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Original Article

ESG Performance and Its Disclosures: Evidence on Corporate Profitability from ASEAN-5 Manufacturing Firms

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Abstract

Growing pressure on firms to demonstrate sustainability has made ESG a central corporate concern, yet evidence on its financial consequences remains mixed, particularly in emerging ASEAN markets. Listed manufacturers across the ASEAN-5 countries are the subject here, with attention to whether ESG performance links to their financial results. The relationship examined in the study is how ROA is affected by ESG performance and its three subcomponents including Environmental, Social, and Governance Disclosure Scores. Using a quantitative approach to explanatory research design, the study uses panel data collected from 744 firm-year observations of manufacturing firms in Indonesia, Malaysia, Singapore, Philippines, and Thailand in the period 2023-2025. Regarding the overall ESG Score, the study finds no support for the hypothesis, as its effect on ROA is negative and statistically significant. Each of the three disclosure scores, namely Environmental, Social, and Governance, behaves differently, producing a positive and statistically significant effect on ROA. What this suggests is that high ESG performance may not necessarily yield high financial performance, while every individual ESG dimension can still affect ROA positively.

Keywords: ASEAN-5, ESG Disclosure, ESG Performance, Financial Performance, Return on Assets.

1. Introduction

Environmental damage, resource depletion, carbon emission, and climate change are some major issues that have come to the forefront and affected business operations across the world. Hence, it is expected of organizations to contribute towards the betterment of society and environment, apart from their performance in terms of financial metrics. In this way, the concept of sustainability has shifted from being an element of corporate social responsibility (CSR) to a strategic approach that affects risk management and competitiveness of organizations (Ahmad et al., 2021; Mohammad & Wasiuzzaman, 2021). The need for adopting ethical business practices has been emphasized through various international frameworks such as the Paris Agreement that provides a global platform for tackling climate change (UNFCC, 2015) and Sustainable Development Goals (SDGs) that provide a universal platform for sustainable development (UN, 2015).

Investors are becoming more aware of sustainability-related risks because they could have an impact on future financial performance, corporate reputation, and profitability (Stanley, 2019). Because of this, sustainability performance is becoming seen as a crucial measure of a company's resiliency and future possibilities. Environmental, Social, and Governance (ESG) is one of the most used frameworks for evaluating company sustainability

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performance (Triyani & Setyahuni, 2020). The social dimension concentrates on employee welfare, diversity, and stakeholder relationships; the governance dimension shows accountability, transparency, and leadership quality; and the environmental dimension deals with issues like carbon emissions, energy efficiency, and resource utilization. By increasing operational effectiveness, lowering risks, and bolstering stakeholder trust, these factors taken together are anticipated to increase organizational performance (Alsayegh et al., 2020; Aydoğmuş et al., 2022).

In ASEAN, a region that has seen tremendous industrial and economic growth in recent decades, the significance of ESG is especially clear. Although this expansion has greatly aided regional development, it has also brought forth social and environmental problems like inequality, pollution, and resource depletion. As a result, numerous stock exchanges have tightened their standards for sustainability reporting, while governments and regulatory bodies throughout ASEAN have implemented frameworks for disclosure and rules pertaining to sustainability. The manufacturing sector continues to be crucial to a nation's GDP income and economic expansion. Through tax payments, the manufacturing sector contributes significantly to state revenue. When it comes to investment, the manufacturing sector continues to see more substantial investment than other sectors, which has a favorable effect on employment. It is typically believed that the industrial sector will perform well. The manufacturing sector keeps conducting research and development on production machinery or the products and services they provide in order to meet this goal (Jaunanda et al., 2024).

Earlier studies have investigated whether environmental, social, and governance (ESG) practices affect corporate financial performance, but what they found still hinges on the context. Tripopsakul (2025) for instance, studied listed firms in six ASEAN countries between 2019 and 2023. Green innovation and financial performance, proxied by return on assets (ROA) and Tobin's Q, were each related to the individual ESG dimensions in this study. What emerges is that ESG disclosure may have varying effects on financial outcomes, depending on which ESG dimension and which performance indicator are considered. Therefore, the research gap should not be based solely on the limited geographical coverage of previous studies or the separate examination of ESG dimensions. Instead, whether ESG disclosure relates to financial performance in the same way within the specific country, industry, and study period of this research calls for further examination.

Several theories offer ways to interpret the link between ESG and business performance. According to stakeholder theory, a business creates value when it satisfies the needs of different stakeholders, including regulators, suppliers, customers, employees, shareholders, and communities. Businesses that actively implement sustainable practices are more likely to win over stakeholders and build enduring bonds. Additionally, according to legitimacy theory, ESG disclosure aids businesses in staying in line with social norms and securing ongoing resource access. Furthermore, according to Signaling Theory, sustainability disclosure reduces information asymmetry and boosts investor trust by acting as a signal of management excellence and long-term strategic orientation. Consistent with these theoretical claims, more and more evidence points to ESG benefiting financial performance. As Ahmad et al. (2021) found, financial results rise markedly with ESG performance, especially via environmental and governance measures.

In a similar vein, Mohammad and Wasiuzzaman (2021) contended that ESG disclosure boosts stakeholder confidence and transparency, resulting in better company results and competitive advantages. Additionally, Aydoğmuş et al. (2022) discovered that businesses with superior ESG performance typically had higher profits. Instead of depending only on aggregate ESG measurements, recent research has emphasized the significance of looking at

particular ESG characteristics. Environmental disclosure shows a company's dedication to lowering its influence on the environment through sustainable resource management, energy efficiency programs, and carbon reduction activities. These initiatives could boost investor confidence, lower regulatory risks, and increase operational efficiency (Cai et al., 2023; Ye et al., 2023). According to Mbanyele et al. (2022), social disclosure pertaining to employee development, workplace safety, customer happiness, diversity initiatives, and community participation may also improve stakeholder loyalty and business reputation. The benefits of ESG are becoming more widely acknowledged, although actual results are still inconsistent.

