

EFFECTS OF GREENWASHING ON FINANCIAL
PERFORMANCE IN MALAYSIA

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**EFFECTS OF GREENWASHING ON FINANCIAL
PERFORMANCE IN MALAYSIA**

BY

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List of Abbreviations

BNM:	Bank Negara Malaysia
BOD:	Board of Director
CEO:	Chief Executive Director
CEP:	Customer Engagement Platform
CFP:	Corporate Financial Performance
CG:	Corporate Governance
CSR:	Corporate Social Responsibility
EBITDA:	Earnings before interest, taxes, depreciation and amortization
ESG:	Environmental, Social, Governance
GCI:	Green Communication Index
GPI:	Green Practice Index
GWI:	Greenwashing Index
NPV:	Net Present Value
PLC:	Public Limited Companies
ROA:	Return on Assets
ROE:	Return on Equity

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ABSTRACT

Greenwashing has added ambiguity and risk to the investment environment when investors attempt to allocate funds to businesses with strong ESG profile. Thus, the effects of greenwashing on CFP in Malaysia, i.e., the research topic at hand, holds significant importance for various stakeholders in the investment and business industries. This study attempts to offer helpful insights into how CFP in Malaysia is impacted by greenwashing and how such relationship is moderated through CG practices.

In Chapter 2, each variable will be explained in further depth. First-hand information was gathered from 29 Malaysian PLCs with good disclosures for this study. The corporate data are obtained from Refinitiv database. In Chapter 3, the research approach is thoroughly detailed. To ensure that the data is prepared for analysis, a number of steps are taken once the data is collected. All of the analyses in this study are carried out using EViews 12 Student Version Lite. Descriptive analysis, Pearson correlations analysis, and Panel data analysis are all included in this analysis. Every outcome is shown in table form for better understanding.

Finally, some significant findings will be provided in the research's concluding section, and the implications, limitations, and recommendations for future study will be presented in this research. With any luck, this research can help the academic who wants to study the greenwashing topic on corporate financial performance.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This chapter is divided into four parts. The first part gives background information on the study. The second part outlines some of the research problems in existing literature. The following part then sets the research objectives and questions. The research significance is in the fourth part, with a research outline to conclude the chapter.

1.1 Research Background

1.1.1 The Evolution of CSR

Corporate social responsibility (CSR) had served as the prevailing model for framing businesses' social responsibility during most of the latter half of the 20th century, this trend shifted as the new millennium approached (MacNeil & Esser, 2022). Sustainability became a prominent issue, accompanied by the idea that investors should include ESG considerations in building their portfolios. ESG measures, evaluations, and regulatory requirements generally take into account of the financial framework of ESG investing, which has quickly become a globally accepted approach (Chen & Mussalli, 2020).

Figure 1.1 Evolution of CSR to ESG via Sustainability



Source: MacNeil, I., & Esser, I. M. (2022). *From a financial to an entity model of ESG*.

Some researchers more closely associated CSR with ethics and suggested that CSR is primarily concerned with achieving positive outcomes from organizational decisions that eventually benefit the stakeholders (Epstein, 1987). In the 1980s, there was a more distinct emphasis on sustainable development and its connections to institutional and legislative transformations (Agudelo et al., 2019). In the 1990s, ESG surfaced as a concept for portfolio risk management associated with corporate financial performance (CFP). It is closely related to the concept of “responsible investment” in the stock market, which can encompass the broader field of “sustainable investment” (Dmuchowski et al., 2023).

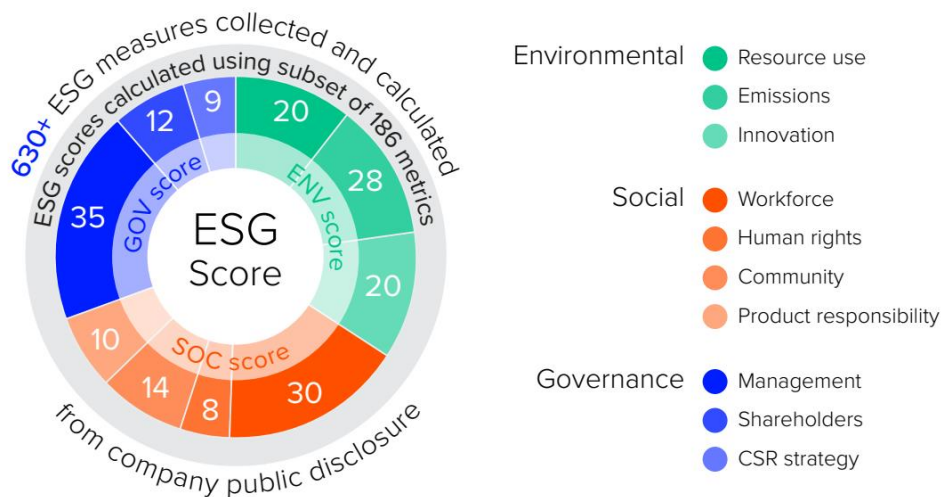
In short, CSR was not supplanted by ESG, businesses would continue to report on CSR matters and reveal how they met particular social responsibilities and managed these principles alongside profit maximization. In contrast, ESG reporting or disclosure became more focused on measurable metrics (Hazen, 2020). Thus, the shift from CSR to ESG was motivated by the ‘business rationale’ for CSR, presented within the context of sustainability. This signifies a move away from social responsibilities that are based on moral duty in CSR, towards an emphasis on risk management such as legal and regulatory risks in ESG (Pollman, 2019).

1.1.2 Overview of ESG

ESG refers to the environmental, social and governance issues that are thought to have an impact on a company’s conduct when making investment decisions (Armstrong, 2020). The term “Environmental” concerns about issues such as population expansion and climate change. While CSR is included in the umbrella term of “Social”, that is the corporate action towards environmental issues mentioned above. Lastly, “Governance” is primarily about how the company is governed and led by its Board of Directors (BOD) in these matters (Armstrong, 2020).

Environmental, social, and governance are the three pillars of ESG while each pillar is made up of many sub-pillars or issues that changed overtime (Rau & Yu, 2023). Figure 1.2 shows the three ESG pillars from Refinitiv in 2022 together with their respective categories and the ESG scores that fall under each pillar.

Figure 1.2 ESG Scores from Refinitiv



Source: Eikon, R. (2022). *Environmental, social and governance scores from Refinitiv.*

Refinitiv ESG scores mirror the fundamental ESG data structure and offer a clear, data-centric evaluation of firms' comparative ESG capabilities and performance. They take into consideration industry relevance and the biases related to company size. Based on publicly available data, a company's ESG performance and effectiveness are represented by the 10 categories that redefine the three pillar scores and the ultimate ESG score (Eikon, 2022). Sustainable ESG practices can yield advantages in various aspects, including tax and operational risks reductions, enhanced negotiation capabilities, customer retention, positive reputation, and favorable financial performance (Nirino et al., 2021).

An ESG report is a report unrelated to financial matters that companies typically choose to publish voluntarily. These reports provide information about a company's ESG effects and are made available to the public (PWC, 2022). However, a factor facilitating companies' involvement in greenwashing is the contrast between financial reports, subjecting to regulation and compulsory disclosure, and ESG reports, which are primarily voluntary, lack rigid structure, and largely ungoverned (Thewissen et al., 2022). This distinction grants companies substantial flexibility in deciding what to disclose and which standards to adhere to, which gives rise to the behavior of greenwashing (Yu et al., 2020).

Certain scholars suggest that ESG reporting can serve as either substantive or symbolic disclosure. According to Roxburgh (2019), actual activities stated in reports belong to substantial strategies, whereas future promises are merely symbolic plans. The publication of ESG information in corporate reports can occasionally function as a symbolic form of legitimation rather than an accurate representation of a company's real conduct. Greenwashing pertains to a symbolic ESG disclosure that can be harmful to the stakeholders and business performance. In this case, we have exclusively assessed greenwashing in relation to the environmental concerns under ESG.

1.1.3 Greenwashing

‘Greenwashing’ is a term that refers to ESG-washing in the majority of literary publications, encompassing all three pillars of ESG, rather than solely addressing the environmental concerns. Nevertheless, some studies opt to distinguish between these pillars and introduce distinct terms such as ‘bluewashing’ for social issues (Chen et al., 2018). A new term, ‘blackwashing’, was recently created by Ruiz-Blanco et al. (2022) to specifically highlight the governance issues. For the purposes of this study, the term ‘greenwashing’ is used exclusively in the context of environmental issues (Kornreich & Thewissen, 2022).

The history of greenwashing can be traced back to few decades ago. When hotels started requesting visitors to reuse towels and stating that this was a corporate water saving plan, but had no other environmental measures with more substantial impact on the environment concerns, activist Jay Westerveld made the first accusation of greenwashing in 1986 (Gurlek, 2023). The public has many interpretations of the relatively abstract idea of greenwashing. “The intersection of two firm behaviors: inadequate environmental achievement and positive disclosure regarding environmental performance” is how greenwashing is described (Vollero, 2022). In 1999, the Concise Oxford English Dictionary included the word greenwashing as “false information spread by a company to make it look environmentally responsible to the public” (Netto et al., 2020). The definition that frequently emerges as the most prominent one states that: “greenwashing refers to the disparity between the information disclosed in the ESG reports and the company’s actual ESG performance” (Ruiz-Blanco et al., 2022).

At a more abstract level, scholars have defined greenwashing as a form of selective disclosure where only favorable environmental aspects are highlighted. It is a strategy that decouples words from conducts to divert focus, and a dubious means of gaining

and sustaining credibility (Glavas et al., 2023). Greenwashing is a common strategy used by businesses to outperform their competitors and to take advantage of the environmental laws that lack enforcement (Yang et al., 2020). In fact, nearly all skeptics believe that greenwashing brings adverse effects to the environment and the stakeholders. Several scholars highlighted the consequences of increase in greenwashing and made the case that it may influence stakeholders' confidence (Guo et al., 2018).

For instance, Santos et al. (2023) suggest that greenwashing practices accentuate stakeholders' environmental concerns, potentially restricting consumers from making well-informed, conscientious decisions. Perceptions of greenwashing have also harmed assessments of brands, leading consumers to approach products with skepticism, ultimately diminishing their intent to make purchases (Neureiter & Matthes, 2022). Simultaneously, it undermines the effort of green marketing tactics as the product's popularity has been affected. This unethical behavior has caused a detrimental impact on the firm's trustworthiness (Pizzetti et al., 2021).

Given the prevailing perception of greenwashing as misleading, scholars have raised concerns about its potential adverse signal to stakeholders, which, in turn, might negatively affect a company's profitability (Walker & Wan, 2012). In their investigation into greenwashing, specifically defined as the disparity between substantive and symbolic environmental commitments, Walker and Wan (2012) scrutinized 100 of Canada's top-performing firms, revealing that greenwashing exerts an adverse influence on CFP. Greenwashing can also negatively impact a firm's market share and firm value (Torelli et al., 2020). Du (2015) has analyzed a selection of Chinese companies, including those publicly labeled as greenwashing firms. The study revealed that stock prices responded adversely to greenwashing news.

