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The Mediating Effect of Strategic Posture on Corporate Governance and Environmental Reporting

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Abstract

The aim of this study is to explain how corporate governance affects environmental reporting through the mediating effect of strategic position. The data were collected from chief executive managers and chief financial managers of 197 large companies in Malaysia. The partial least squares technique was used to test the proposed relationships. The results show that managers' strategic posture mediates the impact of four aspects of corporate governance, namely, board size, board independency, CSR committee presence, and institutional ownership on environmental reporting. These findings extend the literature on the relationship between corporate governance and environmental reporting by providing insight into the reasons for these relationships. The results of the study will be useful for managers of companies and investors to become knowledgeable about those aspects of corporate governance which lead to higher environmental reporting. This study can also inform policy-makers about the types of firms that are less likely to disclose environmental reports and to develop effective enforcement of regulations.

Keywords: Strategic Posture, Corporate Governance, Environmental Reporting

1. Introduction

Increased public awareness about the role of companies in exacerbating environmental problems has led customers to put pressure on companies to take responsibility for causing environmental issues. In response to these pressures, as evidence of willingness

to accept accountability and responsibility towards the environment, companies publish corporate environmental reports to show that they are relatively good environmental performers. However, as environmental reporting is voluntary in many countries, it has sparked attention from both academics and practitioners to see whether companies are indeed acting in good faith to deserve their improved corporate public image.

Malaysia and other ASEAN countries agreed to address climate change and consequently ASEAN members mandate that all publicly listed companies must integrate environmental practices into their strategies (Amran et al., 2016). For example, in Malaysia, the government implements (i) the National Policy on the Environment, (ii) the National Forest policy, (iii) the National Energy Policy, (iv) the National Policy on Climate Change Issues, and (v) the Biodiversity Policy to address climate change issues. Furthermore, from 2007, Bursa Malaysia mandated that all Malaysian publicly listed companies must report their corporate social responsibility (CSR) practices relating to the marketplace, the environment, the workplace, and the community in their annual reports (Bursa, 2014). Although Malaysian companies have dramatically increased their environmental reporting in response to institutional pressures, the quality of environmental information disclosed by Malaysian companies and the level of environmental reporting is still at an early stage in comparison with international best practice (Othman et al., 2009; Buniamin, 2012). As such, it is necessary to develop an understanding of factors other than institutional ones that may extend the level of environmental reporting of companies in Malaysia as a developing country.

As the environmental reporting level varies considerably among companies (Hahn & Kühnen, 2013) and the decision on environmental reporting level depends on how the organization is governed, the study on the impact of corporate governance on environment reporting is important. Although, there are many studies on the potential impact of corporate governance on the level of financial reporting (e.g., Firth et al., 2006; Haniffa & Hudaib, 2006), only recently this type of research has expanded to include non-financial reporting (e.g., Jo et al., 2012; Majumder et al., 2017). These studies showed the importance of corporate governance structures in enhancing the level of corporate social reporting (Jo et al., 2012). However, research on the relationship between corporate governance and non-financial reporting has mainly focused on corporate social reporting and studies on environmental reporting are

lacking. As such, testing the impact of corporate governance on environmental reporting is the first objective of this study. More specifically, a contribution of this study to the existing literature is to investigate how governance structure relates to environmental reporting in annual reports.

The previous studies found a board governance structure as one of the critical determinant of firms' non-financial reporting level (e.g., Haniffa & Cooke, 2005; Jo et al., 2012). However, the studies cannot explain how a board governance structure of firms affects non-financial reporting. Based on the previous literature on this subject (e.g., Álvarez-Gil et al., 2007), the current research assumes organizational decisions are based on managers' strategic posture. Thus, in this study, the mediating effect of managers' strategic posture was tested to explain the reason that board governance structure affects environmental reporting. The findings of this study extend the literature on the relationship between strategic posture and non-financial reporting.

The other parts of this paper are structured as follows. First, the theoretical background of the study was reviewed. Second, the conceptual framework was developed, and hypotheses were formulated. Later, the research method of this study was explained, and the analysis was reported. Lastly, the findings were discussed, and implications, limitations, and future potential studies were suggested.

2. Theoretical Background

2.1 Corporate Governance and Environmental Reporting

Environmental reporting, defined as "reports that relate to the impact a company's activities have on the physical or natural environment in which they operate" (Wilmshurst & Frost, 2000, p. 16). There is an increasing trend among firms throughout the world to voluntarily disclose information of their environmental activities (Gibson & O'Donovan, 2007), and there is also evidence that the quality of such environmental reporting is improving gradually (Ballou et al., 2006). The increase in the quantity and quality might be a result of the company's growing awareness of the importance of environmental reporting, stakeholder demand, or the introduction of mandatory reporting (Aminard et al., 2012). Daub (2007) and Branco and Rodrigues (2008) stated that most companies disclose environmental reporting due to concerns from

stakeholders and society.

Despite the growing trend in environmental reporting, Nurunnabi (2015) reviewed 71 annual reports and found low levels of voluntary environmental reporting. In Malaysia, environmental reporting is considered as still in its infancy (Buniamin, 2012). Since Malaysia is among the rapidly developing Asian countries, it is likely in the coming years to face increasing tension between incentives for rapid economic development, on the one hand, and ethical considerations concerning the environment, on the other. Currently, the requirements of reporting within companies are broader than financial reporting. Considering the recent dramatic increase in negative impacts on climate change and the proven role of environmental reporting on improving the environmental practice of firms, a study on the determinants of environmental reporting is highly relevant. There are few existing studies on the underlying factors which motivate firms to engage in environmental reporting, especially in developing countries (Saleh et al., 2010).

The investigation of social and environmental reporting in emerging economies has revealed that the main motivation behind environmental reporting in emerging economies is driven by both external and internal forces, such as stakeholders' pressure, institutional pressure, and corporate governance (Laksmana, 2008; Elijido-Ten et al., 2010; Ionel-Alin, 2012). Environmental reporting is considered a significant part of a company's responsibility to its stakeholders. The relationship between community concern and environmental reporting has been verified: environmental reporting is associated positively with societal concerns and awareness of environmental concerns (Deegan et al., 2002). Moreover, society and stakeholders' awareness of these environmental issues influences a company's behaviour and strategies to implement environmental practices such as reporting (Gadenne et al., 2009).

The institutional theory is built on the notion that institutionalized rules and norms of society are imposed on the internal structure of organizations (Beggs, 1995, p. 613). The definition of institutionalization in organizations is the "process through which constituents of formal structure become extensively accepted, as both appropriate and necessary, and serve to legitimate organizations" (Tolbert & Zucker, 1983, p. 25). In the context of environmental reporting, there is evidence that institutional pressure has an effective role to make companies gain legitimacy (Milne

& Patten, 2002). In addition, it is claimed that to gain legitimacy, environmental reporting is seen to be a significant tool for environmental management, and that for organizations, seeking to gain legitimacy can explain the increase in the level of environmental reporting (O'Donovan, 2002). In the literature, three kinds of institutional mechanism – namely coercive pressure, normative pressure, and mimetic pressure – have been introduced as drivers of environmental reporting (Darnall & Edwards, 2006; Khalifa & Davison, 2006; Amran & Haniffa, 2011). Etzion and Ferraro (2010) conducted an empirical study to investigate the role of institutional isomorphism through two mechanisms of normative and cognitive factors to institutionalize the practice of social and environmental disclosure. The study found that institutionalization provides pressure for organizations to conform and promotes practices that lead to legitimacy, such as environmental reporting. Othman et al. (2009) undertook a study to investigate the determinants of CSR reporting in Malaysian public-listed companies. They found that the factors having the most impact on the level of CSR reporting are institutional factors, which are presented as regulatory efforts by institutional owners, while family-owned organizations are not considered to demonstrate transparency in CSR reporting. Amran and Haniffa (2011) also investigated the factors determining the social and environmental reporting in the Malaysian context. Their findings indicated that three institutional mechanisms, namely coercive, normative, and mimetic, are critical factors influencing social and environmental reporting.

Corporate governance is defined as "the system by which companies are directed and managed" (Abor, 2007), is the principal means by which managers can be effectively controlled to prevent the self-interested behavior. The mechanisms it employs can be used to solve agency problems (Eng & Mak, 2003; Shan, 2009) as well as to mitigate a lack of commitment on the part of management due to agency problems (Bergolf & Pajuste, 2005). Hence, corporate governance has been recognized as one of the most important features of modern corporations today.

Where an effective corporate governance system is in place, positive effects across the financial, as well as non-financial, aspects of a corporation can be expected. Corporate governance is not only recognized as a potential solution to agency problems but also, as protection of stakeholder interests (Donnelly & Mulcahy, 2008; Wise & Ali, 2008). Companies with effective corporate governance system are more likely to

promote fairness, transparency, and accountability, that is, ethical transactions, in their business (Jamali et al., 2008). This, in turn, gives rise to a disclosure-based environment wherein shareholder and stakeholder interests are protected (Hamilton, 2004). When corporate governance is ineffective, however, such as where mandatory requirements are absent, companies were found to omit material information relevant to stakeholders (Mathews, 2008). Such a problem could be rectified by an effective board of directors which would implement good corporate governance (Donnelly & Mulcahy, 2008). In fact, studies have shown that firms which have effective governance structures have the intention to disclose more documents to the market (Beekes & Brown, 2006). In short, corporate governance encourages transparency and accountability and enhances the disclosure behavior of a company. Hence, the present study focuses on the potential influence of corporate governance on the disclosure behavior of organizations, with particular reference to environmental disclosure.

