
Environmental Reporting Practices of Top Public Listed Companies: Analyzing Pre-Post CSR Framework

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Abstract: This study examines the environmental reporting practices of the top public listed companies in Malaysia, before and after the introduction of the Corporate Social Responsibility Framework. Specifically, this study examines the level of extensiveness of environmental disclosures among the top public listed companies. In addition, this study identifies the factors that influence the environmental reporting practices of the top public listed companies. The factors examined in this study include industry sector, ISO certification, size and profitability. Using content analysis on the corporate annual reports of 50 top publicly listed companies, this study shows that greater environmental reporting practices was found in the post-period of the framework. This study also shows that the factors influencing environmental reporting practices among the top public listed companies vary between the pre-period and the post-period. The findings of this study implicate that regulatory initiatives represent an influential factor in promoting environmental accountability via reporting practices among the companies in Malaysia.

Keywords: environmental reporting, accountability, corporate social responsibility framework, influencing factors, Malaysia.

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Introduction

Over the years, there is an increasing global concern on the companies' initiatives particularly the public listed companies in disbursing their corporate responsibility particularly in the area of environmental reporting practices (Asmeri et al., 2017). Such concern was raised as public become more aware of the concept 'sustainable development' in ensuring that the companies are conducting their business in a more friendly and responsibly towards the environment (ACCA, 2004). While the trend for environmental reporting is progressing well in developed countries (KPMG, 1997), the scenario is not the same for developing countries such as in Malaysia although such practice has started to improve (ACCA, 2004; Yusoff et al., 2005). The development of

the Corporate Social Responsibility Framework (CSRF) has marked an important journey for the Malaysian companies towards greater corporate social reporting (CSR) that includes environmental accountability.

Environment accountability is act of responsibly and reporting related information to various interested parties. The Malaysian government has strongly emphasized in the 'Silver Book' on the responsibility of the public and private sectors to be accountable to the environment (Mokhtar & Sulaiman, 2012). The government has further emphasized the importance of environment accountability among the public and the private sectors through various efforts and initiatives. Although understandably that the primary aim of the private sector is profit-oriented, being accountable to the environment would indeed influence their profitability as the public's view towards a non-environment accountability company can be damaging. Therefore, there is a need to have a balance between achieving the highest profit as possible and being environment accountable to the public. However, as to date, there is a limited studies that have examined the environmental reporting practices of the private sector particularly, the top public listed companies. The extent of environmental reporting practice among the top public listed companies in meeting the government's vision is indeed worthwhile to examine.

There is an increasing demand for environmental performance data from various stakeholder groups indicating a need for greater disclosure practice. In addition, the introduction of mandatory requirements by the government on environmental reporting has further increased the level of environmental reporting by companies. This is evidenced from a survey conducted by KPMG in the European countries that showed the level of environmental reporting have improved significantly in the European countries, especially countries that have implemented mandatory requirement rules (Alrazi et al., 2016; Jones et al., 2017; Kolk et al., 1999). For example, in 1995, Denmark has adopted the Green Accounts Act to counter the increasing public concern on environmental issues in the country. Moreover in France, listed companies are required to publish some form of information on environmental aspects such as 'resource and energy use and consumption, greenhouse gas emissions, efforts relating to the reduction of environmental risks, cooperation with communities, non-government organization and trade unions' and the company's effect on biodiversity' (Cahan et al., 2016; Cowan & Gadenne, 2005).

Other countries that have also imposed mandatory environmental disclosure which include Sweden, Norway and the UK. de Villiers & van Staden (2010) conducted a study on environmental reporting practices among the companies in the UK, US and Australia and found that more than 80 percent of the shareholders in these countries demand for environmental information to be provided by the companies in their annual reports. Such demand was due to their primary concern on the long-term social and financial effects that the environmental problems could do if these problems are being tackled. Similarly, in Malaysia, the stakeholders are showing increasing concern on the role of the companies to the society due to the high number of cases involving illegal logging, toxic waste dumping and open burning.

