

Environmental Performance: Does Corporate Governance Matter?

(Prestasi Alam Sekitar: Adakah Tadbir Urus Korporat Penting)

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ABSTRACT

Corporate environmental management and performance have become increasingly significant for companies in recent years, as they should operate in line with societal values and norms. Top management of companies, which include their board members, have an important role to play to address environmental issues, which include compliance with environmental laws and regulations. However, despite the growing number of environmental problems, stakeholder pressures and media attentions, there are relatively few studies that consider the role of corporate governance mechanisms in influencing the corporate environmental performance. This study investigates this phenomenon built upon the stakeholder theory. The study employs a matched pairs' design method to select sample of this study; compliant and non-compliant groups of companies listed on Bursa Malaysia for the year of 2013. Data for environmental performance (EP) information were obtained from the Malaysia Department of the Environment (DOE). Data for corporate governance were collected from annual reports of sample companies to form corporate governance index. Results show that corporate governance mechanism is positively associated with the environmental performance of companies in Malaysia. Results suggest that the existence of good corporate governance would lead to higher companies' compliance with environmental regulations that positively affects environmental performance. Additional analysis, which uses an alternative measurement for corporate governance and environmental performance measures, also confirm this finding. The results of this study highlight the importance of corporate governance mechanism in the formulation of strategic direction and operational implementation especially in the area of environmental management to meet regulatory standards and stakeholders' expectation.

Keywords: Corporate governance; environmental performance; stakeholders' theory; corporate governance index; environmental management

ABSTRAK

Pengurusan dan prestasi alam sekitar korporat telah menjadi perkara yang semakin penting untuk syarikat kebelakangan ini kerana mereka perlu beroperasi bersesuaian dengan norma dan nilai-nilai dalam masyarakat. Pengurusan tertinggi syarikat, termasuk ahli lembaga pengarah, mempunyai peranan penting untuk mengutarakan isu alam sekitar termasuklah patuhan terhadap peraturan dan undang-undang alam sekitar. Walaupun masalah alam sekitar, tekanan dari pemegang taruhan dan pemerhatian dari pihak media semakin meningkat, kajian yang mempertimbangkan peranan mekanisma tadbir urus korporat dalam mempengaruhi prestasi alam

sekitar korporat amatlah sedikit. Kajian ini meneliti fenomena ini berasaskan teori pemegang tuntutan. Kajian menggunakan kaedah reka bentuk padanan pasangan untuk memilih sampel kajian: kumpulan syarikat patuh dan tidak patuh yang tersenarai di Bursa Malaysia untuk tahun 2013. Data maklumat prestasi alam sekitar (EP) telah diperolehi dari Jabatan Alam Sekitar Malaysia (DOE). Data tadbir urus korporat diperolehi dari laporan tahunan sampel syarikat untuk membentuk Indeks Tadbir Urus Korporat. Hasil kajian mendapati mekanisma tadbir urus korporat berhubungan secara positif dengan prestasi alam sekitar syarikat di Malaysia. Hasil kajian mencadangkan bahawa kewujudan tadbir urus korporat yang baik akan mengarah syarikat untuk lebih patuh kepada peraturan alam sekitar dan seterusnya mempengaruhi prestasi alam sekitar secara positif. Analisis tambahan yang menggunakan kaedah pengukuran yang berbeza untuk tadbir urus korporat dan prestasi alam sekitar juga mengesahkan dapatan kajian ini. Hasil kajian ini menyorot kepentingan mekanisma tadbir urus korporat dalam memformulasikan hala tuju strategik dan pelaksanaan operasi terutama dalam bidang pengurusan alam sekitar bagi memenuhi piawaian undang-undang dan jangkaan pemegang taruhan.

Kata kunci: Tadbir urus korporat; prestasi alam sekitar; teori pemegang taruhan; indeks tadbir urus korporat; pengurusan alam sekitar

INTRODUCTION

The growing concern over the effect of business operation towards the environment has become a serious issue throughout the world in recent decades. The number of media reports about the environmental disasters and the restricted global supplies of natural resources have also increased. If the current natural resource depletion continues, and not monitored effectively, the existence of the present and future generations is at risk. Therefore, there are increasing expectations of society toward business organizations to be more responsible for their activities that might harm the environment.

Caring for society and environment has long been recognized as a part of the corporate social responsibilities (CSR) and companies can be held responsible if their operation damages the environment (Cortez 2010). Ideally, companies' strategic directions and formulations supported by their operational decisions, must be evaluated and monitored by the highest authority of the organization. The responsibility of the board of directors (BOD), being the highest authority in a company, has become a very pertinent accountability issue. BOD is responsible for assessing the corporate environmental impact and has the discretionary power to seek legal or other expert advice to ensure sound environmental performance. The likelihood that companies become the target of a lawsuit due to their adverse environmental impact is likely to be influenced by the BOD's position toward environmental issues.

