Original Article

The effects of corporate disclosure practices on firm performance, risk and dividend policy

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ABSTRACT   This article examines the effects of disclosure in corporate governance practices on firm performance, bankruptcy risk, leverage and dividend policy in public listed companies. We propose an enhanced transparency disclosure index (TDI). To measure disclosure and transparency more accurately, we use the recommended practices of the Malaysian Code on Corporate Governance 2012 (MCCG 2012), using scores between 0 and 1 for each item. Although previous studies have simplified their transparency index into a couple of independent items, we develop a formative second-order index, which is known as the Modified Transparency Disclosure Index (MTDI). We test our hypotheses in a 2009 randomly selected sample of 95 listed companies in Bursa Malaysia using Partial Least Squares (PLS) path-modeling and bootstrapping techniques. The results show that corporate disclosure practices have positive effects on company performance and negative effects on company leverage. This study does not find any significant relationship between corporate transparency levels with bankruptcy risk and dividend payouts.

INTRODUCTION

The East Asian financial crisis that started in 1997 exposed the poor corporate governance in many East Asian economies (Abdul Rahman and Mohamed Ali, 2006). This weakened investors' confidence in these capital markets (Leng, 2004; Abdul Rahman and Haniffa, 2005). There is a general consensus that a lack of sound corporate governance and transparency in disclosing information by companies was the major reason for this crisis in the East Asia (Haat *et al*, 2008). As a consequence, many

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countries in the East Asian region have taken action to reform their code on corporate governance to strength the corporate governance standards and improve disclosure and transparency of companies.[1] In Malaysia, the Asian financial crisis as well as the accounting and corporate scandals in the United States[2] have drawn attention to the need for better corporate governance among Malaysian companies (Haat et al, 2008).

One of the mechanisms that governance codes emphasized on is transparency and disclosure. There is transparency and disclosure when a company provides timely, adequate and reliable picture of its condition and operation as well as financial and economic performance in terms of quality and content through its financial statements, annual reports and performance evaluations. This mechanism enables shareholders, creditors and directors to monitor management effectively (Rahman and Salim, 2010).

Transparency and disclosure is a key mechanism to reduce information asymmetry and agency costs (Kowalewski et al, 2008; Cheung et al, 2010). Healy and Palepu (2001) conducted a comprehensive literature review on disclosure and discussed four issues in their paper in great detail: (i) regulation of disclosure; (ii) auditors and financial analysts' effectiveness; (iii) management reporting disclosure; and (iv) consequences of disclosure. Our article addresses the first, third and fourth issues.

There are various regulations on transparency and disclosure all over the world. Two questions on disclosure raise in this study are how governance disclosure regulations can be justified from economic perspective and how effective these regulations are to mitigate agency costs. Leftwich (1980), Watts and Zimmerman (1986) and Beaver (1998) argued that regulators are concerned with issues other than market failure and their aim is just caring unsophisticated individual investors' interest and welfare. They suggested that regulators should mitigate information asymmetry between informed and uninformed investors by providing minimum transparency and disclosure requirement.

Studies on management decisions on reporting disclosure focused on two domains: positive accounting theory and voluntary disclosure. The positive accounting theory research studies management incentives to choose accounting methods or use accrual estimates for their interest when there are information asymmetry and agency problems (Fields et al, 2001). The second domain discusses managers' incentives in practicing voluntary disclosure. For example, different research shows companies issuing new capital exercise voluntary disclosure (Lang and Lundholm, 1993; Healy and Palepu, 1993, 1995; Lang and Lundholm, 1997). Voluntary disclosure can mitigate information asymmetry and as a result a company's cost of capital can be reduced.

Both of these domains have examined the consequences of changes in transparency and disclosure. The positive accounting theory studies have addressed changes in accounting methods and standards. The voluntary disclosure literature has discussed the effects of changes in governance disclosure practices in the capital market. Research based on the positive accounting theory could not find any significant relationship between stock returns at the announcement of the accounting regulation changes and contracting or political cost explanations (Holthausen, 1981). The voluntary disclosure research proposed three possible consequences for companies exercising voluntary disclosure: (i) liquidity improvement (Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994; Welker, 1995; Healy et al, 1999); (ii) cost of capital reduction (Botosan, 1997; Botosan and Plumlee, 2002); and (iii) information intermediation improvement (Bhushan, 1989; Francis et al, 1998).

