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The Influence of Board Diversity on Environmental Disclosures and Sustainability Performance in Malaysia

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ABSTRACT

Sustainable growth and environmental issues have been one of the critical topics discussed by governments, legislators and environmentalists worldwide. These issues have vital impacts on the future sustainability performance of a company, societies, environment and other interrelated ecosystem. The objectives of the study are three-folds (i) to examine the extent of environmental disclosures (ER) among industrial listed companies, (ii) to examine the factors which motivate companies to disclose ER and (iii) to assess the impact of ER disclosures on sustainability performances in terms of returns on invested capital (ROIC) and sustainable growth (SG). Based on content analysis, this study finds that the level of ER disclosures is very low with an average ER Disclosure Score of only 26%. Hence more efforts are needed to motivate firms to disclose environmental activities. Using hierarchical Tobit regression with robust standard error, this study finds that board diversity (Muslim directors), firm size, profitability and growth have significant influence on ER disclosures. Other board characteristics such as board size and board independence were not significant drivers of environmental disclosures. Firm size and growth had strong significant effect on 1-year ahead and average 3-year future performances while the results of ER disclosures on future performances are insignificant.

Keywords: Environmental Reporting, Sustainability Growth, Board Diversity, Muslim, Gender, Integrated Reporting
JEL Classifications: G38, M14, Q56

1. INTRODUCTION

Sustainable growth and environmental issues are among the topics being emphasized by governments, legislators and environmentalists worldwide. These issues have vital impacts on the future sustainability performance of businesses, societies, and interrelated ecosystem globally. Environmental issues, which include climate change, pollution, environmental degradation or resource depletion, could lead to the destruction of ecosystems and the extinction of wildlife. Considerable efforts have been made by government agencies, companies and non-governmental organizations to respond to such issues which include environmental protection initiatives, resources management and governance.

Government and regulatory authorities around the globe made several initiatives including rules, regulations, acts and guidelines to establish awareness on the importance of safeguarding and preserving the environment and natural resources. Hence, businesses around the world, especially public listed companies, are encouraged to provide disclosures regarding their environmental management practices and initiatives that improve the well-being of human, workplace, marketplace and the environment ecosystem. These disclosures are commonly known as corporate social responsibility (CSR) report and has been made available to public either on a voluntary or mandatory basis.

Despite the importance of environmental reporting (ER) or disclosures, studies in Malaysia find that even though the level of environmental disclosures is increasing, it is still at a minimal level and descriptive in nature (Thompson, 2004; Sumiani et al., 2007; Elijido-Ten, 2007; Alrazi et al., 2009; Mokhtar and Sulaiman, 2012). Similarly, studies on ER disclosures by companies in specific industries or sectors also find the lack of transparency and the focus on qualitative description (Othman and Ameer, 2010; Darus et al., 2013; Yusof and Darus, 2014).

This study has three objectives. First it is an attempt to measure the extent of corporate environmental disclosures after the mandatory application of International Financial Reporting Standard (IFRS) and implementation of the revised Malaysian Code on Corporate Governance 2012 (MCCG, 2012) among industrial companies in Malaysia. Secondly, this study investigates whether board characteristics that is board size, board independence, board diversity in terms of religion and gender, and firm's characteristics (size and profitability) significantly influence the extent of environmental disclosures among industrial companies in Malaysia. This study examines four corporate governance attributes which is in line with key amendments made in MCCG 2017 that highlights the composition and the independence of the directors under principle 2 (strengthening composition) and principle 3 (reinforcing independence). Finally, this study investigates whether the extent of environmental disclosures affect firm sustainability performances in terms of future returns on invested capital and sustainable growth.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Developed nations such as Denmark, the Netherlands, and Norway have made it mandatory to report information on environmental issues. Meanwhile many studies from emerging countries find that environmental reporting is practised on voluntary basis (e.g., Ku Ismail and Ibrahim, 2009; Joshi et al., 2011; Suttipun and Stanton, 2012). Recently, researchers find that awareness towards environmental disclosures has increased over time (Barbu et al., 2014; Galani et al., 2011; Suttipun and Stanton, 2012).

