TOWARDS A SUSTAINABLE GROWTH: HOW ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) FACTORS AND FIRM CHARACTERISTICS DRIVE FINANCIAL PERFORMANCE IN THE FTSE4G BURSA MALAYSIA FIRMS

Harisa Nabila Rohisham
Faculty of Business and Management, Universiti Teknologi MARA, Selangor, Malaysia

Ruhaini Muda[♣]
Faculty of Business and Management, and Accounting Research Institute (HICoE), Universiti Teknologi MARA, Selangor, Malaysia

Nur Amirah Borhan
Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Perak, Malaysia

Hidayahtul Khusna Abdul Malik
Universiti Poly-Tech Malaysia, Kuala Lumpur, Malaysia

ABSTRACT

The integration of environmental, social, and governance (ESG) factors into investment decisions has gained significant in recent years, reflecting a shift towards sustainable firm performance. This study examines the relationship of ESG factors, firm characteristics, and financial performance in 96 firms listed on the FTSE4G Bursa Malaysia index from 2014 to 2022. Utilising panel regression analysis, the study examines accounting-based performance measures: Net income margin (NIM), Return on Assets (ROA), Return on equity (ROE), and market-based performance measure: Tobin's Q. The results show a positive and significant relationship between ESG factors and financial performance, as measured using Tobin's Q, suggesting that investors increasingly recognise ESG factors as a determinant of corporate value. However, ESG factors exhibit no significant impact on traditional financial metrics; NIM, ROA and ROE, indicating that while ESG factors enhance market perception, they may not directly influence short-term profitability. These results underscore the growing importance of ESG factors in investment strategies, where firms may encounter trade-offs between immediate financial gains and long-term sustainability objectives. This study highlights the necessity for firms to embed ESG factors within corporate strategies, fostering long-term value creation over short-term financial performance.

Keywords: ESG Factors, Firm Characteristics, Financial Performance, FTSE4G Bursa Malaysia.

Received: 12th November 2024
Accepted: 21st May 2025
https://doi.org/10.33736/ijbs.8100.2025

1. INTRODUCTION

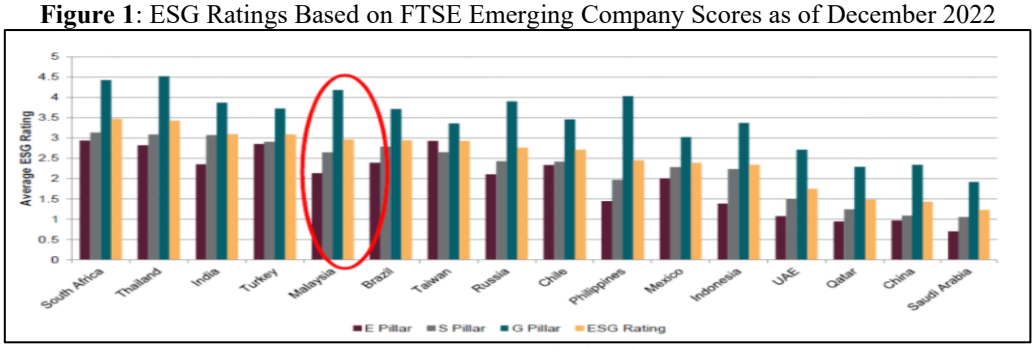
The integration of environmental, economic, and governance (ESG) factors into investment decisions has become an important element in determining corporate sustainability. The emergence of corporate sustainability reflects stakeholders' concerns regarding the long-term implications of ESG factors and the increasing demand for corporate ethics. The commitment of firms to managing their ESG responsibilities demonstrates transparency by disclosing information on their challenges and achievements, which is essential for portraying both internal and external activities. Consequently, corporate achievements are no longer confined to monetary implications but extend to broader contributions in ESG domains (Zumente & Bistrova, 2021). This shift positioned ESG factors as a fundamental framework (Chouaibi & Affes, 2021), underscoring its role in fostering stakeholder trust, enhancing corporate strategy, and strengthening corporate reputation (Sani et al., 2020). The disclosure of corporate activities is a fundamental aspect of ESG factors, as transparency in environmental, social, and governance practices allows stakeholders to assess a firm's commitment to sustainability, manage risks, and align business objectives with long-term value creation.

♣ Ruhaini Muda, Faculty of Business & Management and Accounting Research Institute, Universiti Teknologi MARA, Selangor, Malaysia. Email:ruhaini@uitm.edu.my

However, some firms perceive ESG factors as misaligned with the ultimate business objective of maximising shareholders value. They argue that increased disclosure of corporate activities introduces greater risks rather than benefits (Zhu et al., 2024). It exposes firms to potential risk, such as reputational damage if there is a discrepancy between commitments and actions. This perception stems from a limited understanding of how sustainability aligns with ESG factors and corporate strategic objectives. Theoretically, stakeholder management theory posits that corporations exist to fulfil stakeholder expectations by acting responsibly and accountably (Raja Ahmad et al., 2023). This perspective highlights an implicit contract between corporations and stakeholders, wherein corporate legitimacy is established through ESG disclosures that align with social development and well-being initiatives (Zafar & Sulaiman, 2019). Furthermore, previous studies indicate that firms with robust ESG practices benefit from a lower cost of capital, reduced volatility, and stronger governance structures over time (Wei et al., 2023). Empirical evidence suggests that strong ESG performance correlates positively with a higher return on assets, equity, operational efficiency, and improved risk management. While ESG factors are increasingly recognised as fundamental to corporate sustainability, their impact on financial performance vary across sectors, market conditions, and institutional constraints (Fu & Li, 2023). Despite the acknowledged benefits of ESG factors adoption, only a minority of Malaysian firms are listed on the FTSE4G Bursa Malaysia index. As of December 2024, approximately 10% of Malaysian publicly listed firms are constituents of the FTSE4G Bursa Malaysia (Bursa Malaysia, 2024). This raises concerns about potential barriers such as cost implications, regulatory pressures, and divergent stakeholder expectations.

The FTSE4G Bursa Malaysia index was introduced in December 2014 by Bursa Malaysia and FTSE Russell to promote sustainability in the Malaysian capital market (Bursa Malaysia, 2023). This index underscores the need for a comprehensive approach to corporate success, incorporating financial performance, business management, and governance. Its primary objective is to classify Malaysian businesses based on their corporate social responsibility (CSR) activities, enabling stakeholders to make informed investment decisions. According to Attanasio, et al. (2022), the FTSE4G Bursa Malaysia index serves as a comprehensive business model that promotes long-term corporate sustainability and value creation. Listed firms are required to demonstrate strong ESG disclosure practices, reinforcing their commitment to sustainable business operations (Carnini et al., 2022). Additionally, these firms voluntarily publish annual sustainability reports outlining their ESG initiatives. This transparency not only enhances stakeholders confidence but also promotes continuous improvements in ESG performance by ensuring firms are accountable for their sustainability commitments (Razali, Hassan & Zain, 2022).

Figure 1: ESG Ratings Based on FTSE Emerging Company Scores as of December 2022



Source: FTSE4G Bursa Malaysia Index (2023).

Since the launch of the FTSE4GBM in 2014, the number of Malaysian firms eligible for inclusion has increased consistently, reflecting a steady improvement in their ESG scores over time. According to the report by Bursa Malaysia (2023), Malaysian firms demonstrate a higher performance score for the corporate governance pillar compared to other firms operating in emerging markets. As illustrated in Figure 1, Malaysian firms ranked 5th out of 16 emerging market countries in the FTSE emerging company scores, highlighting their commitment to ESG excellence. Table A in Appendix 1 provides a comprehensive overview of the listed firms on the FTSE4GBM index from 2014 to 2022. The inclusion of these firms in the index underscores their efforts in corporate sustainability, positioning them as key players in responsible business conduct (Adzis et al., 2022).

Given the growing focus on sustainability, understanding how ESG factors influence corporate performance is crucial in addressing pressing challenges such as social inequality, climate change, and governance deficiencies. In Malaysia, firms listed on the FTSE4G Bursa Malaysia index face increasing scrutiny regarding their ESG practices and financial performance impact. However, empirical research on the specific relationship between ESG factors and financial performance in Malaysia is still lacking, limiting investors' and policymakers' ability to formulate effective sustainable investment strategies.

This study examines the influence of ESG factors on firm financial performance using data on listed firms in the FTSE4G Bursa Malaysia from 2014 to 2022. The study contributes by analysing the unique combination of ESG factors embedded in the FTSE4GBM index. This study offers significant insight for policy formulation and strategic corporate decision-making while contributing to the broader discourse on sustainable business practices in Malaysia. As Abdullah (2022) suggests, the fact that a relatively low participation rate of firms in the FTSE4GBM index presents an opportunity for policymakers to design targeted incentives and support programs that encourage broader adoption of responsible business practices and make ESG participation more attractive. By leveraging these insights, policymakers can foster a culture of transparency, accountability, and sustainability, enhancing Malaysia's competitiveness in the global market (Hossain, Hasan & Hasan, 2024).

