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Determinants of financial and environmental disclosures through the internet by Malaysian companies

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Abstract

Purpose – The purpose of this paper is to investigate whether the voluntary financial and environmental disclosures through the internet can be explained by the same determinants as in conventional reporting. Specifically, this paper examines the relationship between the extent of financial and environmental disclosures on the internet and six variables, namely, ethnicity of chief executive officer (CEO), leverage, level of technology, existence of dominant personalities, profitability, and firm size.

Design/methodology/approach – Six hypotheses were tested using data collected from 201 Malaysian listed companies on the Bursa Malaysia's Main and Second Boards for the financial year 2005. A regression model is utilized to analyze the results of this paper and this is in tandem with the previous studies.

Findings – The results indicate that level of technology, ethnicity of CEO and firm size are determinants of both internet financial and environmental disclosures. However, the existence of a dominant personality is found to negatively affect the level of financial disclosures but not environmental disclosures. The other variables did not show any significant relationship with either financial or environmental disclosures.

Originality/value – This paper investigates whether internet financial and environmental disclosures can be explained by the same determinants used in other similar studies. The results indicate that only level of technology, ethnicity of CEO and firm size are found to be significant for both internet financial and environmental disclosures.

Keywords Disclosure, Financial reporting, Internet, Malaysia

Paper type Research paper

1. Introduction

Since the World War II, the contents of company annual reports have increased significantly in many developed countries. This is due to the demand for more information by the investors and other users. Currently, as the financial market is facing globalization and liberalization, timely information is required to assist users in making decisions. In this case, the most valuable information is the one that can reduce information asymmetry. Therefore, companies are always looking for a new tool of

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disseminating information to external users. One of the tools that are available in the new environment is internet technology.

The rapid growth of internet technology has created the ability for firms to directly and instantly disclose their financial information to worldwide users. The level of using such media has increased over the last couple of years in financial markets (Wagenhofer, 2003). This phenomenon has attracted a number of researches in this particular field. It is argued that the internet is an efficient instrument to communicate information to external users at a minimum cost. The information on the internet can be presented in the form of dynamic presentations, graphs multimedia, audio, video, and others (Ashbaugh *et al.*, 1999; Ettredge *et al.*, 2002).

However, the use of internet in financial reporting varies from one country to another. For example, Gray and Debreceny (1997) found that 96 percent of the *Fortune* 500 companies have web sites, in which 71 percent of them have internet annual reporting and 37 percent of them disclose auditor reports on the web. Gowthorpe and Amat (1999) examined 379 companies that are listed on the Madrid Stock Exchange and found that only 61 companies (16 percent) had web sites, in which 34 companies out of 61 companies (55.7 percent) provide some form of financial information on their web sites.

Owing to its capacity in providing information at a high speed, many types of financial and non-financial information that are considered by the companies to be important are disclosed on the internet. One of them is environmental information. This is due to increasing public awareness of environmental issues.

The most important characteristics of the internet is that information can be accessed at almost any time and from anywhere. Besides, low costs of dissemination (Botosan, 1997) and wide coverage (Adham and Ahmed, 2005), the information displayed on the internet is shareable, timeliness, and updateable (Joshi and Al-Modhahki, 2003). The internet also allows corporations to provide an account based on the specific needs of various stakeholders without having to gather such information separately for each stakeholder (Lodhia, 2004). Thus, it is concluded that the use of the internet as a medium of disclosure enables the information to be disclosed at a high level of quantity and quality compared to other media (AICPA, 1994; Wallman, 1995).

Nevertheless, several empirical researches highlight a number of limitations that may stop the internet from becoming a perfect medium for information disclosure and communication. Some of these limitations are related to securities, authentication, confirmation or proof and legal obstacles (Joshi and Al-Modhahki, 2003) and others are related to basic problems such as information overload, poor web site design and advertising, ambiguous user preference and competence (Lodhia, 2004). However, as the internet has the capability to build a good relationship between stakeholders and their companies, as the stakeholders can get all the necessary information for decision making, its usage is on an increasing trend (Sriram and Laksmana, 2006).

Despite the growing usage of the internet in financial markets by companies, academic research into the use of the internet in financial disclosure is still in its infancy stage in developing countries such as Malaysia (Hassan *et al.*, 1999; Noor Azizi *et al.*, 2000; Mitchell and Ho, 2000; Khadaroo, 2005). Therefore, this paper aims to investigate the determinants of internet financial and environmental reporting amongst listed Malaysian companies. The remainder of this paper is structured as follows. Section 2 provides an overview of internet reporting, while Section 3 reviews the extant of studies on the financial and environmental disclosure through the internet.

The research method is described in Section 4. Section 5 presents the results of this research. Finally, Section 6 provides the conclusion.

2. Literature review

Moonitz (1961) argued that it is important that the accounting information that is disclosed to the users is not misleading. However, Healy and Palepu (2000) stated that the extent of disclosure is varied depending on the targeted users' needs and the medium used for the disclosure.

The agency theory predicates that as conflicts arise from the separation of ownership and control of a firm, shareholders would like to have an assurance that their equity is not exposed to any unethical exploitation or expropriations by the management. On the other hand, management, in order to alleviate this requirement, is voluntarily carrying out several actions such as disclosures and open investigation (Xiao *et al.*, 2004; Marston and Polei, 2004).

The management has to provide and disclose sufficient information in order to minimize the agency gap and to strengthen the market share of the company (Richardson and Welker, 2001). In relation to the internet as a medium for disclosure, the management can reduce the agency problem and alleviate information asymmetry due to its unlimited space, wide coverage, easy-access report, and real-time information.

