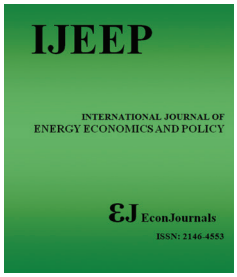

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ESG Integration and Financial Performance: Evidence from Malaysia's Leading Companies

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ABSTRACT

This study examines the impact of environmental, social, and governance (ESG) scores on the financial performance of the leading publicly listed companies in Malaysia. Using balanced panel data from Bloomberg spanning 2015-2022, the study employs multiple regression analysis (MRA) and the generalized method of moments (GMM) to explore these relationships. The findings reveal a significant positive effect of the overall ESG score on ROA, suggesting that comprehensive ESG practices can enhance financial performance. However, individual environmental (E) and social (S) scores negatively impact ROA at a 10% significance level, indicating potential short-term costs associated with these initiatives. Corporate governance (G) scores, total assets (TA), and total debt to total assets (TDTA) ratios demonstrate a significant adverse effect on ROA. The inclusion of the global reporting initiative (GRI) standard as a control variable also adds robustness to the analysis, highlighting the role of standardized sustainability reporting in evaluating corporate performance. These insights underscore the complex interplay between ESG and companies' financial performance in Malaysia, emphasizing the importance of considering both the benefits and potential short-term costs associated with ESG initiatives. The findings of this study are crucial for policymakers, corporate managers, and investors, offering guidance on aligning sustainability goals with financial objectives to ensure long-term value creation and risk mitigation. This research contributes to the growing body of knowledge on ESG practices in emerging markets, highlighting the critical role of sustainability in today's global business environment.

Keywords: Environmental, Social, and Governance, Financial Performance, Sustainability, Global Reporting Initiative Guideline
JEL Classifications: G32, M14, Q56

1. INTRODUCTION

Socially responsible investment (SRI) started in the 1970s and has grown as investors began focusing on aligning their portfolio returns with their values (Tom, 2024). Subsequently, corporate social responsibility (CSR) disclosure becoming essential for nearly all the businesses. Recently, there has been an increase in awareness of the importance of sustainability and the concept of environmental, social, and governance (ESG). Investors, asset managers, and corporate leaders worldwide have begun observing ESG issues in their investment decisions (Kell, 2018). This trend demonstrates the essentiality of this study, where the growing awareness of sustainability and ethical corporate behaviour supports long-term value creation and risk mitigation for firm performance.

ESG has become a crucial part of today's business world. Understanding how ESG affects firm performance is important for stakeholders. As an emerging country, Malaysia is still on a journey to achieve a sustainable future due to the challenges

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encountered in implementing ESG and sustainability practices among market players. Various studies were conducted to identify the effect of EGS on firm performance (Duque-Grisales and Aguilera-Caracuel, 2021; Elgayar et al., 2024; Habib, 2023; Khan and Liu, 2023; Hashim et al., 2024; Nenavani et al., 2024; Shira, 2024). However, the mixed findings across countries show the need to conduct a similar study based on recent data from Malaysia. ESG reporting has been mandatory for publicly listed companies in Malaysia since 2016; however, the ESG reporting framework has yet to be mandated.

By employing the recent 8 years data, from 2015 to 2022, this study aims to investigate the effect of ESG score on the leading companies' financial performance in Malaysia. The outcome of this study is expected to promote awareness of ESG to ensure sustainability and enhance the firms' competitive ability in the rigorous global market. It also may enable policymakers to employ findings as essential references to improve policies and enforce implementation to regulate the mandatory ESG framework.

