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Governance Meets the Global Goals: Board Characteristics and SDG Reporting

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Abstract

As sustainability gains prominence in corporate reporting, attention has turned to how governance structures influence such disclosures. Despite this, the extent and determinants of Sustainable Development Goals (SDG) disclosure in emerging markets remain underexplored. This study investigates the influence of board characteristics on SDG disclosure among companies listed on Bursa Malaysia, using the Upper Echelons Theory (UET) as a theoretical foundation. It specifically examines the role of board size, directors' age, and educational background. Data were collected through content analysis of annual, sustainability, and integrated reports from 145 consumer product and service companies listed on the Main Market, covering the period from 2018 to 2022. Regression analysis was conducted using the Statistical Package for the Social Sciences (SPSS). The results reveal that board size and age have a significant positive impact on SDG disclosure, suggesting that larger and older boards may contribute to greater sustainability engagement due to broader perspectives and experience. However, educational background does not show a significant effect, implying that formal qualifications alone may not drive sustainability practices. This study contributes to the growing literature on corporate sustainability and governance by offering empirical evidence on how board-level attributes influence strategic SDG reporting and by extending the application of UET to the context of SGDs disclosure. The findings also offer practical insights for regulators and listed companies in strengthening board governance to support more effective sustainability reporting and greater alignment with the SDGs.

Keywords: *Board Characteristics, SDG Disclosure, Upper Echelons Theory, Corporate Governance, Sustainability use*

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INTRODUCTION

As global attention to sustainability intensifies, companies are increasingly expected to align with the United Nations' Sustainable Development Goals (SDGs). In this context, the role of corporate governance (CG) particularly board characteristics which has gained prominence in determining a company's commitment to sustainability. According to the Upper Echelons Theory (UET), organizational outcomes reflect the values and experiences of top executives (Hambrick & Mason, 1984). Thus, the characteristics and cognitive profiles of board members can shape strategic decisions, including the extent of sustainability disclosures.

Despite the theoretical significance, empirical findings on the relationship between board characteristics and SDG disclosure remain mixed. Some studies emphasize the positive role of experienced or diverse boards in enhancing sustainability practices, while others find weak or no associations. Recent studies on ESG and SDG reporting have also highlighted that governance mechanisms do not consistently explain sustainability disclosure outcomes, particularly in emerging market contexts where institutional pressures and reporting maturity vary. This growing but inconclusive evidence suggests that further investigation is needed to better understand which specific board-level attributes drive SDG disclosure practices

This study focuses on three key board characteristics namely board size, directors' age, and educational background to investigate their influence on SDG disclosure among Malaysian listed companies. By doing so, it aims to assess how upper echelon traits shape corporate sustainability reporting, particularly through observable attributes that reflect strategic decision-making tendencies.

The structure of the paper is as follows: Section 2 presents the literature review, Section 3 outlines the methodology, Section 4 discusses the findings and conclusions, Section 5 provides acknowledgements, and Section 6 lists the references.

LITERATURE REVIEW

This study adopts a quantitative approach to examine the relationship between board characteristics and SDG disclosure, specifically focusing on board size, age, and educational background. SDG disclosure is assessed based on the extent of SDG-related activities reported by the companies. Guided by UET, the study assumes that directors' characteristics shape strategic decisions, including sustainability reporting. As illustrated in Figure 1, the framework proposes that board-level attributes influence the companies' engagement with the SDGs, highlighting how individual traits translate into broader organizational commitments.

According to UET, variations in companies' strategies and outcomes reflect the background and values of top decision-makers. The board of directors (BOD), as a key governance body, plays a central role in shaping corporate direction (Hambrick & Mason, 1984). Prior studies have explored the influence of various board traits which are independence, gender, and size on sustainability performance (Endrikat et al., 2021). Building on this foundation, the present study focuses on three board characteristics namely size, age, and education to assess their influence on SDG disclosure within the Malaysian context. The following section presents the hypotheses derived from this framework.

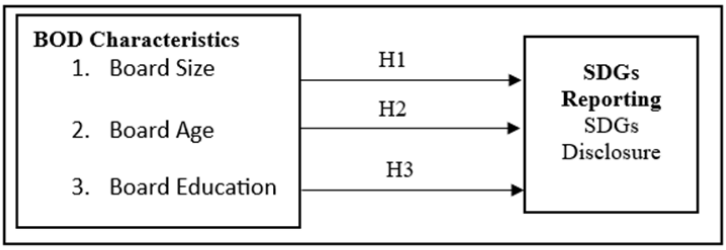

Figure1: Conceptual Framework

Recent ESG and sustainability reporting literature suggests that corporate disclosure practices have become increasingly important as mechanisms for enhancing transparency and accountability in response to stakeholder and regulatory pressures (Eccles et al., 2020; Tsang et al., 2023). However, empirical evidence on the relationship between governance mechanisms and sustainability-related disclosures remains mixed across different institutional contexts, particularly between developed and emerging economies (Muhmad & Muhamad, 2020; Endrikat et al., 2021).