The difficulty in measuring transparency and disclosure practices is the main research limitation (Healy and Palepu, 2001). Previous researchers have developed different indices to address disclosure level of companies. The basis of corporate governance disclosure indices is to evaluate the quality and content of information that firms disclose to the public through annual reports and financial statements and these

indices briefly measure to what extent companies have published the information.

Transparency and Disclosure Index (TDI) is one of the indices developed by Bebczuk (2007). By examining corporate information transparency, disclosure and the degree of outside investors against expropriation, he provided a metric for the balance of power between insiders and outsiders (Bebczuk, 2007). This index factors are classified into three sub-indices such as board, disclosure and shareholders. Each of the sub-indices can be calculated as 1 if the firm fully or partially publishes information and 0 if otherwise. Bebczuk used 65 non-financial listed companies in Argentina from 2003 to 2004 and found a relationship between his index and performance measured by return on assets and Tobin's Q. A positive relationship between TDI and cash dividend to cash flow ratio was found as well.

Kowalewski et al (2008) studied the relationship between corporate governance practices measured by TDI and dividend policy in Poland by examining 110 non-financial companies listed on the Warsaw Stock Exchange between 1998 and 2004. They found that by increasing TDI, dividend to cash flow would increase and concluded that companies with lower transparency and disclosure level pay lower dividends than companies with higher level of corporate governance practices. They explained their findings by referring to La Porta et al (2000) who asserted that corporate disclosure practices can be related to a company's dividend policy. In order to support their claim, they stated that companies in common law countries have higher dividend payout than companies in civil law system because of the stronger legal protection of minority shareholders.

Cheung et al (2010) divided information disclosure into two distinct categories: mandatory and voluntary. Mandatory information disclosure is based on regulations and laws in a specific jurisdiction and all listed firms must adhere to them. On the other hand, more disclosure has its benefits and some firms want to disclose more information than what is mandatory. This is called voluntary information disclosure and is considered to be the best practices. The disclosure quality of corporate practices is based on the Principles of Corporate Governance developed by OECD in 2004 (OECD, 2004), also known as Transparency Index (TI). TI encompasses five principles that are the rights of shareholders, equitable treatment of shareholders, the role of stakeholders, disclosure and transparency, and board responsibilities and composition. Cheung et al (2010) used 56 items of Governance Index with 86 criteria to examine the corporate governance practices of Chinese listed companies. By employing TI, a significant positive relationship between the disclosure practice quality and firm value was found. Market valuation is only affected by the Voluntary Disclosure Index and there is no significant relationship between Mandatory Disclosure Index with firm value. They used a different method for scoring the items by considering three possible values for each item: firms that did not follow governance practices are categorized as 'poor' and received 1 for that item. Those that met with the minimum compliance standard were classified as 'fair' and their scores for that item was 2. Finally, firms that disclosed information more than the minimum requirements and/or meet international standards get the highest score, which is 3.

In one of the latest research, Brockman and Unlu (2011) investigated disclosure quality and its relation with company dividend policy and earned capital. The agency cost was an issue in disclosing company financial policies in paying dividend. There was the notion that in full-grown companies, while it is observed that the costs of paying dividend are reduced, the paybacks of this paying dividend swell. In addition, they mentioned that there was a direct link between disclosure superiority and agency costs.

The literature review on previous research shows that effective and sound corporate governance practices are not only important issues in developed countries but are more critical in emerging and transitioning

economies (Dharwadkar *et al*, 2000; Judgea *et al*, 2003). A few of such studies have been conducted in emerging economies. The importance of conducting such studies in developing economies is because they lack the experience and strong financial infrastructure to encounter with these issues of corporate governance (Omran, 2009). In Malaysia, there is a lack of research on corporate disclosure practices that employ an index that specifically addresses disclosure and transparency level in the local context.

This article is motivated to examine the effects of enhanced transparency disclosure index on firm performance, bankruptcy risk, leverage and dividend policy in public listed companies in Bursa Malaysia.

