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THE IMPACT OF BOARD DIVERSITY ON ENERGY-RELATED SDGS DISCLOSURE IN MALAYSIAN PUBLIC LISTED COMPANIES

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Abstract

This study aims to determine the degree of disclosure on energy-related SDGs by Malaysian public listed companies and examine the impact of board diversity on the disclosure. Board diversity, which acts as the independent variable in this study, focuses on board size, board independence and board age. The study sample comprised 320 companies listed in Bursa Malaysia and randomly selected out of 788 companies. Data on energy-related SDGs disclosure, as measurement for the dependant variables, were identified through a content analysis of the 2019 annual report of the 320 companies. Findings indicate that SDGs disclosure is still low among Malaysian companies with only 31 percent of the sample companies making a specific SDG disclosure in their annual report. Further analysis on board diversity and energy-related disclosure found that board size and board independence have significant influence on energy-related SDGs disclosure. However, no significant relationship was found between board age and energy-related SDGs disclosure. Findings of the study are more likely to have a significant impact on corporations that aggressively communicate their energy-related initiatives and efforts in their business framework to stakeholders.

Keywords: Board diversity, board governance, energy-related SDGs disclosure, sustainability, public listed companies

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1. Introduction

Sustainable Development Goals (SDGs) concept was introduced in 2015 as a road map in building a better, more sustainable future by addressing some of the largest and most pressing issues that the world is currently facing, such as poverty, inequality, climate change, environmental degradation, peace, and justice (United Nations, 2015). Out of the 17 SDGs, Malaysia has made a good progress in realizing several SDGs including SDG 7 (Affordable and Clean Energy), which emphasizes the need to provide energy that is affordable, dependable, and sustainable. Achievement of SDG 7 depends on the advancement of other SDGs which related to energy. These SDGs have a potential to interact with numerous other goals whose policies might impact the SDGs of energy-related (McCollum et al., 2018). Energy consumption is an essential aspect of SDG agenda (Aliyu & Ismail, 2015). Improvements in Malaysia’s industrialization and standard of living have influence the increase of energy consumption in Malaysia. Statistics on energy consumption in Malaysia has indicated an increase of more that 100 percent between 2006 to 2016. This further indicates that achieving SDG 7 and other energy-related SDGs are of utmost importance and has become a challenge for government and businesses. Although significant progress has been made regarding SDG 7 and other energy-related SDGs, the rate of change is still low in efforts to realize the 2030 target (United Nations, 2015). Hence, these objectives are deemed essential for limiting the impact of high energy consumption. Consequently, all UN member nations, including Malaysia, must take prompt and appropriate action through collaboration with all sectors in order to achieve the SDG agenda. Corporations could outline their sustainable development strategies and conduct business in accordance with the SDG targets to show their commitment to implement the SDGs. Thus, companies need to report their initiatives and progress concerning their realization of SDGs. It would be part of their movement towards the achievement of the SDG agenda.

Role of board of directors is crucial in conducting the company’s social and environmental function in order to achieve the SDG agenda since as their leadership role will determine the sustainability strategies (Sekarlangit & Wardhani, 2021). In fact, even the SDG elements are quite broad, the energy-related goals are considered relevant to business as it involves daily business operations-related decision making. It has been determined that business activities may result in high levels of energy consumption, which generates pollution and deteriorates natural environment, thereby contributing to world climate change. Even energy-related SDGs are deemed important, the energy-related SDGs disclosure practices is poorly understood, despite extensive research on SDGs. In addition, evidence on how board diversity might affect companies when disclosing energy-related information is still limited. As the stakeholders might have various needs for information, the company has the responsibility to communicate its concerns and practices to the stakeholders. The communication to stakeholders can be realized via corporate annual reports that disclose both, financial and non-financial information (Crane & Glozer, 2016). This is important as the stakeholders may require information regarding environmental and social concerns (Islam & Deegan, 2008).

Thus, this study has two objectives. The first objective is to determine the extent to which Malaysian public companies disclose SDGs related to energy. Second is to examine the association between energy-related SDGs disclosure and board diversity, which includes board size, board independent and board age. Annual reports is used as the focus of the study because it is the most informative public document a company produces and it receives attention from a wide group of stakeholders.