In addition, it has been argued that an efficient equity market requires comprehensive and transparent disclosures of the firms' value and their performance (Levitt, 1999; Richardson and Welker, 2001). Theoretically, the level of disclosure should benefit the firms to lower the cost of capital. The decrease in the cost of capital may come from two perspectives. First, higher disclosure reduces transaction costs for the investors resulting in greater liquidity of the market and greater demand for the securities (Diamond and Verrecchia, 1991). Second, additional disclosure reduces the estimation risk or uncertainty regarding return distribution (Clarkson *et al.*, 1996). This is parallel to the requirement of International Accounting Standards Boards (2001, para. 15) that: "The economic decisions that are taken by users of financial statements require an evaluation of the ability of an entity to generate cash and cash equivalents and of the timing and certainty of their generation." Moreover, the annual report is a medium through which a firm would like to present itself to other external and internal parties. Thus, the more the firms discloses, the more chances the firm will preserve its reputation.

Portes and Rey (2000) argued that although disclosure can eliminate the effect of information asymmetry and subsequently reduce the cost of capital it has a cost. Managers are now facing the problem of mitigating the costs and benefits of different disclosure methods. The alternative disclosure methods created by the development of information technology in recent years whereby the companies report their financial results via the internet are mostly fuelled by anticipation that a traditional paper-based disclosure has its limitations. The increase in global investments and investors have resulted in paper-based reporting become more expensive and limited in capacity to timely reach investors. In contrast, internet disclosure is more cost effective, faster, flexible in format, and accessible to all types of users nationally and globally (Debreceny *et al.*, 2002). Thus, the internet has more benefits than other media of disclosure such as newspapers, journals or other printing media. The internet offers easy and equal access to all users and reduces the information advantages of some institutional investors relative to others, which is known as democratization of capital markets.

From the aforementioned discussion it is clear that firms can use the technology to reach more users than any other communication means. In addition, the speed of disclosure is very important to the users because they can exploit the information that is disclosed by the firms for their own interest. In this case, the shorter the period between producing information and displaying it on the internet, the more advantage that can be gained from the information. The speed of information dissemination is enhanced by the internet because it has several push techniques that can be used to alert users such as email notice (Wagenhofer, 2003).

Petravick and Gillet (1996) examined the speed of the company in releasing information on the web site. The study involved 125 of the *Fortune* 156 that announced their quarter-end or year-end earnings. The results show that 99 out of 125 companies (79 percent) disclose their information on the web site on the same day of the announcement. On the other hand, 10 out of 125 (8 percent) disclose the information one day after the announcement. It is concluded that as long as companies update their web site faster, the internet is considered as an effective means of providing timing information.

Ettredge *et al.* (2002) examined the characteristics of a high quality web sites and found that a quality web site is related to its content. In addition to this, high speed information on the web site is very important as well. The results show that in average there is a lag of 30 days between the date that the annual report is filed to the US Securities and Exchange Commission and the date it is posted to the web sites. They also find that some of the characteristics are associated with a fast or slow web site update. It is argued that more profitable companies update their web sites faster than less profitable companies. In addition, the companies that provide both PDF and HTML formats update their financial information quicker and more regularly than those which do not. They argue that the presentation of both types of formats shows one company’s commitment to maintain a high-quality web site.

In a more advanced usage of the internet, some companies disclose other forms of disclosure such as streaming audio and video on their web sites. Streaming audio allows interested individuals to listen to analysts’ conference classes, annual meetings and similar presentations. In addition it can be used to broadcast live conference calls or to provide an archive of presentations from which the internet user can select. Some companies also provide video together with the streaming audio (Hurtt *et al.*, 2001).

The improvement of disclosure by using the internet as a reporting media is not only limited to the external parties but also from the aspect of improving the availability of financial information within the firms themselves including all processes that occur in the remote place of the firm’s dispersed information system. In this case, reporting and consolidation are improved and expedited. As a result, reporting frequency is increased from annually or quarterly to monthly, weekly daily or even almost simultaneously with the financial statements announcement (Wagenhofer, 2003).

On the other hand, it is argued that social and financial disclosures have similar determinants (Richardson and Welker, 2001). Roberts (1992) found that a high degree of dependency on debt to equity ratio would encourage one company to increase social activities and disclose more environmental information in order to fulfill its creditors’ requirements.

Te recapitulate, it is clear that the use of internet in financial reporting is becoming significant in the market. To further improve this phenomenon, there is a need to understand the determinants of internet reporting especially in the developing ration like Malaysia. This paper aims to fill this gap by examining the determinants of financial

and environmental disclosure on the internet amongst listed Malaysian companies. The definition and descriptions of these determinants are dealt with in Section 3.

3. Research hypotheses

A large number of studies in different countries have attempted to find out the determinants of the extent of online financial and environmental disclosure. They came up with different determinants and factors that may affect the extent of disclosure. However, there was no consistency in the results and this may be due to the nature of investigations. Six of those determinants are discussed in Section 3.1.

3.1 The ethnicity of chief executive officer

Race has been identified as an important demographic factor in Malaysian disclosure practice because it serves as an economic incentive to the individual (Haniffa and Cooke, 2002). Thus, it is worth to investigate this factor on the internet financial and environmental disclosure decision. The Malay values are different from the Chinese. Malays, also known as Bumiputra, are low on individualism at the ethnic level but high at the national level and they are more secretive, high uncertainty avoidance and more focused on the short-term. They are Muslims and influenced by the Islamic principles and ethical values (Haniffa and Cooke, 2002). In order to examine the effect for the ethnicity in Malaysia, Che Ahmed (2001) studied the effect of ethnicity on audit fees and found that there is a significant effect between Chinese-controlled companies and audit fee premium for Chinese audit firm. Although this premium is not exclusively influenced by ethnicity but to some extent it supports the hypothesis of ethnicity. In addition, Chuah (1995) indicates that race, culture and education are the factors that influence Malaysian managers' mind in addition to the type of organization they are working for. Windsor and Ashkanasy (1996) support this whereby they find that there is a relationship between the personal perception and the organizational culture values that an individual works for. An individual preference approach on decision making would be adjusted to the organizational culture values.