In addition, it is crucial to comprehend whether specific firm characteristics have a major impact on financial performance and how effectively listed firms behave towards sustainability. Previous studies indicate that ESG factors and firm characteristics influence financial performance metrics differently. Fu & Li (2023) found that the impact of ESG on financial performance varies by sector, ownership structure, and regulatory environment. Similarly, Bissoondoyal-Bheenic, Brooks & Do (2023) suggest that larger firms are more likely to invest in ESG initiatives due to economies of scale and increased stakeholder expectations. The remainder of the paper is structured as follows. Section 2 discusses the related literature and hypothesis development. Section 3 explains the data, definitions of variables, and methods used. Section 4 discusses the findings, and the final section concludes the study.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Theoretical Considerations

Stakeholder management theory is a strategic management concept that focuses on managing relationships among an organisation's stakeholders to gain and retain a competitive advantage in the industry (Viererbl & Koch, 2022). It emphasises the importance of considering the interests and needs of various stakeholders, such as shareholders and society, in addition to financial objectives. It recognises stakeholders' contributions to wealth creation and risk mitigation, which influence the financial performance of a firm. The theory contends that relationships between organisations and stakeholders lead to conflicting interests. In the context of the present study, the theory provides insights into how ESG has become an institutionalised approach that has emerged to satisfy the information demands of investors and other stakeholders on environmental, social, and governance (ESG) factors impacting sustainable performance (Viererbl & Koch, 2022; Raja Ahmad et al., 2023). This theoretical proposition frames understanding how firms' relationships with stakeholders, their ESG practices, and firm characteristics influence their financial performance. This is particularly important for firms listed on the FTSE4G Bursa Malaysia, which are recognised for their good sustainable practices (Sani et al., 2020) and ethical behaviour towards stakeholders (Raja Ahmad et al., 2023).

In addition, the shared value theory suggests that the competitiveness of a firm and the well-being of the communities around it are mutually independent (Freudenreich, Lüdeke-Freund & Schaltegger, 2020). This theory underscores the expectation for corporations to generate economic value for the stakeholders, including society. A firm's long-term success requires firms to integrate ESG practices into their business models, thereby improving their competitive advantage and sustainable financial performance (Alsayegh, Abdul Rahman & Homayoun, 2020). According to Raja Ahmad et al. (2023), there is a strong link between ESG factors and organisational value in publicly listed firms. This means that firms have improved their reputation and gained a competitive edge by using ESG factors in their business practices. Therefore, the shared value theory provides a framework for understanding how firms can create economic value while addressing societal needs and environmental challenges, which is essential for sustainable performance. From a legitimacy perspective, the theory proposes that a condition or state exists when the value system of an entity and wider social system is aligned. Social acceptance is important for firms to sustain their performance (Santamaria et. al., 2021).

Consequently, in order to establish credibility, firms must effectively disclose information to persuade society through ethical behaviours that adds value. When a potential conflict arises between public expectations and business operations, the sustainability of a firm is at risk. Conversely, social expectations are dynamic and continue to evolve over time (Abdul Rahman & Alsayegh, 2021). When corporate activities adversely affect certain societal groups or the environment, legitimacy techniques are used to reveal improvement strategies, which are predominantly of a promissory nature. Lòpez-Santamaria et al. (2021) assert that profitable firms highlight their societal contributions by disclosing social and environmental information, with the primary objective of

mitigating significant exposure. Firms employ diverse strategies to alter stakeholders' perceptions and expectations, including impression management through selective reporting methods that divert from issues and poor performance. Underperforming organisations face numerous challenges, such as sustaining societal legitimacy, addressing reputational issues, and providing information to meet transparency obligations (Shrestha, Andrikopoulos & Prasad Aryal, 2024). ESG factors have the potential to provide benefits to firms, such as enhancing transparency and building reputation, thereby avoiding the market stigma associated with a reputation for environmental damage (Alsayegh, Abdul Rahman & Homayoun, 2020). Firms voluntarily disclose their ESG practices to demonstrate adherence to social expectations and norms (Helfaya, Morris & Aboud, 2023). Since management of the firms has access to more information than other stakeholders, ESG disclosure can reduce information asymmetry and prevent unfavourable investment decisions. Consequently, disclosure of ESG factors is a strategic tool for firms to enhance credibility and build stakeholders trust. Firms that promote transparency and accountability can reduce the risk associated with information asymmetry but also drive long-term financial and sustainable performance.

Overall, the stakeholder management theory provides a strong proposition for understanding how firms manage stakeholder relationships to achieve a competitive advantage while maintaining sustainable growth. In addition, shared value theory and legitimacy theory offer valuable insights for incorporating corporate responsibility and transparency. By prioritising stakeholder interests along with financial objectives, firms can enhance their long-term performance, reinforce their legitimacy, and strengthen their market positioning.

2.2. Hypotheses Development

2.2.1. ESG Factors and Financial Performance

The growing emphasis on ESG factors in corporate strategy reflects a paradigm shift in how organisations create long-term financial value. According to stakeholder management theory, organisations that actively address ESG factors foster stronger, longer-term relationships with key stakeholders (Alam et al., 2022). These ESG factors are anticipated to positively influence financial performance by improving corporate reputation, enhancing market valuation, and mitigating risks associated with environmental and social concerns (Jeffrey, Rosenberg & Mccabe, 2019). By incorporating ESG principles into strategic decision-making, firms not only comply with regulatory expectations but also differentiate themselves in competitive markets, attracting socially responsible investors, increasing stakeholder value, and enhancing sustainable performance (Gao, Tian & Xu, 2024). As businesses respond to increasing stakeholder expectations regarding sustainability and ethical practices, they create value for a broader set of stakeholders (Lund, 2021). This alignment with stakeholder interests leads to improved operational efficiency and risk management, all of which contribute to financial performance (Teplova et al., 2022).

Empirical evidence supports the notion that ESG factors drive financial gains. Studies have shown that firms with strong ESG commitment benefit from reduced costs associated with regulatory fines, lower capital costs due to enhanced investor trust, and increased revenue from customer loyalty (Friede, Busch & Bassen, 2015). ESG disclosure also plays a crucial role in reducing information asymmetry, leading to better decision-making by investors and other financial stakeholders (Hysa et al., 2020). Furthermore, organisations that prioritise environmental responsibility and social impact gain competitive advantages in markets where consumers favour sustainable products and responsible business practices (Carnini et al., 2022). In a meta-analysis of over 1,500 studies, Li, Tang & Li (2024) found that firms with robust ESG frameworks experienced superior financial performance compared to their industry peers. Similarly, firms with proactive ESG strategies demonstrated higher market valuation and profitability due to their resilience against economic downturns and regulatory scrutiny (Shobhwani & Lodha, 2023). Given the theoretical and empirical evidence, it is expected that ESG factors positively influence financial performance by fostering risk management, enhancing investor trust, and promoting long-term value creation. Therefore, based on the discussion above, the following hypothesis is proposed:

H_1: There is a significant relationship between ESG factors and financial performance.

2.2.2. Firm Characteristics and Financial Performance

The relationship between firm characteristics and financial performance has been extensively explored in the corporate finance literature, highlighting the critical role of firm specific characteristics in determining financial performance and long-term sustainability (Friede, Busch & Bassen, 2015). Prior studies have examined firm specific characteristics as well as external macroeconomic factors in influencing financial performance (Fagbamila, 2022). Among these, firm size, leverage, and liquidity have been widely recognised as key

determinants of financial performance and commonly measured using ROA. Studies such as Nguyen et al. (2021) and Vuković, Tica & Jakšić (2022) confirm that firm size positively correlates with ROA and ROE, indicating that larger firms tend to perform better financially because of the advantage of accessing resources, which gives them a competitive advantage. Additionally, leverage, as a key firm characteristic, can enhance financial performance by enabling companies to invest in profitable investments. However, excessive debt may lead to financial distress and negatively impact earnings (Chang & Lee, 2022). Liquidity, another crucial attribute, ensures that firms can meet short-term obligations, maintain investor confidence, and support sustainable growth (Chen, Xie & He, 2024).

While many studies confirm a positive relationship, some studies found negative or no effects. Hence, empirical findings on the relationship between firm characteristics and financial performance remain inconclusive. López-Santamaría et al. (2021) found a negative relationship between firm size and financial performance, suggesting that larger firms may experience inefficiencies related to bureaucratic complexities, increased operational costs, and reduced flexibility in adapting to market changes. Similarly, Wu (2022) found no significant association between firm size and profitability, emphasising that industry-specific factors may mediate this relationship. Other studies, such as Grofčíková (2020) and Zumente & Bistrova (2021), suggest an insignificant influence of firm characteristics on financial performances, further demonstrating the need for deeper investigation. Understanding these relationships is essential for corporate decision-making. Firms can utulise their internal attributes to attain sustainable financial performance and long-term growth. Despite these mixed findings, the majority of studies supports the notion that firm characteristics enhance financial performance by improving efficiency, optimising resource allocation, and strengthening competitive advantage. This study proposes the following hypothesis:

H_2: There is a significant relationship between firms characteristics and financial performance.

