

The Relationship between Corporate Governance Attributes and Environmental Disclosure Quality of Malaysian Public Listed Companies

TZE SAN ONG, YEN HONG NG, BOON HENG TEH, NUR FATIN KASBUN & JING HUI KWAN

ABSTRACT

This study aims to assess the effects of corporate governance attributes consists of proportion of independent directors, non-duality of Chief Executive Officer (CEO), board size and managerial ownership on environmental disclosure quality of Malaysian public listed companies. Besides good financial returns, companies today are also expected by its stakeholders to contribute back to the society in terms of sustainability activities despite Malaysia is still in the midst of improving the corporate governance. The composition of corporate board assistances in improving corporate performance remains as an issue. Environmental improvement and contribution commonly made through environmental disclosure, however, besides complying with regulations and being voluntary in reporting on environmental, the quality of the environmental disclosure is still unclear. This study is carried out in Malaysia among companies in environmentally sensitive industry as the operations of environmentally sensitive industry are considered to be more detrimental to the environment. Data are extracted from companies' annual reports over five years' duration, namely year 2012 to 2016. The data collected is being analyzed using panel data analysis. The proportion of independent directors and non-duality of CEO are significant in improving the environmental disclosure quality of Malaysian listed companies.

Keywords: Independent directors; non-duality of CEO; board size and managerial ownership; environmental disclosure quality; environmentally sensitive industry

INTRODUCTION

Companies (corporations or organizations) are usually formed with ultimate objectives in producing maximum returns to its shareholders with the given resources. According to Colley, Doyle, Logan and Stettinius (2003), companies are entities which possessed the quality of immortality and individuality. In other words, the companies will continue to operate and function even if there are changes in ownership or when the owners deceased, as companies' life span are unlimited (Colley et al. 2003). Despite changes in ownership, companies' ultimate goals in maximizing shareholders' wealth remained unchanged. A company is a legal entity, legally separated from its owners or shareholders. This legal entity has to be operated by human beings who held the positions of Managers, Directors, Chief Executive Officer, and etc (Cheah & Lee 2009). Although the shareholders are the owners of the companies, the powers in running the business, setting policies and making decisions lies in the hands of the board of directors (Cheah & Lee 2009). The shareholders usually have limited powers, even though they can exercise their voting rights during the Annual General Meeting. This phenomenon is known as separation of ownership and control. The company's ownership is with the shareholders while, control is in the hands of board of directors.

The phenomenon of separation of ownership and control leads to conflict of interest (Htay, Syed Ahmed & Ahamed Kameel 2013). This is because operational decisions which are made by the board of directors may

not always be in the best interest of the shareholders. As a result, corporate governance was introduced. Corporate governance acts as the monitoring mechanism to ensure proper checks and controls are in place. Corporate governance encourages fairness, accountability and transparency within an entity (Parul, Neha, Sunil & Sharma 2017). With corporate governance in place, balance of power among the board members (i.e. board of directors) could be ensured. This, in turn, improves the board of directors' accountability to the shareholders. Besides, corporate governance also supports timely reporting and enhances disclosures through companies' annual reports. Hence, companies with good corporate governance may enjoy better corporate image, as well as, improved confidence from its shareholders. With better corporate image and increased confidence, companies would be gaining better access to scarce and limited resources and funds. This in turn, provides companies with improved growth and ability to continue operation.

Companies today, however, are not just being expected to provide its shareholders with good financial returns. Companies today are also expected by its stakeholders to "give back" to the society and have greater involvements in sustainability activities (i.e. increase of companies' social performance) (Joshi & Li 2016). Stakeholders refer to other interested parties of the companies, such as customers, suppliers, lenders, government, employees, general public, and etc. Stakeholders today expect companies to take more responsibility in its corporate decisions and actions. This includes taking responsibilities over companies'

own operational impact towards the environment, social and economic. In other words, companies are expected to take full responsibilities over its manufacturing processes' damages towards the environment. Similar expectation applies to companies in the service industry. Such expectations from stakeholders have hence, resulted the necessity of companies in making environmental disclosures or reporting in the companies' annual reports. Reporting of these voluntary involvements represents a kind of investments for sustainable development (Chen, Feldmann & Tang 2015).

Corporate scandals and failures have resulted substantial losses being suffered by companies' shareholders and investors. As commented by Parul et al. (2017), developed countries (for instances, United States) took measurements of corporate governance in avoiding such corporate failures from occurrence. However, developing countries like Malaysia, are still in the midst of improving the corporate governance mechanism. On the other hand, many past studies which were conducted in developed countries yields contradictory and inconsistent results (Sheikh, Wang & Khan 2013). Whether or not the composition of corporate board aids in improving corporate performance remains as an issue of empirical and theoretical debates (Ujunwa 2012). In addition, Sheikh et al. (2013) commented that studies in developing countries is in need as developing countries have different institutional structures from developed countries. Besides, the difference in the stage of economic development is likely to affect a country's sustainability involvements and reporting (Tay & Sultana 2015). Thus, results from developing countries may differ from results conducted in developed countries. Cheah and Lee (2009) recommended longer term data to be collected to see the real effect of corporate governance mechanism. Hence, this has evoked the need for this study to be conducted with five years data to be collected to study the trend and address the limitations of past studies.

In Malaysia, observation of corporate governance code is on voluntary terms. Public listed companies are allowed to deviate from adopting the corporate governance code guidelines, however, reasons for the partial or full deviation have to be reported in the annual reports. Similar goes to environmental disclosures, whereby the disclosure contents are on voluntary basis. This means, it relies on companies to make such voluntary investments in producing good quality environment reporting. This leads to the purpose of this study, which aims to reveal the association of corporate governance, as well as environmental disclosure quality towards financial performance of companies. The significance of the findings could motivate companies to further invest in the improvement of corporate governance mechanism because an effective corporate governance should further enhance accountability, transparency and ultimately result in more disclosure, both voluntary as well as mandatory (Rao, Tilt & Lester 2012) and therefore could produce good and high quality environmental disclosures.