1.1.4 Corporate Governance (CG)

Corporate governance (CG) is defined as “a system through which companies are managed and governed” (Cadbury Report, 1992). The BOD hold responsibility for ensuring CG is put into practice (Naimah, 2017). CG mechanisms encompass aspects such as firm's institutional ownership and board characteristics (Cornett et al., 2008). A significant relationship between CG and stock returns has been identified during the 1990s, and firm value that is assessed using Tobin’s Q (Gompers et al., 2003). Brown and Caylor (2004) discovered that well-managed companies tend to be more profitable, have higher value, and issue greater cash dividends to the shareholders. Moreover, effective corporate governance, which diminishes the managerial ‘right to control’ over shareholders and creditors, enhances the likelihood that managers will invest in projects generating a positive NPV (Shleifer & Vishny, 1997). This indicates that companies with good CG tend to enjoy improved operational and financial performance. Furthermore, firms that adhere to strong CG standards are better positioned to address agency issues, including greenwashing that can be seen as a conflict of interest between shareholders and management (Luo and Wu, 2019). Firms with more effective CG characteristics are capable of reducing greenwashing which posed a significant impact on CFP (Oshika and Koike, 2023).

1.2 Research Problem

There is a lack of empirical research on the connection between greenwashing and CFP (Li et al., 2023). For example, Lyon and Montgomery (2015) conducted a recent review of 98 articles concerning greenwashing. They observed that only a small number of studies investigated the relationship between greenwashing and CFP. This highlights the need for in-depth and meticulous empirical research to explore the effects of greenwashing on CFP (Li et al., 2023). Moreover, existing studies do not come up with a consistent result explaining the greenwashing-CFP relationship and have produced conflicting findings. For instance, Walker and Wan (2012) discovered an adverse impact of greenwashing on CFP within the context of environmental management. In contrast, Schons and Steinmeier (2016) observed that greenwashing has a favorable impact on CFP within the corporate citizenship context, but exerts a detrimental influence on the field of employee responsibility. Additionally, Testa, Miroshnychenko, et al. (2018) discovered a non-significant relationship between greenwashing and CFP. As far as we know, there has been little prior research examining the link between greenwashing and CFP in Malaysia. Therefore, this research aims to bridge an existing gap in the literature and offer a clearer picture of the connection between greenwashing and CFP in Malaysia. Additionally, this research differs from Du (2015), which explored how investors responded to greenwashing that is media-reported. This study aims to examine the impact of “potential greenwashing”, also known as “greenwashing without public allegations” (Seele & Gatti, 2017), on CFP in Malaysia.

Despite the considerable research focus on the relationship between CG and corporate environmental performance in recent years (Miroshnychenko et al., 2019), there remains an unexplored theoretical and empirical question: “What precise CG mechanisms can promote or prevent greenwashing?” (Ghitti et al., 2023). Previous research has explored how CG elements can help counteract global greenwashing (Marquis et al., 2016; Yu et al., 2020). Firms that adhere to strong CG standards are

better positioned to address agency issues and are capable of reducing greenwashing (Oshika & Koike, 2023). As far as we are aware, there has been little empirical research conducted to assess the impact of CG mechanisms on mitigating greenwashing practices which may potentially affect the CFP. Thus, this study aims to identify the moderating rate of CG on the greenwashing-CFP relationship in Malaysia.

1.3 Research Objectives

The primary objective of this study is to explore the relationship between greenwashing and its effects on CFP in Malaysia. The various greenwashing strategies encompass green practice and green communication. While the evaluation involves using metrics such as return on assets (ROA) and return on equity (ROE) to assess whether greenwashing strategies have any influence on the CFP of companies in Malaysia. Secondly, this study aims to contribute to the existing body of knowledge by exploring how CG characteristics such as size, independence, and diversity of board, act as moderating factors to the greenwashing-CFP relationship.

- 1) To examine the relationship between greenwashing and CFP in Malaysia.
- 2) To investigate the moderating role of CG on the greenwashing-CFP relationship in Malaysia.

1.4 Research Questions

The research asks the following questions:

1. What is the relationship between greenwashing and CFP in Malaysian companies?
2. How do CG characteristics moderate the greenwashing-CFP relationship in Malaysia?
3. Do companies with distinct board characteristics experience different effects of greenwashing on CFP in Malaysia?

1.5 Research Significance

According to Fillippi (2022), greenwashing has added ambiguity and risk to the investment environment when investors attempt to allocate funds to businesses with strong ESG profile. In this case, investors who wish to make sound decisions must now understand how greenwashing affects CFP in Malaysia. Greenwashing not only undermines the reliability of ESG disclosures but also possibly compromises trust by deceiving stakeholders and customers. For companies that are genuinely devoted to environmental sustainability, the greenwashing's presence in the market has totally affected their credibility and the stakeholders' relationships. To achieve long-term sustainability, companies in Malaysia must make sincere ESG commitments and behave ethically all the time. Meanwhile, analyzing the effects of greenwashing helps underscore the significance of sincere sustainability initiatives while shedding light on the negative effects of companies' deceptive practices. In order to safeguard investors and encourage ethical business behavior, regulatory authorities and legislators should also learn more about the impacts of greenwashing, says on business financial performance, and the need for greater regulation and enforcement of ESG disclosures.

The effects of greenwashing on CFP in Malaysia, i.e., the research topic at hand, holds significant importance for various stakeholders in the investment and business industries. This study attempts to offer helpful insights into how CFP in Malaysia is impacted by greenwashing and how such relationship is moderated through CG practices. By focusing on these important aspects, this research helps in advancing knowledge of ethical investment and corporate environmental sustainability, as well as providing direction to companies, regulators, and investors in navigating Malaysia's complicated ESG market.

In a nutshell, this research is carried out to shed light on an extremely important issue facing the modern corporate world, i.e., greenwashing. Its successful execution may result in greater accountability in investment decisions, improved corporate environmental behaviors, as well as a regulatory framework that protects investors' interests and fosters sustainable business growth in Malaysia.

1.6 Research Outline

The structure of the remaining research areas is as follows: Chapter 2 assesses existing literature, formulates hypotheses, and presents research framework; Chapter 3 outlines methodology for data collection and empirical analysis; Chapter 4 provides descriptive statistics for collected data, presents comparative and regression analysis, along with interpretations of outcomes; Chapter 5 concludes implications, limitations, and recommendations for future research.

Chapter 2: Literature Review

2.0 Introduction

This chapter covers a thorough literature review that constitutes the foundation of the study. It is divided into four parts. The first part, underlying theories, explains theories related to the research topic. The second part reviews literature on the research variables to offer a comprehensive overview on their interrelationship. The next part presents developed hypotheses based on the reviewed literature, and the final part displays the proposed conceptual framework.

2.1 Underlying Theories

2.1.1 Signal Theory

The signal theory operates under the premise of unequal information and imperfect marketplaces. It assumes that a company's managers possess insights into their company's quality, while in contrast, investors lack access to this knowledge, making it difficult for them to differentiate between high-quality and low-quality firms (Kornreich & Thewissen, 2022). In this context, signaling serves the purpose of enabling companies to convey to investors that they are indeed aligning their actions with what they claim in their reports (Papaioannou & Karagozoglou, 2017).

Regarding ESG matters, there is a growing number of sustainable enterprises moving into the market. This situation further complicates the task for investors to assess and differentiate companies that make similar environmental claims but fail to deliver on their promises (Hohnen & Potts, 2007). In this case, organizations can leverage the concepts of signal theory to mitigate information imbalances and thereby validate their operations (Ruiz-Blanco et al., 2022). For instance, they may enhance the credibility of their ESG reporting by enlisting an independent third-party to oversee their sustainability disclosures (Simnett, 2012).

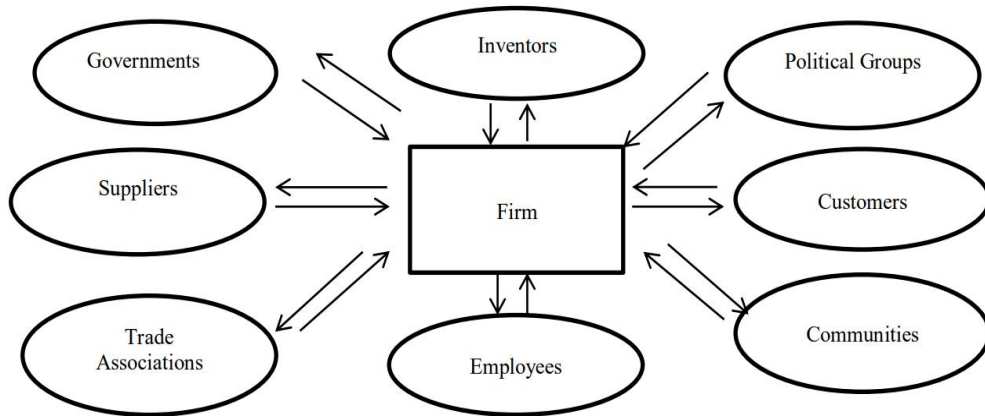
The idea of utilizing green labels as a means of enhancing reporting credibility has been put forward as well. Nevertheless, the effectiveness of such labels has not yielded favorable results (Kornreich & Thewissen, 2022). This is primarily because numerous companies have granted these labels upon themselves, often without substantial sustainability backing. Therefore, this circumstance creates a challenge in distinguishing the authentic ones from those that are merely nominal (Yu et al., 2020). To establish trust in a green label, it needs to be given by an independent third-party, free from the influence of the company itself. To summarize, the avenues for firms to signal their authenticity are constrained, making it difficult for investors to identify companies engaging in greenwashing practices (Seele & Gatti, 2017).

2.1.2 Stakeholder Theory

Stakeholder theory focuses on examining the interaction between an organization and its stakeholders. A stakeholder is described as “any group or person capable of influencing or being influenced by the company’s activities or goals” (Freeman, 1984). Several researchers have sought to refine stakeholder definitions by classifying them in various manners. As an illustration, strategic and ethical stakeholders (Goodpaster,

1991); internal and external stakeholders (Carroll, 1989); subgroups of stakeholders including shareholders, consumers, etc. (Preston & Sapienza, 1990); voluntary and involuntary stakeholders (Clarkson, 1995); and primary and secondary stakeholders (Clarkson, 1995). These classifications primarily aim to highlight the existence of diverse stakeholder groups, each with distinct and perhaps contradictory demands (Fernando & Lawrence, 2014).

Figure 2.1 Stakeholder Theory Diagram



Source: Donaldson, T., & Preston, L. E. (1995). *The stakeholder theory of the corporation: Concepts, evidence, and implications*.

In line with the stakeholder view, instead of just meeting the demands of shareholders as advocated by traditional shareholder theories, a company must satisfy the diverse expectations of its different stakeholder groups (Ayuso et al., 2014), striking a balance between fulfilling its fiduciary duties to shareholders and taking into account the concerns deemed as important by other stakeholders (Law, 2011). Stakeholder theory underscores organizational responsibility that extends beyond mere economic or financial achievements (Guthrie et al., 2006). It proposes that an organization's

management should fulfill its accountability to its stakeholders by providing the information subsequently (An et al., 2022). Therefore, the concept of ‘accountability’ is closely associated with this theory, and research explores how an organization is accountable to its diverse stakeholders (Smith, 2008).