Haniffa and Cooke (2002) found that the chairman as non-executive director has a negative association with the extent of voluntary disclosure. This result is against the agency theory proposition that highlights the need for a non-executive chair in the firms to be function as a check and balance mechanism. This result shows a negative relationship between non-executive director and the extent of voluntary disclosure in the printing media. Thus, it is relevant to examine the relationship between the race of the chairman executive office and the extent of financial and environmental disclosure using a new distribution media such as the internet.

To recapitulate, this paper will examine the impact of chief executive officer (CEO) race on the extent of internet disclosure. Therefore, the related partner hypotheses are as follows:

H1a. The extent of financial disclosure on the internet is influenced by the ethnicity of the CEO.

H1b. The extent of environmental disclosure on the internet is influenced by the ethnicity of the CEO.

3.2 Leverage

It is argued that when a firm is making a large use of debt, a monitoring problem arises between stockholders and creditors. As a result, the involved firms may solve this

problem by increasing the level of voluntary disclosure. Previous studies found mixed results on the association between leverage and the extent of disclosure (Chow and Wong-Boren, 1987; Garcia-Benau and Monterrey-Mayoral, 1992).

Richardson and Welker (2001) argued that social and financial disclosures have similar determinants since there is an association between leverage and financial disclosure. Therefore, a similar relationship is expected in the extent of environmental disclosure. Roberts (1992) supports this view by saying that a high degree of dependence on debt would encourage a company to increase social activities and disclose more environmental information in order to meet its creditors' expectations on environmental issues. In addition it was also found that the higher the debt to equity ratio, the more social and environmental disclosure would be made.

Although there has been found a positive association between financial leverage and the extent of voluntary social responsibility disclosures, Chow and Wong-Boren (1987) and Ahmed and Nicholls (1994) found that there was no significant association between financial leverage and voluntary disclosure. The questionable findings may lie in the fact that the extensive use of leverage is relatively a poor proxy for firm risk (Dichev and Skinner, 2002). Ahmed *et al.* (2002) argued that firms with lower leverage are more likely to engage in environmental reporting as a protective measure to maintain a reasonable assessment of its financial risk level.

In summary, this paper will examine the relationship between external debts and the extent of financial and environmental disclosure for Malaysian companies. Several of previous studies define leverage by dividing long-term liabilities over total equity (Roberts, 1992; Katsuhiko *et al.*, 2001). In this paper, leverage will be determined by dividing long-term liabilities by total of assets (Haniffa and Cooke, 2002; Laswad *et al.*, 2005; Alsaeed, 2005). Therefore, the second partner hypotheses tested are as follows:

H2a. The extent of financial disclosure on the internet is positively related to leverage.

H2b. The extent of environmental disclosure on the internet is positively related to leverage.

3.3 Level of technology

Jensen and Meckling (1995) argued that the relationship between the amount of specific knowledge in an industry and the agency costs in that industry is positively significant. It is argued that one of the factors that discourage firms in using the internet is due to the need for experts. The existence of technological services in the firms such as department of technology will benefit them (Lodhia, 2004). The department of technology will help the firms in preparing the information that is going to be displayed on the web site. Besides, the experience in using the internet as a modern technology media for disclosure, the department of technology will also reduce the cost of using the internet such as maintaining, updating, and monitoring a firms' web site. This will encourage firms to disclosure more information. Debreceny *et al.* (2002) provide empirical evidence on this issue whereby they examined the association between the level of technology and the extent of voluntary disclosure through the internet. They found a significant positive relationship between the level of technology and the level of disclosure via the internet.

This paper attempts to find out the relationship between the extent of internet financial and environmental disclosure and the level of technology in the listed firms. Thus, the third partner hypotheses will be as follows:

H3a. The extent of financial disclosure on the internet is influenced by the level of technology.

H3b. The extent of environmental disclosure on the internet is influenced by the level of technology.

3.4 The existence of dominant personalities

Dominant personality comes from the role of duality which takes place when the CEO is also the chairman of the board. According to agency theory, the separation of two roles is important in order to provide necessary checks and balances over management activities. Besides, that the existence of a dual role enables the CEO to control board tasks such as meeting, agenda discussion as well as determining the members of the board. Those who argue against the role of duality include Argenti (1976), Rechner and Dalton (1991), Donaldson and Davis (1991), Forker (1992) and Blackburn (1994).

Gul and Leung (2004) said that the existence of dual role will significantly affect the level of disclosure. They examined the association between board leadership structure in terms of CEO duality and voluntary corporate disclosure in 385 Hong Kong companies and found that CEO duality is associated with a lower level of voluntary corporate disclosure. This relationship, however, is not significant in the firms where the proportion of experts outside the board of directors is higher.

Others view the separation of the CEO's role and chairman's role as not important. This is because there are many companies that have duality roles on their board of directors but are successfully run and have the capability to keep the top man in check (Eisenhardt, 1989). Additionally, duality role facilitates the CEO to regulate firm in achieving its objectives and enhances the leadership in the companies (Dahya *et al.*, 1996).

It is argued that the dominant personality limits the responsibilities of non-executive directors for monitoring the directors performance. This in turn leads to less information disclosure than the firms that separate the roles of CEO and chairman in their board of directors. Forker (1992) supports this view when he found that poor disclosure is related to a dominant personality. Thus, it is quite interesting to examine the impact of a dominant personality on the extent of internet disclosure (financial and environmental) by Malaysian companies and as such the fourth partner hypotheses are as follows:

H4a. The extent of financial disclosure on the internet is influenced by the combination of the roles of CEO and chair of the board.

H4b. The extent of environmental disclosure on the internet is influenced the combination of the roles of CEO and chair of the board.

3.5 Profitability

It is evident from previous studies that the influence of profitability on voluntary disclosure is significant. Singhvi and Desai (1971) argue that when the rate of return is high and the company achieves a high margin of profit, the managerial groups are motivated to disclose more information in order to show off good reputation to the consumers, shareholders, investors and other stakeholders. On the other hand, if the rate of return is low or the company suffers losses, they may disclose less information in order to cover the reasons for such losses or declining profits.