While many studies show that ESG performance and financial results are positively correlated, some contend that ESG implementation may come with significant expenditures that temporarily lower profitability. Prior to the realization of economic advantages, investments in sustainability programs, environmental technology, governance reforms, and transparency mechanisms frequently require substantial financial resources. As a result, some research indicates that there is little to no correlation between ESG practices and business success (Chen et al., 2023). These contradictory results suggest that contextual elements like institutional settings, legal frameworks, stakeholder expectations, and market features may influence the ESG-performance relationship. This is especially important in ASEAN, since investor knowledge, disclosure quality, and sustainability laws differ greatly between nations. As a result, evidence from developed economies might not always translate to developing market environments.

Even though ESG research has grown significantly in recent years, there are still a number of significant gaps. First, the majority of earlier research has been on industrialized nations, and there is still a dearth of data from ASEAN. Second, a lot of research uses general ESG metrics without looking at the particular contributions of social and environmental disclosure. Third, a single indicator is often used to quantify financial performance, which may not adequately account for various facets of business performance. For publicly traded manufacturers in ASEAN-5, financial performance is assessed against four variables: the ESG Score (ESG), Environmental Disclosure Score (ENVDS), Social Disclosure Score (SOCDS), and Governance Disclosure Score (GOVDS). Profitability is captured through Return on Assets (ROA), an accounting-based indicator of how well a business performs financially.

This study assesses the relationship between sustainability performance and corporate financial performance more fully by looking at overall ESG performance as well as its individual environmental, social, and governance disclosure dimensions. Three contributions to the literature stand out. One is that empirical evidence from manufacturing firms in the emerging ASEAN-5 economies extends prior ESG research. Another is that the effects of the Environmental, Social, and Governance Disclosure Scores are set apart from the overall ESG Score, so ESG performance is seen in greater detail. The last is additional evidence on the connection between ESG performance and accounting-based financial performance, measured through Return on Assets (ROA). Findings are expected to aid managers, investors, regulators, and policymakers in grasping how ESG practices underpin corporate financial performance and sustainable business development.

2. Literature Review

2.1. Theoretical Background

The association between ESG disclosure and corporate financial performance can be interpreted through two theories: stakeholder theory and legitimacy theory. Stakeholder theory holds that relationships with stakeholders grow better once a firm meets its

environmental and social obligations and keeps governance in good order. These relationships may contribute to corporate reputation, stakeholder trust, operational stability, and long-term financial outcomes (Freeman, 1984). Legitimacy theory suggests that firms disclose information about their environmental, social, and governance practices to demonstrate that their activities are consistent with the expectations and values of society (Suchman, 1995). ESG disclosure may therefore help firms maintain social legitimacy and reduce reputational risks. Even so, benefits from ESG disclosure may arrive slowly and unevenly. Additional costs can arise from implementing and reporting it, and whether it helps financially may depend on the institutional setting, the characteristics of the industry, and what stakeholders expect. Return on assets (ROA) is used in this study to assess financial performance by measuring how effectively a company generates earnings from its asset base. Examining ESG disclosure in relation to ROA provides an accounting-based perspective on whether sustainability-related practices are associated with corporate profitability.

2.2. Overall ESG and Financial Performance

The ESG Score, which gauges overall ESG performance, reflects how a company performs across its environmental, social, and governance practices taken together. Stakeholder theory proposes that covering these three dimensions may let firms manage more varied stakeholder expectations, while legitimacy theory highlights how disclosure signals accountability and conformity with what society expects. Comprehensive ESG practices may strengthen corporate reputation, improve stakeholder confidence, and help firms identify environmental, social, and governance risks. These factors may contribute to stronger financial performance over time. However, the overall relationship may depend on the relative importance of each ESG dimension, the costs of sustainability initiatives, and the context in which a company operates. On balance, if the benefits of transparency, risk management, and stakeholder engagement outweigh the costs of ESG-related activities, the ESG Score is expected to be positively associated with ROA.

H1: The ESG Score is positively associated with corporate financial performance, measured by ROA.

2.3. Environmental Disclosure and Financial Performance

Environmental disclosure concerns information about a company's environmental policies, resource consumption, emissions, waste management, and other environmental impacts. Stakeholder thinking suggests that open environmental reporting lets firms answer to what local communities, customers, regulators, and investors expect. In addition, environmental initiatives can make resource use more efficient and cut the risk of environmental liabilities, possibly boosting profitability. Even so, managing and reporting on the environment can demand heavy investment, and the financial payoff may take time to appear. The link between environmental disclosure and financial performance therefore stays an empirical question. If the benefits of improved efficiency, risk management, and stakeholder confidence outweigh the associated costs, environmental disclosure is expected to have a positive relationship with ROA.

H2: Environmental disclosure is positively associated with corporate financial performance, measured by ROA.