LITERATURE REVIEW

CORPORATE GOVERNANCE ATTRIBUTES

Board of directors represents one of the most important elements in corporate governance mechanism as the board of directors is directly involved in the conduct of business (Roshima, Yuserrie & Hasnah 2009). Besides, board of directors forms an internal control mechanism in agency perspective to address the conflict of interest between the principal (shareholders) and its agents (Board) (Ujunwa 2012). Significant positive correlations were found to exist between sustainability disclosures and the attributes of company board composition that support a better corporate governance mechanism (Ong & Djajadikerta 2018). In addition, corporate governance past studies conducted in Malaysia usually uses cross-sectional data. Since the board of directors' structure relied heavily on agency theory concepts (Azeem, Hassan & Kouser 2013), this study applies the agency theory concept in the selection of the corporate governance attributes, namely: (1) Proportion of independent directors; (2) Non-duality of Chief Executive Officer; (3) Board size; and (4) Managerial ownership.

PROPORTION OF INDEPENDENT DIRECTORS

Proportion of independent directors refers to the percentage of independent directors over total directors in the board of directors. Executive directors are defined by Germain, Galy and Lee (2014) as full-time directors employed by companies. The executive directors are usually involved in the companies' day-to-day operation. As such, executive directors are definitely not being considered as independent directors. Conversely, the independent directors are non-executive directors who, unlike the executive directors, are not involved in the day-to-day operation of the companies. Independent directors are also known as independent non-executive directors appointed as part of the members in the board of directors.

According to Malaysian Code of Corporate Governance 2012 (MCCG 2012) Principles 3, Recommendation 3.1, the board of directors should ensure the effectiveness of independent directors through policies and procedures. A balance of independent directors will reduce risks resulted from conflict of interest. Besides, an undue influence from interested parties can also be mitigated through adequate numbers of independent directors in the board of directors. MCCG 2012 Principles 3, Recommendation 3.5 has also stressed the importance of the board of directors to comprise of a majority of independent directors in ensuring a balance of power and authority among the board of directors. According to Bar-Yosef and Prencipe (2013), the higher the board independence, the better the corporate governance quality. This is because greater board of directors' independence would lead to better control monitoring of organization's management which reduces moral hazard problem. It implies that the increasing the

external or independent directors who can, among other things, exercise real supervision work (Martin & Herrero 2018). From agency theory perspective, the higher the number of independent directors, the better the monitoring quality of corporate governance (Akhtaruddin & Hasnah 2010). One of the suggestions in corporate governance was to increase the number of non-executive directors in the board of directors. The larger the number of non-executive directors, the better the control and monitoring of executive directors' actions (Mohd Hassan et al. 2008). Furthermore, El-Chaarani (2014) supports the agency theory as it found that managerial ownership with a larger proportion of outside directors is more able to monitor self-interest actions.

NON-DUALITY OF CHIEF EXECUTIVE OFFICER (CEO)

Duality of CEO refers to the situation whereby an individual is holding both the positions as the Chairperson of the Board and CEO. In other words, there is no segregation of duty between the Board Chairperson and CEO when there is duality of CEO. Nevertheless, duality of CEO does have its advantages, for instance, the director is able to act faster in response to situations (Sheikh & Wang 2012) which is exceptionally important if the company is operating in competitive environment (Yang & Zhao 2014). Besides, the combination of positions allow the Board Chairperson to be equipped with CEO's intimate knowledge which aids in efficient operation of the board of directors (Yang & Zhao 2014). However, duality of CEO has its disadvantages too. Combining these two roles weakens the internal corporate governance system and may result excessive power to be given to the CEO who is also the Board Chairperson (Shamsul et al. 2010). Duality of CEO also tends to lower information transparency (Wu & Lee 2014) which influences its disclosure behavior and disclosure quality, influences the information transparency perceived in relation to that firm. It was previously understood that greater information asymmetry between investors and issuers/underwriters translates into a larger discount required to be offered in bond pricing by the issuing firm, to attract investors. In this paper, we numerically analyze: (a and diminish the board of directors' monitoring roles (Giannarakis et al. 2014).

In Malaysia, MCG 2012 Principles 3, Recommendation 3.4 recommends the positions of Board Chairperson and CEO to be held by two different individuals. In other words, the CEO of the company should not be the Chairperson of the Board. Hence, MCG 2012 does not encourage duality of CEO, instead non-duality of CEO is encouraged. Even so, the recommendation of non-duality of CEO by MCG 2012 is not mandatory. Malaysian companies may still opt to deviate from the recommendation. However, justifications are required to be disclosed in the companies' annual reports when the companies do not apply the recommended practice.

BOARD SIZE

Board size refers to the total number of directors in the Board (Andreou, Louca & Panayides 2014; Roshima et al. 2009). In Malaysia, MCG 2012 did not recommend any specific ideal board size for companies. However, both large and small board size has its advantages and disadvantages. Advantages of large board size include larger pool of expertise and experience (Reddy, Locke & Scrimgeour 2010), better links which improve the companies' access to resources (Jackling & Johl 2009) corporate performance, and corporate capital structure. The study provides some support for aspects of agency theory as a greater proportion of outside directors on boards were associated with improved firm performance. The notion of separating leadership roles in a manner consistent with agency theory was not supported. For instance, the notion that powerful CEOs (duality role, CEO being the promoter, and CEO being the only board manager, greater voluntary disclosures of information (Akhtaruddin, Hossain, Hossain & Yao 2009) and more effective monitoring of powerful managers (Ujunwa 2012). Large board size, on the other hand, has its disadvantages too. Large board size increases cost and arguments in the boardroom (Ujunwa 2012), diminish performance (Jensen 1993) political, regulatory, and economic forces have been changing the worldwide economy in a fashion comparable to the changes experienced during the nineteenth century Industrial Revolution. As in the nineteenth century, we are experiencing declining costs, increasing average (but decreasing marginal and increases the time taken to approve management proposals (Chalevas 2011). These disadvantages may result in reduction of profits. As commented by Jensen (1993) political, regulatory, and economic forces have been changing the worldwide economy in a fashion comparable to the changes experienced during the nineteenth century Industrial Revolution. As in the nineteenth century, we are experiencing declining costs, increasing average (but decreasing marginal, board size above seven or eight person are less likely to function effectively. Nonetheless, the optimal board size is still inconclusive and there is no ideal size for a company's board.

