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Online Environmental Reporting: Does Ownership Structure Matter?

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ABSTRACT: The purpose of this paper is to empirically examine the association between each ownership structure, firm attributes, and online environmental reporting (OER) in Malaysia. Two groups of variables are examined in this study; the first group presents an ownership structure consisting of two types of ownership- management, and government. The second group presents firm attributes which include five variables - company size, company leverage, company financial performance, industry type, and technology level. Data is collected from 100 listed companies' annual reports (2018) as well as from their websites. Both Ordinary Least Squares regression (OLS) and Two-stage Least Squares (2SLS) are used to examine the collected data and to solve any analytical problems such as endogeneity. The results generally show that the level of OER remains low and does not exceed 39% of the environmental disclosure index. Government ownership, company size, and company leverage show positive and significant relationships with OER, while other variables such as management ownership and company financial performance show negative and significant relationships with OER. however, the level of technology did not show any significant relationship. These findings support legitimacy theory as firms, in general, are consistently legitimizing their existence and operations by disclosing their online environmental information that shapes a good image in the minds of the interested parties who care about firms' environmental activities. Regulators, on the other hand, may consider the results of this paper such as the significance of government ownership- to regulate and enhance the level of OER in Malaysia as it is yet on a voluntary based.

Keywords: Perception, Aesthetic Elements, Nollywood, Video Films

1. Introduction

The debates surrounding environmental issues are increased during the last two decades; companies have come under increasing pressure to disclose their environmental activities and this pressure is increasing from time to time (Ali *et al.,* 2017, Ardi and Yulianto, 2020). This development stems from the fact that people now believe that environmental problems are the result of misusing natural resources in a sustainable manner by companies (Frank *et al.,* 2000; Eccles and Krzus, 2010; Al_arussi & Alhadary 2018). A survey concerning public views regarding environmental issues conducted by Dunlap and Scarce (1991), found that people see corporations and industry (in general) as the main cause of environmental problems and therefore might not buy products from firms that have poor records in the environment.

Several studies have attempted to figure out economic and non-economic reasons that encourage firms to report and disclose their environmental information; economic reasons such as increasing profitability (Elshabasy, 2017;,Khus-aini, 2017); reducing the cost of capital (Dhaliwal *et al*., 2011); reducing leverage (Deswanto & Siregar,2018; Ardi and Yulianto, 2020), gaining a competitive advantage (Cheah *et al.,* 2007); marketing firms' products and services (Solomon and Lewis, 2002); and systematic risk and decreasing risk of leverage (Chandok and Singh, 2017). Non–economic reasons such as following legal requirements and meeting society's expectations (Aldrugi and AbdoHafez, 2014) however, companies in industrialized and emerging countries voluntarily report their environmental information to upscale their image in the eyes of interested users, and consequently their reputation (Amran and Devi, 2008; Rettab *et al*., 2009; Rahul, 2010, Al_arussi *et al.,* 2013; Aldrugi & AbdoHafez, 2014).

On the other hand, investors and other interested parties tend to link environmental and economic performance when they make their own investment decision in corporations. For instance, Al-Tuwaijri *et al*. (2003) and Muhammad *et al.,* (2015) found a substantial connection between both environmental and financial performance. Under this pressure, corporations have to publish their environmental activities in their financial reports (Walden and Schwartz, 1997), and as the paper-based report is costly with limited space, corporations found the Internet as an efficient alternative tool that allows them to capitalize on its attributes such as unlimited space (Angskun and Angskun, 2008), widespread and accessibility (Huber, & Vitouch, 2008), timely and up-to-date information (Joshi and Jawaher, 2003; Adham and Ahmed, 2005), supporting different types of presentation such as powerful hypertext as well as hypermedia (Xiao *et al*., 2005), and low cost (Hassan, 2014).
Malaysia is an emerging market country and a rapidly industrializing economy. Its environmental issues have been worsening over the years. It is almost increased at an average annual rate of 4.09%, based on the statistics of 2018, the CO2 emissions increased from 122.9 million tons in 1999 to 257.8 million tons in 2018, (210%) increase which is a bad sign. In this context, the Malaysian government is trying to alleviate the severe situation by taking remarkable steps to enhance Corporate Social Responsibility (CSR) (which presents three types of information- economic, social, and environmental-. Based on the latest announcement in Bursa Malaysia, it is required all listed companies in Bursa Malaysia to disclose their printed CSR reports (Bursa Malaysia, 2011), however, this rule is not applied to Internet reporting. On the other hand, the latest Internet World State Report,[1] stated that the number of Internet users in Malaysia present 80.1% of the total population in 2019, and although this percentage is high compared to other Asian countries, Malaysian firms that own websites and publish their environmental reports may not exceed 30% out of studied firms (Nik Nazli and Maliah 2004; Nor Hasikin *et al.,* 2013; Mokhtar and Sulaiman, 2012; Al_arussi *et al.,* 2013; Claudia *et al.* 2014; Al_arussi & Al_dhamari, 2017). Based on the above discussion, this study is motivated by the questions "what is the current state of online environmental disclosure in Malaysia and what are the factors that affect

managers' decisions regarding online environmental reporting?", knowing these leads are important to increase the level of environmental reporting, (Hossain and Reaz, 2007), hence the level of transparency. In other words, this paper intends to empirically examine a number of factors-management ownership, government ownership, company size, company leverage, Company financial performance, type of industry, and level of technology- that may influence the level of OER among Malaysian listed companies. The remains of this paper are structured as follows: Section 2 presents previous studies about OER and hypotheses development. Section 3, describes the research method and measurement of the variables. Section 4 presents the results of the analysis. The conclusion and some recommendations for future research will be reported in the last section.

2. Literature review

2.1. *Previous Studies*

Guthrie and Mathews (1985) defined environmental reporting as "*The provision of financial and non-financial information relating to an organization's interaction with its physical and social environment, as stated in corporate annual reports or separate social reports*" (p 253). Environmental reports present all firm's environmental activities such as materials recycling; energy consumption; water utilization; emission treatment as well as decreasing the environmental impact of firms' products and services (Global Reporting Initiatives, 2011).