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2. Literature review

2.1. Energy related SDGs disclosure

Sustainability issues have received extensive attention in some Southeast Asia countries with Indonesia requiring public companies to provide sustainability reporting. Singapore and Philippines have mandated the ‘comply and explain’ elements for sustainability reporting, while Thailand had required listed companies to disclose CSR initiatives and Malaysia has established that a sustainability report is a listing requirement starting 2007 (Sekarlangit & Wardhani, 2021). In addition, incorporation of sustainability information into corporate reporting should be implemented to encourage corporations to implement sustainable practices. This would enhance transparency in reporting and improve the organization’s understanding, communication, and management of its SDG’s contribution. The SDGs Agenda 2030 details the United Nations' sustainable energy target. SDG7 directly involves with energy consumption, and its objective is to ensure availability of reasonable, and reliable energy for the community. The SDG7 interacts with other SDGs, which includes SDG relates to poverty (SDG1), health (SDG3), education (SDG4), gender (SDG5), industry (SDG9), sustainable cities (SDG11), responsible consumption (SDG12) and climate action (SDG13) (UNESCAP, 2018). Interaction between SDGs can be identified through several aspects, such as time, geography, governance, and technology (McCollum et al., 2018). SDG 7 is essential for achieving the other SDGs, so immediate action is required. To accomplish this, it is crucial to monitor, and reduce the energy consumption for more efficient energy (Rebelatto et al., 2019). Environmental quality will be affected by the high degree of energy consumption (Shaari et al., 2017). Efficient use of energy can help in reducing energy consumption; resulting in low cost and increased productivity (Rahman et al., 2017). For example, utilizing sources of renewable energy sources enable to reduce the adverse environmental effect and improve the access and supply of energy (Shahsavari & Akbari, 2018). Furthermore, business organizations should play a critical role in accomplishing the SDG agenda through sustainability-related reporting as there is increasing pressure from various stakeholders that urge businesses to be more transparent when reporting. This enables users to make important decisions based on the sustainable reporting, which acts as a mechanism for corporations to prioritize and report on SDGs.

2.2. Board diversity and SDGs disclosure

The board of directors is an essential tool in corporate governance that assist in monitoring the behavior of management for the interest of the shareholders (Fernandes et al., 2018). Board governance encourages corporate sustainability practices, forms corporate sustainable values, and delivers to higher financial performance. Therefore, the board has an important function in determining the company’s social responsibility disclosure (Fuente et al., 2017) and has a significant impact on the amount of environment-related information disclosed (Ntim et al., 2013). In addition, to achieve the social and environmental agenda, particularly for realizing SDG strategies, the board of directors plays a crucial leadership role that determines sustainability strategies (Sekarlangit & Wardhani, 2021) Several studies have documented the significant influence of board diversity on sustainability reporting (Cormier & Magnan, 2014; Hoang et al., 2018). Some previous studies have referred to board diversity from the demographic’s aspect, which

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includes gender, ethnicity, education, and age (Arioglu, 2020; Hoang et al, 2018), but other studies have defined board diversity from a more structural aspect, which include board size, board independence, CEO duality and director ownership (Hafsi & Turgut, 2013; Lahyani, 2022). Lahyani (2022) reported that a diversity of directors influenced companies to increase the disclosure of carbon information to reflect greater transparency when handling environmental issues. In the Malaysian context, a similar significant relationship between sustainable development elements, such as the environment, and board governance practices has been identified (Buniamin et al., 2011; Yusoff et al., 2018).

3. Theoretical Framework and Hypothesis Development

3.1. Stakeholder theory

The board of director's roles are theorized to reflect the stakeholder theory. Stakeholder theory is used in this study to explain the relationship of board diversity towards energy-related disclosures, which is part of a company's corporate social responsibility (CSR). Stakeholder theory and CSR both share the same principle that highlights the importance of fulfilling social interests in business activities (Freeman & Dmytriyev, 2017). This theory emphasizes the connection between the organization and its stakeholders, which includes customers, investors, suppliers, employees and other interested parties, who have a stake in the organization (Price, 2019). It also posits that value creation for these stakeholders and its relationship with them is considered an essence of the business (Freeman, 1984; Freeman & Dmytriyev, 2017; Freeman et al., 2010). Thus, companies are expected to make efforts to reduce any conflict with stakeholders (Price, 2019). The board of directors, as part of corporate governance practices, can help to strive this commitment as it focuses on protecting stakeholders' rights and ensure the achievement of sustainability goals for value creation purposes (Jaimes-Valdez & Jacobo-Hernandez, 2016). The application of stakeholder theory to non-financial reporting, including sustainability reporting, demonstrates the need to provide sufficient information to stakeholders, which in turn promotes effective decision-making (Mitchell et al., 2016), and develops reporting standards that are important to stakeholders (Harrison & van der Laan, 2015). This theory is also closely related to ethical strategies that companies can adopt to serve their stakeholders' interests. According to this theory, each stakeholders possesses rights that must be efficiently delivered for their own interest, which could encourage corporations to contribute to particular social practices (Garriga & Melé, 2004).