MANAGERIAL OWNERSHIP

According to agency theory, conflict of interest between the owners (shareholders) and agents (board of directors) is due to the separation of ownership and control. If a company is wholly owned and managed by the owner himself, he will make operating decisions that maximizes his value (Jensen & Meckling 1976). Conflict of interest arises when the appointed agents do not hold 100% of the shares in the company. In such situation, the appointed agents may make decisions to his own benefits, rather than for the benefits of the owners (Jensen & Meckling 1976). This is when the shareholders would have to spend resources in order to monitor the behavior of the board of directors.

Managerial ownership refers to the situation whereby the appointed board of directors also owns company's shares. Managerial ownership is also known as "directors shareholdings", "insiders ownership" and "board ownership". In the event the board of directors are also holding shares in the company, the interests of the directors and shareholders are closely aligned (Iatridis 2013; Sheikh & Wang 2012). Increase of managerial ownership results in goal congruence, which means there is a consistency in the goals of board of directors and the company (Sheikh et al. 2013). When the board of directors owns companies' shares, total compensations received by them include salaries, bonuses, as well as capital gains from the shares held (Jensen & Murphy 1990). In other words, managerial ownership allows the board of directors' wealth to vary with the value of the company. However, managers with substantial shareholding may have the incentive to hold up important information without disclosing them to other shareholders (Fan & Wong 2002), substantial managerial ownership may be of disadvantage to the minority shareholders in East Asian corporations. Nevertheless, in Malaysia, MCG 2012 is silent with regards to managerial ownership. The directors are allowed to hold shares in companies they are appointed as board of directors. However, there is no recommendation as to the ideal percentage of shareholdings held by the board of directors.

ENVIRONMENTAL DISCLOSURES QUALITY

In the past, companies' involvements are known as corporate social responsibility (CSR). Since year 2000, sustainability reporting which includes reporting on environment, social and economic has become a reporting norm for companies. Companies' board of directors is recommended by MCG 2012 Principles 1, Recommendation 1.4 to ensure the companies' strategies promote sustainability. Companies' voluntary environmental engagements through setting of policies and performing sustainability activities should be disclosed in the companies' annual reports and websites. As explained by MCG 2012, companies' voluntary environmental engagements will enhance potential investors and public's perceptions towards the companies. According to past studies, CSR and corporate sustainability are similar. Both CSR reporting and corporate sustainability reporting covers three dimensions of economic, social and environment (Petrini & Pozzobon 2010; Montiel 2008). As such, environmental disclosures refer to one of the disclosure elements made by companies in the companies' annual reports and standalone sustainability reporting (if company produces it). According to Litt, Sharma, & Sharma (2014), the environmental initiatives and activities performed by companies represents a broader concept of CSR.

Environmental disclosure is defined as a process of communicating the information on environmental issues through various reporting mediums, including annual report, separate stand-alone environmental-related reports (i.e. environmental report, social responsibility

report, sustainability report) and corporate homepage of internet (Ismail, Rahman & Hezabr 2018). Environmental disclosure also defined as information disclosed by companies pertaining key environmental matters, policies on environmental issues, quantity of emissions and waste, compliance to environmental regulations, expenditures on environmental activities, contribution to sustainability projects and etc (Iatridis 2013). Though, Bursa Malaysia has mandate CSR disclosures as one of the listing requirements starting from 2007, the content and depthless of reporting remains on voluntary basis. Prior studies which examine environmental reporting focused on two aspects: reporting quantity and reporting quality (Sulaiman et al. 2014). Reporting quantity takes into account of the volume disclosed by the companies. For example, the quantity reported is measured by counting the number of words, sentences and pages (Sulaiman et al. 2014). Reporting quality, on the other hand, requires the researcher to apply judgment in rating the value or quality of the disclosures made by companies (Cormier, Ledoux & Magnan 2011). Usually a disclosure index is used in assessing the quality of disclosure (Sulaiman et al. 2014). Though the process in assessing the reporting quality is subjective, examination of reporting through quality ensures irrelevant information disclosed to be disregard (Cormier et al. 2011). According to Ong et al. (2016), quality of environmental reporting is more crucial as it is perceived as the key value of growth in evaluating companies' performance.

HYPOTHESES DEVELOPMENT

LEGITIMACY THEORY

According to legitimacy theory, companies will behave in accordance to the acceptable norms and values of the public (Norsyahida & Maliah 2012). In the events companies failed to perform in legitimate manner, the society could react by boycotting the companies' products and services (Chan et al. 2014). According to Deegan (2002), society allows companies to use the existing natural resources, as well as hire employees for operations. The community resources are used by companies in producing goods and services, at the same time wastes are being produced to the environment too. In the event the waste to environment is greater than the benefits of goods and services produced, the community will perceive the companies to have breached its social contract (Mathews 1993 as cited by Deegan 2002). By then, the companies' survival will be threatened. Thus, legitimacy theory assumes managers of companies tend to accommodate to society's expectation by adopting legitimate strategies and portraying good corporate citizens' image to the public in order to continue its operations.

As explained by Magness (2006), legitimacy theory is based on perception. According to Deegan (2002), disclosures are necessary to change perceptions. Hence, disclosures are strategically important to companies in shaping communities' perceptions towards the companies.

Companies would also voluntarily disclosed sustainability information to appear to be socially responsible in reacting to social, political and economic pressures (Tay & Sultana 2015). Thus, disclosures on voluntary corporate social and environmental information in companies' annual reports are one of the legitimizing strategies employed by companies in portraying good corporate images (Ong et al. 2016; Tay & Sultana 2015). Though the practice of companies making sustainability disclosures are increasing, the nature and content of disclosures are still on voluntary basis (Sulaiman et al. 2014; Deegan 2002). Deegan (2002) further stated several reasons as to why companies make voluntary disclosures. For instance, the companies are desire to comply with the industry requirements, comply with borrowing requirements, meet up with community expectations, attract funds for investments, as well as winning reporting awards (such as, ACCA Malaysia Sustainability Reporting Awards (MaSRA). According to Norsyahida & Maliah (2012), companies response to legitimacy threats as companies want to attain, maintain and regain lost legitimacy. The legitimate relationship and positive publicities are essential to companies to preserve the companies' reputation and on-going survival (Chan et al. 2014; Deegan 2002). As a summary, legitimacy theory refers to the voluntary disclosures performed by companies in order to conform to society's expectation and maintain legitimate relationship with the communities (Ong et al. 2016). Legitimacy theory is frequently used by past researchers (for instances, Chan et al. (2014); Giannarakis et al. (2014); Sulaiman et al. (2014); Norsyahida & Maliah (2012); Magness (2006)) in the examination of why voluntary disclosures are made by companies.