During the process of addressing accountability to the stakeholders, information disclosure should encompass not just the company’s financial or regulated data, but also non-financial or unregulated data (Gray et al., 1996). This aligns with the stakeholder theory, which posits that the community holds a legitimate ‘right-to-know’ regarding the particulars of a company’s activities (Cragg & Greenbaum, 2002). Gray et al. (1996) underscore the idea that information disclosure should be driven by responsibility rather than demand. Amid the prevalent issue of greenwashing, responsible information disclosure becomes crucial to reflect the contrast between stakeholders’ rightful expectations and companies’ misleading environmental claims (Freeman & Dmytriyev, 2017).

2.1.3 Legitimacy Theory

Legitimacy theory posits that companies must always uphold the perception that they operate in accordance with the societal norms (Lee & Raschke, 2023). It implies a ‘social contract’ built on expectations between firms and the societies within which they function (Boatright, 2013). This ‘social contract’ may encompass both explicit (legal obligations) and implicit (community expectations) terms (Deegan et al., 2000). To maintain a favorable level of legitimacy, an organization must assure that it does not violate these terms. This legitimacy is essential for the organization’s continued existence as it is said that company depends solely on the society (Fernando & Lawrence, 2014).

Legitimacy theory views society as a collective entity, focusing on societal expectations rather than individual preferences (Belal, 2008). It implies that companies must meet the broader expectations of society, beyond just the demands of owners or investors as emphasized in agency theory (Fernando & Lawrence, 2014). A company can maintain its operations and secure its continuity only when it meets these societal expectations (An et al., 2011). Gray et al. (2009) describe legitimacy theory as a way that “companies can only remain in existence when the society they are rooted in views them as adhering to a value system that is aligned with the community’s own values.”

Nevertheless, managing a company in this way can be challenging too, given that societal expectations are in a constant state of flux. Thus, aligning the organization’s goals with these shifting dynamics can be a formidable task (Fernando & Lawrence, 2014). This can lead to what is often termed as ‘legitimacy gap.’ Additionally, unexpected events like financial scandals or incidents that undermine the reputation of a company can give rise to ‘legitimization threats’ (Langer, 2008). A company may be at danger from such threats if an effective legitimization strategy is not put in place.

With the goal of legitimizing the activities within the society where a company operates, Lindblom (1994) proposed four legitimization strategies to be implemented: informing the company’s real performance to pertinent stakeholders; attempting to modify external expectations regarding the company’s performance; altering the stakeholders’ views regarding underlying matters without changing the organization's actions; and diverting attention away from concerning issue and focusing it on a favorable one (Lindblom, 1994). Within the context of greenwashing, these legitimization strategies are employed by firms to manipulate societal perceptions in order to sustain a positive image and maintain their legitimacy (Hahn & Lülfes, 2014).

2.2 Review of Variables

2.2.1 Dependent Variable: Corporate Financial Performance (CFP)

The evaluation of company performance has become increasingly intricate as time goes on (Heikal et al., 2014). Freedman and Jaggi (1992) have contended that CFP is fundamentally mirrored in its corporate profits. Various metrics can be employed to assess CFP through long-term profitability, with the most frequently used ones being a company's financial ratios, such as ROA and ROE. To investigate the influence of greenwashing on CFP, this research has employed these two ratios.

2.2.1.1 Return on Assets (ROA)

ROA can serve as an indicator of a company's ability to generate profits by leveraging its owned assets and reflect internal practices that improve the value of shareholders (Johari & Komathy, 2019). Salim and Yadav (2012) underscore ROA's fundamental role in evaluating company profitability and gauging managerial effectiveness in using assets to boost shareholder wealth. In theory, an improved ROA value implies that a company is better positioned to create additional value from its assets (Salim & Yadav, 2012). As EBITDA is used as the denominator, ROA helps to reveal a firm's genuine performance by providing stakeholders with valuable insights into how effectively the management of a company utilizes its assets to generate profits and returns (Johari & Komathy, 2019). Researchers frequently employ this metric to evaluate a firm's financial performance in conjunction with the other independent variables to examine

the cause-effect relationships (Salim & Yadav, 2012). Computationally, it is derived by dividing net income after tax by total assets (Bhagat & Bolton, 2008).

2.2.1.2 Return on Equity (ROE)

Conversely, return on equity (ROE) serves as a tool that informs investors about the profit generated by a company through its equity, also known as shareholder capital (Johari & Komathy, 2019). It is also a crucial indicator of the company's profitability, with a specific focus on internal performance and the reflection of shareholder value (Heikal et al., 2014). Calculating the ROE provides firms with valuable information about the profitability of their operations. In essence, it serves as an effective means to evaluate how efficiently a company utilizes its equity and communicates to investors whether the firms are achieving a reasonable investment return (Johari & Komathy, 2019). ROE is calculated by dividing net income after tax by total equity. This metric has been employed by numerous researchers to assess firm performance (Bhagat & Bolton, 2008), and is considered a dependable indicator of CFP (Hajer & Anis, 2018).

2.2.2 Independent Variable: Greenwashing

Delmas and Burbano (2011) observed that the combination of high- or low-level green communication and green practice results in four green approaches: greenwashing focuses on green communication and neglects environmental performance; silent green emphasizes on improving environmental performance but ignores green communication; vocal green concentrates on both environmental performance improvement and green communication at a high level; and silent brown, where both green communication and green practices are neglected.

Figure 2.2 Matrix of Green Communication-Practice Strategies

		Green practice	
		Low	High
Green communication	High	Greenwashing	Vocal green
	Low	Silent brown	Silent green

Source : Li, W., Li, W., Seppänen, V., & Koivumäki, T. (2023). *Effects of greenwashing on financial performance: Moderation through local environmental regulation and media coverage.*

As compared to ‘vocal green’ and ‘silent green’ that come with higher costs, greenwashing belongs to a strategy for legitimacy that is less expensive. During the years, businesses have faced increasing pressure to show environmental responsibility (Hoffman, 1999). Despite arguments from numerous scholars and consultants that being environmentally friendly is financially advantageous, or “it pays to be green” (Hart & Ahuja, 1996; King & Lenox, 2001), corporate environmental initiatives can

sometimes conflict with a company's primary objective of profit maximization and have adverse financial effects for the company (Page & Friedman, 1970). Engaging in environmental initiatives raises the operational expenses of companies (Stern, 2008). Additionally, corporate environmental efforts can lead to unfavorable abnormal returns (Jacobs et al., 2010). As institutional demands for environmentally responsible business practices continue to grow, managers have faced the dilemma of prioritizing either environmental considerations or market-driven strategies (Dahlmann & Grosvold, 2017). When being green doesn't consistently lead to increased stock value, greenwashing can serve as an effective strategy to reconcile the tension between shareholder expectations and environmental concerns (Bowen, 2014).

The literature on symbolic management and neo-institutional theory suggests that organizations can address the conflicting demands by adopting a decoupling approach, involving both symbolic and substantive actions (Oliver, 1991). Hence, greenwashing represents a particular form of the decoupling strategy, combining more symbolic elements with fewer substantive plans (Lyon & Montgomery, 2015). Symbolic actions are made by companies to ceremonially comply with regulatory guidelines and expectations of the public (Zott & Huy, 2007). These actions may potentially influence a company's reputation and legitimacy endorsement. Thus, greenwashing strategy enables companies to respond to external pressures for environmental legitimacy without changing their business operations or making substantial investments to enhance their environmental performance (Li et al., 2023), while still yielding a short-term boost in both reputation and customer satisfaction, coupled with cost savings derived from the decision to refrain from investing in green practices (Testa, Iraldo, & Daddi, 2018). Yet, numerous studies have addressed the risks associated with greenwashing (King & Lenox, 2000; Scheidler et al., 2019).

2.2.2.1 Green Practices and Green Communications

In comparison, greenwashing can have a greater signal effect than ‘silent brown’ and ‘silent green.’ One party can employ visible signals to illustrate its unobservable aspects in accordance with the signal theory (Spence, 2002). As mentioned earlier, greenwashing can be split into two organizational behaviors: green practice and green communication.

In terms of green practices, despite the stakeholders’ interest in environmental issues, they encounter challenges when attempting to evaluate a company’s commitment to green initiatives (Li et al., 2023). This is because stakeholders mostly do not have direct engagement with a company’s internal operations, making it challenging for them to gather information about the company’s executions of green management standards (King et al., 2005). In terms of green communication, it serves as a means to convey a company's efforts to environmental concerns that is highly appreciated by the stakeholders (Su et al., 2016). In this case, companies that actively engage in green communication can attract stakeholders like customers and investors with the similar concern, and enjoy advantages in terms of legitimacy and reputation (Testa et al., 2015). In contrast, companies that do not engage in green communication may unfairly be labeled as environmentally unfriendly, or 'brown', regardless of whether they have achieved an outstanding environmental performance and are actively involved in green practices (Delmas & Grant, 2014).

The majority of external stakeholders do not engage in direct interactions with the companies; instead, they rely on companies’ ESG reports and websites to access information related to their corporate sustainability practices (McWilliams & Siegel, 2000). What makes it worse is that companies’ disclosed environmental information often consists of intricate and dynamic professional knowledge (Carlson et al., 1993), making it difficult for the stakeholders to comprehend and assess. Due to the presence

of information asymmetry and the limitations of stakeholders who lack in-depth insights into a company's actual operations and business procedures, stakeholders are unable to detect and penalize instances of greenwashing (Westphal & Zajac, 1998).

Nonetheless, research findings, such as those by Leonidou & Skarmeas (2017) exploring the effect of greenwashing strategy on consumer skepticism and confusion, provide indirect evidence that greenwashing results in an adverse market response. For example, in an experiment involving 302 individuals, Nyilasy et al. (2014) discovered that the use of greenwashing communications amplifies the detrimental impact of poor Customer Engagement Platform (CEP) on brand attitudes. Said otherwise, there appears to be no inherent economic gain for a company in practicing greenwashing that translates into enhanced operational performance. Moreover, in light of the extensive literature on financial market efficiency by Malkiel (2005), it appears improbable that a company employing 'green talk' lacking substantive environmental efforts can enhance its market value through misleading market participants regarding its environmental impact. Recent studies also indicate that markets penalize entities engaging in greenwashing upon its exposure (Du, 2015). Hence, our assertion is that the misrepresentation of a company's environmental stance cannot obscure its market value, as markets may react negatively during the disclosure of corporate misconduct. Considering the theoretical underpinnings and limited empirical evidence, firms involved in greenwashing will not succeed in either boosting their market value or showcasing superior profitability (Barontini et al., 2017).

H1. The greenwashing strategy has a negative effect on CFP.

2.2.3 Moderating Variable: Corporate Governance (CG)

Previous studies have explored the effectiveness of specific CG practices, such as the presence of independent directors and institutional investors in mitigating greenwashing (Oshika & Koike, 2023). Drawing from observations spanning 45 countries, Marquis et al. (2016) discovered that companies operating in environmentally harmful industries in nations with stricter scrutiny tend to engage in greenwashing less frequently. Additionally, greenwashing has been proven to be less prevalent in companies with stronger governance performance (Luo and Wu, 2019). At the firm level, CG characteristics such as cross-listing, independent directors, etc., have the potential to eliminate greenwashing (Yu et al., 2020). When the legislative framework governing the environmental disclosure is loose, these firm-level characteristics tend to play a more significant role in promoting greenwashing (Delmas & Burbano, 2011).