The debate in the existing literature substantiates that there is a relationship between the size of the board and the capability of the company, which means that the number of directors on the board has an effect on the company's capability (Wincent et al., 2013). According to Welford (2007), a large number of independent directors or non-executive directors on the board relates to good corporate governance. Independent directors have the capacity to enhance management attention to take into consideration environmental responsibilities (Sun et al., 2010). Further, many studies have demonstrated that the presence of independent non-executive directors on the board has a vital impact on corporate voluntary reporting, such as environmental reporting (Barako et al., 2006; Brammer & Pavelin, 2008). Furthermore, the presence of a CSR committee, which reflects the responsibility of the board towards environmental and social issues, can make companies consider stakeholders issues. The CSR committee typically takes into account environmental issues such as establishing policies and standards, monitoring performance and reporting on environmental issues (Mackenzie, 2007).

Many studies have also referred to the dispersion and type of ownership as vital factors influencing environmental reporting (Ullmann, 1985; Roberts, 1992). Brammer and Pavelin (2006) stated that ownership dispersion, which means that company stock is dispersed among many investors, is likely to lead to an increased risk of agency conflict, with the expectation of increased environmental reporting. Moreover, Cormier

et al. (2005) claimed that a closely-held ownership or concentration of ownership is not likely to be responsive to public reporting, since the main shareholders typically have a tendency to be able to access the information they require. In addition, Reverte (2009) remarked that diffused ownership is expected to enhance a company's financial reporting policy through the establishment of social and environmental reporting, whereas companies with a concentrated ownership are most likely to disclose additional information related to social and environmental issues. The type of ownership is also expected to have a vital impact on environmental reporting. Different types of shareholders are more likely to require different information: for instance, institutional investors such as banks, insurance companies, and pension funds have a strong motivation to monitor corporate reporting practices and affect corporate values due to their large portion of ownership stake (Barako et al., 2006). Moreover, institutional investors are powerful in that they have the ability to monitor their managers effectively through their technical expertise (Khan et al., 2005). Based on the literature, corporate governance can be manifested and classified into the following: board size, board independence, CSR committee presence, ownership concentration, and institutional ownership.

2.2 Strategic Posture and Environmental Reporting

Managers' strategic posture refers to top managers' attitudes towards environmental reporting. Ullmann (1985) categorized strategic posture to active and passive postures. Where there is an active strategic posture, the manager and senior manager team have a progressive attitude, actively searching to satisfy stakeholders' claims, and consequently pursue both a competitive advantage and business opportunism. In other words, the managers' attitudes demonstrate a proactive pattern of behavior. In another hand, when the manager team adopts a passive strategic posture, a conservative attitude gives rise to greater risk aversion, a tendency to maintain the status quo, and a general reactive pattern of behavior (Karake, 1995; Crant, 2000). Thus, it is expected that those companies with an active strategic posture are more likely to disclose more social and environmental information (Ullmann, 1985).

Conversely, firms with a passive posture are likely only to disclose information about environmental outcomes of the firm's activity where there is pressure from within

or outside the organization. Because they cannot escape notice, they react by disclosing the environmental information. In some cases, the management itself may be disinterested in environmental reporting, resulting in a passive posture; this is labelled as "management inattention" (Rogers & Tebben-Lembke, 1999). In contrast, the manager of a proactive firm takes the initiative in environmental reporting, rather than waiting for pressures to force him to do so. In this study, strategic posture was considered as a mediator to explain the reason that corporate governance has a significant effect on environmental reporting.

Several studies have investigated the impact of a strategic posture or orientation towards environmental and social issues and practices (Ullmann, 1985; Magness, 2006; Galbreath, 2010). Ullmann's framework indicates a positive relationship between an active strategic posture and a high level of environmental reporting. This key article has been followed by several empirical studies which examined this relationship (Roberts, 1992; Bateman & Crant, 1993; Crant, 2000). The notion of a strategic posture in Ullmann's (1985) framework shows the manner in which companies deal with the social demand of stakeholders, including whether managers follow a pro-active strategic posture rather than a less-active strategic posture (Crant, 2000). Bateman and Crant (1993) stated that managers adopting a pro-active strategic posture have a tendency to create changes in environmental and social issues.

In the context of environmental behaviour and its relation with active managerial postures, several studies assert that for organisations to gain a thorough competitive advantage, linkages must be made between management and the natural environment (Hart, 1995; Russo & Fouts, 1997). Moreover, a number of studies have found a positive relationship between a strategic posture and environmental reporting. For example, Prado-Lorenzo et al. (2009) found that the influence of stakeholders upon a strategic posture has a vital impact on establishing a CSR report. Additionally, findings show that an active posture towards social and environmental issues leads to a greater level of environmental reporting. In the Malaysian context, a study conducted by Elijido-Ten (2004) to investigate the determinants of environmental reporting by listed companies found that a strategic posture is considered to be the main determinant in the establishment of environmental reporting by Malaysian listed companies.

3. Hypotheses Development

In this study, based on the literature review, five corporate governance factors are considered as the determinants of environmental reporting (Figure 1); namely, board size (e.g., Abeysekera, 2010; Allegrini & Greco, 2013), board independency (Eng & Mak, 2003; Shan, 2009), CSR committee presence (e.g., Michelon & Parbonetti, 2010) ownership concentration (e.g., Brammer & Pavelin, 2008; Reverte, 2009), and institutional ownership (e.g., Donnelly & Mulcahy, 2008; Laidroo, 2009). Furthermore, the mediating role of managers' strategic posture was proposed in this study to provide an explanation of how board characteristics effect environmental reporting.

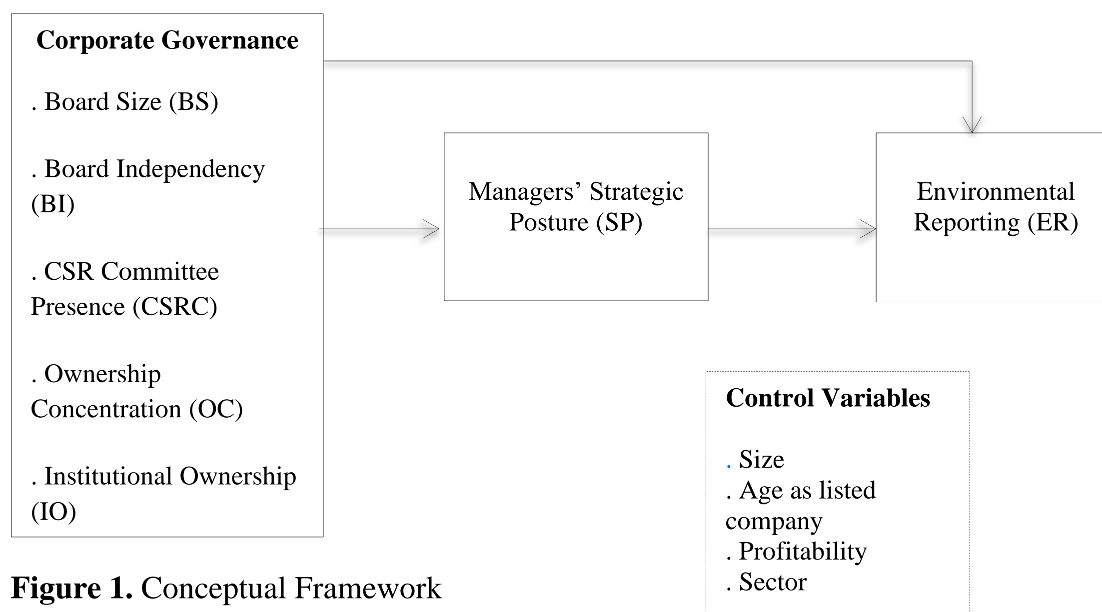

Figure 1. Conceptual Framework

3.1 Board Size

The board of directors has an essential role in corporate governance in that the directors are able to task managers to look after the best interests of the shareholders (Beiner et al., 2004). The size of the board, in terms of the number of members, is believed to have an effect on the board's ability to monitor and evaluate management. It has been contended that with an increase in the number of directors on the board, the likelihood of asymmetry of information decreases (Chen & Jaggi, 2000). Moreover, Akhtaruddin et al. (2009) mentioned that uncertainty and lack of information may be limited by the presence of a larger number of members on the board. Accordingly, an increase in the

number of directors is anticipated to increase the collective knowledge and also the experience of the board, leading to a requirement for a higher level of disclosure of information (Akhtaruddin et al., 2009). Furthermore, the board of directors can create strategies and policies for managers to adopt (Chen & Jagii, 2000) and the actions of corporate governance influence management direction, leading management to adopt or to avoid a specific strategy (Baysinger et al., 1991). As such, an increase in the number of directors is expected to positively affect managers' strategic posture towards environmental reporting.

Studies on the impact of board size on environmental and social responsibility reporting have reported negative, positive and even no effect. The ones that reported negative relationships believed that a large board size will increase communication and coordination problems and consequently decrease the ability of the board to control the management (Eisenberg et al., 1998). On the other hand, other scholars believe that corporate transparency may be promoted where a firm has a large board size, as the available resources and pool of expertise is likely to be greater (Hidalgo et al., 2011), and given the concept of expert power, there will be greater diversity of experience and opinion, which will increase the supervisory capacity of the board and lead to more voluntary disclosure (Gandia, 2008). Amran et al. (2011) stated that positive and negative aspects of board size neutralize each other's effect and consequently they found no effect. As most of empirical research have illustrated that board size has a positive effect on voluntary disclosure (e.g., Abeysekere, 2010; Allegrini & Greco, 2013), following hypotheses were developed:

H1. Board size has a significant positive effect on the (a) strategic posture and (b) environmental reporting level of firms.

