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ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) AND CORPORATE GOVERNANCE IN ASEAN: A THRESHOLD EFFECTS OF CORPORATE STRATEGY

Siti Nur Aqilah Ab Wahab
School of Management, Universiti Sains Malaysia and
Labuan Faculty of International Finance, Universiti Malaysia Sabah

Nik Hadiyan Nik Azman[♣]
School of Management, Universiti Sains Malaysia

Zamri Ahmad
School of Management, Universiti Sains Malaysia

ABSTRACT

Sustainable development goals (SDGs) constitute 17 sets of goals to be achieved by the end of the said year. The SDGs prioritize problems associated with hunger, inequality, climate change, environmental destruction, peace, and justice for a better global future (United Nations, 2018). This study has two objectives, first, to examine the relationship between corporate governance mechanisms and corporate sustainability performance across ASEAN-listed companies. Second, to explore the threshold effect of corporate strategy in a nexus relationship between corporate governance mechanisms and corporate sustainability performance. This study uses 118 companies in ASEAN-5 countries as study's sample. The period covers from 2011-2020. Both fixed effect model and fixed effect threshold regression are employed to capture linear and nonlinear estimation, respectively. The study validates the female directors and the independent directors on ASEAN boards positively impacts corporate sustainability. Intriguingly, the intervention of corporate strategy will mitigate the low company's ESG score while strengthening the link between corporate governance and ESG score. This study has practical implications for companies, investors, and regulators looking to in incorporate ESG factors into capital expenditure decisions and reporting.

Keywords: Environmental, social and governance; corporate governance, corporate strategy; ASEAN; Threshold regression

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1. INTRODUCTION

Sustainability is important in providing an improved current and future living standard for the population, estimated to be about 9 billion by 2050 (WEF, 2013). Investing in sustainability helps

♣ Corresponding author: School of Management, Univesiti Sains Malaysia, 11800 USM Penang, Malaysia, (+604) 653 5163, nikhadiyan@usm.my.

maintain the financial system's long-term resilience to promote accountability and a longer economic outlook (European Political Strategy Centre (EPSC, 2016). Tellingly, corporate sustainability is used as an instrument for the organization to contribute to sustainable development (Broccardo et al., 2019; Budsaratragoon & Jitmaneeroj, 2019; Lourenço & Branco, 2013). Thus, it is necessary to integrate corporate sustainability within company systems because developing and implementing new sustainability business models (SBMs) and sustainability practices will positively impact the triple bottom line (TBL) (Hahn & Kühnen, 2013; Muñoz-Torres et al., 2019). This will create sustainable value that can promote sustainable development.

The Environmental, Social and Governance (ESG) rating measures corporate sustainability performance (CSP). The ESG rating agencies provide important information that serves as a CSP reference in tracking the performance of the leading sustainability caution companies for sustainable and responsible investment (SRI) in the capital market. Furthermore, ESG rating also serves as a framework for how a company manages its risks and opportunities as market and non-market conditions changes. Therefore, it demonstrates the firm's ability to create and sustain long-term value in a rapidly changing world.

At the corporate level, corporate sustainability refers to a business and investment strategy that seeks to use the best business practices to meet and balance the need of current and future stakeholders (Artiach et al., 2010). Since companies seek long-term sustainability benefits, companies should pay attention not only to stakeholders but also to the environmental, social, political, and economic facets. Companies that successfully incorporate social and environmental aspects, and are governed effectively, can gain public confidence and attract investors, not to mention create shareholder value to sustain performance and maintain a firm reputation (Ismail & Mohd Latif, 2019; Ng & Rezaee, 2015). As a result, it assists companies in becoming more appealing investments to socially responsible investors while mitigating risks.

With regards to ASEAN regions, the level of implementation of the SDGs agenda in 2030 has reached up to six years of implementation. However, after the adoption of SDGs by ASEAN in 2015, the trend of sustainability index among these nations began to decline due to a lack of compliance, integrated policies, and coordination as well as a lack of accessibility to their corporate sustainability report (ASEAN Working Committee on Capital Market Development, 2020; United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 2020);Centre for Governance, 2018). The decreasing trend worsened with the COVID-19 outbreak in 2020. A report released by the United Nations (UN) in 2021 reveals that less than half of countries worldwide allocated only 15% for SDG in their budgets and national recovery plans (Sachs et al., 2021). This significant setback for global sustainable development has resulted in a sustainability gap. The gap shows that more effort is required to attain SDG transformation by 2030 and beyond. Hence, the decades of SDGs implementation call for a strong, multidimensional system.

Much research has investigated corporate governance as antecedents of ESG (Campanella et al., 2021; Husted & Sousa-Filho, 2019a; Lagasio & Cucari, 2019a; Mahmood, 2018; Shakil et al., 2020; Velte, 2016b, 2019). In addition, corporate strategy has also contributed to ESG (Park, 2023). However, the literature has yet to reveal any attempt to structurally map out the reciprocal relationships between corporate governance and corporate strategy and ESG in a single study. Therefore, the objective of this study is first to examine the relationship between corporate governance mechanisms and corporate sustainability performance across ASEAN-listed

companies. Objective two aims to explore the threshold effect of corporate strategy in a nexus relationship between corporate governance mechanisms and corporate sustainability performance.

The current study adds value to the existing literature on ESG (Campanella et al., 2021; El Khoury et al., 2023; Naciti, 2019b; Shrivastava & Addas, 2014) particularly focusing on the ESG ratings of public listed companies in ASEAN regions because there is insufficient literature that examines the determinants of ESG in ASEAN countries. This study is unique because it covers corporate governance variables as the determinants of ESG in ASEAN countries. In addition, the corporate strategy is employed as a threshold variable in exploring the nonlinear behavior nexus relationship between government variables and ESG. Thereby adding new literature to the existing literature on internal and external factors of ESG.

The paper is organized as follows. The next section discusses an overview on ESG in the context of ASIAN companies. Section 3 reviews the empirical literature. Section 4 explains the model, methodology and data. We report the empirical results and discuss the findings in Section 4. The final section consists of the conclusions.

1.1 An Overview of ESG in the Context of ASEAN Companies

Figure 1: Aggregate ESG Ratings for Listed Companies in ASEAN Countries and Selected Developed Countries (2015-2019)

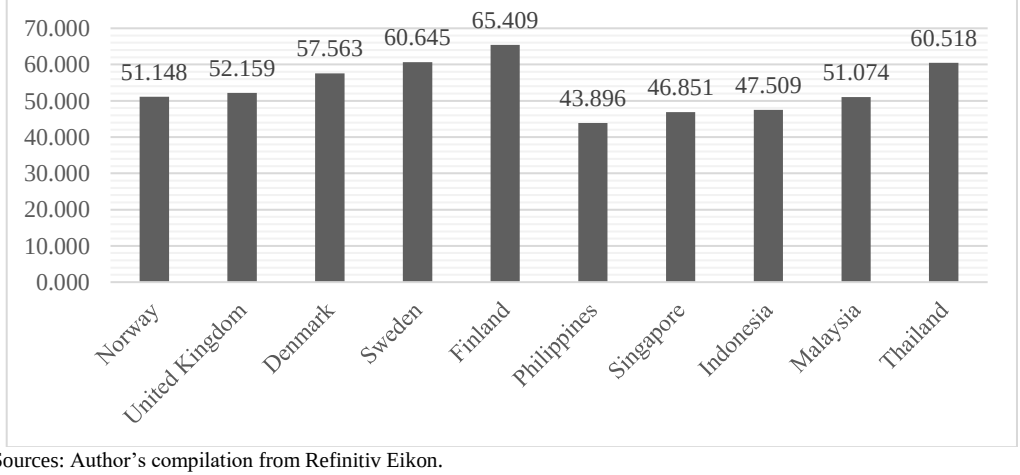

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Figure 1 shows aggregate ESG Ratings for Listed Companies in ASEAN countries and some developed countries from 2015 to 2019. Unlike in developed countries, as shown in Figure 1, the ESG score of Malaysia, Singapore, Indonesia, and the Philippines countries are lagged except for Thailand. These findings are consistent with the report by (CFA Institute, 2019; Pan, 2021; RobecoSAM, 2021). The possible explanation behind the lag is that some ASEAN countries, such as Indonesia and the Philippines, are only required by regulators to disclose information on sustainability only after the year 2020 (Indonesia Financial Services Authority (Otoritas Jasa Keuangan), 2017; Republic of the Philippines Securities and Exchange Commission, 2019). This

situation has led to insufficient data access on sustainability among those countries. This makes companies in ASEAN countries have higher ESG risks than most companies in developed countries. Thailand leads the ASEAN countries regarding ESG performance, with moderate risk exposure and a relatively good ESG rating. This information is consistent with the World ESG disclosure performance report. The Stock Exchange of Thailand (SET) ranked ninth out of 47 stock exchanges worldwide in 2019 (Corporate Knights, 2019). As of 2019, Bursa Malaysia, Singapore's stock exchange, the Philippine Stock Exchange, and the Indonesian Stock Exchange are ranked 22, 24, 30, and 36, respectively, in the World ESG Disclosure Performance Report (Corporate Knights, 2019). At the same time, the Sustainable Development Goals (SDGs) index trend shows a downward trend for all ASEAN countries from 2019 to 2021. Thailand is ranked 40th, 41st, and 43rd, while Malaysia is ranked 68th, 60th, and 65th, Singapore is ranked 66th, 93rd, and 76th, while Indonesia is ranked 102,101 and 97th. This demonstrates the importance of countries' economic and environmental activities in relation to companies' ESG performance. Therefore, it is necessary to examine this phenomenon.