In this context, Malaysia, in terms of Corporate Social Responsibility, is in the back seat in comparison to other developing countries (Chambers et al., 2003), poorly addressing environmental issues (Thompson and Zakaria 2004). Considering this problem by the Malaysian government, Bursa Malaysia proposed the framework of CSR in 2006,[2] and in the following year, 2007, it announced that all public firms should report their CSR information in their annual reports (Bursa Malaysia, 2011). Generally, studies on environmental issues in Malaysia are limited, an earlier study by Teoh and Thong (1984), analyzed the CSR data of 100 foreign and locally owned companies in Malaysia, the study focused on three themes: CSR concept, activities, and reporting. The results showed only 29% of the studied firms report their social activities, surprisingly firms owned by local shareholders report less CSR information than firms owned by foreign shareholders. Other studies such as Nik Ahmed et al. (2004) and Malcolm et al. (2007), Nik Ahmed and Noor Afzalina (2014), and Sulaimana et al. (2014). Suhardjanto *et al.,* (2018) collect the data on environmental reporting from the printed annual reports of Malaysian and Indonesian companies and they stated that the level of environmental disclosure by Malaysian companies is still low and does not reach 13.22% of the study sample. Most previous studies focused on printing-based reports and even fewer studies focused on online reporting such as Hassan *et al*. (2012); Al_arussi and Selamat (2009); Nor Hasikin *et al.* (2013). This study specifically concerns factors that impact environmental reporting on the Internet.

a. Selection of variables, Hypotheses

Using the Internet as a tool for environmental disclosure brings advantages to firms, these advantages such as global reach on a timely basis, a wide platform of communication, presenting information in a flexible and updatable manner, allowing for easy searching and low cost. The Internet has also a backward such as overloading information, technology costing, lack of authentication and attestation in addition to security issues (Andrew, 2003; Lodhia, 2004). Previous studies used different

theories to explain reporting on the Internet, for example, Healy and Palepu, (2001) used the agency theory; Al_arussi *et al.,* (2009) used the cost and benefit hypothesis; Ahmed et al, (2003) used the signaling theory; and stakeholder theory is used by (Suttipuna and Stantonb, 2012), however, this study intends to use legitimacy theory as it presumes that the existence of firms is connected with their values that show to the society in which they operate (Lindblom, 1994; Magness, 2006). In other words, the more information provided by firms to enhance their images in the eyes of society, the more lifetime for these firms to operate (Cormier & Gordon, 2001). Therefore, this study uses legitimacy theory as an underlying theory to interpret the environmental reporting on the Internet by Malaysian firms. A number of factors related to environmental reporting are explained as follows:
2.2.1. Management Ownership. It has been known that Malaysian firms have concentrated ownership; Abdullah & Mohd-Nasir (2004) found that most of the shares in studied firms are owned by the state, families, or individuals, and the top twenty of shareholders own almost 73% of the total shares in the firms. Mohd Sehat and Abdul Rahman (2005) found that the block-holders held about 55.84% of the shares in the top 100 Malaysian listed companies. Carney and Child (2013) found that families hold around 44.7% of the shares in Malaysian firms and between 15% to 80% of the firms have been managed by a family member or major owners (Claessens *et al.,* 2000). Management ownership has been defined as the portion of shares ownership that hold by the firm's management such as the CEO or executive directors. Ruland *et al*., (1990) found a significant relationship between management ownership and the extent of voluntary reporting. Based on the agency cost theory, if a manager holds a small portion of shares, this may demotivate him to maximize shareholders' wealth, and, consequently, stakeholders may request more control over the behavior of managers. On the contrary, managers, to alleviate this agency problem, may prefer to disclose more information to reduce information asymmetry, which leads to enhancing the level of voluntary reporting. Similar results were found by Uwuigbe (2011) when he analyzed the data of 35 Nigerian firms between 2006 and 2010. He argued that corporations may be more environmentally friendly if their managers own more shares. However, Eng and Mak (2003) analyzed the data of 158 firms in Singapore and found a negative relationship between management ownership and the level of disclosure. Similar results are found in Malaysia by Nazli A. Mohd Ghazali (2007) when he found a negative relationship between ownership structure and corporate social responsibility. Nagar *et al.* (2003) explained this negative relationship and argued that the more shares are held by managers, the less motivated the managers are to spend the resources away from maximizing the shareholder's wealth, consequently, disclosing less environmental information. These inconsistent results of previous studies motivate the researchers to examine the association between the management ownership portion and online environmental reporting. Hence the first hypothesis is proposed as follows:

H1: There is a negative relationship between Management ownership and the extent of Online environmental reporting by Malaysian companies.

2.2.2-Government Ownership. Mohd Ghazali and Weetman, (2006) stated that the Malaysian government owns significant portions of Malaysian firms which may shift the connection with these firms to be more political than social, in other words, managers may face a strong monitoring power over their decisions including environmental reporting decision (Abu Sufian and Zahan, 2013). Eng and Mak, (2003) argued that government ownership is the power that drives firms to disclose more information. The government-linked companies (GLCs) present the benchmark for other companies in terms of environmental reporting. The level of environmental reporting is higher in GLC as the government is committed to protecting people's life and the environment more than company financial performance (Mak and Li, 2001). In addition, firms may disclose more environmental information if the government owns shares in these firms because of government commitment towards applying corporate governance mechanize which enhances the level of transparency (Cheng and Courtenay, 2006). This argument is supported by Akrout and Othman (2016) who found that the presence of government ownership is likely to improve corporate environmental reporting practices. Cormier and Gordon (2001) found that the level of social and environmental disclosure in GLCs is better than non-GLCs because of the political and social support. Similar results were found by Tagesson *et al.* (2009) and Amran and Devi (2008) who interpreted this positive relationship as a result of the government's endeavor to maintain a positive self-image in the users' minds and accordingly gain economic advantages from attracting international investors who give much consideration to social and environmental reporting. This study intends to examine the relationship between government ownership and OER, therefore, the second hypothesis can be stated as follows:

H2: There is a positive relationship between government ownership and the extent of Online environmental reporting by Malaysian companies.

2.2.3. Company size. There is no doubt that the size of a company plays a significant role in management decisions; Large companies are more in the eyes of society (Ku Nor Izah, 2003), Consequently, they publish more information to avoid any negative attitude toward their shares trading. Big firms intend to show higher quality in everything including disclosure (Aljifri, *et al.,* 2014). Many empirical studies have found a positive association between company size and the level of disclosure (Craven and Marston; 1999; Al_arussi *et al*., 2009; Mostafa 2017; Chandok and Singh, 2017), Others found this positive relationship with the quality of reporting (Singhvi, and Desai, 1971; Rezaei and Shabani, 2015). Suhardjanto *et al.,* (2018) found a positive and significant relationship between company size and printed environmental reporting in Malaysian and Indonesian companies. Based on the agency theory, this positive relationship can be interpreted that big size firms have a variety of activities that required external funds, which leads to an increase in the agency costs- due to conflict of interest- between managers in big size firms and other related parties (shareholders and debt holders). Managers- in order to alleviate this conflict and the information asymmetry- intend to disclose more information (Inchausti, 1997; Ho and Wong, 2001). Another logical reason is disclosing detailed information is costly which may be afforded by small firms; Large firms have a variety of products and activities besides geographical coverage compared to small firms. All these reasons encourage the large firm to disclose more quality information (Aljifri, *et al.,* 2014). This scenario has been supported by a positive accounting theory, as it states that large firms are facing higher political costs (Watts and Zimmerman, 1986). Concerning environmental reporting, Teoh *et al*. (2003) argue that large firms intend to report more environmental activities to attract society's attention. This argument is supported by Akrout and Othman (2013) who found a positive association between company size and OER in MENA firms. In contrast, other studies found no association between company size and OER (Laswad *et al.* 2005; Nor Hasikin *et al.* 2013), These inconsistent results motivate the authors to examine the association between company size and OER in Malaysian listed firms. This study follows previous studies and uses total assets to measure company size (Branco and Rodrigues, 2008; Hossain and Reaz, 2007). So the third hypothesis is formed as follows:

H3: There is a positive relationship between company size and the extent of Online environmental reporting by Malaysian companies.