2.4. Social Disclosure and Financial Performance

Information about community engagement, customer responsibility, human rights, diversity, occupational health and safety, and employee welfare falls under social disclosure. Stakeholder theory suggests that addressing these issues can improve relationships with

employees, customers, and other stakeholders. Effective social practices may contribute to employee commitment, productivity, customer loyalty, and corporate reputation, which can support financial performance. However, social initiatives may also involve additional expenditure, and their financial effects can vary according to the quality of implementation and the expectations of stakeholders. Where the benefits of stronger stakeholder relationships exceed the associated costs, social disclosure is expected to be positively associated with ROA.
H3: Social disclosure is positively associated with corporate financial performance, measured by ROA.

2.5. Governance Disclosure and Financial Performance

Governance disclosure relates to information about board oversight, board composition, executive accountability, shareholder rights, internal controls, and business ethics. From a stakeholder and legitimacy perspective, transparent governance practices can demonstrate accountability and reduce information asymmetry between management and external stakeholders. Effective governance may also improve monitoring, reduce agency conflicts, strengthen risk management, and support more efficient resource allocation. These mechanisms can contribute to improved profitability and asset utilization. On this basis, a positive link between governance disclosure and ROA is anticipated, while its strength could vary with the institutional environment and how good the governance mechanisms are.
H4: Governance disclosure is positively associated with corporate financial performance, measured by ROA.

2.6. Conceptual Framework

This study puts forward that environmental, social, and governance disclosure are tied to corporate financial performance, on the basis of stakeholder theory, legitimacy theory, and the arguments laid out earlier. To see how each ESG dimension relates to ROA, the dimensions are analyzed separately, and overall ESG disclosure is analyzed to see how aggregate ESG transparency relates to financial performance. The conceptual framework is shown here:

A. ESG Score → ROA (H1: positive)
B. Environmental disclosure (E) → ROA (H2: positive)
C. Social disclosure (S) → ROA (H3: positive)
D. Governance disclosure (G) → ROA (H4: positive)

ROA represents the dependent variable, while the ESG disclosure measures represent the explanatory variables in the proposed relationships.

2.7. Legitimacy Theory

Under legitimacy theory, preserving social acceptance and long-term survival depends on organizations constantly making sure their operations fit societal values, norms, and expectations (Dowling & Pfeffer, 1975). Because stakeholders increasingly assess organizational performance based on sustainability-related activities in addition to financial results, businesses are expected to exhibit responsible environmental and social behavior within the context of corporate sustainability (Ahmad et al., 2021). As a result, businesses willingly provide ESG data in order to overcome legitimacy gaps and improve stakeholder relations (Mohammad & Wasiuzzaman, 2021).

Organizations function under an implicit social compact with society, according to the notion. Businesses may suffer reputational harm, stakeholder discontent, and diminished legitimacy when their actions are seen as going against social norms (Cai et al., 2023). As a result, businesses utilize sustainability disclosure as a way to convey their dedication to social responsibility, environmental preservation, and moral governance (Ye et al., 2023).

Transparent reporting on environmental activities, stakeholder participation, and governance quality can help establish legitimacy in the context of ESG disclosure (Ahmad et al., 2021). Stronger ESG disclosure is often seen as more sustainable and responsible, which may increase stakeholder trust and lead to better organizational performance (Aydoğmuş et al., 2022). Additionally, prior research shows that ESG disclosure enhances business reputation and fortifies ties with investors, regulators, and society, all of which contribute to long-term competitiveness (Tripopsakul, 2025).

2.8. Signaling Theory

When there is information asymmetry, organizations can convey important information to external stakeholders by using Signaling Theory (Spence, 1973). Companies deliberately reveal information to communicate their strengths and decrease uncertainty because managers typically have greater knowledge about the firm's quality and future prospects than external stakeholders (Li et al., 2024). As Mohammad and Wasiuzzaman (2021) put it, a company's dedication to sustainability, risk management, ethical business practices, and long-term value development is signaled most clearly through ESG disclosure. Companies can give stakeholders extra information about environmental performance, social responsibility, and governance quality that may not be completely reflected in financial statements by releasing ESG-related data (Ahmad et al., 2021). For instance, environmental disclosure shows that a company actively handles sustainability issues and environmental hazards, which may increase stakeholder confidence (Cai et al., 2023).

Comparably, social disclosure shows a company's dedication to community involvement, employee welfare, and ethical business practices, which may improve stakeholder relations and the company's reputation (Mbanyele et al., 2022). Additionally, governance disclosure sends indications about effective company monitoring, accountability, transparency, and managerial calibre. According to this study, a company may be able to successfully manage its resources, risks, and stakeholder relationships if it has better ESG performance and environmental, social, and governance policies. Increased operational profitability and efficiency may result from these traits. In order to explain how ESG Score, Environmental Disclosure Score, Social Disclosure Score, and Governance Disclosure Score may affect financial performance as determined by Return on Assets (ROA), Signaling Theory is a useful addition to Legitimacy Theory.

2.9. Previous Research

As stakeholders push harder for accountability, sustainability, and transparency from corporations, environmental, social, and governance (ESG) practices have become more significant. ESG disclosure lets a company show how it manages its environmental consequences, social responsibilities, and governance procedures, which indicates its dedication to sustainable development and long-term value creation (Ahmad et al., 2021; Mohammad & Wasiuzzaman, 2021). Businesses with higher ESG performance are typically thought to be more capable of managing risks connected to sustainability, increasing operational effectiveness, and preserving stakeholder trust. While Signaling Theory contends that ESG disclosure conveys information about managerial quality, sustainability commitment, and ethical business practices, Legitimacy Theory views ESG activities as a way for businesses to align their operations with societal expectations (Ahmad et al., 2021; Li et al., 2024). A company's dedication to controlling environmental effects through initiatives including waste management, energy efficiency, emission reduction, and responsible resource use is shown in its environmental disclosure. By increasing resource efficiency, lowering

environmental hazards, and boosting corporate reputation, strong environmental disclosure may improve financial performance.

