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Comparative Analysis of ESG Performance among ASEAN Firms: Evidence from Malaysia, Singapore, Thailand, and Indonesia

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ABSTRACT:

This study examines the comparative Environmental, Social, and Governance (ESG) performance of firms in four ASEAN economies; Malaysia, Singapore, Thailand, and Indonesia from 2019 to 2023. Using secondary data obtained from Refinitiv Eikon Datastream, the analysis covers a final sample of 758 listed firms, representing 3,790 firm-year observations. The study employs a descriptive analytical approach to explore cross-country, temporal, and sectoral variations in ESG performance. The general findings show that ESG performance in ASEAN has improved steadily over the five-year period, though the rate and consistency differ among nations. Thailand continues to lead in both average ESG scores and reporting uniformity, reflecting strong regulatory frameworks and institutional support. Indonesia demonstrates sustained progress, possibly driven by sustainability regulations and the growing influence of the Otoritas Jasa Keuangan (OJK). Singapore maintains a stable yet moderate performance, consistent with its adherence to global standards such as the GRI and TCFD frameworks. Malaysia, however, exhibits a gradual decline in ESG scores and higher variability, suggesting uneven ESG adoption and differences in disclosure quality across sectors. Sectoral analysis indicates that Energy, Financials, and Industrials outperform Consumer and Technology industries, underscoring the role of regulatory enforcement and environmental exposure. Overall, the study concludes that ASEAN's ESG landscape is evolving positively but remains fragmented, highlighting the need for stronger regional harmonisation to enhance comparability, transparency, and sustainable growth.

Keywords: ASEAN, ESG performance, stakeholder theory, sustainability reporting, transparency

INTRODUCTION

In recent years, Environmental, Social, and Governance (ESG) performance has gained significant importance as a benchmark for corporate sustainability and responsible business conduct (Bagratuni et al., 2023; Gladilina et al., 2024). ESG reporting serves as a vital mechanism for assessing how firms manage environmental risks, uphold social responsibilities, and maintain ethical governance practices (Cerqueti et al., 2021). Across the Association of Southeast Asian Nations (ASEAN), the adoption of ESG principles has accelerated as governments, regulators, and investors increasingly recognise their role in fostering sustainable economic growth (Wibawa & Septianto, 2024). Frameworks such as the Global Reporting Initiative (GRI), the Task Force on Climate-related Financial Disclosures (TCFD), and the United Nations Sustainable Development Goals (SDGs) have influenced corporate behaviour, driving firms toward greater transparency and accountability (Caputo, et al., 2021).

ASEAN represents a dynamic and diverse regional bloc characterised by varying stages of economic development, regulatory capacity, and corporate governance maturity (Ionașcu et al., 2025). While countries such as Thailand and Singapore have advanced ESG disclosure systems supported by well-established institutional frameworks, Indonesia and Malaysia continue to strengthen their sustainability practices through evolving regulations and policy reforms (Chokchaisiri, 2023; Katisart et al., 2023). Despite growing momentum, ESG adoption across ASEAN remains fragmented, with substantial disparities between industries and countries. These differences are influenced by national regulatory structures, market maturity, and the extent to which firms internalise sustainability as a strategic priority.

However, the key research problem lies in the uneven progression and limited comparability of ESG performance across ASEAN economies. Although ESG awareness and reporting have expanded, there is still no clear understanding of whether these countries are converging toward a shared standard of sustainability performance or diverging due to institutional and regulatory differences. The absence of harmonised ESG frameworks has created gaps in data comparability, leading to inconsistent reporting quality and measurement practices **(**Skvarciany & Jurevičienė, 2024)**.** Consequently, policymakers, investors, and regional organisations face challenges in evaluating ASEAN's collective progress toward sustainability goals. This lack of coherence highlights the need for systematic, data-driven analysis to assess the direction and magnitude of ESG development across countries.

Although global research on Environmental, Social, and Governance (ESG) performance has expanded considerably, studies focusing on the ASEAN region remain relatively limited (Abu Afifa et al., 2025; Prabawati & Rahmawati, 2022; Mulyana et al., 2024). Much of the existing literature is country-specific or industry-focused, resulting in fragmented insights into the region's collective sustainability progress. As a result, there is limited understanding of how ESG practices vary across ASEAN economies that differ in regulatory maturity, institutional structures, and cultural contexts. Comparative analyses using standardised ESG data across multiple ASEAN countries are still scarce, leaving gaps in knowledge about how these differences influence overall ESG performance and reporting consistency (Mohamad et al., 2021).

To address this limitation, the present study provides an empirical, cross-country assessment of ESG performance among firms in Malaysia, Singapore, Thailand, and Indonesia over the period 2019 to 2023**.** By utilising standardised data from Refinitiv Eikon Datastream**,** the study conducts a descriptive evaluation of ESG trends, growth rates, and sectoral variations across these economies. Unlike prior studies that predominantly link ESG to financial performance (Fu & Li, 2023; Liu et al., 2022; Whelan et al., 2021), this research emphasises the comparative and developmental aspects of ESG adoption within ASEAN. The findings contribute to a deeper understanding of the region's evolving sustainability landscape and highlight how institutional and policy differences shape the integration of ESG principles across emerging markets.

This study contributes to the literature by presenting one of the few comprehensive, data-driven analyses of ESG performance within the ASEAN context. By focusing on four key economies; Malaysia, Singapore, Thailand, and Indonesia, the research highlights the diversity of ESG maturity levels and the influence of national policies and sectoral characteristics. The study also contributes practical value for regulators and investors by identifying areas of convergence and divergence in ESG adoption, thereby supporting efforts to harmonise reporting standards and enhance regional sustainability governance. Additionally, the findings offer a benchmark for policymakers to design targeted interventions that strengthen ESG implementation and reporting consistency across industries.

The objective of this study is to conduct a comparative analysis of ESG performance among ASEAN firms from 2019 to 2023. Specifically, the study seeks to: (1) examine the overall ESG performance of firms across Malaysia, Singapore, Thailand, and Indonesia; (2) analyse the annual growth and consistency of ESG reporting; (3) compare ESG performance across major industry sectors; and (4) evaluate the dispersion of ESG scores within and across countries. Through this descriptive analysis, the study aims to enhance understanding of regional ESG dynamics and provide a foundation for future research on the determinants and impacts of corporate sustainability practices in ASEAN economies.