Experience of the developed countries suggests that, along with rapid economic advancement, environmental degradation has also become the downside of industrialization (Elijido-Ten, Kloot, & Clarkson 2010). Malaysia, a nation with rapid economic growth over the past decades, has shown a high awareness of the significance of environmental concern. This is specifically evident from the collapsed of Highland Towers in 1993 due to land erosion, and the widespread of haze problem since 1997 when the Air Pollution Index exceeded the dangerous level of 500. Al-Amin et al. (2007) indicate that toxic emission from industries and manufacturing sectors will also intensify considerably by the year 2020. In this regard, Malaysian companies are partly responsible

for the increased pollution and the related loss of natural habitat and eco-system (Smith, Yahya & Amiruddin 2007).

Environmental performance has been defined as the actual outcome of companies' strategic implementation that monitors the impact of businesses on the environment (Walls, Phan & Berrone 2011). The implementation of environmentally friendly strategies, which involve building specific facilities and resources to provide solutions that meet environmental laws and regulations, are critical to improve companies' environmental performance. BOD existence as an important corporate governance mechanism, monitors and evaluates whether the implementation of companies' environmental policies complies with legal and ethical standards (Kesner, Victor & Lamont 1986; Lorsch & Young 1990; Bai & Sarkis 2010; Paloviita & Luoma-aho 2010). An effective BOD will have a strong motivation to improve stakeholder engagement through sound environmental disclosure and performance (Porta et al. 2002). Therefore, implementing an overall business strategy (including environmental strategy) that takes into account various stakeholders' needs, and at the same time being competitive to sustain the business, is one of the important roles for the BOD members.

However, despite the growing number of environmental problems, stakeholder pressures and increased media attention, there are relatively only few studies that investigate the role of internal indicators of corporate governance mechanisms toward the environmental performance of companies in developing countries (Adams 2002; Kassinis & Vafeas 2002; Villiers & Staden 2009; Walls, Berrone & Phan 2012; Post, Rahman & McQuillen 2014).

This study fills the gap in the accounting literature by examining the association between corporate governance mechanism and environmental performance of companies in Malaysia for the year of 2013. We specifically utilized Malaysian companies' data to investigate whether the Malaysian government serious effort in promoting healthier environment for the country through its MyHijau since year 2012 has any positive effect. MyHijau expects businesses to come up with healthy green environment in their products and operations (Malaysian Green Technology Corporation 2017 at www.myhijau.my). As such, findings from our study might provide some input in terms of the possible seriousness undertaken by businesses in fulfilling their responsibilities toward their stakeholders.

In addition, prior studies focus on a narrower set of corporate governance (CG) characteristics for their measurement of CG index. Their measurement of CG is considered not sufficient to effectively measure the corporate governance mechanism of companies (Cong & Freedman 2011). Our study provides a more comprehensive measurement of the corporate governance mechanisms modified from Wahab, How and Verhoeven (2007), which is based on the Malaysian Code on Corporate Governance (MCCG) 2012. The latest MCCG 2017 content does not affect the measurement of our CG Index because the main difference between MCCG 2012 compared to MCCG 2017 is in the detailed information of the principles in the sections (parts) and not the segregation of the principles or the sections (parts) themselves. As such, we believe our CG Index should be relevant to any future research that refers to MCCG 2017 as well. The results of our study show that there is a positive relationship between firms' corporate governance mechanism and firms' environmental performance. The findings indicate that companies with good governance have clear strategic direction that evaluates and improves companies' environmental performance to be in agreement with stakeholders' demand.

This paper proceeds with section two that discusses past studies related to our issue of study and the theoretical justification for our study. Section three discusses the research method that we employ in this study. This is followed by the analysis of the result. The last section discusses the

implications and conclusion of the paper.

LITERATURE REVIEW AND THEORETICAL DISCUSSIONS

Corporate environmental management and performance have become increasingly significant in recent years as stakeholders expect companies to operate in line with societal values and norms. Top management of companies, which include their BOD members, have an important role to play in addressing environmental issues, which include compliance with environmental laws and regulations, particularly when setting up companies' strategic directions and operational decisions (Kassinis & Vafeas 2006).

Most prior studies that investigate the issue of corporate governance and environmental performance were conducted in developed countries (Villiers & Staden 2009; Walls et al. 2012; Post et al. 2014). There were studies that examine the relationship between environmental performance and environmental disclosures (Al-Tuwaijri, Christensen & Hughes 2004; Cho & Patten 2007; van Staden 2007; Clarkson et al. 2008), and environmental performance and economic performance (Al-Tuwaijri et al. 2004; Hassel, Nilsson & Nyquist 2005; Darnall, Henriques & Sadorsky 2008). Several studies examine some indicators of financial performance with environmental performance (Gray et al. 2001; Al-Tuwaijri et al. 2004; Murray et al. 2006). Empirically, prior studies found companies that show good environmental performance prepare a detailed, and hard to mimic environmental disclosure in their annual reports (Li et al. 1997). In addition, prior studies also found that financially strong and big companies have better resources to disclose more environmental information (Gray et al. 2001; Al-Tuwaijri et al. 2004; Murray et al. 2006).