According to earlier research, increased environmental openness can enhance company performance by lowering information asymmetry and proving adherence to environmental standards (Cai et al., 2023; Ye et al., 2023). A company's obligations to its workers, clients, communities, and other stakeholders are reflected in its social disclosure. It contains data on stakeholder interactions, diversity, community involvement, workplace safety, and employee welfare. According to Li et al. (2023) and Mbanyele et al. (2022), companies that engage in more social disclosure may build stronger stakeholder relationships, increase employee commitment, and enhance their corporate reputation, all of which can lead to increased organizational effectiveness and financial performance. Corporate governance procedures, covering board composition, accountability, transparency, shareholder rights, and management supervision, are disclosed by businesses to a certain extent, and governance disclosure mirrors that extent.

Good governance procedures can lessen agency issues, strengthen managerial accountability, improve monitoring systems, and facilitate more effective decision-making. Because good governance can lower business risks and enhance the distribution of company resources, prior research shows that better governance performance is linked to better corporate financial results (Ahmad et al., 2021; Aydoğmuş et al., 2022). Return on Assets (ROA), an accounting-based indicator of a company's capacity to make money off of its assets, is used in this study to gauge financial performance. This study's use of ROA allows it to assess if increased operational profitability is a result of improved ESG performance and its environmental, social, and governance disclosure characteristics. Thus, this study looks at how Return on Assets (ROA) is affected by the ESG Score (ESG), Environmental Disclosure Score (ENVDS), Social Disclosure Score (SOCDS), and Governance Disclosure Score (GOVDS).

3. Methods

3.1. Research Design

To explore the connection between ESG performance and corporate financial performance, this research relies on a quantitative design with an explanatory aim. Analysis uses panel data regression on firm-level data, with Return on Assets (ROA) as the dependent variable. Explanatory variables comprise the overall ESG score (ESG), the environmental disclosure score (ENVDS), the social disclosure score (SOCDS), and the governance disclosure score (GOVDS), while Leverage (LEV), firm size (SIZE), GDP growth, and inflation (INF) act as control variables.

The ASEAN-5 countries, namely Indonesia, Malaysia, Singapore, the Philippines, and Thailand, supply the population of publicly listed manufacturing firms, which are observed from 2023 to 2025. Sampling is purposive and rests on data availability for the variables of interest across these years, with firms that lack complete data for any such variable left out. The initial dataset comprises 2,243 publicly listed manufacturing firms in the five countries. A quantitative research design with an explanatory aim is employed to investigate how ESG performance and corporate financial performance are connected.

Panel data regression on firm-level observations is the analytical method, where the dependent variable is ROA. The total ESG score (ESG), environment disclosure score (ENVDS), social disclosure score (SOCDS), and governance disclosure score (GOVDS) are the independent variables, while leverage (LEV), firm size (SIZE), GDP growth, and inflation (INF) are the controls. Publicly listed manufacturers in Indonesia, Malaysia, Singapore, the

Philippines, and Thailand (the ASEAN-5 countries) constitute the population over the years 2023 to 2025. Firms are picked through purposive sampling depending on whether data on the variables exist in the observation period, and those lacking complete data are removed. Originally, 2,243 publicly listed manufacturing firms from the five countries were included.

3.2. Variable Measurement

The symbol, definition, and reference for every variable used here are summarized in Table 1. Net income divided by total assets gives ROA, the dependent variable. Refinitiv/LSEG Workspace supplies the explanatory variables, which are the ESG Score (ESG) and its three pillar scores (ENVDS, SOCDS, and GOVDS). The control variables are leverage (LEV), firm size (SIZE), GDP growth (GDP), and inflation (INF), with the World Bank providing the two macroeconomic ones.

Table 1. Variable Measurement

Variables	Symbol	Definition / Measurement	Reference
Return on Assets	ROA	Annual Return on Assets captures how well a firm turns its total assets into profit. It is calculated as Net Income divided by Total Assets, with data taken from Refinitiv/LSEG Workspace.	Aydoğmuş et al. (2022); Tripopsakul (2025)
ESG Score	ESG	A composite score of how the company performs across its environmental, social, and governance practices.	Aydoğmuş et al. (2022); Tripopsakul (2025)
Environmental Disclosure Score	ENVDS	Score reflecting the company's environmental performance, including emissions, resource use, environmental policies, and other environmental practices.	Aydoğmuş et al. (2022); Tripopsakul (2025)
Social Disclosure Score	SOCDS	Score reflecting the company's social performance, including employee welfare, workforce practices, community engagement, human rights, and stakeholder relationships.	Aydoğmuş et al. (2022); Tripopsakul (2025)
Governance Disclosure Score	GOVDS	Score reflecting the company's corporate governance performance, including board structure, management oversight, transparency, accountability, and shareholder rights.	Ahmad et al. (2021); Aydoğmuş et al. (2022); Tripopsakul (2025)
Leverage	LEV	Total Debt divided by Total Assets	Aydoğmuş et al. (2022); Tripopsakul (2025)
Firm Size	SIZE	Natural logarithm of Total Assets (Ln Total Assets).	Aydoğmuş et al. (2022)
Gross Domestic Product	GDP	Annual GDP growth rate of the country in which the company operates.	World Bank
Inflation	INF	Annual inflation rate of the country in which the company operates.	World Bank

3.2.1. Dependent Variable

Return on Assets (ROA) serves to assess company financial performance, reflecting an accounting-based measure of a firm's capability to generate profits through its assets. Data come from Refinitiv/LSEG Workspace, and the ratio equals net income over total assets.