Despite ASEAN's rapid GDP growth, it is less prosperous when pursued at the expense of environmental and social capital. The Intergovernmental Panel on Climate Change (IPCC) outlined how climate change will affect natural environments, land use, and ocean life in 2018 and 2019 (Schumacher et al., 2020). As a result, this report addresses climate change and human resource utilization in an indirect manner. Because of this, developing countries are more vulnerable to externalities than developed countries (Schumacher et al., 2020). This makes the environmental and social pillars critical for corporate sustainability in ASEAN regions. If a company is truly sustainable, it is expected to be socially beneficial, environmentally friendly, and profitable in the long run.

Sustainability is important for serving the interest of more than just the stakeholder and preserving the public image of a corporation. Investment in sustainability works as a preventive insurance effect for adverse ESG events. In other words, having a good ESG Score contributes to the long-term competitive advantage of the firm (Birindelli et al., 2018; Delmas et al., 2011). However, a report by Global Sustainability Investment Alliances (GSIA, 2019; Stroebel & Wurgler, 2021) revealed that many companies believe that the market still does not correctly price climate change. The rising issue with the ASEAN SDGs is that only around 60 percent of all metrics can be accomplished, with the Philippines and Indonesia achieving 57 percent, Thailand (56 percent), and Malaysia achieving 55 percent (ESCAP, 2020). Thus, to reach long-term sustainability, all companies and society need to discuss the substantial effect of the SDGs on how they communicate with customers, workers, and their climate.

In ASEAN, sustainability has emerged as a top priority for policymakers and practitioners, with several organizations integrating SDGs into their processes and activities to promote efficiency and foster a more sustainable socio-economic development orientation (CIMB, 2018; ESCAP, 2020). A clear illustration of the challenges faced can be observed in the ranking variability of Malaysia according to the Global Green Economic Index (GCEI) between 2014 and 2018, which assesses nations' environmental commitments and green success. In 2014, Malaysia occupied the 35th position among 60 nations. However, its ranking dropped to 65th out of 80 nations in 2016 and further declined to 55th out of 130 nations in 2018, indicating a significant downward trend compared to the 2014 ranking (Dual Citizen LLC., 2015, 2017, 2019).This decline highlights the challenge faced by ASEAN countries in striking a balance between environmental preservation

and socio-economic growth. Consequently, scholars, professionals, and regulators express deep concern, highlighting the urgency to address sustainability concerns and promote the long-term viability of businesses.

The need to evaluate the determinants of corporate sustainability in the light of corporate governance thus crucial for companies to achieve green development and to help form a firm and systemic culture toward corporate sustainability. Moreover, with a green economy, nations would have strong economic and social justifications. Considering the growing interest in corporate reporting and the effects of a high sustainability score benefit various stakeholders, including shareholders, further analysis in the area is anticipated.

2. LITERATURE REVIEW

2.1 Agency Theory

Agency theory was introduced by Alchian and Demsetz in 1972, and Jensen Meckling provided further clarity on this topic in 1976 (Mohd Saad et al., 2019). The agency theory indicates that there is an agency relationship between the organization's owner (shareholders) and the appointed agents (board of directors) in which the agents are given the decision-making authority on behalf of the shareholders (Salvioni et al., 2016). Thus, conflicts of interest arise due to the separation of ownership (shareholders) and control (board of directors) (Gupta et al., 2010). Agents are individuals' shareholders select to represent them and make operational decisions on their behalf. However, it is possible for the board of directors, as agents, to prioritize their interests rather than acting in the best interests of the shareholders. In other words, shareholders and board members are assumed to act in a way that maximizes their benefits. Both parties strive to maximize the overall value derived from the resources at hand. Consequently, there may be no incentive for the board of directors to prioritize the best interests of the shareholders. As a result, this theory proposes a principle to reduce agency costs, including monitoring, bonding, and residual loss, thus improving company performance (Ismail et al., 2019b). The application of corporate governance as an internal and external control mechanism is suggested by agency theory to minimize the conflict of interest between managers and shareholders.

In numerous studies concerning corporate sustainability performance or ESG disclosure, researchers have utilized agency theory to elucidate the significance of diverse corporate governance practices (Aboud & Diab, 2018; Buallay, 2019; Buallay & Al-Ajmi, 2018; Cucari et al., 2018c; Naciti, 2019b) as the agency theory provides a strong framework for connecting sustainability disclosure practices to corporate governance. In a scenario where information asymmetry exists within a widely distributed ownership setting, corporations will furnish supplementary information to mitigate agency expenses and address informational imbalances (Santos et al., 2019). According to Peters and Romi (2014), within a market that values sustainable business practices, participants in corporate governance are motivated to counter information asymmetry between managers and stakeholders by providing clear environmental disclosures. This action serves to enhance the company's environmental credibility, protect the reputations of those responsible for environmental governance, and potentially gain legitimacy in the domain of environmental responsibility. This holds significance because the corporate governance

mechanism plays a vital role in handling the environmental and climate-related risks faced by a company and overseeing its involvement in carbon initiatives (Haque, 2017; Peters & Romi, 2014). Additionally, agency theory in relation to sustainability disclosure practices serves as a signal for assessing stakeholders' overall engagement in proactive activities such as strong corporate governance, proactive environmental strategy, and robust corporate social responsibilities to capture an organization's greater complexity as a complementary mechanism for improving relationships with a broader group of stakeholders than just shareholders (Michelon & Parbonetti, 2012). Based on the agency theory, ESG-based policies tend to motivate executives to prioritize carbon reduction initiatives that can be easily conveyed to the market and other stakeholders. Consequently, this focus leads to enhanced financial performance for the company (Haque, 2017). Additionally, Peng and Isa (2020) extended the agency theory to cover Shariah-affiliated companies' ESG engagement. They proposed that agency problems may be equally applicable to Shariah-affiliated companies making ESG decisions. This means that companies that closely monitor their ESG activities as part of their strategy are able to create value and communicate to stakeholders about their ESG initiatives in a competitive market, which benefits the companies in the short and long term.

2.1 Board Size and ESG

The term “Board size” refers to the total number of directors on the Board of Directors (García-Izquierdo et al., 2018; Husted & Sousa-Filho, 2019b; Nasih et al., 2019; Ntim & Soobaroyen, 2013). Both large and small board size have its advantages and disadvantages respectively. Larger boards are expected to have a greater diversity of knowledge, skills, and experience, which will help improve the company's reputation and image (Ntim & Soobaroyen, 2013; Zahid et al., 2020a) broader network and connections, which in turn can lead to improved company performance (Bunget et al., 2020), greater disclosure of information voluntarily (Lagasio & Cucari, 2019b) and more effective discussions can take place that can lead to well-informed decisions (Giannarakis, 2014). In terms of sustainability issues, larger boards are more likely to disclose more information about carbon emissions (Nasih et al., 2019). . It indicates that the size of a firm’s board has a significant effect on its ability to make decisions regarding how its activities affect the environment. In this regard, a large board size indicates diverse and balanced management, allowing the firm to reduce agency conflict and communicate its commitment to sustainability to other stakeholders (Bae et al., 2018).