Past studies have employed various theories including agency theory, legitimacy theory, and stakeholder's theory to describe the relationship between corporate environmental performance and corporate governance. We propose that stakeholder theory offers an appropriate conceptual foundation and suitable justification for our present study. The changing nature of stakeholders' expectations as well as business environment created a demand for companies to consider an overall strategy that takes into account the supply and demand of multiple stakeholder groups. Several environmental studies have also adopted the theory to explain the existence of corporate social and environmental disclosure (Ullmann 1985; Roberts 1992; Freeman 1999).

Under the managerial branch of stakeholder theory, it is proposed that companies and their stakeholders are interdependent upon one another for resources and managers are responsible for maintaining this exchange relationship for the companies' survival. In other words, companies tend to satisfy the demand of stakeholders who can influence the survival of the company. However, companies will not respond to all stakeholders equally, but will only respond to the demand of powerful group of stakeholders (Joseph 2007).

Utilizing the concept of stakeholder theory helps companies to consider which stakeholder groups have the power or ability to influence the survival of the company. Companies with effective corporate governance are more sensitive with the demands and need of these primary/powerful stakeholder groups. Companies, which have effective corporate governance mechanisms act in the best interests of stakeholders, implement environmental friendly policies that meet and fulfil societal expectations and perceptions. In this regard, environmental performance is considered as a means to respond to the stakeholders' pressures and expectations. Companies seek to fulfill stakeholders' expectations through their environmental performance (Gray, Owen & Adams 1996). Specifically, companies that have higher proportion of independent

board members as well as a large board size would be more inclined to adopt social policies that serve stakeholders' interests better, including healthier environmental protections (Iatridis 2013). Effective BOD monitors and evaluates company's financial performance and social performance, which also includes environmental performance (Greeno 1994; McKendall, Sánchez & Sicilian 1999; Kassinis & Vafeas 2006).

Nevertheless, stakeholder theory also argues on the possibility of non-performance on the part of BOD (Joseph 2007). For example, it is well known where the stakeholders of firms are limited to several controlling shareholders, the companies' BODs tend to only focus on the needs of the limited number of stakeholders and not the overall general stakeholders. As such, BOD will strategize toward the activities that will increase profits rather than fulfill firms' social responsibilities (Joseph 2007). However, such actions on the part of companies' BODs might have reduced tremendously in the wake of many efforts by the government, such as in Malaysia through the Malaysian Code on Corporate Governance (MCCG) requirements.

Past studies also employed limited indicators of corporate governance mechanisms in which those indicators cannot effectively provide a complete measure of corporate governance mechanism of a company (Cong & Freedman 2011). This study, unlike others, employs a more comprehensive measurement of corporate governance features where we condense into one single index. The use of indices in evaluating a company's governance structure has become a popular method to measure a comprehensive set of governance-related recommendations in relation to the overall quality of any regulation compliance (Wahab et al. 2007). Moreover, the development of corporate governance index is in accordance to the Malaysian Code on Corporate Governance (MCCG), which aims toward an effective BOD in fulfilling both its conformance and performance functions (Wahab et al. 2007).

Furthermore, the strength in this study is in utilizing the measurement of actual Environmental Performance (EP), which was based on the actual situation of environmental non-compliance in accordance with the requirement of Environmental Quality Act 1974 (Act 127) & Subsidiary Legislations. There is limited extant studies that utilized actual environmental violations information to proxy the environmental performance of companies be it in Malaysia or other countries.

Consequently, we argue that it is important to consider the relationship between a company and its stakeholders when implementing the environmental policy of an organization. Companies' environmental performance helps in fulfilling some of the most significant stakeholders' needs. Thus, in this study we employ stakeholder theory to frame the association between corporate governance and environmental performance. Therefore, based on our literature review and the above arguments, we propose that good corporate governance mechanisms would be able to reduce the adverse impact of environmental actions, provide relevant key stakeholders' needs and eventually decrease the violation of environmental laws and regulations.

RESEARCH METHODOLOGY

The population of our study comprises of all companies listed on the Main Board of Bursa Malaysia for the year of 2013. Year of 2013 was chosen as the year of study due to the availability of specific environmental performance data¹ collected from the Department of Environment (DOE) head office in Putrajaya, Malaysia. We employ a purposive sampling method to select an initial non-compliant sample companies according to the requirement stated in the Environmental Quality Act 1974 (Act 127) & Subsidiary Legislations. Specifically, these sample companies

received written warning(s) and/or found guilty in court due to various violations of the mentioned Act.