The significance of this research can be explained from five aspects. First, the index developed by this research serves as a proxy for disclosure of board and top management team in terms of their board structure, remuneration and procedures. Second, this research would be able to measure the disclosure level of information and strategies to outsiders (Bebczuk, 2007; Kowalewski *et al*, 2008). These two are in line with best practices recommended by the Malaysian Code on Corporate Governance (MCCG) 2012 as the Code focuses on the board and directors' roles as well as the quality of transparency and disclosure as 'key facets of investor protection and market confidence'. Third, it measures transparency of minority shareholders' rights and compensation (Bebczuk, 2007; Kowalewski *et al*, 2008) that are in compliance with MCCG 2012 in which the Code emphasizes on the quality and accuracy of the information to ensure shareholders and other stakeholders' interest are not compromised. Fourth, modified TDI that is proposed in this research is constructed to addresses policies that may differ from developed countries practices (Kowalewski *et al*, 2008). Fifth, few research on TDI have examined the model by considering the measurement items under their formative construct. Indeed, previous

research by simplifying the index items into a couple of independent variables or using the average of items scores as the index value, just tested each item out of its formative construct index (for example, Bebczuk, 2007; Kowalewski *et al*, 2008; Cheung *et al*, 2010; Kim *et al*, 2013). This research by employing a formative second order construct index (Hair *et al*, 2013), addresses the main pillars of MCCG 2012 and use Partial Least Squares (PLS) as the analysis method to bridge the gap between the theory and practices of governance disclosure particularly in an emerging economy such as Malaysia.

DATA AND METHOD

This article studies the effects of modified TDI on firm performance, bankruptcy risk, leverage and dividend policy in Bursa Malaysia. In addition, this research employs board size, CEO duality, industry, company size and investment as control variables.

Samples of this study were selected randomly from the main board of listed companies in Bursa Malaysia for the year 2009. We used secondary data that was hand-collected from the annual reports of public listed companies in Bursa Malaysia available on the companies' Websites as well as the Bursa Malaysia Website. Public listed companies were chosen because of the availability of their data and their need to comply with the Malaysian code of corporate governance. Financial companies, financial institutions and banks were excluded from the study as these firms have different structures and policies. In addition, in view of the different opportunities and incentives for earnings management, utility firms were also excluded from the samples of the study (Hashim, 2009).

To ensure that sample size is appropriate, this study ran a power analysis using G-Power 3.1 program (Hair *et al*, 2013). To do so, effect size, α error probability, power (1-β error probability) and the largest number of paths directed at a construct were considered at 0.15, 0.05, 0.8 and 6 respectively. According to the power

analysis by G-power 3.1, the sample size was big enough for this research (Buchner *et al*, 1996). In order to determine the confidence intervals of the path coefficients and statistical inference, this research employed bootstrapping with 2000 samples as its resampling technique (Henseler *et al*, 2009).

Modified transparency disclosure index scoring

To measure transparency and disclosure level of companies, this study constructed a second order formative-formative index following the guideline for developing formative indices by Diamantopoulos and Winklhofer (2001). The items of the proposed index were designed by enhancing TDI developed by Bebczuk (2007) and was named Modified Transparency Disclosure Index (MTDI). On the basis of TDI, if a company was fully in compliance with the item of the Code, its score was 1, otherwise it would have been 0 and there was nothing between these two ends.

However, in reality, most of companies fall between 0 and 1. For instance, a company that is not perfectly in compliance with the Code, based on TDI, would have a score for that specific item as 0. Likewise, its score would be the same as companies that do not follow the corporate governance code at all. Hence, TDI categorizes all companies into only two groups: companies that disclose a little information are grouped with companies that do not disclose anything or companies that disclose more than average are grouped with companies that disclose information perfectly. Therefore, the enhanced index (MTDI) is a more reliable and accurate proxy to measure disclosure level of companies as it measures scores for each item between 0 and 1. MTDI encompasses 22 items consists of a broad range of governance issues (for example, functioning of executive bodies, communication with outside stakeholders and the flow of information required for a proper monitoring of the firm by minority shareholders) and similar to TDI, MTDI can be classified into three sub-indices such as board, disclosure and shareholders. These sub-indices construction helps us examine transparency and disclosure practices at a greater in-depth (Kowalewski *et al*, 2008). As mentioned, each item can get a score between 0 and 1 based on the degree of the company's compliance with the Code.

For instance, if a company discloses managers and directors salaries in detail, the score for this item will be 1. On the other hand, if a company does not disclose any information about the salaries, the score will be 0. For those companies that only disclose the salaries in a range will receive a score of between 0 and 1, for example, 0.5. Meanwhile, some items of the index are scored 1 for all companies, which is because of the Bursa Malaysia listing requirement. For example, publicly listed companies are required to disclose information on the biography, years in office and shareholdings of their board members as well as the details of each board committee (Bursa Malaysia, 2009a). They must publish all information in English (Bursa Malaysia, 2009b) and they are required to disclose details of corporate ownership, audit committee report, amount of outstanding shares and substantial shareholders' shares (Bursa Malaysia, 2009c, d, e). The samples of this study were selected randomly and to ensure accurate data and reduce measurement error, data was given to two experts who scored the items independently. The average of their scores was considered the final score of each item.