A refresh in the board's perspective can enhance the environmental performance of a company (Dyck et al., 2023). Additionally, established best practices for internal CG are often associated with improved environmental performance (Naciti, 2019) and increased CSR information disclosure (Lu & Wang, 2021). Prior research studies have concentrated on specific CG practices at the board level to examine its influence on the environmental performance, namely board size, board independence, and board diversity (Naciti, 2019).

2.2.3.1 Board Size

Expanding upon the existing body of research concerning the intersection of corporate governance (CG) and environmental performance (Walls et al., 2012), the nexus between board size and greenwashing may seem contentious. Certain scholars posit that larger boards can lead to greater inefficiencies in the interactions between insiders and outsiders of the company (Raheja, 2005).

However, some scholars argue the contrary, indicating that improved monitoring and reduced individual influence over the rest of the board as potential advantages of larger boards (Bebchuk, 2005). For example, a larger board could incorporate committees that have been explicitly designated to address sustainability matters (Rao et al., 2012). In this case, there appears to be a positive association between board size and environmental performance (Villiers et al., 2011). This implies that the connection between board size and greenwashing may be an inverse one. In 2023, Ghitti et al. introduced a metric for assessing greenwashing and observed that board size exhibits a negative correlation.

H2. Board size negatively moderates the effect of greenwashing strategy on CFP.

2.2.3.2 Board Independence

Board independence is expected to be a driving force behind an improvement in the quality, quantity, and clarity of company's environmental disclosures (Zhang et al., 2013; Haque & Ntim, 2018). The prevailing perspective suggests that board members

with independence are more adept at overseeing CEOs, less susceptible to management influence, and more likely to act in the best interests of shareholders (Guo & Masulis, 2015). For example, Ghitti et al. (2023) introduced a greenwashing metric and identified a highly statistically significant positive correlation between the proportion of independent board members and greenwashing. In the study by Yu et al. (2020), it was observed that a higher quantity of independent board directors exerts a direct negative impact on greenwashing behavior, attributed to the reduction of agency costs and heightened scrutiny.

Nonetheless, there are instances where having insiders in board leadership positions is deemed optimal. This is partly due to insider control that allows greater exploitation of confidential information (Harris & Raviv, 2005; 2008; 2010). Given the incentives that nominally independent directors may have to align with the insiders, investors have shifted away from their conventional focus solely on board independence (Bebchuk & Hamdani, 2017). As a result, this could account for the presence of an adverse association between board independence and corporate voluntary disclosures (Eng & Mak, 2003; Gul & Leung, 2004) and environmental performance (Naciti, 2019). Besides that, Ortiz-de-Mandojana et al. (2016) have compared regulatory demands against normative demands when it comes to motivating independent directors to improve a firm's sustainability performance. Regulatory demands tend to deter independent directors from promoting environmental sustainability, while normative demands yield the opposite effect. From this perspective, there might be a positive relationship between greenwashing and board independence, as a less specialized monitoring approach by the outsider directors can potentially raise the likelihood of greenwashing practices (Ghitti et al., 2023).

H3. Board independence positively moderates the effect of greenwashing strategy on CFP.

2.2.3.3 Board Diversity

Gender diversity pertains to another aspect of board characteristics examined concerning environmental performance and reporting. In a general sense, diversity is often seen to be advantageous since gender-diverse boards demonstrating increased dedication to monitoring (Perrault, 2015). Companies featuring three or more female directors in their boards tend to attain higher environmental ratings (Post et al., 2011). The increased representation of women in boards positively influences environmental performance and CSR disclosure (Rao et al., 2012). However, contrasting evidence from recent research in the US companies' context indicates that a greater number of female directors on the board is linked to lower sustainability performance. This is partly due to the significant commitments, or so-called 'busyness,' of female directors to multiple board appointments (Tonetto, 2022).

Yet, Post et al. (2015) propose that women are more adept at forming partnerships with stakeholders to address sustainability concerns, hence having more of women and independent directors on BOD correlates with improved corporate environmental performance. Likewise, a recently published study by Dyck et al. (2023) suggests that introducing female members to the board during board renewal processes can positively impact sustainable performance. This is attributed to the opportunity for alignment between investors' preferences and the company's decisions in regards to environmental performance (Ghitti et al., 2023).

H4. Board diversity negatively moderates the effect of greenwashing strategy on CFP.

2.3 Summary of Hypothesis

Drawing from the existing literature review, the following hypotheses have been formulated:

Hypothesis 1

H1₀: The greenwashing strategy has a negative effect on CFP.

H1₁: The greenwashing strategy has no negative effect on CFP.

Hypothesis 2

H2₀: Board size negatively moderates the effect of greenwashing strategy on CFP.

H2₁: Board size does not negatively moderate the effect of greenwashing strategy on CFP.

Hypothesis 3

H3₀: Board independence positively moderates the effect of greenwashing strategy on CFP.

H3₁: Board independence does not positively moderate the effect of greenwashing strategy on CFP.

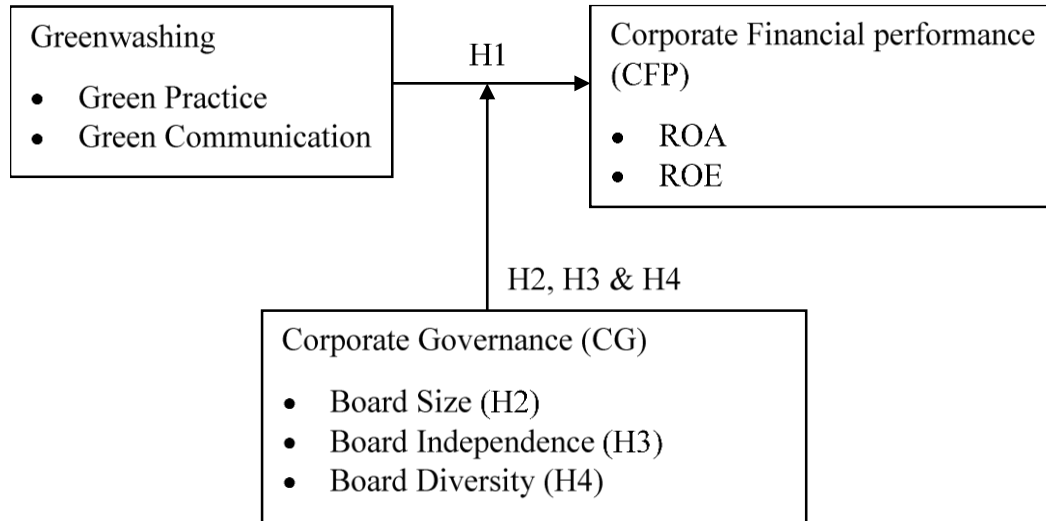
Hypothesis 4

H4₀: Board diversity negatively moderates the effect of greenwashing strategy on CFP.

H4₁: Board diversity does not negatively moderate the effect of greenwashing strategy on CFP.

2.4 Proposed Conceptual Framework

Figure 2.3 Proposed Conceptual Framework



Source: Created for this study.

The conceptual framework incorporates the independent variable of Greenwashing, consisting of Green Practice and Green Communication. The dependent variable, CFP, includes ROA and ROE. While CG serves as the moderating variable in the Greenwashing-CFP relationship, encompassing Board Size, Board Independence, and Board Diversity.

2.5 Conclusion

Based on the previous literature analysis, it is evident that prior studies have produced diverse outcomes on this research topic. The review of literature will assist in predicting how each aspect of greenwashing might affect the CFP, supported by several underlying theories. Within this chapter, the proposed research framework and hypotheses are presented. In the following chapter, the research methodologies will be discussed.

Chapter 3: Research Methodology

3.0 Introduction

This chapter outlines the research design and sampling method for the study, incorporating the hypotheses that included all the identified variables. The data collection method, research instrument, construct measurement, and data analysis tools are what that come next. The chapter offers a detailed explanation of the analytical tests, accompanied by the reason behind selecting these methods for analyzing the data collected. Lastly, the chapter ends with a summary.

3.1 Research Design

This part offers the research methodology's general picture taken to address the research questions. The study seeks to assess how greenwashing strategies influence a firm's financial performance as depicted in the research framework. The independent variables encompass green practice and green communication, all of which exert a significant impact on firm's CFP. Additionally, three moderating variables, namely board size, board independence, and board diversity, are involved to analyze their moderating impacts on the effect of greenwashing strategy on CFP. Sileyew (2019) has suggested that research design is built specifically to manage variations within the research. The primary objective of a research design is to address the research questions and examine the research hypotheses that establishes a link between independent and dependent variables (Sileyew, 2019).

3.1.1 Quantitative Research

Quantitative research centers on analyzing numerical data by employing mathematically-based methodologies, notably statistics. It is applied to problems related to society or human beings by testing hypotheses that involve quantifiable variables to ascertain their interconnectedness (Yilmaz, 2013). Comparatively, quantitative research serves the purpose of describing and analyzing data to offer insights and draw conclusions about the subject being studied. Using this method, data through surveys that yield statistical findings, evaluations, and quantified volumes of data are being generated (Avgousti, 2013). To summarize, the quantitative research method was employed to assess how key variables, including green practice and green communication, relate to financial performance of a company.

3.1.2 Descriptive Research

Descriptive research plays a vital role in providing data on demographics and aims to clarify on things that are common, widespread, or already present within the studied population (Siedlecki, 2020). Its main objective is to address questions related to 'when', 'what', 'who', and 'where'. Consequently, this approach aids in enhancing the understanding of data collected during the research study and allows for a rational adjustment of the data quantity. Descriptive research, as noted by Siedlecki (2020), often concentrates on demographic attributes, identification of current problems, and examination of variations in characteristics or behaviors throughout various organizations or countries.

3.2 Sampling Design

Sampling allows scholars to efficiently obtain data at a lower cost, which is crucial for the research (Turner, 2020).

3.2.1 Target Population

The top 100 Malaysian Public Listed Companies (PLCs) with good disclosures as listed in MSWG are the target population of this study.