In total, 172 listed companies were served with warnings/notices and (or) found guilty in courts in the year 2013. This initial non-compliant sample companies were matched pair with companies from the same industry (using Bursa Malaysia classification) and about the same size (proxy by the size of asset), which do not have any record of non-compliant with the environmental law and its related regulations. Eventually, there are 344 companies in our final sample, which comprises of 172 compliant and 172 non-compliant companies. This sample size represents 39 percent of the total Bursa Malaysia companies (880) for the year 2013.

MEASUREMENT OF VARIABLES

This study investigates the relationship between one independent variable (i.e. corporate governance), one dependent variable (i.e. environmental performance) and six control variables. The measurement of variables is as explained below.

Environmental Performance (EP) The environmental performance, dependent variable, is measured based on the nature and severity of environmental problems caused by a company (Romlah 2005). Specifically, the nature and severity of the problem is in line with the requirement of Environmental Quality Act 1974 (Act 127) & Subsidiary Legislations. Accordingly, to calculate the environmental performance score, guideline for the measurement is as follows:

- Score 0: When a company does not have any evidence of non-compliance issue with regard to environmental laws and regulations. A company in this category is considered as a good environmental performance company.
- Score (-1): When a company received a written warning/notice from the DOE for non-compliance with environmental laws and regulations in certain aspects of its operation.
- Score (-2): When a company found guilty in court for a more severe violation of the laws and regulations. A higher negative score is given here indicating the seriousness of the environmental violations and problems caused by a company (Romlah 2005)

According to DOE, companies that have not complied with the Act are first given a warning letter (or notice) and a specified period to respond to the letter and make corrective action as required by laws. However, if these companies fail to respond to the letter and/or do not make the corrective action as required, they might be given another one or two more warning letters; and finally if they still fail to respond or take the necessary actions (or if the case is so severe), they would be charged in court. If these companies are found guilty, they have to pay penalties and sometimes the imprisonment of person(s) responsible for the environmental damage. The name of these companies will be published on the DOE website. As such, based on the severity of the companies' actions, our measurement for the total environmental performance (EP) score is calculated as follows:

$$E_i = \sum W_i + \sum C_i$$

Where:

EP_i = Environmental performance score for company i

W_i = Number of warning (notice) received from DOE for company i
 CC_i = Number of court case for company i

The above measurement of EP also takes into account environmental violations caused by subsidiaries of the parent companies. As such, the total number of warnings (notices) and court cases of subsidiaries are also taken into account in this formula for the calculation of total environmental performance score (EP) of any parent company. Hence, the final score of each non-compliant company will be a negative number, whereby when the number becomes more negative the more involvements they have in environmental violations.

Corporate Governance (CG) Corporate governance (CG), independent variable, is measured based on the corporate governance index introduced by Wahab et al. (2007). The index has been modified to consider the corporate governance code, MCCG 2012 principles and recommendations, closest to our year of study, 2013. Our index, unlike indexes in other studies (for example, Iatridis (2013) and Post et al. (2014) only focus on several corporate governance features), consists of a more comprehensive corporate governance features and being condensed into one single measure of CG Index. Specifically, our index is developed based on the eight CG principles as stated in Part 2 and Part 4 of MCCG 2012 as follows:

- Principle 1: Establish clear roles and responsibilities
- Principle 2: Strengthen composition
- Principle 3: Reinforce independence
- Principle 4: Foster commitment
- Principle 5: Uphold integrity in financial reporting
- Principle 6: Recognize and manage risks
- Principle 7: Ensure timely and high quality disclosure
- Principle 8: Strengthen relationship between company and shareholders

Part 2 of MCCG 2012 relates to the best practices and compliance with the Code and contains 16 corporate governance provisions/items. Meanwhile, Part 4 of the Code relates to the disclosure of governance practices as recommend and consists of 14 corporate governance provisions/items. Appendix A provides the list of the 30 provisions/items employed by this study. The calculation of the index refers to provisions/items required for Part 2 and Part 4 only, since Part 1 of the MCCG is compulsory for all listed companies and Part 3 refers to provisions/items specifically for the benefit of institutional investors and auditors. The score of 1 is given if there is a disclosure of CG provisions/items, or 0 otherwise. This approach of scoring is additive, giving a measure of CG for firm i based on an equal weighting scheme used for the two parts (Wahab et al. 2007) as follows:

$$C_i = \frac{M_{P2}_i + M_{P4}_i}{2} \times 100$$

Where calculation for $M_{P2}_i = \frac{1}{1} \sum_{j=1}^1 X_j$ and calculation for $M_{P4}_i = \frac{1}{1} \sum_{j=1}^1 Y_j$. In this formula, X_j and Y_j will equal to 1 respectively if the j th (meaning all) governance provisions are adhered to by a certain company and 0 (meaning none adhered to by another company) if it is not. Based on the formula, the sum of each part of $MCCG_{PT2}$ and $MCCG_{PT4}$

is divided by the maximum score of each part. Meaning, the score for *MCCG_PT2* will fall within the range of 0 - 16. Whereas, the score for *MCCG_PT4* will fall within the range of 0 - 14 maximum. Subsequently, the average of the two parts is multiplied by 100 to get an index score for CG (Wahab et al. 2007). As such, the CG score for each company will eventually fall within the range of $0 \leq C_i \leq 100$.