The findings of this study reveal that ESG performance across ASEAN has improved steadily from 2019 to 2023, though with varying levels of progress and consistency among countries. Thailand demonstrates the highest overall ESG performance and reporting uniformity, reflecting its strong regulatory framework and institutional maturity. Indonesia shows gradual improvement driven by policy initiatives such as the OJK Green Taxonomy, while Singapore maintains moderate, yet stable performance aligned with international standards. In contrast, Malaysia records a decline and greater variability in ESG scores, indicating uneven adoption across sectors. The results also show that Energy, Financials, and Industrials sectors generally outperform consumer and technology industries, highlighting the role of regulation and environmental exposure in shaping ESG outcomes.

The subsequent sections of this paper are structured as follows. Next, the literature review discusses key theories and empirical studies related to ESG performance and sustainability reporting within emerging markets. After that, the research methodology outlines the data sources, variables, and analytical procedures used in the study. Then, the findings present the descriptive results, highlighting ESG trends, growth rates, sectoral comparisons, and cross-country variations. Finally, the paper concludes with a discussion of the main findings, policy implications, limitations, and recommendations for future research.

LITERATURE REVIEW

The Concept of ESG and Its Dimensions

The concept of Environmental, Social, and Governance (ESG) performance has emerged as a comprehensive framework for evaluating a company's commitment to sustainability, ethical behaviour, and long-term value creation (Wielechowski & Krasuski, 2024). The environmental dimension focuses on a firm's impact on the natural environment, including its management of carbon emissions, resource efficiency, and climate-related risks (Chou et al., 2023; Trahan & Jantz, 2023). The social dimension assesses how organisations manage relationships with employees, customers, suppliers, and communities, addressing issues such as diversity, labour practices, and social inclusion (Becchetti et al., 2022; Lopes et al., 2025). The governance dimension reflects corporate leadership, transparency, accountability, and the integrity of decision-making processes (Müller et al., 2025). Together, these three pillars form the foundation of sustainable corporate practices and serve as benchmarks for investors, regulators, and other stakeholders.

Globally, the rise of ESG has been supported by several key initiatives, including the Global Reporting Initiative (GRI)**,** the Task Force on Climate-related Financial Disclosures (TCFD)**,** and the Sustainability Accounting Standards Board (SASB) (Ibrahim et al., 2024). These frameworks have established standardised principles for reporting non-financial performance, encouraging greater transparency and comparability across firms and countries (Chua et al., 2024). The increasing integration of ESG metrics into investment decision-making reflects a broader recognition that financial success and sustainability are interdependent. For emerging economies, particularly within ASEAN, ESG performance plays an essential role in attracting responsible investment and enhancing competitiveness in global markets (Abu Afifa et al., 2025). However, the pace and depth of ESG adoption vary significantly across the region, largely due to differences in regulatory maturity, market readiness, and institutional capacity.

Theoretical Foundation: Stakeholder Theory

The stakeholder theory provides the primary theoretical foundation for this study. Proposed by Freeman (1984), the theory posits that organisations exist within a network of relationships involving various stakeholders (Dmytriyev et al., 2021). This includes shareholders, employees, customers, suppliers, governments, and communities, each of whom has vested interests in corporate activities (Mu et al., 2024). According to this theory, firms must balance the needs and expectations of these different groups to achieve long-term sustainability (Awa et al., 2024). In the context of ESG, the theory suggests that companies engage in environmental, social, and governance initiatives not solely for-profit maximisation but to maintain strong relationships with stakeholders and secure their continued support (Valentinov & Hajdu, 2021).

Applying the stakeholder theory to ESG performance highlights that corporate sustainability practices are driven by both internal motivations and external pressures (Wong et al., 2023). Investors demand transparency and responsible behaviour. Regulators, on the other hand expect compliance with environmental while governance standards and society increasingly values ethical and inclusive business practices. Firms that respond effectively to these expectations are more likely to enhance their reputation, attract capital, and build trust (Amiraslani et al., 2023). Within the ASEAN context, the degree of stakeholder pressure differs across countries and industries. For example, listed companies in Singapore and Thailand face strong institutional and investor demands for ESG disclosure, while firms in Malaysia and Indonesia are gradually adapting to similar expectations through policy encouragement. This theoretical perspective provides a useful lens for interpreting the observed differences in ESG performance across ASEAN economies, emphasising that stakeholder influence and institutional responsiveness are central to sustainable corporate behaviour (Dao & Phan, 2023; Handoyo & Anas, 2024; Soon, 2021)

Empirical Studies on ESG Performance

Globally, empirical research has increasingly linked ESG performance to financial and non-financial outcomes. Numerous studies conducted in developed economies such as the United States, the United Kingdom, and the European Union have found positive relationships between ESG practices and firm value, profitability, and risk management (Gawęda, 2024; Quintiliani, 2022; Tahmid et al., 2022). Friede, Busch, and Bassen (2015), for example, conducted a meta-analysis of over 2,000 studies and concluded that firms with strong ESG performance tend to experience superior financial outcomes and lower capital costs. This evidence supports the growing belief that responsible corporate behaviour contributes to long-term competitiveness and resilience. In addition, the rise of socially responsible investing (SRI) and green financing has made ESG performance an increasingly important criterion for investors globally.

In contrast, the literature on ESG in emerging markets particularly within ASEAN remains relatively limited but is gradually expanding (Mohamad & Saad, 2021). Studies have shown that ESG adoption in this region is influenced by regulatory reforms, market expectations, and cultural values. In Thailand**,** for instance, the Securities and Exchange Commission (SEC) has been instrumental in enforcing sustainability reporting requirements, making Thailand a leader in regional ESG adoption. Research on Singapore indicates that its firms tend to have more consistent ESG disclosure practices due to the Singapore Exchange (SGX) requirement for annual sustainability reports since 2017. In Malaysia, despite the introduction of the Bursa Malaysia Sustainability Reporting Guide, ESG reporting practices remain uneven, particularly among smaller firms (Misman & Adnan, 2023). Meanwhile, Indonesia is progressing toward greater ESG integration through initiatives such as the Financial Services Authority (OJK) Green Taxonomy, which promotes environmentally sustainable investment (Antoni, 2024).