The study incorporates economic growth and financial density as control variables to account for their potential influence on the financial performance of firms listed on FTSE4G Bursa Malaysia. Economic growth is represented by the growth of gross domestic products (GDP) per capita as a fundamental macroeconomic indicator measuring a nation's total economic output over a specific period. Past studies propose that it serves as a key determinant of business conditions, investment climate, and economic stability (Martiny et al., 2024). Financial density, on the other hand, represents the level of financial development within an economy, encompassing the concentration and distribution of financial resources, institutions, and transactions. The present study posits that financial density positively influences firm financial performance by facilitating better access to financial services and efficient capital allocation, as suggested by Goa, Tian & Xu (2024). Analysing the relationship between these variables and financial performance is crucial in developing a comprehensive model that captures macroeconomic influence on firm-level outcomes and ensures that the observed effects, particularly ESG factors, are not confounded by broader economic conditions.

3. METHODOLOGY

3.1. Measurement of Variables

This study uses both accounting-based and market-based financial performance indicators to provide a comprehensive view of financial performance. Accounting-based measures capture historical performance, whereas market-based measures reflect investors' expectations of future profitability and firm valuation. The study provides a comprehensive evaluation of financial performance concerning ESG factors, taking into account profitability, asset utilisation, and market valuation. Therefore, the study makes use of four indicators of firm performance, namely, Net interest margin (NIM), which measures the efficiency of firms in generating income from interest-earning assets while managing interest expenses (Agnese et al., 2024). A higher NIM suggests effective asset-liability management and profitability in firms. Next, ROA evaluates a firm's ability to generate profit from its total assets. Firms incorporating ESG factors tend to exhibit superior financial performance, as reflected in higher ROA (Shaikh, 2022). This suggests that firms with strong ESG commitments may achieve operational efficiencies and risk mitigation, translating into improved profitability. ROE measures the financial return available to shareholders by dividing net income by total equity. It reflects management's ability to generate earnings from shareholders' investments (Choiriyah et al., 2020). A higher ROE suggests efficient capital usage and can attract investors seeking firms with strong financial returns. Tobin's Q assesses a firm's market valuation by comparing its market value to the replacement cost of its assets. A Q ratio greater than one suggests that the market values the firm's assets more than their replacement cost, often reflecting investor optimism regarding the firm's growth prospects (Li, Tang & Li, 2024).

The study uses ESG scores extracted from Bloomberg Terminal to evaluate firms' sustainability performance. ESG factors have gained prominence as critical indicators of corporate sustainability and responsible business conduct (Mohammad & Wasiuzzaman, 2021). The E (Environmental) component captures a firm's commitment to sustainability, S (Social) assesses corporate social responsibility initiatives, and G (Governance) evaluates governance mechanisms and transparency. Prior studies suggest that firms with higher ESG scores experience lower risk exposure and better financial outcomes (Arhinful & Radmehr, 2023). Additionally, the study incorporates firm characteristics; the Long-term debt to equity ratio (LTDTE) is the proportion of long-term debt in relation to its total equity, indicating financial leverage and capital structure decisions. Leverage ratio (LR) represents total debt to its equity, highlighting financial risk exposure. Sustainable growth rate (SGR) reflects a firm's ability to grow its revenues and profits without external financing, serving as an indicator of self-sustained expansion. Total assets (LTA) capture firm size, as larger firms may have different financial strategies and risk exposures, Capital intensity (CI) measures the extent to which a firm relies on fixed capital for production, affecting cost structures and profitability. This study uses control variables, Gross domestic product (GDP), a measure of national economic performance affecting firm-level financial outcomes and investment climates, and Financial density (FinDen) representing the concentration and accessibility of financial services within an economy, influencing capital allocation and market efficiency. These variables provide a comprehensive framework for evaluating financial performance while accounting for firm-specific and macroeconomic influences. Table 1 outlines detailed data descriptions of all variables.

Table 1: Descriptions of Data

Variables	Descriptions
Dependent variable: Financial performance	
Net interest margin (NIM)	Measure a firm's profitability by calculating the difference between interest earned on loans and investments and interest paid on deposits, relative to total interest-earning assets. $$NIM = \frac{Interest\ Income - Interest\ Expense}{Average\ Interest\ Earning\ Assets}$$
Return on assets (ROA)	Measure how efficiently a firm uses its assets to generate profit. $$ROA = \frac{Net\ Income}{Total\ Assets} \times 100\%$$
Return on equity (ROE)	Measure a firm's profitability relative to shareholder equity. $$ROE = \frac{Net\ Income}{Shareholder's\ Equity} \times 100\%$$
Tobin's Q	Measure a firm assets in relation to market value. $$Tobin's\ q = \frac{Market\ Value\ of\ Assets}{Replacement\ Cost\ of\ Capital}$$
Independent variables	
ESG factors	Score of environmental, social, and governance (ESG) of firm *i* in period *t*.
Long-term-debt to equity (LTDTE)	Measure a firm's financial leverage by comparing long-term debt to shareholders' equity. $$LTDTE = \frac{Long - term\ debt}{Shareholders'\ Equity}$$
Leverage ratio (LR)	Measure a firm's debt levels relative to its equity or assets. $$LR = \frac{Total\ Debt}{Total\ Equity}$$
Sustainable growth rate (SGR)	Estimate the maximum growth a firm can sustain without external financing. $$SGR = ROE \times (1 - Dividend\ Payout\ Ratio)$$
Logarithm of total assets (LTA)	Natural logarithm of a firm *i*'s total assets.
Capital intensity (CI)	Measure the amount of capital required to generate a firm's revenue. $$CI = \frac{Total\ Assets}{Revenue}$$
Natural logarithm of the GDP (LGDP)	Natural logarithm of Gross Domestic Product .
Financial density (FinDen)	Measure level of financial activity in period *t*.

3.2. Sources of Data

The study utilises a sample of 96 firms listed in 2023 on the FTSE4G Bursa Malaysia index (Appendix 1). The selected firms met the transparent and defined ESG criteria, ensuring that only firms with strong environmental, social, and governance (ESG) practices were included in the analysis. Data were collected for the period 2014 to 2022, made up of a total of 864 firm-year observations across various industries that adhere to strict regulatory requirements for inclusion in the index. The study employs firm-level data sourced from corporate disclosures, including annual reports and sustainability reports**,** obtained via Bloomberg Terminal**.** Bloomberg provides a comprehensive ESG score, which evaluates a company's relative ESG performance, commitment, and effectiveness across ten key themes**,** including carbon emissions, environmental innovation, human rights, and shareholder rights**.** The use of Bloomberg's ESG score as a primary measure aligns with recent research, such as Alam, et al. (2022)**,** who emphasise its reliability in assessing firms' ESG commitments.

To incorporate macroeconomic factors**,** the study sources GDP data and financial development indicators from the World Bank database**.** The World Bank is widely recognised for its authoritative economic data, as confirmed by Nguyen et al. (2024)**,** who highlight its role in macroeconomic research. All data sources are publicly accessible and widely used in empirical research to ensure data validity and reliability**.** This comprehensive data collection approach enhances the robustness of the study's findings.

3.3. Empirical Models

This study employs panel regression models to examine the impact of ESG factors on the financial performance of firms listed on FTSE4G Bursa Malaysia Index. The hypotheses are tested based on the adoption and modification of models proposed by Sani et al. (2020) and Alodat et al. (2023). This study develops four empirical models, as shown in the following:

$$NIM_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Firm\ Characteristics_{it} + \beta_3 Control_{it} + \varepsilon_{it} \quad (1)$$

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Firm\ Characteristics_{it} + \beta_3 Control_{it} + \varepsilon_{it} \quad (2)$$

$$ROE_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 Firm\ Characteristics_{it} + \beta_3 Control_{it} + \varepsilon_{it} \quad (3)$$

$$Tobin's\ Q_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 LFirm\ Characteristics_{it} + \beta_3 Control_{it} + \varepsilon_{it} \quad (4)$$

Where Financial performance refers to a firm's ability to generate profits and create value for its stakeholders. This study uses both accounting-based and market-based measures as indicators of financial performance to capture both the historical and potential future performance indicators of the companies. Therefore, the study makes use of four indicators of firm performance, namely, Net income margin (NIM), Return on assets (ROA), Return on equity (ROE) as an accounting-based measurement and Tobin's Q as a market-based measurement. ESG factors refer to the score of environmental, social, and governance (ESG) scores of firm *i's* in period *t*. Additionally, five firm characteristics are included as independent variables: Long-term-debt to equity (LTDTE) is the ratio of a firm's long-term debt to its equity in period t. Leverage ratio (LR), measuring the extent to which a company is financed by debt. Sustainable growth rate (SGR) represents the rate at which a firm can grow its sales and profits without external financing. Logarithm of total assets (LTA) is the natural logarithm of a firm *i*'s total assets. Capital intensity (CI) measures the amount of capital needed to generate revenue. Furthermore, two control variables are included in the model: the logarithm of GDP, which denotes the natural logarithm of GDP in a period *t*, and Financial density (FinDen), which reflects the level of financial activity in period *t*. The error term, εt, accounts for the estimation of error in the model.