3.2. Hypothesis Development

3.2.1. Board size and energy-related SDGs disclosure

Board size can be referred as the total member of directors in a board (Zabri et al., 2016). There is no specific requirement for an optimal number of directors that make up a board, but the Malaysian Code of Corporate Governance asserts that the number of board members is an essential factor that influences the board's effectiveness and has a significant impact on a company's business practice and sustainability reporting (Cuadrado-Ballesteros et al., 2017). According to Jizi (2017), the larger the board size, the more expertise and capability it can offer for effective monitoring, which in turn encourages better corporate

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performance (Ali, 2018). In addition, a larger board tends to comprise more experienced directors on outlining the strategy for sustainability, which acquired through training, directive knowledge and experience (Allegrini & Greco, 2013). In addition, the larger the board, the better it represents the sensitivity of stakeholders and helps to accomplish its social objectives (Zubeltzu-Jaka et al., 2020). Khaireddine et al. (2020), found that companies with a larger board size tend to increase their environmental disclosure compared to companies with a smaller board. Furthermore, a recent study in Malaysia by Buniamin et al. (2021) found that a larger board tended to encourage corporate involvement in SDGs. It was indicated that larger board tend to have better distribution of workload with wider experience from different backgrounds. However, Hermalin and Weisbach (2003) argued that a larger board could result in less meaningful, time consuming and difficult discussions, since coordination problems could occur. This is supported by a recent study that found the larger the board size, the lower the corporate social performance (Muñoz, 2020). Specifically, in relation to environmental disclosure, Uwuigbe et al. (2011) found an inverse relationship between board size and environmental disclosure. This shows that a larger board tends to adversely affect environmental disclosure because a larger board is less coherent and inefficient in making decisions (Fuente et al., 2017). In contrast, Cucari et al. (2018) found no significant relationship between board size and corporate social activities. As for this present study, it is expected that board size will influence the energy-related SDGs disclosure. Thus, the first hypothesis is:

H1 There is a significant relationship between board size and energy-related SDGs disclosure.

3.2.2. Board independence and Energy-related SDGs Disclosure

Board of directors consist of both internal directors, who are involved with management decisions and external directors, who are the independent directors (Fuente et al., 2017). The number of external directors is closely related to transparency and responsible behaviour. Independent directors are also associated with effective board monitoring (Herda & Taylor, 2012) and can influence corporate responsibilties in order to satisfy stakeholders' interests (Jizi, 2017; Liao et al., 2015). A large number of independent directors is inclined to have a better monitoring capability and challenge the top management. Thus, these characteristics will enable independent directors to focus on long-term perspectives to achieve sustainable development (Johnson & Greening, 1999). They are also expected to exercise their accountability to stakeholders by disseminating a broader range of information and ensuring symmetrical agreement between company's strategy and value of society (Prado-Lorenzo & Garcia-Sanchez, 2010). Furthermore, board independence has a positive influence on general voluntary, CSR and environmental disclosures (Chau & Gray, 2010; De Villiers et al., 2011). Michelon and Parbonetti, (2012) also suggested that independent directors help to improve company's reporting system and encourage achievement of better environmental transparency (Michelon & Parbonetti, 2012). In addition, Husted & de Sousa-Filho (2019) found that independent directors effectively encourage ESG disclosures. Companies tend to report their social and environmental initiatives to ensure the existence of independent directors. Therefore, the third hypothesis proposed is as follows.

H_2 There is a significant relationship between board independent and energy-related SDGs disclosure.

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3.2.3. Board age and energy-related SDGs disclosure

Board age is another important element in board governance. It reflects a value of directors and an important proxy in a company's decision-making process (Arioglu, 2020). The board, comprising directors of different ages, background and environment, could adversely influence the decision-making process (Talavera, Yin & Zhang, 2018). This is the result of different political, cultural and economic experience that leads to diverse values that could create problem to the decision-making process. Furthermore, Khan et al. (2019) reported that board age diversity could reduce the quality of CSR disclosures. However, Arioglu (2020) argued that diversity of board age has a positive impact on company's performance. This implies that the directors' diverse age range could lead to diverse knowledge and experience that might encourage a better monitoring process. Mature directors are more likely to be concerned about the benefits accruing to society (Hafsi & Turgut, 2013). This finding is consistent with that of Fernandes et al. (2018) and Said et al. (2012), who found that more mature directors provide better environmental disclosures. This implies that older directors with vast experience can recognize good practices, and this brings value to the company. Conversely, other studies have found that younger directors are more likely to be concerned with environmental and ethical issues because the younger directors are more familiar with those issues (Bekiroglu et al., 2011). In contrast, Bueno et al. (2018) observed no significant relationship between board age and voluntary disclosure. Thus, the following hypothesis was proposed:

H3 There is a significant relationship between board age and energy-related SDGs disclosure.