Comparative studies suggest that while awareness of ESG principles is increasing across ASEAN, significant disparities persist in disclosure quality, sectoral engagement, and institutional enforcement (Abu Afifa et al., 2025; Hara, 2025). Energy and financial sectors typically lead in ESG performance, reflecting higher regulatory scrutiny and investor interest. Conversely, consumer and technology sectors lag due to less stringent oversight and varying stakeholder pressures. These empirical findings underline the need for harmonised ESG standards across ASEAN to improve data comparability and foster sustainable business ecosystems.

ESG Regulations and Reporting Frameworks in ASEAN

ASEAN countries have adopted diverse ESG reporting frameworks reflecting their regulatory environments and economic structures. Malaysia introduced the Bursa Malaysia Sustainability Reporting Guide in 2015, revised in 2022, requiring listed firms to report material sustainability issues. While adoption among large firms is relatively high, smaller companies still face challenges due to limited resources and expertise. Singapore has taken a leading role by mandating sustainability reporting for all listed companies under the Singapore Exchange (SGX) rules since 2017, aligning its disclosure practices with global standards such as GRI and TCFD. Thailand has also demonstrated strong progress through the Thai SEC's mandatory sustainability disclosure requirements, making ESG integration a core part of corporate governance. Indonesia**,** meanwhile, has advanced through the OJK's regulations on sustainable finance, which encourage firms to embed ESG considerations into operational and strategic decision-making (Irianto et al., 2025).

Despite these positive developments, differences in enforcement levels, reporting scope, and institutional capacity continue to create inconsistencies across the region. As a result, while some ASEAN countries have achieved substantial progress, others remain in earlier stages of ESG integration. These differences underscore the importance of regional collaboration to harmonise ESG frameworks, enhance transparency, and support firms in improving sustainability performance.

RESEARCH METHODOLOGY

A. Research Design

The study adopts a descriptive and comparative research design, which is appropriate for analysing temporal and regional variations in ESG performance. The descriptive component enables the examination of ESG trends over time, while the comparative element facilitates cross-country and cross-sector evaluation. Through this approach, the study identifies how firms in different ASEAN economies perform relative to each other and highlights variations arising from institutional, regulatory, and industrial differences. The use of descriptive statistics including averages, growth rates, and measures of dispersion provides an objective and replicable framework for evaluating ESG performance.

B. Data Source and Sample

The data used in this study were obtained from the Refinitiv Eikon Datastream, a globally recognised database that provides standardised ESG scores and comprehensive financial and sustainability data. Refinitiv's ESG database compiles information from multiple publicly available sources, including annual reports, corporate sustainability disclosures, stock exchange filings, and news reports. It assesses firms on a consistent set of environmental, social, and governance indicators to ensure comparability across countries and industries. The ESG Combined Score, which reflects both ESG performance and disclosure quality serves as the primary measure of corporate sustainability in this study.

The use of Refinitiv Eikon is justified by its credibility, reliability, and global acceptance among researchers and practitioners (Andréason & Miskolczi, 2024; Alakent & Goktan, 2025). Its standardised methodology allows for meaningful cross-country comparisons while minimising reporting bias. Additionally, since Refinitiv applies uniform criteria for evaluating all listed firms, it ensures that variations in ESG scores reflect actual performance differences rather than differences in data collection methods (Funken, 2023; Marsico, 2022).

The sample for this study consists of publicly listed firms from four ASEAN stock exchanges: Bursa Malaysia, Singapore Exchange (SGX), Stock Exchange of Thailand (SET), and Indonesia Stock Exchange (IDX). These countries were selected because they represent some of the largest and most economically advanced markets in the ASEAN region, each with evolving ESG reporting frameworks and sustainability disclosure requirements.

The study covers the period 2019 to 2023, allowing for the assessment of ESG trends during a time of significant regulatory and institutional development in sustainability reporting. Firms included in the dataset were selected based on the availability of complete ESG Combined Scores over the five-year period. Companies with missing or incomplete ESG data were excluded to ensure the reliability of results.

To ensure data consistency and validity, firms with incomplete or missing ESG observations across the study period were systematically removed during the data-cleaning process. This step resulted in a final balanced panel of 758 firms (372 from Malaysia, 92 from Singapore, 201 from Thailand, and 93 from Indonesia) that had complete ESG scores for all five years (2019–2023). By focusing on this clean dataset, the analysis reflects the true trends and patterns of ESG performance without distortion from missing or inconsistent records.

The sample includes firms from diverse sectors including Energy, Financials, Industrials, Consumer Staples, and Technology. These diverse industries are included to capture a broad view of ESG engagement across industries. This multi-sectoral representation allows for both inter-country and intra-sector comparisons, reflecting the diverse economic structures within ASEAN.

C.Variables of the Study

The primary variable analysed in this study is the ESG Combined Score, which represents the overall sustainability performance of a firm. This score is derived from Refinitiv's proprietary ESG scoring methodology, which evaluates approximately 450 indicators across three key dimensions which are environmental, social, and governance (Ghannadighomi et al., 2023; Midtkandal & Kyte, 2023; Wieczorek-Kosmala et al., 2021). The environmental dimension assesses performance in areas such as carbon emissions, energy efficiency, waste management, and environmental innovation (Koseoglu et al., 2024). The social dimension measures workforce diversity, employee relations, community engagement, and product responsibility (Alhazemi, 2025; Koseoglu et al., 2024; Oana-Marina et al., 2024). The governance dimension evaluates board structure, shareholder rights, transparency, and audit quality (Kartikasary et al., 2023). Together, these three components provide a holistic measure of a firm's sustainability and ethical performance.

For analytical purposes, the study focuses on three key statistical measures: mean ESG scores**,** compound annual growth rates (CAGR), and standard deviation (SD). The mean ESG score represents the average sustainability performance for each country or sector, serving as an indicator of overall ESG maturity. The CAGR measures the annualised growth rate of ESG performance over the five-year period (2019–2023), capturing the trend of improvement or decline. The standard deviation and range reflect the degree of consistency or variability in ESG performance across firms within a given country, indicating whether sustainability practices are uniformly adopted or unevenly distributed. These variables are summarised in Table 1.