2. LITERATURE REVIEW

2.1. Theoretical Framework

Stakeholder theory, introduced by Freeman (1984), argues that a corporation's achievement or success rests not solely with its shareholders but with all its stakeholders, including employees, customers, suppliers, and the community. This theory further argues that corporations should create value for all stakeholders to achieve sustainable long-term performance. Stakeholder theory is also relevant to environmental, social, and governance (ESG) factors since it emphasises the importance of considering the broader impact of corporate actions on society and the environment. Generally, corporates that integrate ESG principles into their business strategies can handle stakeholder concerns effectively. Including the ESG principles shall lead to a better corporate reputation, increased customer loyalty, and improved risk management, all of which contribute to better financial performance. Thus, stakeholder theory provides a robust framework for understanding the benefits of ESG practices on the financial performance of companies listed in Malaysia (Habib, 2023).

2.2. ESG and Financial Performance

Environmental, social, and governance (ESG) considerations are becoming increasingly prominent as stakeholders emphasise sustainable business practices. In this context, Duque-Grisales and Aguilera-Caracuel (2021) investigated the linkage between a firm's ESG scores, and financial performance based on a sample of 104 multinationals. This study revealed a statistically significant negative correlation between ESG scores and financial performance. This inverse relationship may be attributable to the direct and indirect costs associated with implementing ESG initiatives, which are not adequately reflected in the financial outcomes. The costs could arise from ineffective execution, lack of adequate institutional support, or substantial investments in ESG activities that divert resources from other operational needs, thereby diminishing profitability.

Recently, Habib (2023) conducted a study to investigate the relationship between natural earnings management (REM), ESG performance, financial performance (FP), and total enterprise value (TEV). Utilising various analytical techniques, including PLS-SEM algorithms, regression analyses, and moderated mediation analysis, the findings reveal that firms employing REM strategies generally experience lower ESG performance and TEV. In contrast, those focusing on ESG strategies tend to see improvements in both TEV and FP. The study also identifies that ESG performance and FP mediate the impact of REM on TEV, highlighting their critical role in enhancing firm value. Furthermore, the results indicate a moderate influence of FP in strengthening the linkage between ESG performance and TEV. This suggests that FP is vital for boosting the association between a firm's ESG strategies and total value. Moreover, the findings could influence trading and financing activities, as investors and financiers will likely focus more on companies with robust strategies that yield substantial financial returns.

Ivascu et al. (2022) argue that the costs associated with ESG practices can negatively impact financial performance in the short term, as capital markets tend to favour immediate cash flows over the long-term advantages of sustainable practices. Additionally, further analysis by Nazir et al. (2022) supported the view that the market preference for short-term gains often overlooks the benefits of long-term ESG efforts. Recently, Zhou et al. (2023) also explored the bidirectional causality between environmental, social, and governance (ESG) factors and corporate financial performance (CFP). The researchers discovered that CFP could enhance ESG initiatives, but the influence of ESG on CFP is not reciprocal. Specifically, they noted asymmetric causality where financial performance supports environmental and social initiatives. Moreover, environmental efforts negatively impacted financial performance, while social aspects did not contribute positively. Under such circumstances, the researchers explained that corporations may prioritise ESG activities to improve their public image rather than for financial gain.

Khan and Liu (2023) investigated the effects of environmental, social, and governance (ESG) issues on financial and non-financial performance in registered Chinese manufacturing firms from 2009 to 2019. Their findings reveal that ESG performance generally negatively impacts the firm's financial outcomes, with environmental activities contributing to this adverse effect. Conversely, non-financial performance benefits from ESG efforts, enhancing corporate reputation, particularly as green innovation levels improve. However, Khan and Liu (2023) note that green innovation and social activities can replace each other in influencing corporate financial performance. Moreover, an increase in green innovation tends to limit the positive effects on corporate reputation due to the complex dynamics of ESG components, such as environmental factors. The researchers also highlight that ESG activities, which often aim to satisfy external stakeholders like the government and the public, can be complicated by stakeholder conflicts. These conflicts may diminish the positive impacts of green innovation and ESG on firm value.