In the literature, the results on the association between profitability and financial disclosure were mixed. For example, Williams (1992) and Garcia-Benau and

Monterrey-Mayoral (1992) indicated that profitability is significantly and positively associated with disclosure. However, Cowen *et al.* (1987) found that highly profitable companies did not disclose more financial information than less profitable firms. Raffournier (1995) found that there is no significant relationship between profitability and the extent of financial disclosure.

Ahmed *et al.* (2002) noted that profitability and its effect on the extent of voluntary disclosure can be explained from two conceptions. First, more profitable firms tend to disclose more information than less profitable firms because management would like to show their achievement to others. This is to sustain their position or gain a compensation arrangement. In short, profitable firms are less secretive than less profitable firms. Profitable firms are more enthusiastic to disclose information in order to differentiate themselves from less profitable firms. This differentiation gives profitable firms indirect benefits in terms of raising capital from the best available terms. Second, it is argued that less profitable firms may disclose more information in order to explain the reasons for their low performance and therefore maintain its integrity. The companies also using early disclosure practices to disclose bad news in order to alleviate the risk of legal liability as well as the risk of depreciation of share capital and the loss of reputation (ACCA, 2005).

It is therefore interesting to study the impact of profitability on the extent of internet disclosure by Malaysian public listed companies and whether profitable companies are more concerned with the environment than less profitable companies. The profitability is determined by using earning per share (EPS) as proposed by the previous studies (Suda and Kokubu, 1994; Ho and Shun Wong, 2001; Camfferman and Cooke, 2002). Thus, the partner hypotheses are as follows:

H5a. The extent of financial disclosure on the internet is influenced by the profitability of the company.

H5b. The extent of environmental disclosure on the internet is influenced by the profitability of the company.

3.6 Firm size

The size of a company can be measured in a number of ways such as capital employed, turnover, number of employees, market value, and others. There is no theoretical reason to determine which one is the best. For example, Firth (1979) used sales turnover and capital employed to measure company size and Cooke (1991) used number of shareholders, total assets, and turnover to measure the size of the company. On the other hand, Craven and Marston (1999) used turnover, number of employees, total assets employed and the company's average market value.

Large companies are often argued to use internet reporting for several reasons. First, large companies are under pressure to disclose their financial information to avoid speculative trading of their shares. As a result they are more in the eyes of the public (Ku Nor Izah, 2003). By surveying Japanese companies, Marston and Warney (2003) found that the size of a company is significantly positively associated with the existence of a web site but not with the extent of financial disclosure. This means that large Japanese companies have web sites but the level of their financial disclosure is not different from smaller enterprises.

Second, according to Craven and Marston (1999), the agency theory and cost-benefit analysis indicate that there is a positive relationship between size and disclosure. Larger firms are always desperate for external funds. This in turn increases agency costs because of the conflicting interests between shareholders, managers and debt holders (Eng and Mak, 2003). However, increased disclosures can reduce agency costs and information asymmetries (Jensen and Meckling, 1976; ACCA, 2005).

Third, business processes of large firms are more complex; therefore, users are always asking for more disclosure. The needs of the users of large firms' reports are more divergent than their counterparts in small firms (Craven and Marston, 1999). Chow and Wong-Boren (1987) examined 52 annual reports of 52 companies listed on the Mexican Stock Exchange in 1982 and found out that large firms voluntarily disclosed more than small firms (24 unweighted and weighted items were examined). Joshi and Al-Modhahki (2003) examined the association between several company characteristics and disclosure on the internet amongst 75 companies in Bahrain and Kuwait. They found that the main influencing factors on the internet financial reporting are size and industry types.

Fourth, large firms have a greater incentive to disclose their operational quality by means of improved disclosures. Large firms are more visible in society and therefore their political costs can be reduced by increasing information disclosures. Cooke (1989) examined the annual reports of 90 Swedish firms (38 unlisted, 33 listed on the Swedish Stock Exchange, and 19 listed on both the Swedish and at least one foreign stock exchange during the year 1985) and found that listing status and size are found to be major determinants of voluntary disclosure.

According to Teoh *et al.* (2003) large firms are more likely to disclose more environmental information in order to show their concern about the environment to the public. Besides, that, they tend to be the subject of the public analysis. Thus, firm size has been found to have a significant positive relationship with the social disclosure (Blacconiere and Patten, 1994). In addition, size is a proxy for political sensitivity and this prediction is consistent with positive accounting theory that suggests that political costs are greater for the larger firms (Watts and Zimmerman, 1986). Thus, the sixth partner hypotheses are as follows:

H6a. The extent of financial disclosure on the internet is influenced by the size of the company.

H6b. The extent of environmental disclosure on the internet is influenced by the size of the company.

4. Research methodology

4.1 Simple selection

This paper intends to examine the determinants of internet financial and environmental disclosure via the internet by Malaysian public listed companies on the Bursa Malaysia's Main and Second Boards. This is undertaken by surveying the information disclosed by the companies on their web sites. The data were obtained from the annual reports of the 2005 financial year.

The population of this study was Malaysian listed comprises of companies that have web sites. After examining the web sites of Bursa Malaysia, it was found that 505 out of 849 Malaysian listed companies (59 percent) had web sites. Since listed

companies are categorized differently according to industry type and the number of companies for each industry is not the same, disproportionate stratify random sampling was utilized in this research (Sekaran, 2003). According to Sekaran (2003), under the system of disproportionate stratified random sampling, the researchers have to include 20 percent of respondents from each stratum in the sample. However, the sample size for this study, based on 505 companies, was 201 companies which represent more than 39 percent for each stratum. This high percentage alleviates the effect of any inappropriate information from the selected sample.