Table 1: Summary of Variables

Variable	**Description**	**Purpose in Study**
ESG Combined Score	Represents a firm's overall sustainability performance based on environmental, social, and governance criteria.	Measures overall ESG engagement and disclosure quality across countries.
Environmental Dimension	Evaluates factors such as carbon emissions, resource use, waste management, and environmental innovation.	Assesses environmental responsibility and operational sustainability.
Social Dimension	Measures workforce diversity, employee relations, human rights, community involvement, and product responsibility.	Evaluates a firm's social impact and stakeholder engagement.
Governance Dimension	Examines board structure, shareholder rights, ethical practices, transparency, and audit standards.	Assesses governance integrity and corporate accountability.
Mean ESG Score	The average ESG score across firms within a country or sector for a given year.	Indicates the general level of ESG performance.
Compound Annual Growth Rate (CAGR)	Annualized growth rate of ESG scores between 2019 and 2023.	Captures the pace of improvement or decline in ESG performance over time.
Standard Deviation (SD) and Range	Measures the spread and variability of ESG scores among firms within each country.	Evaluates the level of consistency or dispersion in ESG adoption.

D. Data Analysis Techniques

The study employs descriptive statistical techniques to analyse ESG performance across the four ASEAN countries. The data were first cleaned and verified to ensure accuracy and completeness. Subsequently, the mean ESG scores, CAGR, and standard deviation values were computed to assess the overall level, growth, and variability of ESG performance, respectively. The analysis was conducted using Microsoft Excel and SPSS statistics version 29 for data processing.

The following analytical steps were undertaken: (1) calculation of annual and average ESG scores for each

country; (2) estimation of CAGR to determine annualised growth rates; (3) comparison of ESG performance across sectors to identify leading and lagging industries; and (4) computation of standard deviation and range to assess the consistency of ESG practices among firms. The results were summarised in tables and charts to provide a clear representation of ESG performance trends and cross-country variations.

DISCUSSION AND FINDINGS

This section describes the descriptive results of ESG performance across firms in Malaysia, Singapore, Thailand, and Indonesia from 2019 to 2023. It highlights the overall trends, differences, and patterns in Environmental,

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Social, and Governance (ESG) scores among ASEAN countries. The analysis presents comparisons of average ESG performance over time, growth rates, and sectoral variations, offering insights into how sustainability practices have evolved within each country and across key industries during the study period.

A. Descriptive of Sample Firms

The study sample comprises firms with complete ESG data between 2019 and 2023, drawn from four major ASEAN stock exchanges: Bursa Malaysia, Singapore Exchange (SGX), Stock Exchange of Thailand (SET), and Indonesia Stock Exchange (IDX). Firms with missing or incomplete ESG scores were excluded to ensure analytical consistency and comparability across time. Table 4.0 presents the number of sample firms, the corresponding firm-year observations (i.e., number of firms multiplied by five years), and their percentage contribution to the total sample.

Table 2: Distribution of Sample Firms and Firm-Year Observations by Country (2019–2023)

Country	Number of Firms	Firm-Year Observations (2019–2023)	Percentage of Total Sample (%)
Malaysia	372	1,860	49.1%
Singapore	92	460	12.1%
Thailand	201	1,005	26.5%
Indonesia	93	465	12.3%
Total	**758**	**3,790**	**100%**

Source: Authors' computation based on Refinitiv Eikon Datastream (2019–2023).

Table 2 shows that the final sample consists of 758 firms, representing a total of 3,790 firm-year observations across four ASEAN economies for the period 2019–2023. Malaysia contributes nearly half of the total sample (49.1%), followed by Thailand (26.5%), while Singapore and Indonesia each account for around 12%. The relatively balanced representation across countries enhances the robustness of the cross-country comparison and provides a reliable foundation for analysing ESG performance trends across the ASEAN region.

B. Overview of ESG Performance (2019–2023)

Table 3: Average ESG Performance of ASEAN Firms (2019–2023)

Year	Thailand	Indonesia	Malaysia	Singapore
2023	54.69	50.61	43.74	52.54
2022	53.70	49.83	41.58	50.73
2021	51.45	49.38	40.83	49.91
2020	49.52	49.34	46.57	47.48
2019	48.71	49.31	54.27	46.04

Source: Authors' analysis using cleaned firm-level ESG data from Refinitiv Eikon Datastream (2019–2023).

Table 3 presents the comparative analysis of ESG performance across four ASEAN economies; Malaysia, Singapore, Thailand, and Indonesia for the period 2019 to 2023. The overall trend shows a gradual increase in ESG performance across the region, signifying growing attention to sustainability integration among ASEAN firms. Thailand continues to outperform its regional peers, maintaining the highest ESG scores throughout the five-year period, followed closely by Singapore.

As shown in Table 3, Thailand's ESG scores improved steadily from 48.71 in 2019 to 54.69 in 2023, reflecting strong regulatory commitment and institutional support for sustainability disclosure. This improvement aligns

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with national-level initiatives led by the Thai Securities and Exchange Commission, which have enhanced transparency and stakeholder accountability. Indonesia also shows gradual and consistent improvement in ESG performance, rising from 49.31 to 50.61 during the same period. This suggests that evolving frameworks, such as the OJK Green Taxonomy, are gradually enhancing corporate sustainability reporting.

Singapore, on the other hand, exhibited a more moderate but stable level of ESG performance. The average ESG score rose from 46.04 in 2019 to 52.54 in 2023, reflecting the influence of international reporting standards and the maturity of its corporate governance environment. The improvement observed among large-cap firms indicates that global expectations are shaping ESG integration in Singapore’s corporate landscape.

In contrast, Malaysia demonstrates a noticeable decline in ESG performance, falling from 54.27 in 2019 to 43.74 in 2023. This drop indicates possible inconsistencies in disclosure practices and transitional challenges in adopting new reporting frameworks. Table 4.2 shows that while all ASEAN countries have made progress in ESG adoption, Thailand and Singapore lead the region in sustainability integration, whereas Malaysia’s downward trend highlights the need for stronger institutional coherence.

C. ESG Growth Rates (2019–2023)

Table 4 presents the compound annual growth rates (CAGR) of ESG performance for firms in Thailand, Singapore, Indonesia, and Malaysia from 2019 to 2023. This analysis measures the average annual rate of change in ESG scores, capturing how rapidly or gradually sustainability practices have evolved within each country.