4. Research Method

This study involved a total sample of 320 listed companies, in Bursa Malaysia as of 30 June 2020, which were randomly selected out of 788 companies, using the excel number generator. Data on energy-related SDGs disclosure, as a measurement of dependant variables, were obtained and identified through the content analysis method involving the 2019 annual report of the companies involved. The energy-related SDGs included were SDG1, SDG2, SDG3, SDG6, SDG7, SDG9, SDG11, SDG12 and SDG13. These SDGs were selected because they were all highly interacted and focused directly on energy (McCollum et al., 2018). As for the independent variables, three variables were identified based on board diversity aspects, namely board size, board independence and board age. Board size was measured based on the number of directors on the board, board independence based on the proportion of independent directors over the total number of board members, and board age based on the average age of the total number of board members. Data were analysed using descriptive and logistic regression analysis and running it using the Statistical Package for Science Social (SPSS) software.

5. Findings

Table 1 shows that only 31 per cent (98 companies) out of the 320 sample companies had disclosed the information on SDGs practices in the annual report. Despite the fact that this study indicates that SDGs disclosure practises of Malaysian public listed companies are still low, it does relate to certain SDGs, indicating that the businesses tend to select SDGs that were most relevant to their business operation and value of societies.

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Table 1. Corporate SDGs disclosure

	SDGs Disclosure	Frequency	Percent
Disclosure in Annual Report	Yes	98	31
	No	222	69
	Total	320	100

Table 2. Energy-related SDGs

Energy-related SDGs	Frequency	Percent
SDG 1 – No Poverty	26	26.5
SDG 3 – Good Health & Well Being	68	69.4
SDG 6 – Clean Water & Sanitation	33	33.7
SDG 7 – Affordable & Clean Energy	35	35.7
SDG 9 – Industry, Innovation and Infrastructures	48	49.0
SDG 11 – Sustainable Cities & Communities	32	32.7
SDG 12 – Responsible Consumption & Production	61	62.2
SDG 13 – Climate Action	57	58.2

Table 2 summarize the degree of information disclosure on energy related information by the sample companies. SDG 3 on Good Health & Well Being) is the highest reported SDG, with approximately 69 per cent out of total 98 companies that disclosed the SDG information. This is followed by the SDG 12 on Responsible Consumption & Production and SDG 13 on Climate Action at 62 percent (61 companies) and 58 percent (57 companies), respectively. Furthermore, the percentage of disclosure for the remaining SDGs are below 50% with SDG1 (No poverty) was the least reported with only 27 percent or 26 companies have disclosed the information on the related SDG.

Table 3 depicts the descriptive statistics for continuous variables. The average number of board members was seven, which is align with the number reported in prior studies (Aman et al., 2021). The average percentage of independent directors was 51 per cent and the average age of board members was 59 years old. Details of the descriptive statistics are shown in Table 3.

Table 3. Descriptive statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
Board Size	3	14	7.30	1.869
Board Independence	29	100	51.15	13.243
Board Age	45.50	75.00	59.4459	5.26406

Table 4 represent the result of multiple regression analysis. Prior to the regression analysis, a correlation test was conducted (results not shown here). There were no multicollinearity issues in this research model as all correlations were below 0.80 (Cooper & Schindler, 2013).

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Table 4. Regression analysis

Variables	SDG 1	SDG 3	SDG 6	SDG 7	SDG 9	SDG 11	SDG 12	SDG 13
Board size	0.001*	0.000*	0.000*	0.000*	0.000*	0.002*	0.000*	0.000*
	0.193	*0.27*	*0.238*	*0.219*	*0.295*	*0.179*	*0.317*	*0.304*
Board Independence	0.013*	0.005*	0.415	0.083	0.000*	0.033*	0.002*	0.010*
	0.144	*0.16*	*0.046*	*0.099*	*0.2*	*0.123*	*0.174*	*0.144*
Board Age	0.586	0.247	261	0.713	0.322	0.512	0.954	0.325
	0.031	*0.064*	*0.063*	*0.021*	*0.054*	*0.037*	*-0.003*	*0.054*
R^2	0.048	0.086	0.059	0.049	0.107	0.04	0.107	0.099
Adjusted R^2	0.04	0.077	0.05	0.04	0.098	0.032	0.099	0.091
F-statistic	5.14	10.884	6.406	5.3	12.212	4.257	12.263	11.27

As shown in the findings, board size has significant impact on all energy-related SDGs practices. Companies with more board members are more dedicated to achieving the SDGs; hence, H1 is accepted. This finding is consistent with Khaireddine et al. (2020) and Buniamin et al. (2021), who found that board size has a significant relationship with environmental disclosure. Thus, with more board members, the board has a better understanding of sustainable solutions, as well as more experience and training (Allegrini & Greco, 2013). Furthermore, having a greater number of board members allows corporations to achieve social goals by better representing various groups of stakeholders (Zubeltzu-Jaka et al. 2020).

