IS GREENWASHING LESS IMPACTFUL FOR FIRMS WITH FEMALE-LED BOARDS? ANALYZING THE EFFECT ON STOCK MARKET PERFORMANCE

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(3) Equal contribution has been made by each group member in completing the FYP
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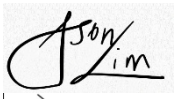
Lim Jun Hung	21ABB03378	
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DEDICATION

First and foremost, this research is dedicated to our groupmates, who are xxx. Every member contributed valuable ideas, key points, and efforts during discussions and meetings, leading to the successful completion of this research in our final year.

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ABSTRACT

This study investigates greenwashing behaviour among 40 companies listed in Malaysia's Top 100 Stock Index from 2018 to 2023. Employing a rigorous empirical approach, the research utilizes the Generalized Method of Moments (GMM) as the primary estimation technique, supplemented by Feasible Generalized Least Squares (FGLS) and Panel-Corrected Standard Errors (PCSE) methods, with regressions conducted using Stata and EViews software. Greenwashing behavior is the independent variable, with earnings per share (EPS), leverage, and book value (BV) as control variables. The moderating role of female board representation is also examined. The results elucidate the prevalence and determinants of greenwashing practices, offering insights into their impact on corporate transparency and sustainability. By exploring the influence of gender diversity on mitigating greenwashing, this study contributes to the literature and provides policy recommendations to strengthen regulatory frameworks and foster genuine environmental accountability in Malaysia's corporate landscape.

Keywords: stock performance; environmental, social and governance; greenwashing; gender diversity; generalized method of moments

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LIST OF ABBREVIATIONS

ESG	Environmental, Social, and Governance
SP	Stock Performance
EPS	Earnings Per Share
LEV	Leverage
BV	Book Value Per Share
GW	Greenwashing
FB	Female on Board
FBGW	Interaction term between FB and GW
GMM	Generalized Method of Moments
FGLS	Feasible Generalized Least Squares
PCSE	Panel-Corrected Standard Errors

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This section offers a broad overview of recent studies. Specifically, Chapter 1 defined and gives an overview of the history of ESG, greenwashing, and the stock performance in Malaysia perspective. The issue of greenwashing is getting serious and needs greater attention. Thus, it is crucial to know how Malaysia has been affected by greenwashing as previous study solely looks at Europe and China. Important topics covered in this chapter include the study's significance, objectives, research questions and research hypothesis. This chapter concludes with a brief synopsis and a description of the structure of the upcoming chapters.

1.1 Research Background

1.1.1 Greenwashing

In recent years, ESG has gained significant importance in the financial and business communities, reflecting a growing awareness of the broader impacts of corporate activities on society and the environment. According to the Global Sustainable Investment Alliance, global sustainable investment has exceeded $35 trillion, a figure that highlights the substantial market shift towards integrating ESG factors into investment decisions (Global Sustainable Investment Alliance, 2020). ESG have become crucial for non-financial performance reporting, highlighting the importance in evaluating risk management and managerial skills (Tenuta & Cambrea, 2022). This approach is institutionalizing as companies incorporate social and environmental policies into their fundamental operations to satisfy the demands of stakeholders and investors (Ahmad et al., 2023). Thus, it is essential for companies to include specific environmental and social policies into their operations. Furthermore, ESG considerations are also increasingly influencing on

company's decision-making, showing that companies are actively responding to societal and environmental expectations as part of their strategic planning (Perez et al., 2022).

The term "ESG" stands for environmental, social, and governance factors are believed to influence on a company's conducts while making investment decisions (Armstrong, 2020). The environmental pillar is concerned on how companies manage their ecological footprint, which includes their efforts to use sustainable resources, manage waste, and reduce greenhouse gas emissions. As the world turns its attention towards combating climate change, environmental sustainability has emerged as a top priority for regulators and investors alike (Gibson et al., 2019). Social criteria pertain to the way in which companies engage with their employees, suppliers, consumers, and the local communities where they operate. This includes labour rights, diversity, and equity initiatives that have been connected to higher employee morale and sustained company performance (Fatemi et al., 2018). Governance refers to the frameworks and procedures which ensure a company's responsibility and ethical conduct. Corruption and mismanagement problems can be avoided with good governance, which promotes more stable and transparent business operations (Ng & Rezaee, 2018).

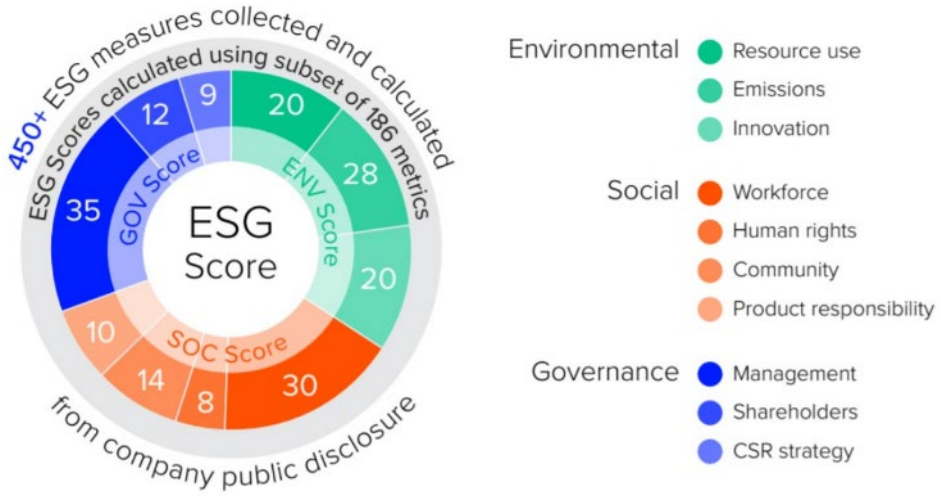

Figure 1.1: LSEG's ESG scoring model

Figure 1.1 shows the ESG scoring model based on LSEG's methodology, which collects and assesses a company's performance across three fundamental pillars:

environmental, social, and governance. The model is widely recognized for its depth and transparency, which employs more than 450 measures, from which a subset of 186 criteria is calculated to generate the overall ESG score. These indicators are mostly drawn from publicly disclosed information, ensuring that the results are verifiable and transparent.

Although ESG has been in the spotlight in recent years, not many people have taken the time to look beneath into its downside—greenwashing. It is noteworthy that companies with higher ESG scores tend to experience lower costs of debt financing since investors and creditors perceive such firms as less risky and more resilient, thereby requiring lower returns on their investments (Zhao et al., 2024). Moreover, firms that implement robust ESG policies are often regarded as leaders in sustainability and corporate governance. Such recognition enhances their strategic positioning, attracts socially responsible investors, and strengthens stakeholder loyalty, thereby contributing to sustained competitive advantage and long-term firm performance (Fu & Loang, 2024).

Nevertheless, the transition toward environmentally sustainable practices poses several challenges. Firms often face significant barriers such as limited access to green financing, a lack of internal expertise, and high upfront costs associated with green investments (Lin & Ma, 2022). In response to these challenges, some firms may engage in greenwashing practices to gain reputational benefits and reduce financing costs without implementing substantive ESG improvements.

The term greenwashing is the tactic used by businesses to falsely describe themselves as ecologically conscious (Netto et al., 2020). Firms mislead consumers on the environmental practices of a company or the environmental benefits of a product or service. This deceptive marketing technique often involves vague or superficial claims about environmental benefits that are not supported by actual performance (Yu et al., 2020). Therefore, firms deliberately employ eco-friendly messaging to boost their brand without making major environmental gains (Glavas et al., 2023).

Currently, there is a growing concern on corporate greenwashing behaviour as consumers seek out more environmentally friendly and sustainable investments and products. Since investors and consumers are increasingly aware of deceptive advertising, the demand for transparency and scrutiny has intensified to ensure greater credibility and accountability in ESG practices (Yang et al., 2020; Yu et al., 2020). For instance, firms are required to disclose their sustainability initiatives and provide detailed ESG reporting regularly to ensure the genuine environmental practices.

Volkswagen and Nestlé are two prominent instances of businesses that have been accused of greenwashing. Volkswagen was embroiled in a significant scandal when it came to light that the firm had put software in its diesel cars to rig emissions tests and make them appear more eco-friendly than they actually were (Zhang, et al., 2021). The "Dieselgate" affair exposed the dangers of greenwashing in the automobile sector and resulted in severe legal and financial fallout for the corporation. According to the research of (Davis, 2024), Nestlé was accused of greenwashing in connection with its line of bottled water. The company emphasized initiatives like cutting back on plastic use and encouraging water conservation when marketing its line of sustainable water products.

In Malaysia, the issue of greenwashing has drawn attention since ESG initiatives are increasingly essential in businesses' activities (Kuok, 2023). The Malaysian government has made a concerted effort to promote ESG standards and encourage sustainable practices among businesses (Razak, et al., 2024). However, concerns have been raised about the credibility of ESG claims, especially with the rise of ESG-focused investments. Malaysian consumers and investors are becoming more vigilant about greenwashing practices in companies and products labeled as ESG-compliant (Razak, et al., 2024). Therefore, greater transparency and clearer regulatory frameworks are needed to ensure that ESG investments truly support sustainability objectives (Kah, 2024).

An example of greenwashing in Malaysia is the case of IOI Group, a major player in the palm oil industry. The Roundtable on Sustainable Palm Oil (RSPO), which certifies sustainable palm oil production, briefly suspended IOI Group in 2016 due

to allegations of deforestation and peatland destruction, even though the company marketed its products as sustainable (Rainforest Action Network, 2016). This suspension was a pivotal moment that highlighted the disconnect between the company's stated environmental commitments and its actual practices.

Additionally, Malaysia's state-owned oil and gas giant, Petronas, has faced allegations of greenwashing, particularly regarding its treatment of Scope 3 emissions. Although Petronas has pledged to achieve net-zero carbon emissions by 2050 (Media Release, 2022), environmental watchdogs such as Rimbawatch argue that the company's efforts are largely focused on Scope 1 and 2 emissions, which are directly under its control (Samantha Ho, 2023). In contrast, Scope 3 emissions, which result from the use of its products and are significantly larger-remain insufficiently addressed. This discrepancy has led to accusations that Petronas is engaging in greenwashing, with its environmental pledges appearing more like public relations efforts than genuine attempts to reduce environmental impact (Samantha Ho, 2023).

1.1.2 Female on Board

Gender diversity in corporate leadership is increasingly recognized as an essential component in strengthening corporate governance. Boards with female representation bring diverse perspectives and experiences, leading to more comprehensive and balanced decision-making. Notably, female directors often prioritize a broader range of stakeholder interests, including social and environmental concerns that may receive less attention from their male counterparts (Javed et al., 2023). This may lead to companies adopting more sustainable practices since female directors are more aware of the long-term impact of corporate decisions. Therefore, companies with gender-diverse boards are more inclined to engage in genuine environmental measures rather than merely greenwashing (Darmawan, 2024) because they are more aware of the risks associated with deceiving stakeholders, including reputational harm and legal ramifications (Khan et al., 2016).

Having female directors on corporate boards considerably reduces greenwashing, since these directors are more likely to advocate for transparency and ethical conduct in corporate environmental reporting (Chen & Dagestani,2023; Eliwa et al.,2023). Female directors frequently advocate for more thorough evaluation of environmental claims and ensure that firms' sustainability efforts are genuine rather than for show (Chen & Dagestani,2023; Eliwa et al.,2023). Moreover, women are more risk-averse and more emphasize on ethical issues, which can contribute to greater transparency in corporate reporting and communication (Chang et al., 2024). This transparency decreases the possibility of greenwashing, since companies with diverse boards are more inclined to implement authentic and verifiable environmental policies. In addition, women in leadership roles are more committed to achieve ESG and corporate social responsibility (CSR) goals. This dedication often leads in stronger environmental regulations and procedures, which reduce the need for companies to participate in greenwashing (Al-Jaifi, 2020).

The influence of gender diversity on greenwashing has significant stock market implications. As investors' decision-making is increasingly influenced by environmental factors, companies that found to be engaged in greenwashing may experience reputational damage, resulting in stock price fluctuations. Companies that commit to genuine sustainability practices, on the other hand, are more likely to attract long-term, socially conscious investors, resulting in stronger stock market performance. In addition, companies with gender-diverse boards, which successfully reduce greenwashing, have more positive and consistent stock market outcomes (Chen & Dagestani, 2023). Companies with female directors are better at managing ESG risks, encouraging higher investor trust and lowering capital costs (Chen & Dagestani, 2023). This dynamic example can be seen in the case of Unilever. Unilever has been acknowledged for its sustainability efforts, which have been extensively examined and reported to investors in a transparent manner, led by a gender-diverse board (Ahmed, 2024). This dedication to genuine ESG practices has not only improved Unilever's reputation but has also contributed to the company's outstanding stock market performance, especially during times of market volatility (Ahmed, 2024).

1.1.3 Malaysian Stock Market

The Malaysian stock market, known as Bursa Malaysia, is a central component of Malaysia's financial system and economic framework. Initially established in 1964 as the Kuala Lumpur Stock Exchange (KLSE), it was renamed Bursa Malaysia in 2004 to signify its expanded role in the regional and international financial arenas (Bursa Malaysia, 2024). This study focus on the indicator of the FTSE Bursa Malaysia Top 100 Index tracks the top 100 largest companies on Bursa Malaysia, based on market capitalization, which is including the FTSE Bursa Malaysia KLCI Index and the FTSE Bursa Malaysia Mid 70 Index (Bursa Malaysia, 2024).