Environmental attitudes within the Asian region are often formulated and highly shaped by government policy rather than individual initiatives (Bhattacharyya, 2011; Cummings, 2008; Hasan & Yun, 2017). Therefore, imposing mandatory disclosure requirements would have a great impact on the level and quality of corporate environmental disclosure (Cummings, 2008) and hence, greater environmental accountability. In the case of Malaysia, with the increased awareness among the citizens on environmental issues as well as the new regulatory requirements imposed, it is expected that the companies would exercise greater environmental disclosure in order to appear more legitimate and to fulfil demands from stakeholders (Ghani et al., 2018).

The concept of accountability entails "the duty to provide an account (by no means necessarily a financial account) or reckoning of those actions for which one is held responsible" (Gray et al., 1996). Accordingly, accountability renders two types of responsibility, namely, responsibility for actions and responsibility to report. In the context of natural environment, this refers to organizations that are deemed to not only be

environmentally responsible by preserving the environment and/or minimizing the environmental impacts of their activities, but also report any efforts undertaken in this regard to the public.

Several important definitions of environmental accountability have been offered in the prior literature. O’Riordan (1989) defined environmental accountability as “a metaphor for socially responsible management practice, sanctioned by regular public reporting and by demonstrable responsiveness to the public interest”. Burritt & Welch (1997) defined “the actions made on behalf of organizations and the impacts of resulting activities on ecological systems... environmental accountability mechanisms... cannot function without information being provided to stakeholders about actual and potential environmental performance”.

Companies must conduct business within the norms and expectations of the society which is increasingly demanding greater environmental accountability through public scrutiny of the company’s environmental performance as well as its related public disclosure. In general, based on the prevailing literature, it is alleged that environmental accountability is a concept encompassing both environmental performance and environmental reporting. Thus, in this study, environmental accountability is defined as the extent to which an entity acts responsibly towards the natural environment and reports on its environmental performance. However, it is of importance to highlight that we use environmental accountability here to identify the components of the concept, i.e. environmental performance and environmental reporting, rather than environmental accountability as a theory.

Environmental reporting represents the disclosures that relate to the impact company activities have on the physical or natural environment in which they operate (Wilmshurst & Frost, 2000). The environmental reporting relates to the set of information concerning to company’s past, current and future environmental management activities and performance (Berthelot et al., 2003) and that it can be in many forms, including qualitative statements, quantitative facts or assertions, financial statement figures or footnotes. In particular, environmental information may contain information on, but not limited to, pollution, policy, audit, product and process related, financial data, sustainability, environmental aesthetics, energy efficiency and environmental education (Deegan et al., 2002).

With the existence of various company’s stakeholder groups and the need for company to justify its existence, environmental reporting is deemed as an essential accountability-related practice, what more with the establishment of regulatory framework such as CSRF, in the case of Malaysia. Subsequently, this study is interested to explore whether CSRF has led to improved environmental reporting practices as well as to understand the key potential factors that may influence companies to report environmental information publicly.

This study aims to examine the level of extensiveness of environmental reporting practices of the public listed companies. In addition, this study also aims to identify the factors influencing the public listed companies to practice environmental reporting, before and after the introduction of the CSRF. The findings of this study provides an understanding on the impact of regulatory introduction to environmental reporting practices in Malaysia.

Methods

The study sample comprises the top 50 Malaysian public listed companies from various industries listed in the main market (formerly known as Main Board) of Bursa Malaysia as at financial year end 31 December 2002. Applying a non-probability sampling method which known as purposive or judgmental sampling, companies were chosen based on their market capitalization (Barton, 2005; Yusoff et al., 2005), on the basis that large companies seem to disclose more CSR information (Bewley & Li, 2000). Furthermore, the link between size and CSR disclosures has also been supported by the majority of previous studies, both in the local and general

context (Hamid, 2004; Haniffa & Cooke, 2005). As large companies are among the most visible organizations to the public in Malaysia and possess high reputation, it was decided to focus on this group of companies as they are expected to engage in some socially responsible activities and making CSR disclosures.