As for board independence, the results revealed a positive association between all energy-related SDGs except for SDG 6 and 7. This finding was aligned with Jizi et al. (2014), who reported that independent boards strongly influence the involvement in corporate responsibilities, which coincides with energy-related SDGs practices. Thus, to ensure that the objectives of corporate decisions are consistent with sustainable development practices, independent directors should be accountable to stakeholders and urge businesses to disseminate and present a greater amount of information (Prado-Lorenzo & Garcia-Sanchez, 2010).

However, no significant relationship between energy-related SDGs and board age range was found. Similarly, Girón et al. (2021) revealed that a company's board of director's age range does not influence sustainability reporting. Rosati et al. (2018) also found no significant association between a director's age and corporate social responsibility.

6. Discussion and Conclusions

This study focuses on energy-related SDGs disclosure practices of Malaysian Public Listed Companies. The main objective of this study is to determine the impact of board diversity on energy-related SDGs disclosure. Findings show that SDGs disclosure is still at a low level with only 31 percent of the total sample (companies) made a specific SDG disclosure in their corporate reporting. The result is aligned with Tasrip et al. (2017), who found that energy disclosure was low among energy-intensive companies in Malaysia. Despite the low level of disclosure, Malaysia's ranking for disclosure has moved up the rankings from 66th to 60th in 2019 (PwC, 2020). The detailed analysis revealed that the most reported energy-related disclosure was SDG 3 (Good Health and Well Being), followed by SDG 12 (Responsible Consumption &

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Production) and SDG 13 (Climate Change. Prior). Studies have reported that SDG 7 (energy goals and other goals), including SDG 3, SDG 12 and SDG 13, have significantly interacted (McCollum et al., 2018). According to Fonseca et al. (2020), interaction among SDGs could occur in various forms, which include the policy, efficiency, and sustainability of energy.

Further analysis on board diversity and energy-related disclosure found that board size and board independence have significant influence on energy-related disclosure. This finding is consistent with Khaireddine et al. (2020) and Buniamin et al. (2021), who reported a significant relationship between board size and environmental disclosure. Thus, this indicates that the larger the board size, the greater the energy-related disclosure. This is because a larger board size tends consists of more expert and capable directors who can effectively monitoring a company's progress (Jizi, 2017). Besides that, a larger board better represents stakeholders' sensitivities and helps to accomplish the company's social objectives (Zubeltzu-Jaka et al., 2020). As for board independence, it was found that an independent board's role is important in influencing better energy-related disclosure. According to Johnson and Greening (1999), a greater proportion of board independence is more likely to produce a better monitoring process and able to challenge the top management, which in turn could lead to a greater focus on sustainability development. However, no significant relationship was found between board age and energy-related disclosure. This is consistent with Bueno et al. (2018), Rosati et al. (2018) and Girón et al. (2021), who found that board age has no significant influence on corporate social responsibility.

Findings of the study are more likely to have a significant impact on corporations that wish to aggressively communicate their energy-related initiatives and business framework to stakeholders. Moreover, studies on SDGs can encourage the development and improvement on the reporting of SDGs disclosure practices that has gained prominence globally.

7. Limitations and Future Studies

This study used the content analysis method to analyse annual reports and extract data on energy-related SDGs. Future studies should examine other kinds of reporting, such as CSR reports, sustainability reports and so forth. In addition, the study setting focused only on a small sample of Malaysian PLCs that could certainly affect the generalisation of the findings. Focus on board diversity in this study was mainly regarding board size, board independence and board age. Future studies should explore other aspects of board diversity, such as board gender, education and competency to determine its influence on corporate disclosures. Further investigation should also be conducted in other countries in order to provide a comparative evaluation between countries. In addition, a longitudinal study should be performed to track any changes or progress concerning energy-related SDG disclosures over a period of time. SDG disclosures that are congruent with a company's business framework would lead to better sustainability of practices, especially in related to energy efficiency.

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