Unfortunately, large board size has its disadvantages too. The most important issue of having a large board of directors is the increased costs, such as salary/allowances, travel and other perks that should be considered for the directors. On top of that, boardroom disputes are bound to happen, which will cause difficulty in reaching a consensus (Ujunwa, 2012), diminish performance (Jensen, 1993) and lengthen the time required to approve management proposals (Chalevas, 2011). Due to the difficulties inherent in organizing and coordinating large groups of directors, larger boards are ineffective at communicating, making poor decisions, and exercising limited control when compared to smaller boards (Arayssi et al., 2016; Ismail et al., 2019b; Jensen, 1993; Unite et al., 2019; Yunus et al., 2016). These disadvantages may eventually lead to decreased profits.

Firstly, a number of empirical and conceptual studies have investigated the relationship between board size and CSP based on developed or developing countries such as the United States (Giannarakis, 2014; Tamimi & Sebastianelli, 2017), Germany (Dienes et al., 2016), Australia

(Yunus et al., 2016), UAE (Modugu, 2020), Malaysia (Ismail et al., 2019b; Janggu et al., 2014; Zahid et al., 2020a), Pakistan (Mahmood, 2018), India (Albitar et al., 2020), Thailand, (Suttipun, 2021), Turkey (Aksoy et al., 2020), Latin America (Husted & Sousa-Filho, 2019b; Nasih et al., 2019). Some studies also focused on the international and cross-country level, for instance, Campanella et al. (2021), Bae et al. (2018), Lagasio and Cucari, (2019b), and Birindelli et al. (2018). Among the studies, (Aksoy et al., 2020; Bae et al., 2018; Birindelli et al., 2018; Cancela et al., 2020; Ismail et al., 2019b; Lagasio & Cucari, 2019b; Suttipun, 2021; Tamimi & Sebastianelli, 2017) have found that board size has a positive and statistically significant effect on CSP. A possible explanation is that a large board comprises directors with pools of diverse skills and perspectives, which can promote the culture of sustainability (Birindelli et al., 2018). In addition, large boards execute activities more effectively, encourage comparison of perspectives, offer a broader perspective of strategic objectives, and encourage management to support non-financial information (Birindelli et al., 2018; Bunget et al., 2020).

However, some scholars discovered that board size has no significant influence on the relationship with CSP (Campanella et al., 2021; Giannarakis et al., 2014; Ismail et al., 2019b). While Ismail et al. (2019c) found no significant relationship between the extent of CSP in Malaysian publicly traded companies, and Giannarakis et al. (2014) found no significant effect of board size on CSP in a sample of 100 US companies across multiple industries. The reason for this is that board efficiency compensates for the effect of the number of board members (Campanella et al., 2021).

ASEAN companies are typically family-owned, and political intervention, corporate governance, and legislation frequently favour stockholders over stakeholders (Centre for Governance, 2018; International Finance Corporation, 2019). In addition, ASEAN countries provide inadequate protection for minority shareholders due to their deficient institutions and property rights (Chuanrommanee & Swierczek, 2007; Claessens & Fan, 2002; Tahir et al., 2020). Furthermore, companies operating in emerging markets are dominated by business groups that are less transparent about ESG information (Chauhan & Kumar, 2018). Given the unique position of ASEAN countries, this study will examine the concept of larger boards in the context of ASEAN countries to comprehend the relationship between corporate governance and ESG. Consequently, this unique combination of institutional characteristics may produce results that deviate from past literature. Therefore, the hypothesis of this research is that there is a significant correlation between board size and ESG.

$H1_a$: *There is a positive influence of board size on the CSP of ASEAN-listed companies.*

2.2 Board Independence Director and ESG

The independence of the board of directors has been identified as a critical determinant of voluntary disclosure (Cucari et al., 2018b; Deesomsak et al., 2004; Husted & Sousa-Filho, 2019b; Jizi et al., 2014; Lagasio & Cucari, 2019b; Liao et al., 2015; Mahmood, 2018; Naciti, 2019a). It acts as a monitoring instrument for management activities on voluntary disclosure (Mahmood, 2018). Board independence is found to strengthen the monitoring mechanism and reduces management's withholding of information from stakeholders (Adams & Ferreira, 2007; Michelon & Parbonetti, 2012). Thus, independent directors act as a check and balance mechanism to ensure that management makes sustainability disclosure decisions in the best interests of all stakeholders, not

just shareholders (Haniffa & Cooke, 2005; Haque, 2017; Jizi et al., 2014; Michelon & Parbonetti, 2012). Indirectly, it can improve the board's ability to strike a balance between financial and sustainability practices and accountable acts on societal values and corporate legitimacy (Haque, 2017; Liao et al., 2015; Michelon & Parbonetti, 2012).

Additionally, the board's independent directors provide an essential governance structure (Bunget et al., 2020). Agency theory asserts that independent directors can effectively monitor agents' decisions because they control a majority of board seats (Naciti, 2019b). The more independent directors on the board, the more likely the board will be able to challenge top management and the more effective the board's oversight (Liao et al., 2015). The addition of more independent directors and a larger board alleviates agency conflict and sends a strong signal to the market that the interests of all investors, various stakeholders, and society are adequately represented (Bae et al., 2018). Indirectly, independent directors enhance management effectiveness by bringing a diverse perspective and representing a diverse range of stakeholder groups. According to prior research, (Choi & Psaros et al., 2013; Haniffa & Cooke, 2005; Khan et al., 2013), independent directors' pressure can both influence companies and motivate companies to prioritize corporate social responsibility and disclosure, as well as motivate companies to engage in these practices. With the assistance of effective supervision, this may encourage companies to 'behave' more corporately and engage in additional corporate activities. As a result, Yu et al. (2020) highlighted that by strengthening close monitoring and increasing scrutiny from all relevant stakeholders, sustainability information and disclosure as a whole can help reduce information asymmetry between relevant parties, thereby reducing opportunities for the company executives to engage in greenwashing.

Numerous studies have been conducted on the subject of the relationship between independent directors and CSP (Cucari et al., 2018c; Deesomsak et al., 2004; Husted & Sousa-Filho, 2019b; Jizi et al., 2014; Lagasio & Cucari, 2019b; Liao et al., 2015; Mahmood, 2018; Naciti, 2019b). While prior research has established a positive correlation between independent directors and CSP (Cucari et al., 2018c; Deesomsak et al., 2004; Husted & Sousa-Filho, 2019b; Lagasio & Cucari, 2019b; Mahmood, 2018), some studies have discovered no effect (Santos et al., 2019), or even a negative effect, of independent directors on CSP (Cucari et al., 2018c; Deesomsak et al., 2004; Husted & Sousa-Filho, 2019b; Lagasio & Cucari, 2019b; Mahmood, 2018). For example, Nasih et al. (2019) found that companies having a higher percentage of independent directors on their boards are less inclined to disclose carbon emissions information in their annual reports. Miras-Rodríguez et al. (2018) also observed a negative impact of independent directors on ESG, which they attributed to a stronger emphasis on CSR regulations in countries where the recommended proportion of independent board directors is not enforced.

On the other hand, Naciti (2019b) and Rathnayaka Mudiyanselage (2018) concluded that companies that adhere to a sustainable board policy would have boards with a higher proportion of independent directors, a significantly higher level of CSP, and a higher likelihood of producing high-quality sustainability reporting. The discrepancies in findings may be explained by the study's context, as the effectiveness of independent directors in promoting a higher level of CSP varies according to the legal environment, independence, experience, and expertise (Ntim & Soobaroyen, 2013). This view is consistent with (Mahmood, 2018), who asserts that while independent directors are viewed positively for their emphasis on ethics, the environment, and sustainability, the adverse link between independent directors and sustainability reporting can be attributed to a lack of

independence in family-owned businesses and insufficient integrity, concern, due diligence, and willingness to challenge the board for alternative viewpoints.

Investigating the correlation between independent directors and Corporate Social Performance (CSP) holds significant relevance, especially in the context of Southeast Asia, where high levels of control ownership prevail. While large shareholders can be advantageous for companies, these benefits are maximized when management is separate from ownership and shareholders can efficiently employ corporate governance mechanisms to counteract any misbehavior (Ali et al., 2021; Ferrell et al., 2016; Maher & Andersson, 2000; Nguyen, 2011). Thus, by emphasizing board independence as a monitoring practice, the board of directors can effectively monitor activities on behalf of its minority shareholders as well as external stakeholders with regard to sustainability (Cucari et al., 2018c). This is critical because independent directors are concerned about environmental and social issues and are more likely to demonstrate their willingness to act in accordance with societal expectations. When it comes to independent directors, they are more sensitive to social demands, putting them in a better position to protect the interests of stakeholders than executive board members (Yunus et al., 2016). As a result, increasing the number of independent directors on boards helps ensure the board's independence from management, objectivity, and capacity to represent diverse perspectives on the company's role in its environment, as well as the board's ability to mediate between diverse interests in the interest of effective corporate governance practices (Michelon & Parbonetti, 2012). Thus, it is anticipated that the proportion of independent directors on the board of directors will foster transparency and encourage companies to invest in more sustainable practices in the ASEAN region.