3.2 Board Independency

The importance of having independent outside directors has been highlighted in the literature. First, as they have a non-official position, they can better monitor the management (Donnelly & Mulcahy, 2008). Second, having the incentive of being expert monitors, they are discouraged from colluding with directors of organization (Carter et al., 2003). Outside board members acting as representatives of the

shareholders have a strong motivation to monitor management and detect and prevent any problems (Abdullah et al., 2008). This is potentially motivated by two factors. Firstly, the directors wish to protect their reputations as stakeholders by ensuring that monitoring of management is in place, as the market for directors penalises those associated with corporate disasters or with poor performance. Secondly, from a legal perspective, directors who fail to implement due care in exercising their monitoring responsibilities may be liable and also subject to harsh sanctions (Abdullah et al., 2008). As such, it is expected that independent board members will have a tendency to give more consideration to an active strategy posture.

Empirical evidence concerning the importance of non-executive directors on the board is mixed. Jermias (2007) believed that inside directors are able to motivate managers in a better way to implement environmentally active strategies. On the other hand, many scholars have found board independency to be a positive driver of both mandatory and voluntary corporate disclosure behavior (Eng & Mak, 2003; Shan, 2009). In fact, Cheng and Courtenay (2006) and Shan (2009) found a positive relationship between board independency and voluntary disclosures. Since independent directors tend to voluntarily disclose additional information, thus improving transparency of corporate boards (Donnelly & Mulcahy, 2008). It is expected, therefore, that more independent directors on company boards would ensure companies to engage in social responsibility, generally, and environmental responsibility (Brooks et al., 2009). The firms which have more independent directors have strong environmental performance, as they tend to pressure managers to favor environmental activity (De Villiers et al., 2009). On the other hand, inside directors who focus on financial performance of organization tend to disclose less and are less concerned about environmental issues (Kassinis & Vafeas, 2002). Based on the above, therefore, the following hypotheses were developed:

H2. Board independency has a significant positive effect on the (a) strategic posture and (b) environmental reporting level of firms.

3.3 CSR Committee Presence

It is widely known that the structure of a firm's board will influence the commitment and involvement of the directors in shaping the goals and strategies of the firm (e.g., Godos-Díez et al., 2018). Both the internal organization and the division of tasks among the board's committees are in fact defined by the board structure (Zahra & Pearce, 1989), and the most important decisions of the board are taken at the committee level (Kesner, 1988). A CSR committee is generally responsible for policy and conducts a review of the firm's commitment to social responsibility (Post et al., 2002). The presence of a CSR committee indicates the board is taking a responsible stand towards social and environmental issues and further demonstrates a firm’s active strategic posture to improve its corporate behavior to meet stakeholder expectations (Lo & Yap, 2011; Godos-Díez et al., 2018). The existence of a CSR committee enables stakeholders’ interests to be integrated into decision making (Luoma & Goodstein, 1999) for two main reasons. Firstly, a CSR committee can assist the firm to formally organize and manage its CSR practices (De Villiers et al., 2011), and so CSR becomes institutionalized within the firms’ core decision-making (Amran et al., 2014). Secondly, according to signalling theory (Connelly et al., 2011), firms can send a signal to their stakeholders regarding their CSR commitment (Amran et al., 2014) by creating a sub-committee related to sustainability issues (Mallin & Michelon, 2011).

Consistent with the agency theory, more environmentally active strategies are expected to be implemented by CSR committees (Peters & Romi, 2012). From the stakeholder perspective, the presence of a CSR committee or a director on the board with responsibility for environment-related issues indicates an organisation’s active strategic posture with respect to their stakeholders (Michelon & Parbonetti, 2012). In support of this claim, Ullmann (1985) indicated that at the board level, the existence of a director with responsibility for environmental and social issues, or the presence of a CSR committee that leads an organisation to adopt an active strategic posture, takes into consideration the interests of their stakeholders. Accordingly, the following hypotheses were developed:

H3. CSR committee presence has a significant positive effect on the (a) strategic posture and (b) environmental reporting level of firms.

3.4 Ownership Concentration

Agency theory claims that agency conflicts result from the separation between control and ownership (Jensen & Meckling, 1976). This separation is greater when the shares are widely held, and is known as ownership dispersion, in comparison to the situation when they are closely held, which is known as ownership concentration (Fama & Jensen, 1983). When interest misalignment and information asymmetry between the manager/agent and the owner/principal are present, problems associated with managerial opportunism will be greater, causing agency costs to rise (Khlif et al., 2017). In order to mitigate such costs and the severity of any conflicts with respect to ownership dispersion, managers may elect to increase the level of voluntarily disclosures of information. Ownership dispersion also tends to work towards increasing pressure on managers to act favorably towards environmental reporting (Ullmann, 1985; Cullen & Christopher, 2002). Furthermore, managers and directors who own corporate stock usually tend to be less eager to over-invest in CSR actions, because they have to bear a proportion of the costs as shareholders (Barnea & Rubin, 2010). As such, it is expected that ownership dispersion will positively affect managers' strategic posture toward environmental reporting.

An important factor proposed to have an important impact on disclosure policy is ownership concentration, which can be concentrated or dispersed (Ullmann, 1985; Roberts, 1992). When ownership is concentrated, shareholders can obtain information directly from the firm, thus reducing the motivation of owners to disclose information on environmental activities and policies (Brammer & Pavelin, 2008). In contrast, when there are many owners, a corporation is expected to disclose more information to maintain close links between the organization and its shareholders with respect to information (Prencipe, 2004). The empirical evidence reported by scholars showed a negative relationship between ownership concentration and CSR disclosure level (Ghazali, 2007; Qa'dan & Suwaidan, 2019). Accordingly, the following hypotheses were developed:

H4. Ownership concentration has a significant negative effect on the (a) strategic posture and (b) environmental reporting level of firms.

3.5 Institutional Ownership

Institutional ownership refers to the percentage of shares held by large and/or institutional shareholders. Institutional investors can be seen as a special group of shareholders with a relatively larger stake of shares and greater voting power (Qa'dan & Suwaidan, 2019; Schnatterly et al., 2008). Most institutional investors are concerned with long-term profitability, which can be enhanced by CSR practices (Chung et al., 2002; Mahoney & Roberts, 2007). As such, institutional investors use their voting power and place pressure on managers to disclose more information on environmental performance. Lakhal (2005) and Shan (2009) found that institutional ownership has negative effect on corporate disclosures. In the firms that ownership and control are separated, the demand for information is greater; hence when internal information can be accessed easily, such as in the case of large institutional shareholders, the demand for more disclosure is less (Lakhal, 2005; Shan, 2009).

In contrast, a study by Donnelly and Mulcahy (2008) found institutional ownership as a driver of public disclosure. Institutional investors influence managerial decision-making (Mallin et al., 2013) as they have the power to monitor managers' decisions and activities (Graves & Waddock, 1990). Considering public awareness about environmental issues and their pressure on companies to take responsibility for the impact of their activities, large institutional shareholders have a positive attitude towards environmental reporting and, consequently, place pressure on managers to have an active strategic posture towards environmental reporting (Welford et al., 2007). Ajinkya et al. (2005) argued that institutional investors desire and demand more voluntary disclosures. As public awareness and demand for environment-friendly activities have increased gradually in the past few years, a positive relationship between institutional ownership and environmental reporting is expected in this study. Furthermore, it is generally viewed that institutional investors are savvy; they are highly experienced, with a high level of technical expertise to scrutinise managers in a manner which is effective (Lawal, 2012). The empirical studies showed a positive relationship between institutional ownership and CSR disclosure level (Oh et al., 2011; Khlif et al., 2017; Qa'dan & Suwaidan, 2019). Thus, the following hypotheses were developed:

H5. Institutional ownership has a significant positive effect on the (a) strategic posture and (b) environmental reporting level of firms.

3.6 Strategic Posture

An organization which adopts an active strategic posture seeks to continuously monitor and manage its relationship with the key stakeholders, whereas one which has a passive strategic posture makes no such attempt. Therefore, a more environmental disclosure is expected in an organization with active strategic posture (Ullmans, 1985) in order to fulfill stakeholder needs. Studies which have examined the impact of environmental behavior on an active managerial posture found a relationship between management, the decision-making process, and decisions towards environmental practices (Hart, 1995; Russo & Fouts, 1997).

The existing relationships reveal the positive impact of corporate governance on managers' strategic posture (e.g., Welford et al., 2008; Michelon & Parbonetti, 2012) and public disclosure (e.g., Giannarakis, 2014; Kilic et al., 2015). Furthermore, as mentioned above, there is extensive literature that examines the association between a strategic posture and environmental reporting, which indicates that a strategic posture has a vital role in enhancing environmental reporting (Ullmann et al., 1985; Roberts, 1992; Bateman & Crant, 1993; Crant, 2000). Based on the integrated view of the dynamic capabilities and a natural resource-based view in the related literature, Aragon-Correa and Sharma (2003) formulated a framework which indicated that a pro-active strategy, in the context of social and environmental issues, could mediate the relationship between organisational resources and capabilities with a comparative advantage. Furthermore, Prado-Lorenzo et al. (2009) affirmed that companies which disclose more information about social and environmental issues, such as those that have a clear pro-active strategy, are backed strongly by the support of their main stockholders. Therefore, corporate governance factors are expected to be the scrutinising mechanisms influencing management to follow a specific strategy in order to meet stakeholders' concerns, which, in turn, leads to an enhanced level of environmental reporting. Therefore, in this study, indirect effect of corporate governance on environmental reporting through strategic posture was proposed. Thus, the following hypotheses were developed:

H6. Strategic posture has a significant positive effect on the environmental reporting level of firms.