The sample of the top 50 companies however, can only be used for year 2002 and 2003. Due to some restructuring and mergers, eight companies have to be excluded for the financial year 2009 and 2010. Therefore, the final sample of this study comprises of the top 50 companies as at 31 December 2002 for the year 2002 and 2003 (before the introduction of CSRF) while only 42 companies being included for the year 2009 and 2010 (after the introduction of CSRF). The top 50 companies selected as the sample of the study has been further categorized into various industry sectors (refer Table 1). The total sample is considered reasonable as Sekaran (2003) quoted the most appropriate sample size for most research is between 30 and 500.

Table 1 Total Number of Companies and Their Industry Sectors

Industry Sectors	Number of Companies
Infrastructure	4
Construction	4
Property	3
Mining	1
Plantation	6
Industrial product	3
Transportation	2
Finance	8
Consumer product	7
Telecommunication	4
Trading/Services	8
Total	50

Annual reports were examined for two time periods, which is 2002 and 2003 for before the introduction of CSRF and 2009 and 2010 for after the introduction of CSRF to examine the trend of environmental disclosure. The selection of two periods is similar to some previous studies. Adams (2004), for example, in a case study of company performance as reflected by corporate reporting uses 1993 and 1999 as the period of study. Adams (2004) claims that the basis of this selection provides an opportunity to identify the extent of changes in corporate reporting as a consequence of improved company experience and expertise. In this study, the selection of two time periods is crucial in determining the impact on the level of environmental reporting as a result of the introduction of a new legislation particularly the CSRF. In the context of local studies, only a few CSR disclosure studies analyzed two period of companies' annual reports (Haniffa & Cooke, 2005; Yusoff & Lehman, 2006), while many other Malaysian studies analyzed a single year of annual reports (Hamid, 2004; Thompson & Zakaria, 2004). For the purpose of examining the influence of company's characteristics on environmental disclosure, only data for 2003 and 2010 are analyzed. Year 2010 (three years after the

introduction of the CSRF) was chosen to reflect the latest practice in environmental disclosure among Malaysian companies while year 2003 represents the three years period before the introduction of the CSRF.

This study conducts a content analysis of the 2002-2003 and 2009-2010 corporate annual reports of the sample companies to measure the level of environmental disclosures. Content analysis, which is defined by Abbott & Monsen (1979) as 'a technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity' has been widely used in CSR studies (Jaffar, 2006; Yusoff & Lehman, 2006; Yusoff et al., 2005). It has become a dominant technique especially in environmental disclosure studies of annual reports in order to convey meaning, motivations and corporate intentions (Gray et al., 1995).

Environmental disclosures are measured by the quantity and quality of the disclosures made. A disclosure index score developed by Sumiani et al. (2007) which consists of 24 items of environmental disclosures is used in this study. This index is designed to measure both the existence of the environmental themes in terms of quantity and the quality of the disclosures included. A disclosure index is claimed to be a more useful measure in comparison with disaggregated information as it covers broader number of different CSR topics and minimizes the elements of subjectivity (Bewley & Li, 2000). A preliminary test was conducted on a few randomly chosen companies' annual reports to ensure that the disclosure index which was developed earlier is still relevant for the current trend of corporate environmental disclosures particularly for 2009 and 2010. The scoring of environmental disclosures is derived from two stages. First, after an overall view of a section in the annual report, the quantitative aspect of the disclosure is recorded ("1" = presence and "0" for absence). If the item is present, an ordinal scale score ranging from 1 (poor) to 4 (excellent) based on perceived quality of the disclosure is given.

Companies are classified into either environmentally sensitive industries (ESI) (high profile) or non-environmentally sensitive industries (non-ESI) (low profile) based on Roberts (1992) who defines high profile industries as those with 'consumer visibility, a high level of risk, or concentrated intense competition'. Previous studies classified petroleum, chemical and forest and paper as high profile (Patten, 1991), while Roberts (1992) suggested airline, automobile and oil industries as high profile, and industries such as food, hotel and personal products as low profile. This study follows the guidelines from previous studies to classify the selected companies into low and high profile. Companies from plantation, infrastructure, construction, property, transportation, industrial products and mining sectors are grouped as high-profile companies, while the finance, telecommunication, trading/services and 56 consumer product sectors are classified as low-profile companies.