On the other hand, Tan and Wei (2023) revealed that individual ESG factors, R and D investment, and financial leverage are not

singularly necessary conditions for high total factor productivity (TFP) of Chinese pharmaceutical manufacturing firms. The researchers also suggest that pharmaceutical manufacturing firms adopt a balanced approach integrating social performance, financial leverage, and innovation intensity to enhance the TFP of the firms. Pharmaceutical companies should prioritise the rights and interests of various stakeholders, including the government, creditors, suppliers, patients, and employees. As the interactions between businesses and their social and environmental contexts become more frequent and complex, the decisions made by these companies can result in either positive or negative externalities for those around them (Tan and Wei, 2023).

Recently, Cabaleiro-Cervino and Mendi (2024) also found that ESG-driven companies exhibit a better future innovation performance and that, in terms of labour productivity, exporting, and survival, their performance is never inferior to that of innovative firms that are not ESG-driven. Companies with good ESG performance could respond to systemic crises by easing corporate financing constraints and improving corporate risk tolerance (Gao and Geng, 2024). Similarly, Espinosa-Mendez et al. (2024) also revealed that family-owned firms with superior ESG performance tend to perform steadily during the COVID-19 pandemic. This makes the ESG performance a good predictor for stock price movement during the crisis period (Broadstock et al., 2021). Additionally, management might adjust ESG performance based on how they anticipate stakeholders will react, as influential stakeholders significantly shape a company's actions to meet their expectations. During crises, companies might invest more in ESG to show their dedication to all stakeholders, adopting an ethical approach (Al Amosh and Khatib, 2023).

Erol et al. (2023) examine the linkage between ESG and financial performance in real estate investment trusts (REITs) using the PVAR-Granger causality model and a fixed-effects panel data model. Their study includes a dataset of 234 ESG-rated REITs from five developed economies between 2003 and 2019. The findings indicate that investors differentiate between individual E/S/G metrics and value each component of ESG investing distinctly, with environmental and social investing being significant financial performance factors for REITs. The results support the trade-off hypothesis, showing that REITs' environmental policies carry high costs, such as obtaining green building certifications, adopting land conservation and eco-friendly building designs, and reducing emissions, potentially reducing market returns. The researchers highlighted that investors placed a higher value on social investing, especially after the global financial crisis, suggesting that social impacts can translate into higher returns and lower systematic risks, offering a competitive advantage. In the context of the logistics industry, the transport, shipping, warehouses, and freight forwarding activities shall lead to CO_2 emissions and air and water pollution. Meanwhile, the increased use of fossil fuels also poses a reasonable challenge to each country's sustainable development goals and commitments to reduce the carbon footprint (Nenavani et al., 2024). However, the logistics sector companies, both global and domestic, are trying to reduce the carbon footprint with the help of innovation, technology, and sustainable development approaches. Nenavani et al. (2024) also revealed no positive link between revenue growth and ESG score. They further explained that the revenue growth of logistics firms is contingent on several factors, like competition among firms, geographical reach, and resource investment.

Chacon et al. (2024) explore the effects of environmental, social, and governance (ESG) performance on valuation, cash flow, and risk among global equity real estate investment trusts (REITs). By analysing data from the GRESB ESG performance index from 2019 to 2021, they found that REITs with higher ESG scores tend to have lower firm values and reduced operating cash flows. Additionally, these REITs demonstrate increased firm risk. Their findings indicate a potential overinvestment in ESG initiatives by REIT management, which may detract from shareholder value.

Naseer et al. (2023) study found a negative relationship between ESG disclosure and business risk, suggesting that companies with higher disclosures have lower risk exposure. However, a positive relationship was found between ESG disclosure and stock market returns, suggesting that companies with more extensive disclosure procedures outperform the market. Yuen et al. (2022) found that ESG operations with a unique U-shaped association may affect bank profitability. A study on firms' stock behaviour showed a positive association with environmental and social performance in emerging markets. However, no empirical evidence supported the link between ESG performance and stock market perception. Policymakers should raise awareness about ESG investments. ESG stock performance in emerging markets does not protect firms from COVID-19 severity (Said and ElBannan, 2024). On the other hand, Jaiwani and Gopalakrishnan's (2023) study reveals a mixed relationship between ESG elements and bank performance, considering ownership structure. Private sector banks negatively impact financial performance, particularly social dimensions, while efficiency is positively influenced. Public sector banks show a significant positive relationship between environmental score and return on equity and non-performing assets.