3.2.2. Independent Variables

Total ESG Score (ESG), Environmental Disclosure Score (ENVDS), Social Disclosure Score (SOCDS), and Governance Disclosure Score (GOVDS) make up the independent variables, all available straight from Refinitiv/LSEG Workspace without any manual calculation by the researchers. Standardized indicators organized into environment, social, and governance pillars underpin Refinitiv's measurement of firm ESG performance. Under the environmental pillar sit resource management, emission, and innovation. Employee management, human rights, community, and product responsibility come under the social pillar, and management, shareholder rights, and corporate social responsibility strategy are part of the governance pillar.

3.2.3. Control Variables

Four control variables are included in this study to capture differences in firm characteristics and the economy. Leverage (LEV), the ratio of total debt to total assets, reflects differences in firms' capital structure. Firm size (SIZE) takes the natural log of total assets. GDP uses each country's annual GDP growth rate, and inflation (INF) uses the country's annual inflation rate.

3.3. Multicollinearity Assessment

Multicollinearity needs to be checked since there is a possibility that the overall ESG Score and its components have similar information contained within them. Strong correlations among independent variables tend to inflate standard errors, which makes it hard to pin down how each independent variable relates to the dependent variable. To check for multicollinearity, the correlation matrix and VIF of the independent variables in the regression equations must be examined.

Based on the results obtained, the level of correlation will help determine the need for the concern regarding coefficient estimations and interpretations. Since all four ESG variables are related, separate regression equation needs to be done depending on whether there is high multicollinearity due to their inclusion simultaneously. In this case, the overall ESG regression equation will test the overall ESG Score, while the pillar-level equations will test ENVDS, SOCDS, and GOVDS.

3.4. Research Model

The research model examines the effect of ESG Score, Environmental Disclosure Score (ENVDS), Social Disclosure Score (SOCDS), and Governance Disclosure Score (GOVDS) on Return on Assets (ROA). The model is formulated as follows:

$$ROA_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 ENVDS_{it} + \beta_3 SOCDS_{it} + \beta_4 GOVDS_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 GDP_{it} + \beta_8 INF_{it} + \varepsilon_{it}$$

Some diagnostic tests will be carried out before estimating the panel regression model to check the data reliability and the validity of the regression assumptions. These tests include tests of multicollinearity, heteroscedasticity and autocorrelation. The model goodness of fit will be measured by the coefficient of determination (R2) and the joint significance of all independent variables will be tested by the F-test. Finally, the research hypotheses will be

tested. Testing of the effect of the ESG Score (ESG), Environmental Disclosure Score (ENVDS), Social Disclosure Score (SOCDS), and Governance Disclosure Score (GOVDS) on Return on Assets (ROA) will rely on the t-test, applied at the 1%, 5%, and 10% significance levels.

4. Results and Discussion

4.1. Research Results

4.1.1. Summary Statistics

Table 2 presents the descriptive statistics of 744 firm-year observations of publicly listed manufacturing companies in ASEAN-5 countries for the period 2023-2025.

Table 2. Descriptive Statistics

Variables	Observations	Mean	Std. Deviation	Minimum	Maximum
ESG	744	51.88641	17.22950	8.88	90.40
ENVDS	744	46.77102	22.05921	1.24	92.98
SOCDS	744	54.81390	19.64090	3.56	96.21
GOVDS	744	53.47261	21.94557	1.88	96.17
ROA	744	0.0498253	0.0881458	-0.81	1.39
LEV	744	0.2248253	0.1774410	0.00	0.83
SIZE	744	20.81090	1.773154	16.66	25.37
GDP	744	0.0411559	0.0123108	0.00	0.06
INF	744	0.0193683	0.0131562	0.00	0.06

Source: Processed by the authors using Stata, 2026

Table 2 shows a mean ESG Score of 51.89 and a standard deviation of 17.23, which points to wide variation in the ESG performance of the sampled firms. Among the three pillar scores, the mean Social Disclosure Score (SOCDS) is the highest at 54.81, followed by the Governance Disclosure Score (GOVDS) at 53.47. The Environmental Disclosure Score (ENVDS) has the lowest mean at 46.77.

Profitability differs greatly across firm-years, as the standard deviation of 0.0881 shows, around a mean ROA of 0.0498, equal to 4.98% of total assets. ROA ranges from -0.81 to 1.39, showing that some observations incurred significant losses while others earned very high profits relative to their assets. It is worth investigating whether these extreme values are genuine outcomes, special accounting cases, or data quality problems. Thus, the mean does not represent all firms in the sample.

Among the control variables, the mean leverage is 0.2248, meaning debt averages about 22.48% of total assets. Firm size has a mean of 20.81 and a standard deviation of 1.77, implying variation in the scale of operations. The average GDP growth rate is 4.12% and the average inflation rate is 1.94%, reflecting the economic conditions captured in the dataset. In summary, the statistics show heterogeneity in ESG scores, financial performance, and firm-level and macroeconomic variables, which provides a basis for examining ESG and profitability while controlling for other factors. However, descriptive statistics do not indicate the direction and significance of the relationship.