Control Variables This study incorporates six control variables that have been documented in past studies to influence environmental performance of companies. The control variables consist of company's size, profitability, leverage, industry, capital spending (or intensity) and audit quality. The financial data of these control variables were obtained from the database of OSIRIS and the annual reports.

ANALYSIS AND FINDINGS

The sample of our study comprises 344 companies listed on the Main Board of Bursa Malaysia for the year of 2013 where 172 companies are categorised as non-compliant group of companies due to their various environmental violations accordance to the Environmental Quality Acts 1974 (Act 127) & Subsidiary Legislations. The other 172 sample companies are categorised as good environmental performance company. Table 1 presents summary of this information.

Table 1 shows that among our sample of 172 Malaysian listed companies, a total of 366 notices and 46 court cases were recorded in 2013. Several companies have more than one court cases and warnings/notices. 15 court cases were from companies in industrial product industry while 11 were from plantation and trading-services industries. In addition, 117 notices were from industrial products industries whilst 97 of these notices were from plantation and trading-services industries. It seems that more environmental violations are from companies of the environmentally sensitive industries (industrial product, plantation, and trading-services sectors).

TABLE 1. Environmental performance information based on industry

Industry Sector	Total Court Cases	Number of Companies	Total Notices	Number of Companies
Industrial Product	15	10	117	66
Plantation	11	7	97	20
Trading-Services	11	9	97	44
Consumer Products	8	7	43	29
Construction	1	1	7	2
Properties	0	0	5	4
<i>Total</i>	46	34	366	165

Table 2 presents the number of court cases and warnings/notices of companies according to states in Malaysia in 2013. Based on Table 2, the majority of environmental violations cases occurred in Johor, Selangor and Sabah. The highest percentage of notices (39.13%) and court cases (24.32%) were from companies located in the state of Johor while there were no court cases among companies in Federal Territory of Labuan, Terengganu, Pulau Pinang, Perlis, Kelantan and Kedah states. It is also not surprising to expect that environmental violations occur more in certain states (for example Johor and Selangor) as compared to other states (for example Kedah and Kelantan) due to the location preference of listed companies for their plants and industrial operations.

TABLE 2. Environmental performance based on states in Malaysia

State	Court Case	Percentage	Warnings/Notices	Percentage
Johor	18	39.13	89	24.32
Selangor	7	15.23	73	19.94
Sabah	8	17.39	70	19.12
Negeri Sembilan	1	2.17	29	7.92
Perak	3	6.52	23	6.28
Sarawak	4	8.70	17	4.64
Pulau Pinang	0	0.00	17	4.64
W.P Kuala Lumpur	2	4.35	9	2.46
Kedah	0	0.00	9	2.46
Terengganu	0	0.00	8	2.19
Pahang	1	2.17	6	1.64
W.P Labuan	0	0.00	5	1.37
Kelantan	0	0.00	5	1.38
Melaka	1	2.17	3	0.82
Perlis	0	0.00	2	0.55
Penang	1	2.17	1	0.27
<i>Total</i>	46	100	366	100

Table 3 presents descriptive statistics of all variables used in this study. Table 3 shows that, the maximum score of EP variable, which comprises of court cases and warnings², is zero (0) and the minimum score of EP, court cases and warnings, are negative four (-4) and negative fifteen (-15), respectively. A company with a zero score of EP suggests that it is a good environmental performance company, without any record of non-compliant with environmental laws and regulations.

The level of CG index score is our independent variable in this study. Table 3 shows that the highest CG index score is 90.18, the lowest score is 3.13 and the mean score is 64.72. As explained previously, the CG index calculation is using the 30 provisions/items listed in Appendix A. In addition, this study also separately calculates corporate governance index of Part 2 of MCCG, which contains 16 governance provisions, and part 4 contains 14 governance provisions. Table 3 shows that the minimum score of Part 2 category is 6.250 and the maximum score is 93.750. The minimum and maximum scores of Part 4 items, which cover 14 governance provisions, are 0.000 and 92.857, respectively.

Table 3 also presents descriptive information of our control variables. The minimum value for leverage (LEV) and capital intensity (CAPIN) at 0.00 suggests there are companies in our sample having very low debt as well as very low capital spending, respectively. The vast majority of the sample companies (87.6%) are from highly sensitive industries (industrial products, plantation, trading–services sectors) and 52.1% of companies’ financial statements audited by Big4 audit firms.