Figure 3.1 MSWG’s Top 100 Companies with Good Disclosures

No.	PLC Name	No.	PLC Name	No.	PLC Name
1	TELEKOM MALAYSIA BERHAD	41	UMW OIL & GAS CORPORATION BERHAD	81	GD EXPRESS CARRIER BERHAD
2	BURSA MALAYSIA BERHAD	42	POS MALAYSIA BERHAD	82	SP SETIA BERHAD
3	CIMB GROUP HOLDINGS BERHAD	43	BUMI ARMADA BERHAD	83	QL RESOURCES BERHAD
4	MALAYAN BANKING BERHAD	44	GUINNESS ANCHOR BERHAD	84	STAR PUBLICATIONS (M) BERHAD
5	AXIATA GROUP BERHAD	45	KULIM (M) BERHAD	85	HARTALEGA HOLDINGS BERHAD
6	MALAYSIA AIRPORT HOLDINGS BERHAD	46	AMMB HOLDINGS BERHAD	86	LAFARGE MALAYSIA BERHAD
7	LPI CAPITAL BERHAD	47	TSH RESOURCES BERHAD	87	BATU KAWAN BERHAD
8	UMW HOLDINGS BERHAD	48	MMC CORPORATION BERHAD	88	MUDAJAYA GROUP BERHAD
9	PUBLIC BANK BERHAD	49	AIRASIA BERHAD	89	LBS BINA GROUP BERHAD
10	MEDIA PRIMA BERHAD	50	OSK HOLDINGS BERHAD	90	AMWAY (M) HOLDINGS BERHAD
11	ASTRO MALAYSIA HOLDINGS BERHAD	51	IHH HEALTHCARE BERHAD	91	FABER GROUP BERHAD
12	RHB CAPITAL BERHAD	52	KUALALUMPUR KEPONG BERHAD	92	WESTPORTS HOLDINGS BERHAD
13	UM CORPORATION BERHAD	53	SUNWAY BERHAD	93	SARAWAK PLANTATION BERHAD
14	TENAGA NASIONAL BERHAD	54	GAS MALAYSIA BERHAD	94	ANALABS RESOURCES BERHAD
15	UEM SUNRISE BERHAD	55	MANULIFE HOLDINGS BERHAD	95	KOSSAN RUBBER INDUSTRIES BERHAD
16	MAXIS BERHAD	56	AFFIN HOLDINGS BERHAD	96	MEDIA CHINESE INTERNATIONAL LIMITED
17	DRB-HICOM BERHAD	57	FRASER & NEAVE HOLDINGS BERHAD	97	ZHILJIAN CORPORATION BERHAD
18	UM LAND BERHAD	58	TOP GLOVE CORPORATION BERHAD	98	MATRIX CONCEPTS HOLDINGS BERHAD
19	BRITISH AMERICAN TOBACCO (M) BERHAD	59	HAP SENG CONSOLIDATED BERHAD	99	FIVELLE FAMCO BERHAD
20	ALLIANCE FINANCIAL GROUP BERHAD	60	HONG LEONG FINANCIAL GROUP BERHAD	100	MBM RESOURCES BERHAD
21	FELDA GLOBAL VENTURES HOLDINGS BERHAD	61	DAIBOCH PLASTIC AND PACKAGING INDUSTRIES BERHAD		
22	UM PLANTATION BERHAD	62	PRESTARANG BERHAD		
23	SIME DARBY BERHAD	63	ORIENTAL HOLDINGS BERHAD		
24	PETRONAS GAS BERHAD	64	TROPICANA CORPORATION BERHAD		
25	PETRONAS CHEMICALS GROUP BERHAD	65	MASTER-PAK GROUP BERHAD		
26	NESTLE (M) BERHAD	66	DIALOG GROUP BERHAD		
27	DIGLOOM BERHAD	67	SAPURAKENCANA PETROLEUM BERHAD		
28	KUMPULAN PERANGSANG SELANGOR BERHAD	68	GENTING PLANTATIONS BERHAD		
29	KPI HEALTHCARE BERHAD	69	MAGNUM BERHAD		
30	GENTING MALAYSIA BERHAD	70	C. I. HOLDINGS BERHAD		
31	IOI CORPORATION BERHAD	71	IQ GROUP HOLDINGS BERHAD		
32	PETRONAS DAGANGAN BERHAD	72	CYPARK RESOURCES BERHAD		
33	MALAYSIAN RESOURCES CORPORATION BERHAD	73	GAMUDA BERHAD		
34	ALLIANZ MALAYSIA BERHAD	74	HONG LEONG BANK BERHAD		
35	GENTING BERHAD	75	CARLSBERG BREWERY (M) BERHAD		
36	MALAYSIA MARINE AND HEAVY ENGINEERING BERHAD	76	PLENITUDE BERHAD		
37	MSM MALAYSIA HOLDINGS BERHAD	77	ENGTEX GROUP BERHAD		
38	BIMB HOLDINGS BERHAD	78	ECS ICT BERHAD		
39	MISC BERHAD	79	SURIA CAPITAL HOLDINGS BERHAD		
40	MALAYSIA BUILDING SOCIETY BERHAD	80	FOCUS POINT HOLDINGS BERHAD		

Source: MSWG. (2023). *Top 100 Companies by Ranking.*

3.2.2 Sampling Size

The research intends to choose a sample of the Top 100 PLCs in Malaysia, selected according to their market capitalization. The data for this sample covers a five-year period, spanning from 2017 to 2021. The implications of the Companies Act of 2016, which became effective on January 31, 2017 (MCCG, 2021), remains one of the main reasons for this time frame. As a consequence, the data was collected over a five-year period to ensure more insightful research outcomes. However, only non-financial industry companies are being selected. Due to the specific regulatory requirements the financial sector's companies face in Malaysia, notably those imposed by Bank Negara Malaysia (BNM), companies related to banking, insurance, trust and funds, as well as securities are not part of the sample, even though some of them may be listed in the top 100 companies in Malaysia. To determine the final and qualifying dataset, the sample size will undergo a filtration process and those with missing reporting data related to the study during 2017 to 2021 will be excluded. Thus, only 29 companies will be employed to generate data for helpful findings as they fulfill the aforementioned criteria.

Table 3.1 List of Malaysian PLCs for the Study

1 Astro Malaysia Holdings Berhad	16 Malaysia Airport Holdings Berhad
2 Axiata Group Berhad	17 Malaysia Marine And Heavy Engineering Berhad
3 British American Tobacco (M) Berhad	18 Maxis Berhad
4 Bumi Armada Berhad	19 Media Prima Berhad
5 Bursa Malaysia Berhad	20 Nestle (M) Berhad
6 Dialog Group Berhad	21 Petronas Chemicals Group Berhad
7 Digi.Com Berhad	22 Petronas Dagangan Berhad
8 Gamuda Berhad	23 Petronas Gas Berhad
9 Genting Malaysia Berhad	24 Sime Darby Berhad
10 Genting Plantations Berhad	25 Telekom Malaysia Berhad
11 Hap Seng Consolidated Berhad	26 Tenaga Nasional Berhad
12 Hartalega Holdings Berhad	27 UEM Sunrise Berhad
13 IHH Healthcare Berhad	28 UMW Holdings Berhad
14 IOI Corporation Berhad	29 Westports Holdings Berhad
15 Kuala Lumpur Kepong Berhad	

3.2.3 Sampling Technique

Non-probability sampling is used to identify the research's actual results. This sampling technique pertains to a statistical population where the odds of selection are either uncertain or uneven (Turner, 2020). It indicates that some elements have no likelihood of getting selected, while others hold an unknown possibility of getting selected (Turner, 2020). A diverse range of non-probability sampling techniques are often described by the term 'purposive sampling' (Andrade, 2021). Purposive sampling involves selecting entities such as individuals, cases, organizations, occurrences, or data pieces for examination by considering the researcher's subjective judgment (Andrade, 2021). It is a form of non-probability sampling where the scholar selects companies for the sample depending on factors like their industry, field, business nature, and other criteria (Andrade, 2021). Consequently, the main goal of purposive sampling is to focus on particular characteristics within a group that are relevant for addressing research questions effectively (Andrade, 2021). Thus, non-probability sampling technique, a focused selection based on relevant characteristics, is well-suited for this research since it evaluates the greenwashing strategy or activity practiced by the top 100 Malaysian companies.

3.3 Data Collection Method

3.3.1 Secondary Data

Secondary data refer to the data produced by different scholars and are readily available to scholars for the purpose of acquiring dependable and credible information (Hox &

Boeije, 2005). In essence, secondary data is utilized to avoid the need to initiate entirely new research, thereby saving both time and money (Clark, 2013). For the research analysis, the most appropriate span of years for the secondary data collected is from 1984 to 2023. This type of data's reliability, accuracy, and comparability across various sources have often been verified. For instance, current population data can be sourced from official government websites to further support the research study (Turner, 2020). Considering the numerous reliable and precise historical research findings, the data quality used in the present research is thus appropriate and acceptable (Turner, 2020).

For the proposed study, the main data will come from secondary sources, including credible websites like Google Scholar, which have made numerous scholarly theses available to the researchers. All the variables required for this study are obtained from reliable sources as well, namely Refinitiv database and the publicly-available annual reports of the chosen Public Limited Companies (PLCs). The annual reports are obtained either from Bursa Malaysia or the official websites of the respective PLCs. These publicly accessible data sources are widely recognized for allowing academics to access reliable statistical information more easily (Turner, 2020).

3.3.2 Research Instrument

Most of the pertinent data is collected from sources like Refinitiv database and the annual reports of the companies selected. In the era of digitalization, these essential annual reports can be conveniently accessed via the official websites of the organizations or the main stock exchange websites of their respective countries. Subsequently, all the variables are subjected to testing using EViews 12 Student Version Lite during the descriptive, Pearson correlation, and panel data analyses.

3.4 Construct Measurement

The foundation of the construct was adopted from prior research, as elaborated in Chapter 2. This study employs one dependent variable, one independent variable, one moderating variable, and two control variables. According to the research framework formulated for this study, definitions for these variables will be presented in Table 3.2, 3.3, 3.4, and 3.5, respectively.

3.4.1 Dependent Variable Definition

Return on Assets (ROA) and Return on Equity (ROE) are used as a proxy of CFP. ROA is measured as net income divided by total assets, while ROE is calculated as net income divided by total equity, both to determine accounting-based performance. These financial ratios are extensively applied in assessing corporate financial performances (Hoskisson et al., 1994). To minimize the impact of outliers, all CFP proxies would undergo winsorization on the 1st and 99th percentiles.

Table 3.2 Dependent Variables Definition

Dependent Variables	Formula	Sources
Corporate Financial Performance (CFP)		
Return on Assets (ROA)	$\frac{\text{Net Income}}{\text{Total Assets}}$	(Bhagat & Bolton, 2008) (Johari & Komathy, 2019)
Return on Equity (ROE)	$\frac{\text{Net Income}}{\text{Total Equity}}$	(Bhagat & Bolton, 2008) (Johari & Komathy, 2019)

Source: Created for this study.

3.4.2 Independent Variable Definition

Greenwashing has been defined by Delmas and Burbano (2011) as a combination of successful green communication and inadequate green practice. In empirical researches, this definition has been applied to pinpoint greenwashing by assessing the degree to which a company's green communication (encompassing symbolic actions like environmental vision, strategy claims, profiles, initiatives, and stakeholder engagement) exaggerates its actual green practice (including substantive actions like environmental performance, green investment and expenditure, pollution prevention, green supply chain management, and green product development) (Du et al., 2018). Building upon the studies mentioned earlier, Li et al. (2023) operationally delineate greenwashing as the variance between the indices of green communication and green practice. A larger difference between these indices signifies a higher degree of greenwashing. Consequently, green communication index (GCI) and green practice index (GPI) are constructed to formulate the greenwashing index (GWI) using the information derived from GCI and GPI.

Table 3.3 Independent Variables Definition

Independent Variables	Formula	Sources
Greenwashing		
Green Practice	Green Practice Index (GPI)	(Barontini et al., 2017) (Li et al., 2023)
Green Communication	Green Communication Index (GCI)	(Barontini et al., 2017) (Li et al., 2023)

Source: Created for this study.

For the development of GCI and GPI, the researchers constructed scales for green communication and green practice, with the possibility of summing up the items on each scale (Abbott & Monsen, 1979). Coding for the items involved binary categorization or conversion to a sliding scale, especially when dealing with quantities or levels of intensity. The final coding framework included four major categories for green communication, totaling 20 items, and four categories for green practice, comprising 37 items. Detailed definitions for each category are outlined in Table 3.3.1 and 3.3.2.