4.1.2. Panel Data Model

Selection of the Common Effect Model (CEM) as the final estimation model came from the Chow test and the Lagrange Multiplier (LM) test, as reported in Table 3 and Table 4. From the regression results, the estimated model takes this form:

$ROA_{it} = 0.0012092 - 0.0047225ESG_{it} + 0.0018254ENVDS_{it} + 0.0022955SOCDS_{it} + 0.0013143GOVDS_{it} - 0.1103407LEV_{it} + 0.0015936SIZE_{it} + 0.0453593GDP_{it} + 0.1006537INF_{it} + \varepsilon_{it}$

Table 3. Chow Test (CEM vs. FEM)

Model	F-statistic	Prob > F	Decision
ROA	2.8962	> 0.1	CEM

Source: Processed by the authors using Stata, 2026

Table 4. Lagrange Multiplier Test (CEM vs. REM)

Model	LM Statistic	Prob > χ^2	Decision
ROA	132.826	> 0.1	CEM

Source: Processed by the authors using Stata, 2026

In the Chow test shown in Table 3, the Common Effect Model (CEM) is weighed against the Fixed Effect Model (FEM), and the null hypothesis says CEM is suitable. A probability above 0.1 for the F-statistic of 2.8962 means the null hypothesis is not rejected, which favors CEM over FEM. The Lagrange Multiplier (LM) test in Table 4 weighs CEM against the Random Effect Model (REM), where the null hypothesis states that the variance of individual effects is zero. Since the LM statistic of 132.826 has a probability above 0.1, the null hypothesis is not rejected, and CEM is favored over REM. Given these two results, CEM is chosen as the final estimation model.

4.1.3. Multicollinearity Test

The regression model was checked for a strong association between its independent and control variables through the Variance Inflation Factor (VIF), a test of multicollinearity. According to a widely accepted criterion, a VIF score greater than 10 may indicate a significant multicollinearity issue. Table 5 displays the multicollinearity test findings.

Table 5. Common Effect Model Regression

Variable	VIF	1/VF
ESG	113.99	0.008773
SOCDS	27.34	0.036579
ENVDS	20.68	0.048365
GOVDS	15.60	0.064098
GDP	1.09	0.913990
LEV	1.04	0.963759
INF	1.03	0.974828
SIZE	1.01	0.994002
Mean VIF	22.72	

Source: Processed by the authors using Stata, 2026

The Variance Inflation Factor (VIF) was used to perform the multicollinearity test. According to the findings, SOCDS, ENVDS, and GOVDS have VIF values of 27.34, 20.68, and 15.60, respectively, while ESG Score has a VIF value of 113.99. These numbers show that there is a multicollinearity issue among the ESG-related variables because they are higher than the widely accepted threshold of 10. Conversely, the VIF values for the control variables GDP, leverage, inflation, and firm size are near to 1, suggesting that there are no issues with multicollinearity amongst these variables. The strong correlation between the total ESG Score

and its environmental, social, and governance components may be the cause of the high VIF values of the ESG-related variables.

4.1.4. Heteroscedasticity Test

The Breusch-Pagan/Cook-Weisberg test for heteroscedasticity was used to examine whether residual variance stays consistent across observations. Its null hypothesis says residual variance is constant, so no heteroscedasticity is present. Table 6 displays the test results.

Table 6. Heteroscedasticity Test

Test	Chi-square	Prob > Chi2	Conclusion
Breusch-Pagan/Cook-Weisberg	15.72	0.0001	Heteroscedasticity detected

Source: Processed by the authors using Stata, 2026

Output from the Breusch-Pagan/Cook-Weisberg test includes a chi-square value of 15.72 and a probability value of 0.0001. Constant residual variance, the null hypothesis, is rejected because the probability value falls under the 5% significance level. Heteroscedasticity is therefore present in the regression model, with residual variance not the same across observations.

4.1.5. Estimation Specification (GLS)

Table 7 presents the GLS estimation specification used in the estimation.

Table 7. GLS Estimation Specification

Test Specification	Result	Interpretation
Correlation Structure	No autocorrelation	The model assumes no serial correlation
Estimated Autocorrelations	0	No autocorrelation is incorporated in the GLS estimation
Number of Observations	744	744 firm-year observations
Number of Groups	248	248 firms
Time Periods	3	2023-2025

Source: Processed by the authors using Stata, 2026

The GLS estimation was specified under a no-autocorrelation structure, with the estimated autocorrelation reported as 0. This indicates that the model does not incorporate serial correlation in the error terms across time within firms. The estimation is based on 744 firm-year observations from 248 firms over three years.

4.1.6. Testing hypotheses

A. Coefficient of Determination (R-squared)

Explanatory ability of the model, meaning how far the independent and control variables account for variation in the dependent variable, is measured by the coefficient of determination (R^2). A larger R^2 makes the regression more explanatory. Table 8 presents the R-squared results.

Table 8. Coefficient of Determination

Indicator	Value
Number of Observations	744
R-Squared	0.0688
Adjusted R-Squared	0.0587
Root MSE	0.08552

Source: Processed by the authors using Stata, 2026

Table 8 reports an R-squared of 0.0688, which means the ESG Score, Environmental Disclosure Score, Social Disclosure Score, Governance Disclosure Score, leverage, firm size, GDP, and inflation jointly account for roughly 6.88% of the variation in ROA. A slightly lower figure of 0.0587 appears for the adjusted R-squared, while factors beyond the research model account for the other 93.12%.

B. F-Test

Joint significance of the independent and control variables on Return on Assets (ROA) is tested through the F-test, and the results are shown in Table 9.

Table 9. F-Test

Indicator	Result
F (8, 735)	6.79
Prob > F	0.0000
Conclusion	Significant

Source: Processed by the authors using Stata, 2026

In Table 9, the F-statistic of 6.79 and its probability value of 0.0000 fall below the 1% significance level, so the regression model is statistically significant. Simultaneously, then, the variables of the research model significantly affect Return on Assets (ROA).