Prior studies on board characteristics and corporate outcomes have also reported inconsistent findings. For instance, research shows that board attributes may influence firm performance and value creation, but results vary significantly across countries and institutional settings (Shan et al., 2018; Jakpar et al., 2019; Ogunsanwo, 2019). Furthermore, governance research has largely been concentrated in developed economies such as the United States, limiting generalisability to emerging markets (Low et al., 2015). These inconsistencies highlight the need for further investigation into how board-level mechanisms influence sustainability-related outcomes in different institutional environments.

Hypotheses Formulation

The hypotheses are formulated to examine the relationship between the independent variables namely board size, age, and education and the dependent variable, SDG disclosure. Each hypothesis is discussed in detail below.

Board Characteristics and SDGs Reporting

While the SDGs have gained global prominence since their adoption by the United Nations in 2015, empirical research directly examining the relationship between board characteristics and SDG disclosure remains limited, particularly in developing countries (Muhmad & Muhamad, 2020). As a result, much of the existing understanding is derived from the broader Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG) literature, where governance mechanisms are recognized as important drivers of sustainability reporting.

The introduction of the SDGs has encouraged firms to integrate sustainability objectives into their CSR strategies and corporate reporting, enabling them to demonstrate their commitment to addressing environmental and social challenges while enhancing transparency and accountability (Grover et al., 2019; ElAlfy et al., 2020). Such integration also strengthens corporate reputation and responds to increasing stakeholder expectations for responsible business practices (Buallay et al., 2020; Soewarno & Nugroho, 2021; Feng et al., 2022). Consequently, SDG disclosure can be viewed as an extension of traditional CSR reporting, with both forms of disclosure sharing similar governance mechanisms and strategic objectives (Fasoulis & Kurt, 2019; Naciti, 2019).

Despite this growing emphasis on SDG reporting, recent studies have questioned whether corporate SDG commitments translate into meaningful implementation, raising concerns over "SDG washing" and highlighting the need for more rigorous empirical evidence on the governance factors that influence SDG disclosure (Munro, 2020). Guided by UET, (Hambrick & Mason, 1984), this study therefore examines whether board size, age, and education background influence SDG disclosure among Malaysian listed companies.

Board Size

Board size is one of the most widely examined CG characteristics in sustainability research due to its influence on board effectiveness, monitoring capacity, and strategic decision-making. Larger boards are generally expected to possess more diverse expertise, broader stakeholder representation, and stronger oversight capacity, enabling firms to respond more effectively to sustainability-related issues. Previous studies have shown that larger boards enhance corporate performance and strengthen firms' commitment to sustainability initiatives (Ali, 2018; Buniamin et al., 2020). Likewise, Hussain et al. (2018) reported a positive association between board size and corporate social performance, , suggesting that larger boards are better equipped to integrate sustainability considerations into corporate decision-making.

International evidence also suggests that board size plays an important role in promoting sustainability disclosure, although the strength of this relationship varies across institutional settings (Endrikat et al., 2021). In the Malaysian context, Germain et al. (2014) found that board size remains relatively stable and reflects firms' operational requirements, indicating that board composition is influenced by organizational needs. As stakeholder expectations for sustainability reporting continue to increase, larger boards may possess greater capacity to oversee the development and disclosure of SDGs -related strategies through their wider range of knowledge, expertise, and governance experience. Therefore, the following hypothesis is proposed:

H1: Board size is positively associated with SDG disclosure.

Board Age

According to UET, the demographic characteristics of top executives, including age, shape their cognitive values, risk preferences, and strategic decision-making (Hambrick & Mason, 1984). Older directors generally possess greater managerial experience and accumulated knowledge, enabling them to make more informed and long-term strategic decisions (Patzelt et al., 2008). Their prior experience also enhances their ability to recognize organizational opportunities and respond effectively to emerging challenges (Fischer & Pollock, 2004). Consequently, older board members are often associated with greater organizational stability, legitimacy, and a stronger orientation towards long-term value creation(Bertrand, M., & Schoar, 2003).