Control variables

As mentioned, this research uses board size, CEO duality, industry, company size and investment as control variables. The importance of considering board size and CEO duality as control variables is because of the possible effects of these corporate governance mechanisms on company performance.

CEO duality

In compliance with the agency theory, MCCG 2012 similar to previous Codes recommends

that the CEO and chairman positions should not be held by the same individual in order to improve accountability of the company and facilitate higher monitoring. The separation of these two roles is considered as a good corporate governance practice. Hence, because of the importance of this variable in corporate governance practices, this research includes CEO duality variable in the proposed model.

Agency theory researchers argued that a person holding the roles of CEO and chairperson can gain extra private benefits, which are a result of gaining sufficient controlling power (Finegold *et al*, 2007; Yammeesri and Kanthi Herath, 2010). Moreover, CEO duality will reduce monitoring efficiency (Kiel and Nicholson, 2003) and increase agency problems as CEO can affect directors' election and nomination. Hence, outside directors will be loyal to him/her and the CEO will be more entrenched and powerful that could increase agency costs (Feng *et al*, 2007) and the likelihood of financial distress (Suntraruk, 2009). Those entrenched CEOs to keep their positions consider more dividends to avoid shareholder sanctions and prevent the company from hostile takeovers. Hence, they prefer to use more debt for financing their projects (Haque *et al*, 2009). On the other hand, separation between CEO and chairman roles is expected to increase company's performance (Haat *et al*, 2008).

Board size

MCCG 2012 emphasizes on board structure and composition in the following of Code 2007, which states that a company should determine its board size with a view to improve its effectiveness. Therefore, because of the importance of board size in corporate governance, this variable is included in the model of this study. Many studies (Hermalin and Weisbach, 1988; Yermack, 1998) emphasized on the importance of board size and composition as determinants of effective monitoring to reduce agency costs. Generally, it is assumed that companies with smaller board size have

better corporate governance and lower agency costs. As a result, it is expected that such companies have a higher level of dividend payout and lower bankruptcy risk (Fich and Slezak, 2008; Miglani *et al*, 2010). Agency theorists have stated that larger boards have less effectiveness as achieving consensus among directors tends be more difficult (Jensen, 1993; Ibrahim and Abdul Samad, 2011). Thus, investors may prefer in investing in companies with smaller boards and as a result companies with larger boards are more likely to use debt to finance projects.

Dependent variables

Dependent variables in this study are performance, bankruptcy risk, leverage and dividend policy of companies. Performance is measured by return on assets, operating return on assets, Tobin's Q, return on equity, Tobin's Q estimation and earnings per share. Risk, leverage and dividend policy are measured by Altman z-score, debt to assets ratio and dividends to earnings ratio respectively.

Hypotheses development

Corporate disclosure practices and firm performance

Healy and Palepu (1993) discussed the importance of transparency and disclosure of information and mentioned that higher level of transparency increases shareholders' confidence and trust. Indeed, companies' information availability is a critical issue for investors as it reduces information asymmetry between managers and shareholders and also reduces shareholders' monitoring costs that results in cost of capital reduction and the company is evaluated higher by the market (Kowalewski *et al*, 2008; Cheung *et al*, 2010). Hence, this research expects companies with higher level of corporate disclosure practices measured by MTDI tend to have a higher level of performance.

As such, the first hypothesis of the study is described as follows:

Hypothesis 1: Corporate disclosure practices has a significant positive effect on the performance of Malaysian publicly listed companies.

Corporate disclosure practices and bankruptcy risk

To develop the hypothesis based on the effect of corporate disclosure practices on bankruptcy risk, we adapted Lee and Yeh (2004) where they documented that weak governance practices can reduce investors' confidence (Haque et al, 2009) and cause higher financial distress as well as increase the probability of bankruptcy. Hence, it is expected that companies with a higher level of disclosure and transparency as one of the corporate governance practices have lower probability of bankruptcy. The second hypothesis is developed as follows:

Hypothesis 2: Corporate disclosure practices has a significant negative effect on the bankruptcy risk of Malaysian publicly listed companies.

Corporate disclosure practices and leverage

On the basis of the agency theory, agency costs are lower in companies with higher level of corporate governance practices as it creates investors' confidence. Investors would most likely invest in the company comfortably, as such, the company is financed by a higher level of equity in comparison with those that have lower corporate governance practices and lower disclosure and transparency. Moreover, companies with weak corporate disclosure practices prefer to use debt to finance their projects in order to retain control rights and absolute ownership (Haque et al, 2009). Hence, we expected a negative relationship between disclosure of corporate governance practices and leverage and the following hypothesis is developed.