This study employs panel data approaches, including Pooled Ordinary Least Squares (POLS), Fixed Effects, and Random Effect Models. Panel data models effectively address data limitations and control for heterogeneity across variables. The panel estimation method facilitates the identification and testing of effects that may remain unidentified in pure cross-sectional analyses (Ditzen, Karavias & Westerlund, 2021). First, the models are estimated using the panel least squares method, followed by pooled least squares regression. The POLS model assumes a constant intercept and slope across all firms and time periods, as it does not explicitly account for an unobserved heterogeneity. Second, the Fixed effects model is applied to allow firm-specific intercepts, assuming common slopes and variance while controlling for unobserved firm characteristics. The selection between the POLS and Fixed effects models is determined using an F-test, with the null hypothesis $H_0: \alpha_{it} = \alpha$ and the alternative $H_1: \alpha_{it} \neq \alpha$. In contrast, the Random effects model assumes common intercepts while treating firm-

specific variations as random and uncorrelated with the explanatory variables. To determine the most efficient estimator, the study conducts a Hausman test, which compares the Fixed and Randoms effects models.

4. FINDINGS AND DISCUSSION

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics of all the variables used in the study. The analysis includes measures such as mean, standard deviation, minimum, and maximum values, providing insights into the distribution and variability of key financial and economic indicators. The mean values for NIM, ROA, ROE, and Tobin's Q are 10.74, 6.29, 11.41, and 1.21, respectively, indicating the average financial performance of firms in the sample. Notably, the negative minimum values for financial performance indicators suggest that some firms experienced significant losses during the study period. On the other hand, the maximum values of financial performance indicators indicate that certain firms achieved exceptionally high profitability levels. Tobin's Q with a minimum of 0 and a maximum of 19.87 reflects varying levels of market valuation across firms. The ESG score has a mean of 19.33, with a maximum of 88.0, indicating substantial differences in corporate sustainability commitments. The standard deviation of 28.05 further highlights this variability.

Table 2: The Descriptive Statistics Analysis for All Variables

Variable	Mean	Std. Dev.	Min	Max
NIM	10.7360	19.8932	-152.2000	119.4000
ROA	6.2912	8.4074	-32.6000	57.1000
ROE	11.4137	26.8493	-602.1000	120.7000
Tobin's Q	1.2094	1.7770	0.0000	19.8660
ESG	19.3333	28.0499	0.0000	88.0000
LTDTE	0.4106	0.6601	-0.7829	5.4842
LR	0.8885	3.6037	0.0000	74.0000
SGR	0.1134	0.1968	-2.8104	1.3793
LTA	8.1466	2.4353	0.0000	13.7589
CI	6.0618	9.7055	0.0000	72.5183
LGDP	9.2487	0.0591	9.1452	9.3389
FINDEV	2.7298	3.6300	-6.6611	7.5274

4.2. Normality Test

The Shapiro-Wilk test was conducted to determine whether the dataset follows a normal distribution. The test is effective for a small dataset to verify normality assumptions. In Table 3, the p-values for all variables are below 0.05, indicating a statistically significant deviation from normality. The W-statistics further confirm that, with values ranging from 0.1741 to 0.9842, suggesting varying degrees of non-normality across the variables.

Table 3: Shapiro-Wilk Test for Normality

Variable	Obs	W	V	z	Prob>z
NIM	864	0.8131	103.2170	11.4140	0.0000
ROA	864	0.8813	65.5310	10.2950	0.0000
ROE	864	0.4180	321.3510	14.2090	0.0000
Tobin's Q	864	0.6403	198.5870	13.0250	0.0000
ESG	864	0.9522	26.3870	8.0560	0.0000
LTDTE	864	0.6346	201.7200	13.0630	0.0000
LR	864	0.1741	455.9780	15.0710	0.0000
SGR	864	0.7103	159.9700	12.4920	0.0000
LTA	864	0.9573	23.5550	7.7770	0.0000
CI	864	0.5912	225.6830	13.3390	0.0000
LGDP	864	0.9842	8.7350	5.3350	0.0000
FINDEN	864	0.7255	151.574	12.3600	0.0000

***Note**: Symbols * p < 0.05, ** p < 0.01, *** p < 0.0.*

The study employs four regression models to test developed hypotheses. The Breusch-Pagan Lagrangian Multiplier (BP-LM) test is used to determine the appropriate estimator and assess the suitability of Pooled ordinary least squares (POLS), Random effects (RE), or Fixed effects (FE) models. The BP-LM test checks for heterogeneity in residuals, and p-value below 0.05 suggests that panel data approaches should be applied. Subsequently, the Hausman specification test is used to distinguish between RE and FE models. If the p-value below 0.05. FE model is preferred; otherwise, RE model is used. Table 4 presents the regression results for four

proxies of financial performance, namely, Model 1 (NIM), Model 2 (ROA), Model 3 (ROE) and Model 4 (Tobin's Q). All models show that BP-LM test for poolability yields a p-value below 0.05, confirming heterogeneity in residuals. Consequently, the null hypothesis is rejected at a 95% significance level, supporting the application of panel data approach. Next, the Hausman specification test is then employed to determine the most appropriate estimator. The test results in a p-value below 0.05, indicating that the FE model is more suitable for Models 1, 2 and 4, except Model 3, p-value above 0.05, leading to the selection of the RE model.

The results further indicate that ESG factors is statistically insignificant in affecting financial performance (NIM). Prior studies presents mixed findings regarding the ESG factors and NIM relationship. Mohammad & Wasiuzzaman (2021) found ESG disclosure negatively and significantly impacts NIM, although their study found insignificance when controlling for firm size and liquidity. Similarly, Lee & Isa (2023) reported a positive and insignificant mediating effect of ESG factors on financial performance but found the direct relationship with NIM significant when considering control variables. Additionally, Abdul Rahman & Alsayegh (2021) highlighted a significant positive relationship between ESG factors and firm value in FTSE4G Bursa Malaysia index but did not specifically address ESG's impact on NIM.

Findings also indicate that ESG factors has a negative and insignificant relationship with ROA. These results align with prior studies, such as Shaikh (2022), Lee & Isa (2023), and Mohammad & Wasiuzzaman (2021), all of whom reported a negative and insignificant relationship between ESG factors and ROA. Velte (2017) examined ESG rating announcements and found that while ESG ratings positively impact prices, their effect on ROA is insignificant. Model 3 results indicate that ESG factors has a negative and insignificant relationship with ROE, consistent with Sadiq et al. (2020), who found that ESG scores negatively impact ROE. Similarly, Aydoğmuş, Gülay & Ergun (2022) suggested that ESG investments may negatively affect firm profitability. Unlike the previous three models, Model 4 finds that ESG factors is significantly influences Tobin's Q, a proxy for firm value. This findings align with Sadiq et al. (2020), who reported a positive relationship between ESG factors and Tobin's Q in Malaysian firms. In addition, Oprean-Stan et al. (2020) found that ESG scores negatively impacted ROE but positive affected Tobin's Q.

Meanwhile for firm characteristics, LTDTE, LR, SGR and CI exhibit a negative and significant impact on NIM, while LTA positively and significantly affects NIM. Nyabaga & Wepukhulu (2020) identified a positive relationship between bank size and profitability, as measured by NIM and ROA, but also reported an insignificant relationship between bank size and NIM in Kenyan banks. In addition, only two variables, LTDTE and CI have a significant negative significant impact on ROA. Fekadu Agmas (2020) found that LTDTE negatively correlates with ROA in Ethiopia construction firms. These results are consistent with Alam et al. (2022), who reported a significant negative relationship between firm characteristics and ROA. Conversely, SGR positively and significantly affects ROA, consistent with Chang & Lee (2022), who found that deviations in sustainable growth rates impact ROA. LR is found negatively insignificant towards ROA. Msomi and Nzama (2023) found that the LR is negatively associated with ROA, indicating that an increase in LR will cause a decrease in ROA and may lead to liquidity problems for firms. The positive and significant relationship between SGR and ROA may be attributed to the firm's ability to sustain growth and generate higher returns on its assets. A higher SGR indicates that the company can grow its earnings and assets efficiently, which in turn can lead to higher ROA. Additionally, a positive relationship between total assets and ROA can be indicative of the company's ability to effectively utilize its assets to generate profits. When total assets are efficiently employed to generate earnings, it can result in a higher ROA. Therefore, the positive and significant relationship between SGR, total assets, and ROA may reflect the company's strong financial performance and efficient asset utilization, leading to higher returns. The provided studies support the positive relationship between SGR, total assets, and ROA. For example, a study by Koh, Li & Tong (2022) found that the deviation of actual growth rate from sustainable growth rate had a relationship with ROA.