The data for this research is secondary in nature and collected from the selected firms' web sites. The measurement for the extent of disclosure is categorized as follows: 0, if company did not disclose any item; 1, if company discloses one-two items; and 2, if the company discloses more than two items on their web site. The environmental and financial disclosure indexes that were used to measure the extent of disclosure are as illustrated in Appendices 1 and 2, respectively.

A regression model is utilized to analyze the results of this study and this is in tandem with the previous studies (Chen and Jaggi, 2000; Camfferman and Cooke, 2002; Marston and Polei, 2004; Gul and Leung, 2004; Laswad *et al.*, 2005).

5. Results and discussion

The results from the descriptive analysis (Table I) show that 64 percent of the sample size disclosed more than two financial items out of 24 items that have been used to measure the extent of financial disclosures. In addition to this, 25.4 percent disclose only one or two financial items, and almost 10 percent do not disclose any financial information on their web sites.

For the environmental disclosure, 58.7 percent of the sample discloses at least one environmental item out of 34 items that have been used to measure the extent of environmental disclosure. However, 41.3 percent do not disclose any environmental information on their web sites (Table II).

In tandem with the previous voluntary disclosure studies (Cooke, 1989; Hossain *et al.*, 1994; Raffournier, 1995), and due to two dependent variables and six independent variables, multivariate test was used to test the hypotheses. The results from these tests

Table I. Descriptive results for financial information

Valid	Frequency	Percentage	Valid percent	Cumulative percent
No financial disclosure	20	10.0	10.0	10.0
Disclose one-two financial items	51	25.4	25.4	35.3
Disclose more than two financial item	130	64.7	64.7	100.0
Total	201	100.0	100.0	

Table II. Descriptive results for environmental information

Valid	Frequency	Percentage	Valid percent	Cumulative percent
No environmental disclosure	83	41.3	41.3	41.3
Environmental disclosure	118	58.7	58.7	100.0
Total	201	100.0	100.0	

show that there are several variables that indicate significant relationships with both financial and environmental disclosures through the internet. These variables include level of technology ($p < 0.01$), ethnicity of CEO ($p < 0.01$), and firm size ($p < 0.01$). However, the existence of dominant personality shows a significant negative relationship with the level of financial disclosure but not with the environmental disclosure (Table III).

By using a linear regression analysis similar results were obtained for four variables (existing of dominant, level of technology, ethnicity of CEO, and firm size). The variables of technology, ethnic of CEO, and firm size, have positive relationships with the level of internet disclosure but show negative relationship with the existence of dominant personality. However, for both approaches, there is no significant relationship with the elements of profitability and leverage. The productive ability of both analyses were quite similar: $R^2 = 0.450$ and adjusted $R^2 = 0.433$, for financial disclosure on the internet, and $R^2 = 0.348$ and adjusted $R^2 = 0.328$.

The above results suggest that the elements of level of technology, ethnicity of CEO, and firm size are significantly related to the internet financial and environmental disclosures. On the other hand, the existence of dominant personality has a significant negative relationship with the financial disclosure. This finding is not surprising for several reasons.

First, since this paper investigates internet disclosure (the most advanced communication technology) it is expected that the firms that have an information system department are more likely to disclose more information through their web sites (financial and environmental information).

Source	Dependent variable	Type III sum of squares	df	Mean square	F	Sig.
Corrected model	Financial disclosure	2,057.822[a]	6	342.970	26.354	0.000
	Environmental disclosure	3,396.379[b]	6	566.063	17.196	0.000
Intercept	Financial disclosure	272.101	1	272.101	20.908	0.000
	Environmental disclosure	443.516	1	443.516	13.473	0.000
Existing of dominant	Financial disclosure	222.223	1	222.223	−17.075	0.000
	Environmental disclosure	16.350	1	16.350	-0.497	0.482
Level of technology	Financial disclosure	167.628	1	167.628	12.880	0.000
	Environmental disclosure	464.264	1	464.264	14.104	0.000
Ethnicity of CEO	Financial disclosure	87.537	1	87.537	6.726	0.010
	Environmental disclosure	327.234	1	327.234	9.941	0.002
Leverage	Financial disclosure	26.656	1	26.656	2.048	0.154
	Environmental disclosure	0.096	1	0.096	0.003	0.957
profitability	Financial disclosure	11.920	1	11.920	0.916	0.340
	Environmental disclosure	45.890	1	45.890	1.394	0.239
Firm size	Financial disclosure	440.173	1	440.173	33.823	0.000
	Environmental disclosure	570.156	1	570.156	17.321	0.000
Error	Financial disclosure	2,511.733	193	13.014		
	Environmental disclosure	6,353.176	193	32.918		
Total	Financial disclosure	11,975.000	200			
	Environmental disclosure	12,815.000	200			
Corrected total	Financial disclosure	4,569.555	199			
	Environmental disclosure	9,749.555	199			

Notes: [a]$R^2 = 0.450$ (adjusted $R^2 = 0.433$); [b]$R^2 = 0.348$ (adjusted $R^2 = 0.328$)

Table III. Multivariate analysis results

Second, if the CEO is a Malay Bumiputra, the extent of financial and environmental disclosure is higher. This is because Malays are Muslims and therefore have to obey Islamic rules such as honesty and transparency. This feeling in turn creates a sense of responsibility to disclose information regarding their company's performance, and not forgetting to protect people, life, and the environment.

Third, size is not found to be highly correlated with other variables. This indicates non-existence of multicollinearity. It was found that when size was excluded from the regression analysis the explanatory power of the model diminishes. Therefore, it is possible to conclude that size does have an impact on the internet financial and environmental disclosures. This result is similar to other studies of voluntary disclosures where a positive association between voluntary disclosures and size has been recorded (Inchausti, 1997; Raffournier, 1995).

From the analysis it can be seen that this research accepts hypotheses *H1a*, *H1b*, *H3a*, *H3b*, *H4a*, and *H6*, and rejects hypotheses *H2a*, *H2b*, *H4b*, *H5a*, and *H5b*. Nevertheless, information disclosure involves human judgment and therefore this process cannot be explained solely by the company's characteristics. Within this context and limitations this paper provides some evidence to support the agency theory in relation to information disclosure.