For ISO accreditation, dummy variable is used to differentiate companies with and without ISO accreditation, consistent with Yusoff & Lehman (2006). Companies generally stated in their corporate annual reports whether they are ISO certified companies or not. While size was largely controlled for in the research design by selecting a sample only from a population of large companies (top 50 companies by market capitalization), further analysis of size was conducted to ensure that this was not driving the results of the study. Previous research has used total asset value and sales volume (Trotman & Bradley, 1981), log of net sales (Belkaoui & Karpik, 1989) and an index rank such as Fortune 500 as used by Cowen et al. (1987). As there are no underlying reasons to use any particular measure of size, this study proposes to use a few measurements namely market capitalization and total asset proxies for company size. The data was obtained from the Thomson DataStream.

This study intends to follow most of the previous studies on the topic (Haniffa & Cooke, 2005; Yusoff & Lehman, 2006) and used accounting data to measure economic performance. Initially three proxies have been chosen to measure company's profitability which are 1) Return on Asset (ROA), 2) Return on Equity (ROE) and (3) Net Margin. However, it has been found that variable ROA and ROE are highly correlated with a significant

value of 0.857, the study then decides to exclude ROE variable and only maintains ROA and net margin. ROA shows the profitability of ordinary shareholders' 58 equity while net margin represents ratio of net profits to revenues for a company.

The data analysis for this study performs three main tests. The first test is the test of descriptive statistics of all the variables used in this study. For this purpose, the minimum, maximum and mean value for the dependent and all independent variables will be reported. Secondly, this study will conduct paired sample t-test to compare the level of environmental disclosures before and after the introduction of CSRF. From this test, the impact of the introduction of CSRF on the level of environmental disclosures can be analyzed from the mean difference with its significant value. Finally, multiple regression analysis is performed to test Hypothesis 1 to Hypothesis 4. This test is important to examine the relationship between environmental disclosures and its determinants such as profitability, size and industry profile before and after the introduction of the CSRF. The regression equation for this study is as follows:

$$\text{EnvScore} = \beta_0 + \beta_1(\text{Industry}) + \beta_2(\text{ISO}) + \beta_3(\text{MarketCap}) + \beta_4(\text{TotalAsset}) + \beta_5(\text{ROA}) + \beta_6(\text{NetMargin}) + \varepsilon$$

Where:

EnvScore	=	Environmental disclosure score
Industry	=	Industry profile, 1 = ESI, 2 = non-ESI
ISO	=	ISO accreditation, 1= ISO accredited, 2 = non-ISO accredited
MarketCap	=	Market Capitalization for the year
TotalAsset	=	Total Asset for the year
ROA	=	Return on Assets for the year
NetMargin	=	Net Margin for the year
ε	=	Error term

Results and Discussion

The sample of this study consists of top 50 public listed companies by market capitalization as at 31 December 2002. The companies are from various industries such as plantation, property, construction, mining, telecommunication, consumer product and finance. These companies are grouped into environmentally sensitive industries (ESI) and non-environmentally sensitive industries (non-ESI) as in Table 2.

Table 2 Companies Classified into ESI and Non-ESI for the Period Before and After CSRF

Year	ESI	Non-ESI
2003	48%	52%
2010	47.6%	52.4%

The sample companies seem to be more or less equally distributed into environmentally sensitive industries and non-environmentally sensitive industries for 63 both periods. Table 2 illustrates that 48 percent or 24 companies are classified into environmentally sensitive industries while 52 percent or 26 companies are from non-environmentally sensitive industries for the period before the introduction of the CSRF. For the period after the introduction of the CSRF the total companies grouped into environmentally sensitive industries are 20 or 47.6 percent while the other 22 companies or 52.4 percent are in the non-environmentally sensitive industries.