Additionally, the study by Vuković, Tica & Jakšić (2022) indicated a statistically significant negative relationship between company size and sustainable growth, pointing to the importance of growth rate in influencing financial performance. The negative and significant relationship between LR, LTA on ROE aligns with the pecking order theory, which suggests firms prioritise internal financing over debt. De Lucia, Pazienza, & Bartlett (2022) found that leverage's effect on profitability varies with environmental conditions. The SGR is the growth rate of dividends and earnings that a firm can maintain for a given ROE. It is influenced by factors such as net income, sales, retention rate, and equity multiplier, which are all related to financial performance. The SGR provides an indication of how financial performance, particularly ROE, influences the company's ability to sustain growth without having to increase leverage or equity financing. The positive and significant relationship between firm characteristics and ROE can be attributed to several factors, as supported by previous studies. Study by Mbonu & Amahalu (2021) has shown that larger firms tend to have higher ROE due to economies of scale, better access to

resources, and increased market power, which can lead to higher profitability. The study also mentioned that firms with higher liquidity are better positioned to meet short-term obligations and take advantage of investment opportunities, which can positively impact their profitability and ROE. While excessive leverage can increase financial risk, moderate levels of leverage can amplify ROE through the efficient use of debt to finance operations and investments. Some studies have found that ESG risk scores have an insignificant negative impact on ROE, indicating that firms with stronger ESG performance may not necessarily have higher ROE (Sadiq et al., 2020). Firm's characteristics and SGR also significantly influence Tobin's Q. Cherkasova & Nenuzhenko (2022) found research and development (R&D) spending moderates firm value based on firm size, while Koh, Li & Tong (2022) emphasised the role of growth rates in influencing financial performance.

For macroeconomics factors, LGDP exerts a negative and significant impact on NIM, whereas FinDen has an insignificant effect. Prior studies present mixed findings. Thompson (2021) found a negative correlation between GDP and NIM for larger U.S. banks, whereas small banks exhibited a positive correlation. In contrast, Islam & Rana (2019) identified a positive relationship between GDP and NIM in Bangladeshi banking sector, underscoring GDP growth as a significant determinant of NIM. LGDP has a negative significant impact on ROA, while FinDen has an insignificant effect. These findings align with Ardyansyah (2021), who found no significant relationship between economic growth and bank profitability (ROA) in Indonesia, and Abou Elseoud, Yassin & Ali (2020), who concluded that economic growth does not significantly influence banks' ROA. Furthermore, economic growth and FinDen have negative significant impacts on ROE, consistent with De Lucia, Pazienza & Bartlett (2020), who found GDP growth negatively affects ROE. Finally, GDP's role in Tobin's Q is supported by Ganda (2022), who demonstrated that Tobin's Q positively impacts investment, contributing to economic growth.

Table 4: The Regression Results for All Models

VARIABLES	Model 1: NIM			Model 2: ROA			Model 3: ROE			Model 4: Tobin's Q		
	POLS	FEM	REM	POLS	FEM	REM	POLS	FEM	REM	POLS	FEM	REM
ESG	-0.022	0.013	0.001	-0.003	-0.004	-0.006	-0.044	-0.056	-0.049	0.006***	0.003*	0.003*
	(0.026)	(0.021)	(0.021)	(0.008)	(0.007)	(0.007)	(0.033)	(0.037)	(0.033)	(0.002)	(0.002)	(0.002)
LTDTE	-5.585***	-3.379**	-4.189***	-3.088***	-1.431***	-2.151***	3.621***	7.454***	3.950***	-0.442***	-0.355**	-0.358***
	(0.978)	(1.511)	(1.273)	(0.300)	(0.484)	(0.394)	(1.254)	(2.642)	(1.372)	(0.090)	(0.147)	(0.118)
LR	-0.103	-0.250*	-0.228*	-0.121**	-0.020	-0.035	-0.181	-0.104	-0.164	-0.016	0.001	-0.001
	(0.167)	(0.140)	(0.138)	(0.051)	(0.045)	(0.045)	(0.213)	(0.244)	(0.217)	(0.015)	(0.014)	(0.014)
SGR	50.801***	38.695***	41.426***	31.575***	25.608***	27.441***	77.414***	69.160***	75.885***	3.008***	0.481*	1.458***
	(3.144)	(2.869)	(2.758)	(0.964)	(0.919)	(0.890)	(4.029)	(5.014)	(4.134)	(0.290)	(0.279)	(0.275)
LTA	-0.132	1.788***	0.994**	-0.117	0.806***	0.239*	-0.178	0.410	-0.166	-0.056*	0.377***	0.087**
	(0.320)	(0.523)	(0.418)	(0.098)	(0.167)	(0.129)	(0.410)	(0.914)	(0.446)	(0.030)	(0.051)	(0.038)
CI	0.090	-0.500***	-0.269**	-0.057**	-0.077*	-0.099***	0.255***	0.098	0.244**	-0.028***	-0.017	-0.039***
	(0.074)	(0.143)	(0.108)	(0.023)	(0.046)	(0.033)	(0.095)	(0.251)	(0.105)	(0.007)	(0.014)	(0.010)
LGDP	-1.963	-19.538**	-12.639	-1.448	-6.946**	-2.756	-13.976	-14.321	-12.918	-0.116	-2.063**	-0.231
	(11.821)	(9.435)	(9.174)	(3.626)	(3.023)	(2.979)	(15.149)	(16.491)	(15.026)	(1.091)	(0.918)	(0.924)
FINDEN	0.236	0.315***	0.286**	0.013	0.051	0.027	-0.151	-0.122	-0.151	-0.043***	-0.028**	-0.038***
	(0.163)	(0.118)	(0.119)	(0.050)	(0.038)	(0.039)	(0.209)	(0.206)	(0.205)	(0.015)	(0.011)	(0.012)
Constant	25.820	176.009**	117.589	18.786	62.071**	28.277	131.749	130.532	122.039	2.764	17.425**	2.896
	(108.998)	(85.724)	(83.904)	(33.432)	(27.468)	(27.284)	(139.688)	(149.832)	(138.428)	(10.057)	(8.338)	(8.472)
Observations	864	864	864	864	864	864	864	864	864	864	864	864
R-squared	0.262	0.251	0.246	0.611	0.546	0.535	0.334	0.225	0.221	0.212	0.098	0.0457
Adj. R-Squared	0.255	0.150	0.230	0.607	0.484	0.596	0.328	0.120	0.334	0.205	0.083	0.159
F-Stat	37.87	31.86	273.2	167.9	114.2	1039	53.66	27.56	384.4	28.80	10.29	71.75
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of id	96	96	96	96	96	96	96	96	96	96	96	96
Chow Test			9.52[0.0000]			8.06[0.0000]			2.25[0.0000]			7.77[0.0000]
LM Test			722.65[0.0000]			476.67[0.0000]			19.94[0.0000]			352.72[0.0000]
Hausman Test			21.29[0.001]			57.45[0.0000]			11.31[0.079]			100.74[0.0000]

***Notes**: t statistics in parentheses. Symbols * p < 0.05, ** p < 0.01, *** p < 0.001*

In conclusion, the findings across all models indicate that only Model 4 identifies a significant relationship between ESG factors and firm performance, as measured by Tobin's Q. While the other three models fail establish significant relationships between ESG factors and financial performance. Consistent with these findings, Firmansyah, Umar & Jibril (2023) found that ESG factors positively influence Tobin's Q, suggesting that firms with stronger ESG performance tend to have higher market valuations. This implies that ESG factors may contribute positively to firm performance when assessed through Tobin's Q. However, the absence of significant relationships in the other models may be attributed to variations in industry context, firm-specific characteristics, or the specific ESG measures under consideration. Raja Ahmad et al. (2023), have also found either negative or insignificant relationship between ESG factors and ROE. The significant influence of ESG factors on Tobin's Q in Model 4, as opposed to the other financial performance measures, may be due to the unique nature of Tobin's Q as an indicators of market valuation to book value. It also captures a firm's investment opportunities, growth potential, and market perception. Consequently, it may be more sensitive to ESG factors, including environmental, social, and governance factors, than traditional financial performance indicators. Furthermore, the significance of Tobin's Q in Model 4 may reflect the growing importance of ESG factors in investment decision-making and market valuation. As stakeholders, particularly investors increasingly prioritise long-term sustainability and ethical corporate practices, the impact of ESG performance on market value becomes more pronounced. This trend aligns with the rise responsible and sustainable investing, where ESG factors play a central role in evaluating a company's overall performance and future prospects. Lastly, the findings suggest that ESG factors may exert a more direct and substantial influence on market valuation and investment decisions than on other traditional financial performance indicators. This underscores the evolving nature of financial market, where non-financial considerations are increasingly integrated into corporate valuation models. As the importance of ESG factors continues to grow, future study should explore the specific mechanisms through which ESG factors influence firm value across different markets and financial metrics.