2.4. Company Leverage. Based on legitimacy theory, it is argued that organizations with higher company leverage may disclose more social and environmental information to create social legitimacy and demonstrate that society requires its services, consequently, enhancing the image of the company in the eyes of the public and in other related parties. Ma and Zhao, (2009) found that companies with higher leverage disclose more environmental information. Adeniyi *et al.,* (2018) found similar results when they conducted their study in Negara. Roberts (1992) explained this positive relationship by saying that firms with high debt attempt to disclose more social activities and environmental information in order to meet the expectation of their creditors regarding environmental issues. In against, Ardi and Yulianto (2020) examined the impact of leverage on the level of environmental disclosure in Indonesian companies, the results showed a negative impact on environmental disclosure. Similar results previously found by Ahmed et al. (2003), the argument behind this negative relationship is that firms with lower debt are more likely to be involved in environmental activities as a protective measure to maintain a reasonable assessment of their financial risk level. Due to these inconsistent results, this study intends to examine the association between company leverage and OER. Based on the above discussion, the fourth hypothesis tested is as follows:

H4: There is a relationship between company leverage and the extent of Online environmental reporting by Malaysian companies.

2.5. Company financial performance. Financial performance is one of the key factors for management decisions, based on the signaling theory, managers of good performance companies tend to disclose more information (financial and non-financial information) to distinguish themselves from other companies with poor performance (Ahmed *et al.,* 2003). This theoretical argument is supported by the findings of previous studies; Zheng *et al.* (2009) and Makori & Jagongo (2013) found a positive relationship between company financial performance and the extent of environmental reporting. However, Nurhayati et al. (2016) and Ardi and Yulianto (2020) found no significant relationship between company financial performance and the level of environmental disclosure (printing reports). Similar results were found on the OER by Nor Hasikin *et al.* (2013). Other studies examining the relationship between company financial performance and the extent of environmental reporting showed mixed findings; for example, Chandok and Singh (2017) examined the impact of company financial performance on the level of environmental disclosure and the results showed a negative impact. In this study, the impact of company financial performance on the OER will be empirically examined thus the fifth hypothesis is formed as follows:

H5: There is a relationship between company financial performance and the extent of Online environmental reporting by Malaysian companies.

2.6. Industry Type. Past studies examined industry type by dividing industries into two main sections – manufacturing and non-manufacturing firms (Cooke, 1992; Lymer, 1997). The type of industry is included in previous studies as an important variable that may impact on the level of reporting (Teoh *et al.,* 2003). Inchausti (1997) argued that firms may face industrial pressure to follow industry rules and disclose more information. Moreover, firms in the same industry must follow these rules to maintain their good reputation (Craven and Marston, 1999). The institution theory interprets this argument and proposes that organizations must fulfill the expectations of their institutions to survive regardless of their level of performance (Greenwood and Hinings, 1996). Tariq (2001) empirically examines the impact of industry type on Internet reporting, and he found a positive relationship between them. Hassan *et al.* (1999) found a positive relationship between only the decision of having a website and the type of industry. Other studies linked the relationship between the type of industry and OER to whether firms are environmentally sensitive, which pushed them to publish more environmental information (Banerjee, 2002; Suttipuna and Stantonb, 2012). In short, dealing with the environment is based on the type of business that the company is running, therefore, it is expected a significant relationship between the type of industry and online disclosure. This study intends to examine the impact of industry type on OER, seven major categories are included in this study which are construction, industrial product, consumer product, properties, plantation, technology, and trade and services. Thus, the sixth hypothesis is formed as follows:

H6: There is a relationship between industry type and online environmental reporting by Malaysian companies.

2.7. Technology Level. There is no doubt that the Internet is one of the advanced technology tools in this era. Using the Internet as a platform for publicizing the information presents, to some extent, the technology level that exists in the firm. Adams and Frost (2008) linked the extent of OER to the level of technology in the firm. In other words, if a firm has an information technology department (IT), this department will facilitate the use of the Internet as a platform for disseminating the firm's annual reports (financial and non-financial information) (Lodhai, 2004). Basically, disclosing information in any channel is costly however, using the Internet as a device for disseminating information is less costly if the firm has professional skills and experts that hold the responsibility to maintain the firm's website, update the data on the website as well as to present the data with different types of files. Joshi and Jawaher (2003) stated that websites have a wide range of appearances - audio, video interactive links, PDF, HTML image, hyperlinks, and others which firms can use to present their information, however, they all require experts to operate, therefore, if firm outsources these activities, the fees will be costly (Lodhai, 2004). Based on the cost and benefit hypothesis, if the firm has an IT department, it will disclose more voluntary information as the cost of presenting this information is low. Therefore, the proposed hypothesis is as follows:

H7: There is a positive relationship between technology level and the extent of Online environmental reporting by Malaysian companies.

Research Methodology

The purpose of this study is to examine the factors that may influence the OER in Malaysia. This study chooses the 100 largest firms from seven non-financial sectors namely construction, industrial product, consumer product, properties, plantation, technology, and trade and services, these sectors are the major contributors to environmental pollution (Salomone and Galluccio, 2001). The selection process was by choosing the largest companies (market capitalization) from non-financial sectors. A similar selection method was conducted by Lim (1981) and Singh (1995). The data is secondary in nature and collected from firms' websites. 36 items have been adopted from published papers.[3] as the index of OER. The content analysis approach is used to fill up the score sheet, this method has been verified by other researchers to have consistency and reliability (Milne and Adler, 1999). Based on the OER index, if the item exists on the firm's website or its online reporting, the score sheet is marked one (1) and zero (0) otherwise. This way of scoring is considered good enough since this study concerns on the variety of environmental activities rather than the number of words that extensively describe limited activities. This study is a cross-sectional study and collected the data from the online annual report and the websites of the 100 largest firms for the year 2018[4]., the study chooses the year 2018 as the latest available online annual report to check the latest status of OER in Malaysia. Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) regression estimators are used. Ordinary least squares regression is tested and corrected for model specification, multicollinearity, heteroscedasticity, and autocorrelation. Two-stage least squares regression is used to address endogeneity. and to empirically test the association between independent variables which are management ownership, government ownership, company size, company leverage, company financial performance, industry type and technology level and the dependent variable which is OER. The measurements of independent variables are explained in Table I.