6. Conclusion

This paper examines the relationship between six variables namely ethnicity of CEO, leverage, level of technology, existence of dominant personalities, profitability, and firm size and the extent of internet financial and environmental disclosures by Malaysian listed companies. The results provide evidence that there is a significant positive relationship between the elements of level of technology, ethnicity of CEO, and firm size and the extent of both financial and environmental disclosure. However, the existence of dominants is negatively related to the level of financial disclosure but not environmental disclosure. The other variables did not show any significant relationship with either financial or environmental disclosures. These findings support the argument that social and financial disclosures have similar determinants. The findings also provide evidence that religion has an important effect on disclosure of financial information. Future studies can consider other variables such as ethical values of the management and incentives provided by the government for the companies to disclose more financial and environmental disclosures.

References

ACCA (2005), *Sustainability Reporting Guidelines for Malaysain Companies*, Association of Chartered Certified Accountants, Kuala Lumpur.

Adham, K.A. and Ahmed, M. (2005), "Adoption of web site and e-commerce technology among Malaysian public companies", *Industrial Management & Data Systems*, Vol. 9 No. 105, pp. 1172-87.

Ahmed, K. and Nicholls, D. (1994), "The impact of non-financial company characteristics on mandatory disclosure compliance in developing countries: the case of Bangladesh", *The International Journal of Accounting*, Vol. 29 No. 1, pp. 62-77.

Ahmed, A., Billings, B., Morton, R. and Stanford-Harris, M. (2002), "The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs", *The Accounting Review*, Vol. 77 No. 4, pp. 867-90.

AICPA (1994), "Improving business reporting – a customer focus (The Jenkins Report): meeting the information needs of investors and creditors", American Institute of Certified Public Accountants Special Committee on Financial Reporting, available at: www.aicpa.org/members/div/acctstd/ibr/index.htm

Alsaeed, K. (2005), "The association between firm-specific characteristics and disclosure: the case of Saudi Arabia", *Managerial Auditing Journal*, Vol. 21 No. 5, pp. 476-89.

Argenti, J. (1976), *Corporate Collapse – The Causes and Symptoms*, McGraw-Hill, London.

Ashbaugh, H., Johnstone, K.M. and Warfield, T.D. (1999), "Corporate reporting on the internet", *Accounting Horizon*, Vol. 13 No. 3, pp. 241-57.

Blacconiere, W.G. and Patten, D.M. (1994), "Environmental disclosure, regulatory costs, and changes in firm value", *Journal of Accounting and Economics*, Vol. 18 No. 3, pp. 367-77.

Blackburn, V. (1994), "The effectiveness of corporate control in the US corporations", *Corporate Governance – An International Review*, Vol. 4 No. 2, pp. 196-210.

Botosan, C.A. (1997), "Disclosure level and the cost of equity capital . . . disclosure, liquidity and the cost of capital", *Journal of Finance*, Vol. 46 No. 4, pp. 1325-59.

Camfferman, K. and Cooke, T.E. (2002), "An analysis of disclosure in the annual reports of UK and Dutch companies'", *Journal of International Accounting Research*, No. 1, pp. 3-30.

Che Ahmed, A. (2001), "The Malaysian market for audit services; a test of ethnic and regional quality issues", unpublished PhD thesis, University of Melbourne, Melbourne.

Chen, C.J.P. and Jaggi, B. (2000), "Association between independent non-executive directors, family control and financial disclosures in Hong Kong", *Journal of Accounting and Public Policy*, Vol. 19 No. 4 and 5, pp. 285-310.

Chow, C.W. and Wong-Boren, A. (1987), "Voluntary financial disclosure by Mexican corporations", *The Accounting Review*, Vol. 62 No. 3, pp. 533-41.

Chuah, B.H. (1995), "The unique breed of Malaysian managers", *Management Times*, No. 7, pp. 6-20.

Clarkson, P., Guedes, J. and Thompson, R. (1996), "On the diversification, observability, and measurement of estimation risk", *Journal of Financial and Quantitative Analysis*, Vol. 31 No. 1, pp. 69-84.

Cooke, T.E. (1989), "Voluntary corporate disclosure by Swedish companies", *Journal of International Financial Management and Accounting*, No. 1, pp. 171-95.

Cooke, T.E. (1991), "An assessment of voluntary disclosure in the annual report of Japanese corporations", *International Journal of Accounting*, Vol. 26 No. 3, pp. 174-89.

Cowen, S.S., Ferrari, L.B. and Parker, L.D. (1987), "The impact of corporate characteristics on social responsibility disclosure: a typology and frequency-based analysis", *Accounting, Organization and Society*, Vol. 12 No. 2, pp. 111-22.

Craven, B.M. and Marston, C.L. (1999), "Financial reporting on the internet by leading UK companies", *The European Accounting Review*, Vol. 8 No. 2, pp. 321-33.

Dahya, J., Lonie, A.A. and Power, D.M. (1996), "The case for separating the roles of chairman and CEO: an analysis of stock market and accounting data", *Corporate Governance*, Vol. 4 No. 2, pp. 71-7.

Debreceny, R., Gray, G.L. and Rahman, A. (2002), "The determinants of internet financial reporting", *Journal of Accounting and Public Policy*, Vol. 21 Nos 4/5, pp. 371-94.

Diamond, D. and Verrecchia, R. (1991), "Disclosure, liquidity and the cost of equity capital", *Journal of Finance*, No. 44, pp. 1325-60.

Dichev, L. and Skinner, D. (2002), "Large-sample evidence on the debt covenant hypothesis", *Journal of Accounting Research*, Vol. 40 No. 4, pp. 1091-124.

Donaldson, L. and Davis, J.H. (1991), "Stewardship theory or agency theory: CEO governance and shareholder returns", *Australian Journal of Management*, Vol. 1 No. 16, pp. 49-63.

Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-50.

Eng, L.L. and Mak, Y.T. (2003), "Corporate governance and voluntary disclosure", *Journal of Accounting and Public Policy*, Vol. 22 No. 4, pp. 325-45.

Ettredge, M., Richardson, V.J. and Scholz, S. (2002), "Timely financial reporting at corporate web sites?", *Communications of the ACM*, Vol. 45 No. 6, pp. 67-71.

Firth, M. (1979), "The impact of size, stock market listing, and auditors on voluntary disclosure in corporate annual reports", *Accounting and Business Research*, No. 9, pp. 273-80.

Forker, J.J. (1992), "Corporate governance and disclosure quality", *Accounting and Business Reserch*, Vol. 22 No. 86, pp. 111-35.

Garcia-Benau, M.A. and Monterrey-Mayoral, J. (1992), "Voluntary financial disclosure by listed Spanish companies: extent and corporate characteristics", paper presented at the 15th EAA congress, Madrid.

Gowthorpe, C. and Amat, O. (1999), "External reporting of accounting and financial information via the internet in Spain'", *European Accounting Review*, Vol. 8 No. 2, pp. 365-71.

Gray, G.L. and Debreceny, R. (1997), "Corporate reporting on the internet opportunities and challenges", *Proceedings of the 9th Asian-Pacific Conference on International Accounting Issues, November, Bangkok.*

Gul, F.A. and Leung, S. (2004), "Board leadership, outside directors' expertise and voluntary corporate disclosures", *Journal of accounting and Policy*, Vol. 23 No. 5, pp. 351-79.

Haniffa, R. and Cooke, T. (2002), "Culture, corporate governance and disclosure in Malaysian Corporations", *ABACUS*, Vol. 38 No. 3, pp. 317-49.

Hassan, A., Jaffer, N. and Johi, S.K. (1999), "Financial reporting on the interent by Malaysian companies: perceptions and practices", *Asia-Pacific Journal of Accounting*, Vol. 6 No. 2, pp. 299-319.

Healy, P.M. and Palepu, K.G. (2000), "A review of the empirical disclosure literature", paper presented at 2000 JAE Conference, Graduate School of Business, Harvard University, Boston, MA.

Ho, S.S.M. and Shun Wong, K. (2001), "A study of the relationship between corporate governance structures and the extent of voluntary disclosure", *Journal of International Accounting, Auditing and Taxation*, Vol. 10 No. 2, pp. 139-56.

Hossain, M., Tan, L.M. and Adams, M. (1994), "Voluntary disclosure in an emerging capital market: some empirical evidence from companies listed on the KualaLumpur Stock Exchange", *The International Journal of Accounting*, No. 4, pp. 334-51.

Hurtt, D.N., Kreuze, J.G. and Langsam, S.A. (2001), "Using the internet for financial reporting", *The Journal of Corporate Accounting and Finance*, Vol. 12 No. 3, pp. 67-75.

Inchausti, G.B. (1997), "The influence of company characteristics and accounting regulation on information disclosed by Spanish firms", *European Accounting Review*, Vol. 6 No. 1, pp. 45-68.

International Accounting Standards Board (2001), *Framework for the Preparation and Presentation of Financial Statements*, International Accounting Standards Committee Foundation, London.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 1, pp. 305-60.

Jensen, M.C. and Meckling, W.H. (1995), "Specific and general knowledge, and organizational structure", *Journal of Applied Corporate Finance*, Vol. 2 No. 8, pp. 4-18.

Joshi, P.L. and Al-Modhahki, J. (2003), "Financial reporting on the internet: empirical evidence from Bahrain and Kuwait", *Asia Review of Accounting*, Vol. 11 No. 1, pp. 88-101.

Katsuhiko, K., Akihiro, N., Yasushi, O. and Tomomi, S. (2001), "Determinants of environmental report publication in Japanese companies", paper presented at 3rd APIRA Conference, July, Adelaide.

Khadaroo, M.I. (2005), "Business reporting on the internet in Malaysia and Singapore, a comparative study", *Corporate Communications: An International Journal*, Vol. 10 No. 1, pp. 58-68.

Ku Nor Izah, K.I. (2003), "The usefulness of quarterly financial reporting in Malaysia", unpublished doctoral dissertation, Cardiff University, Cardiff.

Laswad, F., Fisher, R. and Oyelere, P. (2005), "Determinants of voluntary internet financial reporting by local government authorities", *Journal of Accounting and Public Policy*, Vol. 24 No. 2, pp. 101-21.

Levitt, A. (1999), *Quality Information: The Lifeblood of Our Marketing*, The Economic Club of New York, New York, NY.

Lodhia, S.K. (2004), "Corporate environmental reporting media: a case for the world wide web", *Electronic Green Journals*, No. 20, pp. 1076-7975.

Marston, C. and Polei, A. (2004), "Corporate reporting on the internet by German companies", *International Journal of Accounting Information Systems*, Vol. 5 No. 3, pp. 285-311.

Marston, C.L. and Warney, W. (2003), "Financial reporting on the internet by leading Japanese companies, corporate communications", *Corporate Communication: An International Journal*, Vol. 8 No. 1, pp. 23-34.

Mitchell, W. and Ho, C.W.P. (2000), *Corporate Social Disclosures by Listed Companies on Their Websites: An International Comparison*, Hong Kong Polytechnic University, Kowloon.

Moonitz, M. (1961), *The Basic Postulates of Accounting*, Accounting Research Study No. 1, AICPA, New York, NY.

Noor Azizi, A.I., Mahamad, T. and Adon, I. (2000), "Financial reporting disclosure on the internet by Malaysian listed companies", *Akauantan Nasional*, Vol. 1 No. 1, pp. 28-33.

Petravick, S. and Gillet, J. (1996), "Financial reporting on the world wide web", *Management Accounting*, pp. 26-9.