Buallay's (2019) study explores the relationship between environmental, social, and governance (ESG) factors and bank performance. The research found that ESG significantly positively affects performance, with environmental disclosures favourably affecting return on assets (ROA) and total quality (TQ). However, disclosures of corporate social responsibility negatively affected all three models. Corporate governance disclosures negatively affected ROA and ROE while positively affecting Tobin's Q. This result contrasts with the result by Atan et al. (2018), where the result shows that there is no significant relationship between individual and combined factors of ESG and firm profitability (i.e. ROE) as well as firm value (i.e. Tobin's Q). In their study, Chininga, et al. (2023) found that investing in ESG initiatives increases financial performance indicators based on accounting and market data. Environmental activities enhance enterprises' financial bottom line and market performance, but social and governance standards do not affect accounting and market performance indicators.

Studies by Chen et al. (2023) and Malik and Kashiramka (2024) consistently show a positive relationship between ESG

performance and corporate financial performance, highlighting the universal value of ESG practices in enhancing corporate outcomes, with specific contexts such as Indian firms (Veeravel et al., 2024; Agarwala et al., 2024) and US firms (Apergis et al., 2022) demonstrating that ESG performance leads to better market valuation and lower cost of debt. Candio (2024) highlights that CSR structures, such as committees and external auditors, influence the effectiveness of ESG initiatives on financial outcomes, mainly return on assets (ROA) and share prices, while Wu et al. (2024) find that boardroom diversity can negatively moderate the relationship between ESG and financial performance, suggesting the complexity of integrating diverse perspectives into ESG strategies.

In contrast, smaller companies may not experience the same benefit level, with industry-specific differences highlighted by Narula et al. (2024) and Li et al. (2023), indicating that specific sectors are more sensitive to ESG ratings and disclosures. Bruna et al. (2022) demonstrate that mandatory extra-financial disclosure regimes enhance the positive impact of ESG performance on financial outcomes, underscoring the crucial role of regulatory frameworks in promoting ESG effectiveness, while studies by Lee et al. (2023) and Apergis et al. (2022) advocate for more balanced and transparent ESG assessments to avoid greenwashing and improve financial performance, calling for standardisation in ESG rating methodologies.

Ahmed et al. (2024) reveal that government and foreign investors tend to promote ESG performance, while family investors may have a negative impact, highlighting the importance of investor types in shaping ESG practices and outcomes, and Li et al. (2023) identify peer pressure from other firms' ESG ratings as a factor negatively impacting stock returns, indicating competitive dynamics within industry groups. Naseer et al. (2024) highlight that while climate change risk negatively impacts firm value, it positively influences ESG performance, with financial flexibility serving as a risk mitigator, emphasising the role of ESG in building corporate resilience. Several studies (Alves and Meneses, 2024; Apergis et al., 2022; Eliwa et al., 2021) demonstrate that higher ESG scores correlate with a lower cost of debt, especially in stakeholder-oriented countries and bank-based financial systems. This trend suggests that robust ESG performance enhances a company's creditworthiness and significantly reduces financing costs, providing a clear financial incentive for firms to invest in sustainable practices.

This literature review reveals a complex interplay between ESG practices and financial performance, shaped by various contextual factors. While ESG initiatives can enhance corporate resilience and long-term value, these practices' short-term financial impacts and costs necessitate a strategic and balanced approach. Investors and corporate executives must carefully consider these dynamics to effectively align sustainability goals with financial performance. Investigating the relationship between ESG performance and financial results and the impact of ESG elements on corporate profitability as measured by return on assets (ROA) is critical to this topic.