H7. Strategic posture mediates the impact of (a) board size, (b) board independence, (c) CSR committee presence, (d) ownership concentration, and (e) institutional ownership on environmental reporting level of firms.

4. Research Methodology

4.1 Data Collection and Sample

Data are collected in this study by using the primary and secondary approaches. Information concerning environmental performance for one year, from annual reports and the associated companies' websites for the financial year ending in 2015 of the main board of Bursa Malaysia, were examined in order to collect environmental reporting data. The total number of companies was 777. The environmental reporting level of firms was calculated following a reporting checklist outlined by Clarkson et al. (2008). This index initially combines both hard reporting items and soft reporting items, with a total of 95 points in its reporting checklist (see Appendix). The index was evaluated by five academicians to validate that only disclosure items are included. In this study, two persons were chosen as coders, and rated five sets of annual reports of listed companies (Amran & Devi, 2008). The result of the test of differences showed no significant differences between the two coders' ratings. To collect data related to managers' strategic posture, the questionnaire was sent to the chief executive managers or chief financial managers of large firms after a pre-test with five academicians and two firm managers. Top management managers were chosen as respondents because they are the best-qualified to address the questions asked and have a holistic understanding of the company strategies.

Given the small sampling frame of the study and the likelihood of a low response from a mail survey, census sampling was used, and after removing 20 companies that participated in the pilot study, 757 questionnaires were mailed with return envelopes. Subsequently, telephone calls were made to these respondents to inform them about the importance of the questionnaire and ask for their cooperation and participation in the study. A first reminder was sent after two weeks, and after a month, a second one was sent. After two months, the data collection was stopped, at which point 208 questionnaires had been returned, of which eleven were incomplete.

Hence the usable response rate was 26.0%. In order to compare the characteristics of early and late respondents, a non-response bias test was conducted, which indicated that non-response bias was not the issue in this study. To test the robustness of the collected sample, the statistical power of the sample of 197 was measured as suggested by Mayr et al. (2007). G*Power version 3.1.9.2 software (Faul et al., 2007) was used to measure the power of the sample. Using G*Power with a statistical significance (α level) of 0.05 yielded the power of 0.976, which was well above the rule-of-thumb in Chin's (1998) satisfactory power of 0.800. In other words, the collected sample of 197 questionnaires was sufficient for the inferential statistics to test the hypotheses (Faul et al., 2009).

A minority of the respondents were below 35 years of age and comprised 7.2 % of the sample. Meanwhile, the percentage of 85.8 % is divided almost equally between other groups falling in the age category of more than 35 years. With respect to gender, the number of males (69.5%) was much higher than females (29.5%). The majority of respondents (61.4%) were in top management positions and the rest were middle managers (38.6%). Furthermore, the descriptive analysis shows that most of the firms (94.4%) had been in the same kind of business for more than 15 years. Most of the listed companies (60.4%) have more than 500 employees, while companies (24.9%) with between 301-400 employees were next, followed by companies (14.7%) with between 201-300 employees.

4.2 Measure of Constructs

Primary and secondary data were collected in order to measure the study variables. To measure environmental reporting (ER) and corporate governance mechanisms, the annual reports of companies were used. To measure the level of environmental reporting in listed companies' annual reports, the current paper used content analysis by implementing a GRI-based index developed by Clarkson et al. (2008) (Appendix 1). The environmental disclosure index is based on the GRI framework and consists of seven broad categories (A1 to A7). Clarkson et al. (2008) stated that both the level of environmental disclosure and the nature of disclosure (i.e. hard or soft) are assessed using the environmental disclosure index. Hard disclosure items, which are difficult to replicate, approximate the environmental commitment of

companies in an objective and verifiable manner and comprise the following categories: (A1) governance structure and management systems relating to environmental protection; (A2) credibility of environmental disclosures; (A3) environmental performance indicators; and (A4) environmental spending. Soft disclosure items, in contrast, are not easily verifiable (and sometimes unverifiable) and can be provided by any company (Clarkson et al., 2008). These cover claims regarding vision and strategy (A5), environmental profile (A6), and environmental performance (A7). In category A3 (Environmental Performance Indicators), the item scores range from 0 to 6. The remaining category items are not weighted and the items are scored zero (0) if they are absent from the annual report, or one (1) when they are present in the annual report.

Board size (BS) refers to the number of directors that sit on the board (Khan, 2010; Rao et al., 2012). The percentage of non-executive directors to total directors is the index that was used to measure board independency (BI) (Said et al., 2009; Khan, 2010). To measure CSR committee (CRRC) presence, a dummy variable of value 1 indicates the company has a board-level CSR committee, while if the dummy variable has a value of 0, then it does not (Adnan, 2010). As suggested by Haniffa and Cooke (2002) and Ghazali (2007), ownership concentration (OC) was operationalized by taking the total number of shares issued and looking at that percentage owned by the ten largest stakeholders. By calculating the percentage of shares owned by institutional investors, the institutional ownership (IO) was calculated (Saleh et al., 2010; Rao et al., 2012). The strategic posture (SP) was measured using a structured questionnaire. Five proposed dimensions of corporate governance were operationalized using indices which are suggested in the literature. Strategic posture items were adapted from Álvarez-Gil et al. (2007). These items were measured by using a 5-point Likert scale.

Following the academic research in social and environmental reporting context, firm size, age as listed company, profitability, and type of industry were considered as control variables in the present study (e.g., Haniffa & Cooke, 2005; Ghazali & Weetman, 2006; Liu & Anbumozhi, 2009). According to Haniffa and Cooke (2005) and Liu and Anbumozhi (2009), these four factors have significant effects on firms' corporate social disclosure. The firm's size in this study was measured using the logarithm of total assets as a proxy. This measurement has been undertaken in other studies related to environmental and social reporting (Gul & Leung, 2004; Haniffa & Cooke, 2005; Barako et al., 2006; Cheng & Courtenay, 2006). Age as listed company

is the number of years since the company was listed in the Bursa Malaysia as of the end of 2015 (e.g., Liu & Anbumozhi, 2009). Profitability was measured using Return on Equity (ROE): net Income/total Equity. This measurement is widely used in studies related to social and environmental reporting (Eng & Mak, 2003; Haniffa & Cooke, 2005; Barako et al., 2006; Khan et al., 2013). Many studies have divided the sectors into two types, namely environmentally sensitive and non-environmentally sensitive (Amran et al., 2012). Following the related literature in the context of Malaysia (Ahmad et al., 2003; Manaf et al., 2006), the current study categorized listed companies into two different categories: environmentally sensitive industries including consumer products, industrial products, construction, infrastructure project companies, properties, plantation and mining, which are given a score of one, and non-environmentally sensitive industries including technology, trading and services, and hotels, which are given a score of zero.

4.3 Analysis

In this study, the data were analyzed using partial least squares (PLS) technique due to exploratory nature of the study (Hair et al., 2011). The PLS was run in SmartPLS version 3.0 and the results are presented in the next section. To determine the validity and reliability of the variables, in the first step, the measurement model was assessed (Iranmanesh et al., 2017; Ali et al., 2019; Zailani et al., 2019). Later, the hypotheses were tested in the second step.

5. Results

5.1 Measurement Model Results

Factor loading, average variance extracted (AVE), and composite reliability (CR) were utilized to examine the convergent validity (Hair et al., 2014). The factor loadings were above 0.7, the values of AVE above 0.5, and the CR and cronbach's alpha of strategic posture was higher than 0.7, as shown in Table 1. Therefore, the convergent validity of the findings was satisfactory (Hair et al., 2014).

Table 1. Results of Measurement Model

Constructs	Items	Loading	CR	Cronbach's alpha	AVE
Strategic posture (SP)	Normally my firm begins the action and the competitor responds to it.	0.868	0.946	0.860	0.777
	Usually we are the firm that initially introduces the products.	0.856			
	In my firm, the managers actively look for competitive advantages.	0.870			
	In my firm, the managers actively look for the satisfaction of the stakeholders (customer, suppliers, government, shareholders, and the community).	0.885			
	In my firm, the managers actively look for new ideas.	0.926			

CR= Composite Reliability; AVE= Average Variance Extracted

Fornell and Larcker's (1981) approach was used to assess the discriminant validity. The square root of AVE for each construct of the study exceeded the intercorrelations between the construct and other constructs in the model (Table 2), thus confirming the discriminant validity of all the constructs.