In Malaysia, environmental information was bound by Section 37 of the Environmental Quality Act 1974 (EQA 1974). EQA 1974 requires companies to notify the public on activities that may have major impact on the population and the environment. The Malaysian Accounting Standards Board (MASB) introduced guidelines on preparing an ER under the Financial Reporting Standards (FRS) 101 – Presentation of Financial Statements. The standard prescribes that companies shall report their environmental information and activities that could affect the environment in their financial statements. The Association of Chartered Certified Accountants (ACCA) launched its own sustainability reporting named as ACCA Malaysia Environmental Reporting Awards (MERA) in 2002 which was later rebranded as the ACCA Malaysia's Environmental and Social Reporting Awards (MESRA) in 2009 (ACCA, 2010). Due to the environmental issues arising from the rapid development in economic growth globally, Malaysia begins to address the CSR report as an important information to be disclosed in the annual reports.

In 2015, Bursa Malaysia provides its first sustainability reporting guidelines for the public listed firms in Malaysia and subsequently introduced the revised sustainability reporting guidelines in 2017. Accordingly, amendments were made on bursa listing requirements, practice notes and the accompanying circular in relation to sustainability statement in corporate annual report. For example, part III of bursa Malaysia practice notes 9 on risk management and internal control, corporate governance and sustainability statement (Bursa Malaysia, 2017) provides detail guidelines on the information requirement of a sustainability statements or reports. Starting 2016, sustainability statements are made mandatory gradually according to market capitalization. All public listed companies with market capitalization of more than Malaysian Ringgit (MYR) 2 billion, MYR1 billion and all others are required to provide sustainability disclosures beginning from 2016, 2017 and 2018 respectively. Bursa Malaysia Sustainability guidelines are based on internationally recognised guidelines such as the global reporting initiative (GRI), task force on climate-related financial disclosures (TCFD) and Sustainability Accounting Standards guidelines. Recently, GRI introduces its newly enhanced sustainability framework G4, which support other important global sustainability frameworks such as the OECD Guidelines for Multinational Enterprises, the United Nation (UN) global compact principles, and the UN guiding principles on business and human rights. Sustainability reporting is often synonymous with triple bottom line reporting or CSR reporting and is also a crucial facet of integrated reporting.

Bursa Malaysia launched its environmental, social and governance (ESG) index for PLCs in Malaysia on 22 December 2014 (The Star, Dec 2014). The ESG index was named FTSE4Good Bursa Malaysia index as it is a collaboration between financial times stock exchange (FTSE) and Bursa Malaysia. The index is one of the first in Asia to be part of the globally benchmarked FTSE4Good index series and is the latest step in the Bursa Malaysia sustainability's target to maintain a better standard of corporate governance in the marketplace (Bursa Malaysia, 2015). The activities above show the commitment of Malaysian government in moving towards building an image of better corporate governance model that balances between profitability and sustainability of the environment.

2.1. Corporate Governance Characteristics

The revised MCCG 2012 enhances the role and responsibility of the board in promoting corporate environmental transparency and accountability to their stakeholders (MCCG, 2012). The board must balance its responsibility to contribute to the well-being of their communities, environment, and societies or commonly referred as corporate social responsibility (Janggu et al., 2014). Corporate governance and CSR (environmental) are closely related as they reflect a firm's commitment to its internal stakeholders as well as to the environment and society at large. This study attempts to investigate the corporate governance attributes namely, board size, board independence, and board diversity in terms of gender and religion which affect corporate disclosures on ER.

2.2. Board Size

Agency theory is based on the separation of ownership and control between principals and agents (Jensen and Meckling, 1976). Companies are recommended to have a good corporate governance framework which could align both the principals' and agents' goals and reduce the agency costs (Judge, 2003). Therefore, having adequate number of board members may resolve conflicts and improve voluntary disclosures on ER (Buniamin et al., 2011; Ionel-Alin et al., 2012; Salehuddin and Fadzil, 2013). Studies in Malaysia find that board size is a significant factor related to ER (Zubaidah et al., 2009; Buniamin et al., 2011; Janggu et al., 2014; Salehuddin and Fadzil, 2013). On the contrary, Wan Abdullah et al. (2012) and Abdul Razak and Mustapha (2013) find no association between ER and board size. Based on the above theory and discussion, the following hypothesis is expected.

H_1: The number of directors on board has a significant influence on environmental disclosures (ER).

2.3. Board Independence

MCCG (2012) defines an independent director as a director who can deliver strong leadership by being able to manage board's priorities more objectively. If the chairman is not an independent director, the board members must comprise of significant number of independent directors to ensure a balance of power and authority on the board (Securities Commission Malaysia, 2012). Therefore, it is expected that the more independent is the board, the more likelihood of ER disclosure (e.g., Htay et al., 2012; Salehuddin and Fadzil, 2013). These independent directors are expected to represent the interest of the stakeholders. As of January 2012, Bursa Malaysia Listing Requirements dictates that a listed company must ensure that at least two directors or 1/3 of the board of directors, whichever is the higher, are independent directors (Part B, Chapter 15 of Bursa Malaysia Listing Requirements).