3. DATA AND METHODOLOGY

3.1. Data Sampling

Initially, this study intended to conduct the analysis based on the top 100 largest market capitalization public listed companies in Malaysia. After gathering the data from the Bloomberg database, this study managed to filter out only 57 companies with ESG scores. Besides that, the sample period of this study covers from 2015 to 2022, resulting in a total of 456 observations.

The dependent variable used in this study was return on assets (ROA). As an overall measure of financial performance, it shows how well a company utilizes its assets to generate income. ROA can also be used to compare individual companies with each other and across industries. Several empirical studies have established ROA as an appropriate measure of profitability in ESG research (Buallay, 2019; Candio, 2024). The independent variables used in this study were composite ESG score, environment score, social score, governance score, total assets, and total debt to total assets ratio.

Additionally, this study used "accordance with the GRI standard" as a control variable. If a company prepares its sustainability report in accordance with the GRI standard, it is assigned a value of 1; otherwise, it is assigned a value of 0. Similar to the previous study by Khatri and Kjerland (2023), this study selected the GRI standards for two specific reasons. Firstly, the GRI standards have been the dominant standards adopted by companies since the early 2000s. Secondly, the GRI standards are the prevailing framework for sustainability reporting on a global scale, with approximately 70% of companies adhering to them in their sustainability reporting.

3.2. Data Analysis

This study examined the impact of environmental, social, and government (ESG) factors on the return on assets of the 57 public listed companies in Bursa Malaysia based on the recent data from 2015 to 2022. Firstly, descriptive statistics are used to summarise and describe the main features of the data set. This includes measures of central tendency (mean) and dispersion (standard deviation). Descriptive analysis provides an initial understanding of the distribution and variability of the data. Next, this study applied the correlation analysis to examines the relationships between the ESG score and its components. It provides preliminary insights into potential multicollinearity issues and interdependencies within the dataset. The findings help interpret the results of multiple regression analysis and the generalized method of moments models. Then, this study used the multiple regression analysis and two-step generalized method of moments (GMM) to determine the relationship between the variables. The reason behind the use of GMM is to ensure robust results and control for unobserved heterogeneity and measurement errors in panel data (Wintoki et al., 2012). Specifically, the two-step generalized method of moments (GMM) utilizes "forward orthogonal deviations." The GMM model calculates the difference between the average of all future observations of a specific variable and the current observation (Roodman, 2009). Researchers can mitigate excessive data loss by employing a two-step Gaussian mixture methodology (GMM) methodology. For a balanced panel

Table 1: Descriptive statistics

Variables	Minimum	Maximum	Mean	Standared deviation
ESG				
E	0.91	74.24	26.897	16.823
S	6.38	62.12	29.402	12.123
G	27.51	96.12	82.483	8.484
TA	8.00	11.98	10.182	0.782
TDTA	0.15	75.42	23.067	16.387
ROA	-9.61	83.96	6.071	9.276

N: 456, ESG: Composite ESG score, E: Environment score, S: Social score, G: Government score, TA: Total asset, TDTA: Total debt to total asset

Table 2: Correlation analysis

Variable	ROA	ESG	E	S	G	TA	TDTA
ROA	1.00						
ESG	0.1428 (0.0022)	1.00					
E	0.2222 (0.000)	0.8823 (0.000)	1.00				
S	0.1015 (0.0301)	0.8831 (0.000)	0.6537 (0.000)	1.00			
G	−0.0945 (0.0436)	0.6481 (0.000)	0.3513 (0.000)	0.5200 (0.000)	1.00		
TA	−0.3607 (0.000)	0.1380 (0.0031)	−0.0420 (0.3707)	0.1928 (0.000)	0.2983 (0.000)	1.00	
TDTA	−0.2141 (0.000)	0.0567 (0.2263)	0.0333 (0.4773)	0.0370 (0.4297)	0.1191 (0.109)	0.0948 (0.0428)	1.00

ROA: Return on assets, N: 456, ESG: Composite ESG score, E: Environment score, S: Social score, G: Government score, TA: Total Asset, TDTA: Total debt to total asset

Table 3: Result of Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
H0: Constant variance
Variables: Fitted values of ROA
Chi-square (1)=226.39
Prob>Chi-square=0.0000

ROA: Return on assets

dataset, the use of a two-step GMM model yields more accurate and reliable estimates for the coefficients involved, resulting in improved efficiency and consistency (Arellano and Bover, 1995).