Hypothesis 3: Corporate disclosure practices has a significant negative effect on the leverage of Malaysian publicly listed companies.

Corporate disclosure practices and dividend policy

According to Kowalewski et al (2008), by increasing the amount of dividend payout, the company's free cash flow is reduced, which leads to the reduction of agency costs. They confirmed that higher level of corporate governance practices with greater transparency and disclosure would result in higher dividend payouts. Hence, it is expected that corporate disclosure practices have a positive effect on dividend payouts and the fourth hypothesis is as follows:

Hypothesis 4: Corporate disclosure practices has a significant positive effect on the dividend payout of publicly listed companies in Bursa Malaysia.

ANALYSES AND DISCUSSIONS

This research uses 95 Malaysian listed companies which were chosen randomly from the main board of Bursa Malaysia. About 1 per cent of samples are from the plantation sector, 2 per cent from telecommunications sector, 3 per cent from construction sector, 6 per cent from technology, 12 per cent from properties, 19 per cent from consumer, 24 per cent from industrial and 30 per cent of companies in this research are from trading/services sector.

Table 1 shows the average scores of each item of the MTDI. The results indicate companies had disclosed all information related to years that directors were in office, directors' code of conduct and policy, directors and managers' shareholding and also the composition of each board committees. Information on the companies' main officers' biography, directors' biography,

Table 1: Average scores of modified transparency disclosure sub-indices

Indicator of the index	Average score
Modified Transparency Disclosure Index, Board Sub Index	*6.65*
Years in office of present directors	1
Code of conduct for directors	1
Manager and director fees	0.55
Form of manager and director fee payment (cash, stock, stock options)	0.68
Information on whether manager and director fees are performance-based	0.65
Shareholdings of managers and directors	1
Composition of the different board committees	1
Details on activities of the different board committees	0.76
Modified Transparency Disclosure Index, Disclosure Sub Index	*7.11*
Bio of main company officer	1
Bio of directors	1
Calendar of future effects	0.01
English-translated corporate Website	1
Financial indicator for last 5 years	0.81
Strategic plan and projection for following years	0.69
Publication of board meeting resolutions	0.07
Publication of shareholder meeting resolution	1
Details of appointment process of new directors	0.52
Report of external auditor	1
Modified Transparency Disclosure Index, Shareholding Sub Index	*3.30*
Details of corporate ownership	1
Type and amount of outstanding shares	1
Dividend policy in last 5 years	0.58
Projected dividend for the following year	0.72

external auditor's report and resolution of shareholders meeting were fully disclosed. Moreover, all of the selected companies have an English corporate Website. Furthermore, they had published details of corporate ownership and disclosed outstanding shares amount as well as the types of shares.

Table 2 reports the descriptive statistics of variables. In the 15.7 per cent of the samples, the CEO is also the chairperson. Board size of these companies is between 5 and 15, the mean for board members is 7.86.

RESULTS

As companies were fully in compliance with practices in items 1, 2, 6 and 7 of board, items 1, 2, 4, 8 and 10 of disclosure, and items 1 and 2 of shareholding sub-index, these items do not have any variance and they are removed from the analysis part. Moreover, because of the same reason as the variance of item 3 of disclosure sub-index is too small (0.01), it is also removed from the model to avoid generating singular matrix.

In contrast to reflective constructs as to which items are interchangeable, items of formative construct are not expected to be highly correlated. High correlation between formative items can cause methodological and interpretational problems. Hence, multi-collinearity between items of formative construct is examined to assess formative measurement models (Falk and Miller, 1992; Hair *et al*, 2013). Multi-collinearity issue increases the

Table 2: Descriptive statistics of variables

	Minimum	Maximum	Mean	Standard Deviation
Independent variables				
Total scores for MTDI.Board	5.10	8.00	6.65	0.70
Total scores for MTDI.Disclosure	5.40	8.80	7.12	0.66
Total scores for MTDI.Shareholding	2.00	4.00	3.31	0.74
Total scores for MTDI	13.20	20.80	17.08	1.48
Control variables				
Duality	0.00	1.00	0.16	0.37
Board size	5.00	15.00	7.86	2.16
Assets size	9.91	18.53	13.16	1.40
Investment	0.00	0.15	0.03	0.03
Dependent variables				
Return on assets	−0.41	0.31	0.06	0.09
Operating return on assets	−0.42	0.90	0.07	0.13
Tobin's Q	0.07	3.61	0.70	0.72
Return on equity	−1.86	0.48	0.07	0.32
Tobin's Q estimation	0.36	4.29	1.07	0.72
Earnings per share	−100.88	261.50	17.34	37.52
Altman *z*-score	−1.16	6.43	2.07	1.21
Leverage	0.00	0.91	0.43	0.23
Dividend to earnings ratio	−32.96	11.86	−0.16	4.32