From a sustainability perspective, experienced directors may be more capable of recognizing the strategic importance of environmental and social issues, including the implementation and disclosure of the SDGs. Supporting this view, Beji et al.(2021) reported that board age positively influences corporate governance and several sustainability-related dimensions, including human resources, human rights, and environmental practices. However, empirical findings remain inconclusive. While Soewarno and Nugroho (2021) found that CSR decisions are not solely determined by executives' age, Liu & Jiang(2020)and Mukherjee and Sen(2022) reported no significant relationship between directors' age and firm outcomes. These inconsistent findings suggest that the influence of board age may vary across organizational and institutional contexts, warranting further examination of its relationship with SDG disclosure among Malaysian listed companies. Therefore, the following hypothesis is proposed:

H2: Board age is positively associated with SDG disclosure.

Board Education

Educational background reflects the intellectual capital and problem-solving capabilities of board members, all of which influence strategic decision-making. According to UET, directors' educational attainment shapes their cognitive perspectives and ability to evaluate complex organizational issues, including sustainability and long-term value creation (Hambrick & Mason, 1984). From a resource-based perspective, education represents a valuable organizational resource that enhances directors' knowledge, analytical skills, and strategic capabilities, thereby contributing to competitive advantage (Barney, 1991). Directors with diverse educational backgrounds are therefore expected to provide broader perspectives and improve the quality of board deliberations (Mukherjee & Sen, 2019).

Prior empirical studies generally suggest that board education contributes positively to corporate governance and sustainability-related outcomes. For example, Naseem et al. (2020) found that directors with higher educational qualifications demonstrate stronger decision-making capabilities, leading to improved organizational performance. Similarly, . Katmon et al. (2019) reported that educationally diverse boards are associated with higher levels of CSR disclosure, suggesting that knowledgeable directors are more likely to support sustainability reporting initiatives.

Nevertheless, previous findings remain inconclusive. Gottesman and Morey (2010) found no significant relationship between directors' business education and firm performance, indicating that educational qualifications alone may not necessarily translate into better organizational outcomes. Such mixed evidence suggests that the influence of board education may depend on contextual factors, including the institutional environment, industry characteristics, and directors' practical experience. Given that SDG disclosure requires strategic commitment as well as an understanding of complex sustainability issues, further investigation is needed to determine whether board education influences SDG disclosure among Malaysian listed companies. Therefore, the following hypothesis is proposed:

H3*: Board education is positively associated with SDG disclosure.*

METHODOLOGY

This section describes the data acquisition and sampling strategy and measurement techniques all the variables use in this study.

Data Acquisition Methods and Sampling Strategy

This study uses secondary data from 145 companies listed on Bursa Malaysia's Main Board, focusing on the Consumer Products and Services sector. The sample covers eight sub-sectors and represents 93.5% of the total population (155 companies), exceeding the minimum sample size based on Krejcie and Morgan (1970) formula. Data were collected from annual, sustainability, and integrated reports published between 2018 and 2022, which are publicly available on Bursa Malaysia's website.

Board characteristics (size, age, and education) and SDG-related disclosures were extracted through content analysis and documentation review. The content analysis involved systematically reviewing each company's publicly available reports to identify disclosures related to the 17 Sustainable Development Goals (SDGs). An SDG disclosure index was developed based on the presence of SDG-related information reported by each company, allowing the extent of SDG disclosure to be measured consistently across the sample.

The Consumer Products and Services sector was selected due to its significant contribution to Malaysia's GDP and expected economic growth (iFAST Research Team, 2021; Ministry of Finance Malaysia, 2022). The analysis was conducted using SPSS to examine the relationship between board attributes and SDG disclosure.

Variables Measurement

This study examines the influence of board characteristics namely size, age, and education on SDG reporting. SDG disclosure is measured using content analysis based on the United Nations(2017) SDG Global Indicator Framework, which provides a standardized reference for identifying sustainability-related disclosures in corporate reports (Buniamin et al., 2020). Each company's annual report, sustainability report, and integrated report were systematically reviewed to identify disclosures related to the 17 SDGs. Following prior studies on sustainability and ESG disclosure measurement, a self-constructed disclosure index based on content analysis was employed to ensure consistency and comparability across firms (Buallay et al., 2020; Sekarlangit & Wardhani, 2021). A dichotomous scoring approach was applied, where a score of "1" was assigned if a company disclosed information related to a specific SDG, and "0" if no disclosure was identified. The total scores were then aggregated to construct an overall SDG disclosure index for each firm, representing the extent of SDG engagement.

Board size is measured as the total number of directors serving on the board, including both executive and non-executive members (Ogunsanwo, 2019; Buniamin et al., 2020). Board age is operationalized as the proportion of directors aged 60 years and above relative to younger directors below 60 years (Bertrand, M., & Schoar, 2003; Abdullah & Ismail, 2013). Board education is measured as the proportion of directors holding postgraduate qualifications (Master's degree or PhD) compared to those without such qualifications (Naseem et al., 2020; Beji et al., 2021). Table 1 presents a summary of the variables, including definitions, measurements, and past studies as references.