For the estimation purpose, the empirical model for this study is as follows:

$$ROA_{i,t} = ESG_{i,t} + E_{i,t} + S_{i,t} + G_{i,t} + TA_{i,t} + TDTA_{i,t}$$

Where $ROA_{i,t}$ refers to return on asset of company i at year t; $ESG_{i,t}$ refers to environmental, social and governance score of company i at year t; $E_{i,t}$ refers to environmental score of company i at year t; $S_{i,t}$ refers to social score of company i at year t; $G_{i,t}$ refers to governance score of company i at year t; $TA_{i,t}$ refers to total asset of company i at year t; $TDTA_{i,t}$ refers to ratio of total debt to total asset of company i at year t;

4. RESULTS

This section presents the results of this study. The dataset comprises 456 observations, each representing annual data for the 57 selected companies over the 8 years. The descriptive statistics for the key variables are summarised in Table 1. This includes the mean, standard deviation, minimum, and maximum values for the ESG score and its components (E, S, and G).

This study observed 57 firms' balanced panel data from Bloomberg (2024) for 8 years from 2015 to 2022. The 456 observations were derived and examined through MRA and GMM. Table 2 shows the correlation matrix between variables, statistically implying multicollinearity between independent variables.

The non-stationary data employed for this study shows that autocorrelation is non-constant. Table 3 shows the result of the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity. The results indicated the rejection of H0 as a variance of the residuals is irregular at the significant level of 1%, verifying the heteroscedasticity issue. Next, the robust variance-covariance estimator presents findings by excluding data contaminated with influential observations.

Table 4 demonstrates results based on robust least square regression, fixed effect analysis, random effect analysis and two-step-GMM analysis. Table 4 shows that the ESG score has a significant positive effect on ROA, whereas the G score, TA and TDTA have a significant adverse effect on ROA. Moreover, the E and S scores negatively affect ROA at a 10% significant level. However, the fixed effect model, random effect and two-step GMM show the insignificant effect of ESG and individual scores on ROA. In addition, the fixed effect and random effect models convey a strong, significant negative effect of TDTA on ROA.

Table 5 shows the results of robust regression and random effect model after controlling the GRI standard. Similar with the previous findings of Chen et al. (2023) and Malik and Kashiramka (2024), ESG score poses a positive and significant effect on ROA. This result suggests that higher ESG scores are associated with better financial performance, indicating that firms with strong environmental, social, and governance practices tend to achieve higher returns on assets. However, when examining the individual components of ESG, the environmental and social aspects do not show significant effects on ROA, while the governance component has a significant negative impact. This implies that while overall ESG performance boosts financial outcomes, the governance practices within ESG might be associated with costs

Table 4: Effect of ESG, TA and TDTA on ROA

Variable	Robust regression		Fixed effect		Random effect		2 Step - GMM	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	z-stat
ESG	0.6627	0.000	−0.0300	0.919	0.3944	0.171	−0.4469	0.246
E	−0.1225	0.075	0.0369	0.710	−0.0309	0.756	0.1354	0.453
S	−0.1583	0.074	0.0901	0.464	−0.0496	0.675	0.1398	0.311
G	−0.2806	0.000	−0.0301	0.753	−0.1578	0.094	−0.0271	0.810
TA	−3.9681	0.000	13.8881	0.000	−2.9775	0.002	8.6274	0.469
TDTA	−0.1000	0.000	−0.3286	0.000	−0.1594	0.000	−0.2099	0.105

N: 456, ESG: Composite ESG score, E: Environment score, S: Social score, G: Government score, TA: Total asset, TDTA: Total debt to total asset, ROA: Return on assets