5. CONCLUSION

This study examines the relationship between ESG factors, firm characteristics, and financial performance among firms listed on the FTSE4G Bursa Malaysia. The findings of this study, based on a nine-year period, offer empirical evidence that is valuable for capital market investors, corporate management, and policymaker. This empirical study yields three main key findings. First, a positive and significant relationship between ESG factors and firm performance, as measured by Tobin's Q, indicates that firms with stronger ESG performance tend to have higher market valuations, reflecting the increasing importance of ESG factors in investment decisions and corporate valuation. Tobin's Q serves as a comprehensive metric that captures a firm's market value relative to its book value, incorporating various performance dimensions such as investment opportunities, growth potential, and market valuation. The findings provide empirical support for the positive relationship between ESG factors and market-based performance metrics, ie. Tobin's Q. However, accounting-based financial performance, Net interest margin (NIM), Return on assets (ROA), and Return on equity (ROE), did not exhibit significant relationship with ESG factors. This may be attributed to the fact that these proxies do not fully capture the impact of ESG factors on financial performance. For example, NIM, which measures net income relative to revenue, may not adequately reflect the environmental and social implications of a firm's operations (Shaikh, 2021). Similarly, ROA and ROE, as profitability indicators, may not fully account for the broader effects ESG factors on long-term financial sustainability. This highlights the importance of distinguishing between market-base and accounting-based financial performance measures when assessing the influence of ESG factors.

Second, the findings suggest that firms listed on FTSE4G Bursa Malaysia can enhance their market value and financial performance by improving their ESG performance. Therefore, firms should integrate ESG factors into their business strategies and operational frameworks while also disclosing their ESG performance to stakeholders. Such initiatives can strengthen corporate reputation, attract socially responsible investors, and contribute to long-term sustainability and profitability. Policymakers and regulators can further support this shift by providing incentives and establishing regulatory frameworks that promote responsible and sustainable business practices. These efforts can foster a more resilient and sustainable economy, benefiting both businesses and society at large.

Third, the study found that firm characteristics, LTDTE, LR, SGR, LTA and CI have a significant impact on financial performance across all metrics. These characteristics are integral to various financial dimensions, such as profitability, risk exposure, and growth potential. For example, LR, which measures of a firm's debt relative to its equity, influences its risk profile and profitability. Similarly, SGR indicates a firm's ability to expand sales and profits without requiring additional debt or equity financing. TA serves as an indicator of firm size and revenue generating capacity, while CI, reflects the extent of capital utilisation in production processes, influencing cost

structure and profitability. These firm characteristics are well documented in financial literature and consistently impact financial performance, as also evidence by this study.

From a regulatory perspective, policymakers should continue encouraging firms to adopt ESG practices by offering incentives and implementing policies that drive sustainable and responsible business operations. Investors and stakeholders should also incorporates ESG factors when evaluating firms listed on FTSE4G Bursa Malaysia, to ensure corporate accountability for environmental, social, and governance practices while rewarding firms that actively enhance their sustainability performance. By analysing firm characteristics such as size, industry sector, and corporate governance, this study provides deeper insights into their role in shaping the impact of ESG factors on financial performance. One key limitation of this study is its sample size, given the ESG factors remains a relatively new in Malaysia. Additionally, the dataset is based on firms listed in the FTSE4G Bursa Malaysia index in 2023. As this study uses on data spanning 2014 to 2022, it is important to acknowledge that not all firms were consistently listed in the FTSE4G Bursa Malaysia Index throughout this period. The selection criteria of the FTSE4G Bursa Malaysia index, which predominantly includes large firms that actively engage in ESG practices, may limit generalisability of the findings. Future research should consider the specific years in which firms were included to provide a more comprehensive analysis of ESG impacts over time. aim to expand the sample size and incorporating a broader range of firms. Examining how firms' ESG ratings and sustainability practices have evolved during their inclusion in the index could yield valuable insights into the long-term implications of ESG integration. This approach would contribute to a more robust understanding of relationship between ESG factors, firm performance, corporate sustainability.

ACKNOWLEDGEMENT

The author(s) would like to thank the Faculty of Business & Management and Accounting Research Institute (HICoE), Universiti Teknologi MARA, Selangor, Malaysia, for providing the necessary financial assistance for this study.

REFERENCES

Abdullah, A. (2022). *The impact of sustainability committee characteristics on corporate sustainability performance: Evidence from the FTSE 150 non-financial companies* (Unpublished doctoral dissertation). University of Wolverhampthon Business, United Kingdom. Available at https://wlv.openrepository.com/items/d0aaf4de-52e2-4546-aff9-e6bf85670f3a

Abdul Rahman, R., & Alsayegh, M. F. (2021). Determinants of Corporate Environment, Social and Governance (ESG) Reporting among Asian Firms. Journal of Risk and Financial Management, 14(4), 167. https://doi.org/10.3390/jrfm14040167

Abou Elseoud, M. S., Yassin, M., & Ali, M. A. M. (2020). Using a panel data approach to determining the key factors of Islamic banks' profitability in Bahrain. Cogent Business & Management, 7(1). https://doi.org/10.1080/23311975.2020.1831754

Adzis, A. A., Wong, W. C., Nordin, S., Ahmad, A. H., & Mohamed-Arshad, S. B. (2022). Analysing the impact of ESG on the performance of Malaysian public-listed companies. *International Journal of Business and Emerging Markets*, 14(4), 415-434. https://doi.org/10.1504/IJBEM.2022.126581

Agnese, P., Cerciello, M., Raffaele Oriani, R. & Simone Taddeo, S. (2024). ESG controversies and profitability in the European banking sector, *Finance Research Letters*, 61. https://doi.org/10.1016/j.frl.2024.105042

Alam, Md. M., Tahir, Y. M., Saif-Alyousfi, A. Y. H., Ali, W. B., Muda, R., & Nordin, S. (2022). Financial factors influencing environmental, social and governance ratings of public listed companies in Bursa Malaysia. Cogent Business & Management, 9(1). https://doi.org/10.1080/23311975.2022.2118207

Alodat, A. Y., Salleh, Z., Hashim, H. A., & Sulong, F. (2023). Sustainability disclosure and firms' performance in a voluntary environment. *Measuring Business Excellence*, 28(1), 105-121. https://doi.org/10.1108/MBE-01-2023-0008

Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, 12(9). https://doi.org/10.3390/su12093910

Ardyansyah, F. (2021). The effect of GDP on profitability level of return on equity in Mandiri sharia banks in Indonesia 2010-2019 Period. *Akuntabilitas: Jurnal Ilmiah Ilmu-Ilmu Ekonomi*,14(2), 60 -74. https://doi.org/10.35457/akuntabilitas.v13i2.1959

Arhinful, R., & Radmehr, M. (2023). The impact of financial leverage on the financial performance of the firms listed on the Tokyo Stock Exchange, *Sage Open*, 13(4). https://doi.org/10.1177/21582440231204099

Attanasio, G., Preghenella, N., De Toni, A. F., & Battistella, C. (2022). Stakeholder engagement in business models for sustainability: The stakeholder value flow model for sustainable development. *Business Strategy and the Environment*, 31(3), 860-874. https://doi.org/10.1002/bse.2922

Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22(2), 119-127. https://doi.org/10.1016/j.bir.2022.11.006

Bissoondoyal-Bheenick, E., Brooks, R., & Do, H. X. (2023). ESG and firm performance: The role of size and media channels. *Economic Modelling*, 121. https://doi.org/10.1016/j.econmod.2023.106203

Bursa Malaysia (2023). *FTSE4Good Bursa Malaysia Index*. Retrieved March 6, 2023, from https://www.bursamalaysia.com/trade/our_products_services/indices/ftse4good-bursa-malaysia-f4gbm-index

Bursa Malaysia (2024). *FTSE4Good Bursa Malaysia Index*. Retrieved January 12 2025, from https://www.bursamalaysia.com/trade/our_products_services/indices/ftse4good-bursa-malaysia-f4gbm-index.