Table 2. Discriminant Validity

	ER	BS	BI	CSRC	OC	IO	SP
ER	One Item						
BS	0.445	One Item					
BI	0.2343	-0.093	One Item				
CSRC	0.542	0.199	0.168	One Item			
OC	-0.003	-0.034	0.091	0.021	One Item		
IO	0.367	0.303	0.186	0.276	0.358	One Item	
SP	0.641	0.345	0.343	0.575	-0.024	0.343	0.881

ER: Environmental Reporting, BS: Board Size, BI: Board Independency, CSRC: CSR Committee Presence, OC: Ownership Concentration, IO: Institutional Ownership, SP: Strategic Posture

5.2 Structural Model Results

Explained variance portion determined the accuracy of the model's predictions, where the R^2 values of strategic posture were 0.480 and of environmental reporting were 0.539. To test the hypotheses, non-parametric bootstrapping was applied (Table 3) (Wetzels et al., 2009). The results indicated that BS (β = 0.239, $p<0.001$), BI (β = 0.273, $p<0.001$), CSRC (β = 0.448, $p<0.001$), and IO (β = 0.131, $p<0.05$), have positive significant effects on SP. The impact of OC on SP is not significant ((β = -0.097, $p>0.05$). Thus, H1a, H2a, H3a, and H5a were supported, whereas H4a was not supported. Furthermore, BS (β = 0.245, $p<0.001$), CSRC (β = 0.238, $p<0.001$), and SP

(β = 0.331, p<0.001) have a significant direct effect on the ER level of firms. The direct impact of BI (β = 0.078, p>0.05), OC (β = -0.032, p>0.05), and IO (β = 0.092, p>0.05) on the ER level of firms was not supported. As such, H1b, H3b, and H6 were supported, whereas H2b, H4b, and H5b were not supported. The control variables have no significant effect on environmental reporting.

Table 3. Path Coefficients and Hypothesis Testing

Hypotheses	Relationships	Path Coefficients	Decisions
Strategic Posture (R^2 = 480, Q^2 = 0.311)			
H1a	BS -> SP	0.239***	Supported
H2a	BI -> SP	0.273***	Supported
H3a	CSRC -> SP	0.448***	Supported
H4a	OC -> SP	-0.097	Not supported
H5a	IO -> SP	0.131*	Supported
Environmental Reporting (R^2 = 539, Q^2 = 0.356)			
H1b	BS -> ER	0.245***	Supported
H2b	BI -> ER	0.078	Not supported
H3b	CSRC -> ER	0.238***	Supported
H4b	OC -> ER	-0.032	Not supported
H5b	IO -> ER	0.092	Not supported
H6	SP -> ER	0.330***	Supported
-	Size -> ER	0.031	-
-	Age as listed company-> ER	0.027	-
-	Profitability -> ER	0.026	-
-	Sector -> ER	-0.084	-

*p<0.05, **p<0.01, ***p<0.001; Q2: cross-validated redundancy

According to Hair et al. (2011), there is a significant mediating effect when there is no zero straddling the Upper Level and Lower Level values of the constructs' relationships within the confidence interval. This means that a significant mediating effect is indicated when the Upper Level and Lower Level values show no zero straddle between them. Accordingly, Preacher and Hayes (2008, 2004) advocated the bootstrapping method in order to test the indirect effect of the constructs which this study applied. Based on the results in Table 4, only the indirect effect of OC on the ER lower level (LL) was negative and upper level (UP) was positive and consequently has no indirect effect. As such, H7a, H7b, H7c, and H7e were supported, whereas H7d was not supported.

Table 4. Indirect Effect

Hypotheses	Relationships	Indirect Effect	LL	UL	Decision
H7a	BS -> SP -> ER	0.079**	0.019	0.132	Supported
H7b	BI -> SP -> ER	0.090**	0.043	0.190	Supported
H7c	CSRC -> SP -> ER	0.148**	0.019	0.132	Supported
H7d	OC -> SP -> ER	-0.032	-0.056	0.041	Not Supported
H7e	IO -> SP -> ER	0.043*	0.005	0.129	Supported

6. Discussion

The positive effect of board size on environmental reporting is consistent with the findings of Abeysekera (2010) and Allegrini and Greco (2013). The results also showed board size has an indirect effect on environmental reporting through managers' strategic posture. As such, this study extends the findings of Abeysekera (2010) and Allegrini and Greco (2013) by introducing managers' strategic posture as one of the potential explanations for the impact of board size on the environmental reporting level of firms. This means that a large board size has diverse experiences and consequently, its members understand the importance of environmental reporting in the present competitive market. As such, there is higher pressure on managers to produce as well as disclose environmental reports. This finding highlights the importance of having large board size for the shareholders that give importance to public disclosure of a firm's activities which have environmental outcomes. However, the existence of a direct effect between board size and environmental reporting indicates that there are other potential factors that may also explain this relationship and, therefore, further studies are needed.

The direct impact of board independency on environmental reporting was not supported. However, the results indicate that board independency has an indirect effect on environmental reporting through strategic posture. As such, these results are consistent with the findings of Donnelly and Mulcahy (2008) and Shan (2009), who tested the total impact of board independency on environmental reporting. These results indicate that outside directors monitor and have a greater effect on managers' strategic stance towards environmental reporting, and this, consequently, leads to a higher level of environmental reporting. Donnelly and Mulcahy (2008) stated that outside directors who have a non-official position in the firms are better able to monitor managers' activities in order to a build reputation as expert monitors. As such, firms should

increase the percentage of independent directors due to their role in the managers' stance towards environmental reporting.

This study also confirms the direct and indirect impacts of CSR committee presence on environmental reporting of firms. The managers of the firms that have a CSR committee have the authority to oversee management policies and approaches towards environmental reporting. The existence of a CSR committee also shows the importance of environment-related issues for the board. Thus, the existence of a CSR committee will affect the attitude of managers toward environmental reporting, which will, in turn, lead to a higher level of environmental reporting. Therefore, forming a CSR committee on the board is beneficial to the firm, since it indicates the importance of environment-related issues to the top managers and provides a base to integrate CSR to the overall management of operations.

The direct and indirect impacts of ownership concentration on environmental reporting were rejected, which implies that there is no relationship between these two concepts. These results are not consistent with the findings of Cullen and Christopher (2002) and Brammer and Pavelin (2008). It is worthwhile to highlight that ownership concentration also has no effect on managers' stance towards environmental reporting. These findings do not mean that large investors have no impact on managers and environmental reporting. They do suggest that both large and small investors persuade managers to disclose information on firms' environmental activities. The reason is that consumer awareness on environmental issues has been dramatically increased in recent years and poor environmental performance has become a major threat to a firm's survival. As such, even those large investors who can obtain information directly from a firm are likely to put pressure on managers to disclose more information on environmental performance. In summary, small shareholders put pressure on managers due to their lack of access to internal information of firms, but large shareholders put pressure due to the perceived risk of low-level environmental reporting.

The results indicate that institutional ownership has no direct effect on environmental reporting. However, the impact of institutional ownership on strategic posture was supported and institutional ownership has an indirect effect on environmental reporting through strategic posture. In other studies, Habib and Jiang (2009) and Shan (2009) found a negative relationship between these institutional

ownership and environmental reporting. However, the results of the present study extend the findings of Donnelly and Mulcahy (2008) by proposing strategic posture as a potential reason that brings about a positive relationship between institutional ownership and environmental reporting. As large institutional shareholders better understand the demands for environmental practice from consumers and its impact on the financial performance of companies in comparison to small shareholders, they push managers to report on environmental practice publicly (Mallin et al., 2013). Furthermore, it is also important to consider the power that large institutions have in comparison to small investors to influence managers' decisions. Hence, by increasing the percentage of shares held by institutional stakeholders, firms can influence the managers' stance towards environmental reporting.

The insignificance of the control variables seems to indicate that companies' size, age as listed company, profitability, and the type of industry have no effect on environmental reporting. It means that environmental reporting is important for the success of companies regardless of their size and the industry that they work in. This implies the importance of environmental reporting for all sizes of companies in various industries.

7. Conclusion

In this study, the direct impact of corporate governance characteristics on strategic posture and environmental reporting was investigated. Furthermore, the indirect effect of corporate governance characteristics on environmental reporting through strategic posture was investigated as the main objective of the study. The results show that managers' strategic posture mediates the impacts of board size, board independency, CSR committee presence, and institutional ownership on environmental reporting. In addition, board size and CSR committee presence also have a direct impact on the environmental reporting level of firms. Both direct and indirect impacts of ownership concentration on environmental reporting were rejected.

From a theoretical perspective, this study contributes to the literature by testing the mediating effect of managers' strategic posture. The results show that strategic posture mediates the impact of board size, board independency, CSR committee, and

institutional ownership on environmental reporting. These findings extend the previous literature, which only tests the direct effects of corporate governance characteristics on environmental reporting. Furthermore, to the best of our knowledge, this study is one of the first to test the importance of corporate governance characteristics on the level of environmental reporting in developing countries. This study also explains some of the conflicts found in previous studies. However, future studies are needed to test the moderating effect of managers' perceptions on consumers' awareness and the demand for environmental practices to confirm the provided justification.

From the managerial perspective, the results of this study will help managers of companies to understand those corporate governance aspects that are essential to enhance their environmental disclosure. The findings also have implications for policy-makers to develop environmental disclosure regulations that focus on companies that have a small board size, lack of board independency, no CSR committee, and lack of large institutional shareholders, which are least likely to disclose adequately the impact of their business operations on the environment. The study also has implications for other countries in the Asian region, where power tends to be concentrated within the main shareholders of firms who tend to avoid selecting board members from outside. The results help highlight to them the importance of board independency on the environmental reporting level of firms.