Table 4: ESG Growth Rates among ASEAN Firms (2019–2023)

Country	ESG 2019	ESG 2023	CAGR (2019–2023)
Thailand	48.71	54.69	+2.94%
Singapore	46.04	52.54	+3.36%
Indonesia	49.31	50.61	+0.65%
Malaysia	54.27	43.74	−5.25%

Source: Authors’ analysis using cleaned firm-level ESG data from Refinitiv Eikon Datastream (2019–2023).

Table 4 shows that Thailand and Singapore continue to lead in ESG performance growth, recording positive annual increases of +2.94% and +3.36%**,** respectively. These results reflect strong policy support, institutional frameworks, and growing investor demand for sustainability disclosures in both countries. Thailand’s progress is underpinned by mandatory ESG reporting requirements enforced by the Thai Securities and Exchange Commission (SEC), which have strengthened corporate accountability and transparency. Similarly, Singapore’s strong performance reflects its adherence to global sustainability frameworks such as the Global Reporting Initiative (GRI) and the growing integration of ESG standards among publicly listed firms.

Indonesia demonstrates moderate growth, with a CAGR of +0.65% between 2019 and 2023. This steady increase indicates that the country’s corporate sector is gradually responding to evolving sustainability regulations, including the implementation of the OJK Green Taxonomy and the adoption of sustainable finance guidelines. The improvement reflects institutional progress, though further harmonisation of disclosure practices across sectors remains necessary to sustain long-term ESG development.

In contrast, Malaysia recorded a negative growth rate of −5.25%**,** highlighting a decline in ESG performance over the study period. This suggests inconsistencies in disclosure quality and potential reporting fatigue following earlier waves of sustainability reporting adoption. The variability may also reflect sectoral imbalances, where some industries show strong ESG adoption while others lag behind. Overall, Table 4 emphasises Thailand’s and Singapore’s leadership in ESG advancement within the ASEAN region, while revealing disparities that point to differing levels of institutional maturity.

D. Sectoral ESG Performance (2019–2023)

Table 5 below presents a cross-country comparison of ESG performance by sector across four ASEAN economies; Thailand, Indonesia, Malaysia, and Singapore for the period 2019 to 2023.

Table 5: Sectoral Comparison of ESG Performance across ASEAN Countries (2019–2023)

Sector	Thailand	Indonesia	Malaysia	Singapore	ASEAN Mean
Energy (Mining, Quarrying, and Oil & Gas Extraction)	74.7	67.8	50.2	—	64.2
Financials (Finance and Insurance)	51.8	53.4	60.3	50.4	54.0
Industrials (Manufacturing & Construction)	54.0	43.6	41.9	52.4	48.0
Consumer Staples (Retail & Wholesale Trade)	49.3	41.7	39.8	42.6	43.4
Technology (Information & Professional Services)	53.9	45.1	46.5	54.0	49.9

Source: Authors' analysis using cleaned firm-level ESG data from Refinitiv Eikon Datastream (2019–2023).

As shown in Table 5, ESG performance varies significantly across sectors and countries, highlighting how industry characteristics and regulatory focus influence sustainability outcomes. On average, sectors tied to environmental and financial governance, such as Energy and Financials, display stronger ESG scores than consumer-oriented or technology-driven sectors. This pattern aligns with prior studies showing that industries facing higher stakeholder scrutiny tend to adopt ESG principles more rigorously.

The Energy sector continues to demonstrate the highest ESG performance across ASEAN, with an overall mean of 64.2. Thailand (74.7) and Indonesia (67.8) lead this category, reflecting the strong influence of national energy transition policies and disclosure mandates. Malaysia's performance (50.2) indicates moderate progress, while Singapore's limited representation in this sector prevents a reliable average. The results suggest that regulatory enforcement and resource-sector transparency play crucial roles in advancing ESG practices in high-impact industries.

The Financials sector also shows robust sustainability engagement, with an ASEAN mean of 54.0. Malaysia leads at 60.3. This could be due to the impact of Bank Negara Malaysia's sustainability reporting guidelines. Indonesia (53.4) and Thailand (51.8) follow closely, supported by their respective financial regulators' ESG mandates. Singapore's financial firms (50.4) maintain consistent disclosure quality, reflecting global compliance expectations. These findings confirm that sectors with well-established reporting standards and investor oversight tend to exhibit stronger ESG performance.

By contrast, Industrials, Consumer Staples, and Technology sectors show relatively moderate ESG integration. Thailand's Industrial sector (54.0) performs best within its category, indicating regulatory influence from the Thai SEC's sustainability disclosure requirements. Malaysia and Indonesia lag, suggesting uneven adoption among manufacturing firms. The Technology sector shows growing maturity, with Singapore (54.0) and Thailand (53.9) leading the region. This reflects strong digital governance and transparency culture, while Malaysia (46.5) and Indonesia (45.1) show ongoing development.

Overall, Table 5 highlights distinct sectoral dynamics across ASEAN countries. It demonstrates that industries closely aligned with financial regulation and environmental policy, such as Energy and Financials, are advancing faster in ESG adoption. In contrast, consumer and technology-oriented sectors are evolving steadily but remain in earlier stages of sustainability integration.

E. ESG Dispersion (Standard Deviation Analysis)

Table 6 illustrates the dispersion of ESG performance among firms in Thailand, Indonesia, Malaysia, and Singapore from 2019 to 2023, after adjusting for outliers to ensure data representativeness and accuracy.

Table 6: ESG Dispersion across ASEAN Countries (2019–2023)

Country	Mean ESG (2019–2023)	Std. Dev.	Range (Min–Max)
Thailand	52.23	16.69	8.82–87.68
Indonesia	49.78	18.53	15.06–87.26
Malaysia	43.05	17.84	10.39–85.34
Singapore	49.46	14.92	15.78–81.04

Source: Authors' analysis using cleaned firm-level ESG data from Refinitiv Eikon Datastream (2019–2023).

Table 6 provides the mean ESG scores, standard deviations, and score ranges for each country, offering insights into the variability and consistency of ESG adoption within each national context. After outlier adjustment, the results more accurately reflect general trends in sustainability performance among ASEAN firms. The observed differences in dispersion across the four countries suggest variations in regulatory maturity, industry structure, and corporate commitment to sustainability reporting.