Table 1: Summary of Variable Measurement

Variable	Acronym	Measurement	Reference
Dependent			
SDG disclosure	SDGs	The total firm disclosure based on content analysis – specific based on the SDG Global Indicator Framework	(United Nations, 2017; Buniamin et al., 2020; Cahyaninstyas et al., 2020; Izzo et al., 2020; Lassala et al., 2021; Lawati & Hussainey, 2022; Nechita et al., 2020; Ramos et al., 2022; Sekarlangit & Wardhani, 2021; Yu et al., 2020; United Nations Statistics Division, 2020).
Independent			
Board size	SIZE	Total number of executive and non-executive directors on the board.	(Beji et al., 2021; Buniamin et al., 2020; Ozdemir & Kilincarslan, 2021; Ogunsanwo, 2019)
Age	AGE	The proportions of old directors (≥60 years old) and young directors (below 60 years old) on the board.	(Abdullah & Ismail, 2013; Bertrand, M., & Schoar, 2003; Bsoul et al., 2022; Gala & Kashmiri, 2022; Loukil & Yousfi, 2022)
Education	EDU	The proportions of highly educated director (PhD and Master's qualification) and non-highly educated director (those without PhD and Master's qualification).	(Beji et al., 2021; Bsoul et al., 2022; Loukil & Yousfi, 2022; Tjahjadi et al., 2021)

DISCUSSION AND CONCLUSION

This section presents the results based on the study objectives and hypotheses. The findings are followed by a discussion that interprets their significance.

Statistics and Data Analysis

This study uses SPSS to examine the effects of BOD characteristics namely size, age, and education on SDGs reporting. SDG disclosure is measured using an SDG reporting index derived from annual report disclosures, as outlined in the methodology section.

Table 2 presents the regression results. The findings indicate that board size and board age are statistically significant predictors of SDG reporting, while board education is not significant.

Table 2: Summary of Result

Variable	B (Unstd.)	Std. Error	Beta	t-value	Sig. (p)	95% CI (Lower–Upper)	Significance
SIZE	1.170	0.129	0.318	9.042	<.001	0.916 – 1.425	Significant, positive effect
AGE	0.245	0.063	0.137	3.917	<.001	0.122 – 0.368	Significant, positive effect
EDU	0.034	0.043	0.027	0.778	0.437	-0.051 – 0.119	Not Significant

Model Summary:
$R = 0.344$, $R^2 = 0.119$, Adjusted $R^2 = 0.115$, Std. Error = 0.378, Durbin-Watson = 0.598
ANOVA: $F(3, 721) = 32.342$, $p < 0.001$

The overall regression model is statistically significant, $F (3, 721) = 32.342$, $p < 0.001$, indicating that that the selected board characteristics jointly influence SDG disclosure. However, the explanatory power of the model is relatively modest, with an R^2 of 0.119 and an adjusted R^2 of 0.115. This suggests that approximately 11.9% of the variation in SDG reporting is explained by board size, board age, and board education. The remaining variation is likely influenced by other firm-specific, governance, or institutional factors not included in the model.

Among the predictors, board size ($\beta = 0.318$, $p < 0.001$) and board age ($\beta = 0.137$, $p < 0.001$) show significant positive relationships with SDG reporting. This indicates that larger and more experienced directors tend to disclose more SDG-related information. In contrast, board education ($p = 0.437$) does not exhibit a significant relationship with SDG reporting, suggesting that formal educational qualifications alone may not necessarily translate into stronger sustainability disclosure practices. Further discussion of these findings is presented in the following section.

Discussion on findings

The findings of this research provide important insights into how board characteristics influence SDG reporting among Malaysian consumer product and service firms. Consistent with UET, the results indicate that organizational outcomes such as sustainability disclosure are shaped by the demographic and experiential characteristics of top decision-makers, particularly board size and board age, while board education appears to play a less influential role.

The positive and significant relationship between board size and SDG reporting supports H1 and aligns with the argument that larger boards enhance monitoring capacity, diversity of perspectives, and access to broader expertise. This finding is consistent with Ali (2018), Hussain et al. (2018), and Buniamin et al. (2020), who similarly reported that board size improves corporate sustainability practices. From an international perspective, Endrikat et al.(2021) also highlight that board size is positively associated with sustainability disclosure, although the magnitude of the relationship varies depending on institutional settings. In the Malaysian context, this suggests that larger boards are better positioned to respond to increasing stakeholder expectations and regulatory pressure related to sustainability reporting, including SDG disclosure.