Studies find an insignificant relationship between board independence and ER (Buniamin et al., 2011; Abdul Razak and Mustapha, 2013). They find that although the board may be independent, the environmental information may not be considered as an important item of the company's performance. However, Salehuddin and Fadzil (2014) and Htay et al. (2014) find that director independence is positively related to ER. This is consistent with Ionel-Alin et al. (2012) who examine the ER of the global petroleum industry. The evidences indicate that a higher number of independent directors may promote higher transparency on ER in the annual reports. Based on the inconclusive evidences from prior studies, it is hypothesised as follows:

H_1: Board independence has a significant influence on environmental disclosures (ER).

2.4. Board Diversity-religion

According to Paino et al. (2011), accountability, transparency, and disclosure are important concepts in corporate governance. These concepts are not foreign in Islam. The Holy Qur'an mentioned in the verses 282 and 283 of Surah Al-Baqarah on how a company should conduct its business transactions by presuming that (i) detailed justification on the standard of procedures when carrying out a transaction and (ii) mentioned the essential of proper bookkeeping in avoiding any unfairness (Paino et al., 2011). These verses show that Islam gives considerable attention on transparency and accountability in business transactions.

Dusuki (2008) argues that the basic of corporate social responsibility is based on the concept of *khalifah* (vicegerent) and *taqwa* (piety). *Khalifah* concept recognizes mankind as agents of God (Allah) on earth and thus must act in accordance to the laws of Allah (Dusuki, 2008). While *taqwa* (piety) paradigm envisages a person is instilled with a deep grasp that his or her role in this world is to manage and restore the world in accordance with the *Shari'ah* principles (Bahari and Yusuf, 2014; Khatun and Alautiyat, 2012). It is believed that *taqwa* paradigm provides multiples values for shaping social life and understanding the human's relationship with Allah, other fellow humans and the natural environment in accordance to s*hariah* principles. These values consist of four major points which are human dignity, free will, equality and rights, and trust and responsibility (Platonova, 2013). Thus, it is argued that when a company incorporate these major points in their top management personnel, the company can develop better corporate governance and CSR practices. Accordingly, when a company practises the *taqwa* paradigm in their business activities, the company will naturally function in a decent and socially responsible manner despite their financial consequences (Dusuki, 2008). ER disclosure is seen as a communication mechanism in promoting Islamic values practiced by companies. Salehuddin and Fadzil (2013) examine the relationship between the presence of Muslim board chairman and corporate social responsibility (CSR) disclosure. This study finds a significant relationship exists between Muslim Board Chairman and the extent of environmental disclosures thus proves that Muslim Board Chairman can positively influence ER disclosure. Based on the above discussion, the following hypothesis is formulated.

H_3: Muslim board member has a positive significant influence on environmental disclosures (ER).

2.5. Board Diversity-gender

Gender (female) attribute is normally used either to determine its influence on a company's performance (e.g., Abdullah and Ku Ismail, 2013; Zainal et al., 2013; Akpan and Amran, 2014) or its CSR disclosure (e.g., Bear et al., 2010; Ibrahim and Hanefah, 2014; Margaretha and Isnaini, 2014). Under the signalling theory that assumes information asymmetry, having women on board provides a signal that the company is concerned about women and minorities. Thus, it portrays a perception that the company is socially responsible and have more initiative for disclosing social activities (Bear et al., 2010).

In addition, Bear et al. (2010) state that female directors are believed to be more influential in communicating among the board members as they are more open to conversations. Bear et al. (2010) examines how the number of women on board affects a company's CSR ratings and how CSR can positively influence a company's reputation. Using the companies listed on Fortune's 2009 most admired list as samples, they find that having women directors on board can positively increase CSR ratings and improve companies' reputation which later encourages voluntary disclosures on CSR. Likewise, Syeikh Abu Bakar et al. (2019) find that Malaysian companies with more women directors tend to have more ER disclosures in their annual reports.