The attributes of company board composition that support a better corporate governance mechanism is reasoned to have significant correlations with environmental disclosure. Influential independent directors often have more influence on management's decisions and hence the organization itself is expected to be less independent under highly concentrated ownership. As explained by Mohd Hassan et al. (2008), according to agency theory, when the board of directors are independent of the management, the board of directors will observe their responsibility to be accountable and transparent to the shareholders or stakeholders. Relevant information (both mandatory and voluntary) will be disclosed on time by the board of directors. A study conducted by Muttakin and Subramaniam (2015) has also found greater board independence improves environmental information disclosed. The independent directors could pressure companies in engaging into CSR activities, as well as providing better environmental disclosures (Muttakin & Subramaniam 2015). Past studies also revealed proportions of independent directors to have positive and significant results towards comprehensiveness of financial disclosures (Chen & Jaggi 2000) and improving level of voluntary disclosures (Patelli & Prencipe 2007). It is argued that the greater board of directors' independence would lead to better control monitoring of organization's management

which reduces moral hazard problem and thus led to a better quality of environmental disclosure (Rao, Tilt & Lester 2012). Therefore, it can be hypothesized that;

H1a: Proportion of independent directors will improve the environmental disclosure quality of Malaysian listed companies.

Non-duality of CEO is assumed that CEO will have focus on specific environmental matters in order to reach the environmental objectives because duality of CEO vice versa may result in excessive power to be given to the CEO and redundancy of managerial tasks. Muttakin and Subramaniam (2015) conducted a study on top 100 companies listed on Bombay Stock Exchange in India. The result shows non-duality of CEO significantly and positively influences the level of CSR disclosures. As explained by Muttakin and Subramaniam (2015), when the CEO is not the board chairperson, greater interest is placed on stakeholders during decision-making. Another separate study conducted by Giannarakis et al. (2014) found non-duality of CEO provides the condition in improving social information level. Hence, good governance in CSR is presence. Bar-Yosef and Prencipe (2013) stressed that non-duality of CEO improves board independence, and hence quality and transparency of financial reports are improved as well. Therefore, it can be hypothesized that;

H1b: Non-duality of CEO will improve the environmental disclosure quality of Malaysian listed companies.

Many prior studies relate board size to disclosure. Decisions such as the content and extent of environmental disclosure to go in the annual reports need intensive involvement, more unanimity, effective communication, and coordination by board members. Studies conducted by Cormier et al. (2011); and Nan, Salama, Hussainey & Habbash (2010) found board size and environmental disclosures have positive and significant relationship. As further commented by Cormier et al. (2011), even though board size is related to environmental CSR disclosure, board size has lesser impact compared to other variables, such as firm size, environmental performance and environmental news exposure. Similar positive and significant effects of board size on quality of CSR disclosure is obtained by Ahmed Haji (2013). Larger board size seemed to mitigate the conflict of interest between the principal and agent, hence promotes better communication and higher corporate transparency in form of CSR disclosure (Ahmed Haji 2013). Therefore, it can be hypothesized that;

H1c: Larger board size reduces the environmental disclosure quality of Malaysian listed companies.

According to Akhtaruddin and Hasnah (2010), companies with highly concentrated ownership prevents managers in releasing information to competitors. As a result, information asymmetry increases and transparency

of information is lower. This brings negative effects of managerial ownership on environmental disclosures. In other words, as the level of shareholding held by board of directors increases, the likelihood of voluntary disclosures made reduces. As explained by Wu and Lee (2014), the higher the directors' shareholding, the lower the pressure faced by company in disclosing information. Hence, as part of cost reduction, information disclosed will be reduced and information transparency will be low (Wu & Lee 2014). With this finding, Akhtaruddin and Hasnah (2010) suggested more independent directors to be included in the audit committee when the board has higher ownership control. Such move would improve the disclosure level, hence information asymmetry between management and investors would be reduced. Additionally, it is considered that inside directors primarily focus on increasing shareholder value and are less likely to disclose, or be concerned with, environmental issues, despite that managerial ownership will improve environmental disclosure quality. Therefore, it can be hypothesized that;

H1d: Increase of managerial ownership will improve the environmental disclosure quality of Malaysian listed companies.

METHODOLOGY

In this study, 102 companies are selected as samples and annual reports as well as standalone sustainability reports for score of environmental disclosure quality over five years (year 2012 to 2016) are collected. Thus, this provides a panel data with a total of 510 observations (i.e. 102 companies multiplying 5 years). As commented by Mohd Hassan et al. (2008), data collection of more than one year provides better understanding on issues relating to corporate governance. This is further supported by Cheah and Lee (2009) who commented that a company's performance and profitability should be judged over longer term. This is because the financial effect from value-added activities and stock market returns can only be seen in long run, rather than short run. Besides, past studies have also stressed the importance of longer term data for more accurate and valid results (Giannarakis et al. 2014; Mohd Hassan et al. 2008). Table 1 shows the demographic profile of the study. There are three variables, which are independent variables, dependent variables and control variables. For independent variables, its proxies are proportion of independent directors (PID), non-duality of CEO (NDC), board size (BS) and managerial ownership (MO). For dependent variables, its proxies are environmental disclosure quality (EDQ). For control variable, its proxies are firm size (FS), sales growth rate (SGR) and leverage (LEV). The EDQ is measured using an EDQ checklist which is consistent with Sumiani et al. (2007); and Haslinda, Lehman & Noraini (2006). This EDQ checklist was developed using Global Reporting Initiative (GRI). GRI is a standard and globally accepted guidelines for corporate social performance disclosures (Chen et

al. 2015). The environmental disclosure quality (EDQ) is reported in overall percentage scores and sub-category percentage scores.