TABLE 3. Descriptive statistics of variables (N = 344)

Continuous Variables	Minimum	Maximum	Mean	Std. Deviation
<i>Dependent:</i>				
EP	-17.00	0.00	-1.29	2.34
Court Cases score	-4.00	0.00	-2.16	0.55
Warnings score	-15.00	0.00	-2.091	2.31
<i>Independent:</i>				
CG	3.13	90.18	64.72	12.14
MCCG-PT2	6.25	93.76	30.02	7.74
MCCG-PT4	0.00	92.86	27.36	7.90
<i>Control:</i>				
ROA	-35.4	34.60	4.69	7.57
LEV	0.00	0.96	0.38	0.20
CAPIN	0.00	0.89	0.12	0.20
SIZE	10.22	18.42	13.31	1.70
<i>Dichotomous Variables</i>				
INDUSTRY	0 (%)	1(%)		
AUDITQ	12.4	87.6		
	47.9	52.1		

Notes: EP = Environmental Performance; Court Cases Score = The number of Court Cases multiplied by Minus 2 (-2); Warnings Score = The number of notices multiplied by Minus 1 (-1); CG = Corporate Governance Index; MCCG-P2 = a composite measure of CG based on Part 2 of the MCCG2012; MCCG-P4 = a composite measure of CG based on Part 4 of the MCCG2012; ROA = Return on Assets; LEV = Ratio of debt to assets; CAPIN = Capital Spending/Total Revenue at the end of fiscal year; SIZE = Ln Total Assets; INDUSTRY = Industry a dummy variable of 1 if company belongs to high environmentally sensitive industries and 0 otherwise; AUDITQ = Audit Quality, a dummy variable of 1 if company is audited by Big4 audit firm and 0 otherwise.

Table 4 presents the Pearson's correlation matrix conducted to examine the multicollinearity problem between independent variables. The highest correlation coefficient number is 0.231, which is the correlation between SIZE (firm size) and LEV (leverage). Table 4 illustrates that there are no multicollinearity issues among independent variables since the pairwise correlation between them do not exceed 0.8 (Cooper & Schindler 2003; Gujarati 2003).

TABLE 4. Pearson Correlations among independent variables (N = 344)

	ROA	LEV	CAPIN	IND	AUDITQ	SIZE	CG
ROA	1						
LEV	-0.177***	1					
CAPIN	0.048	-0.056	1				
IND	0.018	-0.082	-0.186***	1			
AUDITQ	0.147***	0.051	0.180***	-0.105*	1		
SIZE	0.077	0.231***	0.122**	-0.111**	0.177***	1	
CG	0.049	0.041	-0.008	-0.048	0.082	-0.008	1

Note: ***, **, * significant at <1%, <5%, and <10% levels respectively.

RESULTS OF REGRESSION ANALYSIS

This section provides the statistical findings from regression analyses for the research model, developed to investigate the association between corporate governance and environmental performance. Table 5 shows the results of the analysis.

TABLE 5. Results of regression analysis (N = 344)

Variables	EP		NON-COM
	Model 1	Model 2	Model 3
Constant	-2.700* (-1.884)	-1.273 (-1.053)	1.166*** (4.374)
AUDITQ	0.539** (1.992)	0.559** (2.096)	-0.022 (-0.416)
CAPIN	1.539*** (5.492)	1.611*** (5.677)	-0.471*** (-3.494)
INDUSTRY	-0.534** (-2.315)	-0.530** (-2.258)	0.145* (1.83)
LEV	-0.493 (-0.971)	-0.470 (-0.912)	0.068 (0.491)
ROA	-0.009 (-0.447)	-0.008 (-0.366)	-0.005 (-1.55)
SIZE	0.004 (0.045)	-0.005 (-0.054)	-0.017 (-1.090)
CG	0.024*** (2.590)		-0.008*** (-3.676)
CGS		0.435* (1.756)	
R-squared	0.067	0.060	0.108
Adjusted R-squared	0.048	0.041	0.090
F-statistic	3.483	3.116	5.939
Prob. (F-statistic)	0.000	0.000	0.000

Model (1): $EP_{it} = \alpha_0 + \alpha_1 CG_{it} + \alpha_2 AUDITQ_{it} + \alpha_3 C_{IN_{it}} + \alpha_4 INDUSTRY_{it} + \alpha_5 L_{it} + \alpha_6 ROA_{it} + \alpha_7 SIZE_{it} + \varepsilon_{it}$

Model (2): $EP_{it} = \alpha_0 + \alpha_1 CGS_{it} + \alpha_2 AUDITQ_{it} + \alpha_3 C_{IN_{it}} + \alpha_4 INDUSTRY_{it} + \alpha_5 L_{it} + \alpha_6 ROA_{it} + \alpha_7 SIZE_{it} + \varepsilon_{it}$

Model (3): $NON-COM_{it} = \alpha_0 + \alpha_1 CG_{it} + \alpha_2 AUDITQ_{it} + \alpha_3 C_{IN_{it}} + \alpha_4 INDUSTRY_{it} + \alpha_5 L_{it} + \alpha_6 ROA_{it} + \alpha_7 SIZE_{it} + \varepsilon_{it}$

Notes: Standardized coefficients reported, with t values in parentheses.