Table 3 summarizes the descriptive statistics for company's characteristics that are used as independent variables in this study for two periods; before the introduction of CSRF (year 2003) and after the introduction of CSRF (year 2010). For the period before the introduction of CSRF, market capitalization of companies ranges from a minimum of RM 1.74 million to a maximum of RM 34.74 million. The minimum value for market capitalization however shrinks drastically to RM 0.025 million while the maximum value slightly increase to RM 63.18 million for the period after the introduction of CSRF. The same trend is seen in the total asset value which has a lower minimum value for the period after the introduction of CSRF. Total asset of companies ranges from RM 0.73 million to RM 160.96 million for the period before the introduction of CSRF while the range for the period after the introduction of CSRF is from RM 0.068 million to RM 335.1 million. The decrease in the minimum value for both market capitalization and total asset variables indicates that there might be some companies struggling to maintain their size as a result of the economic downturn experienced in year 2008. Some companies may have to sell off their assets in order to reduce costs or to generate money for other profitable business strategies or operations. On the other hand, the increase in the maximum value for both variables for the period after the introduction of CSRF shows that some companies are able to manage their operation well despite the downturn, hence maintain or increase their market capitalization and total assets.

Table 3 Descriptive Statistics for Companies' Characteristics

Variables	Min	Max	Mean	SD
Before the introduction of CSRF				
Market Capitalisation (RM) ('000)	1748.2	34741.6	7162	7733.0
Total Asset (RM) ('000)	729.0	160955.0	17548	29780
Return on Asset (%) (ROA)	0.2	43.3	6.5	7.020
Net Margin (%)	0.01	1.75	0.3	0.277
After the introduction of CSRF				
Market Capitalisation (RM) ('000)	25.5	63178.6	16684	16170
Total Asset (RM) ('000)	68.3	335134.8	39570	73370
Return on Asset (%) (ROA)	0.6	47	7.7	9.2
Net Margin (%)	0.19	252.85	21.9	39.415

In addition, return on asset (ROA) of companies slightly improves for both minimum and maximum value for both periods. For the period before the introduction of CSRF, the minimum ROA value is 0.2 percent while the other period has a minimum value of 0.6 percent. Maximum value of companies' ROA for the period before is 43 percent and it rises to 47 percent for the period after the introduction of CSRF. This improvement demonstrates that companies are becoming more efficient in managing its assets to generate earnings for the period after the introduction of CSRF and manage to get through the hard times during economic downfall in year 2008. This is also proven from the increment in mean value of ROA from 6.52 percent to 7.74 percent.

Finally, the companies' net margin averaged at 0.25 percent for the period before the introduction of CSRF but later increased to 21.91 percent after the introduction of CSRF. For the period before the introduction of CSRF, the minimum net margin value is 0.01 percent which then climbed to 0.19 percent for the period after the introduction of CSRF. The maximum value is 1.75 percent for the period before the introduction of CSRF and rose significantly to 252.85 percent for the period after the introduction of CSRF. The positive figures

denotes that generally top Malaysian companies have performed well and made profits in both periods especially in period after the introduction of the CSRF despite facing the economic crisis.

Table 4 summarizes the descriptive statistics for the dependent variable that is the environmental disclosure score. It covers the average minimum, maximum and mean score for both periods of the study. The results indicate that the average minimum score for both periods is 0 which suggests that there is company or companies among the top 50 listed on Bursa Malaysia which do not make any environmental disclosures at all. There are two possible reasons which can drive this result; first these companies may not put any effort to disclose their environmental information in the corporate annual reports and thus do not follow the Bursa Malaysia's Listing Requirement, or the environmental items covered in this study may not be relevant to the CSR initiatives and activities performed by the companies. Although the minimum score is the same for both periods, the maximum score has improved for the period after the introduction of CSRF. The period before the introduction of CSRF recorded an average maximum score of 30.5 while the period after the introduction of CSRF recorded an average maximum score of 53.5. Furthermore, the mean average score has also increased from 4.91 to 20.11. Based on the mean score, it can be concluded that there is a vast improvement in the extensiveness of environmental disclosure after the introduction of CSRF.