The aim of the present study is considered to have been successfully achieved. Nevertheless, the limitations should be raised, which can be addressed in future studies. First, although the relationship between corporate governance and environmental reporting was successfully mediated by managers’ strategic posture, the direct impact of board size and CSR committee presence on environmental reporting suggests that there are some other potential mediators which may fully explain the impact of corporate governance characteristics on the environmental reporting level of firms. Therefore, future research could investigate other potential mediators. Second, the findings of some previous studies showed areas of conflict. For example, although most studies showed a negative relationship between institutional ownership and environmental reporting (Lakhal, 2005; Habib & Jiang, 2009; Shan, 2009), the findings of this study and Donnelly and Mulcahy’s (2008) study found a positive relationship between these factors. The conflict in the results may be due to other factors, which may be due to the different samples of these studies which could moderate the impacts

of corporate governance characteristics on environmental reporting. Therefore, future studies should explore and test the impact of potential moderators. Third, in addition to the five corporate governance factors considered in this study, there are some other corporate governance factors, such as CEO duality (Roberts et al., 2005; Cheng & Courtenay, 2006), the presence of women on the board (Rao et al., 2012; Rupley et al., 2012), the presence of family on the board (Ho & Wong, 2001; Darmadi & Sodikin, 2013), and director ownership (Ghazali, 2007; Haji, 2013), that may affect environmental reporting, and future studies could add them to the variables used in this study. Furthermore, leverage, media exposure (Reverte, 2009), and risk (Cormier & Magnan, 2003) can also be considered as control variables in future studies. Finally, the environmental reporting level of firms was measured using a checklist developed by Clarkson et al. (2008), which is constructed based on the GRI G2 Standards (2002). Future studies could measure environmental reporting level using Mahmood et al.'s (2018) checklist, which was developed based on the GRI G4 as an updated GRI standard. Finally, age as listed company was considered in this study, as in Malaysia annual report disclosure is only mandatory for listed companies in Bursa Malaysia; and consequently the inculturation toward disclosure begins when they are listed in Bursa Malaysia. Moreover, the future studies can also test the impact of age of firm.

Appendix 1. Index Assessing the Reporting about Environmental Policies, Performance and Inputs

N	Disclosure Items	Score
	Hard disclosure items	
	(A1) Governance structure and management systems **<u>(maximum score is 6 with each item evenly weighted)</u>**	
1	Existence of a department for pollution control and/or management positions for environment. management	(0–1)
2	Existence of an environmental and/or a public issues committee on the Board	(0–1)
3	Existence of terms and conditions applicable to suppliers and/or customers regarding environmental practices	(0–1)
4	Stakeholder involvement in setting corporate environmental policies	(0–1)
5	Implementation of ISO14001 at the plant/factory and/or firm level	(0–1)
6	Executive compensation is linked to environmental performance	(0–1)
	<u>(A2) Credibility (max score is 10 with each item weighted evenly)</u>	
1	Adoption of GRI sustainability reporting guidelines or provision of a CERES report	(0–1)
2	Independent verification/assurance about environmental information disclosed in the EP report/web	(0–1)
3	Periodic independent verifications/audits on environmental performance and/or systems	(0–1)
4	Certification of environmental programs by independent agencies	(0–1)
5	Product certification with respect to environmental impact	(0–1)
6	External environmental performance awards and/or inclusion in a sustainability index	(0–1)

7	Stakeholder involvement in the environmental disclosure processes	(0–1)
8	Participation in voluntary environmental initiatives endorsed by EPA or the Department of Energy	(0–1)
9	Participation in industry-specific associations/initiatives to improve environmental practices	(0–1)
10	Participation in other environmental organisations/associations to improve environmental practices (if not awarded under 8 or over 9)	(0–1)

Appendix 1. Index Assessing the Reporting about Environmental Policies, Performance and Inputs (Continue)

N	Disclosure Items	Score
	(A3) Environmental performance indicators (EPI) (max score is 60 with each item weighted from 0-6)	
1	EPI on energy use and/or energy efficiency	(0–6)
2	EPI on water use and/or water use efficiency	(0–6)
3	EPI on greenhouse gas emissions	(0–6)
4	EPI on other air emissions	(0–6)
5	EPI on TRI (land, water, air)	(0–6)
6	EPI on other discharges, releases and/or spills (not TRI)	(0–6)
7	EPI on waste generation and/or management (recycling, re-use, reducing, treatment and disposal)	(0–6)
8	EPI on land and resources use, biodiversity and conservation	(0–6)
9	EPI on environmental impacts of products and services	(0–6)
10	EPI on compliance performance (e.g., exceedances, reportable incidents)	(0–6)
	(A4) Environmental spending (max score is 3 with each item weighted evenly)	
1	Summary of dollar savings arising from environmental initiatives to the company	(0–1)
2	Amount spent on technologies, R& D and/or innovations to enhance environmental performance and/or efficiency	(0–1)
3	Amount spent on fines related to environmental issues	(0–1)
	Soft disclosure items	
	(A5) Vision and strategy claims (max score is 6 with each item evenly weighted)	
1	CEO statement on environmental performance in letter form to shareholders and/or stakeholders	(0–1)
2	A statement of corporate environmental policy, values and principles, environmental codes of conduct	(0–1)
3	A statement about formal management systems regarding environmental risk and performance	(0–1)
4	A statement that the firm undertakes periodic reviews and evaluations of its environmental performance	(0–1)
5	A statement of measurable goals in terms of future environmental performance (if not awarded under A3)	(0–1)
6	A statement about specific environmental innovations and/or new technologies	(0–1)
	(A6) Environmental profile (max score is 4 with each item evenly weighted)	
1	A statement about the firm's compliance (or lack thereof) with specific environmental standards	(0–1)
2	An overview of the environmental impact of the industry	(0–1)
3	An overview of how the business operations and/or products and services impact the environment	(0–1)
4	An overview of corporate environmental performance relative to industry peers	(0–1)
	(A7) Environmental initiatives (max score is 6 with each item evenly weighted)	
1	A substantive description of employee training in environmental management and operations	(0–1)
2	Existence of response plans in case of environmental accidents	(0–1)
3	Internal environmental awards	(0–1)
4	Internal environmental audits	(0–1)

5	Internal certification of environmental programs	(0–1)
6	Community involvement and/or donations related to the environment (if not awarded under A1.4 or A2.7)	(0–1)

Source: Clarkson et al. (2008)

References

Abdullah, W. Z. W., Ismail, S., & Jamaluddin, N. (2008). The impact of board composition, ownership and CEO duality on audit quality: The Malaysian evidence. *Malaysian Accounting Review, 7*(2), 17-28.

Abeysekera, I. (2010). The influence of board size on intellectual capital disclosure by Kenyan listed firms. *Journal of Intellectual Capital*, *11*(4), 504-518.

Abor, J. (2007). Corporate governance and financing decisions of Ghanaian listed firms. *Corporate Governance: The International Journal of Business in Society*, *7*(1), 83-92.

Adnan, S. M. (2010). *Do culture and governance structure influence CSR reporting quality: Evidence from China, India, Malaysia and the United Kingdom.* Department of Accounting and Finance, University of Auckland.

Ahmad, N. N. N., Sulaiman, M., & Siswantoro, D. (2003). Corporate social responsibility disclosure in Malaysia: An analysis of annual reports of KLSE listed companies. *IIUM Journal of Economics and Management, 11*(1), 51-86.

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of accounting research*, *43*(3), 343-376.

Akhtaruddin, M., Hossain, M. A., Hossain, M., & Yao, L. (2009). Corporate governance and voluntary disclosure in corporate annual reports of Malaysian listed firms. *Journal of Applied Management Accounting Research, 7*(1), 1-19.

Ali, M. H., Zailani, S., Iranmanesh, M., & Foroughi, B. (2019). Impacts of Environmental Factors on Waste, Energy, and Resource Management and Sustainable Performance. *Sustainability*, *11*(8), 2443.

Allegrini, M., & Greco, G. (2013). Corporate boards, audit committees and voluntary disclosure: Evidence from Italian listed companies. *Journal of Management & Governance*, *17*(1), 187-216.

Álvarez-Gil, M. J., Berrone, P., Husillos, F. J., & Lado, N. (2007). Reverse logistics, stakeholders' influence, organizational slack, and managers' posture. *Journal of Business Research*, *60*(5), 463-473.

Amran, A., & Devi, S. S. (2008). The impact of government and foreign affiliate influence on corporate social reporting: The case of Malaysia. *Managerial Auditing Journal, 23*(4), 386-404.

Amran, A., & Haniffa, R. (2011). Evidence in development of sustainability reporting: A case of a developing country. *Business Strategy and the Environment, 20*(3), 141-156.

Amran, A., Lee, S. P., & Devi, S. S. (2014). The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality. *Business Strategy and the Environment*, *23*(4), 217-235.

Amran, A., Ooi, S. K., Nejati, M., Zulkafli, A. H., & Lim, B. A. (2012). Relationship of firm attributes, ownership structure and business network on climate change efforts: Evidence from Malaysia. *International Journal of Sustainable Development & World Ecology, 19*(5), 406-414.

Amran, A., Ooi, S. K., Wong, C. Y., & Hashim, F. (2016). Business strategy for climate change: An ASEAN perspective. *Corporate Social Responsibility and Environmental Management*, *23*(4), 213-227.

Aragon-Correa, J. A., & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review, 28*(1), 71-88.

Ballou, B., Heitger, D. L., Landes, C. E., & Adams, M. (2006). The future of corporate sustainability reporting. *Journal of Accountancy*, *202*(6), 65-74.

Barako, D. G., Hancock, P., & Izan, H. (2006). Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An International Review, 14*(2), 107-125.

Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior, 14*(2), 103-118.

Baysinger, B. D., Kosnik, R. D., & Turk, T. A. (1991). Effects of board and ownership structure on corporate R&D strategy. *Academy of Management Journal, 34*(1), 205-214.