Stock prices are governed by market force, which is the quantity of demand and supply in the market (Stash, 2024). The market participants acquire stock based on both micro and macro-economic perspective, but they mainly focus on the company's fundamental information (Segal, 2024), which represents the company's ability in profitability, liquidity, controlling leverage and activity by assessing their accounting information. Some examples are the price-to-earnings (P/E) ratio, earnings per share (EPS), return on equity (ROE), and debt-to-equity (D/E) ratio. As fundamental information allow investor to look beyond short-term pricing changes to the fundamental variables that influence a company's operations and long-term profitability. Furthermore, they also take GDP, inflation, unemployment rates, industry or sector developments, government policy and the company's competitors into consideration before making investment decision (Segal, 2024), which are also significant contributing to stock price determination at the same time. Stock market is not only being affected by micro-economic perspective, but also macro-economic perspective. For instance, when there is a crisis which will create uncertainty toward stock market, such as the financial crisis 1997, the financial crisis 2008 and COVID-19 pandemic. According to the World Bank data, KLCI index has dropped by about 70% during Asian financial crisis 1997. Besides, the stock market is a key aspect in promoting economic progress, which is a part of the financial system that functions as a growth engine in modern countries (Nathaniel et al., 2020).

In addition, ESG performance has potential effects on the pricing of stock market. A firm that receives an upward ESG rating adjustment is likely to benefit from increased investor confidence. This good feeling can lead to higher demand for the company's shares, potentially raising its price and resulting in positive stock returns, vice versa (KnowESG, MSCI Inc., 2023). From another aspect, the improving openness in environmental concern, governance accountability, and social concern increased stock price and thus improved corporate value in the view of Malaysian stock market (Edi Azhar, 2020). In contrast, the over rely on ESG performance will have chance to create price crash risk in the condition of market participants reporting negative ESG information disguised by management from the non-financial perspective, greenwashing, especially in businesses with high degrees of earnings management (Liu et al., 2024).

1.2 Research Problem

The dilemma of environmental pollution and global warming has required green investments worldwide. To achieve a sustainable development, firms are urged to incorporate green practices in their operation and produce greener products. Therefore, ESG practices are perceived as a tool to alleviate environmental issues and benefit firms from a higher company’s reputation and a lower financing cost (Chen et al., 2023). However, companies have begun engaging in greenwashing to reap the benefits of appearing environmentally responsible, without genuinely adopting green practices in their business operations. Companies disclose inaccurate ESG reporting and use the language to deceive investors, preventing them from making well-informed decisions and negatively impacting firm value (Fatemi et al., 2018). The dishonesty not merely jeopardizes genuine ESG efforts in green investment, yet also misleads investors who are increasingly prioritizing ethical and sustainable development. Consequently, this affects corporate legitimacy, erode customer trust, and impacts stock market performance.

Greenwashing can negatively affect stock market performance through various channels. Company engaging in greenwashing provide misleading or exaggerated

information about their environmental efforts to attract environmentally conscious investors, thereby artificially boosting their stock prices. However, once greenwashing is exposed, it results in reputational damage, a loss of investor confidence, legal consequences such as fines, and ultimately, a dramatic decline in stock prices (Delmas & Burbano, 2011). The exposure of such deceptive practices triggers stock volatility and decreases corporate value, as investors quickly react to the revelation of dishonesty, becoming more cautious and vigilant regarding ESG claims in the future. Inaccurate ESG disclosures mislead investors into making poor decisions, distorting the firm's genuine risk profile and giving the market a false sense of its potential for long-term sustainability (Brandon et al., 2021). Consequently, greenwashing distorts investor perception, interferes with the fair valuation of a company's stock, and undermines market efficiency. As evident by numerous cases where stock prices dropped after the exposure of greenwashing activities, it shows that market tends to penalize companies engaged in dishonest ESG practices.

Nevertheless, another aspect of board features is gender diversity which plays an important role in the influence of corporate governance that leads to greenwashing and stock market returns. The study discovered that a gender diversity is less likely to engage in greenwashing where the boards enhance corporate ESG reports to satisfy stakeholders (Liao et al., 2015). Academics argue that women directors avoid risks and place significant importance on ethical practices, which creates accurate and more truthful ESG reports that help improve the company's image among investors thereby increasing the stability of the firm performance. This dynamic can be described within the lens of the race to the bottom, or more appropriately, the race to the top by increasing board vigilance over ESG-linked claims and activities. Consequently, firms with gender-diverse boards were less likely to be associated with greenwashing scams, and their firms seemed to receive more constructive and affirmative stock market reactions. Therefore, board diversity prevents not only greenwashing but also strengthens ESG practices, stock market returns.

As of today, there is still a lack of empirical research that looked into the impact of greenwashing on stock price. While previous research has come up with impact of

greenwashing on loan access (Wang et al., 2024), brand avoidance (Sajid et al., 2024), company's financial performance (Kornreich, 2022), investors' decisions (Li et al., 2024), and equity mispricing (Liu et al, 2023). Despite research by Teti et al. (2024) studied impact of greenwashing on stock market in Europe. However, impacts of greenwashing on stock market reactions may be vary across countries, depend on cultural and regional differences, market maturity, regulatory environments and different acceptance level on greenwashing. In our knowledge, there is no study for impact of greenwashing on stock price in Malysia which contributed to motivation of this study. Moreover, moderating effect of female on board to affect greenwashing behaviour has been included in this study. Against this background, this study aims to examine the impact of greenwashing on stock market performance and female on board as moderator to affect relationship between greenwashing and stock market performance.

1.3 Research Objectives

1.3.1 General Objectives

This study will investigate the impact of greenwashing on the financial performance of Malaysian publicly listed companies while examining whether diversity in corporate leadership has an impact on this relationship.

1.3.2 Specific Objectives

1. To analyse the impacts of greenwashing behaviour on the stock performance of companies listed on Malaysia's FTSE Top 100 Index.
2. To investigate the moderating effect of gender diversity on the relationship between greenwashing behaviour and stock performance of companies listed on Malaysia's FTSE Top 100 Index.

1.4 Research Questions

1. How does greenwashing behaviour influence the stock performance of companies listed on Malaysia's FTSE Top 100 Index?
2. How does gender diversity influence the relationship between greenwashing behaviour and stock performance of companies listed on Malaysia's FTSE Top 100 Index.

1.5 Research Hypothesis

1. Greenwashing has the impact on the stock performance of companies listed on Malaysia's FTSE Top 100 Index.
2. Gender diversity has the moderating effect on the relationship between greenwashing and stock performance of companies listed on Malaysia's FTSE Top 100 Index.

1.6 Significance of Study

This study addresses a major research gap in Malaysian greenwashing practices, making vital contributions to the academic and business sectors. Although a lot of research has been done on greenwashing and how it impacts stock performance in nations like China and the US, little empirical data has been found regarding how it impacts Malaysian-listed companies. In view of the growing concerns in Malaysia regarding corporate sustainability deception, this study attempts to clarify the consequences of greenwashing on stock performance and whether or not these effects are lessened by boards with female leadership. Through addressing this gap, the study contributes to the current pool of knowledge on gender diversity, corporate governance, and sustainability misrepresentation in emerging economies.

Furthermore, this study offers crucial information to regulatory agencies and politicians in Malaysia and beyond. Deterring greenwashing and improving transparency in business ESG (Environmental, Social, and Governance) reporting

require strong structures and policies. Examining that having more women on boards lessens the negative effect that greenwashing has on stock performance could help strengthen corporate governance laws. In order to safeguard stakeholders against dishonest sustainability claims, regulatory bodies might utilize this research to strengthen ESG disclosure regulations, promote diversity on boards, and impose stricter enforcement measures.

Besides, this report provides financial analysts and investors with a better grasp of the risks of greenwashing. Assuming that all sustainability-oriented businesses actually comply to ethical and environmental standards, many investors are giving ESG-compliant corporations more importance. However, greenwashing is still an issue that can result in capital misallocation and potential losses. Through emphasizing the function of female-led boards in reducing the negative consequences of greenwashing, this study gives investors important knowledge on corporate governance frameworks that improve ESG credibility. This makes it possible to make better informed investment choices and assists investors in distinguishing between companies that are actually dedicated to sustainability and those that are using deceptive tactics.

Moreover, this study supports corporate governance and business ethics by highlighting the significance of board diversity in guaranteeing transparent and accountable company behaviour, which goes beyond financial markets and regulatory implications. To improve their ESG efforts, businesses can use these insights to review their governance frameworks and apply gender-inclusive leadership techniques. The wider business ecosystem may eventually gain from a more diverse board since it may strengthen corporate accountability, decrease opportunistic behaviour, and improve decision-making.

Lastly, this study benefits society by raising awareness of corporate sustainability accountability and greenwashing. In view of the growing emphasis on climate action and ethical business practices around the world, the study promotes public discussion about corporate responsibility and highlights the need for genuine ESG initiatives as opposed to false sustainability claims. Through highlighting greenwashing and its effects on financial markets, this study contributes to

initiatives aimed at establishing a more ethical, transparent, and sustainable business environment in Malaysia and beyond.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

With an emphasis on the moderating effect of gender diversity, this chapter examines the structure of research on stock market reactions to greenwashing. It establishes the foundation for the investigation by going over underlying theories, empirical research, and conceptual models. The impact of gender diversity in corporate governance, the effect of greenwashing on stock market performance, and the interactions between these issues are all covered.

2.1 Theoretical Review

2.1.1 Signal Theory

According to signalling theory, businesses use corporate behaviours and voluntary disclosures to communicate with stakeholders, including investors (Huang, 2021). How external parties view the company's reputation and long-term worth is determined by the quality of these signals (Huang, 2021). Businesses may overstate or make up ESG commitments in an effort to convey high environmental performance, a practice known as "greenwashing" (Free et al., 2024). A brief rise in the stock price may result from this manipulation, which could mislead investors into thinking the company is environmentally conscious (Teti et al., 2024). But when these false signals are revealed, investor confidence declines, which can result in volatile stock prices, unfavourable market reactions, and even regulatory attention (Teti et al., 2024).

Research indicates that greenwashing has negative long-term effects for businesses. According to research by Delmas and Burbano (2011), companies who engaged in dishonest ESG practices suffered larger stock price performance losses when their false claims were exposed than companies that made no ESG claims at all. This is

due to investors' perception that greenwashing is a betrayal of confidence, which has an immediate effect on the company's stock price (Dempere et al., 2024). Furthermore, signalling theory clarifies why businesses decide to engage in greenwashing in spite of the dangers. In order to draw in investors, companies with poor financial results or insufficient sustainability policies could feel under pressure to present a more robust ESG profile (Clementino and Perkins, 2020). According to studies, this type of opportunistic signalling may result in short-term increases in stock prices, but when it is revealed, the market eventually suffers losses (Delmas and Burbano, 2011). Signalling theory thus emphasizes the risks of greenwashing as a misleading business tactic.

2.1.2 Stakeholder Theory

Based on Freeman's (1984) stakeholder theory, companies have obligations to their workers, customers, communities, and investors in along with maximizing profits. According to this viewpoint, generating long-term value depends on meeting social, ethical, and environmental commitments (Sheetal and Prof Meena, 2024). Greenwashing stands in direct opposition to stakeholder theory's principles. Businesses endanger their connections with important stakeholders when they falsify their ESG performance (Michael and Robyn, 2023). According to research, companies that are found to have engaged in greenwashing suffer increased scrutiny from regulators, activist groups, and customers in alongside the investor backlash (Guo et al., 2018). Financial performance may be impacted by negative stakeholder reactions, which may result in consumer boycotts, legal action, and harm to the company's brand (Brandy Thiesen, 2020).

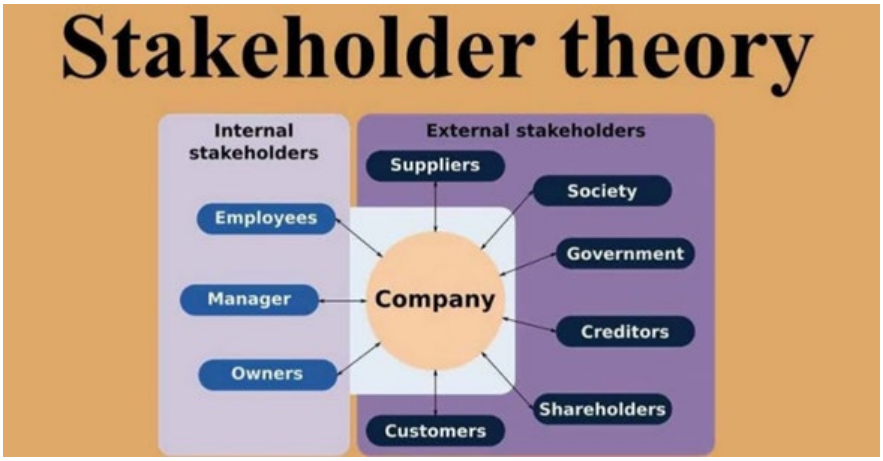

Figure 2.1 Stakeholder Theory Diagram. Adapted from Srestha Nandy. (2021). All you need to know about the stakeholder theory.