In 2004, the Malaysian government introduced a policy to achieve at least 30% of the top management positions in the public sector to be occupied by women (Abdullah and Ku Ismail, 2013). In 2011, the Prime Minister of Malaysia, Datuk Seri Najib Razak, announced that the percentage of women occupancy at top management position has increased from 18.8% in 2004 to 32.3% in 2011. Following this achievement, he wanted the policy to continue to be implemented to all sectors (both public and private) by 2016 (Fong, 2012). Abdullah and Ku Ismail (2013) find women directors have significant influence on CSR disclosures among companies in Malaysia. Similarly, studies find significant influence of female directors on CSR disclosures in Indonesia (Handajani et al., 2014), Australia (Corkery and Taylor, 2012; Rao et al., 2012) and Jordan (Akpan and Amran, 2014). However, a study by Alazzani et al. (2017) find that women directors in Malaysia are more concerned about social issues rather than environmental issues. Therefore, it is hypothesized that:

H_4: Woman board member has a significant influence on environmental disclosures (ER).

2.6. Firm Characteristics

Corporate characteristics such as company size and profitability are common attributes being used by many researchers (Deegan, 2002; Galani et al., 2011; Suttipun and Stanton, 2012; Bhattacharyya, 2014) when investigating ER disclosures. These characteristics are usually selected when examining association with environmental disclosures (Buniamin et al., 2011).

2.7. Company Size

Legitimacy theory argues that company's reaction to disclosing information depends largely on the expectation or social contract between the entity and societal stakeholders (Lang and Lundolhm, 1993; Nik Ahmad and Sulaiman, 2014). Legitimacy theory predicts that firms will ensure that their activities and accomplishments are appropriate to society. Companies often use their annual reports to expose the image of being environmentally friendly. Disclosing more reliable environmental information to stakeholders will enhance their perception of the company and company's performance. Legitimacy theory posits that social reporting is a mean to manage firm's exposure to political, economic, and social pressures. Thus, companies disclose more voluntary information to legitimize their business activities and performance. This is based on the notion of stewardship where organizations are accountable for the resources entrusted to them (Doupnik and Perera, 2015).

Several studies find a significant positive relationship between company size and the ER (Deegan and Gordon, 1996; Joshi et al., 2011). Size is a representative of the company image and capability to conduct social responsibility and environmental activities (Joshi et al., 2011). Barbu et al. (2014) investigate the mandatory reporting of environmental information in compliance with IAS/IFRS in Germany, France and UK and find that company size is an influential factor of ER on a mandatory basis.

In Malaysia, researchers find that size is one of the factors which has a positive effect on ER (Alarussi et al., 2009; Buniamin, 2010; Sulaiman et al., 2014). Larger companies may have larger monetary capabilities to cover the costs of reporting environmental information in the annual reports. Buniamin et al. (2011) find that larger companies disclosed more information of the environment to their stakeholders in Malaysia. Similarly, Sulaiman et al. (2014) concluded that company size has a significant relationship with the quality of ER in the annual reports in Malaysia. Based on the above discussion, the following hypothesis is formulated.

H_5: Firm size has a significant influence on environmental disclosures (ER).

2.8. Profitability

Profitability is commonly regarded as a vital indicator on company's performance (Makori, 2013). Prior researchers use profitability as a control variable to analyze the relationship between company specific characteristics and ER (Lang and Lundholm, 1993; Alarussi et al., 2009; Suttipun and Stanton, 2012). However, mixed results are found on the effect of profitability on ER. Lang and Lundholm (1993) view that companies with lower profits provide more disclosure on environmental activities as they could argue that more expenses are made especially for the ER and thus lower profits. However, in the Malaysian context, researchers (Sulaiman et al., 2014; Ong et al., 2014) discover that a company with higher profit has a higher impact on ER as this indicates that companies have larger resources to provide for more disclosure on their environmental information. Based on the above argument, it is hypothesised that:

H_6: Profit has a significant influence on environmental reporting disclosures (ER).

3. ER AND FIRM PERFORMANCE

Prior studies provide mixed results on the relationship between ER or CSR or sustainable reporting and firm performance. Many have pointed that the reason for the fragmented results could be due to lack of universal standard in applying these disclosures (Endrikat et al., 2014; Lu et al., 2014). Recently, Hussain et al. (2018) find that the ambiguous relationship is due to different measurement of disclosure dimensions and sub-dimensions as well as weak interlinkages between them. Therefore, in this study, it is expected that:

H_7: Environmental reporting disclosures (ER) have a significant influence on sustainability performance.

4. METHODOLOGY AND SAMPLE

Industrial product sector is considered as one of environment-sensitive sectors (Wiseman, 1982). This study is based on

100 randomly selected industrial product companies listed on Bursa Malaysia. Sample companies are randomly selected from the population using the random number generator following Buniamin et al. (2011). The number of samples chosen is consistent with the minimum sample size table that was suggested by Kerjcie and Morgan (1970).The study focuses on ER disclosure available in companies' annual repors for the year 2013 and sustainability performance for years 2013, 2014 and 2015.