C. t-Test

The t-test results in Table 10 show if every independent variable affects Return on Assets (ROA) as expected and with statistical significance, using the 1%, 5%, and 10% levels adopted in this study. A hypothesis finds support through a coefficient that is positive and statistically significant. Should the coefficient point the opposite way from the hypothesized one, or fail to reach statistical significance, the hypothesis is not supported.

Table 10. t-Test

Variables	Coefficient	Std. Error	t	P>|t|	Significance	Hypothesis
ESG	-0.0047225	0.0019442	-2.43	0.015	**	H1 Not supported
ENVDS	0.0018254	0.0006467	2.82	0.005	***	H2 Supported
SOCDS	0.0022955	0.0008352	2.75	0.006	***	H3 Supported
GOVDS	0.0013143	0.0005647	2.33	0.020	**	H4 Supported
LEV	-0.1103407	0.0180110	-6.13	0.000	***	-
SIZE	0.0015936	0.0017747	0.90	0.370	-	-
GDP	0.0453593	0.2665744	0.17	0.865	-	-
INF	0.1006537	0.2415349	0.42	0.677	-	-

Note: *p < 0.10; **p < 0.05; ***p < 0.01.

Source: Processed by the authors using Stata, 2026

Table 10 shows the ESG Score with a negative and statistically significant coefficient, whereas ENVDS, SOCDS, and GOVDS have positive and statistically significant coefficients. Leverage is the only control variable that is statistically significant, and its coefficient is negative. The ESG Score has a negative and statistically significant effect on ROA (β = -0.0047225; p = 0.015). Since the coefficient is negative and contrary to the proposed positive relationship, H1 is rejected. In contrast, the Environmental Disclosure Score has a positive and statistically significant effect on ROA (β = 0.0018254; p = 0.005), therefore H2 is accepted.

ROA is positively and significantly affected by the Social Disclosure Score (β = 0.0022955; p = 0.006), and H3 is therefore accepted. A positive and significant effect on ROA also comes from the Governance Disclosure Score (β = 0.0013143; p = 0.020), leading to the acceptance of H4. Regarding the control variables, leverage significantly and negatively affects ROA (β = -0.1103407; p < 0.01), but firm size, GDP, and inflation do not significantly affect ROA.

4.2. Discussion

This section interprets the results in Table 10 in terms of direction, statistical significance, and economic magnitude. Economic magnitude is calculated as the coefficient multiplied by one standard deviation of the variable (Table 2), then compared with the mean ROA of 0.0498. The estimates are interpreted as associations within the sampled firms and period, not as causal effects. They should also be read with caution because the ESG Score and its three pillars are highly correlated.

4.2.1. The Effect of ESG Score on Financial Performance (H1)

ROA is negatively and significantly affected by the ESG Score, as shown by the regression results (coefficient of -0.0047225, p-value of 0.015). H1 is therefore not supported, since the proposed relationship was positive. Estimated ROA changes by approximately -0.081 for each one-standard-deviation increase in the ESG Score (17.23), which equals about 163% of the mean ROA. Several prior studies point the other way. Overall ESG performance and firm financial performance were found by Ahmad et al. (2021) to be positively and significantly related, which they took to suggest that better sustainability practices can boost corporate performance. According to Mohammad and Wasiuzzaman (2021), ESG disclosure helps firm performance through stronger stakeholder confidence and fewer sustainability-related risks. Aydoğmuş et al. (2022) also observed that overall ESG performance and corporate profitability move together positively. For ASEAN-5 manufacturing companies in this study, however, a higher aggregate ESG Score does not automatically mean higher short-term accounting profitability.

One possible explanation for this negative relationship is that ESG-related activities may involve significant upfront costs for environmental improvement, employee and social programs, corporate governance systems, sustainability reporting, and regulatory compliance. These outlays may produce economic benefits in the long run but may increase operating costs in the short run and thus decrease ROA during the observation period. This explanation is especially applicable to manufacturing companies, where sustainability improvements can require significant investment in production processes, technology, environmental management, and compliance systems. In addition, the total ESG Score aggregates the three dimensions into one single measure. Interestingly, the Environmental, Social, and Governance Disclosure Scores have positive effects on ROA individually, whereas the aggregate ESG Score has a negative effect. This opposite sign may also be influenced by the high multicollinearity between the aggregate score and its pillars, so the coefficient of the ESG

Score should be interpreted cautiously. Hence, assessing the three pillars individually might provide a more detailed picture of the impact of ESG performance on corporate profitability.

4.2.2. The Effect of Environmental Disclosure Score on Financial Performance (H2)

Support for H2 comes from the Environmental Disclosure Score, whose coefficient of 0.0018254 (p-value of 0.005) is positive and significant at the 1% level, consistent with the predicted positive relationship. For each one-standard-deviation increase in ENVDS (22.06), ROA is estimated to change by about 0.040. That amounts to roughly 81% of the mean ROA, so the association looks economically substantial. The result echoes prior studies indicating that better environmental practices can improve corporate financial performance (Ye et al., 2023). Resource efficiency can be improved, environmental risks lessened, compliance with environmental regulations enhanced, and potential environmental-related costs lowered by companies that handle environmental issues well. Environmental management is especially relevant for manufacturing companies as production activities are closely linked to energy consumption, emissions, waste, and resource use. A higher Environmental Disclosure Score might suggest a firm's improved capacity to manage environmental risks and utilize resources more effectively. Such improvements may support operational efficiency and ultimately contribute to higher profitability as reflected in ROA.