RESULTS AND DISCUSSION

REGRESSION MODEL: CORPORATE GOVERNANCE AND ENVIRONMENTAL DISCLOSURE QUALITY

The model examines the effects of corporate governance on environmental disclosure quality:

$$EDQ_{it} = \beta_0 + \beta_1 PID_{it} + \beta_2 NDC_{it} + \beta_3 BS_{it} + \beta_4 MO_{it} + \beta_5 FS_{it} + \beta_6 SGR_{it} + \beta_7 LEV_{it} + \mu_{it}$$

Where,

EDQ = Environmental disclosure quality

β_0 = Intercept for regression model

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ = Partial regression coefficients

PID = Proportion of independent directors

NDC = Non-duality of CEO

BS = Board size

MO = Managerial ownership

FS = Firm size

SGR = Sales growth ratio

LEV = Leverage ratio

μ = Stochastic disturbance term (the error term)

Table 1 below shows the demographic profiles of companies selected for this study. As discussed in the earlier chapter, 102 companies were selected and 5 years data for each company were extracted from the companies' annual reports from year 2011 to 2015. Hence, this provided a total of 510 observations. Among the industries studied, industrial products and trading or services stood up 31.4% and 26.5%. Majority of the observations (43.73%) have the board size of 6 to 7 directors. Among the observations studied, 446 observations (87.45%) have separation of roles between Chairperson and Chief Executive Officer (CEO). This indicates that most of the observations follow the recommendation made by Malaysian Code on Corporate Governance 2012 (MCCG 2012) whereby the positions of chairman and CEO should be held by two different individuals.

In Table 2, the mean value for proportion of independent directors (PID) and managerial ownership (MO) are 0.4697 and 0.0954 respectively. This indicates on average, in a board size of 10 directors, 4 to 5 total directors would be independent directors. This average of independent directors is higher than the requirement recommended by MCCG 2012 (whereby there should be 1 independent directors for every 3 directors in the board of directors). Managerial ownership measures the proportion of executive shareholdings out of the total shares issued by companies. The average proportion of shares (i.e. percentage of shares) held by the executive directors is 9.54%. Maximum of 0.6926 in MO indicates the highest

TABLE 1. Demographic profile (n = 510)

Profiles	Frequencies	Percentage
Industries		
Industrial products	160	31.4
Consumer products	90	17.6
Plantation	30	5.9
Constructions	30	5.9
Trading or services	135	26.5
Property	65	12.7
Board size		
4 to 5	94	18.4
6 to 7	223	43.7
8 to 9	148	29.0
10 to 11	28	5.5
12 to 13	17	3.4
Non-duality of CEO		
Yes	446	87.5
No	64	12.5

TABLE 2. Descriptive statistics (n = 510)

	Mean	Std deviation	Minimum	Maximum
PID	0.4697	0.1202	0.0000	0.8750
MO	0.0954	0.1355	0.0000	0.6926
EDQ	0.2993	0.1068	0.2000	0.9000
FS	19.2227	1.5459	15.4154	23.7287
SGR	0.0953	0.6958	-0.9487	13.2295
LEV	0.2144	0.4017	0.0000	6.5916

percentage of shares held by executive directors is 69.26%. The environmental disclosure quality (EDQ) represents the overall score for EDQ. The average percentage of score of 0.2993 (i.e. 29.93 score out of total score of 100) in EDQ implied the overall environmental disclosure quality made by companies observed are very low, general and descriptive in nature. The FS is measured using natural logarithm of sales. The average sales growth rate on the 510 observation seemed to low (9.53%). Leverage ratio of 0.2144 indicates that on average, 21.44% of the companies' total assets are financed with long-term debt.

CORRELATION

The correlation between all independent variables, dependent variables and control variables (i.e. PID, NDC, BS, MO, EDQ, FS, SGR and LEV) is less than +/-0.60 as shown in Table 3. This indicates that there is no multicollinearity problem when the value of correlation between each variable is below +/-0.60 (Hair et al. 2016).

REGRESSION

The second model examines the effects of corporate governance on environmental disclosure quality. As seen from Table 4 below, the p-value in both F-test (0.0000) and BPLM (0.0000) rejected the null hypothesis. Hence,

the results of POLS model was not appropriate for model 1. Further analysis using Hausman test was then being conducted to determine the most appropriate model to be used. Result from Hausman test (p-value 0.0467) rejected the null hypothesis and concluded that FEM is more consistent and efficient to be used in this study.

The results of FEM as shown in Table 4 below reveals R^2 of 0.1063 which shows 10.63% of the change in EDQ could be explained by the independent variables (PID, NDC, BS and MO) and control variables (FS, SGR and LEV). The remaining 89.37% of the changes in EDQ may be caused by other variables which are not studied in this research. PID and NDC significantly contribute to the variance in EDQ. As the proportion of independent directors increase, the environmental disclosure quality increase. Non-duality of CEO seemed to improve the environmental disclosure quality as well. On the other hand, the other two CG mechanisms (namely, BS and MO) have insignificant relationship towards EDQ. As for the control variables, FS and SGR are statistically significant at 1% level.

Therefore, the regression model for Model 1 is as follows:

$$EDQ_{it} = -0.1051 + 0.0407(PID)_{it} + 0.0224(NDC)_{it} + 0.0067(BS)_{it} + 0.0338(MO)_{it} + 0.0181(FS)_{it} + 0.0075(SGR)_{it} + 0.0028(LEV)_{it}$$

TABLE 3. Correlation Analysis

	PID	NDC	BS	MO	EDQ	FS	SGR	LEV
PID	1.000							
NDC	-0.0822*	1.000						
BS	-0.4589***	0.1050**	1.000					
MO	-0.0208	0.0118	0.0214	1.000				
EDQ	0.0050	-0.0187	0.2294***	-0.1521***	1.000			
FS	-0.1309***	-0.0062	0.3323***	-0.2011***	0.5486***	1.000		
SGR	-0.0857*	0.0325	0.0774*	-0.0155	0.0508	0.1457***	1.000	
LEV	-0.0019	-0.0573	0.0274	-0.01078**	0.0723	0.0060	-0.0120	1.000

Note: Correlation is significant at 0.01(*), 0.05(**) and 0.01(***)