*p < 0.10, **p < 0.05, ***p < 0.01.

The results for Model 1 show that corporate governance variable is positively associated with the environmental performance ($\beta = 0.024, p < 0.01$). The results indicate that companies implementing good corporate governance measure would less likely to violate the environmental rules and regulation, and therefore, have better environmental performance. The adjusted R^2 is 4.80 %, $F = 3.483$ at $p < 0.000$. The low adjusted R^2 is common in prior studies examining environmental issues, such as Wahab et al. (2007), Brown and Caylor (2006), Defond, Hann and Hu (2005) and Bushman, Piotroski and Smith (2004).

The findings support the proposition that good corporate governance companies monitor and

evaluate companies' compliance with relevant environmental regulations; therefore avoid violation with any of the regulations (Haniffa & Cooke 2002; Iatridis 2013). These companies act in the best interests of stakeholders. If companies believe their stakeholders are concerned with environmental protection and against its degradation, companies would make certain that their strategic directions and implementation will not cause any environmental problems and eventually companies will show good environmental performance (Wang & Coffey 1992; Haniffa & Cooke 2002; Iatridis 2013). In addition, Buysse and Verbeke (2003) found that effective implementation of environmental strategy requires the identification of stakeholders. The increase in the stakeholders' concern about the quality of the environment has shifted companies' priorities, decisions and strategies toward better environmental performance. From the theoretical perspective, the finding is also consistent with stakeholder theory that suggests stakeholder are powerful groups that would likely to influence the disclosure practices of companies (Gray, Kouhy & Lavers 1995).

Table 5 also indicates that industry (INDUSRTY) is negatively and significantly associated with environmental performance (Model 1). The results indicate that companies in more environmentally sensitive industries tend to have higher environmental problems (due to higher environmental violations), hence leading to poorer environmental performance. This finding is consistent with findings from past studies (Deegan & Gordon 1996; Qian & Schaltegger 2013).

Audit quality (AUDITQ) and capital spending or capital intensity (CAPIN) have positive and significant association with environmental performance (as in Model 1). Past studies also argued that companies that are audited by Big4 audit firms tend to have better audit advise that help clients to manage overall management risk which includes risk related to environmental problems (Qiu & Srikant 2004; Gupta & Nayar 2007). Similarly, companies with higher capital intensity are expected to have newer equipment, allowing them to implement environmental friendly process that lead to better environmental performance (Villiers, Naiker & Staden 2011).

In order to corroborate the main results shown in Model 1, two additional regression analyses are performed, that is, based on Model 2 and Model 3. Model 2 employs an alternative measure of independent variable (CGS) by creating a dichotomous variable based on the median of CG scores (Bushman et al. 2004; Defond et al. 2005). Therefore, the sample companies were grouped into two groups based on their CG scores; high and low. Companies with high CG score were given a value of 1 and companies with low CG score were given a value of 0³.

Table 5 shows the regression results, that CGS is positively and significantly associated with EP. These findings support earlier findings (Model 1) that stronger corporate governance is positively associated with better environmental performance. In other words, good corporate governance companies implement environmental friendly policies and process that lessen the adverse impact of business on the environment. Subsequently these companies do not violate any environmental rules and regulation and show better environmental performance as compared to companies that have low level of CG.

Model 3 uses an alternative measurement for dependent variable (EP). Instead of using a continuous measure for EP (as in Model 1 and Model 2), the environmental performance variable in Model 3 was measured as a dichotomous variable dividing the sample group into two; compliant and non-compliant companies. Non-Compliant (NON-COM) companies are given a value of 1 if it has any record of non-compliance with environmental regulation, and zero for Compliant companies. As such, we expect the association for the regression analysis to reverse from the main analysis because the dependent variable has been changed from the bad (i.e. non-compliant

companies) previously having a negative value to the bad (i.e. non-compliant companies) having a positive value of one (1).

The results, as shown in Table 5, support our expectation (of a negative association) which agrees to the earlier findings. That is, when CG is negative and significantly associated with poor environmental performance companies (NON-COM), it means that the higher CG will tend to be associated with lower non-compliant companies (which actually refer to higher compliant companies). In other words, companies with weaker corporate governance mechanism, tend to have more violations of environmental regulations. This finding supports our main findings, which indicate that good corporate governance relates to stronger environmental performance among Malaysian companies.