4.2.3. The Effect of Social Disclosure Score on Financial Performance (H3)

A positive and statistically significant effect on ROA comes from the Social Disclosure Score (coefficient of 0.0022955; p-value of 0.006), and because the result is significant at the 1% level, H3 is supported. One standard deviation of added SOCDS (19.64) corresponds to an estimated ROA change of about 0.045, roughly 90% of the mean ROA, which is the largest magnitude of the three pillars. The finding agrees with earlier studies that highlight how social responsibility and stakeholder relationships promote organizational effectiveness (Li et al., 2023; Mbanyele et al., 2022). Good social performance means the company cares about its employees, working conditions, customers, communities, and other stakeholders. For manufacturing companies, social practices may directly affect employee productivity, occupational safety, stakeholder relationships, and customer confidence. Firms with stronger social practices tend to have higher levels of employee commitment, less conflict between stakeholders, and stronger corporate reputations. These conditions may lead to higher productivity and operational efficiency, which in turn can contribute to better financial performance measured by ROA.

4.2.4. The Effect of Governance Disclosure Score on Financial Performance (H4)

A positive and statistically significant effect on ROA comes from the Governance Disclosure Score (coefficient of 0.0013143; p-value of 0.020), significant at the 5% level and in the predicted positive direction, so H4 is supported. One standard deviation of added GOVDS (21.95) corresponds to an estimated ROA change of about 0.029, roughly 58% of the mean ROA, which is the smallest magnitude of the three pillars. The finding agrees with earlier studies indicating that stronger corporate governance is tied to better financial performance (Ahmad et al., 2021; Aydoğmuş et al., 2022). Strong governance practices can enhance managerial accountability, transparency, corporate oversight, and efficiency of decision-making. Good governance can also decrease managerial opportunism and agency problems through stronger internal controls and monitoring mechanisms. Stronger governance mechanisms can enable manufacturing companies operating in the ASEAN-5 to allocate assets

more efficiently and improve management's ability to make strategic and operational decisions. Thus, better governance performance may be associated with better profitability and higher ROA.

5. Conclusion

Financial performance of listed manufacturing companies in the ASEAN-5 countries during 2023 to 2025 is examined in this study through the effects of the ESG Score, Environmental Disclosure Score, Social Disclosure Score, and Governance Disclosure Score, with the Common Effect Model run on 744 firm-year observations. A significant negative effect on Return on Assets (ROA) comes from the overall ESG Score, which results in the rejection of H1. Significant positive effects on ROA come from each of the Environmental, Social, and Governance Disclosure Scores, and H2, H3, and H4 are accepted as a result. Leverage alone has a significant effect among the control variables, a negative one. Of the variation in ROA, 6.88% is accounted for by the model.

The opposite signs of the aggregate score and the three pillar scores imply that an overall ESG Score may not reflect the profitability effect of each dimension. Managers should therefore evaluate environmental, social, and governance initiatives separately and monitor their financial outcomes, while keeping leverage under control. Investors should examine the pillar-level scores alongside the aggregate score and financial indicators such as ROA and leverage. Regulators may encourage the reporting of pillar-level scores in addition to the aggregate score.

This study has several limitations. The sample covers only listed manufacturing companies in five countries over three years, financial performance is measured only by ROA, and the Common Effect Model does not account for firm-specific heterogeneity. The low explanatory power of the model shows that other factors also affect ROA, and the high VIF values indicate multicollinearity between the aggregate score and its pillars. Future research may extend the sample to other industries and a longer period, add other performance measures such as Tobin's Q, apply fixed or random effect models, and estimate the aggregate and pillar-level models separately to reduce multicollinearity.

5.1. Conflict of Interest Statement

The authors declare no financial or personal relationships that could reasonably be perceived as competing interests in connection with this publication.

5.2. Author Contributions

M.J.: Conceptualization, Methodology, Formal Analysis, Software, Visualization, Writing – Original Draft.
D.A.: Investigation, Data Curation, Validation, Writing – Review & Editing.
G.F.S.: Investigation, Data Curation, Validation, Writing – Review & Editing.

5.3. Funding Statement

No funding was received for this research from any public, commercial, or not-for-profit funding body.

5.4. Informed Consent

Not applicable. The study analyses ESG ratings and financial data for publicly listed companies and involves no human participants and no collection of personal data.

5.5. Ethical Approval

Not applicable. The research is a quantitative analysis of publicly available corporate and market data and involves no human or animal subjects, no fieldwork, and no primary data collection requiring ethical clearance.

5.6. Data Availability

The dataset analyzed in this study comprises 744 firm-year observations from 248 publicly listed manufacturing companies in Indonesia, Malaysia, Singapore, the Philippines, and Thailand, observed over 2023–2025. The ESG scores, pillar scores, and Return on Assets values were obtained from Refinitiv/LSEG Workspace, while GDP growth and inflation rates were drawn from World Bank data; all are accessible through institutional subscription and public sources respectively. Because the compiled dataset derives from a licensed commercial database, it cannot be redistributed publicly. The Stata do-file and the derived variable definitions may be requested from the corresponding author [M.J.], subject to the terms of the Refinitiv/LSEG license.

5.7. Declaration of Generative AI and AI-assisted Technologies

In preparing this manuscript, the authors drew on Claude (Anthropic) to edit language and sharpen clarity. Each output produced with the tool's help went through critical review and revision by the authors, who verified its factual accuracy, its consistency with the Stata output, and its adherence to academic writing standards. The authors take full responsibility for the manuscript's integrity and content.

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