$H1_b$: *There is a positive influence of board independence on the CSP of ASEAN-listed companies*.

2.3 Female director on board and ESG

According to the agency theory perspective, boards with gender diversity can attain optimal results as they demonstrate superior monitoring outcomes when compared to all-male boards (Adams & Ferreira, 2009; García-Izquierdo et al., 2018). Female on boards refers to the percentage of seats females hold on corporate boards (Bektur & Arzova, 2022; Husted & Sousa-Filho, 2019b). The high proportion of females on the board of directors contributes to more effective corporate governance through a variety of board processes and entity interactions, as stated by ((Arayssi et al., 2016; Terjesen et al., 2009). Women on boards may be more inclined to pose challenging questions, challenge the current state of affairs, and promote more responsibility, which can improve governance practices (Galbreath, 2011; Nadeem et al., 2017). Dishonest or unethical behaviour inside the company is more unlikely to be tolerated by a diverse board that emphasizes ethical standards. As a result, there are fewer opportunities for financial scandals, fraud, or other types of misuse of stakeholder cash (Galbreath, 2011; Nadeem et al., 2017).

Besides, female on boards bring a distinct perspective and work style compared to male directors (Daily & Dalton, 2003; Giannarakis et al., 2014; Huse & Solberg, 2006), such as psychological perspectives to the board (Mahmood, 2018). As a result, a gender-diverse board makes better decisions and reduces the effects of corporate board behaviour (International Finance Corporation, 2019). Female board members are less self-centered and more committed to decision-making, which leads to increased board effectiveness (Coffey & Wang, 1998; Haque, 2017; Liao et al.,

2015). Interestingly, increasing the number of female directors broadens the board's range of viewpoints (Ntim & Soobaroyen, 2013), ensuring the inclusion of a broader range of perspectives in decision-making and improved board communication (Bear et al., 2010; Kılıç & Kuzey, 2019).

Nonetheless, firms have been receiving pressure from social and government sectors to recruit more female on corporate boards as a strategy to improve corporate oversight (Bektur & Arzova, 2022; Galbreath, 2011; García-Izquierdo et al., 2018; Tanaka, 2019). The increased representation of female on the board lends legitimacy to the firm. It also increases a company's chances of being named to the Fortune 500's list of the most admired, ethical, and best places to work (Haque, 2017; Tanaka, 2019). Female on boards can improve corporate credibility, reputation, and signalling ability of companies' sustainability (Arayssi et al., 2016; Bear et al., 2010). Although establishing adequate corporate sustainability disclosure policies necessitates a significant amount of dedication, coordination, and commitment, female directors may be more effective at improving ESG disclosures depending on the context in which they work (Bravo & Reguera-Alvarado, 2019). Nonetheless, women are underrepresented on corporate boards, and companies' sustainability reporting is perceived to be less reliable and, as a result, has little signalling power (Arayssi et al., 2016).

In this first cluster, this study distinguishes the positive significant relationship between female on board and corporate sustainability performance for various countries, including Australia (Nadeem et al., 2017), European and the United States (Birindelli et al., 2018), European (Velte, 2016b), Malaysia (Ismail et al., 2019b) and global (Naciti, 2019). The findings of these studies converge on the idea that having female representation on boards is associated with greater attentiveness to shareholders' interests and a better alignment with relational sustainability strategies. These results imply that incorporating diverse expertise and knowledge through female participation on boards could enhance the effectiveness of decision-making concerning companies' commitment to corporate sustainability. Nevertheless, the effective participation of female directors on the board will increase the overall representation of female directors on the board as a spillover effect, thus enhancing compliance with economic, environmental, and social sustainability disclosures (Zahid et al., 2020a). However, some studies also argue that higher female participation in boards enhances sustainability reporting (Arayssi et al., 2016) because female management is more likely to follow best corporate management practices (Nadeem et al., 2017). Furthermore, female board members are more likely to be concerned about the well-being of stakeholders, as any action taken by them to promote social welfare and protect the environment from harm is likely to be well-received (Zahid et al., 2020a). This is due to their ability to build relationships while managing stakeholder and firm resources (Galbreath, 2011; Nadeem et al., 2017).

On the other hand, several studies found no correlation between female on board and CSP (Galbreath, 2011; Giannarakis et al., 2014; Kılıç & Kuzey, 2019). Women have equal access to education, training, and employment as men in developed economies (Giannarakis et al., 2014). Galbreath (2011) stated that men directors may exclude female directors' input on environmental issues due to sex biases and stereotyping. Meanwhile, Kılıç and Kuzey, (2019) found that the low proportion of female directors on Turkish company boards may explain the insignificant corporate environmental performance. Underrepresented female on corporate boards, perceived inaccuracy of sustainability reporting, and low signalling power of sustainability reporting are all interconnecting factors that influence CSP. Having said that, this study is expected to discover poor

corporate sustainability performance of ASEAN countries as a result of relatively low levels of female representation on boards.

H1$_c$: *There is a positive influence of female on board on the CSP of ASEAN-listed companies.*

2.4 Corporate strategy, corporate governance and ESG

The corporate strategy emphasizes the overall mission and scope of the organization. These strategies set company goals and control how company capital is used (Boquist et al., 1998). Thus, the development of a corporate strategy begins with a company's vision for the future (Collis & Montgomery 2005, p. 11). It is a feasible strategy for bridging the gap between formulation and implementation, as corporate sustainability is a missing component and sustainability issues should be highlighted in strategic decisions (Engert & Baumgartner, 2016). The majority of managers concur that it is crucial to bridge the gap between sustainability and corporate strategy in order to determine the company's direction and ensure that it is in line with the sustainability agenda (Hristov et al., 2021). Therefore, companies must understand how to generate sustainable value through strategies aligned with organizational objectives and the use of specific sustainability goals and strategies to achieve these objectives (Lloret, 2016; Özcüre et al., 2011). This is because, for a business to be sustainable, the strategy must go beyond its practice. Thus, firms need to formulate standards policy by integrating the three policy elements of environmental standards, corporate governance policy and social standards policy into the relevant suitability program system and performance indicators in determining sustainability goals and objectives (Shrivastava & Addas, 2014). The elements of the competitive environment, such as costs leadership and differentiation, must be emphasised in order to improve firms' attributes and attain differentiation, thereby enhancing their ability to be unique and differentiate themselves from competitors (Lloret, 2016; Teeratansirikool et al., 2013). This is because the impact of the business climate on corporate survival is linked to the performance of the various firms involved in the company's corporate strategy.

The asset parsimony is the composite variables used in this study to operationalize cost leadership (Hambrick, 1983). The term "asset parsimony " refers to "the extent to which assets per unit of production are low" (Hambrick, 1983; Nair & Filer, 2003) and is a "dimension of a firm's asset parsimony dimension" based on capital expenditure. The ratio of capital expenditure to total sales represents capital expenditure (Chen et al., 2018; Yamakawa et al., 2011) which includes investments in machinery and equipment, as well as the addition of property, plants, and equipment.

Past studies have documented the effects on corporate governance and CSP (Haque 2017; Husted & de Sousa-Filho 2019; Suttipun 2021). Several studies have shown a positive correlation between the corporate firm and CSP and a negative correlation between corporate governance and CSP. However, there is a lack of consistency in the finding or mixed findings regardless of direct and indirect effects. Previous studies demonstrated that enhancing corporate governance enhances sustainability performance. Companies with larger board sizes and a female director, for example, will be able to effectively monitor the agent on sustainability issues (Giannarakis, 2014; Mahmood, 2018). Indirectly, effective corporate governance promotes sustainability disclosure practices by strengthening the owner's and agent's strategic leadership for effective monitoring of powerful

managers (Bae et al., 2018). It can be viewed as a set of complementary tools used by companies to improve relationships with stakeholders through the implementation of good corporate governance and sustainable performance (Michelon & Parbonetti, 2012). In order for sustainability to be successful, the interaction between the board of directors and the stakeholders must be aligned (Kostyuk et al., 2016). The board is obligated to deliver sustainable value to its stakeholders (Mohd Saad et al., 2019) because corporate governance elements provide a very strong ability to influence the market, resulting in a reduction in information asymmetry and receiving unbiased signals from various stakeholder groups (Crisóstomo et al., 2019). Establishing a solid corporate governance framework provides tools for bolstering internal capabilities in the face of long-term sustainability challenges. As a result, companies will face pressure from internal and external stakeholders to pursue sustainability practices hence leaders must consider how to create shared value.