Similarly, board age shows a significant positive relationship with SDG reporting, supporting H2. This result is consistent with UET, which suggests that older directors tend to rely on accumulated experience, risk awareness, and long-term strategic orientation when making decisions (Hambrick & Mason, 1984; Bertrand, M., & Schoar, 2003)The findings align with Beji et al.(2021), who found that board age positively influences sustainability-related outcomes. In the Malaysian setting, this may indicate that experienced directors are more attuned to long-term value creation and legitimacy concerns, which are closely aligned with the objectives of the SDGs. However, this result also reflects the broader mixed evidence in the literature, where some studies (e.g., (Liu & Jiang, 2020; Mukherjee & Sen, 2022) report insignificant relationships, suggesting that the influence of board age may be context-dependent.

In contrast, board education does not significantly influence SDG reporting, leading to the rejection of H3. This finding contradicts the expectations of UET and Resource-Based View theory, which suggest that higher educational attainment should enhance cognitive capability, analytical skills, and strategic decision-making (Hambrick & Mason, 1984; Barney, 1991). It also differs from studies such as Katmon et al. (2019) and Naseem et al.(2020), which report positive relationships between education and sustainability or CSR disclosure.

A possible explanation for this insignificant result is that formal education may not directly translate into sustainability-related decision-making in practice. In the context of Malaysian listed firms, SDG reporting may be driven more by experiential knowledge, regulatory compliance, and board dynamics rather than academic qualifications alone. This is consistent with Gottesman and Morey(2010), who also found that education does not necessarily improve firm outcomes. Another possible explanation is that SDG reporting is still a developing practice in Malaysia, where awareness and implementation may depend more on governance structure and institutional pressure than individual educational background.

Overall, these findings reinforce UET by demonstrating that not all demographic attributes equally influence strategic sustainability outcomes. While board size and age shape SDG disclosure through governance capacity and experience, board education appears to have a limited direct effect in this context.

Conclusion

The study reveals that BOD characteristics, particularly board size and age, play a significant role in influencing SDG disclosure. Larger boards, with their broader expertise and oversight, are more likely to engage in sustainability practices, aligning with findings by Ali (2018) and Hussain et al. (2018). Older boards, characterized by greater experience, also positively impact SDG disclosure, supporting the notion that long-term thinking drives sustainable decisions, as suggested by Hambrick and Mason (1984). In contrast, board education did not show a significant effect on sustainability reporting, indicating that formal qualifications alone may not translate into meaningful SDG engagement.

These findings reinforce the relevance of the UET, demonstrating that the composition of the board especially its size and age shape a companies' commitment to sustainability goals. This suggests that experiential and structural characteristics of the board are more influential than formal educational attainment in explaining SDG disclosure practices in the Malaysian context.

From a practical perspective, the findings provide useful implications for Malaysian regulators and listed companies. Regulators such as Bursa Malaysia and the Securities Commission may consider further strengthening governance guidelines that promote effective board composition, particularly in terms of board capacity and experience, to enhance the quality and credibility of SDG reporting. For listed firms, the results suggest that improving board effectiveness through appropriately sized boards and experienced directors may strengthen sustainability disclosure practices and better align corporate reporting with stakeholder expectations.

The study also acknowledges certain methodological limitations. First, the reliance on content analysis may introduce a degree of subjectivity in interpreting SDG-related disclosures, despite efforts to maintain systematic coding procedures. Second, the study focuses only on firms within the Malaysian consumer product and service sector, which may limit the generalisability of the findings to other industries or national contexts. In addition, the relatively modest explanatory power of the model suggests that other governance and firm-specific variables not included in the analysis may also influence SDG disclosure.

Despite these limitations, the study contributes to the literature by extending the application of UET to SDG reporting in an emerging market context. It highlights that not all board characteristics exert equal influence on sustainability disclosure, thereby refining the understanding of how top management characteristics translate into corporate sustainability outcomes.

Future research could extend this study by incorporating additional governance and firm-specific variables such as board independence, ownership structure, and institutional ownership to improve the explanatory power of the model. In addition, future studies may examine other industry sectors or conduct cross-country comparisons to determine whether the observed relationships between board characteristics and SDG disclosure remain consistent across different institutional environments. This would further enhance the generalisability and robustness of findings related to corporate sustainability reporting.

In conclusion, board composition particularly board size and age remain an important determinant of SDG disclosure among Malaysian listed firms. Strengthening governance structures that promote effective board composition may therefore enhance corporate sustainability transparency and contribute to broader global sustainability objectives.

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