According to a study by Lai Fong Woon and Satirenjit, (2024), companies that make false ESG claims suffer long-term harm to their reputation and perform worse over time than their truly sustainable competitors. This is because transparency and authenticity are important to stakeholders, especially socially conscious investors, in business sustainability initiatives (Corne Meintjes, 2021). In the long run, businesses that successfully incorporate ESG activities into their business models typically outperform their competitors (Nguyen et al., 2020). Sheetal and Prof Meena (2024) found that companies with good sustainability practices have improved customer loyalty, increased investor trust, and higher profitability. Deceptive ESG claims, on the other hand, cause businesses to lose credibility, which can seriously impair their stock market performance (Liu et al., 2024). Furthermore, companies that fall short of stakeholder expectations run a greater risk of regulatory action (Sheetal and Prof Meena, 2024). Stricter rules on ESG reporting are being enforced by governments and non-governmental organizations (NGOs), which makes it harder for businesses to engage in greenwashing without suffering penalties (Brandy Thiesen, 2020). Stakeholder theory thus supports the claim that in order to sustain long-term growth and stability, companies must match their sustainability policies with the expectations of their stakeholders (Sheetal and Prof Meena, 2024).

2.1.3 Agency Theory

Information asymmetry causes conflicts of interest between shareholders and company management, as agency theory explains (Huang, 2021). Despite the company's poor environmental performance, managers may use greenwashing to create a positive corporate image, increase executive salaries, or draw in investors (Yiming Ma and Muhammad, 2024). These conflicts of interest occur when management's interests diverge from shareholders', resulting in false disclosures that favor management at the expense of investors (Sheetal and Prof Meena, 2024). Based on empirical data, companies with inadequate governance frameworks are more likely to engage in greenwashing since they lack oversight and accountability systems (Darmawan, 2024). According to a study by Lyon and Maxwell (2011), companies that have limited board independence, excessive executive control, and inadequate regulatory supervision are much more likely to adopt dishonest ESG practices. In these situations, self-serving managers utilize "greenwashing" as a tactic to appear sustainable while continuing with business as normal (Zhibin and Jiaxiao, 2024).

On the other hand, by encouraging openness, moral decision-making, and improved oversight of ESG practices, gender-diverse boards significantly lessen agency conflicts (Chang et al., 2024). According to research, women directors are more likely to support sustainable business practices, guaranteeing that companies actually follow ethical environmental standards instead of depending on deceptive disclosures (Liu et al., 2023). Businesses with more diverse boards showed better governance efficacy and a lower tendency for opportunistic practices like greenwashing, according to a 2024 study by Yiming Ma and Muhammad. Agency theory emphasizes the critical role of governance structures in mitigating greenwashing risks and aligning managerial actions with shareholder interests (Sheetal and Prof Meena, 2024). Also, strong governance mechanisms, such as board independence and shareholder activism, act as deterrents to managerial misconduct (Srikanth et al., 2024). Based on the study of Dr. O. Kayode Akinsola (2025), businesses are under increasing pressure from investors and regulatory agencies to strengthen their ESG oversight, which lowers the prevalence of deceptive practices.

2.2 Empirical Review

2.2.1 Stock Performance

A company's market value, investor perception, and financial health are all significantly influenced by its stock performance. It shows how a company's stock reacts to external factors, such as market circumstances, corporate disclosures, and governance procedures, as well as internal strategic initiatives (Zhao et al., 2025). Stock performance is increasingly thought to be sensitive to perceived genuineness in the context of ESG disclosures. According to the research of Gen-Fu Feng et al., (2022), transparent sustainability policies tend to increase investor trust and share value stability, while greenwashing causes volatility and damage to a company's brand.

ESG behavior and stock market results are directly correlated based on number of empirical research. ESG announcements have both short-term and long-term stock price reactions, and companies that are seen as trustworthy and moral typically see positive unusual returns (Gen-Fu Feng et al., 2022). On the other hand, when ESG promises turn out to be false, stock performance usually decreases (Tipon Tanchangya et al., 2025). The study of Liu et al., (2024) showed the reduced investor confidence and greater perceived risk are the causes of these adverse market responses.

Furthermore, sustainability disclosures and ESG ratings are having a bigger impact on investor choices, especially in markets where environmental consciousness is growing (Chaoyang Zhao, 2024). Based on the research of Dempere et al., (2024) showed that firms accused of greenwashing experience stock underperformance and restricted access to financing, whereas companies with strong ESG frameworks are more resilient to market shocks and have greater long-term valuations. This demonstrates how non-financial indicators, such ESG credibility, are increasingly influencing investor behavior and financial performance.

Moreover, the studies of Ahmed (2024) and Khan et al., (2016) showed that businesses with strong governance frameworks, particularly those with gender-diverse boards, typically exhibit increased stock market resilience. Diversity in gender improves openness and oversight, lowers the risk of greenwashing, and builds long-term investor confidence due to these companies are seen as more moral and responsible, their stock performance is stronger and more consistent.

2.2.2 Greenwashing and Stock Performance

The practice of misleading stakeholders by misrepresenting a company's environmental sustainability initiatives is known as "greenwashing" (Netto et al., 2020). Greenwashing can cause strong market impacts, especially when investors discover that ESG claims were fraudulent (Liu et al., 2024). Research indicates that when a firm is exposed to greenwashing, investors reconsider its trustworthiness and risk profile, which leads to a large drop in stock prices (Lam & Grønås, 2022). Businesses that participate in greenwashing frequently experience long-term damage to their reputation, which impacts investor trust and future financial performance (Lai Fong Woon and Satirenjit, 2024). In order to prevent greenwashing, regulatory agencies around the world are strengthening ESG reporting requirements (Brandy Thiesen, 2020). The financial risks connected with false sustainability claims have increased because to increased scrutiny from activist shareholders and institutional investors (Teti et al., 2024).

Businesses that are found guilty of greenwashing may suffer serious financial consequences, such as falling stock prices, fines, and the loss of the faith of significant stakeholders (Tipon Tanchangya et al., 2025). According to empirical research, investors are growing more experienced at spotting greenwashing (Guo et al., 2018). Financial markets have established systems to differentiate between legitimate sustainability projects and dishonest greenwashing strategies (Lyon and Maxwell, 2011). While businesses exposed for greenwashing frequently suffer long-term harm to shareholder trust and long-term market price, companies that invest in genuine sustainability initiatives typically see better stock market

resilience (Nguyen et al., 2020). Furthermore, research indicates that companies that engage in greenwashing may face increased borrowing rates since lenders view them as riskier risks (Dempere et al., 2024).

Recent research has brought attention to the changing role of market efficiency in processing ESG-related disclosures, especially the financial and reputational dangers connected to greenwashing. The studies of Tinghui et al., (2024) showed the market's capacity to distinguish true sustainability from greenwashing is improving, especially in countries with strong ESG data openness. According to their research, there is a shift toward greater accountability in capital markets, as evidenced by the more severe stock price reactions to suspected greenwashing events in nations with higher investor ESG awareness. According to the research of Tinghui et al., (2024), companies that engage in cyclical or recurring greenwashing practices see compounded declines in stock prices with each exposure.

As investors grow less tolerant of ethical misrepresentation, the initial market tolerance for ESG enhancement seems to decline considerably with time. These results highlight the growing harm to one's reputation caused by ongoing dishonest behavior (Lai Fong Woon and Satirenjit, 2024). Besides, the impact of industry background on the stock market repercussions of greenwashing is also covered in recent literature. Ramirez de Arellano Alvarez (2023) asserts that because of increased environmental scrutiny, businesses in high-impact industries like manufacturing, energy, and agriculture faced harsher criticism for greenwashing. As a result, stock performance declines in these sectors are typically more severe and persistent, especially when combined with media attention or activist initiatives.

2.2.3 Gender Diversity and Stock Performance

According to Brahma et al., (2021), who looked at UK companies, gender diversity on boards has a positive correlation with company performance. This suggests that diverse boards improve decision-making processes and bring a range of perspectives to the board. Furthermore, financial technology moderates this

association, indicating that gender-diverse boards perform better in companies with sophisticated technological integration, based on the study of Sanad and Al Lawati (2023).

On the other hand, Achour (2021) looked into how female board presence affected firm risk and discovered that, although this varied from firm to firm, gender diversity generally improved risk management and long-term financial stability. Increased investor confidence can result from better risk management, which will improve stock performance. According to Hazaea et al., (2023), businesses with more women in senior management typically see better financial results, as long as appropriate organizational rules are in place. These results imply that company resilience and strategic decision-making are enhanced by gender diversity, both of which are essential components in improving stock performance. Besides, Birindelli et al., (2019) noted that banks with more women in executive roles typically perform better in terms of the environment, which can have an indirect impact on stock performance by improving stakeholder trust and the firm's reputation.

The psychological and behavioral impact of female directors on corporate strategy is also highlighted by research, even though board gender diversity has been associated with better risk management and ethical governance. According to Dawar and Singh (2016), women in leadership roles are more likely to put stakeholder welfare and long-term sustainability ahead of short-term profit maximization. This change is well received by long-term investors and fund managers with ESG commitments. Moreover, the research of Giuliana et al. (2024) showed that gender makes boardrooms more dynamic and better equipped to handle crises and changes in the market when paired with other elements like cultural background, educational variety, and exposure to different countries. It has been demonstrated that these diversified viewpoints support stronger stock performance and more stable earnings (Birindelli et al., 2019).

2.2.4 Greenwashing, Gender Diversity and Stock Performance

Gender diversity in corporate governance has been extensively researched in relation to risk management, decision-making, and transparency (Giuliana et al., 2024). There is a reduced chance of corporate misconduct, such as greenwashing, when boards with a gender diversity are more accountable and ethically supervised (Chen et al., 2023). According to research of Chang et al., (2024), having more diverse viewpoints in the board during communicates with female directors might result in better governance procedures and more resolute ESG pledges.

Research by Eliwa et al., (2023) shows that businesses with higher gender diversity scores are less likely to make false ESG disclosures and typically have better sustainability ratings. Investor trust is also increased by gender diversity since stakeholders view these companies as more accountable and transparent (Ahmed, 2024). Furthermore, research indicates that gender-diverse boards are better at controlling the reputational hazards connected to greenwashing (Chen et al., 2023). According to a study by Khan et al., (2016), companies with a larger percentage of female directors had a much lower chance of dealing with ESG-related issues, which in turn led to more stable stock prices.

There are recent studies showing that gender-diverse boards improve a company's ability to bounce back from reputational shocks associated with ESG concerns while also decreasing the risk of greenwashing. The study of Santos et al., (2023) found that companies with a larger percentage of women on their boards had stronger crisis resilience and reputational repair mechanisms, as seen by their quicker stock value recovery following suspicions of greenwashing. Furthermore, based on the research of Ahmed (2024) contend that women on boards are more likely to support open ESG auditing procedures, which lowers internal incentives for underreporting and improves the integrity of the company's ESG data. By preventing greenwashing at its source, this proactive supervision may prevent the business from unfavorable market reactions.

Besides, there is research that boards with a gender diversity are more adept at coordinating business strategy with ESG objectives. Chen et al. (2023) discovered that governance bodies led by women frequently prioritize ethical supply chain processes and stakeholder participation, which lessens the need for weak ESG branding and supports long-term stock performance. Furthermore, it has been demonstrated that strong ESG regulations and gender diversity work in cooperation to produce positive outcomes. Businesses that have both qualities frequently draw institutional investors that are interested in ESG, which reduces stock volatility and increases capital inflows based on the study of Liu et al., (2024).

2.2.5 Earnings per share and Stock Performance

Profitability and efficiency in generating profits for shareholders are reflected in a company's earnings per share (EPS), a key financial indicator. A greater EPS value is frequently linked to sound financial standing and investor assurance (David, 2024). More investors are drawn to companies with steady EPS growth, which raises stock prices and improves market stability (Rusdiyanto et al., 2020). Therefore, businesses with high EPS typically perform well in the stock market. EPS growth is a significant factor in stock returns since it indicates a company's capacity to produce long-term profits, according to research by Agrawal et al., (2021).

A key metric in equity valuation models, EPS is also seen by investors as a critical measure of a company's financial soundness (Munir et al., 2024). However, a company's financial health cannot be fully captured by EPS alone. To give a whole picture of business success, it needs to be assessed in conjunction with other financial measurements. If investors believe that a company is engaging in unsustainable business activities, such as greenwashing, then companies with high EPS but weak governance systems may still be vulnerable to stock price volatility (Chaoyang Zhao, 2024). As a result, companies that exhibit both high EPS and strong ESG commitments typically have better stock market results (Rusdiyanto et al., 2020).

2.2.6 Book Value Per Share and Stock Performance

Book value per share (BV) is a key indicator of a company's asset valuation and financial health. It gives information about a company's intrinsic worth and is computed by dividing its total equity by the number of outstanding shares (Dr. Olisaji et al., 2024). Since BV represents a company's net worth per share, investors frequently consider it as a long-term measure of stability and financial health (Yolanda, 2024). Strong asset backing is indicated by a higher BV, which can boost investor confidence and result in more stable stock price performance (Yolanda, 2024).

According to Dr. Olisaji et al., (2024) study, a company's stock is deemed undervalued if its BV exceeds its market value per share. The stock should be seen as more valuable and see an increase in price if the company's BV is higher. Companies with steadily increasing BV draw long-term investors who value financial stability over speculative short-term returns, based on a study by Nila et al., (2023). Also, BV is a helpful indicator in valuation models, especially when contrasting the market price and book value of stocks. Value investors seeking possible growth possibilities are drawn to stocks that are trading below their BV because they may be seen as cheap (Yolanda, 2024).