Numerous past studies examine the effects of corporate strategy on financial performance, for instance, (Amoako-Gyampah & Acquaah, 2008; Banker et al., 2011, 2014a; Bayraktar et al., 2017; Birjandi, 2012; Chathoth & Olsen, 2007; Hallgren & Olhager, 2009; Herzallah et al., 2017, 2014; Jayaram et al., 2014; Kharub et al., 2019; Li & Li, 2008; Teeratansirikool et al., 2013; Yayla & Hu, 2012). Moreover, corporate strategy is found to have a great impact on environmental performance (Duanmu et al., 2018; Remaud et al., 2012; Van Gils et al., 2004). The conclusion of the study is that integrating sustainability with corporate strategy is essential and can enable a company to achieve global success and engage in highly competitive relationships. Consequently, implementing sustainability can improve a company's financial performance by increasing revenues and decreasing expenses.

However, to the best of knowledge, none of the existing past studies examine the corporate strategy in the association linking between corporate governance and ESG. Those studies mainly focused on the relationship between corporate governance and corporate sustainability (Beekun et al., 1998; Bergh, 1995), while several studies discussed the corporate strategy in sustainability (Engert & Baumgartner, 2016; Hu et al., 2020; Lloret, 2016). Hence, this study applies corporate strategy as a threshold variable in examining if there is an existence of a threshold's effect between corporate governance and ESG.

$H1_d$: The relationship between corporate governance attributes and CSP of ASEAN listed companies varies depending on corporate strategy.

3. METHODOLOGY

3.1 Empirical Model

To achieve objective one, this study develops the empirical framework as written in Eq.1. Motivated by the models on environmental, social and governance (ESG) by Zhao et al. (2018) and Dalal and Thaker (2019), this study develops the empirical model as follow:

$$ESG_{it} = \beta_0 + \beta_1 BSZE_{it} + \beta_2 BIND_{it} + \beta_3 FDOB_{it} + \beta_4 FSIZE_{it} + \beta_5 PROF_{it} + \beta_6 LEV_{it} + \beta_7 GDP_{it} + \varepsilon_{it}$$

(Eq. 1)

Where:
ESG - Environmental, social and governance (ESG) score
BSZE - Board size (number of board members)
BIND - Board independence (percentage of independent board members)
FDOB - Female director on board (percentage of female board members)
FSIZE - Firm size (natural logarithm of total assets)
PROF - Profitability (return on assets)
LEV - Leverage (total debt to total assets ratio)
GDP - Gross domestic product (a growth rate of GDP)

Objective two aims to explore the threshold effect of corporate strategy in a nexus relationship between corporate governance mechanisms and firm's ESG score. Respect to that, we construct Eq. 2 – Eq. 4 to achieve our objective two. Theoretically, Eq. 2 – Eq. 4 extends prior studies' models on the link between corporate governance and corporate sustainability performance by emphasising that the firm's corporate strategy (CS) may further enhance CG mechanisms to improve firm's ESG score, a significant contribution of this study to sustainability research and ESG literature. This study uses capital expenditure as a proxy of firm's corporate strategy. The measurement for capital expenditure here is the ratio of sales to net book value of property, plant and equipment.

$$ESG_{it} = \beta_0 + \beta_1 BSZE_{it}(q_{it} < CS) + \beta_2 BSZE_{it}(q_{it} > CS) + \beta_3 BIND_{it} + \beta_4 FDOB_{it} + \beta_5 FSIZE_{it} + \beta_6 PROF_{it} + \beta_7 LEV_{it} + \beta_8 GDP_{it} + \varepsilon_{it}$$

(Eq. 2)

$$ESG_{it} = \beta_0 + \beta_1 BSZE_{it} + \beta_2 BIND_{it}(q_{it} < CS) + \beta_3 BIND_{it}(q_{it} > CS) + \beta_4 FDOB_{it} + + \beta_5 FSIZE_{it} + \beta_6 PROF_{it} + \beta_7 LEV_{it} + \beta_8 GDP_{it} + \varepsilon_{it}$$

(Eq. 3)

$$ESG_{it} = \beta_0 + \beta_1 BSZE_{it} + \beta_2 BIND_{it} + \beta_3 FDOB_{it}(q_{it} < CS) + \beta_4 FDOB_{it}(q_{it} > CS) + + \beta_5 FSIZE_{it} + \beta_6 PROF_{it} + \beta_7 LEV_{it} + \beta_8 GDP_{it+} + \varepsilon_{it}$$

(Eq. 4)

As stated previously, this study employs the threshold regression model to examine the threshold effect of corporate strategy on the CG - ESG nexus. Equation 2 captures the threshold effect of corporate strategy on the relationship between Board size (BSZE) and firm's ESG score. The coefficient of $BSZE_{it}(q_{it} < CS)$ captures the magnitude impact of BSZE on ESG when CS below its threshold value (Regime 1= CS is low). The coefficient of $BSZE_{it}(q_{it} > CS)$ captures the magnitude impact of BSZE on ESG when CS above its threshold value (Regime 2= CS is high).

Equation 3 captures the threshold effect of corporate strategy on the relationship between Board independence (BIND) and firm's ESG score. The coefficient of $BIND_{it}(q_{it} < CS)$ captures the magnitude impact of BIND on ESG when CS below its threshold value (Regime 1= CS is low). The coefficient of $BIND_{it}(q_{it} > CS)$ captures the magnitude impact of BIND on ESG when CS above its threshold value (Regime 2= CS is high).

Equation 4 captures the threshold effect of corporate strategy on the relationship between Female director on board (FDOB) and firm's ESG score. The coefficient of $FDOB_{it}(q_{it} < CS)$ captures the magnitude impact of FDOB on ESG when CS below its threshold value (Regime 1= CS is low). The coefficient of $FDOB_{it}(q_{it} > CS)$ captures the magnitude impact of BDOB on ESG when CS above its threshold value (Regime 2= CS is high).

3.2 Method Estimation

This study employs Fixed Effect Model to treat Eq. 1. For Eq. 2 – Eq. 4, this study employs fixed effect threshold estimation model by Hansen (1999) in exploring the non-linear estimation. Table 3 has reported the Breusch and Pagan Lagrangian Multiplier Test and Hausman Test, both test statistically confirm fixed effect model is more superior. Then, to come with nonlinear estimation, the fixed effect threshold estimation is the consequences analysis for linear fixed effect model the fixed-effect panel threshold technique assesses the impact of thresholds on the dependent variable by integrating regime-dependent factors. Therefore, this approach safeguards against potential distortions stemming from threshold variables determined externally, outside the model framework.

The suggested threshold regression model is as follows:

$$y_{it} = \mu_i + \beta_1' x_{it} I(q_{it} \leq \gamma) + \beta_2' x_{it} I(q_{it} \geq \gamma) + e_{it} \quad \text{(Eq. 5)}$$

where x_{it} is the independent variable, y_{it} is the dependent variable, q_{it} is the threshold variable. The samples are split into two "regimes" depend on either the threshold variable is smaller than the threshold value ($q_{it} < \gamma$) or the threshold variable is greater than the threshold value ($q_{it} > \gamma$). The regimes are notable by differing regression slopes, β_1 and β_2. Neither x_{it} nor q_{it} are time invariant. The error term is independent and identically distributed with mean zero and finite variance. Then, a F-test of H_0 against the alternative of a threshold effect is based on:

$$F_1 = \frac{S_0 - S_1(\hat{\gamma}_1)}{\hat{\sigma}^2} \quad \text{(Eq. 6)}$$

where S_0 and S_1 are the residual sums of squared errors obtained from Equation (5) without and with threshold effects, respectively; $\hat{\sigma}^2$ is the residual variance of the threshold estimation.
To check the existence of threshold effect, as suggested in the F-statistics, Hansen (1999) suggested to calculate the confidence interval and critical value with respect to the following two equations:

$$LR_0(\gamma) = \frac{SSE_1(\gamma) - SSE_1(\hat{\gamma})}{\hat{\sigma}^2}$$

(Eq. 7)

$$c(\alpha) = -2\log(1-\sqrt{1-\alpha})$$

(Eq. 8)

The null hypothesis $H_0 : \gamma = \gamma_0$ is rejected if the $LR_0(\gamma_0)$ is exceeded $c(\alpha)$ and the threshold value $\hat{\gamma}$ is within the confidence interval.