Beekes, W., & Brown, P. (2006). Do better governed Australian firms make more informative disclosures? *Journal of Business Finance and Accounting, 33*(3-4), 422-450.

Beggs, J. J. (1995). The institutional environment: Implications for race and gender inequality in the US labor market. *American Sociological Review, 60*(4), 612-633.

Beiner, S., Drobetz, W., Schmid, F., & Zimmermann, H. (2004). Is board size an independent corporate governance mechanism? *Kyklos, 57*(3), 327-356.

Berglof, E., & Pajuste, A. (2005). What do firms disclose and why? Enforcing corporate governance and transparency in Central and Eastern Europe. *Oxford Review of Economic Policy*, *21*(2), 178-197.

Brammer, S., & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance & Accounting*, *33*(7-8), 1168-1188.

Brammer, S., & Pavelin, S. (2008). Factors influencing the quality of corporate environmental disclosure. *Business Strategy and the Environment*, *17*(2), 120-136.

Branco, M. C., & Rodrigues, L. L. (2008). Social responsibility disclosure: A study of proxies for the public visibility of Portuguese banks. *The British Accounting Review*, *40*(2), 161-181.

Brooks, A., Oliver, J., & Veljanovski, A. (2009). The role of the independent director: Evidence from a survey of independent directors in Australia. *Australian Accounting Review*, *19*(3), 161-177.

Buniamin, S. (2012). The quantity and quality of environmental reporting in annual report of public listed companies in Malaysia. *Issues in social and Environmental Accounting, 4*(2), 115-135.

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, *38*(1), 33-53.

Chen, C. J., & Jaggi, B. (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy, 19*(4), 285-310.

Cheng, E. C., & Courtenay, S. M. (2006). Board composition, regulatory regime and voluntary disclosure. *The International Journal of Accounting*, *41*(3), 262-289.

Chung, R., Firth, M., & Kim, J. B. (2002). Institutional monitoring and opportunistic earnings management. *Journal of corporate finance*, *8*(1), 29-48.

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, *33*(4), 303-327.

Cormier, D., & Magnan, M. (2003). Environmental reporting management: A continental European perspective. *Journal of Accounting and Public Policy*, *22*(1), 43-62.

Cormier, D., Magnan, M., & Van Velthoven, B. (2005). Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions? *European Accounting Review, 14*(1), 3-39.

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, *26*(3), 435-462.

Cullen, L., & Christopher, T. (2002). Governance disclosures and firm characteristics of listed Australian mining companies. *International Journal of Business Studies*, *10*(1), 37-58.

Darmadi, S., & Sodikin, A. (2013). Information disclosure by family-controlled firms: The role of board independence and institutional ownership. *Asian Review of Accounting*, *21*(3), 223-240.

Darnall, N., & Edwards Jr, D. (2006). Predicting the cost of environmental management system adoption: The role of capabilities, resources and ownership structure. *Strategic Management Journal, 27*(4), 301-320.

Daub, C. H. (2007). Assessing the quality of sustainability reporting: An alternative methodological approach. *Journal of Cleaner Production*, *15*(1), 75-85.

De Villiers, C., Naiker, V., & Van Staden, C. J. (2011). The effect of board characteristics on firm environmental performance. *Journal of Management*, *37*(6), 1636-1663.

Deegan, C., Rankin, M., & Tobin, J. (2002). An examination of the corporate social and environmental disclosures of BHP from 1983-1997: A test of legitimacy theory. *Accounting, Auditing & Accountability Journal, 15*(3), 312-343.

Donnelly, R., & Mulcahy, M. (2008). Board structure, ownership, and voluntary disclosure in Ireland. *Corporate Governance: An International Review*, *16*(5), 416-429.

Eisenberg, T., Sundgren, S., & Wells, M. T. (1998). Larger board size and decreasing firm value in small firms. *Journal of Financial Economics, 48*(1), 35-54.

Elijido-Ten, E. (2004). Determinants of environmental disclosures in a developing country: An application of the stakeholder theory. In *Fourth Asia Pacific Interdisciplinary Research in Accounting Conference*. Singapore.

Elijido-Ten, E., Kloot, L., & Clarkson, P. (2010). Extending the application of stakeholder influence strategies to environmental disclosures: An exploratory study from a developing country. *Accounting, Auditing & Accountability Journal, 23*(8), 1032-1059.

Eng, L. L., & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy*, *22*(4), 325-345.

Etzion, D., & Ferraro, F. (2010). The role of analogy in the institutionalization of sustainability reporting. *Organization Science, 21*(5), 1092-1107.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics, 26*(2), 301-325.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149-1160.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-191.

Firth, M., Fung, P. M., & Rui, O. M. (2006). Corporate performance and CEO compensation in China. *Journal of Corporate Finance*, *12*(4), 693-714.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* *18*(1), 39–50.

Gadenne, D. L., Kennedy, J., & McKeiver, C. (2009). An empirical study of environmental awareness and practices in SMEs. *Journal of Business Ethics, 84*(1), 45-63.

Galbreath, J. (2010). The impact of strategic orientation on corporate social responsibility. *International Journal of Organizational Analysis, 18*(1), 23-40.

Gandia, J. L. (2008). Determinants of Internet-based corporate governance disclosure by Spanish listed companies. *Online Information Review*, *32*(6), 791-817.

Ghazali, N. A. (2007). Ownership structure and corporate social responsibility disclosure: Some Malaysian evidence. *Corporate Governance: The International Journal of Business in Society*, *7*(3), 251-266.

Ghazali, N. A. M., & Weetman, P. (2006). Perpetuating traditional influences: Voluntary disclosure in Malaysia following the economic crisis. *Journal of International Accounting, Auditing and Taxation*, *15*(2), 226-248.

Giannarakis, G. (2014). The determinants influencing the extent of CSR disclosure. *International Journal of Law and Management*, *56*(5), 393-416.

Gibson, K., & O'Donovan, G. (2007). Corporate governance and environmental reporting: An Australian study. *Corporate Governance: An International Review*, *15*(5), 944-956.

Global Reporting Initiative (2002). Sustainable Reporting Guidelines, www.globalreporting.org.

Godos-Díez, J. L., Cabeza-García, L., Alonso-Martínez, D., & Fernández-Gago, R. (2018). Factors influencing board of directors' decision-making process as determinants of CSR engagement. *Review of Managerial Science*, *12*(1), 229-253.

Graves, S. B., & Waddock, S. A. (1990). Institutional ownership and control: Implications for long-term corporate strategy. *The Executive*, *4*(1), 75-83.

Habib, A., & Jiang, H. (2009). The impact of ownership concentration on voluntary disclosure practices in New Zealand. In *AFAANZ Conference*. Adelaide.

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, *59*, 5-21.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Thousand Oaks: Sage.

Hair, J. F., Ringle, C. M., & Sarsedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice, 19*(2), 139-151.

Haji, A. (2013). Corporate social responsibility disclosures over time: Evidence from Malaysia. *Managerial Auditing Journal*, *28*(7), 647-676.

Hamilton, K. (2004). The need for effective communication with market stakeholders. *Australian Accounting Review*, *14*(32), 3-8.

Haniffa, R. M., & Cooke, T. E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *Abacus*, *38*(3), 317-349.
Haniffa, R. M., & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy*, *24*(5), 391-430.
Haniffa, R., & Cooke, T. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy, 24*(5), 391-430.
Haniffa, R., & Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance & Accounting*, *33*(7-8), 1034-1062.
Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, *20*(4), 986-1014.
Hidalgo, R. L., García-Meca, E., & Martínez, I. (2011). Corporate governance and intellectual capital disclosure. *Journal of Business Ethics*, *100*(3), 483-495.
Ho, S. S., & Wong, K. S. (2001). A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing and Taxation, 10*(2), 139-156.
Ionel-Alin, I. (2012). The relationship between environmental reporting and corporate governance characteristics of Romanian listed entities. *Journal of Accounting and Management Information Systems, 11*(2), 267-294.
Iranmanesh, M., Zailani, S., Moeinzadeh, S., & Nikbin, D. (2017). Effect of green innovation on job satisfaction of electronic and electrical manufacturers' employees through job intensity: Personal innovativeness as moderator. *Review of Managerial Science*, *11*(2), 299-313.
Jamali, D., Safieddine, A. M., & Rabbath, M. (2008). Corporate governance and corporate social responsibility synergies and interrelationships. *Corporate Governance: An International Review*, *16*(5), 443-459.
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360.
Jermias, J. (2007). The effects of corporate governance on the relationship between innovative efforts and performance. *European Accounting Review*, *16*(4), 827-854.
Karake, Z. A. (1995). Information technology performance: Agency and upper echelon theories. *Management Decision*, *33*(9), 30-37.
Kassinis, G., & Vafeas, N. (2002). Corporate boards and outside stakeholders as determinants of environmental litigation. *Strategic Management Journal*, *23*(5), 399-415.
Kesner, I. F. (1988). Directors' characteristics and committee membership: An investigation of type, occupation, tenure, and gender. *Academy of Management Journal*, *31*(1), 66-84.
Khalifa, M., & Davison, M. (2006). SME adoption of IT: The case of electronic trading systems. *Engineering Management, IEEE Transactions on, 53*(2), 275-284.
Khan, A., Muttakin, M. B., & Siddiqui, J. (2013). Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. *Journal of Business Ethics, 114*(2), 207-223.
Khan, H. U. Z. (2010). The effect of corporate governance elements on corporate social responsibility (CSR) reporting: Empirical evidence from private commercial banks of Bangladesh. *International Journal of Law and Management*, *52*(2), 82-109.