Thailand recorded the highest mean ESG score of 52.23**,** with a standard deviation of 16.69**,** indicating strong yet moderately varied ESG adoption. The range **(**8.82–87.68**)** reflects broad corporate engagement across industries but without extreme inconsistencies, suggesting a balanced sustainability landscape supported by the Thai SEC's disclosure mandates. These results highlight that Thailand continues to lead the region in aligning corporate behaviour with environmental and governance expectations.

Indonesia follows closely with a mean ESG score of 49.78 and a standard deviation of 18.53, reflecting steady progress and moderate variability across firms. The range **(**15.06–87.26**)** indicates that while ESG adoption is growing, differences persist among sectors, particularly between large, state-linked enterprises and smaller private firms. This dispersion pattern aligns with Indonesia's ongoing institutional transition toward standardised sustainability frameworks, such as the OJK's Green Taxonomy initiative.

Malaysia and Singapore exhibit wider score dispersion, suggesting more diverse ESG maturity levels across firms. Malaysia's mean ESG score of 43.05 and standard deviation of 17.84 point to uneven adoption across sectors, with some industries showing strong integration while others remain early in implementation. The range **(**10.39–85.34**)** indicates that while top-performing firms are competitive regionally, the overall consistency is still developing. Singapore shows a comparable mean score **(**49.46**)** but the lowest standard deviation **(**14.92) and a narrower range **(**15.78–81.04), **s**uggesting relatively consistent ESG practices driven by international standards and regulatory expectations.

It can be seen from Table 6 that while Thailand and Singapore display higher consistency and maturity in ESG performance, Indonesia and Malaysia show greater variability due to uneven sectoral adoption and evolving institutional frameworks. These findings emphasise the importance of continued policy harmonisation and enhanced disclosure enforcement to improve ESG comparability and regional alignment within ASEAN.

CONCLUSION AND RECOMMENDATIONS

The findings of this study indicate that ESG performance across ASEAN countries has improved steadily from 2019 to 2023, though at varying rates and levels of consistency. Thailand emerged as the regional leader, demonstrating both high average ESG scores and strong reporting uniformity. This reflects the success of its sustainability-focused regulations and the active role of the Thai Securities and Exchange Commission (SEC) in mandating ESG disclosures. The results highlight Thailand's balanced progress across multiple sectors, especially Industrials and Financials, where regulatory alignment and investor awareness have accelerated ESG adoption.

Indonesia's steady ESG improvement suggests a transition toward institutional maturity, driven by initiatives from the Otoritas Jasa Keuangan (OJK) and the adoption of the Green Taxonomy. The Energy and Financial sectors are particularly strong, reflecting policy efforts to embed sustainability in high-impact industries. This consistent upward trend indicates that Indonesia's corporate sector is responding positively to government-led frameworks for sustainable finance. However, more progress is needed in harmonising reporting practices across sectors to ensure consistency and comparability in ESG disclosure.

Singapore's ESG performance remained stable yet progressively improving, largely driven by its adherence to global sustainability frameworks such as the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD). The country's technology and financial sectors continue to demonstrate strong governance, transparency, and accountability, reflecting a high level of institutional maturity. Although Singapore recorded one of the fastest ESG growth rates in the region, the pace of improvement appears moderate due to its already advanced baseline and well-established reporting practices.

In contrast, Malaysia exhibited the greatest variation in ESG outcomes, characterised by declining average scores and wider dispersion among firms. This inconsistency reflects sectoral heterogeneity and differing levels of corporate commitment to sustainability principles. The findings highlight the need for more cohesive national frameworks and stronger policy enforcement to enhance the consistency, comparability, and overall quality of ESG reporting among Malaysian firms. Nevertheless, Malaysia continues to demonstrate strong potential for improvement, supported by active initiatives from regulatory bodies such as Bursa Malaysia and the Securities Commission to promote sustainable finance and strengthen ESG disclosure requirements.

Although this study offers valuable insights into the comparative ESG performance of ASEAN firms, several limitations should be acknowledged. First, the analysis relies exclusively on secondary data obtained from the Refinitiv Eikon Datastream, which, despite being a reputable and comprehensive source, depends on the accuracy and completeness of company disclosures. Variations in data coverage, reporting frequency, and methodology used by Refinitiv may have affected the consistency of ESG scores across countries and sectors. Second, the study focuses on four ASEAN economies; Malaysia, Singapore, Thailand, and Indonesia which are representative of the region's major markets but do not capture the full ASEAN landscape. Including additional countries such as Vietnam or the Philippines could provide a broader and more holistic view of regional ESG developments.

Third, the study employs a descriptive analytical approach**,** emphasising trends, averages, and sectoral comparisons rather than testing causal relationships. While this approach effectively highlights ESG performance patterns and disparities, it does not empirically identify the factors driving these differences, such as corporate size, ownership structure, or regulatory influences. Additionally, the analysis is limited to the period 2019–2023**,** which, although recent, may not fully capture the long-term evolution of ESG practices, particularly as sustainability reporting frameworks continue to mature across the region.

Despite these limitations, the study contributes significantly to the growing body of literature on corporate sustainability and ESG performance in emerging markets. It offers one of the few comparative analyses of ASEAN firms using a consistent dataset from Refinitiv Eikon Datastream, providing valuable empirical evidence on regional ESG dynamics. By examining cross-country and sectoral variations, the study enhances understanding of how institutional frameworks, regulatory environments, and industry characteristics shape ESG outcomes. The findings serve as a foundation for policymakers, investors, and researchers seeking to strengthen sustainability reporting, harmonise ESG standards, and promote responsible business practices across the ASEAN region.

For future research, it is recommended to integrate quantitative and inferential methods**,** such as panel regression or structural equation modelling, to investigate the determinants and financial impacts of ESG performance among ASEAN firms. Researchers could also explore comparative studies between ASEAN and other regional blocs (e.g., the European Union or South Asia) to assess differences in ESG adoption and regulatory effectiveness. Furthermore, qualitative approaches, including interviews with corporate sustainability officers, investors, and policymakers could provide deeper insights into institutional challenges and motivations behind ESG disclosure. Expanding the scope beyond ESG scores to include specific environmental, social, and governance sub-indicators would also allow for a more detailed examination of sustainability dimensions.