3.3 Data Analysis

The sample of this study is 118 companies. The process to the determine the final sample is presented in Table 1.

Table 1: Sample size

No	Country	Total companies	No of Companies that disclosure ESG	Excluded financial & REITS companies	Excluded Missing values	Final Sample
1	Malaysia	934	64	9	20	35
2	Singapore	696	77	23	20	34
3	Indonesia	713	44	8	16	20
4	Thailand	743	86	15	57	14
5	Philippines	217	26	5	6	15
	Total	3,357	297	60	119	118

Initially, the total number of companies listed in the five ASEAN countries is 3,357. Among the 3,357 that are listed, only about 297 companies disclose ESG voluntarily, representing about 8.8% that disclose ESG activities. The financial industry with 44 companies and the REITs industry with 16 companies, totalling 60 financial companies, representing approximately 23%, were excluded from the entire population because the financial sector is highly regulated and has unique capital structures as well as different operating structures. The sample also excludes companies involved

in any forms of merger, demerger or restructuring during the sample period, as this would distort the true picture of the ESG companies. Table 1 presents the final sample size for the sampled ASEAN countries. Companies with missing values across the countries were also excluded from the final sample.

Data on firm-specific control variables, and corporate strategy variables (cost leadership), collected from the Blomberg database. Data on the firm's ESG scores (which is the combination of Refinitiv's environmental disclosure score, governance disclosure score, and social disclosure score) was obtained from the Refinitiv database. Meanwhile, data on the country-specific control variables such as (% of GDP) variable was obtained from the Worldwide Governance Indicators of the World Bank. The period of the dataset is from 2011-2020.

4. RESULTS AND DISCUSSION

4.1 Empirical Result

Table 2 reports the descriptive statistics for all variables. Table 2 shows that board size (BSZE) for sample firms ranged from 4 to 30, indicating substantial variation across the sample. The average BSZE is 11, with a standard deviation (SD) of 20.42. Board independence (BIND) has a maximum (minimum) of 100 (0) and a mean (SD) of 44.04 (21.03). Female director representation had an average of 10.6862%, reflecting varying degrees of gender diversity within boards. The natural log of firm's revenue (FSIZE) has a minimum of 12.4913, maximum of 26.5726, a mean of 18.5729 and a standard deviation of 3.1837. The average level of leverage (LEV) is 0.283 with a maximum (minimum) of 1.1533 (-0.0601) and standard deviation of 0.1697. The capital expenditure (CE) had an average of 30.0894 % with a standard deviation (SD) of 69.836. The high standard deviation (69.836) indicate that CE movement is very uncertain due to resource constraint and investment sensitivity. Furthermore, all CE has asymmetric distribution skew to the right.

Table 2: Descriptive Statistics

	ESG	**BSZE**	**FDOB**	**BIND**	**PROF**	**FSIZE**	**LVG**	**CE**	**GDP (%)**
Mean	45.4393	11.6771	10.6862	44.0457	7.3981	18.5729	0.283	30.0894	3.7087
Median	45.9903	11	9.09	44.44	5.875	17.6563	0.2846	15.4599	4.8373
Maximum	89.0753	30	57.14	100	75.32	26.5726	1.1533	1175.39	7.2428
Minimum	1.239	4	0	0	-57.34	12.4913	-0.0601	0.362	-9.573
Std. Dev.	20.4217	3.8173	11.1663	21.0342	9.127	3.1837	0.1697	69.836	3.4185
Skewness	-0.0875	1.024	1.0549	0.1012	1.6011	0.7541	0.3345	10.3796	-2.1455
Kurtosis	2.1679	4.578	3.806	2.5471	18.0721	2.7517	3.0874	144.379	7.0879
Jarque-Bera	35.545	328.653	250.809	12.0994	11673.2	114.873	22.3805	1003927	1726.866
Probability	0	0	0	0.0024	0	0	0	0	0
Observations	1180	1180	1180	1180	1180	1180	1180	1180	1180

Keys: ESG (Environmental, Social, Governance), BSZE (Board Size), FDOB (Female director on board), BIND (Board Independence), PROF (Profitability), FSIZE (Firm Size), LVG (Leverage), GDP Growth, Capital Expenditure (CE)

To achieve objective 1, fixed effect model is chosen as our superior model in estimating linear forecasting. Table 3 reports the result for linear panel estimation. Both Breusch and Pagan Lagrangian Multiplier test and Hausman test suggest that fixed effect model is the superior model. Fixed effect model estimation suggests that FDOB, FSIZE and LVG are significant with positive sign at 1% critical value. BIND is also significant with positive sign but it significant at 5% critical value. PROF and GDP growth (annual %) are significant with negative sign at 1% critical value. According to ceteris paribus assumption, these results can be interpreted as follow:

- An increase in FDOB is expected to increase about 0.23% on ESG while other variables remain constant.
- An increase in BIND is expected to increase by about 0.06% on ESG while other variables remain constant.
- An increase in PROF is expected to decrease about 0.19% on ESG while other variables remain constant.
- An increase in FSIZE is expected to increase about 7.05% on ESG while other variables remain constant.
- An increase in GDP growth is expected to decrease about 0.73% on ESG while other variables remain constant.

Table 1: Panel linear regressions for Objective 1

	Pooled OLS	**Random Effect**	**Fixed Effect**
BSZE	0.5949***	0.2134*	0.182
FDOB	0.1054**	0.2426***	0.2340***
BIND	0.3668***	0.1104***	0.0612**
PROF	0.3832***	-0.1753***	-0.1861***
FSIZE	2.0132***	2.5909***	7.0526***
LVG	14.5652**	8.3997**	3.4017
GDP growth (annual %)	-1.0267***	-0.7607***	-0.7251***
Breusch and Pagan Lagrangian Multiplier Test		0.0000	
Hausman Test			0.0000

The asterisks *,**, and *** denote significant at the 10%, 5%, and 1% levels respectively.

This study employs fixed effect threshold regression suggested by Hensen (1999) to achieve objective two. Model 1,2,3 employ corporate strategy (capital expenditure) as a threshold variable. First, this study executes threshold effect test in confirming the existence of threshold effect in the models. Table 4 reports the threshold effect test across all models. It clearly shows that the threshold effect of CS exists in all models. Statistically, the F-stat is significant with 1% critical value for model 1-3 respectively. The F-stat is significant with 5% critical value for model 1 (Eq.2), 2 (Eq.3) and 3 (Eq.4).

Table 2: Threshold Effect Test

Model	Dependent Variable	Q	F-Stat	Critical Value			Threshold Value	95% Confidence interval	
				10%	5%	1%			
1	ESG	CS	20.31***	9.7535	12.4070	15.6546	10.0000	9.0000	11.0000
2	ESG	CS	19.93**	10.6561	13.5653	21.6244	23.0800	20.4850	23.1000
3	ESG	CS	21.34**	15.6381	18.4270	25.8081	53.8500	45.0850	54.1700

The asterisks *,**, and *** denote significant at the 10%, 5%, and 1% levels respectively.

Hence, this study proceeds with the fixed effect threshold estimation as reported in Table 5. The threshold value for CS is equal to 10.0000. The results show that the regime-dependent coefficients (BSZE) are statistically significant ($\beta_1 = 0.023$ and $\beta_2 = -0.0209$), meaning that BSZE has a positive marginal effect on ESG in the regime with low CS, but a negative marginal effect in the regime with high CS. In other words, the rate of BSZE below the threshold level has a positive effect on ESG. If the rate is above the threshold value, it would affect ESG negatively. If we examine the regime dependent coefficients, we will find the effect of BSZE on ESG higher in the regime with low CS. It can be elaborated respect to ceteris paribus assumption as follow:

- An increase of BSZE is expected to increase by about 0.023% on ESG while other variables remain constant, in the regime with low CS
- An increase of BSZE is expected to decrease by about 0.02% on ESG while other variables remain constant, in the regime with high CS

The effect of control variables reports FDOB and FSIZE are significant with positive. While PROF and GDP growth are significant with negative signs. The is no evidence to say BIND and LVG are significant in model 1. According to the ceteris paribus assumption, it can be elaborated as follow:

- An increase in FDOB is expected to increase about 0.23% on ESG while other variables remain constant.
- An increase in PROF is expected to decrease about 0.24% on ESG while other variables remain constant.
- An increase in FSIZE is expected to increase about 7.23% on ESG while other variables remain constant.
- An increase in GDP Growth is expected to decrease about 0.24% on ESG while other variables remain constant.