Following Smith et al. (2007), Buniamin (2010) and Yusoff and Darus (2014), this study employs content analysis method to analyse the extent of environmental disclosures from the 2013 annual reports. Next, these disclosures are measured and given scores based on predetermined total environmental disclosure scores. The environmental disclosures scores (ER score) are adapted from the global reporting initiative (GRI) (latest version entitled "GRI: G4" and published in 2013). Appendi×1 presents the final list of 19 items that were included in the environmental reporting disclosure (ER Score).

Corporate ER is extracted from the annual reports of the sampled companies and the disclosure score was calculated using a disclosure score index. The ER Score index score is adapted from Sulaiman et al. (2014). A score of "2" is given for items that are reported in quantitative or financial terms. A score of "1" is given for items that are reported qualitatively. A score of "1" is also given for items that are reported in a form of diagram or picture. A score of "0" is given for items that are not reported. Thus, a company could score up to a maximum of 38 (19 × 2) and the total score is presented in percentage from the computation of the ratio of actual scores given divided by the maximum score. All corporate governance data are manually collected from companies' annual reports while the remaining financial data are retrieved from Thomson DataStream database. First, hierarchical or stepwise Tobit regression analysis with robust standard error is estimated to determine the influence of board charactreristics, firm size, profitability and growth on the extent of environmental reporting disclosures (ER score), as shown in Equation 1I below. Next, an OLS regression with robust standard error is used to assess the effect of ER Score on sustainability performance, as summarised in Equation 2 below. Table 1 presents the variables and measurement used in the regression analysis.

$$\text{ER score} = \alpha + \beta_1 \text{ BSize} + \beta_2 \text{ BInd} + \beta_3 \text{ BMuslim} + \beta_4 \text{ BWomen} + \beta_5 \text{ Size} + \beta_6 \text{ Profit} + \beta_7 \text{ growth} + \varepsilon \quad (1)$$

$$\text{Sustainability performance} = \alpha + \beta_1 \text{ BSize} + \beta_2 \text{ Growth} + \beta_3 \text{ ER Score} + \varepsilon \quad (2)$$

5. ANALYSIS AND FINDINGS

Preliminary data analysis is constructed in order to avoid any misinterpretation. Heteroskedasticity test, Pearson correlation test and variance inflation factor (VIF) are checked accordingly to avoid problems associated with heteroskedasticity and multicollinearity issues. The correlation matrices are all within normal range, <0.5 and the VIF for each variable is <3. Normality test is not done as the sample size is reasonably large. Gujarati (2004. p. 125) explains that when the sample is large amounting to 100 or more observations, normality is assumed and thus the normality testing can be relaxed. Data on growth, profitability, ROIC and sustainability growth are winsorized to minimize the influence of outliers. Following Bursac et al. (2008) and Nathans et al. (2012), this study employs hierarchical or stepwise regression to determine the most significance variables of the regression model.

5.1. Descriptive Statistics Analysis

Table 2 shows the descriptive statistics of all variables. Based on the findings, the level of ER disclosures is very low where the mean ER SCORE of the sample companies is only 21.2%, the maximum level of is 52.6% while the minimum level is zero. The mean for board size (BSIZE) is 7.2 which is considered a reasonable number to ensure the effectiveness of a company's monitoring.

Board independence has a mean value is 0.4615 which meant that 46% of board members are independent and satisfies the minimum requirement prescribed in MCCG 2012 to have at least 33% of independent directors. For board diversity on religion, (BMuslim), the mean is 26% meaning that about 26% of board members of the sample companies are Muslims. For board diversity of gender (BWomen), the mean level is 0.097 which indicates that <10% of the board members from the industrial product industry are occupied by female directors. On average the sample companies has a total asset of RM1,307,656,000 with a maximum value of

Table 1: Measurement of variables and hypotheses

Variable	Measurement	H
ER score	Environmental disclosure score	
Board size (BSize)	Number of board members	H_1
Board independence (BInd)	Number of independent non-executive directors divided by total number of directors on board (%)	H_2
Board diversity: Muslim (BMuslim)	Percentage of Muslim directors on board	H_3
Board diversity: Women (BWomen)	Percentage of women directors on board	H_4
Company size (Size)	Natural log of total assets (RM)	H_5
Profitability (profit)	Operating profit per share	H_6
Growth	Market to book value	-
Sustainability performance	Two proxies of future performance are return on invested capital (ROIC) and sustainability growth (SG). SG is measured by ROE * retention rate (RR), where RR is calculated as 1-(Dividend per share/Earnings per share)	
ε	The error term	

RM41,848,210,000 and minimum value of RM27,553,000. The mean for profitability (profit) is 2.51% with the maximum of 34.3% and the minimum of −92.45%. For growth (growth), the mean value is 1.061.