Portes, H. and Rey, R. (2000), "The determinants of cross-border equity flows: the geography of information", Center for International and Development Economics Research, Working Paper No. C00-111, University of California, Berkeley, CA.

Raffournier, B. (1995), "The determinants of voluntary financial disclosure by Swiss listed companies", *The European Accounting Review*, Vol. 4 No. 2, pp. 261-80.

Rechner, P.L. and Dalton, D.R. (1991), "CEO duality and organisational performance: a longitudinal analysis", *Strategic Management Journal*, Vol. 12 No. 2, pp. 155-60.

Richardson, A.J. and Welker, M. (2001), "Social disclosure, financial disclosure and the cost of equity capital", *Accounting, Organizations and Society*, Vol. 26 No. 7, pp. 597-616.

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

Sekaran, U. (2003), *Research Methods for Business; A skill Building Approach*, 4th ed., Wiley, New York, NY.

Singhvi, S.S. and Desai, H.B. (1971), "An empirical analysis of the quality of corporate financial disclosure", *The Accounting Review*, Vol. 46 No. 1, pp. 129-38.

Sriram, R.S. and Laksmana, I. (2006), "Corporate web site reports: some evidence on relevance and usefulness", *Information Resources Management Journal*, Vol. 19 No. 3, pp. 1-28.

Suda, K. and Kokubu, K. (1994), "Some determinants of environmental disclosure in Japanese companies", in Yamagami, T. and Iida, S. (Eds), *Corporate Social Disclosure*, Hakuto-Shobo, Tokyo.

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

Wagenhofer, A. (2003), "Economic consequence of internet financial reporting", *Schmalenbach Business Review*, Vol. 55 No. 4, pp. 262-79.

Wallman, S. (1995), "The future of accounting and disclosure in an evolving world: the need for dramatic change", *Accounting Horizons*, Vol. 9 No. 3, pp. 81-91.

Watts, R.L. and Zimmerman, J.L. (1986), *Positive Accounting Theory*, Prentice-Hall, Englewood Cliffs, NJ.

Williams, J.R.S. (1992), "The impact of company-specific versus country-specific characteristics on financial accounting disclosure: an empirical study of thirteen countries", unpublished doctoral dissertation, University Microfilms International, Ann Arbor, MI.

Windsor, C.A. and Ashkanasy, N.M. (1996), "Auditor independence decision making: the role of organizational culture perceptions", *Behavioral Research in Accounting*, Vol. 8 No. 1, pp. 80-97.

Xiao, J.Z., Yang, H. and Chow, C.W. (2004), "The determinants and characteristics of voluntary internet-based disclosures by listed Chinese companies", *Journal of Accounting and Public Policy*, Vol. 23 No. 3, pp. 191-225.

Further reading

SFAC1 (1978), *Objectives of Financial Reporting by Business Enterprises*, FASB, Stamford, CT.

Appendix 1. Internet environmental disclosure index

No.	Environmental items
1	GES
2	EP&P
3	EPS
4	EACTV
5	EMAN
6	WTS
7	AWAD
8	ELOW
9	SUST
10	W&R
11	EAEST
12	POLU
13	REHB
14	EMPW
15	LNDR
16	EEPRG
17	EFIN
18	SPACT
19	DEPUL
20	EFRTREN
21	R&EN
22	UTIW
23	IMSTU
24	EAU
25	ENEFF
26	R&D
27	ENCON
28	IPE
29	RENCON
30	IEPR
31	ELITIG
32	FINPOL
33	P&COC
34	P&CEX
35	F&CEX
36	F&COC

Notes: GES, general environmental consideration and statements; EPS, environmental policy statement; EAU, environmental audit; EMAN, environmental manager/committee; ELOW, environmental law; EP&P, environmental-product and process related; EFIN, environmental financially related data; EAEST, environmental aesthetics (facilities, art, restoration); ELITIG, environmental litigation; EEPRG, environmental education programs; EMPW, employee awareness of environmental policy; EACTV, environmental activities; POLU, pollution; REHB, rehabilitation; W&R, waste and recycling; IMSTU, impact studies; WTS, water treatment system; SUST, sustainability; R&D, research and development; DEPUL, departments or offices for pollution control; IEPR, international environmental program; ENCON, energy conversion; ENEFF, energy efficiency; R&EN, recycling and associated energy saving; UTIW, utilization of waste materials; EFRTREN, efforts to reduce energy consumption; IPE, increasing of product efficiency; RENCON, research energy conservation; AWAD, awards; SPACT, support for public or private action designed to protect the environment; LNDR, land reclamation and forestation programmes; FINPOL, financing for pollution control equipment or facilities; P&CEX, past and current expenditure for pollution control equipment and facilities; P&COC, past and current operating costs of pollution control equipment and facilities; F&CEX, future and current expenditure for pollution control equipment and facilities; F&COC, future and current operating costs of pollution control equipment and facilities

Table AI.

Appendix 2. Internet financial disclosure index

No.	Financial item
1	FHS
2	CPR
3	CSP
4	AR
5	DMR
6	BS
7	IS
8	CFS
9	SSE
10	AN
11	AUR
12	SRR
13	SHS
14	ARPT
15	HYR
16	QR
17	BSQR
18	ICQR
19	CFQR
20	ANQR
21	FC
22	FR
23	SPC
24	OPR

Notes: FHS, financial highlights; OPR, operation review; FR, financial review; CPR, current press release or news; CSP, current share price; SPC, share performance chart; FC, financial calendar; AR, annual report; BS, balance sheet; IS, income statement; CFS, cash flow statement; SSE, statement of shareholders' equity; AN, accounting notes; AUR, auditor's report; DMR, directors' and management report; SHS, shareholder structure; QR, quarterly report; BSQR, balance sheet in quarterly report; ICQR, statement of income in quarterly report; ANQR, accounting notes in quarterly report; CFQR, cash flow statement in quarterly report; HYR, half year report; ARPT, annual report for the past years; SRR, segmental report by region

Table AII.

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