Carnini Pulino, S., Ciaburri, M., Magnanelli, B. S., & Nasta, L. (2022). Does ESG Disclosure Influence Firm Performance? Sustainability, 14(13), 7595. https://doi.org/10.3390/su14137595

Chang, Y.-J., & Lee, B.-H. (2022). The Impact of ESG Activities on Firm Value: Multi-Level Analysis of Industrial Characteristics. Sustainability, 14(21). https://doi.org/10.3390/su142114444

Chen, W., Xie, Y. & He, K. (2024). Environmental, social, and governance performance and corporate innovation novelty, *International Journal of Innovation Studies*, 8(2). 109-131. https://doi.org/10.1016/j.ijis.2024.01.003

Cherkasova, V., & Nenuzhenko, I. (2022). Investment in ESG projects and corporate performance of multinational companies. *Journal of Economic Integration*, 37(1), 54-92. https://doi.org/10.11130/jei.2022.37.1.54

Choiriyah, C., Fatimah, F., Agustina, S., & Ulfa, U. (2020). The effect of return on assets, return on equity, net profit margin, earning per share, and operating profit margin on stock prices of banking companies in Indonesia Stock Exchange. *International Journal of Finance Research*, 1(2), 103-123. https://doi.org/10.47747/ijfr.v1i2.280

Chouaibi, S., & Affes, H. (2021). The effect of social and ethical practices on environmental disclosure: evidence from an international ESG data. Corporate Governance: *The International Journal of Business in Society*, 21(7), 1293-1317. https://doi.org/10.1108/CG-03-2020-0087

De Lucia, C., Pazienza, P., & Bartlett, M. (2020). Does good ESG lead to better financial performances by firms? Machine learning and logistic regression models of public enterprises in Europe. *Sustainability*, 12(13). https://doi.org/10.3390/su12135317

Ditzen, J., Karavias, Y., & Westerlund, J. (2021). Testing and estimating structural breaks in time series and panel data in Stata. *Discussion Papers 21-14*, Department of Economics, University of Birmingham. https://doi.org/10.48550/arXiv.2110.14550

Fagbamila, O.A. (2022). Exchange Rates Fluctuations, Economic Factors and Financial Performance Evaluation of Multinational Companies in Nigeria. *Acta Universitatis Danubius. OEconomica,* 18(5). Retrieved from https://dj.univ-danubius.ro/index.php/AUDOE/article/view/1937

Fekadu Agmas, W. (2020). Impacts of capital structure: profitability of construction companies in Ethiopia. *Journal of Financial Management of Property and Construction*, 25(3), 317-386. https://doi.org/10.1108/JFMPC-08-2019-0072

Firmansyah, E. A., Umar, U. H., & Jibril, R. S. (2023). Investigating the effect of ESG disclosure on firm performance: The case of Saudi Arabian listed firms. *Cogent Economics & Finance*, 11(2). https://doi.org/10.1080/23322039.2023.2287923

Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S. (2020). A stakeholder theory perspective on business models: Value creation for sustainability. *Journal of Business Ethics*, 166, 3-18. https://doi.org/10.1007/s10551-019-04112-z

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

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. https://doi.org/10.3389/fenvs.2023.1256052

Ganda, F. (2022). The impact of corporate governance on corporate financial performance: cases from listed firms in Turkey. *Journal of Governance and Regulation,* 11(2), 204–217. https://doi.org/10.22495/jgrv11i2siart1

Gao, Y., & Han, K.S. (2022). Managerial overconfidence, CSR and firm value. *Asia-Pacific Journal of Accounting & Economics,* 29(6), 1600-1618. https://doi.org/10.1080/16081625.2020.1830558

Gao, Y., Tian, X., & Xu, J. (2024). Intellectual capital, board diversity, and firms' Financial performance: A complex system perspective. *Systems*, 12(9). https://doi.org/10.3390/systems12090363

Grofčíková, J. (2020). Impact of selected determinants of corporate governance on financial performance of companies. *Ekonomicko-manazerske spektrum*, 14(2), 12-23. https://doi.org/10.26552/ems.2020.2.12-23

Helfaya, A., Morris, R., & Aboud, A. (2023). Investigating the factors that determine the ESG disclosure practices in Europe. *Sustainability*, 15(6). https://doi.org/10.3390/su15065508

Hossain, M. Z., Hasan, L., & Hasan, M. H. (2024). Corporate governance as a global phenomenon: evolution, theoretical foundations, and practical implications. *Journal of Financial Risk Management*, *13*(2), 342-375. https://doi.org/10.4236/jfrm.2024.132017

Hysa, E., Kruja, A., Rehman, N. U., & Laurenti, R. (2020). Circular economy innovation and environmental sustainability impact on economic growth: An integrated model for sustainable development. *Sustainability*, 12(12). https://doi.org/10.3390/su12124831

Islam, S., & Rana, M. S. (2019). Determinants of bank profitability: Evidence from commercial banks of Bangladesh. *Journal of Asian Business Strategy*, 9(2), 174–183. https://doi.org/10.18488/journal.1006.2019.92.174.183

Jeffrey, S., Rosenberg, S., & McCabe, B. (2019). Corporate social responsibility behaviours and corporate reputation. *Social Responsibility Journal*, 15(3), 395-408. https://doi.org/10.1108/SRJ-11-2017-0255

Koh, K., Li, H., & Tong, Y. H. (2022). Corporate social responsibility (CSR) performance and stakeholder engagement: Evidence from the quantity and quality of CSR disclosures. *Corporate Social Responsibility and Environmental Management*, 30(2), 504-517. https://doi.org/10.1002/csr.2370

Lee, S. P., & Isa, M. (2023). Environmental, social and governance (ESG) practices and financial performance of Shariah-compliant companies in Malaysia. *Journal of Islamic Accounting and Business Research*, 14(2), 295-314. https://doi.org/10.1108/JIABR-06-2020-0183

Li, Q., Tang, W. & Li, Z. (2024). ESG systems and financial performance in industries with significant environmental impact: a comprehensive analysis, *Frontiers in Sustainability*, 5. https://doi.org/10.3389/frsus.2024.1454822

López-Santamaría, M., Amaya, N., Hinestroza, M. P. G., & Cuero, Y. A. (2021). Sustainability disclosure practices as seen through the lens of the signalling theory: A study of companies listed on the Colombian Stock Exchange. *Journal of Cleaner Production*, 317. https://doi.org/10.1016/j.jclepro.2021.128416

Lund, D.S. (2021). Corporate finance for social good. *Columbia Law Review*, 121(5), 1617-1658. Available at: https://scholarship.law.columbia.edu/faculty_scholarship/4011

Martiny, A., Taglialatela, J., Testa, F. & Iraldo, F. (2024). Determinants of environmental social and governance (ESG) performance: A systematic literature review, *Journal of Cleaner Production*, 456. https://doi.org/10.1016/j.jclepro.2024.142213

Mbonu, C.M., & Amahalu, N.N. (2021). Effect of firm characteristics on capital structure of insurance companies listed on Nigeria stock exchange. *International Journal of Management Studies and Social Science Research*, 3(5), 217-228. Available at: https://www.ijmsssr.org/paper/IJMSSSR00538.pdf

Mohammad, W. M. W., & Wasiuzzaman, S. (2021). Environmental, Social and Governance (ESG) disclosure, competitive advantage and performance of firms in Malaysia. *Cleaner Environmental Systems*, 2. https://doi.org/10.1016/j.cesys.2021.100015

Msomi, T. S. and Nzama, S. (2023). Analyzing Firm-Specific Factors Affecting the Financial Performance of Insurance Companies in South Africa. *Insurance Markets and Companies*, 14(1), 8-21. https://doi.org/10.21511/ins.14(1).2023.02

Nguyen, V.H., Nguyen, T.T.C., Nguyen, V.T. & Do, D.T. (2021). Internal factors affecting firm performance: A case study in Vietnam. *Journal of Asian Finance, Economics and Business*, 8(5), 303–314. https://doi.org/10.13106/JAFEB.2021.VOL8.NO5.0303

Nyabaga, R. M. I., & Wepukhulu, J. M. (2020). Effect of firm characteristics on financial performance of listed commercial banks in Kenya. *International Journal of Economics and Financial Issues,* 10(3), 255–262. Retrieved from https://www.econjournals.com/index.php/ijefi/article/view/9692

Oprean-Stan, C., Oncioiu, I., Iuga, I. C., & Stan, S. (2020). Impact of Sustainability Reporting and Inadequate Management of ESG Factors on Corporate Performance and Sustainable Growth. Sustainability, 12(20). https://doi.org/10.3390/su12208536

Raja Ahmad, R. A., Shamsuddin, M. E., Azmi, N. A., & Abdullah, N. (2023). Is environmental, social and governance (ESG) disclosure value enhancing? Evidence from top 100 companies. *Asia-Pacific Management Accounting Journal*, 18(2), 143-163. https://www.doi.org/10.24191/APMAJ.V18i2-06

Razali, N., Hassan, R., & Zain, N. R. M. (2022). Exploring the regulatory framework of sustainable finance in Malaysia: driving force for ESG institutional investors. *IIUM Law Journal*, 30, 279-316. https://doi.org/10.31436/iiumlj.v30iS2