On sustainability performance, the mean ROIC for the year 2014 (RIC2014) is 5.060% while the average future ROIC for years 2013 to 2015 (AveROIC) is 4.648%. Meanwhile, the sustainability growth of the sample for year 2014 (SG2014) is 2.6% and the average sustainability growth (AveSG) for the 3-year period is 1.596%.

5.2. Regression Analysis

Stepwise Tobit regression using robust standard error is divided into three (3) steps as presented in Table 3. For Step 1, the full model is regressed, and three variables have significant relationship with ER-Score, which are Size, Profit and Growth. In Step 2, the study removes the two insignificant variables with P value at $P \geq 0.25$ which are BInd and BFemale. Hence, in Step 2, the study re-estimates the model and find four significant variables that are associated with ER-Score which are Size, Profit, BMuslim and Growth. The final step re-estimates the model by removing variables with insignificant association with ER-score which is BSize leaving four variables with significant relationship with ER-score which are size, profit, growth and BMuslim.

The study finds no significant relationship between the size of board and ER disclosures in the annual reports. This finding is consistent with Ionel-Alin et al. (2012) and Abdul Razak and Mustapha (2013) who find that having larger board members in Malaysian companies have no impact on the awareness on the importance of ER. Thus, the hypothesis for H_1 is not supported. As for board independence, the result of this study is similar with that of Wan Abdullah et al. (2012) and Janggu et al. (2014) where they find no association between board independence on ER. Wan Abdullah et al. (2012) claims that independent directors need to be free from any influence that may affect their professional judgments, integrity and objectivity of the company's business objective. Thus, the hypothesis for H_2 is rejected. The result of the study does not provide support to agency theory suggestion by Jensen and Meckling (1976) that predicts having independent directors facilitate better monitoring and control by the board members.

Following the *taqwa* paradigm by Dusuki (2008), this study assumes positive relationship of board diversity (religion) on ER disclosure using Muslim directors as the proxy for the variable. Other studies such as Salehuddin and Fadzil (2013) and Abdul Rahman and Bukair (2013) also find similar findings. The findings postulates that although the average percentage of Muslim board members is only 26%, their influence on ER disclosure subsists. The *taqwa* paradigm posits that Muslim director can influence other directors as they are thought to be more transparent and accountable towards their actions and decisions. Thus, the result from this study supports the hypothesis H_3.

On the other hand, the study finds women on board have no significant influence on the level of ER disclosures among industrial companies in Malaysia. One explanation is that female directors make up <10% of total directors with the majority of companies having no female directors. In this case, they cannot stamp their authority in boards that are controlled by males. This

Table 2: Descriptive statistics (n=100)

Variable	Mean	Median	Standard deviation	Max.	Min.
ER score	0.212	0.223	0.152	0.526	0
BSize	7.200	7.000	1.780	12.000	4
BInd	0.461	0.444	1.070	0.750	0
BMuslim	0.259	0.211	0.222	1.000	0
BWomen	0.096	0	0.1321	0.5000	0
Size ('000)	1,307,656	210,496	4,602,032	41,848,210	27,553
Profit (%)	2.51	3.34	12.27	34.35	(92.45)
Growth	1.061	0.695	0.979	5.360	(0.110)
ROIC2014 (%)	5.060	4.790	9.078	38.02	-19.970
AveROIC (%)	4.648	4.073	7.788	38.85	-13.697
SG2014 (%)	2.599	2.885	9.204	37.72	-27.300
AveSG (%)	1.596	1.925	6.899	20.933	-16.530

Table 3: Tobit with robust standard error (Tobit-robust) regression results

Tobit-robust	Step 1		Step 2		Step 3	
	Full model		Delete P ≥ 0.25 in Step 1		Delete P ≥ 0.1 in Step 2	
ER-score	Coef.	P value	Coef.	P value	Coef.	P value
BSIZE	0.025	0.169	0.009	0.273	-	-
BIND	0.126	0.361	-	-	-	-
BMUSLIM	0.092	0.225	0.0908	0.088*	0.0956	0.071*
BFEMALE	−0.0019	0.493	-	-	-	-
SIZE	0.037	0.007***	0.0329	0.007***	0.0345	0.007***
PROFIT	−0.066	0.014***	−0.0023	0.001***	−0.0024	0.003***
GROWTH	−0.0234	0.091*	−0.0219	0.089*	−0.0209	0.096*
_cons	−0.5559	0.054	−0.4919	0.036	−0.4622	0.012