TABLE 4. Results of POLS, FEM and REM for Model 1 (CG and EDQ)

	POLS	FEM	REM
PID	0.1084*** (0.0368)	0.0407* (0.0244)	0.0433* (0.0237)
NDC	-0.0041 (0.0119)	0.0224** (0.0106)	0.0197** (0.0099)
BS	0.0499*** (0.0191)	0.0067 (0.0143)	0.0120 (0.0136)
MO	-0.0322 (0.0299)	0.0338 (0.0347)	0.0046 (0.0306)
FS	0.0360*** (0.0028)	0.0181*** (0.0047)	0.0265*** (0.0036)
SGR	-0.0035 (0.0057)	0.0075*** (0.0024)	0.0056** (0.0023)
LEV	0.0162 (0.0098)	0.0028 (0.0063)	0.0054 (0.0061)
Constant	-0.5370*** (0.0629)	-0.1051 (0.0932)	-0.2739*** (0.0734)
No. of observations	510	510	510
R ²	0.3225	0.1063	0.2990
F	34.14	36.56	85.38
Wald chi2			
Prob>F	0.0000	0.0000	0.0000
Hausman test	0.0467		

Note: Standard errors are in parentheses. ***, ** and * indicate significance level at 1%, 5% and 10% respectively.

DISCUSSION

As indicated by the findings of this study, companies with higher proportion of independent directors have better environmental disclosures quality. This result could be due to the fact that the independent directors expect more details in reporting compared to the executive counterparts. Unlike executive directors, the independent directors are not involved in the day-to-day operational decisions. Hence, these appointed independent directors may not be truly familiar with the business operations. Thus, they may rely more on the reports and disclosures made by the companies in order for them to obtain more ideas and information relating to the companies they are appointed to. As such, with greater reporting demands by these independent directors, this may lead to better

reporting quality. This finding is similar to the findings of Muttakin and Subramaniam (2015); and Tay and Sultana (2015). As commented by Muttakin and Subramaniam (2015), higher proportion of independent directors reduces agency conflict between the agents (managers) and owners (shareholders). When the proportion of independent directors increases, information asymmetry reduces due to increase in disclosures. With the environmental disclosure levels frequently being reported as low by past researchers (Ong et al. 2015; Norsyahida & Maliah 2012; Sumiani et al. 2007), this indicates the strong needs for the regulators to strengthen on the proportion of independent directors, as well as separation of positions between Chairman and CEO, as ways to improve the environmental disclosure quality among Malaysian listed companies.

Majority of the companies studied (87.45%) have separated the roles of Chairperson and Chief Executive Officer (CEO). In other words, these companies followed the recommendation of Malaysian Code on Corporate Governance 2012 (MCCG 2012) whereby the positions of Chairman and CEO are to be held by two different individuals. The findings of this research supports non-duality of CEO as it is found that non-duality of CEO have positive effects on environmental disclosure quality. The separation of positions could have enabled the CEO to focus better on his day-to-day operational responsibilities and duties. This could allow better monitoring of staffs and other managers by the CEO, which include taking time to go through reports submitted to him for review and comments further on areas for improvement. As such, the separation of positions could enhance the transparency of reporting and improve reporting quality. This finding is consistent with the findings of Muttakin and Subramaniam (2015); and Tay and Sultana (2015) where non-duality of CEO improves environmental disclosures.

As far as board size is concerned, board size is found to have insignificant influence towards environmental disclosure quality. Board size refers to the total number of directors in the board of directors, which includes executive and non-executive, as well as, independent and non-independent directors. As discussed earlier, the independent directors may rely more on the reporting and disclosures made by the companies as compared to their executive counterparts. This is because these independent directors are not involved in the business operations. As such, they may rely more on the reports and disclosures in order for them to obtain more information relating to the companies they are appointed to. However, board size refers to the total number of directors, which includes the number of executive directors. Hence, larger board size may not necessarily reflect greater proportion of independent directors. Thus, since the executive directors may not require a better reporting quality, the board size is not a significant factor which influences the reporting quality. This insignificant finding is consistent with results of past studies carried out by Siti Rochmah et al. (2017); Mohamad Taha (2009); and Roshima et al. (2009). This implied the size of the board of directors (whether large or small) does not improve or decrease the reporting quality of environmental disclosures. As commented by Siti Rochmah et al. (2017), such findings could be due to the fact that disclosures quality is being oversea by audit committee. The audit committee effectiveness, on the other hand, could improve the internal control of companies, as well as audit process and compliance to laws and regulations.

Managerial ownership, on the other hand, is also found to be insignificant in its association towards environmental disclosure quality. In other words, the increases in the executive directors' shareholdings do not significantly improve the quality of environmental disclosures made by Malaysian listed companies. As reported in earlier section, the average percentage of executive directors'

shareholdings is on the low side (only 9.54% out of total shares issued by the company). As such, this may not lead to managerial ownership being a significant factor in enhancing reporting quality. On the other hand, other ownership concentrations (such as, foreign ownership and government ownership) could be more influential compared to managerial ownership. This is because the foreign, as well as government investors may require companies to have greater environmental involvement and disclosures. As such, the foreign and government shareholders could use their ownerships' concentration in pressuring the companies to produce better reports. Similar insignificant result was also found by Muttakin and Subramaniam (2015); and Mohamad Taha (2009). As commented by Muttakin and Subramaniam (2015), managerial ownership has negligible effects towards its influence on environmental disclosure in comparison with foreign and government ownership. Hence, these results provide deeper insights as to which corporate governance attributes contribute to better quality of environmental disclosures.

As far as control variables are concerned, both firm size and sales growth positively influence the environmental disclosures quality. In other words, larger firms and firms with higher sales growth tend to report more information pertaining the companies' environmental concerns and involvements. This finding is similar with findings of Ong et al. (2016); Giannarakis et al. (2014); Sulaiman et al. (2014); and Darmadi and Sodikin (2013) whereby firm size is found to have positive and significant effects on environmental disclosures. Larger companies tend to disclose more environmental information in terms of quantity and quality (Ong et al. 2016). As explained by Sulaiman et al. (2014), public has higher expectations towards larger companies in their environmental disclosures. As a result, larger companies recognize the need to preserve their corporate reputation and image with more environmental disclosures. On the other hand, leverage is not found to be statistically significant towards environmental disclosure, similar to the finding of Giannarakis et al. (2014).