Table 0: The result of Fixed Effect Threshold Estimation for Model 1

ESG	
Threshold Value (CS)	10.0000
Effect of BSZE	
BSZE (Regime 1= β_1)	0.023***
BSZE (Regime 2=β2)	-0.0209**
Effect of Control Variable	
FDOB	0.2257***
BIND	0.0565
PROF	-0.2363***
FSIZE	7.3231***
LVG	5.0691
GDP growth (annual %)	-0.4890***
Observation	1180
Degree of Freedom	1164

The asterisks *,**, and *** denote significant at the 10%, 5%, and 1% levels respectively.

Table 6 reports the result of threshold estimation for model 2. The threshold value is equal to 40.0000. The results show that the regime-dependent coefficient (FDOB) is statistically significant (β_2 = 0.1785), meaning that FDOB has a positive marginal effect on ESG in the regime with high CS, but it is not significant in the regime with low ESG. In other words, the rate of BSZE below the threshold level has no effect on ESG. If the rate is above the threshold value, it would affect ESG positively. It can be elaborated respect to ceteris paribus assumption as an increase of FDOB is expected to increase by about 0.18% on ESG while other variables remain constant, in the regime with high CS.

The effect of control variables reports BIND and FSIZE are significant with positive. While PROF and GDP growth are significant with negative sign. The is no evidence to say BSZE and LVG are significant. According to the ceteris paribus assumption, it can be elaborated as follow:

- An increase in BIND is expected to increase about 0.09% on ESG while other variables remain constant.
- An increase in PROF is expected to decrease about 0.22% on ESG while other variables remain constant.
- An increase in FSIZE is expected to increase about 7.61% on ESG while other variables remain constant.
- An increase in GDP Growth is expected to decrease about 0.8% on ESG while other variables remain constant.

Table 6: The result of threshold estimation for model 2

ESG	
Threshold Value (CS)	40.0000
Effect of FDOB	
FDOB (Regime 1= β_1)	0.0098
FDOB (Regime 2= β2)	0.1785**
Effect of Control Variable	
BSZE	0.1523
BIND	0.0858**
PROF	-0.2200***
FSIZE	7.6141***
LVG	2.615
GDP growth (annual %)	-0.8042***
Observation	1180
Degree of Freedom	1164

The asterisks *,**, and *** denote significant at the 10%, 5%, and 1% levels respectively.

Table 7 reports the result of threshold estimation for 3. The threshold value is equal to 53.8500. The results show that the regime-dependent coefficients (BIND) are statistically significant (β_1 = 0.0229 and β_2 = 0.0017), meaning that BIND has a positive marginal effect on ESG in the regime with low CS and high CS. If we examine the regime dependent coefficients of BI, we would find the effect of BSZE on CSP higher in the regime with low CS. It can be elaborated respect to ceteris paribus assumption as follow:

- An increase of BIND is expected to increase by about 0.02% on ESG while other variables remain constant, in the regime with low CS.
- An increase of BIND is expected to increase by about 0.001% on ESG while other variables remain constant, in the regime with high CS.

The effect of control variables reports FDOB and FSIZE are significant with positive. While PROF and GDP growth are significant with negative signs. The is no evidence to say BSIZE and LVG are significant in model 2. According to the ceteris paribus assumption, it can be elaborated as follow:

- An increase in FDOB is expected to increase about 0.25% on ESG while other variables remain constant.
- An increase in PROF is expected to decrease about 0.23% on ESG while other variables remain constant.
- An increase in FSIZE is expected to increase about 7.51% on ESG while other variables remain constant.
- An increase in GDP Growth is expected to decrease about 0.7% on ESG while other variables remain constant.

When employing CS as the threshold variable, it finds that FDOB has greater magnitude impact on ESG than BSIZE and BIND.

Table 7: The result of threshold estimation for model 3

ESG	
Threshold Value (CS)	53.8500
Effect of BIND	
BIND (Regime 1= β_1)	0.0229***
BIND (Regime 2= β2)	0.0017***
Effect of Control Variable	
BSZE	0.1551
FDOB	0.2545***
PROF	-0.2258***
FSIZE	7.5090***
LVG	1.4599
GDP growth (annual %)	-0.7004***
Observation	1180
Degree of Freedom	1164

The asterisks *,**, and *** denote significant at the 10%, 5%, and 1% levels respectively.

4.2 Robustness Check

For robustness checking, this study substitutes the control variable of ROA to ROE across all models. Those results are reported in Table 8. As reported in those respective tables, all results are consistent with the main results.

Table 8: Robustness Checking

Dependent variable	**ESG**	**ESG**	**ESG**
Threshold Value (Capital Intensity)	10	23.08	30
Effect of BSZE			
BSZE (Regime 1= β1)	0.0186***		
BSZE (Regime 2= β2)	-0.0179***		
Effect of FDOB			
FDOB (Regime 1= β1)		0.0124	
FDOB (Regime 2 =β2)		-0.0207**	
Effect of BIND			
BIND (Regime 1= β1)			0.0482***
BIND (Regime 2= β2)			0.0067***

Effect of Control Variable			
FDOB	0.2383***	0.2732	0.2434
BIND	0.0574	0.0598**	0.0754***
PROF	-0.0060***	-0.0045***	-0.0033***
FSIZE	7.7534***	7.6295***	7.6603***
LVG	6.497	6.4157	6.5828
GDP growth (annual %)	-0.0179***	-0.7474***	-0.7363***
Observation	1180	1180	1180
Degree of Freedom	1164	1164	1164

The asterisks *,**, and *** denote significant at the 10%, 5%, and 1% levels respectively.

4.3 Discussion

Board size refers to the number of directors, which includes executive and non-executive as well as independent and non-independent directors. The size of board of directors, apparently, is not a significant factor that influences the ESG. In other words, a larger or smaller board size does not improve the ESG. This finding is consistent with the results of past studies (Campanella et al., 2021; Cancela et al., 2020; Cucari et al., 2018b; Giannarakis et al., 2014; Ismail et al., 2019b; Miras-Rodríguez et al., 2018). They argue that a large board size is less effective in decision-making and impedes communication, coordination and flexibility among board members (Cancela et al., 2020). Additionally, arguments will arise among the board of directors, making it more difficult to reach a consensus (Ujunwa, 2012) and deteriorating performance (Jensen, 1993), particularly for ASEAN board members to make informed decision making because engaging such as making a substantial investment in the environmental and social component because investing in sustainability incurs costs that ultimately lower revenues with sustainability incurred costs that ultimately lower revenue. This will demotivate the ASEAN board as to whether it will imitate the resource based on the cost incurred to fulfil sustainability practises, as well as disclose economic, environmental, and social information relevant to the firm's long-term investments, which the board directors consider less profitable (Bae et al., 2018; Bridoux, 2004).

Moreover, the female director has a positive and significant relationship with ESG. This suggests that the greater the proportion of female directors on the board, the higher the ESG. These findings are consistent with the empirical literature which document that female directors positively impact ESG (Arayssi et al., 2016; Bravo & Reguera-Alvarado, 2019; Velte, 2016a). As a result, while the proportion of female directors on ASEAN boards is less than 30%, female directors in ASEAN countries can be considered socialisation leaders who prioritise community pleasure by increasing environmental initiatives and philanthropic activities. This analysis is consistent with prior research that found that when three or more female directors are on boards, the link between female directors on ESG becomes more favourable (Yadav & Prashar, 2022) because female directors may be able to alleviate ESG controversies and boost firm reputation and performance (Issa &

Hanaysha, 2023). Thus, female directors play a critical role in bridging the gap between a company's financial performance and social duties (Arayssi et al., 2020). Moreover, when investing in environmental activities, female directors are more likely to use their capacity and resources to help design sustainability strategies that could reduce environmental offences (Ismail et al., 2019a; Zahid et al., 2020b). Therefore, this study suggests that policymakers in ASEAN-5 countries should support female directors on boards to increase the number of female directors through policies, training, and comprehensive practises (Issa & Hanaysha, 2023) owing to the significance of women's participation and gender equality in corporate sustainability practises and corporate governance-related policy formulation.