Sadiq, M., Singh, J., Raza, M., & Mohamad, S. (2020). The impact of environmental, social and governance index on firm value: evidence from Malaysia. *International Journal of Energy Economics and Policy*, 10(5), 555-562. Retrieved from https://www.econjournals.com/index.php/ijeep/article/view/10217

Sani, N. F. A., Muda, R., Arshad, R., & Nair, R. (2020). The influence of environmental, social, governance factors and firm performance on the sustainable reporting of Malaysian companies. *International Journal of Economics and Business Research*, 20(4), 407-424. https://doi.org/10.1504/IJEBR.2020.111100

Santamaria, R., Paolone, F., Cucari, N., & Dezi, L. (2021). Non-financial strategy disclosure and environmental, social and governance score: insight from a configurational approach. *Business Strategy and the Environment*, 30(4), 1993-2007. https://doi.org/10.1002/bse.2728

Shaikh, I. (2022). Environmental, social, and governance (ESG) practice and firm performance: An international evidence. *Journal of Business Economics and Management*, 23(1), 218-237. https://doi.org/10.3846/jbem.2022.16202

Shrestha, C., Andrikopoulos, P., & Prasad Aryal, N. (2024). Does it matter to be a part of the sustainability index? Journal of Sustainable Finance & Investment, 15(3), 666–687. https://doi.org/10.1080/20430795.2024.2401357

Teplova, T., Sokolova, T., Gubareva, M., & Sukhikh, V. (2022). The multifaceted sustainable development and export intensity of emerging market firms under financial constraints: The role of ESG and innovative activity. *Complexity*, 2022, 1-20. https://doi.org/10.1155/2022/3295364

Thompson, F. (2021). The effect of macroeconomic variables on the asset positions and financial performance of Non-banking Financial Institutions (NBFIs) in Jamaica. *Open Journal of Business and Management,* 9(3), 1424-1445. https://doi.org/10.4236/ojbm.2021.93076

Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, 8(2), 169-178. https://doi.org/10.1108/JGR-11-2016-0029

Viererbl, B., & Koch, T. (2022). The paradoxical effects of communicating CSR activities: Why CSR communication has both positive and negative effects on the perception of a company's social responsibility. *Public Relations Review*, 48(1). https://doi.org/10.1016/j.pubrev.2021.102134

Vuković, B., Tica, T., & Jakšić, D. (2022). Sustainable growth rate analysis in Eastern European companies. *Sustainability*, 14(17). https://doi.org/10.3390/su141710731

Wei, H., Mohd-Rashid, R., & Ooi, C. A. (2023). Corruption at country and corporate levels: impacts on environmental, social and governance (ESG) performance of Chinese listed firms. *Journal of Money Laundering Control*, 27(3), 559-578. https://doi.org/10.1108/JMLC-06-2023-0102

Wu, Z. (2022). The analysis of the relationship between ESG and profitability of stocks by linear regression. In *Advances in Computer Science Research* (699–703). https://doi.org/10.2991/978-94-6463-042-8_100

Zafar, M.H. & Sulaiman, A.A. (2019). Corporate social responsibility and Islamic banks: a systematic literature review. *Management Review Quarterly*, 69(2). 159-206. https://doi.org/10.1007/s11301-018-0150-x

Zumente, I., & Bistrova, J. (2021). ESG importance for long-term shareholder value creation: Literature vs. practice. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2). https://doi.org/10.3390/joitmc7020127

Zhu, A., Aryee, E.N.T., Agyemang, A.O., Wiredu, I., Zakari, A. & Samuel Agbadzidah, S.Y. (2024). Addressing environment, social and governance (ESG) investment in China: Does board composition and financing decision matter? *Heliyon*, 10(10). https://doi.org/10.1016/j.heliyon.2024.e30783

APPENDIX 1

Table A: List of Firms Listed at the FTSE4G Bursa Malaysia

No.	Company Names	Industry Types
1	WCT Holdings Berhad	Construction
2	Deleum Berhad	Energy
3	Dialog Group Berhad	Energy
4	Hibiscus Petroleum Berhad	Energy
5	Velesto Energy Berhad	Energy
6	Yinson Holdings Berhad	Energy
7	Alliance Bank Malaysia Berhad	Finance
8	AMMB Holdings Berhad	Finance
9	Bursa Malaysia Berhad	Finance
10	CIMB Group Holdings Berhad	Finance
11	Hong Leong Bank Berhad	Finance
12	Hong Leong Capital Berhad	Finance
13	Hong Leong Financial Group Berhad	Finance
14	Kenanga Investment Bank Berhad	Finance
15	Malayan Banking Berhad	Finance
16	Malaysia Building Society Berhad	Finance

17	Public Bank Berhad	Finance
18	RCE Capital Berhad	Finance
19	RHB Bank Berhad	Finance
20	Syarikat Takaful Malaysia Keluarga Berhad	Finance
21	Tune Protect Group Berhad	Finance
22	Duopharma Biotech Berhad	Healthcare
23	Hextar Healthcare Berhad	Healthcare
24	Pharmaniaga Berhad	Healthcare
25	Hartalega Holdings Berhad	Healthcare
26	HengYuan Refining Company Berhad	Industrial Products
27	Petronas Chemicals Group Berhad	Industrial Products
28	Petronas Gas Berhad	Industrial Products
29	Press Metal Aluminium Holdings Berhad	Industrial Products
30	Ranhill Utilities Berhad	Industrial Products
31	SCGM Berhad	Industrial Products
32	Scicom (MSC) Berhad	Industrial Products
33	Scientex Berhad	Industrial Products
34	Uchi Technologies Berhad	Industrial Products
35	V.S. Industry Berhad	Industrial Products
36	Boustead Plantations Berhad	Plantations
37	FGV Holdings Berhad	Plantations
38	IOI Corporation Berhad	Plantations
39	Kuala Lumpur Kepong Berhad	Plantations
40	Sime Darby Plantation Berhad	Plantations
41	TH Plantations Berhad	Plantations
42	Eco World Development Group Berhad	Properties
43	Eco World International Berhad	Properties
44	LBS Bina Group Berhad	Properties
45	Mah Sing Group Berhad	Properties
46	Malaysian Resources Corp Berhad	Properties
47	Matrix Concepts Holdings Berhad	Properties
48	UEM Sunrise Berhad	Properties
49	Axis Real Estate Investment Trust	REITs
50	Hektar Real Estate Investment Trust	REITs
51	Sunway Real Estate Investment Trusts	REITs
52	Awanbiru Technology Berhad	Technology
53	CTOS Digital Berhad	Technology
54	D & O Green Technologies Berhad	Technology
55	Fraser & Neave Holdings Berhad	Technology
56	Frontken Corporation Berhad	Technology
57	GHL Systems Berhad	Technology
58	Globetronics Technology Berhad	Technology
59	Greatech Technology Berhad	Technology
60	Inari Amertron Berhad	Technology
61	Malaysian Pacific Industries	Technology
62	MI Technovation Berhad	Technology
63	MY E.G. Services Berhad	Technology
64	Pentamaster Corporation Berhad	Technology
65	Unisem (M) Berhad	Technology
66	Vitrox Corporation Berhad	Technology
67	Media Chinese International Ltd	Telecommunications & Media
68	Star Media Group Berhad	Telecommunications & Media
69	AEON Co. (M) Berhad	Trading/Services
70	Astro Malaysia Holdings Berhad	Trading/Services
71	Axiata Group Berhad	Trading/Services
72	Bermaz Auto Berhad	Trading/Services
73	Bumi Armada Berhad	Trading/Services
74	CJ Century Logistics Holdings Berhad	Trading/Services
75	DKSH Holdings (M) Berhad	Trading/Services
76	Dufu Technology Corp. Berhad	Trading/Services
77	Genting Malaysia Berhad	Trading/Services
78	Innature Berhad	Trading/Services
79	Karex Berhad	Trading/Services
80	Kelington Group Berhad	Trading/Services
81	KPJ Healthcare Berhad	Trading/Services
82	Lii Hen Industries Berhad	Trading/Services
83	Malaysia Airports Holdings Berhad	Trading/Services

84	Malaysia Marine and Heavy Eng Holdings Berhad	Trading/Services
85	Malaysia Steel Works (KL) Berhad	Trading/Services
86	Maxis Berhad	Trading/Services
87	MISC Berhad	Trading/Services
88	MR D.I.Y. Group (M) Berhad	Trading/Services
89	Petronas Dagangan Berhad	Trading/Services
90	PPB Group Berhad	Trading/Services
91	Sime Darby Berhad	Trading/Services
92	Telekom Malaysia Berhad	Trading/Services
93	Tenaga Nasional Berhad	Trading/Services
94	Westports Holdings Berhad	Trading/Services
95	YTL Corporation Berhad	Trading/Services
96	Pos Malaysia Berhad	Transportation & Logistics