Table 3.3.1 Green Communication Definition

Variable	Description
Green Communication	<p>Environmental Profile (max score is 7):</p> <ul style="list-style-type: none"> Corporate Responsibility Awards (0-1) CSR Sustainability Committee (0-1) Integrated Strategy in MD&A (0-1) CSR Sustainability Reporting (0-1) GRI Report Guidelines (0-1) CSR Sustainability Report Global Activities (0-1) CSR Sustainability External Audit (0-1) <p>Environmental Initiative (max score is 7):</p> <ul style="list-style-type: none"> Environment Management Team (0-1) Environment Management Training (0-1) Emissions Trading (0-1) ISO 14000 or EMS (0-1) Environmental Restoration Initiatives (0-1) Take-back and Recycling Initiatives (0-1) Climate Related Risks Assessment Process (0-1) <p>Stakeholder Engagement (max score is 3):</p> <ul style="list-style-type: none"> Environmental Partnerships (0-1) Global Compact Signatory (0-1) Stakeholder Engagement (0-1) <p>Green Vision (max score is 3):</p> <ul style="list-style-type: none"> Targets Water Efficiency (0-1) Targets Energy Efficiency (0-1) Targets Emissions (0-1)

Source: Created for this study.

Table 3.3.2 Green Practice Definition

Variable	Description
Green Practice	Environmental Performance (max score is 42):
	Energy Use Total (0-3)
	Total Renewable Energy (0-3)
	Renewable Energy Use (0-3)
	Water Recycled (0-3)
	CO2 Equivalent Emissions Total (0-3)
	Waste Total (0-3)
	Non-Hazardous Waste (0-3)
	Waste Recycled Total (0-3)
	Hazardous Waste (0-3)
	Waste Control (0-3)
	Environmental Expenditures (0-3)
	Environmental Provisions (0-3)
	Environmental Investments Initiatives (0-3)
	Environmental R&D Expenditures (0-3)
	Pollution Prevention (max score is 13):
	Resource Reduction Policy (0-1)
	Policy Water Efficiency (0-1)
	Policy Energy Efficiency (0-1)
	Policy Sustainable Packaging (0-1)
	Toxic Chemicals Reduction (0-1)
	Policy Emissions (0-1)
	Biodiversity Impact Reduction (0-1)
	NOx and SOx Emissions Reduction (0-1)
	VOC Emissions Reduction (0-1)
	Particulate Matter Emissions Reduction (0-1)
	Waste Reduction Initiatives (0-1)
	e-Waste Reduction (0-1)
	Staff Transportation Impact Reduction (0-1)
	Environmental Supply Chain Management (max score is 5):
	Policy Environmental Supply Chain (0-1)
	Environmental Materials Sourcing (0-1)
	Environmental Supply Chain Management (0-1)
	Environmental Supply Chain Monitoring (0-1)
	Environmental Supply Chain Partnership Termination (0-1)
	Green Production (max score is 5):
	Environmental Products (0-1)
	Eco-Design Products (0-1)
	Product Impact Minimization (0-1)
	Product Environmental Responsible Use (0-1)
	Renewable/Clean Energy Products (0-1)

Source: Created for this study.

Finally, all the sustainability reports of the sample are evaluated, utilizing the green communication and green practice scales. GCI was computed by averaging a firm's green communication item scores for a specific year, while GPI was determined by averaging the values of green practice items for the same year. GWI is derived as the discrepancy between standardized GCI and standardized GPI. Both GCI and GPI undergo standardization through the subtraction of sample means and division by sample standard deviations (Baum et al., 2006). This standardization ensures proper comparability of the indices, allowing for an accurate depiction of the difference between green practices and communications (Testa, Miroshnychenko, et al., 2018). The formula for computing GWI is as follows:

$$GWI_{it} = \frac{(GCI_{it} - \overline{GCI})}{\sigma_{GCI}} - \frac{(GPI_{it} - \overline{GPI})}{\sigma_{GPI}}$$

where GCI_{it} and GPI_{it} are GCI and GPI of firm i in year t . The sample means of GCI and GPI are represented by \overline{GCI} and \overline{GPI} , while sample standard deviations of GCI and GPI are σ_{GCI} and σ_{GPI} .

3.4.3 Moderating Variable Definition

With respect to the moderating variables, three corporate governance characteristics related to the board of directors are utilized. They are conventionally linked to addressing agency problems, which include: firstly, the board size, quantified by the number of board members (SIZE); secondly, board independence, assessed as the percentage of independent directors (IND); and thirdly, board diversity, denoted by the proportion of female directors in the board of a company (DIV).

Table 3.4 Moderating Variables Definition

Moderating Variables	Formula	Sources
Corporate Governance (CG)		
Board Size	Number of Board Members	(Karim et al., 2022)
Board Independence	Percentage of Independent Directors	(Kweh et al., 2022)
Board Diversity	Share of Board Females Directors	(Ghitti et al., 2023)

Source: Created for this study.

3.4.4 Control Variable Definition

Bigger enterprises possess greater resources to seize business prospects in sectors demanding substantial capital investments. This circumstance allows them to capitalize on economies of scale and exploit imperfect competition dynamics (Baumol, 1967). This correlation has been validated in prior research endeavors (Hall & Weiss, 1967; Serrasqueiro & Nunes, 2008). Thus, to control the effect of firm size, natural logarithm of total assets (LNTA) is used as a proxy for firm size (Kieschnick & Moussawi, 2018).

In the context of corporate finance, capital structure refers to the mix of financing sources a company utilizes to support its operations and investments (Le & Phan, 2017). The control variable for capital structure often involves assessing the proportion of capital derived from creditors in relation to the overall capital (Patrisia, 2020). Total Debt Total Asset (TDTA) ratio is applied as a proxy of capital structure, calculated by dividing total debt by total assets. This ratio offers insights into the extent to which a firm relies on debt financing compared to its overall asset base, providing a valuable measure for evaluating the financial risk and leverage of a company.

Table 3.5 Control Variables Definition

Control Variables	Formula	Sources
Board Size	Total Asset	(Kieschnick & Moussawi, 2018)
Capital Structure	$\frac{\text{Total Debt}}{\text{Total Asset}}$	(Le & Phan, 2017)

Source: Created for this study.

3.5 Proposed Data Analysis Tool

Data analysis refers to the process of employing statistical data to delineate, assess, and interpret data appropriately with proposed analyzing tools (Albers, 2017). In response to this study, three data analysis tools have been adopted, namely descriptive analysis, Pearson correlation analysis, and panel data analysis.

3.5.1 Descriptive Analysis

Descriptive analysis entails the act of defining, assessing, and accurately interpreting data using statistical data. It facilitates the conversion of raw data into important information that is easier to understand and interpret. The analysis of the present research mainly serves to calculate the mean and standard deviation of the variables

under examination. The outcomes of the analysis will be utilized to represent the target population (Loeb et al., 2017).

3.5.2 Pearson Correlation Analysis

The table below presents the Pearson Correlation Coefficient's rules of thumb, which will be applied to assess the magnitude, statistical significance, and motion of the relationship among dependent and independent variables. The correlation range will span from -1.0 to +1.0, where a negative sign (-) denotes a correlation relationship that is negative, while a positive sign (+) signifies a correlation relationship that is positive (Guetterman, 2019).

Table 3.6 Rule of Thumb of Pearson Correlation Analysis

Coefficient Range	Strength of Association
± 0.91 to ± 1.00	Very Strong
± 0.71 to ± 0.90	High
± 0.41 to ± 0.70	Moderate
± 0.21 to ± 0.40	Small but definite relationship
± 0.00 to ± 0.20	Slight, almost negligible

Source: Hair, J., Money, A., Samuel, P., & Page, M. (2007). *Research methods for business*. New York: John Wiley & Sons, Inc.

3.5.3 Panel Data Analysis

Panel data analysis proved to be the primary approach employed in studying the topic. The analysis comprises two key elements. Initially, a correlation analysis will be conducted before a regression analysis is being carried out. The correlation analysis is necessary to ascertain the nature of the connection between explanatory variables under investigation and dependent variables. Additionally, it reveals if multi-collinearity has an impact on these explanatory variables (Hsiao, 2022). According to Hooy & Tee (2009), pooled data, which combines cross-sectional and time-series data, offers greater variability, information, degrees of freedom, and effectiveness. Panel data is the most effective approach when dealing with data that spans both time periods and cross-sections. This analysis assists in identifying more intricate behavioral models relying on a less restrictive assumption (Gujarati, 2022).

Consequently, the following fixed-effect panel regression model is employed to assess the hypotheses:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{GWI}_{it} + \beta_2 \text{GWI}_{it} * \text{SIZE} + \beta_3 \text{GWI}_{it} * \text{IND} + \beta_4 \text{GWI}_{it} * \text{DIV} + \beta_5 \text{SIZE}_{it} + \beta_6 \text{IND}_{it} + \beta_7 \text{DIV}_{it} + \beta_8 \text{Controls}_{it} + \varepsilon_{it}$$

$$\text{ROE}_{it} = \beta_0 + \beta_1 \text{GWI}_{it} + \beta_2 \text{GWI}_{it} * \text{SIZE} + \beta_3 \text{GWI}_{it} * \text{IND} + \beta_4 \text{GWI}_{it} * \text{DIV} + \beta_5 \text{SIZE}_{it} + \beta_6 \text{IND}_{it} + \beta_7 \text{DIV}_{it} + \beta_8 \text{Controls}_{it} + \varepsilon_{it}$$

where the ROA_{it} and ROE_{it} represent the dependent variable, serving as a proxy for CFP. Meanwhile, GWI_{it} represents the independent variable, acting as a proxy for the greenwashing communication strategy. Additionally, there are three moderating variables: SIZE_{it} , which stands for board size; IND_{it} , representing board independence;

and DIV_{it} , representing board diversity, serving as a proxy for CG. $Controls_{it}$ encompasses a vector of control variables. Finally, ε_{it} represents the error term.

3.6 Conclusion

This chapter outlines the research methodologies employed to assess and measure the study's outcomes. These methods are utilized for data collection and compilation, with the subsequent chapter focusing on the thorough analysis of these data. Chapter 4 aims to identify the interrelationships among various variables and empirically address the effects of greenwashing on CFP in Malaysia moderated through CG.

Chapter 4: Data Analysis

4.0 Introduction

This chapter presents the outcomes of the study, which were analyzed using EViews 12 Student Version Lite. The examination of secondary data from 2017 to 2021 comprising 29 PLCs in Malaysia is aimed to establish connections between the variables. The descriptive analysis encompasses metrics such as median, mean, maximum, and minimum values, along with standard deviations for all variables. To assess the significance of explanatory variables, panel data regression will be employed. Subsequently, a comprehensive and in-depth description of the explanatory data will be presented based on the study's results.

4.1 Descriptive Analysis

Table 4.1 displays the descriptive statistics of the variables for five years. It is evident that ROA has a minimum value of -37.961, a maximum of 194.973, and a mean of 17.163. While ROE's minimum value is -77.785, maximum is 195.248, and mean is 20.401, both suggesting substantial variations in the financial performance among the sampled companies. In addition, ROA and ROE show the standard deviation of 37.548 and 40.856, respectively.