Turning to board independence directors, the finding shows that board independence has positive impact on ESG. This study shows that corporations will adhere to sustainability policy standards since the higher the share of board independent directors, the more likely sustainability reporting will be produced (Naciti, 2019b; Rathnayaka Mudiyanselage, 2018). The results are in accordance with the agency theory that show the significant role of board independence in monitoring and effectively enhancing management activities (Naciti, 2019b). According to Bae et al (2018), the board independent directors is crucial because it provides the required strength, viewpoints, and diversity of knowledge to allow management engagement in long-term social and environmental projects resulting in more sustainability disclosure. Thus, assessing the number of independent directors on the board of directors is vital to enhance transparency and encourage firms in ASEAN regions to invest in more sustainable practises.

This research indicates that board size is a significant determinant of business sustainability performance in ASEAN countries when implementing cost leadership. The findings of board size found that corporate strategy has a significant threshold positive effect at low regime (Yu et al., 2023), while a negative significant threshold effect on CG and ESG at high regime (Zhuang et al., 2018). At low regime, this empirical finding demonstrated that an intervention to facilitate capital investment leads to a small rise in the low threshold impact for capital expansion. This result shows how the interaction effect of capital expenditure of corporate strategy is projected in small board size intervention with a small positive increment in ESG. The findings highlight the vital role of board directors in determining the allocation of capital to improve ESG (Chebbi & Ammer, 2022; Hsiao & Zhou, 2022). Research has shown that the characteristics of the board of directors can directly affect decision-making and investment efficiency (Hsiao & Zhou, 2022).

On the other hand, this finding suggests that beyond a certain board size, an increase in board size is associated with a decrease in ESG performance at the high regime. This finding underscores the importance of considering the impact of board size on ESG practices in corporate governance. Furthermore, the impact of the board of directors' capital on enterprises' low-carbon sustainable development has been examined, with findings indicating that an increase in board of directors' capital promotes enterprises' low-carbon sustainable development (Liu et al., 2022). According to the empirical evidence, significant ESG progress among ASEAN companies is negligible, and substantial capital intervention is necessary for ESG to be significantly impacted.

The study's findings regarding female directors indicate that corporate strategy's impact varies across different thresholds. At a low regime, corporate strategy does not exhibit a significant positive effect. It is important to note that the impact of female directors on ESG practices may vary depending on the specific context and institutional environment (H. Peng &

Chandarasupsang, 2023). Furthermore, a study on the impact of board gender diversity on working capital management found that female directors, depending on their positions, may influence the investment in working capital, suggesting a conservative working capital management strategy (Guizani & Abdalkrim, 2023). However, at a high regime, there is a positive and significant impact on both CG and ESG. The results show that when women participate on the board as inside directors, they positively affect ESG performance (Cambrea et al., 2023). This underscores how the interplay between capital expenditure and corporate strategy manifests in interventions involving a smaller board size of female directors, leading to a slight increase in ESG (H. Peng & Chandarasupsang, 2023). Studies have shown that female directors can contribute to improved corporate governance, reduced agency costs, and mitigated management (Cambrea et al., 2023; H. Peng & Chandarasupsang, 2023). Furthermore, female participation acts as a catalyst for companies to strike an effective balance between financial goals and social responsibilities (Arayssi et al., 2020). Increasing the number of women directors can facilitate ESG governance through appropriate staffing of CSR committees (Cucari et al., 2018a). Therefore, companies can benefit from incorporating greater women board members to charter effective CSR committee formation and navigate the company to a greater level of ESG orientation. Thus, board gender diversity can drive innovation and facilitate better decision-making, and having more women at the top can contribute to greater financial performance and improved ESG ratings (International Finance Corporation, 2019).

The results for board independence indicate that corporate strategy has a substantial positive threshold effect on CG and ESG in both the low regime and the high regime. According to a study on UK non-financial firms from 2012 to 2021, capital expenditure (capex) is positively linked to Environmental, Social, and Governance (ESG) disclosure, and this association is robust for firms with better corporate governance (Moussa & Elmarzouky, 2023). The study also found that the interplay between the capital expenditure plan and the proportion of independent directors positively impacts CSP. These findings imply that capex improves ESG performance and enables the independence directors to convey ESG communication among stakeholders. Companies with higher independence of directors may face more stakeholder pressure and expectations to disclose their ESG information due to increased scrutiny and accountability (Moussa & Elmarzouky, 2023). Several studies support this notion. For instance, a study on Russian non-financial public companies found a significant positive impact of board independence on both ESG performance and firm market value (Bataeva & Karpov, 2023; Yu et al., 2023). Another study on GCC listed firms reported that higher board independence associates with greater levels of financial reporting quality (Ikbal Tawfik et al., 2023). Additionally, a study examining the influence of corporate governance factors on ESG ratings in industrial and IT companies found that the presence of a policy of independence of the board of directors positively influences the ESG rating (Egorova & Chigireva, 2022). These findings suggest that companies with higher independence of directors that invest more in capital expenditure are more likely to disclose ESG information (Eccles et al., 2014). A study on the impact of board composition on ESG reporting in Gulf Cooperation Council (GCC) countries discovered that higher board independence improves social responsibility and thus facilitates the transmission of a firm's positive image. Independent boards of directors act as catalysts to achieve a successful balance between a company's financial goals and its social responsibilities (Arayssi et al., 2020). This highlights the importance of monitoring board independence and capital expenditures in tandem with corporate strategy in order to enhance ESG.

5. CONCLUSION

This study intends to investigate the relationship between corporate governance and firm's ESG score in ASEAN countries. The first objective is to investigate three internal determinants of corporate governance, including board size, female director representation, and board independence, which are believed to affect ESG in ASEAN regions. The findings highlight that female directors and board independent directors play key roles in determining ESG while large board size will have less unanimity in ESG. The second objective is to explore the threshold effect of corporate strategy significantly impacts the relationship between corporate governance and sustainability in ASEAN's publicly traded firms. A balance between low and high-threshold corporate strategies is essential for achieving sustainable corporate governance without neglecting stakeholders or the environment and maintaining a healthy relationship between stakeholders and the environment.

This research indicates that employing both low- and high-threshold corporate strategy can result in improved financial performance, increased stakeholder trust, and enhanced social responsibility practises. Low-threshold solutions give a solid base upon which businesses can comply with regulations and industry norms. However, high-threshold techniques allow firms to go above and beyond these criteria by proactively exploring chances to reduce their environmental effect or benefit local communities.

However, striking the appropriate balance between these two strategies might be difficult. Companies must consider their objectives, available resources, and regulatory contexts before deciding on the appropriate strategy for them; failing to do so may result in missed opportunities or reputational harm due to ineffective implementation of sustainable practises. To create a comprehensive understanding of how different thresholds, interact when developing long-term sustainability plans aligned with both financial targets & stakeholder expectations, business leaders require an integrated approach involving the participation of all stakeholders at every stage of decision-making processes – from conception to evaluation. This enables firms to survive and thrive in the face of increasing pressure from external and internal stakeholders.

In conclusion, corporations must strategically approach sustainability using an integrated process that considers all stakeholders equally if they aim to become more sustainable entities without harming profitability or neglecting societal responsibilities within their ecosystem, thereby facilitating the low and high threshold effect of corporate strategy in facilitating the corporate governance-corporate sustainability relationship in ASEAN public listed companies.

The findings should be interpreted in the context of the following limitations, which may offer avenues for future research. Firstly, this study is limited to listed firms in ASEAN region. Secondly, we measured ESG disclosure using scores retrieved from Refinitiv Eikon database and not directly from reports. Thirdly, we focused on the specific corporate governance attributes like board size, independence and female board while disregarding other potential corporate governance mechanism that could influence ESG disclosure levels. Fourth, this study did consider only the corporate strategy focusing on capital expenditure with a moderating effect on the relationship between corporate governance and ESG disclosure in ASEAN regions. Therefore, future research may consider examine ESG disclosure using different database (e.g Bloomberg) and aim to compare developed and developing countries. Extending analysis to other corporate governance

mechanism like audit committees or CSR/sustainability committee presence would also be interesting. Lastly, future research can extend other moderating factor like institutional quality on the relationship between corporate governance and ESG disclosure.

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