Table I. Independent Variables' Measurements

No	Variable	Measurement	Supported Studies
1	Management Ownership	The percentage of shares held by the board of members	Choi et al., (2013) Eng and Mak (2003)
2	Government Ownership	The percentage of shares held by government investors	Tagesson et al. (2009), Amran and Devi (2008)
3	Company Size	Total Asset	Branco and Rodrigues, (2008), Hossain and Reaz, 2007
4	Company leverage	Total liability/ Total Asset	Alsaeed, (2005), Ntim (2009), Alarussi & Alhadary (2018)
5	Company financial performance	Earnings Per Share	Nawafly & Al_arussi (2016)
6	Type of Industry	Score (1) one if the firm is one of the seven sectors and (0) zero otherwise The industries are construction, industrial product, consumer product, properties, plantations, technology, and trade and services.	Greenwood and Hinings, (1996). Tariq (2001)
7	Level of Technology	If the company has IT department give (1) if doesn't have (0)	Joshi and Jawaher, (2003), Lodhai, (2004)

The regression equation of the OER is as follows:

OER= a + MANOWN + GOVOWN + COMSIZE + COMLEVRG +FP+ TYIND+ LEVTEC+ β
The regression coefficient (β) refers to the impact of independent variables on the dependent variable.
Which: a = constant regression coefficient

MANOWNSP = Management Ownership
GOVOWNSP = Government Ownership
COMSIZE = Company Size
COMLEVRG = Company leverage
FP = Financial Performance
TYIND = Type of Industry
LEVTEC = Level of Technology

Data Analysis

The first analysis of the data is the frequency analysis; Table II shows that the level of environmental reporting is between 0 to 15 items out of the reporting index of 36 items which presents less than 41%; the table shows that only 12 firms (12%) of the selected firms disclose only two items out of 36 items (0.05%) and more than 56% of the selected companies disclose less than 7 items out of 36 items (19%) and more than 90% of selected companies disclose less than 10 items out of 36 items (28%). Thus, it can be concluded that the level of environmental reporting remains very low.

Table II Frequency *Analysis*

No of Item	Frequency	Percent	Cumulative Percent
0	1	1.0	1.0
1	8	8.0	9.0
2	12	12.0	21.0
3	6	6.0	27.0
4	8	8.0	35.0
5	8	8.0	43.0
6	13	13.0	56.0
7	9	9.0	65.0
8	15	15.0	80.0
9	5	5.0	85.0
10	6	6.0	91.0
11	5	5.0	96.0
12	1	1.0	97.0
14	2	2.0	99.0
15	1	1.0	100
Total	100	100	100

Descriptive analysis is the second analysis of the data which includes the mean, standard deviation, median skewness, and kurtosis ratios. Based on Sekaran (2000) if the dependent variable is normally distributed then the skewness and kurtosis ratios are between +/- 2. Table III shows that the ratios of skewness and kurtosis of OER (dependent variable) are 0.303, and -0.370, respectively, with standard errors of 0.241 and 0.478, respectively. which refers in this case to the normality of OER. (Dependent variable). This result leads to the second stage of analysis which is multiple regression analysis. Table III also shows that the highest value for the mean is (28.793) for management ownership, and the lowest mean value (24.082) is for the LN firm size.

Table III.
Descriptive analysis of Continuous Independent Variables and Dependent variable

Variables	Mean	Median	Minimum	Maximum	Std. Deviation
Management ownership (%)	28.793	30.005	0.00	74.31	18.788
Company Size	21.430	21.545	16.11	26.16	2.0793
Company leverage (%)	0.4550	0.4598	0.01	0.97	0.25233
Company financial performance (EPS) (%)	24.082	9.530	-58.66	275.00	46.921
Online Environmental Reporting	5.9800	6.000	0.00	15.00	3.33630
Skewness	0.303				0.241
Kurtosis	-0.370				0.478

The correlation analysis is to show the correlation between the independent variables as well as the dependent variable. This test is important to help researchers to understand the causal relationship amongst variables.

Table IV The *Correlation between the Independent Variables and Dependent variable*

IND.Vs	MANOWNSP	GOVOWNSP	COM.SIZE	COMLEVRG	FP	INDPRO	CONPRO	TRAD_SRVS	CONSTRUCT	PLNT	TECH	PROPRT	LEVTEC	OER
MANOWNSP	1	-.193*	-.260**	.020	-.062	-.123	-.145	.119	.028	.202*	-.071	-.036	-.113	-.273**
GOVOWNSP		1	.605**	.006	.026	.114	-.059	.141	.102	-.216*	-.130	-.062	.244**	.511**
COMSIZE			1	-.029	.134	-.032	-.109	.132	.130	-.186*	-.108	.135	.233**	.655**
COMLEVRG				1	-.150	-.007	-.115	-.192*	.155	.165	.074	.018	.109	.170*
FP					1	-.006	.340**	-.026	.086	-.015	-.169*	-.129	.060	-.061
INDPRO						1	-.167*	-.379**	-.167*	-.214*	-.203*	-.203*	.381**	-.037
CONPRO							1	-.171*	-.075	-.096	-.091	-.091	-.140	-.046
TRAD_SRVS								1	-.171*	-.219*	-.208*	-.208*	-.184*	.151
CONSTRUCT									1	-.171*	-.219*	-.208*	-.208*	.072
PLNT										1	-.117	-.117	-.189*	-.123
TECH											1	-.111	.241**	-.139
PROPRT												1	-.161	.072
LEVTEC													1	.146
OER														1*

*** Correlation is Significant at the 0.01 level (2-tailed)*
** Correlation is Significant at the 0.05 level (2-tailed)*

Table IV shows that each management ownership, government ownership, company size, and company leverage show significant correlations with OER at significant levels of 0.01 and 0.05, other variables show a correlation but not significant. For any econometric problem related to serial correlation, for example, multicollinearity, among the IVs, the maximum correlation is 0.605, which is between company size and government ownership, which is far below the threshold of nine. Furthermore, it is argued that if the variance inflation factor (VIF) value is greater than 10, then give concern before considering the regression results (Myers, 1990). In this study, the VIF values are far below 10, at 2.03, which means multicollinearity is not a problematic issue or a concern, however, the problem of endogeneity still exists and this study also used The Two-Stage Least Squares (2SLS) estimator to address this problem and get a robust result by using an instrumental variable approach, and these instruments should be uncorrelated with the error term but highly correlated with independent variables (Wooldridge, 2009). Therefore, these instruments are the lagged values of the independent variables because they will be correlated with the current values of the independent variables but uncorrelated with the current error term, following Brooks (2008); Wooldridge (2009); Bellemare et al. (2017), Abodoma (2018). The results of linear regression analysis and Two-Stage least squares (2SLS) are displayed in table IIV.