A high BV may not always translate into great stock performance, even when it indicates solid asset backing. Businesses with substantial asset bases but poor profitability might not produce high returns for investors (Kumari et al., 2023). Furthermore, BV might not adequately account for intangible assets that have a big influence on stock performance, like goodwill, intellectual property, and brand value (Zhang et al., 2021). In order to determine a company's actual financial health, investors frequently examine BV in combination with other financial metrics like return on equity (ROE) and EPS (Zhang et al., 2021).

Companies that participate in greenwashing may increase their BV by manipulating their financial reports, including asset evaluations (Lambertsen, 2024). The stock

price drops when these disparities are made public because it undermines investor confidence (Lam & Grønås, 2022). The necessity for open accounting processes is being reinforced by regulatory agencies' increased scrutiny of financial accounts to guarantee accuracy (Brandy Thiesen, 2020). Investors are probably going to depend more on BV as a major factor in determining stock valuation as financial reporting transparency increases (Kumari et al., 2023).

2.2.7 Leverage and Stock Performance

A significant financial metric is leverage, which shows how much of a company's funding comes from debt as opposed to stock. Leverage, which is mostly determined by the debt-to-equity ratio, establishes the stability and risk of a company's finances (Richard Arhinful et al., 2023). Because debt commitments raise financial risk, businesses with high levels of leverage may benefit more financially during economic upturns but are also more susceptible to downturns (Petros et al., 2021). Leverage and stock market performance appear to be tightly related, according to empirical research (Mohammad, N. U., 2021).

Excessive leverage can result in financial distress and a decline in investor confidence, but moderate leverage can increase shareholder returns by using borrowed funds for investment and expansion (Petros et al., 2021). Businesses with high debt levels are more vulnerable to stock price drops, especially during recessions or higher interest rates, according to a study by Tannady et al., (2023). In order to evaluate a company's capacity to fulfil long-term commitments and effectively manage debt, investors frequently examine its leverage ratios (Mohammad, N. U., 2021).

Investor perceptions of a company's financial risk can also be influenced by leverage (Mohammad, N. U.,2021). During recessions, highly leveraged companies may find it difficult to maintain operational flexibility, which could result in liquidity issues and declining stock performance (Lilas Demmou et al., 2021). On the other hand, risk-averse investors looking for steady returns are drawn to businesses with lower debt levels since they are seen as more financially solid (Lilas

Demmou et al., 2021). Strong governance systems and careful debt management techniques put businesses in a better position to strike a balance between leverage and the generation of shareholder value (Naomi, 2023).

Industry-specific characteristics also affect how leverage affects stock market performance. Manufacturing and infrastructure are two examples of capital-intensive industries that frequently need higher levels of leverage to fund their operations (Ayaz et al., 2021). But an over-reliance on debt can result in higher interest costs, which lowers profitability and hurts stock performance (Das et al., 2021). Conversely, technology and service-based businesses that require less capital might be able to keep their levels of leverage low, which would minimize financial risk and improve market stability (Santos et al., 2023).

Furthermore, high-debt companies may use greenwashing to draw in investors and enhance their reputation in an effort to lessen the unfavourable perception of financial risk (Santos et al., 2023). When these false ESG claims are revealed, investors may reevaluate the company's ethical and financial concerns, which could have serious consequences (Santos et al., 2023). Research indicates that businesses with moderate levels of leverage and strong ESG pledges typically outperform highly leveraged businesses that use dishonest sustainability tactics (Ayaz et al., 2021).

2.3 Research Gap

The majority of previous research on greenwashing and stock market performance has been on developed markets like the US and Europe as well as big economies like China (Netto et al., 2020). For example, previous studies have examined the effects of greenwashing on stock price volatility, corporate financial stability, and investor trust in Chinese companies, where ESG reporting laws are becoming more and more strict (Zhang et al., 2021). The literature on the effects of greenwashing in emerging economies, especially Malaysia, is severely lacking, and nevertheless. ESG adoption and sustainability reporting have increased in Malaysia, however, there have also been incidents of greenwashing, which raises concerns

regarding accountability and transparency (Kuok, 2023). A significant study gap is the lack of scholarly attention given to Malaysia, whose corporate governance practices, investor behavior, and regulatory environment vary from those of China and the West.

Furthermore, while a few studies have looked into how diversity on boards affects corporate decision-making, not much has been done to examine how female board representation affects greenwashing techniques and how that affects stock performance. Although having female directors has been associated with better corporate governance and more moral decision-making (Eliwa et al., 2023), it is still unclear how much gender-diverse boards lessen the financial effects of greenwashing, especially in Malaysia. With the objective to address these gaps, this study examines how Malaysian stock market performance is impacted by greenwashing as well as how female board representation influences this relationship. By doing this, it will offer insightful information on how corporate governance, sustainability ethics, and financial performance intersect in a market that's not widely recognized.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the theoretical framework, model specification, research methods, and data sources utilized in the study. Section 3.2 and 3.3 presents the theoretical framework and model specifications for the two main objectives. The first model analyses the factors influencing stock price in Malaysia. The second model explores how greenwashing and female on board affects the stock price in Malaysia. The third model find out the relationship of the interaction term towards the stock price. Additionally, Sections 3.4 and 3.5 detail the estimation methods and data sources used.

3.1 Research Variables

3.1.1 Dependent Variable

Stock Performance (SP)

Stock performance, which reflects the market's valuation of a company, is influenced by numerous factors including financial health and corporate behaviour. According to Sara, (2024), efficient market hypothesis posits that stock prices fully reflect all available information. Therefore, any misinformation, such as greenwashing, can distort stock valuations. Stock performance in this study will be measured through stock returns, which provide an aggregate view of how a company's stock has fared over time. Research by Yuli, (2021) demonstrated that stock returns are a reliable indicator of a company's performance, capturing both the short-term and long-term impacts of corporate actions.

The primary function of the Ohlson model is to calculate the equity market value of a business, which is closely related to stock performance. In order to make wise investment decisions, investors can use the model to calculate the intrinsic value of

a company's stock and compare it to the current market price. Accounting data is incorporated into the model to assist explain why stock prices vary depending on fundamental values. Numerous investigations have confirmed that the Ohlson model can accurately describe stock values based on accounting data. The model was examined by Dechow, et al., (1999), who concluded that it clarified how stock prices moved in response to information on earnings and book value.

3.1.2 Independent Variables

Greenwashing (GW)

Initial impressions of improved corporate social responsibility (CSR) have the potential to boost stock prices, but the eventual discovery of greenwashing practices can cause serious financial and reputational harm. According to research by Lyon et al., (2011), when companies involved in greenwashing were exposed for their dishonest business practices, their stock prices declined. Additionally, a study conducted by Walker et al., (2012) highlighted the fact that media coverage frequently exacerbates the negative effects of greenwashing on stock performance, exacerbating the erosion of investor and market confidence. We define ESG greenwashing as the difference between a normalized measure of a firm's position relative to its peers in the distribution of the ESG disclosure score and a normalized measure of a firm's position relative to its peers in the modified ESG performance score distribution, in accordance with Zhan (2023a), and Zhan (2023b). That is, when a company outperforms its peers in terms of both ESG performance and disclosure, it is intentionally hiding its subpar ESG performance through the release of false information, as evidenced by a good ESG greenwashing score. The E, S, and G disclosure indicators' weights were specifically determined using the entropy weight approach, and the ESG disclosure and performance scores were then computed using these entropy weights. As the main proxy variable for ESG greenwashing, we calculate the difference between the normalized ESG disclosure and normalized ESG performance scores from LSEG. This can be represented as:

$$Greenwashing_{i,t} = \left(\frac{ESG_{dis\,i,t} - \overline{ESG}_{dis}}{\sigma ESG_{dis}}\right) - \left(\frac{ESG_{rating\,i,t} - \overline{ESG}_{rating}}{\sigma ESG_{rating}}\right)$$

3.1.3 Moderating Variables

Female On Board (FB)

According to research, female directors have an impact on business decision-making and performance, according to recent research (Abad et al., 2017). For example, female on boards lessen information asymmetry in the stock market and firm riskiness. Besides, female is more inclined to seek long-term strategies and stakeholder-oriented results, both of which are important for the sustainability of environmental policies (Glass et al., 2015). Accordingly, empirical research shows that females are more willing than males to embrace ecologically friendly conduct, which may considerably enhance a company's environmental performance. To study the moderating effect of female directors on the relationship between greenwashing and company performance, we use the percentage of female on the board of directors.

$$Female\ In\ Board = \frac{Female\ Director}{Total\ Number\ of\ Director\ On\ Board}$$

Interaction Term (GW & FB)

The interaction term between greenwashing and female board representation *(GW*FB)* is critical for understanding how gender diversity effects market reactions to corporate sustainability deception. Recent studies suggests that female directors have an important moderating role association between greenwashing and stock market performance. Akhtar et al. (2021) discovered that companies with gender-diverse boards incur less severe stock price falls following sustainability scandals, lending credence to the risk reduction approach. Their longitudinal examination of Fortune 500 corporations revealed that each 10% increase in female board involvement lowered negative anomalous returns by about 15% following the disclosure of greenwashing (Deloitte Global Center, 2017). However, contrasting evidence emerges from Eryılmaz et al. (2024) whose event study methodology found that gender-diverse companies face harsher penalties for sustainability

violations. This amplification effect implies that investors hold companies with female directors to greater ethical standards. When these expectations are broken by greenwashing, the resulting reputational harm and stock price drop are more severe than on male-dominated boards. This approach has important practical consequences for corporate governance as well as investment strategy. If the mitigating impact is dominant, it strengthens the commercial case for gender diversity as a risk-reduction element for sustainability. Alternatively, if amplification prevails, it underscores the need for more effective sustainability governance measures in gender-diverse enterprises to preserve investor trust (Muhammad et al., 2024)

3.1.4 Control Variables

Earnings Per Share (EPS)

A key indicator of the performance of a company is its earnings per share (EPS), which is determined by dividing net income by the total number of outstanding shares. (David, 2024) research found a strong correlation between EPS and stock prices, suggesting that higher EPS generally translates into better stock performance because it conveys to investors a sense of financial stability and profitability. Additional research by (Agrawal et al., 2021) demonstrated that EPS has a direct impact on investor perception and market valuation, making it a crucial factor in determining the performance of stocks. In order to calculate the present value of predicted future abnormal earnings which are essential for calculating a firm's market value, the Ohlson model includes EPS as a critical component (Ohlson, 1995). The data demonstrates that there is a strong and positive correlation between EPS and stock prices. Greater profitability is indicated by higher EPS, and investors see this favourably raising stock prices (Listia et al., 2024). This result is in line with earlier studies by (Rahmadewi et al., 2018), which demonstrated the importance of EPS in determining stock price.

$$EPS = \frac{Net\ Income - Dividend\ Payments}{Weighted\ Average\ Shares\ Outs\tan d\ ing}$$

Book Value Per Share (BV)

Another significant financial metric is book value, which is a company's net asset value. Ohlson (1995) created a valuation model that shows that book value, which serves as a baseline for evaluating market value, is a crucial predictor of a company's intrinsic value. A stock may be undervalued if its book value is higher than its market value. This could draw investors and improve the performance of the stock. Studies by (Al-Malkawi et al., 2018), which demonstrated that companies with greater book values typically display better stock performance because of perceived financial stability, further corroborated this link. Recent studies are reinforces the importance of book value in stock valuation. For example, Diciurio & Lepigina (2023) shows that stocks trading below their book value frequently outperform during economic recoveries, validating the idea that undervalued stocks may generate big returns when market circumstances improve. These findings highlight the persistent importance of book value as a predictor of stock performance in a variety of economic circumstances.

$$BV\ per\ share = \frac{(Shareholder's\ Equity - Preferred\ Equity)}{Total\ Outstanding\ Common\ Shares}$$

Leverage (LEV)

Leverage is a key concept in corporate finance that describes the use of borrowed capital to boost the possible return on investment. Companies often use leverage to finance their operations, development, or acquisitions, with the goal of increasing shareholder value (Mohammad, N. U., 2021). When a company efficiently uses leverage to increase returns, its stock performance tends to rise, attracting additional investors. This is particularly apparent during moments of economic growth, when companies with greater leverage can take advantage of growth prospects more quickly (Aharon & Yagil, 2019). This also can be supported by Kalantonis et al. (2021) which highlighted that companies with more leverage perform better during economic booms because they can access cheaper finance, but they are also more vulnerable during downturns. However, this emphasizes how leverage is both a risk and an opportunity. During the COVID-19 pandemic, Lilas

Demmou et al. (2021) found that enterprises with high leverage struggled more with liquidity challenges, emphasizing the significance of effectively managing leverage to minimize financial difficulty in unpredictable times.