According to the results of the independent and moderating variables, GWI exhibits a minimum value of -1.996, a maximum of 2.256, and a mean of 0.145, indicating an

uneven level of greenwashing. While the SIZE's minimum value is 6, the maximum is 13, and the mean is 9.83, signifying considerable difference in board size across companies. For IND, the minimum value is 25, the maximum is 93.75, and the mean is 53.354, indicating the inclusion of companies with both high and low levels of board independence in the sample. Finally, DIV has a minimum value of 0, a maximum of 57.14, and a mean of 27.081, highlighting significant variations in the diverse board composition of the companies.

The highest standard deviation is 97.56, which falls under TDTA. It has a minimum value of 0, a maximum of 690.09, and a mean of 41.845, indicating a wide range in the financial leverage or debt structure among the sampled companies. While for LNTA, the minimum value is 9.124, the maximum is 17.32, and the mean is 14.837, highlighting the diverse scale of total assets across the sample.

Table 4.1 Descriptive Analysis

Variable	Mean	Std. Dev.	Min	Max	Observations
ROA	17.163	37.548	-37.961	194.973	145
ROE	20.401	40.856	-77.785	195.248	145
GWI	0.145	0.795	-1.996	2.256	145
GWI*SIZE	1.535	7.973	-21.953	25.984	145
GWI*IND	6.064	46.605	-165.909	112.780	145
GWI*DIV	3.562	24.619	-88.485	99.193	145
SIZE	9.083	1.702	6.000	13.000	145
IND	53.354	12.471	25.000	93.750	145
DIV	27.081	12.413	0.000	57.140	145
LNTA	14.837	2.280	9.124	17.320	145
TDTA	41.845	97.560	0.000	690.090	145

4.2 Pearson Correlation Analysis

This analysis aimed to affirm the study's validity and explain the relationship among the independent variables. Multicollinearity concerns emerge when two or more independent variables exhibit strong correlations, signaling an adverse impact on regression outcomes (Hair et al., 2014). Excessive correlation has the potential to compromise the reliability of the regression. Table 4.2 showcases a pairwise correlation, providing a visual representation of the interdependence among variables relevant to this analysis.

The table demonstrates a positive association between ROA and ROE. As per the findings, the correlation between ROA and ROE seems substantial, registering a peak of 0.9567 in contrast to the lower correlation coefficient values of other independent variables. This represents that the degree of multicollinearity is high (Anderson et al., 2013). However, ROA shows negative associations with greenwashing, board size, and board independence. Correspondingly, these same independent factors also display unfavorable relationships concerning ROE. Other than that, the p-values from the obtained results indicate that greenwashing, board size, and board independence all have values less than or close to 0.05, specifically 0.0537, 0.0001, and 0.0223, respectively. This suggests a significant correlation between these variables and the dependent variable. In contrast, board diversity shows positive correlations with both ROA and ROE, as evidenced by correlation coefficients of 0.3272 and 0.3091, respectively. The significant correlation between board diversity and ROA, as well as board diversity and ROE, was indicated by the p-values of 0.0001 and 0.0002, respectively.

Table 4.2 Pearson Correlation Analysis

Covariance											
Probability	ROA	ROE	GWI	GWI*SIZE	GWI*IND	GWI*DIV	SIZE	IND	DIV	LNTA	TDTA
ROA	1 -										
ROE	0.9567* (0)	1 -									
GWI	-0.1606* (0.0537)	-0.2215* (0.0074)	1 -								
GWI*SIZE	-0.1344* (0.107)	-0.2012* (0.0152)	0.9839* (0)	1 -							
GWI*IND	-0.0944* (0.2588)	-0.1797* (0.0306)	0.9709* (0)	0.9637* (0)	1 -						
GWI*DIV	-0.2176* (0.0085)	-0.2762* (0.0008)	0.9254* (0)	0.9117* (0)	0.8904* (0)	1 -					
SIZE	-0.3137* (0.0001)	-0.2710* (0.001)	0.1630* (0.0501)	0.2042* (0.0138)	0.0916* (0.2734)	0.1009* (0.2274)	1 -				
IND	-0.1897* (0.0223)	-0.1151* (0.1682)	-0.1690* (0.0421)	-0.1985* (0.0167)	-0.2146* (0.0095)	-0.1398* (0.0935)	0.0801* (0.3381)	1 -			
DIV	0.3272* (0.0001)	0.3091* (0.0002)	-0.0369 (0.6596)	-0.0511 (0.5417)	-0.0293 (0.7266)	-0.0604* (0.4706)	-0.1244* (0.1362)	-0.1487 (0.0742)	1 -		
LNTA	-0.1897* (0.0223)	-0.1791* (0.0311)	0.2070* (0.0125)	0.1735* (0.0369)	0.1640* (0.0486)	0.1492* (0.0733)	-0.0084 (0.9202)	-0.2107* (0.0110)	-0.0601 (0.4726)	1 -	
TDTA	-0.0831* (0.3206)	-0.1227* (0.1415)	0.1010* (0.2266)	0.0926* (0.2679)	0.1116* (0.1816)	0.1377* (0.0985)	0.1381* (0.0977)	-0.0080 (0.9235)	0.1961* (0.0181)	-0.1809* (0.0294)	1 -

Note – Figures in bracket are categorized as p-values.

4.3 Panel Data Analysis

Table 4.3 presents the estimation findings from the panel regression analysis, where the relationship between independent and dependent variables is examined. As shown in the table, it indicates a significant and negative correlation between greenwashing (GWI) and ROA ($\beta = -27.11$, $p < 0.05$), as well as ROE ($\beta = -6.708$, $p < 0.05$), thereby supporting H1. These results imply that stakeholders may easily discern greenwashing, contributing to a deterioration in corporate financial performance (CFP). This contrasts sharply with the conclusions drawn in previous researches (Walker & Wan, 2012; Steinmeier, 2016), which proposed that greenwashing has a positive or insignificant impact on financial performance.

Moreover, it is observed that the interaction coefficient between greenwashing (GWI) and board size (SIZE) is both positive and insignificant (ROA: $\beta = 3.516$, $p > 0.05$; ROE: $\beta = 3.113$, $p > 0.05$). Consequently, board size (SIZE) may act as a positive moderator, increasing the negative correlation between greenwashing and corporate financial performance, thus not supporting H2. Moving to board independence (IND), the interaction coefficient between greenwashing (GWI) and IND is positive but lacks significance ($\beta = 0.227$, $p > 0.1$), suggesting insufficient evidence that board independence may positively moderate the negative relationship between greenwashing and corporate financial performance. Therefore, H3 is not supported as well. Lastly, the interaction coefficient between greenwashing (GWI) and board diversity (DIV) is both negative and highly statistically significant (ROA: $\beta = -0.784$, $p < 0.01$; ROE: $\beta = -0.882$, $p < 0.01$). This implies that board diversity (DIV) negatively moderates the negative relationship between greenwashing and financial performance, aligning with H4. A complete Panel Data Regression analysis data pertaining ROE and ROE is presented in the table below (refer to Table 4.3).

Table 4.3 Panel Data Analysis

ROA					ROE				
Variable	Coefficient	Std. Err.	t-Statistic	P>t	Variable	Coefficient	Std. Err.	t-Statistic	P>t
GWI	-27.110**	12.899	-2.102	0.039	GWI	-6.708**	3.050	-2.199	0.033
GWI*SIZE	3.516*	2.043	1.721	0.088	GWI*SIZE	3.113	2.296	1.356	0.177
GWI*IND	0.227	0.260	0.872	0.385	GWI*IND	-0.066	0.293	-0.224	0.823
GWI*DIV	-0.784***	0.288	-2.725	0.007	GWI*DIV	-0.882***	0.323	-2.729	0.007
SIZE	-5.927***	1.783	-3.324	0.001	SIZE	-5.621***	2.003	-2.806	0.006
IND	-0.379*	0.224	-1.693	0.093	IND	-0.285	0.252	-1.133	0.259
DIV	1.008***	0.221	4.553	0.000	DIV	1.086***	0.249	4.368	0.000
LNTA	-4.988***	1.376	-3.626	0.000	LNTA	-5.502***	1.545	-3.56	0.001
TDTA	-0.081**	0.032	-2.528	0.013	TDTA	-0.102***	0.036	-2.856	0.005
Constant	141.266***	29.525	4.785	0.000	Constant	142.908***	33.171	4.308	0.000
ROA					ROE				
R-Square			0.3692		R-Square			0.3275	
Adjusted R-Square			0.3271		Adjusted R-Square			0.2826	
F-Statistic			8.78		F-Statistic			7.3	
No of Observation			145		No of Observation			145	

Note – The asterisks * implies significant p-value < 10%, ** implies significant at p-value < 5%, *** implies significant at p-value < 1%.

The adjusted R-square values stand at 0.3271 and 0.2826 for ROA and ROE, respectively, suggesting that the independent and control variables account for 32.71% and 28.26% of the variance in the equations. Additionally, the probability (F-statistics) for ROA and ROE is 8.78 and 7.3, respectively, signifying the overall model's statistical significance. To summarize, greenwashing and board diversity emerge as the most crucial predictive factors, exhibiting a significance level below 5% and 1%, respectively, in the equation for ROA and ROE. This indicates a significant negative influence of greenwashing on both ROA and ROE, negatively and highly significantly moderated by board diversity. Conversely, board size and board independence showcase a significance level greater than 5% and 10%, respectively, implying an insignificant or unfavorable association with both ROA and ROE.

4.4 Summary of Hypothesis Results

Table 4.4 Summary of Hypothesis Results

Hypothesis	Significance Value (p-value)		Supported
	ROA	ROE	
H1 : The greenwashing strategy has a negative effect on CFP.	0.039 (p<0.05)	0.033 (p<0.05)	Supported
H2 : Board size negatively moderates the effect of greenwashing strategy on CFP.	0.088 (p>0.05)	0.177 (p>0.05)	Not Supported
H3 : Board independence positively moderates the effect of greenwashing strategy on CFP.	0.385 (p>0.05)	0.823 (p>0.05)	Not Supported
H4 : Board diversity negatively moderates the effect of greenwashing strategy on CFP.	0.007 (p<0.05)	0.007 (p<0.05)	Supported

Source: Created for this study.

4.5 Conclusion

In this chapter, an overview is provided for the collected data. Various research analysis approaches and hypotheses have been investigated to examine the connection between the explanatory and response variables in the regression model. The empirical results have been elucidated and represented through tables and figures. A concise overview of the main findings, outcomes, limitations, and recommendations for the overarching research will be delineated in the upcoming chapter.

Chapter 5: Discussion, Conclusion & Implications

5.0 Introduction

In this chapter, an analysis of the research findings and their implications will be undertaken. Additionally, the limitations of the study will be deliberated upon, aiming to provide insights for future researchers to improve the study's quality and outcomes. The chapter concludes with potential recommendations to assist upcoming researchers in areas that might prove beneficial for their studies.

5.1 Discussion on Findings

Unlike the majority of earlier empirical research (Schons & Steinmeier, 2016; Li et al., 2023), which concluded that greenwashing had a beneficial impact on CFP, this study finds that greenwashing had a negative effect on CFP. This suggests that despite being considered as the Top 100 Malaysian PLCs with good disclosures, a significant proportion of greenwashing firms in the sample may not have successfully averted external scrutiny and managed to avoid reputational damage (Seele & Gatti, 2017). This discovery underscores the absence of information asymmetry in Malaysia, where stakeholders can assess the authenticity of companies' communications and are not susceptible to misinformation (Li et al., 2023). Broadly, the findings align with the perspective that financial performance is positively correlated with green practices that adhered to green communications (Brooks & Oikonomou, 2018).

