environmental Disclosure Practices Adoption among Public Listed Companies across Asia-Pacific Region countries for 2014 to 2023



Source: Eikon DataStream Terminal (2024)

This study examines factors influencing environmental disclosure among Malaysian companies in ESG green initiatives, focusing on firm size, leverage, liquidity, profitability, and stakeholder engagement. Analysing Bursa Malaysia-listed firms (2020–2024), it highlights drivers of transparency in environmental reporting.

Firm size indicates resources for sustainability efforts, while leverage and liquidity reflect financial flexibility. Profitability supports funding for environmental projects, and stakeholder engagement underscores the importance of collaboration in promoting sustainability. The findings offer valuable insights to guide corporate strategy, policymaking, and sustainable investment in Malaysia.

2. Literature Review

Environmental disclosure is a critical aspect of corporate responsibility, driven by sustainability awareness and the need for transparency. Companies disclose environmental practices to comply with ESG standards, address stakeholder concerns, and enhance reputation, aligning with societal expectations through legitimacy theory. Larger firms disclose more due to scrutiny and resources, while stakeholder engagement and profitability also positively influence disclosures (Rini & Adhariani, 2021; Nur, 2023). Conversely, leverage and liquidity show mixed or limited effects on disclosure.

ESG disclosures promote corporate growth, sustainability, and transparency. Environmental reporting supports green innovation, reduces capital costs, and boosts firm value, particularly through the Environmental Pillar Score (EPS) as a key metric (Mondal, 2024; Sahin, 2021). Larger firms, due to their visibility and resources, are better positioned to meet sustainability standards and enhance reporting quality (Girón et al., 2021).

Leverage aligns financial strategies with environmental goals, with higher environmental scores associated with better debt management and valuation metrics (Zhang & Zhou, 2020; Sharma

et al., 2022). Liquidity, influenced by ESG performance, enhances financial stability, reduces risks, and fosters investor confidence through high-quality reporting (Laokulrach, 2022; Garzón & Zorio, 2021). Profitability links revenue and capital with ESG factors, often boosting portfolio and corporate performance, though effects vary by sector (Chandra et al., 2021; Khoury et al., 2021). Stakeholder engagement drives sustainability through green supply chain practices, strategic planning, and aligning corporate goals with stakeholder priorities. This enhances environmental outcomes, financial performance, and ESG scores, reinforcing its role in corporate sustainability (Dzomonda, 2020; Laokulrach, 2022).

2.1. Hypothesis

- H1: Firm Size has a negative and significant effect on Environmental Disclosures of Malaysian corporate companies engaged in ESG green initiatives.
- H2: Leverage has a negative and significant effect on Environmental Disclosures of Malaysian corporate companies engaged in ESG green initiatives.
- H3: Liquidity has a positive and significant effect on Environmental Disclosures of Malaysian corporate companies engaged in ESG green initiatives.
- H4: Profitability has a positive and significant effect on Environmental Disclosures of Malaysian corporate companies engaged in ESG green initiatives.
- H5: Stakeholder Engagement Score has a positive and significant effect on Environmental Disclosures of Malaysian corporate companies engaged in ESG green initiatives.

3. Methodology

This study used a quantitative approach to analyse the impact of firm characteristics on environmental disclosure among 357 Malaysian companies listed on Bursa Malaysia from 2020 to 2024. It examined the effects of Firm Size, Leverage, Liquidity, Profitability, and Stakeholder Engagement on Environmental Disclosure scores, with the Environmental Pillar score as the dependent variable. Panel data regression was used, and purposive sampling ensures accurate representation. Data was sourced from the Eikon DataStream database. Sampling criteria are as follows:

Table 1: Sampling Criteria

No	Criteria:	Amount
1.	Number of corporate companies listed on the Bursa Malaysia in 2024	1055
2.	Exclude the number of non-active corporate companies listed on the Bursa Malaysia within the period 2020-2024.	(21)
3.	Exclude the number green initiatives of corporate companies listed on the Bursa Malaysia that do not disclosed EPS within the period 2020-2024.	(677)
	Number of Samples	357

This study analysed quantitative panel data from Eikon DataStream on Bursa Malaysia-listed companies engaged in ESG green initiatives (2020–2024). The dependent variable, Environmental Disclosure score, reflects transparency, while independent variables include Firm Size, Leverage, Liquidity, Profitability, and Stakeholder Engagement score. Descriptive statistics and multiple regression analysis using EViews 13 combined time series and cross-sectional data. Robustness was ensured through classical assumption tests and model feasibility tests. The panel data regression equation used is presented in Equation (1):

$$Y = \beta_0 + b_1X_{1i-t} + b_2X_{2i-t} + b_3X_{3i-t} + b_4X_{4i-t} + b_5X_{5i-t} + e_{i-t} \quad (1)$$