Table 3.1: Summary of the Variable

Variables	Proxies	Unit Measurement	Definition
SP	Stock Price of Companies	Currency (e.g. MYR)	The market value of a company's shares
EPS	Net profit before taxes to total outstanding common shares	Currency per share (e.g. MYR/share)	Company's profit allocated to each outstanding share of common stock
BV	Net asset value per share	Currency per share (e.g. MYR/share)	Company's assets available to shareholders
LEV	Total Debt to Total Equity	Ratio	The extent to which a company uses debt to finance its operations
GW	Difference between ESG disclosure and ESG rating	-	The practice of providing misleading ESG information of a company's products
FB	Percentage of Female Director in Board	Percentage (%)	The representation of woman in company's board

Table 3.2: Summary of Variables' Expected Sign

Variables	Expected Sign	Empirical Sources
EPS	+	Positive sign (Rusdiyanto et al. (2020); Agrawal et al. (2021); Muryani, (2021))
BV	+	Positive sign (Yolanda. A. L, (2024); Nila, (2023))
LEV	-	Positive sign (Petros et al., (2021); Tannady et al., (2023)) Negative sign (Sahaida et al., (2020))
GW	-	Negative sign (Emanuele et al. (2024); Tinghui et al. (2024); Lam Erik et al., (2022))

FB	**-**	Positive sign (Giuliana et al., (2024); Ghitti et al., (2024))

3.2 Theoretical Framework

According to the Ohlson Model (1995), financial disclosures are a major factor in determining a company's market value. This is in line with the idea of Signalling Theory, which holds that companies use distributed information to convey their intrinsic worth to investors. Because market players use these signals to guide their investment choices, any distortion like greenwashing can result in stock mispricing, which compromises the accuracy of the Ohlson Model's valuation forecasts. Therefore, by utilizing the Ohlson Model in conjunction with the Signalling Theory framework, this research can evaluate whether governance elements, like the presence of women on the board, improve the legitimacy of corporate disclosures and lessen the negative impact of false sustainability claims on stock performance. To estimate whether ESG greenwashing affects company's stock performance, we estimate the following model:

Ohlson's (1995) model

$$\mathbf{SP}_{i,t} = \boldsymbol{\beta}_0 + \boldsymbol{\beta 1 Capital}_{i,t} + \boldsymbol{\beta}_k \boldsymbol{\Sigma} \mathbf{CVs}_{i,t} + \boldsymbol{\varepsilon}_{i,t} \quad \text{Eq. (1)}$$

The Ohlson Model has been used to assess the relevance of historical accounting data, the accuracy of forecasting information, and the model's ability to anticipate business value and market expectations. Empirical test findings have indicated a tight relationship between historical accounting information and business worth, but minimal link between forecasting data and firm value (Schaefer, et al., 2018).

The accounting data employed in this model is based on fundamental accounting factors including leverage, earnings per share, and book value per share. However, the Ohlson model also considers non-accounting information when determining a company's stock value.

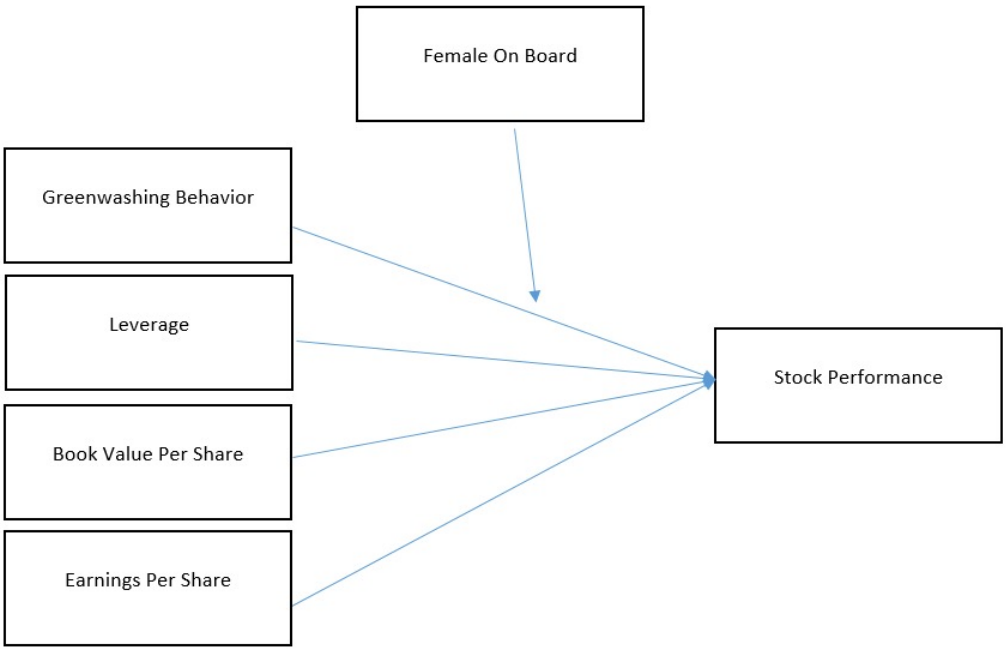

Figure 3.1 Conceptual Framework of the Impact of Greenwashing Behavior, Financial Indicators, and Board Gender Diversity on Stock Performance

3.3 Model Specification

The first objective is to develop a model that examines how internal financial and governance factors impact company performance as measured by stock price (SP). Grounded in Stakeholder Theory (Freeman, 1984), this study contends that a firm's performance is determined by its ability to balance the interests of diverse stakeholders, including investors, regulators, and society. This model evaluates financial metrics (e.g., earning per share, leverage) and governance features (e.g., board diversity, sustainability practices) as determinants of stock performance.

The baseline model is specified as:

$$\mathbf{SP}_{i,t} = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1\mathbf{SP}_{i,t-1} + \boldsymbol{\beta}_2\mathbf{EPS}_{i,t} + \boldsymbol{\beta}_3\mathbf{BV}_{i,t} + \boldsymbol{\beta}_4\mathbf{LEV}_{i,t} + \boldsymbol{\beta}_5\mathbf{GW}_{i,t} + \mathbf{FB} + \boldsymbol{\mu}_{i,t} \quad \text{Eq. (2)}$$

To examine the second objective, model 2 is expanded by incorporating the interaction term between greenwashing (GW) and females on boards (FB) to determine the moderating role of gender diversity in stock market reactions. The

model incorporates agency theory to investigate how governance structure affects performance and adopts the efficient structure hypothesis to account for market dynamics.

The model is specified as:

$$\mathbf{SP}_{i,t} = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1\mathbf{SP}_{i,t-1} + \boldsymbol{\beta}_2\mathbf{EPS}_{i,t} + \boldsymbol{\beta}_3\mathbf{BV}_{i,t} + \boldsymbol{\beta}_4\mathbf{LEV}_{i,t} + \boldsymbol{\beta}_5\mathbf{GW}_{i,t} + \mathbf{FB} + \boldsymbol{\beta}_6\mathbf{GW}_{i,t}*\mathbf{FB}_{i,t} + \boldsymbol{\mu}_{i,t}$$

Eq. (3)

Where i and t represent company and year, respectively. Where $SP_{i,t}$ is the proxy variable for stock price. The main independent variable of our research is greenwashing with the proxy variable of $GW_{i,t}$ and moderating variable Female on Board (FB), $GW*FB$ is the interaction term that represents the moderating influence of female board members. If our hypothesis is appropriate, we expect a significantly positive coefficient (β_1) on the greenwashing ($GW_{i,t}$). To account for additional variables that impact stock performance, we also include a few control variables into the model such as earnings per share (EPS), book value of share (BV), leverage (LEV) and female on board (FB). Where $\varepsilon_{i,t}$ represent the error term.

The equation was used to test the hypothesis about (1) the past effect on how greenwashing behaviour influence the stock performance of companies; (2) examine the relationship between greenwashing behaviour and stock performance of companies listed on Malaysia's FTSE Top 100 Index. Endogeneity can arise in a dynamic model with a lagged dependent variable, as shown in equation (1). The difficulty stems from the reciprocal interaction between the error term and the explanatory factors. Under this situation, the ordinary least squares estimator will be biassed, and the bias will persist even as the number of companies increases. In order to address these issues, we utilized the Generalized Method of Moments (GMM) estimations.

3.4 Estimation Methods

3.4.1 Pre-Test Estimation

3.4.1.1 Descriptive Statistics

In statistics and data analysis, descriptive analysis is a technique used to characterize and enumerate a data set's attributes. Its main goal is to shed light on the fundamental characteristics of the data, including shape, distribution, central tendency, and variability. For example, descriptive statistics, tables, graphs, and charts are used to compute, explain, and summarize research findings in a methodical, rational, and useful manner (Rawat, 2021).

3.4.1.2 Autocorrelation Test

Arellano-Bond Test

AR(1)

H_0 = No autocorrelation of order 1 in the model

H_1 = Autocorrelation of order 1 in the model

AR(2)

H_0 = No autocorrelation of order 2 in the model

H_1 = Autocorrelation of order 2 in the model

The Arellano-Bond Estimator is a technique for analysing panel data in which the dependent variable, stock price, is determined by its own prior values. It is a form of Generalized Method of Moments (GMM) that addresses this "dynamic" relationship (Han & Phillips, 2009) while coping with concerns such as fixed effects and endogeneity when explanatory factors are linked to the error term.

Pearson's Correlation Analysis

When using the generalised moment of method, autocorrelation tests are crucial, especially in random effects formulations. One of the reasons for this is that when T is constant and small, the structure of the error component does not appear to be relevant to the estimation as long as we are concerned with unbiasedness and

consistency. However, the smaller the T, the more exact the structural specifications must be in order to make superior conclusions (Hosung Jung, 2005). In this study, the Pearson correlation coefficient R are use to evaluate a linear relationship between two continuous variables in a study, typically denoted as the x- and y-values. R is a metric for association strength. The range of R is -1 to +1. (Cleophas, T. J., & Zwinderman, A. H, 2018) A Bayesian examination of linear correlation is an alternative to the traditional Pearson correlation analysis. When R is one, there is a perfect positive correlation; when R is 0, there is no relationship; when R is -1, there is a perfect negative correlation.

r > 0: Positive correlation (as one variable increases, the other also increases0

r < 0: Negative correlation (as one variable increase, the other decreases)

r = 0: No correlation (no linear relationship between variables)

$$r = \frac{\sum(X_i-\bar{X})(Y_i-\bar{Y})}{\sqrt{\sum(X_i-\bar{X})^2}\sqrt{\sum(Y_i-\bar{Y})^2}} \quad \text{Eq. (4)}$$

Where:

X_i, Y_i = individual data points

$\bar{X}, \bar{Y}$ = the means of the respective variables

The numerator represents the covariance between X and Y

The denominator normalizes the values by their standard deviations

3.4.1.3 Multicollinearity Test

Variance Inflation Factor Test

To ensure the integrity of the regression analysis in this study, a multicollinearity test was conducted. The Variance Inflation Factor (VIF) is a commonly established diagnostic tool for measuring the degree of multicollinearity in a multiple regression model. VIF assesses how much the variance of an estimated regression coefficient rises due to the presence of correlation between the independent variables (Marcoulides & Raykov, 2018). The VIF values obtained will be given in the results section to show that there is no excessive multicollinearity and that the regression coefficients are reliable. This diagnostic procedure improves the reliability of the statistical inferences generated from the analysis.

VIF < 5: Low multicollinearity (acceptable)

VIF 5-10: Moderate multicollinearity (potential issue)

VIF > 10: High multicollinearity (serious issue, requiring correction)

According to baseline model, formula can be developed:

$$VIF_i = \frac{1}{1-R_i^2} \quad \text{Eq. (5)}$$

Where:

R_i^2 is the coefficient of determination from regression X_i on all other independent variables

3.4.1.4 Unit Root Test

Panel Unit Root Test

In this study, a Panel Unit Root Test is used to evaluate the stationarity qualities of the variables being investigated throughout the panel dataset. Stationarity is an important condition in panel data analysis because non-stationary data can produce erroneous regression findings, reducing the trustworthiness of statistical judgments (Baltag, et al., 2001). Unlike classic unit root tests performed to single time series, panel unit root tests take advantage of both the cross-sectional and time-series dimensions of the data, increasing the power and robustness of the analysis, particularly when working with short time periods or heterogeneous panels.

Im, Pesaran, Shin Test

The IPS test's tolerance to heterogeneity makes it more appropriate for this research because it does not impose restrictive assumptions about uniform dynamics throughout the panel. The IPS test results will be used to make subsequent modeling decisions, such as whether to use level data or differencing if non-stationarity is identified (Im et al., 2003). This approach confirms the validity and reliability of the study's findings by establishing the stationarity qualities of the variables.

H_0: All series contain a unit root (non-stationary)

H_1: At least one series is stationary

$$\overline{t_{NT}} = (\sum_{i=1}^{N} t_{iT_i}(p_i))/N \quad \text{Eq. (6)}$$

Where t_{iT_i} = individual ADF regression's t-statistic; p_i = coefficients of autoregressive; N = cross-sectional units' number. Further, IPS also warrants that $\overline{t_{NT}}$ will be asymptotic normally distributed when the lag order in each individual ADF regression is non-zero for certain cross-sectional units:

$$W_{\overline{t_{NT}}} = \frac{\sqrt{N}(\overline{t_{NT}} - N^{-1}\sum_{i=1}^{N} E(\overline{t_{tT}}(p_i))}{\sqrt{N^{-1}\sum_{t=1}^{N} Var(\overline{t_{tT}}(p_i))}} \quad \text{Eq. (7)}$$

Where t_i is the individual ADF test statistic

3.4.1.5 Cross Sectional Dependent Test

Pesaran CD test

The Pesaran CD test used to detect cross-sectional dependence and confirm the validity of our panel data analysis. This test is especially effective for discovering interdependence between units, such as countries or enterprises, which can result from similar shocks or spillovers. Compared to previous techniques, the CD test is resistant to panel heterogeneity and applies to both big and small datasets (Pesaran et al., 2015), making it perfect for our sample of 40 listed companies spanning 6 years.