Table 4 Pre and Post CSRF Environmental Reporting and Disclosure Practices

	'Pre' CSRF		'Post' CSRF	
	Average Mean	Average Max	Average Mean	Average Max
Environmental score	4.91	30.5	20.11	53.5

Table 5 presents the mean score and rank of each type of environmental disclosure. The results show that in general, it can be seen that the extensiveness of environmental disclosures made by companies have increased (see Table 3). Majority of items for the period after the introduction of CSRF hold a mean between 2.00 to 3.00 which is the score between qualitative and quantitative disclosures. In contrast, the period before the introduction of CSRF recorded the majority mean scores fall between 1.00 to 2.00; i.e. between general and qualitative form of disclosures. Based on the mean score, information on 'environmental data' (mean score of 3.09), 'past and present litigation' (mean score of 2.00) and 'financing for environmental equipment' (mean score of 2.00) were the three most disclosed item by Malaysian public listed companies for the period before the introduction of CSRF. The highest mean score for the period after the introduction of CSRF is 4.00 which are for 'past and current environmental expenditures', 'future estimates of environmental expenditures' and 'environmental cost accounting' items.

Multiple regression was performed to examine the influence of company's characteristics on the level of extensiveness of environmental disclosures thus testing Hypothesis 1 to Hypothesis 4. The summary of the result for multiple regression analysis for the period before and after the introduction of CSRF are presented in Tables 6 and 7 respectively. The results of multiple regression analysis from Table 6 for the period before the introduction of CSRF show that the F-statistic is 3.377 with a significant p-value (p-value = 0.008) hence suggests that the model is appropriate for further analysis. The Adjusted R-squared of 0.225 represents that 22.5 percent of the variation in the independent variables could explain the environmental disclosure. Comparatively, Table 7 shows the results of multiple regression analysis for the period after the introduction of CSRF. Consistent with the previous model, the F-statistic is 3.1 with a significant p-value (p-value = 0.015) hence allowing the model for after the introduction of CSRF suitable to be examined. The Adjusted R-squared is 0.235 which is slightly higher than the before the introduction of CSRF model with a significant p-value. The Adjusted R-squared values for both periods are higher than the range as reported by Ahmad et al. (2003) and Yusoff & Lehman (2006).

Table 5 Mean Score and Rank of Each Type of Environmental Disclosure

No.	Environmental Items	Ranking Based on Mean Score			
		Before		After	
		Average Mean	Ranking	Average Mean	Ranking
Financial Factor					
1.	Past and current environmental expenditures	1.50	15	4.00	1
2.	Future estimates of environmental equipment			4.00	1
3.	Financing for environmental equipment	2.00	2	2.00	16
4.	Environmental cost accounting			4.00	1
Environmental Litigation					
5.	Past and present litigation	2.00	2	2.00	16
6.	Potential litigation				
Pollution Abatement					
7.	Environmental data	3.09	1	2.53	11
8.	Control, installations, facilities or processes described	1.96	3	2.54	10
9.	Land rehabilitation and remediation	1.84	5	1.84	19
Environmental Preservation					
10.	Conservation of natural resources	1.96	3	2.72	5
11.	Departments or offices for pollution control	1.67	11	2.04	14
Other Environmentally Related Information					
12.	Discussion of regulations and requirements	1.42	16	1.85	18
13.	Environmental policies or company concern	1.74	9	2.01	15
14.	Environmental goals and targets	1.60	12	1.99	17
15.	Awards for environmental protection	1.56	14	2.07	12
16.	Environmental audit	1.17	18	1.59	20
17.	Environmental management system	1.25	17	2.06	13
18.	Environmental end products/services	1.80	7	2.61	8
Environmental Initiatives					
19.	Sustainable development reporting	1.71	10	2.58	9
20.	Environmental membership/relationship	1.90	4	2.78	3
21.	Environmental stakeholder engagement	1.00	19	2.74	4
22.	Environmental activities	1.82	6	2.85	2
23.	Environmental research and development	1.79	8	2.63	6
24.	Environmental awareness and education program	1.57	13	2.70	6