Table 5: Effect of ESG, TA and TDTA on ROA by controlling GRI

Variable	Robust regression		Random effect	
	Coefficient	P-value	Coefficient	P-value
ESG	0.3017	0.000	0.1975	0.000
E	−0.2839	0.067	−0.2877	0.105
S	−0.3642	0.076	−0.3444	0.198
G	−0.4151	0.000	−0.4226	0.000
TA	−5.1450	0.000	−4.8975	0.000
TDTA	−0.1517	0.000	−0.2465	0.000
GRI	−2.092	0.493	−4.1271	0.556

N: 456, ESG: Composite ESG score, E: Environment score, S: Social score, G: Government score, TA: Total asset, TDTA: Total debt to total asset, GRI=Global reporting initiatives

or inefficiencies that negatively affect ROA. Additionally, the analysis reveals that both total assets and the total debt to total assets ratio have significant negative effects on ROA, suggesting that larger firms and those with higher leverage tend to have lower financial performance. These findings highlight the complex interplay between sustainability practices and financial metrics, emphasizing the importance for firms to carefully manage their ESG strategies to optimize financial performance.

5. CONCLUSION

In conclusion, this study underscores the growing importance of environmental, social, and governance (ESG) factors in the corporate landscape, particularly among Malaysia's leading publicly listed companies. The evolution from socially responsible investment (SRI) in the 1970s to the contemporary focus on ESG reflects a significant shift in investor priorities, emphasizing the alignment of portfolio returns with the sustainable concept and ethical values. This shift has been further accelerated by the increased awareness of sustainability issues following the COVID-19 pandemic, prompting investors, asset managers, and corporate leaders to integrate ESG considerations into their decision-making processes.

This research aimed to investigate the impact of ESG score on the financial performance of 57 Malaysian companies, using comprehensive data from 2015 to 2022. The study leveraged corporate environment performance to represent the "environmental" aspect, corporate social performance for the "social" aspect, and corporate governance to represent the "governance" aspect of ESG. This approach is particularly pertinent in Malaysia, an emerging market facing unique challenges in implementing ESG and sustainability practices despite mandatory ESG reporting for publicly listed companies since 2016.

The overall ESG score was found to have a significant positive effect on ROA, indicating that comprehensive ESG practices can enhance financial performance. However, the study also identified a negative impact of individual environmental (E) and social (S) scores on ROA at a 10% significance level, suggesting potential short-term costs associated with these initiatives. In contrast, corporate governance (G) scores, total assets (TA), and total debt to total assets (TDTA) ratios demonstrated a significant negative impact on ROA, highlighting the varied effects of different ESG components.

Besides that, both the fixed effect and random effect models consistently showed a significant negative effect of TDTA on ROA. Furthermore, controlling for global reporting initiative (GRI) standard in the analysis enhanced the study's internal validity, illustrating that the adoption level of GRI standard significantly influences the relationship between ESG scores and financial performance. This suggests that firms that preparing their report in accordance to GRI standard may experience different financial impacts from their ESG activities.

These findings have several important implications. The results highlight policymakers' need to enhance and standardise ESG reporting frameworks to promote effective implementation and disclosure. Clear guidelines and regulations can help mitigate the potential costs associated with ESG initiatives and maximise their long-term benefits. For corporate managers, understanding the differential impacts of environmental, social, and governance practices is crucial for strategically aligning ESG initiatives with financial goals. Investors can use these insights to make more informed decisions that balance short-term financial performance with long-term sustainability objectives.

Ultimately, this study provides valuable insights into ESG practices in emerging markets. By showing the potential benefits and costs of ESG factors, it offers a detailed perspective on the relationship between ESG scores and financial performance. The outcome of this study also can guide future research, policy development, and corporate strategy. The growing integration of ESG considerations into business practices and investment decisions underscores the critical role of sustainability in creating long-term value and mitigating risks in today's global market.

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