H_0: No cross-sectional dependence

H_1: Cross-sectional dependence exists

3.4.2 Econometric Estimation Methods

3.4.2.1 Generalized Method of Moments (GMM)

GMM is a robust and widely used panel data technique that may be applied to specialized situations like estimating instrumental variables. It serves as an exploratory tool, especially when dealing with dynamic panel data estimators, which are meant to eliminate biases present in the values of fixed and random effect values (Shah et al., 2024). There are two main components for the analysis. Prior to perform a regression analysis, a correlation analysis will be done first. To determine the nature of the relationship between the dependent variables and the explanatory

factors under examination, a correlation analysis is required. It also indicates whether multi-collinearity affects these explanatory factors (Alexander & Hashem, 2021). Hooy & Tee (2009) claimed that pooled data, which mixes time-series and cross-sectional data, provides more information, degrees of freedom, variability, and efficacy. The best method for handling data that spans cross-sections and time periods is panel data. With a less restricted assumption, this technique helps find more complex behavioural models (Irungu Esther, (2022).

A reliable estimating method that is widely used in econometrics, the Generalized Method of Moments (GMM) is useful for handling endogeneity in panel data models (Khatib, 2024). Endogeneity is when explanatory variables have a correlation with the error term, this phenomenon is known to produce estimates that are biassed and inconsistent (Ullah et al., 2018). This issue is successfully mitigated by GMM by employing instruments whose variables are correlated with the endogenous regressors but uncorrelated with the error term (Ullah et al., 2018).

In the setting of panel data, which involves repeated observations across time for the same company, classic estimating methods such as Fixed Effects (FE) and Ordinary Least Squares (OLS) may provide biased findings due to concerns like the Nickell bias (Baye et al., 2020). The Nickell bias is particularly significant in datasets with a large number of cross-sectional units (n) but limited time periods (t) (Yiqing Xu, 2022). An extension of the Difference GMM, the System GMM estimator, was created in order to address this (Ganda, F., 2019). In dynamic panel data models where the lagged dependent variables may introduce endogeneity, system GMM, which combines instruments derived from lagged levels and differences of the endogenous variables, is especially useful (Ganda, F., 2019).

Endogeneity is eliminated by the GMM model through internally transforming the data (Ullah et al., 2018). This process reduces the number of observations and improves the GMM model's efficiency (Ullah et al., 2018). Additionally, two types of transformation methods, referred to as first-difference transformation (one-step GMM) and second-order transformation (two-step GMM), can also be used as GMM estimators. Nonetheless, there are certain restrictions with the one-step GMM. In the research of Robert (2019), a portion of the first-difference

transformation's dominance can be ascribed to the invariance findings of Arellano and Bover (1995) and Seung et al. (1995). These results imply that two alternative transformations can lead to the same generalized method of moments (GMM) estimator, provided appropriate constraints are met. A second order transformation (two-step GMM) was suggested by Arellano and Bover (1995) in the research of Robert (2019) to prevent possible data loss due to the internal transformation issue with the first-step GMM.

The "forward orthogonal deviations" applied by the second-order transformation (two-step GMM) implies that the average of all future observations of a given variable is subtracted from its current value, rather than the previous observations of the variable being subtracted from its current value (Robert, 2019). Consequently, a two-step GMM model yields more accurate and consistent estimates for the involved coefficients in the case of a balanced panel dataset (Hwang et al., 2018).

$$y_{i,t} - y_{i,t-1} = \alpha'\left(y_{i,t-1} - y_{i,t-2}\right) + \beta'(X_{i,t} - X_{i,t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \qquad \text{Eq. (8)}$$

$$E\left[Y_{i,t-s}\left(\varepsilon_{i,t} - \varepsilon_{i,t-1}\right) = 0\right] \qquad for\ s \geq 2\ ; t = 3, \dots \dots, T \qquad \text{Eq. (9)}$$

$$E\left[X_{i,t-s}\left(\varepsilon_{i,t} - \varepsilon_{i,t-1}\right) = 0\right] \qquad for\ s \geq 2\ ; t = 3, \dots \dots, T \qquad \text{Eq. (10)}$$

3.4.2.2 Feasible Generalized Least Squares (FGLS)

Feasible Generalized Least Squares is a more advanced form of the ordinary least squares (OLS) regression approach. OLS requires that mistakes in the data are consistent (same variance) and uncorrelated. However, this is not always the case in real-world data, such as firm performance over time. Errors may fluctuate (heteroskedasticity) may be related between observations (autocorrelation). FLGS addresses these concerns by estimating the error structure and weighting the data appropriately (Bai et al., 2020), resulting in more accurate findings.

At the same time, OLS may overstate or underestimate the effect if larger enterprises have more variable revenues or if economic shocks hit harder in some

years. FLGS would account for these anomalies, resulting in a clearer, more reliable correlation between marketing spend and revenue across the dataset. In brief, FLGS can help to remove noise from complicated, multi-year, multi-company data, resulting in a crisper and more reliable analysis.

$$\hat{\beta}_{\text{FGLS}} = (X^T \hat{\Omega}^{-1} X)^{-1} X^T \hat{\Omega}^{-1} Y \qquad \text{Eq. (11)}$$

Where:

- $\hat{\beta}_{\text{FGLS}}$: The estimated coefficient vector using FGLS.
- X: The n×k design matrix of independent variables (where n = number of observations, k = number of regressors).
- Y: The n×1 vector of the dependent variable.
- $\hat{\Omega}^{-1}$ The estimated inverse of the covariance matrix of the errors (Ω), where Ω=Cov(ϵ).
- ϵ: The error term, typically assumed to follow some heteroskedastic or autocorrelated structure.

3.4.2.3 Panel-Corrected Standard Errors (PCSE)

The Panel-Corrected Standard Errors (PCSE) model is a statistical technique specifically designed for panel data. It is used to refine the standard errors in a regression, often OLS, when the data has difficulties such as heteroskedasticity, which is uneven error variance among firms, or autocorrelation, which is the presence of errors that correlate over time. PCSE does not affect the regression coefficients themselves; it just adjusts the uncertainty surrounding them, making the results more reliable.

PCSE can assist in compensating for time correlation, accounting for company variation, managing cross-company relationships, and making the outcome realistic. In brief, PCSE ensures that the analysis of the panel dataset is solid by adjusting the standard errors to fit the complexities of time and company dynamics, therefore supporting the generated final conclusions.

$$\hat{\Omega} = diag(\widehat{\boldsymbol{\Sigma}}_{\text{i}}, \dots\dots, \widehat{\boldsymbol{\Sigma}}_{\text{N}}) \qquad \text{Eq. (12)}$$

Where:

$\widehat{\boldsymbol{\Sigma}}_i$ is the T×T covariance matrix for firm i*i*, estimated using residuals from an initial OLS regression.

$$PCSE = \sqrt{diag[(X' - X)^{-1}X'\hat{\Omega}X(X'X)^{-1}]} \quad \text{Eq. (13)}$$

Where:

X: Matrix of independent variables.

$\hat{\Omega}$: Block-diagonal covariance matrix of residuals.

3.4.3 Post-Estimation Test

3.4.3.1 Overidentification Test

Hansen Test

The Hansen test is used in this study to assess the validity of overidentifying limitations in the Generalized Method of Moments (GMM) estimate of the dynamic panel data model (Hansen, 2012). The GMM approach is used to address potential endogeneity and unobserved heterogeneity in the dataset, which consists of stock market performance from 40 firms over a 6-year period, and the Hansen test serves as a critical diagnostic tool to ensure the exogeneity of the instrumental variables used in the model. This test is required to confirm that the instruments are uncorrelated with the error term, which is critical for the consistency of GMM estimators.

H_0 = The over identifying restrictions are valid/all instruments are valid

H_1 = The instruments are either correlated with the errors of there are omitted variables in the model

3.5 Sources of Data

Our initial sample comprises the top 100 Malaysian Public Listed Companies (PLCs), which is the combination of FTSE Bursa Malaysia KLCI Index Constituents and FTSE Bursa Malaysia Mid 70 Index Constituents from 2018 to 2022 with good disclosures as listed in Bursa Malaysia.

Figure 3.2 Bursa Malaysia's Top 30 Malaysia Public-Listed Companies

NO.	STOCK CODE	CONSTITUENT NAME
1	5326	99 SPEED MART RETAIL HOLDINGS BERHAD
2	6888	AXIATA GROUP BERHAD
3	6947	CELCOMDIGI BERHAD
4	1023	CIMB GROUP HOLDINGS BERHAD
5	5398	GAMUDA BHD
6	5819	HONG LEONG BANK BHD
7	1082	HONG LEONG FINANCIAL GROUP BHD
8	5225	IHH HEALTHCARE BERHAD
9	1961	IOI CORPORATION BHD
10	2445	KUALA LUMPUR KEPONG BHD
11	1155	MALAYAN BANKING BHD
12	6012	MAXIS BERHAD
13	3816	MISC BHD
14	5296	MR D.I.Y. GROUP (M) BERHAD
15	4707	NESTLE (M) BHD
16	5183	PETRONAS CHEMICALS GROUP BHD
17	5681	PETRONAS DAGANGAN BHD
18	6033	PETRONAS GAS BHD
19	4065	PPB GROUP BHD
20	8869	PRESS METAL ALUMINIUM HOLDINGS BERHAD
21	1295	PUBLIC BANK BHD
22	7084	QL RESOURCES BHD
23	1066	RHB BANK BERHAD
24	5285	SD GUTHRIE BERHAD
25	4197	SIME DARBY BHD
26	5211	SUNWAY BERHAD
27	4863	TELEKOM MALAYSIA BHD
28	5347	TENAGA NASIONAL BHD
29	4677	YTL CORPORATION BHD
30	6742	YTL POWER INTERNATIONAL BHD

Note: The constituents list was last updated on 23 December 2024.

Source: Bursa Malaysia

Figure 3.3 Bursa Malaysia's Top 70 Malaysia Public-Listed Companies

NO.	STOCK CODE	CONSTITUENT NAME
1	5139	AEON CREDIT SERVICE (M) BHD
2	5185	AFFIN BANK BERHAD
3	2488	ALLIANCE BANK MALAYSIA BERHAD
4	1015	AMMB HOLDINGS BHD
5	5106	AXIS REITS
6	5258	BANK ISLAM MALAYSIA BERHAD
7	5248	BERMAZ AUTO BERHAD
8	5210	BUMI ARMADA BERHAD
9	1818	BURSA MALAYSIA BHD
10	2836	CARLSBERG BREWERY MALAYSIA BHD
11	5273	CHIN HIN GROUP BERHAD
12	5301	CTOS DIGITAL BERHAD
13	7204	D & O GREEN TECHNOLOGIES BERHAD
14	5141	DAYANG ENTERPRISE HOLDINGS BHD
15	7277	DIALOG GROUP BHD
16	5318	DXN HOLDINGS BHD.
17	8206	ECO WORLD DEVELOPMENT GROUP BERHAD
18	5306	FARM FRESH BERHAD
19	3689	FRASER & NEAVE HOLDINGS BHD
20	128	FRONTKEN CORPORATION BHD
21	5209	GAS MALAYSIA BERHAD
22	3182	GENTING BHD
23	4715	GENTING MALAYSIA BERHAD
24	2291	GENTING PLANTATIONS BERHAD
25	208	GREATECH TECHNOLOGY BERHAD
26	5102	GUAN CHONG BHD
27	5168	HARTALEGA HOLDINGS BHD
28	3255	HEINEKEN MALAYSIA BERHAD
29	5151	HEXTAR GLOBAL BERHAD
30	5227	IGB REAL ESTATE INV TRUST
31	3336	IJM CORPORATION BHD
32	166	INARI AMERTRON BERHAD
33	5249	IOI PROPERTIES GROUP BERHAD
34	5309	ITMAX SYSTEM BERHAD
35	7153	KOSSAN RUBBER INDUSTRIES BHD
36	5878	KPJ HEALTHCARE BHD
37	8583	MAH SING GROUP BHD
38	5264	MALAKOFF CORPORATION BERHAD
39	3794	MALAYAN CEMENT BERHAD
40	5014	MALAYSIA AIRPORTS HOLDINGS BHD
41	3867	MALAYSIAN PACIFIC INDUSTRIES
42	1651	MALAYSIAN RESOURCES CORPORATION BERHAD
43	5236	MATRIX CONCEPTS HOLDINGS BHD
44	1171	MBSB BERHAD
45	3069	MEGA FIRST CORPORATION BHD
46	138	MY E.G. SERVICES BHD
47	270	NATIONGATE HOLDINGS BERHAD
48	4006	ORIENTAL HOLDINGS BHD
49	5053	OSK HOLDINGS BHD
50	5212	PAVILION REAL ESTATE INV TRUST
51	7160	PENTAMASTER CORPORATION BHD
52	9296	RCE CAPITAL BHD
53	5126	SARAWAK OIL PALMS BHD
54	4731	SCIENTEX BERHAD
55	5288	SIME DARBY PROPERTY BERHAD
56	8664	SP SETIA BHD
57	5263	SUNWAY CONSTRUCTION GROUP BERHAD
58	6139	SYARIKAT TAKAFUL MALAYSIA KELUARGA BERHAD
59	2429	TANCO HOLDINGS BHD
60	5031	TIME DOTCOM BHD
61	7113	TOP GLOVE CORPORATION BHD
62	5148	UEM SUNRISE BERHAD
63	5005	UNISEM (M) BHD
64	2089	UNITED PLANTATIONS BHD
65	5292	UWC BERHAD
66	6963	V.S INDUSTRY BHD
67	97	VITROX CORPORATION BHD
68	3565	WCE HOLDINGS BERHAD
69	5246	WESTPORTS HOLDINGS BERHAD
70	7293	YINSON HOLDINGS BHD

Note: The constituents list was last updated on 23 December 2024.