Table IIV *The regression Coefficient between IVs and DV*

Model	OLS Unstandardized coefficients		OLS t-Statistics	2SLS Coefficients		2SLS t-Statistics
	B	Std Error		B	Std Error	
(Constant)	-12.658	3.288	-3.850***	-14.243	4.362	-4.016***
MANAOWNSP	-.024	.014	-1.740*	-.054	.041	-1.453*
GOVOWNSP	1.116	.629	1.773*	2.034	.741	1.374*
COM.SIZE	.858	.152	5.658***	.978	.255	3.836***
COMLEVRG	2.432	.982	2.477**	1.984	.761	1.812*
FP	-.010	.005	-1.800*	-.82	.0181	-1.443*
INDPRO	-.669	.575	-1.162	-1.007	.984	-.879
CONPRO	1.330	1.388	.958	1.620	.9734	.709
TRAD_SEVS	.898	1.060	.847	.453	.703	.603
CONSTRUCT	-.695	.985	-.706	-.372	.856	-1.078
PLNT	.338	1.212	.279	.637	2.056	.537
TECH	-1.420	.848	-1.674*	-1.871	.901	-1.856*
PROPRT	.111	1.237	.090	.645	.793	.453
LEVTEC	.171	.603	.284	.098	.802	.608
Constant						
Durbin Watson	1.197			2.016		
ANOVA	0.000			0.000		
Std Error	2.39423			2.8901		
F.Value	12.654			14.260		
Sig.F	.005			.005		

R. Square	.527	.318
Adjust R Square	.485	.264

MANAOWNSP- Management ownership; GOVOWNSP-Government ownership, COM.SIZE-Company Size, COMLEVRG- Company leverage, PF-Financial Performance; INDPRO-industry product; CONPRO-consumer product, TRAD_SEVS-Trade & Service; CONSTRUCT-Construction; PLNT- plantation; TECH-Technology; PROPRT-Property and LEVTEC- level of technology

Table IIV shows the significance of NOVA which means the model fits with the type of analysis used for this study, and the results of the relationship between the DV and the seven IVs. It can be noticed that the results of 2SLS are not significantly different from the results of OLS which refers that the results are robust. The results show that COMSIZE, COMLEVRG, and GOVOWNSP have positive and significant relationships with OER; the coefficient is 0.858, 2.432, and 1.116 at significant levels of 1%, 5%, and 10% respectively. However, MANAOWNSP, FP, and TECH show negative and significant relationships with OER; the coefficient is 0.314 at the 1% significance level, -0.024, -0.010, and -1.420 at the 10% significance level, respectively. These results show the importance of company size, leverage, and government ownership. The R2 is 0.527, and the Adj-R2 is 0.485 which is very good.

Results and Discussion

Table IIV presents the results of the regression, The first group of variables consists of management ownership and government ownership; based on Table III there is a negative and significant relationship between management ownership and OER; the t-value (t=-1.740, P< 0.10) indicates that firms with lower management ownership tend to disclose more environmental information on the Internet. Therefore, the first hypothesis is accepted. This result can be interpreted that the environmental activities are costly and if managers hold a portion of the firm's shares, they prefer to save costs to increase the shares' dividends. In sum, this result supports past studies' findings (see Nazli A. Mohd Ghazali, 2007; Eng and Mak, 2003; Nagar *et al.,* 2003). The result also confirms that if the regulators in Malaysia need to enhance the level of online environmental disclosure, they should determine the ideal percentage of shares that should be held by the board members of the firm. Table IIV also shows a positive and significant relationship between government ownership and OER; the t-value (t=1.773, P< 0.10) shows that GLC Companies disclose more online environmental information than non-GLCs. Therefore, the second hypothesis is accepted. The result is consistent with the past result found by Amran and Devi, (2008). The result also confirms the legitimacy theory presumption that government always attempts to create a good image in the minds of users by enhancing the level of environmental activities. Therefore, based on this result, having government investors will lead to more environmental stability.

The second group of variables (Firm attributes) consists of five variables – company size, company leverage, company financial performance, industry type, and technology level. Based on the results shown in Table IIV, there is a positive and significant relationship between company size and OER. The t-value (t=5.658, P< 0.001) confirms the significance of this variable as a proxy for online reporting. Hence, the third Hypothesis is accepted. This result supports the findings of past studies (see Akrout and Othman, 2013; Healy and Palepu, 2001; Suhardjanto *et al.,* 2018), and confirms the presumption of agency theory that large firms tend to reduce the agency cost by disclosing more voluntary information on the Internet. The result also supports the legitimacy theory that large firms continuously show quality in their operations to create and maintain a positive image in the minds of people. This result directs regulators to give more consideration to small and medium companies as they may not concern about the environment and may impose rules fit for these types of companies. Table IIV shows a positive and significant relationship between the company leverage ratio and OER. The t-value (t=2.477, P< 0.05) indicates that firms with higher leverage tend to alleviate the risk of higher leverage by concerns about environmental issues and reporting; this may, to some extent, demonstrate that society requires its services, and consequently, enhance the image of the company in the eyes of public and in other related parties. Therefore, the fourth hypothesis is accepted. The result is consistent with most past studies (see Sulaiman *et al.,* 2014; Adeniyi et al., 2018), and supports the legitimacy theory. This is a good result that assists investors to check the leverage of these companies before making their investment decision. Based on the results, the company's financial performance and OER have a negative and significant relationship, the t value (t=-1.800, P< 0.10) shows that environmental activities are costly and affect the company's financial performance in the firm. Therefore, firms, in order to establish legitimacy, have to have a long-time strategic plan. Hence, the fifth hypothesis is accepted. Previous studies found a similar result (Nor Hasikin *et al.* 2013). Table IIV shows that there is a significant relationship between OER and the type of industry. Amongst seven industry types, only companies in the Technology sector show a negative and significant relationship with OER (t =-1.674, P=0.10). This type of industry is less concerned about environmental issues and reporting because they believe that they are environmentally friendly and have nothing to do with the environment if you are working in this sector. Hence the sixth hypothesis is accepted. The result is consistent with previous studies (Suttipuna and Stantonb, 2012; Teoh *et al*., 2003). Table IIV shows the association between the technology level and OER is not significant. This indicates that regardless the company has a department of technology and adequate technological equipment; companies voluntarily disclose their environmental information and activities on the Internet especially with the booming of technology nowadays. In other words, there is no reason for companies that don't have an IT department to disclose their environmental reporting on the Internet as the outsourcing alternative, nowadays, is available at a lower cost. Therefore, the seventh hypothesis cannot be accepted. The result is consistent with previous studies (see Adams and Frost, 2008; Joshi and Jawaher, 2003). In short, the results support all the hypotheses except the technology level, which does not show any relationship with OER.