CONCLUSION

This study examines the relationship between corporate governance and environmental performance of sample companies listed on Bursa Malaysia in the year of 2013. Environmental performance variable is measured based on the degree of companies' compliance or non-compliance with the Environmental Quality Acts 1974 (Act 127) & Subsidiary Legislations. The corporate governance variable is measured based on a comprehensive index modified from Wahab et al. (2007).

The findings indicate that companies with effective corporate governance would prevent adverse environmental effect from corporate business activities. The board of directors, as a part of corporate governance mechanism, adopts environmental friendly strategies, which aligns with stakeholders' needs, in order to meet environmental regulatory standards and reduce the negative impact towards the environment. Implementing environmental friendly strategies, such as adopting renewable energy in the companies' operations, recycling and conservation activities as well as monitoring and evaluating companies' compliance with environmental regulation should lead to better environmental performance. Explicitly, companies create certain procedures, such as utilizing and reviewing suitable internal control systems, monitoring compliance with legal necessities and implementing widely accepted practices concerning material environmental issues (e.g. disposal of waste) in order to ensure compliance with environmental principles and avoid litigation risks, penalties or fines for damaging the environment. Therefore, the likelihood that a company becomes a target in a lawsuit for its non-compliance with environmental regulations is likely to decrease.

Additional analyses are also carried out which use an alternative measurement for corporate governance as well as environmental performance variables to strengthen the overall findings. The results confirm the earlier findings that companies with effective corporate governance have less violation of environmental laws and regulations, which leads to better environmental performance. This study highlights the importance of corporate governance mechanism in the formulation of strategic direction and operational implementation especially in the area of environmental management to meet regulatory standards and stakeholders' expectation. Furthermore, we believe that our strength in this study is in utilizing the measurement of Environmental Performance (EP) which is based on the actual situation of environmental non-compliance by companies based on DOE Malaysia information. There is limited extant studies that utilized actual environmental violations information to proxy for environmental performance of companies be it in Malaysia or other countries.

Notwithstanding the results of our study, the findings are still limited to the sample of our

study, that is, the 344 companies, and for the year of 2013 only. Changes in regulations, economic and political environments in Malaysia might highlight something different to our findings. Hence, we would suggest further similar studies to be undertaken to gauge more knowledge on the latest situation of the same issue in Malaysia and other countries. With regard to the Malaysian Code on Corporate Governance, which has its latest version issued in 2017, the main difference with MCCG 2012 is mainly on the information details of the Principles in the Code and not in the segregation of the Principles. As such, our findings should still be relevant to the current economic situation and should not be affected by the requirements in the new MCCG 2017 version.

ENDNOTES

- ¹ Specifically, these data are the list of companies that have been served with warnings/notices for noncompliance with the Environmental Quality Act 1974 (Act 127) & Subsidiary Legislations. Only data for the year of 2013 is available for this research.
- ² Warning/notice score is calculated by multiplying the number of warnings/notices by -1. Meanwhile the court cases score is calculated by multiplying the number of court cases by -2.
- ³ The median score of the 30 corporate governance provisions/items in the sample is 62.95. The summary measure classifies firms with high (low) governance if the score is more (less) than 62.95.

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APPENDIX A

1. Does the company split the Chairman and CEO/Managing Director posts?
2. Does the company comply with MCCG recommendation on the proportion of independent directors on the board?
3. Is the frequency of board of directors' meetings disclosed?
4. Does the company have a nomination committee?
5. Are the majority of directors on the nomination committee independent?
6. Does the CEO not sit on the nomination committee?
7. Does the company disclose recommendations made by the nomination committee?
8. Does the company disclose methods of board appointments?
9. Does the company have a remuneration committee?
10. Is the list of remuneration committee members disclosed?
11. Does the CEO not sit on the remuneration committee?
12. Are the majority of directors on the remuneration committee independent?
13. Does the company disclose recommendations made by the remuneration committee?
14. Are the majority of directors on the audit committee independent?
15. Does the company disclose activities carried out by the audit committee?
16. Does the company disclose a statement on internal control?
17. Does the company disclose relationships that directors have with the company or other board members?
18. Does the company disclose delegation and separation of duties among directors?
19. Does the company disclose current appointments of directors?
20. Does the company disclose directors' experience and education backgrounds?
21. Is the list of the nomination committee members disclosed?
22. Is the frequency of nomination committee meetings disclosed?
23. Does the company disclose directors' remuneration?
24. Does the company disclose components of the remuneration scheme of directors?
25. Does the company disclose details of individual remuneration scheme of directors?
26. Does the company disclose affiliations with major shareholders?
27. Does the company disclose material contracts with major shareholders?
28. Does the company disclose board appointments?
29. Does the company disclose investor relations?
30. Does the company disclose individual members' attendance at audit committee meetings?