Scores: 1 – general disclosure 2 – qualitative disclosure
3 – quantitative disclosure 4 – combination of qualitative and quantitative disclosure

Hypothesis 1 which predicts a positive relationship between industry sector and environmental disclosure before and after the introduction of CSRF is not supported by the findings, hence H1 is rejected. This means that industry sector which is found to be a significant determinant of environmental disclosure in studies in the developed countries (Patten, 1991; Wilmshurst & Frost, 2000) is not contributing the same result for environmental disclosure practice in Malaysia. This finding is consistent with other Malaysian studies such as Ahmad et al. (2003) and Yusoff & Lehman (2006). Companies in the environmentally sensitive industries are expected to involve in activities affecting the environment and therefore need to manage pressure and negative perceptions of their stakeholders by disclosing more extensive environmental information. This also suggests that legitimacy and stakeholder theories have limited support in the Malaysian context which seems to depend on regulatory requirement in their decision to disclose environmental.

Table 6 Multiple Regression for the Period Before the Introduction of CSRF

Variables	Beta	t	Sig.
(Constant)			0.078
Industry	0.114	0.821	0.416
ISO	0.506	3.598	0.001***
Market Cap.	0.087	0.546	0.588
Total Asset	-0.299	-1.381	0.174
ROA	-0.352	-1.781	0.082*
Net Margin	-0.023	-0.164	0.87

Dependent variable: EnvScore (Environmental score)

R Square = 0.32, Adjusted R² = 0.225, F = 3.377, Sig = 0.008

Table 7 Multiple Regression Result for the Period After the Introduction of CSRF

Variables	Beta	t	Sig.
(Constant)			0.000
Industry	0.091	0.636	0.529
ISO	0.397	2.549	0.015**
Market Cap.	0.266	1.262	0.215
Total Asset	0.146	0.575	0.569
ROA	-0.126	-0.613	0.544
Net Margin	-0.109	-1.660	0.513

Dependent variable: EnvScore (Environmental Score)

R Square = 0.347, Adjusted R² = 0.235, F = 3.1, Sig = 0.015

For the period before the introduction of CSRF, there are two variables that are significant, which are the ISO certification (p-value = 0.001 < 0.01) and return on asset (ROA) (p-value = 0.082 < 0.10), while for the period after the introduction of CSRF only variable ISO certification is significant at 5 percent level (p-value = 0.015 < 0.05). The significance of ISO certification variable for both periods support hypothesis 2 which states that companies with ISO accreditation disclose more environmental information than non-ISO accredited companies before and after the introduction of CSRF. This indicates that regardless of the voluntary or mandatory settings, companies deem ISO 14001 as a strategic posture which can enhance their reputation as environmentally responsible company (Ahmad & Sulaiman, 2004). The result also explains how ISO 14001 certified companies use environmental disclosures as a double effort to gain trust and prove to their stakeholders that they are serious in their commitment to protect the environment. Besides complying with the international standards on environmental management while conducting their business, ISO 14001 certified

companies also put more effort in informing their stakeholders on environmentally related matters thus further legitimizing their operations. Furthermore, the result is also much expected, as ISO 14001 certified companies which the public has already known of their attitude and commitment towards preserving the environment must also show significant initiatives in environmental disclosure.

Both proxies for company size which are market capitalization and total asset are not significant for both periods in influencing environmental disclosure practice, hence Hypothesis 3 is rejected. This is consistent with previous studies such as by (Ahmad et al., 2003) who found no significant relationship between companies' total assets (measurement used for size) and environmental disclosure. It is also noted that the coefficient for total asset in the period before the introduction of CSRF is negative, suggesting that companies that have less total assets disclose more environmental information. The scenario however changes in the period after the introduction of CSRF which shows positive coefficient. This may imply that due to regulatory requirement, not only small companies or companies with lack of resources are urged to disclose environmental information to justify their performance, large companies with more assets are obliged to do so as well.