Conclusion and findings implications

This study examined the impact of two groups of variables -ownership structure and companies' attributes- on the level of OER amongst Malaysian companies. The first group consists of management ownership and government ownership; the second group consists of five variables namely – company size, company leverage, company financial performance, type of industry, and technology level-. Linear regression analysis and Two-Stage least squares were used to analyze the data from 100 firms' websites and their online annual reports for the year 2018. The results indicate that the level of OER by Malaysian companies remains as low as 39 % of the environmental reporting index. The results also indicate that OER is positively related to each government ownership, company size, and company leverage, however management ownership, and company financial performance are negatively related to the online environmental reporting. The type of industry shows a significant relationship with OER. The results support the legitimacy theory by confirming that firms, in general, attempt to legitimize their operations by disclosing their environmental information that shapes a favorable image in the minds of related parties about the firm's environmental interest, and firms capitalize on the Internet benefits by presenting their environmental reporting. This paper contributes to determining the status of OER and the factors associated with environmental reporting on the Internet by corporations in Malaysia. Knowing these factors motivates regulators to utilize them to enhance the level of online environmental reporting. The regulators may determine the ideal percentage of shares that should be held by the board members in a company, support the government investors in companies, and set up rules, regarding preserving the environment, that fit with small-medium companies. This leads to enhancing the level of OER as it remains on a voluntary basis, and consequently enhances the level of transparency by Malaysian companies.

Limitations and suggestions for further research

Although the focus of this study is to check the level of OER status by Malaysian firms and empirically examine its determinants, this study has a number of limitations that should be considered once generalizing the results; one of these limitations is the period of study is only one year (2018); this period can be expanded to a number of years by future study; another limitation is the number of variables that involved on the study, future studies may add other predicted variables such as a board of directors attributes, audit size, organizational culture, and organizational strategy. Future studies may be comparative studies that include different countries around the world, the gap between developed and developing countries in OER is big and future studies may help regulators to reduce this gap.

CONFLICTS OF INTEREST

There are no conflicts to declare.

REFERENCES

Abdullah, S.N. & Mohd-Nasir, N. (2004). Accrual management and the roles of board of directors and audit committees among Malaysian listed companies: Evidence during the Asian financial crisis. IIUM *Journal of Management and Economics 12*(1), 49-80.

Abu Sufian. M. and Zahan M. (2013) Ownership Structure and Corporate Social Responsibility Reporting in Bangladesh. International Journal of Economics and Financial Issues. 3 (4), 901-909.

Adams CA and Frost G (2008). Integrating sustainability reporting into management practices, *Accounting Forum, 32*(4): 288-302

Adham K. A, & Ahmed M. (2005). Adoption of web site and e-commerce technology among Malaysian public companies. *Industrial Management & Data Systems, 9*(105), 1172-1187.

Adeniyi, Segun. (2018). Effect of Company leverage on Voluntary Corporate Social Reporting among Listed Firms on Nigerian Stock Exchange: A Study of Selected Manufacturing Firms. *Academic Journal of Economic Studies*4. 18 - 24.

Ahmad Z., Hassan S., & Mohammad J. (2003). Determinants of Environmental Reporting in Malaysia. *International Journal of Business Studies, 1*(11), 69-81.

Akrout M M., and Othman H. (2013) A Study of the Determinants of Corporate Environmental Reporting in MENA Emerging Markets. *Journal of Reviews on Global Economics,* No 2, 46-59

Akrout M M., and Othman H. (2016) "Ownership Structure and Environmental Reporting in Mena Emerging Countries" Corporate Ownership & Control .Vol 13, 4, pp.381

Al_arussi A.S. & Al_dhamari R, (2017) Investigating Ownership Structure, Company Characteristics and Online Environmental Disclosure in Malaysia, *Indian-Pacific Journal of Accounting and Finance (IPJAF)* Vol. 1 No. 3, 2017 pp. 35-51

Al_arussi A. S., Salamat M. H., & Hanifah, H. M. (2009). *Determinants of financial and environmental reporting on the Internet by Malaysian listed companies*. *Asian Review of Accounting,* 17

Al_arussi A. S., Salamat M. H., & Hanifah, H. M. (2013). The association between environmental reporting and financial reporting on the Internet by Malaysian listed companies, *International journal of Critical Accounting*, *5*. (2): 156-172.

Al_arussi A. S. and Salamat M. H. (2009). Dominant personalities in board committees, company characteristics, and Online environmental reporting by Malaysian listed companies. *Malaysian Management Journal* 13 (1 & 2), 51-67.

Aldrugi A. and AbdoHafez (2014), Determining the Motives or Reasons that Make Companies Disclose Environmental Information, *Journal of Economics, Business and Management*, Vol. 2, No. 2, pp 117-121.

Aljifri, K., Alzarouni, A., Ng, C., and Tahir, M. I. (2014), “The Association between Firm Characteristics and Corporate Financial Disclosures: Evidence from UAE Companies”,The International Journal of Business and Finance Research,Vol. 8 No.2, pp.101-123.

Ali, W.; Frynas, J.G.; Mahmood, Z. (2017). Determinants of Corporate Social Responsibility (CSR) Disclosure in Developed and Developing Countries: A Literature Review. Corp. Soc. Responsib. Environ. Manag. 24, 273–294.

Alsaeed, K. (2005), “The association between firm-specific characteristics and reporting: the caseof Saudi Arabia”, Managerial Auditing Journal, Vol. 21 No. 5, pp. 476-89.

Al-Tuwaijri. S, Christensen. T.E., & Hughes. K.E. (2003). The relations among environmental reporting, environmental performance, and economic performance: a simultaneous equations approach: King Fahd University of Petroleum and Minerals.

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

Andrew J. (2003). Corporate Governance, the Environment, and the Internet . *Electronic green Journal*. Vol. 19.

Angskun J.,& Angskun T., (2008). Online Trip Planners for the Tourism Industry. *Suranaree Journal of Social and Science*, 2 (1), 33-45.

Ardi J. M., and Yulianto A (2020) The Effect of Profitability, Leverage, and Size on Environmental Disclosure with the Proportion of Independent Commissioners as Moderating. *Accounting Analysis Journal* 9(2) (2020) 123-130

Banerjee, S. B. (2002). Corporate environmentalism: the construct and its measurement. *Journal of Business Research, 55*(3):177-191.

Branco, M., & Rodrigues, L. (2008). Factors Influencing Social Responsibility Reporting by Portuguese Companies, Springer *Science & Business Media B.V* (83): 685–701.

Camfferman, K., & Cooke.T. E. (2002). An analysis of reporting in the annual reports of UK and Dutch companies. *Journal of International Accounting Research, 1*(1), 3-30.