All in all, future research should aim to complement this descriptive foundation with contextual analyses**,** enhancing understanding of how regulatory, cultural, and market dynamics shape ESG performance in emerging

ASEAN economies. This would provide policymakers and practitioners with more evidence-based insights to strengthen sustainability governance and harmonise ESG standards across the region.

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REFERENCES

1. Abu Afifa, M., Nguyen, N. M., & Bui, D. V. (2025). Environmental, social and governance (ESG) disclosure quality in developing countries: Evidence from the ASEAN region. Corporate Governance: The International Journal of Business in Society. https://doi.org/10.1108/CG-03-2024-0110
2. Alakent, E., & Goktan, M. S. (2025). Do variations in institutional characteristics across countries affect ESG reporting ratings? Journal of Accounting, Ethics & Public Policy (JAEPP), 26(1), 57–77.
3. Alhazemi, A. (2025). Integrating ESG framework with social sustainability metrics: A dual SEM–PLS formative–reflective model perspective. Sustainability, 17(6), 2566. https://doi.org/10.3390/su17062566
4. Amiraslani, H., Lins, K. V., Servaes, H., & Tamayo, A. (2023). Trust, social capital, and the bond market benefits of ESG performance. Review of Accounting Studies, 28(2), 421–462.
5. Andréason, L., & Miskolczi, V. (2024). Navigating ESG: Examining the relationship between ESG and bankruptcy risk for European manufacturers. European Journal of Sustainable Finance and Investment, 14(2), 118–134.
6. Antoni, A. (2024). Analysis of the impact of ESG (environmental, social, governance) on company financial performance in Indonesia post–Green Taxonomy implementation. Amkop Management Accounting Review (AMAR), 4(2), 75–86.
7. Awa, H. O., Etim, W., & Ogbonda, E. (2024). Stakeholders, stakeholder theory and corporate social responsibility (CSR). International Journal of Corporate Social Responsibility, 9(1), 11-25. https://doi.org/10.1186/s40991-024-00091-4
8. Bagratuni, K., Kashina, E., Kletskova, E., Kapustina, D., Ivashkin, M., Sinyukov, V., Karshalova, A., Hajiyev, H., & Hajiyev, E. (2023). Impact of socially responsible business behavior on implementing the principles of sustainable development (Experience of large business). International Journal of Sustainable Development & Planning, 18(8), 2481–2488. https://doi.org/10.18280/ijsdp.180819
9. Becchetti, L., Bobbio, E., Prizia, F., & Semplici, L. (2022). Going deeper into the "S" of ESG: A relational approach to the definition of social responsibility. Sustainability, 14(15), 9668. https://doi.org/10.3390/su14159668
10. Caputo, F., Pizzi, S., Ligorio, L., & Leopizzi, R. (2021). Enhancing environmental information transparency through corporate social responsibility reporting regulation. Business Strategy and the Environment, 30(8), 3470–3484.
11. Cerqueti, R., Ciciretti, R., Dalò, A., & Nicolosi, M. (2021). ESG investing: A chance to reduce systemic risk. Journal of Financial Stability, 54, 100887.
12. Chokchaisiri, P. (2023). ESG performance and dividend payout in ASEAN: The moderation by cash holdings (Doctoral dissertation, Thammasat University).
13. Chou, C., Clark, R., & Kimbrough, S. O. (2023). What do firms say in reporting on impacts of climate change? An approach to monitoring ESG actions and environmental policy. Corporate Social Responsibility and Environmental Management, 30(5), 2664–2678.
14. Chua, W. F., James, R., King, A., Lee, E., & Soderstrom, N. (2022). Task Force on Climate-related Financial Disclosures (TCFD) implementation: An overview and insights from the Australian Accounting Standards Board Dialogue Series. Australian Accounting Review, 32(3), 396–405.
15. Dao, T. T. B., & Phan, M. C. (2023). Stakeholder theory, risk-taking and firm performance. Corporate Governance: The International Journal of Business in Society, 23(7), 1623–1647.
16. Dmytriyev, S. D., Freeman, R. E., & Hörisch, J. (2021). The relationship between stakeholder theory and corporate social responsibility: Differences, similarities, and implications for social issues in management. Journal of Management Studies, 58(6), 1441–1470.
17. Freeman, R. E. (1984). Strategic management: A stakeholder approach. Boston, MA: Pitman.

18. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210–233. https://doi.org/10.1080/20430795.2015.1118917
19. Fu, T., & Li, J. (2023). An empirical analysis of the impact of ESG on financial performance: The moderating role of digital transformation. Frontiers in Environmental Science, 11, 1256052.
20. Funken, S. (2023). Theory and empirical evidence on the accuracy of ESG metrics: An empirical investigation of Refinitiv ESG performance scores (Doctoral dissertation, Bergische Universität Wuppertal).
21. Gawęda, A. (2024). Does the sustainability of the country differentiate the ESG of companies and how it affects the relationship between ESG and firm value? Evidence from the European Union. Annales Universitatis Mariae Curie-Skłodowska, Sectio H Oeconomia, 58(4), 7–23.
22. Ghannadighomi, N., Johansson, E., & Saliba, B. (2023). An empirical study about the relationship between ESG and firm performance in Nordic countries with the moderating effect of environmental innovation. Scandinavian Journal of Business Research, 15(2), 88–105.
23. Gladilina, I., Hajiyev, H., Vaslavskaya, I., Kirillova, E., Dymchenko, O., Hajiyev, E., Averina, O., & Shechitah, R. (2024). Adapting ESG principles to contracting practices: Towards sustainable business agreements. International Journal of Sustainable Development & Planning, 19(7), 2627–2634. https://doi.org/10.18280/ijsdp.190719
24. Handoyo, S., & Anas, S. (2024). The effect of environmental, social, and governance (ESG) on firm performance: The moderating role of country regulatory quality and government effectiveness in ASEAN. Cogent Business & Management, 11(1), 2371071.
25. Hara, M. (2025). Sustainable business and global supply chains in ASEAN: Escaping the middle-income trap. American Journal of Business Science Philosophy (AJBSP), 181–199.
26. Ibrahim, M., Auwal, B. M., Balarabe, A. S., & Isa, I. A. (2024). Sustainability reporting frameworks: A comparative analysis of reporting standards and their implications for accounting and reporting. International Journal of Accounting, Finance and Administrative Research, 1(2), 32–47.
27. Ionașcu, A. E., Hordofa, D. F., Dănilă, A., Spătariu, E. C., Burcă, A. L., & Horga, M. G. (2025). ESG performance in the EU and ASEAN: The roles of institutional governance, economic structure, and global integration. Sustainability, 17(17), 7997.
28. Irianto, E. D. O., Kesuma, M. R., Aini, R. N., Henrika, M., & Ariswati, L. D. (2025). Role of sustainable finance in driving environmental, social and governance (ESG)-based investments. JEMBA: Jurnal Ekonomi Pembangunan, Manajemen & Bisnis, Akuntansi, 5(1), 36–46.
29. Kartikasary, M., Adi, M. P. H., Sitinjak, M. M., Hardiyansyah, H., & Sari, D. Y. (2023). Environmental, social and governance (ESG) report quality and firm value in Southeast Asia. In E3S Web of Conferences (Vol. 426, p. 02087). EDP Sciences.
30. Katisart, N., Strache, S., & Saenchaiyathon, K. (2023). ESG disclosure in Thailand: An analysis of hard and soft disclosures. Journal of Accounting Profession, 19(63), 106–133.
31. Koseoglu, M. A., Arici, H. E., Saydam, M. B., & Olorunsola, V. O. (2024). Environmental, social and governance assets and diversity scores: Exploring their relationship to carbon emissions in global companies. Management Decision, 62(10), 3181–3207.
32. Liu, P., Zhu, B., Yang, M., & Chu, X. (2022). ESG and financial performance: A qualitative comparative analysis in China's new energy companies. Journal of Cleaner Production, 379, 134721.
33. Lopes, F. R. R., De Araujo, F. O., Do Nascimento, F. R., & Dos Santos Ramos, W. (2025). ES(?)G—The social dimension as a necessary counterpoint to the market's desires. In Critical Factors Associated with Environmental, Social and Governance Management in Organizations (pp. 129–146). Singapore: Springer Nature Singapore.
34. Marsico, M. (2022). The impact of ESG ratings on default probability: An empirical analysis on European firms. European Journal of Finance and Risk Analysis, 12(3), 77–98.
35. Midtkandal, E., & Kyte, L. F. (2023). ESG: The nexus of sustainability and cost of capital? An empirical study of the relationship between ESG scores and WACC for European firms (Master's thesis, BI Norwegian Business School).
36. Misman, S. N., & Adnan, I. H. (2023). A study on the Malaysian sustainability reporting guidelines for Islamic financial institutions. International Journal of Islamic Economics and Finance Research, 1(1), 103–115.

37. Mohamad, N. E. A., & Saad, N. M. (2021). Comparative analysis of environmental, social and governance (ESG) implementations across Asia. Global Business and Management Research, 13(4s), 554–563.
38. Mu, H. L., Xu, J., & Chen, S. (2024). The impact of corporate social responsibility types on happiness management: A stakeholder theory perspective. Management Decision, 62(2), 591–613.
39. Müller, R., Caron, M. A., Drouin, N., Lereim, J., Alonderienė, R., Chmieliauskas, A., ... & Šuminskienė, R. (2025). Governance of ESG implementations: Governance dimensions and their structural implementation. International Journal of Managing Projects in Business, 18(1), 118–138.
40. Mulyana, D., Widyaningsih, A., & Yuniarti Rozali, R. D. (2024). Environmental, social, and governance (ESG) performance and corporate value: Unpacking the moderating effect of company size. Jurnal Ekonomi dan Bisnis Airlangga, 35(1), 147-165.
41. Oana-Marina, R. A. D. U., Dragomir, V. D., & Ionescu-Feleagă, L. (2023). The conceptual link between country competitiveness and corporate ESG performance. In Proceedings of the International Conference on Business Excellence (Vol. 17, No. 1, pp. 763–775). Sciendo.
42. Prabawati, P. I., & Rahmawati, I. P. (2022). The effects of environmental, social, and governance (ESG) scores on firm values in ASEAN member countries. Jurnal Akuntansi dan Auditing Indonesia, 26(2), 119–129.
43. Quintiliani, A. (2022). ESG and firm value. Accounting and Finance Research, 11(4), 37–49.
44. Skvarciany, V., & Jurevičienė, D. (2024). Harmonising ESG practices for lasting sustainability. In Exploring ESG challenges and opportunities: Navigating towards a better future (pp. 221–242). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80455-991-620241012
45. Soon, S. W. (2021). Corporate governance disclosure practices and firm performance: The case of ASEAN. Unpublished doctoral dissertation.
46. Tahmid, T., Hoque, M. N., Said, J., Saona, P., & Azad, M. A. K. (2022). Do ESG initiatives yield greater firm value and performance? New evidence from European firms. Cogent Business & Management, 9(1), 2144098.
47. Trahan, R. T., & Jantz, B. (2023). What is ESG? Rethinking the "E" pillar. Business Strategy and the Environment, 32(7), 4382–4391.
48. Valentinov, V., & Hajdu, A. (2021). Integrating instrumental and normative stakeholder theories: A systems theory approach. Journal of Organizational Change Management, 34(4), 699–712.
49. Whelan, T., Atz, U., Van Holt, T., & Clark, C. (2021). ESG and financial performance: Uncovering the relationship by aggregating evidence (2015–2020). New York University Stern Center for Sustainable Business Report, 1(1), 1–10.
50. Wibawa, K. D., & Septianto, T. (2024). Unlocking sustainable development: ASEAN ESG and economic growth implication. Advances in Environmental Innovation, 1(2), 176–188.
51. Wieczorek-Kosmala, M., Marquardt, D., & Kurpanik, J. (2021). Drivers of sustainable performance in the European energy sector. Energies, 14(21), 7055.
52. Wielechowski, M., & Krasuski, P. (2024). ESG concepts in business practice: Characteristics and assessment of common ESG frameworks. MAZOWSZE Studia Regionalne (Special Edition 2024), 9–26.
53. Wong, W. K., Teh, B. H., & Hooi, T. S. (2023). The influence of external stakeholders on environmental, social, and governance (ESG) reporting: Toward a conceptual framework for ESG disclosure. Foresight and STI Governance, 17(1), 45–59.