Furthermore, Hypothesis 4 which states that companies with less profitability disclose more environmental information is supported in the period before the introduction of CSRF. Both ROA and net margin variables have negative coefficient, with only ROA variable is significant at 10 percent level ($p\text{-value} = 0.082 < 0.1$). However, both measures are not significant in the period after the introduction of CSRF. This implies that unlike before the CSRF were introduced, companies with more profit are now encouraged to disclose environmental information to fulfil the new requirement. Both profitable and less profitable companies disclose some amount of environmental information to safeguard themselves from future litigations resulting from non-compliance of the mandatory reporting requirements. Non-compliance would lead to reputation loss, legal liability and may affect the companies' share price performance. As such, companies regardless of their performance will report sufficient environmental information to meet the requirement as well as satisfying their stakeholders' expectations. Again, this also suggests that legitimacy and stakeholder theories are less relevant to explain environmental disclosure with the existence of regulation.

In sum, the analyses performed suggest the differences in the significant influencing factors for environmental disclosures before and after the introduction of CSRF, that is ISO 14001 certification and profitability for the pre-period and only ISO 14001 certification for the post-period. Finally, Table 8 summarizes whether the study hypotheses formed previously are supported or rejected after analyzing the overall findings.

Table 8 Summary of Hypotheses and Results of This Study

	Hypotheses	After
H1	There is a significant positive relationship between industry sector and environmental reporting among the public listed companies in Malaysia	rejected
H2	There is a significant positive relationship between ISO certification and environmental reporting among the public listed companies in Malaysia	supported
H3	There is a significant positive relationship between company size and environmental reporting among the public listed companies in Malaysia	rejected
H4	There is a significant negative relationship between profitability and environmental reporting among the public listed companies in Malaysia	rejected

Conclusion

Overall, it can be concluded that regulatory initiative such as CSRF represents an influential mechanism in promoting environmental accountability amongst companies in Malaysia. With the introduction of CSRF Malaysian companies have a better guidance on what and how to report their CSR information. In addition, the changes from voluntary to mandatory reporting requirements greatly put pressure on companies to take environmental disclosure more seriously and comply with the new legislation. Companies are aspired to align their reporting strategy to those of regulatory bodies as more and more emphasis been stressed by the Malaysian government and regulatory bodies on the integration of CSR into the business operations.

The significant result of ISO14001 certification and profitability variables towards the level of environmental disclosures signify a number of explanations. ISO 14001 accredited companies, being known as more reputable companies in protecting the environment (as evidenced by the ISO 14001 certification) trying to legitimize and meet stakeholders' expectations by disclosing more environmental information. They are signaling to the public that as a responsible corporate citizen, they need to report their activities that have an impact on the environment, as well as, initiatives in preserving the environment. Similarly, less profitable companies need to legitimize their poor performance to the stakeholders by reporting more environmental information. Environmental reporting is an approach to regain back their stakeholders' confidence and trust, so as to ensure companies sustain and grow. This confirms that ISO 14001 accredited companies and less profitable companies use environmental reporting as a strategy to legitimize their operations and performance and hence, meeting stakeholders' expectations.

The findings of this study contribute to a better understanding of the relationship between selected company's characteristics and the level of extensiveness of environmental disclosure before and after the introduction of CSRF. The findings of this study also offer knowledge to the regulatory bodies that the CSRF introduced demonstrates positive implication in improving the level and quality of environmental disclosures. Furthermore, the findings provide awareness to the government, regulatory bodies and other interested parties on the factors that influence management's decision to disclose environmental disclosure and may focus on strengthening those factors to further improve corporate transparency through environmental disclosures. Besides regulatory initiative, ISO certification is also a powerful strategic posture to induce companies in environmental reporting which can further enhance the image of the companies.

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