Source: Bursa Malaysia

The sample data are processed as follows: (1) the data was selected from year 2018 to 2023, (2) we deleted the observation samples with missing ESG score and ESG disclosure from Refinitiv. After this screening process, the companies we obtained for our observations are 43 companies. In terms of data sources, we gather company's accounting and other financial data and from the company's annual report and Mplus Trading Platform. Data for ESG disclosure and ESG score are obtained from LSEG ESG database. We then combine the ESG data with the financial data of companies from different sources by company's' name and year.

3.6 Conclusion

The research approaches used to evaluate and quantify the study's results are described in this chapter. These techniques are applied to the gathering and compiling of data, and the detailed analysis of the data is covered in the next chapter. The objective of Chapter 4 is to ascertain the relationships between different variables and conduct an empirical investigation into the impact of greenwashing on the stock performance of Malaysia.

CHAPTER 4: EMPIRICAL RESULTS AND DISCUSSION

4.0 Introduction

This chapter discusses the findings of the analysis. To examine the relationship between firm performance, greenwashing behaviour and gender diversity, this study applies GMM to examine the relationship between those variables. The descriptive analysis includes metrics like median, mean, maximum, and minimum values, as well as standard deviations for each variable. Panel Unit Root Tests is used to examine the data's stationarity. Additionally, the Cross-Sectional Dependent Test is used to determine the existence of cross-sectional dependence among the companies. In panel data regression, the Generalized Method of Moments (GMM) is used to determine the importance of explanatory factors. Following that, a thorough and detailed summary of the explanatory data will be offered based on the study's findings.

4.1 Descriptive Statistic

Table 4.1 Results of Descriptive Analysis

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
SP	240	9.749	21.603	0.155	147.400
EPS	240	2.429	0.615	0.728	4.870
LEV	240	82.650	104.299	0.884	899.889
BV	240	4.424	4.518	0.078	23.985
FB	240	27.811	11.598	0.000	57.143
GW	240	4.000	1.187	0.380	8.410
FBGW	240	109.691	55.305	0.000	298.286

Table 4.1 shows the descriptive statistics of the variables that used to examine stock market reactions to greenwashing and the moderating influence of gender diversity. The mean and standard deviation values show substantial variance throughout the sample, reflecting the diversity of stock performance, financial features, and corporate governance systems. The SP variable has a mean value of 9.749 and a high standard deviation of 21.603, indicating significant changes in stock performance among companies. The EPS variable have a mean of 2.429 and a comparatively low standard deviation of 0.615, showing consistent financial returns per share. LEV has a high mean value of 82.650 and a considerable standard deviation of 104.299, demonstrating the differences in debt levels amongst enterprises. The mean of BV is 4.424, with a standard deviation of 4.518, indicating that company fundamental valuations vary moderately. FB has a mean of 27.811% and a standard deviation of 11.598, indicating variances in gender diversity amongst companies. GW has a mean of 4.000 and a standard deviation of 1.187, demonstrating differences in businesses' greenwashing tendencies. FBGW has a mean of 109.6913 and a large standard deviation of 55.305, indicating that gender diversity effects stock market reactions to greenwashing. The results suggest that companies have varying financial structures, governance traits, and stock market reactions to greenwashing. The substantial standard deviation in leverage and stock price implies significant risk and volatility, but gender diversity on boards may play an important role in moderating unfavourable market views of greenwashing.

4.2 Correlation Analysis & Variance Inflation Factor

Table 4.2 Results of Matrix Correlations

Variable	SP	EPS	BV	L	FB	GI	FBGI
SP	1.0000						
EPS	0.7306	1.0000					
BV	0.1590	0.5518	1.0000				
LEV	-0.0494	-0.1539	-0.2399	1.0000			
FB	0.0584	0.2472	0.1283	0.1405	1.0000		

GW	0.0061	0.0177	-0.0326	-0.0426	-0.1124	1.0000	
FBGW	0.0543	0.1877	0.0733	0.0991	0.7702	0.4939	1.0000

Table 4.3 Results of Variance Inflation Factor

Variable	VIF
EPS	1.54
BV	1.50
L	1.10
FB	12.15
GW	6.40
FBGW	15.48

Table 4.2 & Table 4.3 shows the correlation analysis and the Variance Inflation Factor (VIF) to measure multicollinearity among the independent variables. The findings show different correlations between SP, EPS, BV, LEV, FB, GI and FBGW.

The correlation study reveals a significant positive link between SP and EPS (0.7306), implying that higher profits per share are connected with higher stock prices. Similarly, BV and EPS have a substantial positive correlation (0.5518), which strengthens the relationship between business profitability and value. However, LEV is adversely correlated with SP (-0.0494) and BV (-0.2399), implying that increasing debt levels may have a detrimental influence on business valuation. FB has a positive correlation with SP (0.0584), EPS (0.2472), and BV (0.1283), indicating that companies with more gender diversity on their boards have stronger financial fundamentals. However, FB has a negative connection with GW (-0.1124), implying that companies with more female board members may participate in fewer greenwashing activities. The interaction term (FBGW) has a modest connection with SP (0.0543), EPS (0.1877), and FB (0.7702), indicating that gender diversity effects market perceptions of greenwashing. The positive connection between FBGW and GW (0.4939) shows that corporations with more

female board involvement may face distinct stock market reactions to greenwashing. After conducting the correlation analysis, we discovered that all pairwise correlation coefficients between the independent variables were less than the threshold of 0.8. This implies that multicollinearity is not a significant problem in our model.

Regarding the issue of multicollinearity, the VIF values for FB (12.15) and FBGW (15.48) raise concerns, implying that these variables may be highly collinear with others in the model. Other variables, on the other hand, have acceptable VIF values below the conventional threshold of 10, suggesting that multicollinearity is not a serious problem.

4.3 Panel Unit Root Test

Table 4.4 Result of Panel Unit Root Tests

	LLC		**IPS**	
			Level	
Variable(s)	**Constant without trend**	**Constant with trend**	**Constant without trend**	**Constant with trend**
SP	-11.9878***	-30.5027***	-1.7879**	-0.0630
EPS	-7.3211***	-12.0155***	0.1813	1.3167
BV	6.0178	-10.5646***	5.4140	1.2704
LEV	-6.3423***	-21.5707***	0.5738	-0.0394
FB	-7.9157***	-15.5338	0.5232	0.6450
GW	-17.6596***	-41.6396***	-3.7194***	-1.1072
FBGW	-14.9475***	-16.2039***	-2.6829***	-0.4811
			First Difference	
Variable(s)	**Constant without trend**	**Constant with trend**	**Constant without trend**	**Constant with trend**
SP	-31.3873***	-36.0692***	-6.3205***	-2.6198***

EPS	-13.7209***	-29.8522***	-3.0374***	-2.9093***
BV	-12.0498***	7.6156	-2.9349***	-1.0427
LEV	-22.7975***	-33.0045***	-6.0548***	-5.0241***
FB	-18.2479***	-32.9529***	-4.8475***	-2.1109**
GW	-47.1623***	-47.4684***	-9.6015***	-4.1328***
FBGW	-19.0458***	-82.0690***	-7.5663***	-10.9933***

The Im-Pesaran-Shin (IPS) test is used to assess the stationarity of the panel data and avoid spurious results. The IPS test is used to discover if a panel of time series data has a unit root, which indicates that the series is non-stationary and has to be differed before modelling. Table 4.4 shows the panel unit root test results for the variables we chose. According to the findings, all variables at the level are non-stationary. These variables, however, become stationary at the first difference, as evidenced by substantial test statistics for both constant and no trend and constant and trend specifications. The mixed order of integration shows that the Autoregressive Distributed Lag (ARDL) bound testing method is appropriate for our future investigation.

4.4 GMM, FGLS and PCSE

Table 4.5 Result of FGLS, PCSE and GMM

	GMM		**FGLS**		**PCSE**	
Variable	**Model 1**	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
EPS	5.0351***	8.5069***	5.0514**	4.5761**	8.5299**	8.8482**
BV	0.7398***	0.3842***	0.5679**	0.6111**	0.6120**	0.5861**
LEV	-0.0001	-0.1140***	0.0019	0.0008	0.0012	0.0014

FB	-0.3784***	-1.0330***	-0.0247**	-0.0722**	-0.0550**	-0.1889**
GW	-0.3897***	-5.7399***	-0.0530	-0.4303**	-0.0247	-0.8904
FBGW		0.1853***		-0.1380*		0.0308**
AR(1)	-2.2005**	-3.0000***				
AR(2)	-1.2800	-1.1600				
Hansen Test	33.1300	29.2900				
CD	-0.54					

*Note – The asterisks *** = 1% significant, p <0.01, ** = 5% significant, p <0.05, * = 10% significant, p <0.1*

Note - Model 1 is baseline model without interaction term while Model 2 is model with interaction term

Our study employs data series spanning 2018 to 2023 to predict the results of few estimations. In our analysis, the Ohlson's (1995) model is incorporated into the several approach as presented in table 4.5, which includes both accounting (LEV, EPS, BV) and non-accounting information (GW, FB), with FB serve as a moderating variable while FBGW serve as an interaction term. Table 4.4 showed the anticipated outputs for Models 1 and 2.

This study evaluates the relationship between FB and GW within 6-year for 40 companies by using GMM, FGLS and PCSE. Using GMM as a system estimator with lagged variables resulted in a substantial greenwashing coefficient ($p<0.01$) and narrower standard errors. The Hansen test validated the instrument's validity, demonstrating GMM's ability to identify the effect of greenwashing among dynamic and endogenous linkages that FGLS and PCSE disregarded.

GMM's outstanding performance in capturing the relevance of the greenwashing index demonstrates its applicability for our research. FGLS and PCSE, while simpler, take fewer factors into account, ignoring important parts of our findings. The FGLS's reliance on a correctly stated error structure failed with the fluctuating financial and greenwashing data, making the index negligible and eroding its trustworthiness. PCSE addressed cross-sectional dependence but disregarded endogeneity and dynamic effects, which are critical omissions because greenwashing is likely to influence and be influenced by performance over time, as evidenced by GMM's findings. GMM's use of lagged instruments addressed these difficulties, revealing greenwashing's genuine impact, which is consistent with our research goal of understanding its financial repercussions.

With 240 observations (N=40, T=6), the dataset is likely to be heteroskedastic due to differences in business size, autocorrelation from year-to-year patterns, and potential endogeneity from factors such as lagging profits or managerial actions that affect performance. FGLS corrects for heteroskedasticity and autocorrelation (Bai et al., 2020) by modelling the error structure, which is assumed to be well-specified. PCSE, when combined with OLS, corrects standard errors for cross-sectional dependence (Zidi & Hamdi, 2024), which is frequent in financial data because firms operate in interconnected markets. GMM, on the other hand, deals with endogeneity and dynamic effects, making it critical for financial measurements such as return on financial performance influenced by prior performance, which includes the use of instrumental factors. I compared their results to get the ideal model.

The model estimates indicate substantial disparities, especially in the significance of the greenwashing index, which is taken as our hypothesized variable. The greenwashing coefficient in FGLS was statistically negligible ($p>0.10$) after adjusting for heteroskedasticity and autocorrelation. Similarly, despite accounting for cross-sectional dependence, PCSE revealed a robust but small greenwashing coefficient ($p>0.10$), which was most likely caused by industry-wide sustainability trends. This shows that PCSE fails to account for endogeneity, as greenwashing may be correlated with unobserved characteristics such as managerial intent, reinforcing the suspicion. Though GMM necessitates careful specification, its complete approach, supported by diagnostics, exceeds the constraints of FGLS and

PCSE. As a result, we chose GMM as the optimal model for this research, ensuring that our findings are reliable and relevant.

Model 1 is the baseline model, establishing the essential link between SP and its primary drivers. The GMM analysis reveals that the coefficient for EPS (5.0351***) is positive and significant at the 1% level, implying that a 1% increase in EPS results in a 5.0351% increase in stock prices. This is consistent with previous studies showing a strong positive relationship between EPS and stock prices (Song et al., 2024). Similarly, BV displays a positive and significant coefficient (0.7398***), showing that increasing BV improves SP. This finding corresponds with recent research (Barth et al., 2023) that show that, while the value relevance of earnings has fallen, the value relevance of equity book value has grown, indicating that book value is becoming more important in explaining share prices. In contrast, the coefficient of FB (-0.3784***) is significant at the 1% level, suggesting that more female presence may initially be evaluated unfavourably by investors. Similarly, the GW indicator (-0.3897***) indicates that greenwashing techniques have a detrimental effect on stock values. The negative relationship between greenwashing and SP is consistent with the findings of (Du et al., 2022), who suggest that inaccurate environmental statements cause reputational harm and erode investor trust, eventually affecting business profitability. Similarly, (Wang et al., 2024) argue that, while gender diversity helps corporate governance, it may also lead to more cautious decision-making, limiting aggressive profit-maximizing tactics and explaining FB's negative impact on SP. LEV is found to be negligible in Model 1, showing that capital structure does not have a substantial impact on business profitability at this time.