However, contrary to the hypothesized negative moderation (H2), the results indicate that board size does not mitigate the negative correlation between greenwashing and CFP. This finding challenges the expectation that larger boards would potentially weaken the relationship between greenwashing activities and adverse financial performance. The existing literature raises skepticism about the cause-and-effect link between board size and improved performance (Lehn et al., 2009). According to Ghitti et al. (2023), if larger boards are not accompanied by enhanced oversight, it may create more opportunities for greenwashing. In essence, the results also suggested that the presence of independent directors on the board may not significantly amplify or mitigate the impact of greenwashing on CFP. Results by Ghitti et al. (2023) indicate, with strong statistical and economic significance, that the presence of independent directors is linked to increased instances of greenwashing. Thus, the analysis of board size and board independence as moderating factors in the greenwashing-CFP relationship does not align with the initially hypothesized moderating effects. These findings contribute to the nuanced understanding of how board characteristics may or may not influence the link between greenwashing practices and CFP.

Lastly, results show that the negative relationship between greenwashing and CFP is weakened by board diversity. Concerning environmental performance, the inclusion of women on the board proves advantageous because of the advisory roles these members can fulfill (Lu & Wang, 2021). Duygu & Çankaya (2023) also discovered that the statistical significance of board gender diversity is evident, and it exhibits negative associations with ESG greenwashing behavior. According to Velte's (2017) research, the presence of women on the board positively influences stakeholder trust, potentially resulting in improved corporate sustainability reporting and financial performance.

5.2 Implications of Study

This research offers an informational asymmetry perspective, which contributes to the discourse surrounding the relationship between greenwashing and CFP. While previous studies in environmental management have highlighted the adverse outcomes of greenwashing (Berrone et al., 2017; Ferron-Vílchez et al., 2021), they often operate under the assumption that greenwashing is conspicuous and easily detectable. In contrast, our study challenges this assumption and explores the impact of less obvious greenwashing in a context characterized by opacity. The sample deliberately excludes companies facing greenwashing allegations and encompasses industries with lower environmental impact to recognize nuanced instances of greenwashing. It reveals the reasons for the inconsistency observed in prior studies from the perspective of the study context. Academics can combine our results with those from other studies to have a comprehensive understanding of the link between greenwashing and CFP.

More significantly, this research uncovers the contextual elements that have been long neglected in the relationship between greenwashing and CFP, assuming information asymmetry. Scholars have lately recognized that public accusations and stakeholder proximity might influence stakeholders' perception of possible greenwashing (Schons & Steinmeier, 2016). This study adopts their fundamental concept but expands it by incorporating corporate governance as new contextual factor into the contingent model. To the best of our knowledge, this study represents one of the first attempts to investigate the moderating impact of corporate governance characteristics such as size, independence, and diversity of board.

Furthermore, our research offers a thorough assessment of greenwashing applicable to Malaysian-listed companies. Past researchers have examined the economic effects of greenwashing by using the 'annual list of firms with greenwashing' published in

newspapers as a proxy (Du, 2015). This approach, however, may conflate the impact of greenwashing with that of negative coverage. To address this issue, our study employs a content analysis methodology to formulate a metric grounded in the definition of greenwashing. This content analysis encompasses diverse forms of green communication and green practices across eight dimensions, where the disparity between them is assessed to quantify greenwashing. It exhibits robust reliability and validity, ensuring the reproducibility of the approach in subsequent research endeavors.

This research also contributes to the body of management literature by addressing the enduring query of whether investing valuable resources to enhance environmental performance yields profitability (Wong et al., 2018). Existing empirical models exploring the corporate environmental responsibility–CFP relationship often neglect to account for stakeholders' responses to symbolic actions. Our results illustrate that green communication without substantive green practice poses an increased risk of being perceived as greenwashing, which typically leads to an unfavorable CFP. Therefore, stakeholders' reactions to symbolic actions should be a pivotal consideration in future research concerning corporate sustainability-CFP dynamics.

Managerial implication wise, when implementing a green communication strategy, managers need to be mindful of the potential risks involved and staying attuned to board variations and alterations in the regulatory environment. To mitigate potential greenwashing accusations, public opinion monitoring can be integrated into risk assessment and strategic decision-making processes. Our research also offers practical insights for policy considerations. The Malaysian government ought to enhance existing laws and regulations to clearly define acceptable and unacceptable practices in green advertising, marketing, and corporate sustainability disclosure. There is a need to standardize the use of terms in corporate sustainability communication.

5.3 Limitations and Recommendations

This study has a limitation related to the relatively small sample size of the Top 100 Malaysian PLCs based on revenue. To enhance the precision of conclusions, it is recommended to optimize the available data. Even if the sample size surpasses the minimum standard, expanding it is advisable to avoid biased and distorted outcomes due to smaller sample size.

Moreover, the research spanned five years, covering the period from 2017 to 2021. Nonetheless, certain enterprises might have encountered fluctuations in revenue, increased indebtedness, and inconsistent performance due to the COVID-19 pandemic in 2020 and 2021, potentially influencing the study's reliability. Additionally, the study's outcomes were further influenced by the absence of published annual reports for specific years. Thus, subsequent researchers have the option to augment either the sample population or the duration of the study. There is potential to enhance both the sample size and the overall number of years, thereby enhancing the precision of the observational results and make them more representative of all Malaysian PLCs.

Another constraint stems from the scope of the study. While the greenwashing literature primarily concentrated on sustainability within the environmental domain, there is a scarcity of research investigating the separation of symbolic and substantive actions in other domains. Corporate sustainability is a multidimensional notion according to the 'triple bottom line' theory (Stiller & Daub, 2007). As a recommendation, future research on social and economic aspects should be included, as stakeholder expectations and oversight on different corporate sustainability components differ and might lead to new findings.

Lastly, in order to assess greenwashing, the present research used content analysis based on corporate sustainability reports. Content analysis relies on the presumption that companies aim to signal their commitment to environmental investment through information disclosure. Therefore, sustainability reports comprehensively document details about companies' environmental initiatives (Toms, 2002). Any inaccuracies or omissions in firms' information disclosure have the potential to undermine this assumption, thereby compromising the reliability and validity of the measurement. Hence, in order to acquire more dependable research data, we recommend that field inquiries, interviews, and surveys be employed in forthcoming studies.

5.4 Conclusion

To conclude, this chapter provides a concise overview of the empirical findings pertaining to the research objectives. It underscores various implications aimed at aiding policymakers, companies, and other stakeholders in gaining a deeper understanding of the greenwashing-CFP-CG interrelationships. The chapter closes with the identification of limitations and recommendations to assist future researchers in enhancing research quality and outcomes based on existing data.

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APPENDICES

Appendix A: EViews Statistical Results

1. Descriptive Analysis Results

Variable	Mean	Std. Dev.	Min	Max	Observations
ROA	17.163	37.548	-37.961	194.973	145
ROE	20.401	40.856	-77.785	195.248	145
GWI	0.145	0.795	-1.996	2.256	145
GWI*SIZE	1.535	7.973	-21.953	25.984	145
GWI*IND	6.064	46.605	-165.909	112.780	145
GWI*DIV	3.562	24.619	-88.485	99.193	145
SIZE	9.083	1.702	6.000	13.000	145
IND	53.354	12.471	25.000	93.750	145
DIV	27.081	12.413	0.000	57.140	145
LNTA	14.837	2.280	9.124	17.320	145
TDTA	41.845	97.560	0.000	690.090	145

2. Pearson Correlation Analysis Results

Covariance											
Probability	ROA	ROE	GWI	GWI*SIZE	GWI*IND	GWI*DIV	SIZE	IND	DIV	LNTA	TDTA
ROA	1 -										
ROE	0.9567* (0)	1 -									
GWI	-0.1606* (0.0537)	-0.2215* (0.0074)	1 -								
GWI*SIZE	-0.1344* (0.107)	-0.2012* (0.0152)	0.9839* (0)	1 -							
GWI*IND	-0.0944* (0.2588)	-0.1797* (0.0306)	0.9709* (0)	0.9637* (0)	1 -						
GWI*DIV	-0.2176* (0.0085)	-0.2762* (0.0008)	0.9254* (0)	0.9117* (0)	0.8904* (0)	1 -					
SIZE	-0.3137* (0.0001)	-0.2710* (0.001)	0.1630* (0.0501)	0.2042* (0.0138)	0.0916* (0.2734)	0.1009* (0.2274)	1 -				
IND	-0.1897* (0.0223)	-0.1151* (0.1682)	-0.1690* (0.0421)	-0.1985* (0.0167)	-0.2146* (0.0095)	-0.1398* (0.0935)	0.0801* (0.3381)	1 -			
DIV	0.3272* (0.0001)	0.3091* (0.0002)	-0.0369 (0.6596)	-0.0511 (0.5417)	-0.0293 (0.7266)	-0.0604* (0.4706)	-0.1244* (0.1362)	-0.1487 (0.0742)	1 -		
LNTA	-0.1897* (0.0223)	-0.1791* (0.0311)	0.2070* (0.0125)	0.1735* (0.0369)	0.1640* (0.0486)	0.1492* (0.0733)	-0.0084 (0.9202)	-0.2107* (0.0110)	-0.0601 (0.4726)	1 -	
TDTA	-0.0831* (0.3206)	-0.1227* (0.1415)	0.1010* (0.2266)	0.0926* (0.2679)	0.1116* (0.1816)	0.1377* (0.0985)	0.1381* (0.0977)	-0.0080 (0.9235)	0.1961* (0.0181)	-0.1809* (0.0294)	1 -

3. Panel Data Analysis Results

ROA					ROE				
Variable	Coefficient	Std. Err.	t-Statistic	P>t	Variable	Coefficient	Std. Err.	t-Statistic	P>t
GWI	-27.110**	12.899	-2.102	0.039	GWI	-6.708**	3.050	-2.199	0.033
GWI*SIZE	3.516*	2.043	1.721	0.088	GWI*SIZE	3.113	2.296	1.356	0.177
GWI*IND	0.227	0.260	0.872	0.385	GWI*IND	-0.066	0.293	-0.224	0.823
GWI*DIV	-0.784***	0.288	-2.725	0.007	GWI*DIV	-0.882***	0.323	-2.729	0.007
SIZE	-5.927***	1.783	-3.324	0.001	SIZE	-5.621***	2.003	-2.806	0.006
IND	-0.379*	0.224	-1.693	0.093	IND	-0.285	0.252	-1.133	0.259
DIV	1.008***	0.221	4.553	0.000	DIV	1.086***	0.249	4.368	0.000
LNTA	-4.988***	1.376	-3.626	0.000	LNTA	-5.502***	1.545	-3.56	0.001
TDTA	-0.081**	0.032	-2.528	0.013	TDTA	-0.102***	0.036	-2.856	0.005
Constant	141.266***	29.525	4.785	0.000	Constant	142.908***	33.171	4.308	0.000
ROA					ROE				
R-Square			0.3692		R-Square			0.3275	
Adjusted R-Square			0.3271		Adjusted R-Square			0.2826	
F-Statistic			8.78		F-Statistic			7.3	
No of Observation			145		No of Observation			145	