IMPLICATION OF THE STUDY

From the theoretical perspective, this study extends the previous researches by exploring the effects of corporate governance and environmental disclosure quality empirically. Most of the past studies focus on the effects on financial performance with mixed findings. Findings of this study provided support materials and framework for future researchers to conduct further studies in corporate governance and environmental disclosure quality areas.

From the practical aspect, with stakeholders' expectation today, it is essential for companies to engage in voluntary environmental activities. This empirical finding provides a solid ground for the companies to be proactive in environmental activities. It is also important for companies to be aware of their impacts towards environmental

effect. As a result, corporate governance plays the major role to monitor the environmental disclosures. Without such knowledge, reduction activities and improvement steps could not be taken by companies in reducing its carbon footprints (“Corporate response to sustainability insufficient,” 2010).

CONCLUSION

The findings indicate that only proportion of independent directors and non-duality of CEO are found to be statistically significant in its effects on environmental disclosure quality of Malaysian listed companies. This result could be due to the fact that the independent directors expect more details in reporting compared to the executive counterparts. Since the independent directors are not involved in the day-to-day operational decisions, these independent directors may not be truly familiar with the business operations. Thus, this results to the reliance on these reports and disclosures for them to obtain more ideas and information relating to the companies they are appointed to. This may lead to better reporting quality. Besides, the separation of positions between the CEO and Chairperson of the board could have enabled the CEO to focus better on his day-to-day operational responsibilities and duties. This could allow the CEO to take time in going through the reports submitted to him, as such, transparency of reporting and reporting quality are improved. Lastly, the board size and managerial ownership are found to have insignificant influence towards environmental disclosure quality.

ACKNOWLEDGEMENT

This research was supported by the Putra Grant, Universiti Putra Malaysia (Grant number: 9590300).

REFERENCES

- Akhtaruddin, M. & Hasnah, H. 2010. Board ownership, audit committees’ effectiveness, and corporate voluntary disclosures. *Asian Review of Accounting* 18(1): 68-82.
- 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): 1-20.
- Andreou, P.C., Louca, C. & Panayides, P.M. 2014. Corporate governance, financial management decisions and firm performance: Evidence from the maritime industry. *Transportation Research Part E* 63: 59-8.
- Azeem, M., Hassan, M. & Kouser, R. 2013. Impact of Quality Corporate Governance on Firm Performance: A Ten Year Perspective. *Pakistan Journal of Commerce and Social Sciences* 7(3): 656-670.
- Bar-Yosef, S. & Prencipe, A. 2013. The impact of corporate governance and earnings management on stock market liquidity in a highly concentrated ownership capital market. *Journal of Accounting, Auditing & Finance* 28(3): 292-316.
- Chalevas, C.G. 2011. The effect of the mandatory adoption of corporate governance mechanisms on executive compensation. *The International Journal of Accounting* 46(2): 138-174.
- Cheah, F.S. & Lee, L.S. 2009. *Corporate governance in Malaysia: Principles and Practices*. Malaysia: August Publishing Sdn. Bhd.
- Chen, L., Feldmann, A. & Tang, O. 2015. The relationship between disclosures of corporate social performance and financial performance: Evidences from GRI reports in manufacturing industry. *International Journal of Production Economics* 170(Part B): 445-456
- Chen, C. J. P., & Jaggi, B. 2000. Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy* 19(4-5): 285-310.
- Colley, J.L., Doyle, J.L., Logan, G.W. & Stettinius, W. 2003. *Corporate Governance* (1st ed.). United States of America: McGraw-Hill executive MBA series.
- Cormier, D., Ledoux, M.J. & Magnan, M. 2012. The informational contribution of social and environmental disclosures for investors. *Management Decision* 49(8): 1276-1304.
- Corporate response to sustainability insufficient. 2010. *The Sunday Times*. <http://www.sundaytimes.lk/100307/BusinessTimes/bt21.html>
- 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.
- El-Charani, H. 2014. The impact of corporate governance on the performance of Lebanese banks. *The International Journal of Business and Finance Research* 8(5): 35-46.
- Fan, J.P.H. & Wong, T.J. 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of Accounting and Economics* 33(3): 401-425.
- Germain, L., Galy, N. & Lee, W. 2014. Corporate governance reform in Malaysia: Board size, independence and monitoring. *Journal of Economics and Business* 75: 126-162.
- Giannarakis, G., Konteos, G. & Sariannidis, N. 2014. Financial, governance and environmental determinants of corporate social responsible disclosure. *Management Decision* 52(10): 1928-1951.
- Hair, J.F. Jr, Hult, G.T.M., Ringle, C. & Sarstedt, M. 2016. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), 2nd ed., Sage, Thousand Oaks, CA*.
- Haslinda, Y., Lehman, G. & Noraini, M. N. 2006. Environmental engagements through the lens of disclosure practices: A Malaysian story. *Asian Review of Accounting* 14(1/2): 122-148.
- Htay, S.N.N., Syed Ahmed, S. & Ahamed Kameel, M.M. 2013. Let’s move to “Universal corporate governance theory”. *Journal of Internet Banking and Commerce* 18(2): 1-11.
- Iatridis, G.E. 2013. Environmental disclosure quality: Evidence on environmental performance, corporate governance and value relevance. *Emerging Markets Review* 14: 55-75.
- Ismail, A.H., Rahman, A.A. & Hezabr, A.A. 2018. Determinants of corporate environmental disclosure quality of oil and gas industry in developing countries. *International Journal of Ethics and Systems* 34(4): 527-563 <https://doi.org/10.1108/IJOES-03-2018-0042>
- Jackling, B. & Johl, S. 2009. Board structure and firm performance: Evidence from India’s top companies. *Corporate Governance: An International Review* 17(4): 492-509.
- Jensen, M.C. 1993. The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance* 48(3): 831-880.