BSIZE: Board size, BIND: Board independence, BMUSLIM: Board diversity (religion), BFEMALE: Board diversity (gender), CSIZE: Company size, ROFIT: Profitability, FCF: Free cash flow, GROWTH: Growth. *: P<0.10, **: P<0.05, ***: P<0.01

result contradicted many prior studies such as Abdullah and Ku Ismail (2013), Salehuddin and Fadzil (2013) and Abdullah (2014) where they find that the existence of female directors enhances the awareness of voluntary disclosure and firm performance (Akpan and Amran, 2014). Thus, the hypothesis H_4 is not supported in this study.

This study finds a positive significant relationship between company size (natural log of total asset) and the practice of ER disclosure. The result is consistent with many prior studies (Buniamin et al., 2011; Alarussi et al., 2009; Buniamin, 2010; Salehuddin and Fadzil (2013); Sulaiman et al., 2014) that examines determinants of ER disclosures. Large companies tend to disclose more environmental information to reduce public pressure and usually portray to be more visible and accountable to the public (Cormier and Gordon, 2001). Overall, the hypothesis of H_5 is supported.

The result also shows a positive association between profitability and ER disclosures. The profitability in this study is measured using earnings before tax, depreciation and amortisation (EBITDA) or operating profit. This finding is consistent with the expectations and results of Gray et al. (2001), Smith et al. (2007), Ong et al. (2014), Sulaiman et al. (2014), Ong et al. (2014) and Muttakin and Subramaniam (2015). Likewise, the result on ER and profitability is also consistent with those recently find in Hardiningsih et al. (2020). These studies find companies with higher profits have better resources to disclose environmental information in their annual reports. Hence, the hypothesis for H_6 is supported.

Table 4 provides a summary of OLS regression with robust standard error on sustainability performance. This study employs returns on investment capital (Model 1) and sustainability growth (Model 2) as proxies for sustainability performance which is based either on 1-year ahead (year 2014) or the average of the 3-year period (years 2013-2015).The results of ER-score for both models on sustainability performance show that ER disclosures have no impact on either sustainability performances of 1-year ahead or future 3-year averages for returns on invested capital (ROIC) or sustainability growth (SG). Thus, the hypothesis H_7 is not supported.

Both company size and growth have positive and significant association on firm sustainability performance either measured in terms of return on capital invested or sustainability growth. The results persist for both 1-year ahead and average 3-year sustainability performance. Perhaps, the insignificant relationship between ER disclosures and sustainability performance could be due to time lag, as it is expected that investment in environmental activities requires longer time to be materialised. Another possible reason could be due to the choice of proxy for sustainability performance. Other measures of sustainability performance which incorporate sustainable value-added assessment on environmental activities could better assess corporate environmental activities.

6. SUMMARY OF KEY FINDINGS

This study is motivated by the Malaysian government's initiatives in promoting ER, CSR or sustainability disclosure of companies in Malaysia. The initiatives are inclusive of the Listing Requirements of Bursa Malaysia corporate governance code guidelines. The objectives of this study are (i) to examine the extent of environmental disclosures among an environmentally sensitive sector, industrial companies in year 2013, (ii) to investigate determinants of the ER disclosure for industrial listed companies in Malaysia and (iii) to examine whether the environmental disclosures have significant effect on firm sustainability performance. Specifically, the study aims to answer whether (i) corporate governance attributes (board size, board independence, board diversity of gender and board diversity of religion) influenced companies' ER disclosures and (ii) firm characteristics (size and profitability) affects companies' ER disclosures. Then, the study investigates whether the ER disclosure has any significant impact on sustainability performance as measured by return on invested capital and sustainability growth.

The results reveal that board diversity of religion (Muslim) has a significant positive influence on the level ER disclosure in 2013. Having Muslim directors can positively influence company to disclose more environmental information to the public. Somehow, companies that have managers that adopted the *taqwa* paradigm will eventually adopted the good quality of a manager to be more transparent on their business actions. The companies also portray to other stakeholders that they are accountable for all of their decisions that may affect not only humans but the natural environment as well. Although the number of Muslim directors on board members were still low, on average 26% on the board structure, this study provides that they already made significant contribution to encourage companies to comply with both the Bursa Malaysia's listing requirements and MCCG 2012 to practice ER disclosure in the annual reports.