Carney, R. W. & Child, T. B. (2013). Changes to the Ownership and Control of East Asian Corporations between 1996 and 2008: The primacy of Politics. Journal of Financial Economics, (107)

Chambers, E., Chapple, W., Moon, J. and Sullivan, M. (2003), CSR in Asia: a seven country study of CSR website reporting, *Business and Society. 44* (4) : 415-441.

Chandok, R, and Singh, S. (2017). “Empirical Study on Determinants of Environmental Disclosure:

Approach of Selected Conglomerates", Managerial Auditing Journal, 32 (4/5): 1-32

Cheah CYJ, Kang J, Chew DAS (2007). Strategic analysis of large local construction firms in China. *Construct. Manag. Econ., 25* (1): 25-38.

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

Choi, J. J., Lam, K. C. K., Sami, H., Zhou, H., (2013), Foreign ownership and information asymmetry, Asia-Pacific Journal of Financial Studies 42, 141–166.

Cooke, T. E. (1992). The Impact of Size, Stock market Listing and Industry Type of an Reporting in the Annual Report of Japanese Listed Corporations. *Accounting and Business Research,* 87 (4), 221-237.

Cormier, D.; Gordon, I.M. (2001) "An Examination of Social and Environmental Reporting Strategies", *Accounting, Auditing, and Accountability Journal*, *14,* (5): 587-616.

Craven, B. M., & Marston, C. L. (1999). Financial reporting on the Internet by leading UK companies. *The European Accounting Review, 8*(2), 321-333.

Claudia Arena, Saverio Bozzolan, Giovanna Michelon (2014). Environmental Reporting: Transparency to Stakeholders or Stakeholder Manipulation? An Analysis of Reporting Tone and the Role of the Board of Directors, *Corporate Social Responsibility and Environmental Management*, 21, 6

Claessens, S., Djankov, S., & Lang, L. H. P. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics, 58*, 81–112.

Dhaliwal, D., S., L. Zhen, Oliver., , et al. (2011) Voluntary nonfinancial reporting and the cost of equity capital: The initiation of corporate social responsibility reporting. Accounting Review 86 (1)

Dunlap, Riley E., & Scarce., R. (1991). Poll Trends: Environmental Problems and Protection. *Public Opinion Quarterly,55* (4): 651-672.

Eccles, Robert G. and Michael P. Krzus. (2010). One Report: Integrated Reporting for a Sustainable Strategy. New York: John Wiley & Sons, Inc.

Eng and Mak. (2003). Corporate governance and voluntary reporting. *Journal of Accounting and Public Policy, 22*(4): 325-345.

Frank, David John, Ann Hironaka, and Evan Schofer (2000) "The Nation-State and the Natural Environment over the Twentieth Century." *American Sociological Review* (65):96-116.

Greenwood, R. & Hinings, C.R. (1996). Understanding radical organizational change: bringing together the old and the new institutionalism, *Academy of Management Review*, 21(4):1022- 1054.

Gul F. A., & Leung S. (2004). Board leadership, outside directors' expertise and voluntary corporate reportings. *Journal of accounting and Policy,* 23(5), 351-379.

Guthrie, J. E., & Mathews, M. R. (1985). Corporate Social Accounting in Australasia. *Research in Corporate Social Performance and Policy 3*(7), 251-328.

Hassan A., Jaffer N., & Johi S. K. (1999). Financial Reporting on the Internet By Malaysian Companies: Perceptions and Practices. *Asia-Pacific Journal of Accounting,* 6 (2), 299-319.

Hassan N, Yusoff, H and Yatim, N (2012), 'Disclosing social responsibility information via the Internet : A study on companies in Malaysia', International Journal of Arts and Commerce, l,(10) : 83-96.

Hassan, Nasr. (2014). The Impact of Internet on the Corporate Financial Reporting: The Egyptian Experts' perceptions. journal of commercial studies and researches. vol.2.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate reporting, and the capital markets: A review of the empirical reporting literature. *Journal of Accounting and Economics*

Ho, S. S. M., & Shun Wong, K. (2001). A study of the relationship between corporate governance structures and the extent of voluntary reporting. *Journal of International Accounting, Auditing* *and Taxation,* 10(2), 139-156.

Hossain, M., & Reaz, M. (2007). The determinants and characteristics of voluntary reporting by Indian banking companies. Corporate Social Responsibility and Environmental Management, 14(5), 274–288.

Homayoun, S, Abdulrahman, R, Johansson, J and Malmstrom, M (2012). Internet corporate social responsibility reporting among Malaysian listed companies', Bioinfo Financial Management

Huber, W., Vitouch, P.:(2008) Usability and accessibility on the Internet : effects of accessible webdesign on usability. In: International Conference on Computers for Handicapped Persons, pp.482–489.Springer.

Inchausti, A. G. (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *European Accounting Review,* 6(1), 45-68.

Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *The Journal of Finance, 48*(3), 831-880.

Jones, T. and Wicks, A. (1999). Convergent Stakeholder theory, *Academy of Management Review*, *24*, (2): 208-221

Joshi. P.L, & Jawaher Al-Modhahki. (2003). Financial Reporting on the Internet : Empirical evidence from Bahrain and Kuwait. *Asia Review of Accounting, 11*(1), 88-101.

Ku Nor Izah. (2003). *The usefulness of Quarterly financial reporting in Malaysia.* Unpublished PhD. Thesis,Cardiff University.

Laswad, F., Fisher, R., & Oyelere, P. (2005). Determinants of voluntary Internet financial reporting by local government authorities. *Journal of Accounting and Public Policy, 24*(2), 101-121.

Lindblom, C.K. (1994). The implications of organizational legitimacy for corporate social performance and reporting, Critical Perspectives on Accounting Conference. New York.

Lodhai, S. K. (2004). Corporate Environmental Reporting Media: A Case for the World Wide Web. *Electronic Green Journal, 1*(20).

Lymer, A. (1997). *Corporate Reporting via the Internet – a survey of current usage in the UK and discussion of issues.* Paper presented at the First Financial Reporting and Business Communication Conference, Cardiff.

Mak, Y. T., & Li, Y. (2001). Determinants of corporate ownership and board structure: evidence from Singapore. *Journal of Corporate Finance, 7*(3), 235-256.

Magness, V. (2006). Strategic posture, financial performance and environmental reporting: an empirical test of legitimacy theory, *Accounting, Auditing and Accountability Journal*

Malcolm Smith, Khadijah Yahya, Ahmad Marzuki Amiruddin, (2007) "Environmental reporting and performance reporting in Malaysia", *Asian Review of Accounting, 15* (2): 185 – 199

Mokhtar N & Sulaiman M. (2012) Environmental Reporting Practices of Malaysian Government Linked Companies (GLCs), *International Journal of Economics and Management, 6* (2): 241 – 277.

Milne, M. J., & Adler, R. W. (1999). Exploring the reliability of social and environmental reportings content analysis. *Accounting, Auditing & Accountability Journal, 12*(2), 237-256.