- 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.
- Jensen, M.C. & Murphy, K.J. 1990. Performance pay and top-management incentives. *The Journal of Political Economy* 98(2): 225-264.
- Joshi, S. & Li, Y. 2016. What is corporate sustainability and how do firms practice it? A management accounting research perspective. *Journal of Management Accounting Research* 28(2): 1-11
- Litt, B., Sharma, D. & Sharma, V. 2014. Environmental initiatives and earnings management. *Managerial Auditing Journal* 29(1): 76-106.
- Malaysian Code on Corporate Governance. 2012. Securities Commission Malaysia.
- Martín, C.J.G & Herrero, B. 2018. Boards of directors: composition and effects on the performance of the firm. *Economic Research-Ekonomika Istraživanja* 31(1): 1015-1041.
- Matuleviciene, M. & Stravinskiene, J. 2015. The Importance of Stakeholders for Corporate Reputation. *Inžinerine Ekonomika-Engineering Economics*, 26(1): 75-83.
- Mohamad Taha, M.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.
- Mohd Hassan, C.H., Rashidah, A.R. & Sakthi, M. 2008. Corporate governance, transparency and performance of Malaysian companies. *Managerial Auditing Journal* 23(8): 744-778.
- Montiel, I. 2008. Corporate Social Responsibility and Corporate Sustainability: Separate Pasts, Common Futures. *Organization & Environment* 21(3): 245-269.
- Muttakin, M.B. & Subramaniam, N. 2015. Firm ownership and board characteristics: Do they matter for corporate social responsibility disclosure of Indian companies? *Sustainability Accounting, Management and Policy Journal* 6(2):138-165.
- Norsyahida, M. & Maliah, S. 2012. Environmental reporting practices of Malaysian Government Linked Companies (GLCs). *International Journal of Economics and Management* 6(2): 241-277.
- Ong, T.S., Soh, W.N., Teh, B.H. & Ng, S.H. 2016. Influence of environmental disclosures on the financial performance of public listed Malaysian manufacturing companies. *Asia-Pacific Management Accounting Journal* 10(1): 107-136.
- Ong, T.S., Tho, H.S., Goh, H.H., Thai, S.B. & Teh, B.H. 2016. The relationship between environmental disclosures and financial performance of public listed companies in Malaysia. *International Business Management* 10(4): 461-467.
- Ong, T.S., Teh B.H., Nuranisma, A. & Muhamad, H. 2015. Relation between corporate governance attributes and financial performance in oil and gas industry *Institutions and Economics* 7(2): 55-84
- Ong, T. & Djajadikerta, H.G. 2018. Corporate governance and sustainability reporting in the Australian resources industry: An empirical analysis. *Social Responsibility Journal*. <https://doi.org/10.1108/SRJ-06-2018-0135>
- Parul, K., Neha, K., Sunil, K.G. & Sharma, R.K. 2017. Impact of corporate governance and financial parameters on profitability of the BSE 100 companies. *The IUP Journal of Corporate Governance* 16(1): 7-26.
- Patelli, L. & Prencipe, A. 2007. The relationship between voluntary disclosure and independent directors in the presence of a dominant shareholder. *European Accounting Review Journal* 16(1): 5-33
- Petrini, M. & Pozzebon, M. 2010. Integrating sustainability into business practices: Learning from Brazilian firms. *Brazilian Administration Review* 7(4): 362-378.
- 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.
- Reddy, K., Locke, S. & Scrimgeour, F. 2010. The efficacy of principle-based corporate governance practices and firm financial performance: An empirical investigation. *International Journal of Managerial Finance* 6(3): 190-219.
- Roshima, S., Yuserrie, H.Z. & Hasnah, 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.
- Shamsul, N.A., Nor Zalina, M.Y. & Mohamad Naimi, M.N. 2010. Financial restatements and corporate governance among Malaysian listed companies. *Managerial Auditing Journal* 25(6): 526-552.
- Sheikh, N.A. & Wang, Z. 2012. Effects of corporate governance on capital structure: Empirical evidence from Pakistan. *Corporate Governance* 12(5): 629-641.
- Sheikh, N.A., Wang, Z. & Khan, S. 2013. The impact of internal attributes of corporate governance on firm performance: Evidence from Pakistan. *International Journal of Commerce and Management* 23(1): 38-55.
- Siti Rochmah, I., Titop, D. & Ari Kuncara, W. 2017. Corporate social responsibility and corporate governance in Indonesian public listed companies. *SHS Web of Conferences* 34: 1-11.
- Sulaiman, M., Abdullah, N. & Fatima, A.H. 2014. Determinants of environmental reporting quality in Malaysia. *International Journal of Economics, Management and Accounting* 22(1): 63-90.
- Sumiani, Y., Haslinda, Y. & Lehman, G. 2007. Environmental reporting in a developing country: A case study on status and implementation in Malaysia.
- Tay, C.L. & Sultana, N. 2016. Corporate social responsibility: what motivates management to disclose? *Social Responsibility Journal* 11(3): 513-534.
- Ujunwa, A. 2012. Board characteristics and the financial performance of Nigerian quoted firms. *Corporate Governance*, 12(5): 656-674.
- Wu, T.Z. & Lee, P.S. 2014. Information transparency, corporate governance, and convertible bonds. *Journal of Applied Business Research* 30(2): 541-555.
- Yang, T. & Zhao, S. 2014. CEO duality and firm performance: Evidence from an exogenous shock to the competitive environment. *Journal of Banking and Finance* 49: 534-552.

Tze San Ong*
 Department of Accounting
 Faculty of Economics and Management
 Universiti Putra Malaysia
 43300 Serdang Selangor
 MALAYSIA
 E-mail: tzesan@upm.edu.my

Yen Hong Ng
Universiti Tunku Abdul Rahman
31900 Kampar Perak
MALAYSIA
E-mail: ngyh@utar.edu.my

Boon Heng Teh
Faculty of Management
Multimedia University
63100 Cyberjaya Selangor
MALAYSIA
E-mail: bhteh@mmu.edu.my

Nur Fatin Binti Kusbun
Department of Accounting
Faculty of Economics and Management
Universiti Putra Malaysia
43300 Serdang Selangor
MALAYSIA
E-mail: fatinkasbun89@gmail.com

Jing Hui Kwan
Faculty of Management
Multimedia University
63100 Cyberjaya Selangor
MALAYSIA
E-mail: jhkwan@mmu.edu.my

*Corresponding author