Information:

Y - Environmental Disclosure (EPS)

β_0 - constant

b_1 - b_5 - regression coefficient

X_1 - Firm Size (SIZE) in unit i in

period t X_2 - Leverage (DER) on unit

i in period t X_3 - Liquidity (CR) in

unit i in period t

X_4 - Profitability (OROA) in unit i in period t

X_5 - Stakeholder Engagement Score (YES) in unit i in

period t e - error term in unit i in period t

4. Results and Discussion

The descriptive analysis of 357 observations (1,785 data points) shows the following: Environmental Disclosures in Table 2 range from 0.00 to 94.47 (mean = 17.80, SD = 23.49). FirmSize ranges from 0.01 to 262.00 (mean = 109.00, SD = 267.00). Leverage ranges from 0.00 to 125.62

(mean = 0.76, SD = 3.53). Liquidity ranges from 0.33 to 15.16 (mean = 2.86, SD = 0.23).

Profitability has minimal variation (mean = 0.00, SD = 0.00). Stakeholder Engagement ranges from 0.00 to 54.21 (mean = 27.28, SD = 26.50).

Table 2: Descriptive Statistics

	SIZE	DER	CR	OROA	YES	EPS
Mean	109.0000000	0.760440	0.00000002770	57250141.0000	27.28932	17.80153
Maximum	262.0000000	125.6251	0.00000000854	0.00000000744	54.21000	94.47750
Minimum	0.010920087	0.000000	0.00000000000	-0.00000000810	0.000000	0.000000
Std. Dev.	267.0000000	3.537379	0.00000007570	0.00000003260	26.50726	23.49474
Observations	1785	1785	1785	1785	1785	1785

A unit root test confirms data stationarity, ensuring reliable results (Herranz, 2017). Table 3 shows all probability values as 0.0000, indicating statistical significance and confirming stationarity at level for all variables. This ensures stability in the time series and the reliability of panel data on Malaysian companies' environmental disclosures, reducing the risk of spurious regression.

Table 3: Panel Unit Root Test

Variables	Assumes common unit root process		Assumes individual unit root process			
	Levin, Lin & Chu t^*	Prob.	ADF – Fisher Chi-square	Prob.	PP – Fisher Chi-square	Prob.
SIZE	-52.6321	0.0000	1198.74	0.0000	1686.66	0.0000
DER	-187.602	0.0000	931.194	0.0000	1166.72	0.0000
CR	-44.1613	0.0000	872.603	0.0000	1072.91	0.0000
OROA	-59.4509	0.0000	823.089	0.0000	974.749	0.0000
YES	-151.811	0.0000	888.225	0.0000	892.821	0.0000
EPS	-3.68416	0.0000	291.646	0.0000	322.636	0.0000

This study employed a panel data regression approach, utilising three models: the common effects model (CEM), fixed effects model (FEM), and random effects model (REM). According to Basuki and Prawoto (2023), after selecting the panel data regression method, identifying the most appropriate model requires conducting a series of three paired tests for model selection.

The Chow test was used to determine the most suitable model for panel data regression estimation, specifically to choose between the common effects model and the fixed effects model. Based on Table 4, the probability value (prob.) for the Chi-square cross-section was 0.0000, which is less than 0.05. Therefore, the fixed-effect model is more appropriate than the common-effect model. Since the fixed-effect model has been selected, the Lagrangian multiplier test was not necessary (Li & Yao, 2021).

Table 4: Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.977292	(356,1423)	0.0000
Cross-section Chi-square	1443.696233	356	0.0000

The Hausman test was employed to identify the most appropriate model for estimating a panel data regression, specifically comparing the fixed effects model to the random effects model. As presented in Table 5, the probability value was 0.0000, which is below the 0.05 threshold. This outcome suggests that the fixed effects model is the preferred option.

Table 5: Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	106.848746	5	0.0000

Based on the results of the three tests conducted, it can be concluded that the Fixed Effects Model (FEM) is the appropriate panel data regression model to be used for hypothesis testing and the panel data regression equation.