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

Muhammad N, Scrimgeour F, Reddy K, Abidin S, (2015) The Relationship between Environmental Performance and Financial Performance in Periods of Growth and Contraction: Evidence from Australian Publicly Listed Companies, Journal of Cleaner Production,.04.039

Mostafa I. Elfeky, (2017) The extent of voluntary disclosure and its determinants in emerging markets:

Evidence from Egypt, The Journal of Finance and Data Science, Volume 3, Issues 1–4

Nagar, V., Nanda, D. and Wysocki, P. (2003). Discretionary Reporting and Stock-Based Incentives. *Journal of Accounting and Economics 34*, 283-309.

Nawafly, A. T and Al_arussi. A.S., (2016) "Impact of Board's Characteristics, Audit Committee Characteristics Over Firm Performance" ICAS, International Conference Proceedings, Online Available at www.icas.my.

Nazli A. Mohd Ghazali, (2007) "Ownership structure and corporate social responsibility reporting: some Malaysian evidence", *Corporate Governance*, *7*(3): 251 - 266

Nik Nazli Nik Ahmed & Maliah Sulaiman (2004). Environmental reporting in Malaysian Annual Reports: A legitimacy Theory Perspective. *IJCM*, *14*, (1): 44-58.

Nik Nazli Nik Ahmed and Noor Afzalina Mohamad (2014). Environmental Reporting by the Malaysian Construction Sector: Exploring Extent and Quality, Corporate Social Responsibility and Environmental Management *21*: 240-252.

Nor Hasikin Mamat, Asmah binit Abdul Aziz and Anas Tajudin (2013). Internet Reporting by Malaysian Statutory Bodies: An Analysis of Reporting Practices, *Malaysian Journal of Research*, *1*, (1).

Nurhayati, R, Taylor, G., Rusmin, ; R., Tower, G. and Chatterjee, B. (2016). "Factors Determining Social and Environmental Reporting by Indian Textile and Apparel Firms: A Test of Legitimacy Theory". Social Responsibility Journal, 12 (1): 167-189.

Rahul, H. (2010). Corporate social responsibility- an Indian perspective. *Advances in Management 3* (6): 42-44.

Ravi Inder Singh Chandok and Sukhdev Singh (2017) "Empirical study on determinants of environmental reporting", Managerial Auditing Journal, Vol. 32 No. 4/5, pp. 332-355

Rettab, B., B. Anis, et al. (2009). A study of management perceptions of the impact of corporate social responsibility on organizational performance in emerging economies: The case of Dubai. *Journal of Business Ethics 89* (3): 371-390.

Rezaei, F. and Shabani, A. (2015) "A Study of The Effect of Company size and Quality of Disclosure on The Cost of Company Common Stock," International Journal of Innovation and Applied Studies, vol. 10, no. 3, pp. 1038-1045.

Roberts, R.W. (1992), "Determinants of corporate social responsibility reporting: an application of stakeholder theory", Accounting, Organizations and Society, Vol. 17 No. 6, pp. 595-612.

Ruland, W., Tung, S., & George, N. E. (1990). Factors Associated with the Reporting of Managers' Forecasts. *The Accounting Review, 65*(3), 710-721.

Salomone. R., & Galluccio. G. (2001). Environmental Issues and Financial Reporting Trends A Survey in the Chemical and Oil & Gas Industries, MGMT: Corporate Sustainable Management University of Messina, Faculty of Economics.

Singhvi, S. S., & Desai, H. (1971). "An Empirical Analysis of the Quality of Corporate Financial Disclosure", Accounting Review, vol. 46(1), p. 129 –138.

Solomon, A. and L. Linda (2002). Incentives and disincentives for corporate environmental reporting. Business Strategy& the Environment, *11*(3): 154-169.

Suhardjanto D., Purwanto, Ashardianti, D. and Setiany E. (2018) Environmental Disclosure in Agricultural Sector and Consumer Goods Annual Report (Comparison between Indonesia and Malaysia), *Review of Integrative Business and Economics Research*, Vol. 7, Supplementary Issue 4 pp 203-215.

Sulaimana M., Abdulahb N., and Fatima A.H., (2014) Determinants of Environmental Reporting Quality in Malaysia, *International Journal of Economics, Management and Accounting, 2* (1): 63-90

Suttipuna M., & Stantonb P., (2012) A study of Environmental Reportings by Thai listed Companies on Websites, Procedia Economics and Finance (2): 9 – 15

Tagesson, T., Blank, V., Broberg, P., Collin, S., (2009) What Explains the Extent and Content of Social and Environmental Reportings on Corporate Websites: A Study of Social and Environmental Reporting in Swedish Listed Corporations**,** Corporate Social - *Responsibility and Environmental Management* 16(6): 352.

Tariq, H. I. (2001). An empirical investigation of factors influencing voluntary reporting of financial information on the Internet in the GCC Countries. Qatar University.

Teoh H. Y., Pin F. W., Joo T. T., & Ling Y. Y. (2003). Environmental Reportings-Financial Performance Link: Further Evidence From Industrialising Economy Perspective: Nanyang Technological University, Singapore.

Teoh, H.Y. & Thong, G. (1984). Another look at corporate social responsibility and reporting: an empirical study in a developing country. Accounting, Organizations and Society 9 (2) : 189 -206.

Thompson, P. & Zakaria, Z. (2004). Corporate social responsibility reporting in Malaysia progress and prospects. Journal of Corporate Citizenship (13), 125-136.

Zheng, J.,H. Gou and W.Wang. (2009). "The influence of Financial Factors on Environmental Information Reporting in Chine Chemical industry" Xian Jiatoing University, PRC, Working paper.

Uwuigbe (2011) An Examination of the Relationship between Management Ownership and Corporate Social Responsibility Reporting: A Study of Selected Firms in Nigeria. *Research Journal of Finance and Accounting*, *2* (6):23

Walden W. D., & Schwartz B.N. (1997). Environmental Reportings and Public Policy Pressure. *Journal of Accounting and Public Policy,*16 (2), 125-154.

Wan Izyani, Zunaidah S., and Zainal (2010) Corporate Governance Mechanisms and Extent of Reporting: Evidence from Listed Companies in Malaysia, *International Business Research, 3*, (4): 216-228.

Watts, R. L., & Zimmerman, J. L. (1986). Positive Accounting Theory. *Englewood Cliffs, New Jersey*. Prentice-Hall, Inc, p. 388, chap. 1-3; 12-14.

Xiao.J.Z, Jones,M.J and Lymer A. (2005). A Conceptual Framework for Investigating the Impact of the Internet on Corporate Financial Reporting, *The International Journal of Digital Accounting Research*, *5*(10):131-169

Yearley, S. (1996). Sociology, Environmentalism, Globalization: Reinventing the Globe. London: Sag