In contrast, other CG characteristics namely board size, board independence and board diversity of gender have no significant influence on ER disclosure. The results indicated that large board, independent directors and women directors do not lead to a high

Table 4: OLS with robust standard error regression on future performance

Variable	Model 1 - Returns of invested capital				Model 2 - sustainability growth			
	1-year ahead		Average 3 year		1-year ahead		Average 3 year	
	Co ef.	P-value	Co-ef.	P-value	Co-ef.	P-value	Co-ef.	P-value
ER-**score**	−6.658	0.183	−6.368	0.153	−6.021	0.311	−6.804	0.137
Growth	4.738	0.000***	4.805	0.000***	1.692	0.050**	1.648	0.028**
Size	1.420	0.005***	0.926	0.068*	1.401	0.019***	1.079	0.040**
Constant	−26.241	0.008	−17.27	0.066	−25.533	0.311	−20.027	0.137
Prob. >F		0.000		0.000		0.032		0.006
R-Sq.		0.378		0.445		0.117		0.158

level of ER disclosures in the 2013 annual reports. It is argued that the number of women' participation on board was still at a minimal level (about 10%) which is very low compared to the country's target of 30%. Thus, to get significant benefit of women participation, concerted efforts and incentives need to be done to allow more women engagement at the management level. Abu Bakar et al. (2017) support that concerted efforts from banking institutions, governmental sectors as well as the industry players are important to increase companies' awareness and compliance to the new disclosure standards.

Firm characteristics have strong significant relationships with ER disclosures as well as sustainability performance. The results illustrate that larger companies disclosed more environmental information in the annual reports. Perhaps, larger companies have more resources to provide voluntary disclosure at minimal cost. This was probably due to the pressure from stakeholders to illustrate the image of being more sensitive to societal perceptions concerning environmental issues. On the other hand, profitability and growth have significant negative relationships with ER disclosure. This implied that companies that are more profitable and high growth companies are more reluctant to provide environmental information in the annual reports. It is also found that both firm size and growth had significant positive effects on sustainability performance. However, the relationship between ER disclosure and both proxies of sustainability performance are insignificant.

In summary, it can be concluded that larger companies with Muslim directors, with lower profit and growth tend to disclose more information on environmental in their annual report 2013, prior to mandatory requirements starting from 2016. The results should be interpreted cautiously due to some limitations of the study.

7. LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

This study is limited to cross-sectional analysis using only 1-year observation with 100 randomly selected industrial companies based on information disclosed in companies' annual reports. Companies may provide ER disclosures in other sources such as company's newsletter, websites or environmental bulletin. Nevertheless, this study provides useful observations into the relationship between board attributes and firm characteristics in relation to ER disclosure and sustainability performance. Secondly, this study does not include all corporate governance and corporate characteristics as prescribed in the corporate governance code. There are other factors that could contribute to the significance influence on ER disclosures. For future research on ER disclosure, other researchers should increase other explanatory corporate governance variables, particularly CEO duality, Muslim chairman, ownership, and professional/educational background of directors. It is suggested that other explanatory corporate variables such as listing age and capital raised should be included in the model. These limitations narrow the possibility for researchers to view the determinants that can influence the ER disclosure under the latest regulations made by the Malaysian government in a wider perspective. It is also suggested that future studies extend the number of years which can capture the recent pattern of ER disclosure in line with global trends and legal requirements by the Malaysian government.

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APPENDIX1

Environmental reporting index (ER score)

No.	Environmental reporting index
1	Any mention of promoting sustainability
2	Company's Statement of corporate commitment to environmental protection
3	Environmental policy formulation
4	Environmental management system (ISO 14001)
5	Efficiency of energy and water consumption
6	Trees planting or replanting programmes and initiatives
7	Protection and preservation of natural environment in areas of high biodiversity
8	Sustainable waste management
9	Reduce greenhouse gas emissions
10	Incorporate pollution prevention practices (e.g., reduce, recycle and reuse)
11	Green/safe products and services
12	Use of environmental alternative technology in managing business production
13	Fines/lawsuits/noncompliance incidents related to environment
14	Compliance to any laws and regulations related to environmental
15	Corporate fleet to use eco-friendly vehicle
16	Networking with 'green' stakeholder groups
17	Environmental budgets/expenditures
18	Environmental education for employees and community
19	Environmental awards/achievements

Sources: Adapted from Yusoff and Darus (2014) and global reporting initiative (GRI: G4) (2013)