Khan, R., Dharwadkar, R., & Brandes, P. (2005). Institutional ownership and CEO compensation: A longitudinal examination. *Journal of Business Research, 58*(8), 1078-1088.

Khlif, H., Ahmed, K., & Souissi, M. (2017). Ownership structure and voluntary disclosure: A synthesis of empirical studies. *Australian Journal of Management*, *42*(3), 376-403.

Kilic, M., Kuzey, C., & Uyar, A. (2015). The impact of ownership and board structure on Corporate Social Responsibility (CSR) reporting in the Turkish banking industry. *Corporate Governance: The International Journal of Business in Society*, *15*(3), 357-374.

Laidroo, L. (2009). Association between ownership structure and public announcements' disclosures. *Corporate Governance: An International Review*, *17*(1), 13-34.

Lakhal, F. (2005). Voluntary earnings disclosures and corporate governance: Evidence from France. *Review of Accounting and Finance*, *4*(3), 64-85.

Laksmana, I. (2008). Corporate board governance and voluntary disclosure of executive compensation practices. *Contemporary Accounting Research, 25*(4), 1147-1182.

Lawal, B. (2012). Board dynamics and corporate performance: Review of literature, and empirical challenges. *International Journal of Economics and Finance, 4*(1), 22-35.

Liu, X., & Anbumozhi, V. (2009). Determinant factors of corporate environmental information disclosure: An empirical study of Chinese listed companies. *Journal of Cleaner Production*, *17*(6), 593-600.

Luoma, P., & Goodstein, J. (1999). Stakeholders and corporate boards: Institutional influences on board composition and structure. *Academy of Management Journal*, *42*(5), 553-563.

Mackenzie, C. (2007). Boards, incentives and corporate social responsibility: The case for a change of emphasis. *Corporate Governance: An International Review, 15*(5), 935-943.

Magness, V. (2006). Strategic posture, financial performance and environmental disclosure: An empirical test of legitimacy theory. *Accounting, Auditing & Accountability Journal, 19*(4), 540-563.

Mahmood, Z., Kouser, R., Ali, W., Ahmad, Z., & Salman, T. (2018). Does corporate governance affect sustainability disclosure? A mixed methods study. *Sustainability*, *10*(1), 207-227.

Mahoney, L., & Roberts, R. W. (2007). Corporate social performance, financial performance and institutional ownership in Canadian firms. In *Accounting forum, 31*(3), 233-253).

Majumder, M. T. H., Akter, A., & Li, X. (2017). Corporate governance and corporate social disclosures: A meta-analytical review. *International Journal of Accounting & Information Management*, *25*(4), 434-458.

Mallin, C., & Michelon, G. (2011). Board reputation attributes and corporate social performance: An empirical investigation of the US Best Corporate Citizens. *Accounting and Business Research, 41*(2), 119–144.

Mallin, C., Michelon, G., & Raggi, D. (2013). Monitoring intensity and stakeholders' orientation: How does governance affect social and environmental disclosure? *Journal of Business Ethics*, *114*(1), 29-43.

Manaf, N. A. A., Atan, R., & Mohamed, N. (2006). Environmentally sensitive companies social responsibility and reporting: A study of Malaysian companies.

In *the 5th Australasian Conference on Social and environmental Accounting Research.* New Zealand: Victoria university of Wellington.
Mayr, S., Erdfelder, E., Buchner, A., & Faul, F. (2007). A short tutorial of GPower. *Tutorials in Quantitative Methods for Psychology*, *3*(2), 51-59.
Michelon, G., & Parbonetti, A. (2012). The effect of corporate governance on sustainability disclosure. *Journal of Management & Governance*, *16*(3), 477-509.
Milne, M. J., & Patten, D. M. (2002). Securing organizational legitimacy: An experimental decision case examining the impact of environmental disclosures. *Accounting, Auditing & Accountability Journal, 15*(3), 372-405.
Nurunnabi, M. (2016). Who cares about climate change reporting in developing countries? The market response to, and corporate accountability for, climate change in Bangladesh. *Environment, Development and Sustainability*, *18*(1), 157-186.
O'Donovan, G. (2002). Environmental disclosures in the annual report: Extending the applicability and predictive power of legitimacy theory. *Accounting, Auditing & Accountability Journal, 15*(3), 344-371.
Oh, W. Y., Chang, Y. K., & Martynov, A. (2011). The effect of ownership structure on corporate social responsibility: Empirical evidence from Korea. *Journal of business ethics*, *104*(2), 283-297
Othman, S., Arshad, R., & Darus, F. (2009). The quality of corporate social responsibility disclosure of Malaysian sensitive industries. In *8th Australasian Conference on Social and Environment Accounting Research.* Christchurch, New Zealand.
Peters, G. F., & Romi, A. M. (2012). *The effect of corporate governance on voluntary risk disclosures: Evidence from greenhouse gas emission reporting*. Working Paper. University of Arkansas, Indiana University.
Post, J.E., Preston, L.E. and Sachs, S. (2002). *Redefining the corporation, stakeholder management and organizational wealth*. Stanford, CT: Stanford University Press.
Prado-Lorenzo, J. M., Gallego-Alvarez, I., & Garcia-Sanchez, I. M. (2009). Stakeholder engagement and corporate social responsibility reporting: The ownership structure effect. *Corporate Social Responsibility and Environmental Management, 16*(2), 94-107.
Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*(4), 717-731.
Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891.
Prencipe, A. (2004). Proprietary costs and determinants of voluntary segment disclosure: Evidence from Italian listed companies. *European Accounting Review*, *13*(2), 319-340.
Qa'dan, M. B., & Suwaidan, M. S. (2019). Board composition, ownership structure and corporate social responsibility disclosure: The case of Jordan. *Social Responsibility Journal*, *15*(1), 28-46.
Rao, K., Tilt, C. A., & Lester, L. H. (2012). Corporate governance and environmental reporting: An Australian study. *Corporate Governance: The International Journal of Business in Society*, *12*(2), 143-163.
Reverte, C. (2009). Determinants of corporate social responsibility disclosure ratings by Spanish listed firms. *Journal of Business Ethics*, *88*(2), 351-366.

Roberts, J., McNulty, T., & Stiles, P. (2005). Beyond agency conceptions of the work of the non-executive director: Creating accountability in the boardroom. *British Journal of Management*, *16*, S5-S26.

Roberts, R. W. (1992). Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society*, *17*(6), 595-612.

Rogers, D. S., & Tibben-Lembke, R. S. (1998). *Going backwards: Reverse logistics trends and practices*. Pittsburgh, PA: Reverse Logistics Executive Council: Center for Logistics Management.

Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal*, *40*(3), 534-559.

Said, R., Hj Zainuddin, Y., & Haron, H. (2009). The relationship between corporate social responsibility disclosure and corporate governance characteristics in Malaysian public listed companies. *Social Responsibility Journal*, *5*(2), 212-226.

Saleh, M., Zulkifli, N., & Muhamad, R. (2010). Corporate social responsibility disclosure and its relation on institutional ownership: Evidence from public listed companies in Malaysia. *Managerial Auditing Journal*, *25*(6), 591-613.

Schnatterly, K., Shaw, K. W., & Jennings, W. W. (2008). Information advantages of large institutional owners. *Strategic Management Journal*, *29*(2), 219-227.

Shan, G. Y. (2009). *Related-party disclosures in China: Influences of factors identified from agency, legitimacy and signalling theories.* Paper presented at the Symposium SA, Adelaide. http://www.symposiumsa.org/Shan%20_2008_%20-%20Accounting.pdf

Sun, N., Salama, A., Hussainey, K., & Habbash, M. (2010). Corporate environmental disclosure, corporate governance and earnings management. *Managerial Auditing Journal, 25*(7), 679-700.

Tolbert, P. S., & Zucker, L. G. (1983). Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880-1935. *Administrative Science Quarterly, 28*(1), 22-39.

Ullmann, A. A. (1985). Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of US firms. *Academy of Management Review*, *10*(3), 540-557.

Welford, R. (2007). Corporate governance and corporate social responsibility: Issues for Asia. *Corporate Social Responsibility and Environmental Management, 14*(1), 42-51.

Welford, R., Chan, C., & Man, M. (2008). Priorities for corporate social responsibility: A survey of businesses and their stakeholders. *Corporate Social Responsibility and Environmental Management*, *15*(1), 52-62.

Wetzels, M., Odekerken-Schroder, G., & van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly, 33*(1), 177-195.

Wilmshurst, T. D., & Frost, G. R. (2000). Corporate environmental reporting: A test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, *13*(1), 10-26.

Wincent, J., Anokhin, S., & Örtqvist, D. (2013). Supporting innovation in government-sponsored networks: The role of network board composition. *International Small Business Journal*, *31*(8), 997-1020.

Wise, V., & Ali, M. M. (2008). Case studies on corporate governance and corporate social responsibility. *South Asian Journal of Management*, *15*(3), 136-150.

Zahra, S. A., & Pearce, J. A. (1989). Boards of directors and corporate financial performance: A review and integrative model. *Journal of Management*, *15*(2), 291-334.

Zailani, S., Iranmanesh, M., Sean Hyun, S., & Ali, M. H. (2019). Applying the theory of consumption values to explain drivers' willingness to pay for biofuels. *Sustainability*, *11*(3), 668.