Table 6: Panel Data Regression Model Selection Results

No	Method	Testing	Result
1	Chow Test	CEM with FEM	FEM
2	Hausman Test	REM with FEM	FEM
3	Lagrangian Multiplier Test	CEM with REM	-

Table 7 shows the Fixed Effects Model with an R-squared value of 0.7788, indicating that 77.88% of the variance in the dependent variable is explained. The variables SIZE, OROA, and YES were statistically significant, with SIZE having a small negative effect and OROA and YES showing positive impacts, the latter being highly significant. DER and CR were not significant, showing no substantial influence.

Table 7: Test Results for Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	55.1330	13.00376	4.2397	0.0000
SIZE	-0.0000	0.0000	-3.6543	0.0003
DER	-0.0400	0.0990	-0.4037	0.6865
CR	0.0000	0.0000	1.0730	0.2834
OROA	0.0000	0.0000	2.1397	0.0325
YES	0.3492	0.0128	27.2852	0.0000
Cross-section fixed (dummy variables)				
R-squared	0.7788	Mean dependent var		17.8015
Adjusted R-squared	0.7226	S.D. dependent var		23.4947
S.E. of regression	12.3722	Akaike info criterion		8.0477
Sum squared resid	217822.7000	Schwarz criterion		9.1605
Log likelihood	-6820.6100	Hannan-Quinn criter.		8.4586
F-statistic	13.8791	Durbin-Watson stat		1.8481
Prob(F-statistic)	0.0000			

The F-statistic (p-value 0.0000) confirms the model's validity at the 1% level. Model selection criteria (AIC, BIC, Hannan-Quinn) and a Durbin-Watson statistic of 1.8480 indicate no autocorrelation, ensuring reliability. The model is robust for hypothesis testing and is formulated as follows:

$$\text{EPS} = 55.1330 - 0.0000(\text{SIZE}) - 0.0400(\text{DER}) + 0.0000(\text{CR}) + 0.0000(\text{OROA}) + 0.3492(\text{YES}) + e \quad (1)$$

Based on the multiple regression equation, the following conclusions can be drawn:

- SIZE has a negative coefficient (-0.0000) and is statistically significant (p = 0.0003),

indicating a slight decrease in EPS as SIZE increases, possibly due to scale inefficiencies or higher operational costs.

- b. OROA has a positive coefficient (0.0000) and is significant ($p = 0.0325$), showing that better operational efficiency marginally increases EPS.
- c. YES has a substantial positive coefficient (0.3492) with high significance ($p = 0.0000$), indicating a strong and meaningful impact on EPS.
- d. DER has a negative coefficient (-0.0400) but is not significant ($p = 0.6865$), suggesting no meaningful effect on EPS.
- e. CR has a positive coefficient (0.0000) but is not significant ($p = 0.2834$), showing that liquidity does not significantly influence EPS.

4.1. Hypothesis test

The F-test results (F-count = 13.8791, $p = 0.0000$) indicate that firm size, leverage, liquidity, profitability, and stakeholder engagement collectively impact environmental disclosure, leading to the rejection of H_0 and acceptance of H_1-H_5 .

For Firm Size (X_1), the t-test value (3.6543, $p = 0.0003$) shows a significant positive effect on Environmental Disclosures, with larger firms are more likely to disclose due to increased scrutiny. Leverage (X_2) shows no significant effect ($t = 0.4037$, $p = 0.6865$), contradicting previous findings. Liquidity (X_3) also has no significant effect ($t = 1.0731$, $p > 0.05$), opposing other studies. Profitability (X_4) significantly influences Environmental Disclosures ($t = 2.1397$, $p < 0.05$), as higher profitability enhances transparency. Stakeholder Engagement (X_5) has a strong positive impact ($t = 27.2852$, $p < 0.05$), confirming that greater engagement leads to more transparency in reporting. The model's R^2 value was 0.7226, indicating that 72.26% of the variation in environmental disclosure is explained by the independent variables.

5. Conclusion

The study shows that Firm Size, Leverage, Liquidity, Profitability, And Stakeholder Engagement collectively influence Environmental Disclosure scores of ESG companies listed on Bursa Malaysia (2020-2024), explaining 72.27% of the variation. Profitability and Stakeholder Engagement have significant positive effects, while Firm Size shows a partially negative effect, and Leverage and Liquidity have no impact. These findings emphasise the importance of profitability and stakeholder engagement in promoting environmental transparency. The study recommends prioritising stakeholder engagement and aligning sustainability with profitability goals. Future research could explore industry types, governance practices, and factors like board diversity to further understand environmental disclosure dynamics.

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