Model 2 expands on the research by introducing the interaction term FBGW to investigate if female board presence moderates the influence of greenwashing on stock price, and many notable conclusions emerged. In this model, EPS still has a positive and substantial impact, with a larger coefficient (8.5069***), indicating a bigger influence on stock prices. The coefficient of BV remains positive and substantial (0.3842***), while its magnitude reduces marginally. This implies that, while BV remains a powerful predictor of SP, its impact is slightly mitigated when additional governance aspects are addressed. LEV becomes significant at the 5%

level, with a negative coefficient (-0.114**), showing that more debt reduces the profitability of the company. This provides dimensions to the claim made by (Arhinful & Radmehr, 2023) that excessive debt might result in greater financial distress costs, limiting profitability. The effects of both FB (-1.0330***) and GW (-5.7399***) on SP are more evident in Model 2, demonstrating that investors react negatively to greenwashing tactics and greater female representation when not moderated. This data supports the concept that greenwashing has a significant negative impact on corporate performance, presumably due to regulatory fines, consumer unhappiness, and investor cynicism (Li et al., 2022). The greater negative coefficient for FB shows that increasing female involvement may result in more risk-averse financial policies, which is consistent with findings by Chen et al. (2017), who claim that gender-diverse boards prioritize risk reduction over aggressive profits growth. However, the interaction term FBGW has a significant moderating impact. Its positive and significant coefficient (0.1853***) indicates that female board involvement reduces the detrimental impact of greenwashing on corporate profitability. This conclusion is consistent with (Liu et al., 2023), who argue that female directors advocate for greater corporate social responsibility (CSR) policies and ethical business strategies, potentially mitigating the detrimental effects of greenwashing. Companies with more female board members may be able to regain investor trust more efficiently when greenwashing allegations surface.

The test produced a -0.54 statistic, implying a modest average negative correlation of residuals across units. However, the value is quite small in magnitude, indicating weak connection. The p-value is 0.588, which is above the 5% level of significance, the residuals across the cross-sectional units are most likely independent, implying that unobserved shared factors or spillovers have no meaningful influence on the results. As a result, traditional panel estimate techniques that assume cross-sectional independence are acceptable for this investigation.

4.5 Diagnostic Tests and Model Validity

The Arellano-Bond AR(1) test is significant in both models (-2.25** and -3.00***), with a 5% significance level, suggesting first-order serial correlation, as predicted in dynamic panel estimates. This suggests that there is no serial correlation problem. However, the AR(2) test is still negligible, demonstrating that no second-order correlation exists and ensuring model validity. The Hansen test findings (33.13 and 29.29) indicate that the instrumental variables utilized in the GMM estimate are suitable and not overly identified.

4.6 Discussion and Implications

The results of this research have a number of theoretical and practical ramifications. The negative and strong association between GW and SP emphasizes the financial consequences connected with making false environmental claims. Companies that participate in greenwashing incur brand harm, regulatory attention, and investor scepticism, resulting in lower share prices and profitability. This is reinforced by recent research, which shows that enterprises that engage in greenwashing have poorer stock performance due to a loss of investor trust (Akyildirim et al., 2023; Lin et al., 2025). Furthermore, Keilmann and Koch (2023) suggest that greenwashing creates a credibility gap that deters long-term investors, making it more difficult for businesses to receive sustainable finance. As regulatory agencies and consumers prefer real environmental initiatives, greenwashing enterprises may face more scrutiny and financial penalties (Free et al., 2024). This indicates that corporations should use clear and verifiable environmental procedures rather than making superficial or deceptive statements in order to preserve investor trust and improve financial success.

Secondly, while female board presence appears to have a negative impact on SP, its relationship with greenwashing offers a different viewpoint. This is consistent with the study from Ratnawati (2019) and Tong & Chen's (2024) which claim that female directors favour long-term stability and ethical governance above aggressive profit-maximizing techniques. Their findings suggest that gender diversity in the boardroom can improve decision-making quality and lower the risks associated

with unethical activities, which may initially diminish short-term earnings but boost long-term performance. The positive and significant coefficient of FBGW implies that female board members play an important role in mitigating the negative effects of greenwashing. Previous research suggests that gender-diverse boards increase corporate governance, transparency, and ethical decision-making, eventually assisting businesses in navigating sustainability-related risks (Chang et al., 2024; Harakeh et al., 2023). This implies that firms should not just boost female participation on boards but also use their power to improve transparency and ethical standards. Moreover, the positive and significant interaction term (FBGW) demonstrates that female board members can reduce the detrimental impact of greenwashing on SP. This is consistent with (Liu et al., 2023), who discovered that boards with a higher female representation are more likely to advocate for genuine corporate social responsibility (CSR) initiatives, restoring investor confidence and mitigating the financial consequences of greenwashing.

Thirdly, the positive and significant relationship between EPS and SP demonstrates that EPS is an important driver of corporate valuation. A higher EPS often indicates greater profitability, which boosts investor confidence and increases stock demand, resulting in a higher stock price. This is consistent with earnings-based valuation models often employed in financial research, in which EPS is a key measure of business performance (Basvi, 2024). Recent research emphasizes the importance of EPS in stock valuation models. For example, Sloan and Wang (2023) argue that investors prefer companies with continuous EPS growth because it signals operational efficiency and future profits potential. Similarly, Abdelmalek (2021) discovers that EPS has a considerable impact on market expectations, with businesses reporting variable or dropping EPS frequently experiencing higher stock price volatility and unfavourable investor sentiment.

Similarly, the positive and significant relationship between BV and SP suggests that investors consider organizations with solid asset bases to be more financially secure and valuable. Book value indicates a company's net asset position and is an essential basic indicator for evaluating stocks, particularly in businesses where physical assets are critical (Pasukodewo & Susanti, 2020). Recent empirical research supports the importance of book value in stock price. Safon et al. (2024) contend

that BV is especially important during times of market distress because it provides a safety net for investors when earnings expectations are uncertain. Furthermore, book value is closely related to firm resilience; firms with higher BV recover faster from financial downturns, leading to more stable stock prices (Chang & Yang, 2022).

Finally, the expanded model's substantial negative coefficient for LEV indicates that greater debt levels diminish SP, highlighting the financial hazards associated with excessive dependence on debt. A well-balanced capital structure is critical for financial stability and maximizing shareholder value. Firms with high leverage ratios may face financial restrictions that limit growth potential and diminish profitability (Arhinful & Radmehr, 2023). Abid et al. (2024) also argued that high leverage raises financial distress costs, reducing profitability and limiting expansion potential. This is especially important in times of economic uncertainty, when heavily leveraged enterprises may struggle to meet interest commitments while maintaining investor trust. The consequence is that enterprises should carefully balance their capital structures, avoiding excessive debt in order to maintain profitability. A well-balanced combination of debt and equity financing can help businesses manage risks more effectively and sustain consistent profitability.

CHAPTER 5: DISCUSSION, CONCLUSION & IMPLICATIONS

5.0 Introduction

This chapter gives a thorough overview of the study's findings, including their implications, limitations, and recommendations for further research. The objective of the chapter is to summarize the research results and their wider applicability, especially with regard to the Malaysian stock market. The study's contributions and importance in directing corporate governance and investment decision-making in the face of greenwashing are summarized in the conclusion.

5.1 Discussion on Findings

The results of this study show that greenwashing has a negative influence on stock performance. Companies that engage in dishonest ESG practices can lose investor trust, resulting in higher stock price volatility. When investors detect insincerity in ESG claims, they respond negatively since such behaviours impede long-term value development and pose reputational hazards. These findings are consistent with earlier studies showing that greenwashing undermines business credibility and prevents socially conscious investors from investing in such companies.

This study emphasizes the moderating influence of gender diversity in corporate governance. The findings indicate that the negative impacts of greenwashing on stock performance are minimized in businesses that have more female board members. Female directors frequently improve business transparency, encourage ethical decision-making, and strengthen sustainability initiatives, lowering the financial consequences of greenwashing. This conclusion is consistent with

previous research, which suggests that diverse boards enhance governance frameworks and reduce the possibility of inaccurate sustainability claims.

Additionally, financial metrics play a crucial role in evaluating stock performance. The result shows that there is a positive relationship between stock price and key financial indicators, such as EPS and BV which emphasizes the importance of fundamental financial indicator in investment decision-making. Conversely, LEV has a negative impact on stock performance, implying that excessive debt increases financial risk and reduces investor confidence. The findings further indicate that Malaysian investors are growing more wary of ESG distortion, preferring firms that demonstrate genuine sustainability commitments over those firms that use superficial greenwashing strategies.

5.2 Implications of Study

This study's implications are broad and diverse, providing useful information for academic researchers, investors, business leaders, and regulators alike. By studying the relationship between greenwashing, stock market performance, and gender diversity in corporate governance, this study adds significantly to the developing conversation on sustainable finance and ethical corporate conduct.

From a management standpoint, the findings highlight the critical need for company executives to shift away from superficial ESG branding and toward deeply integrated, true sustainability strategy. In an era of stakeholder capitalism, firms can no longer match investor and public expectations by symbolic gestures. The study found that false ESG disclosures can undermine investor trust, increase market volatility, and ultimately impair long-term corporate value. As a result, corporate managers must include ESG concepts into the foundation of their strategic planning and decision-making processes. This not only decreases the risk of reputational harm and regulatory fines, but it also develops a culture of integrity and responsibility, which is increasingly valued by today's socially conscious investors and customers.

From an investing viewpoint, the findings highlight the need to conduct detailed ESG due diligence as part of the decision-making process. Investors should closely analyse the quality and credibility of ESG disclosures and avoid companies that display signs of greenwashing. The growing investor concern over ESG authenticity, notably in Malaysia, indicates a trend toward more values-driven investing strategies. Asset managers, institutional investors, and retail investors must create more sophisticated tools and frameworks for distinguishing between real and deceptive sustainable activities. This allows them to better match their investments with ethical principles while reducing financial risk.

The study also has important implications for regulators and politicians, who play a critical role in defining the institutional framework that governs company ESG policies. The prevalence of greenwashing, particularly in the absence of strict control, necessitates stronger regulatory action. Policymakers should think about enacting comprehensive ESG disclosure requirements that require uniformity, comparability, and verifiability across corporations. The use of standardized ESG reporting frameworks, such as those linked with the Global Reporting Initiative (GRI) or the Sustainability Accounting Standards Board (SASB), as well as obligatory third-party audits, can improve openness and accountability. Furthermore, imposing sanctions for deceptive disclosures can act as a deterrent, helping to foster a market climate in which real sustainability initiatives are rewarded.

From an academic viewpoint, this study provides a unique addition by empirically correlating greenwashing to stock performance in Malaysia, while also including gender diversity as a moderating variable. This multidimensional approach contributes to the current literature on sustainable finance, corporate governance, and market behaviour. The study offers up new lines of academic research into how internal governance structures, such as board diversity, independence, and competence, affect business sustainability outcomes and investor views. Further research might include cross-country comparisons, sector-specific impacts, and behavioural finance perspectives to better understand how cognitive biases influence investor responses to ESG disclosures.

In a broader context, this study contributes to the worldwide push for responsible capitalism and sustainable economic development. As the globe faces significant issues such as climate change, social injustice, and environmental degradation, the financial industry plays an important role in supporting sustainability. This study contributes to a more nuanced understanding of how capital markets may encourage ethical business behaviour while also supporting long-term social well-being by shining light on the financial ramifications of greenwashing and the protective function of gender-diverse boards.

5.3 Limitations and Recommendations

This study contains a few limitations that should be taken into account despite its contributions. First, the study's conclusions cannot be applied to smaller businesses or private organizations because it only looks at publicly traded companies that are part of Malaysia's FTSE Bursa Malaysia Top 100 Index. To determine whether comparable trends are present in various corporate forms, future studies could expand the investigation to a larger group of organizations, such as privately held companies and small and medium-sized enterprises (SMEs).

Second, ESG disclosure-performance disparities are used as stand-ins to quantify greenwashing. Although this strategy is in line with current standards, it might not adequately account for the complexities of corporate greenwashing. To more precisely identidffy greenwashing trends, future research could use different methodologies including customer perception surveys, sentiment analysis of company sustainability reports, or sophisticated machine learning techniques.

The study's timeline is a further limitation. The study, which covers the years 2018–2023, offers insightful information on current trends but ignores long-term changes in investor behaviour, company sustainability plans, and ESG rules. Increasing the analysis's timeline may provide more detailed information about how greenwashing

develops over longer timeframes and how it affects stock performance over the long run.

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In addition, this study does not consider the differences between industries. This research may fail to consider the differences in greenwashing methods among other industries by combining all of these companies without examining their different industries, such as consumer products, energy, or finance. The impact on the environment, public attention, or regulatory standards may provide some industries with greater motivation or pressure to engage in greenwashing. To further understand which industries are more likely to engage in greenwashing and why, future research should compare businesses from other industries and across different indices.

Furthermore, a comparative geographical analysis could improve comprehension of the effects of greenwashing in various market contexts. An analysis that contrasts Malaysia with other ASEAN nations or international markets may shed light on how cultural, legal, and financial variations influence how investors react to ESG misrepresentation.

Lastly, future studies could look at how well regulatory actions worked to curb greenwashing. Studying how modifications to market incentives, enforcement strategies, and ESG rules affect business sustainability practices would offer important insights into the changing regulatory environment.

5.4 Conclusion

This study highlights how greenwashing has a negative impact on Malaysia's stock market performance, eroding investor trust and raising financial risk. It also demonstrates that gender diversity on corporate boards may reduce these negative consequences, emphasizing the importance of inclusive governance in increasing transparency and ethical monitoring. These findings highlight the significance of real ESG practices, improved regulatory frameworks, and informed investment decisions in fostering a more stable and sustainable financial environment.

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