Notes: N refers the number of samples of this research. MTDI.Board refers Board sub index of Modified Transparency Disclosure Index. MTDI.Disclosure refers Disclosure sub index of Modified Transparency Disclosure Index. MTDI.Shareholding refers Shareholding sub index of Modified Transparency Disclosure Index. MTDI refers Modified Transparency Disclosure Index. Duality is 1 when chairman is the CEO; otherwise, it is 0. Board Size is measured by number of directors on the board. Assets Size is measured by natural logarithm of total assets of companies. Investment is capital expenditure of the company to its total assets. Return on Assets is measured by earnings before interest and taxes scaled by total assets. Operating Return on Assets is measured by dividing operating profit by the book value of total assets. Tobin's Q is market value of a firm's asset divided by the book value of its assets. Return on Equity is the ratio of earnings before interest and taxes to total equity. Tobin's Q estimation is the ratio of sum of market value of equity and book value of total debt to book value of total assets. Earnings per Share is the ratio of net income minus preferred dividends to number of common shares outstanding. Altman *z*-score formula is 3.3 ★ (EBIT/Total assets) +0.99 ★ (Net sales /Total assets)+0.6 ★ (Market value of equity/Total liabilities)+1.2 ★ (Working capital/Total assets)+1.4 ★ (Retained earnings /Total assets). Leverage is measured by dividing total liability by total assets. Dividend to Earnings ratio is measured by dividing company's cash dividends to its total earnings.

standard errors that negatively affect the stability of item coefficients (Chatterjee and Yilmaz, 1992) and as a result the ability to indicate the weights are significantly different from zero reduces. Owing to the multi-collinearity issue, the weights may be estimated incorrectly and their signs may be reversed. Therefore, low correlation between items of formative constructs, convergent validity and reliability of construct cannot be assessed through the conventional methods (Hair *et al*, 2013). Bagozzi (1994, p. 333) stated that 'the best we can do […] is to examine how well the index relates to measures of other variables'.

Table 3: Checking multi-collinearity between the formative indicators

MTDI component	Number of indicators	Range of inter-item correlations	Average inter-item correlation	Maximum VIF
Board	4	0.194–0.587	0.284	1.569
Disclosure	4	0.012–0.280	0.119	1.122
Shareholding	2	0.251–0.251	0.251	1

Table 4: Path coefficient estimates of first to second order of the index

	Estimate	Standard error	t-value	Percentile at 95 per cent confidence intervals
MTDI dimensions ($R^2 = 0.98$)				
Board	0.50	0.17	2.90**	[0.22; 0.78]
Disclosure	0.46	0.09	5.18***	[0.31; 0.61]
Shareholding	0.35	0.16	2.23*	[0.09; 0.61]

Note: $t(0.05, 1999) = 1.646$, $t(0.01, 1999) = 2.328$, $t(0.001, 1999) = 3.094$; *, **, and *** indicate statistical significance at the 0.05, 0.01 and 0.001 levels respectively; Typically the R^2 of formative second-order construct roughly equals 1 as it is fully explained by its sub-constructs.

To examine collinearity of items we assess correlation and variance inflation factor (VIF). Myers (1990) suggested that VIF greater than 10 can be a sign of multi-collinearity. Menard (1995) and Hair *et al* (2011) were more conservative and indicated VIF greater than 5 is worthy of concern (Field, 2013). The results of inter-item correlations of MTDI as the formative construct and the maximum VIF are shown in Table 3 and as shown, maximum VIF for all items does not exceed more than 1.

In order to cope with higher order of formative index as well as to provide robust solutions to small sample size, this research uses PLS method (Chin and Newsted, 1999; Henseler *et al*, 2011) by following Becker *et al* (2012) repeated indicator approach from their guideline on hierarchical latent variable models in PLS path modeling.

The repeated indicator approach analysis has two steps. For the first step, the higher-order model is specified and by using PLS modeling, formative construct score is estimated in the second order model by considering all variables. For the second step, the high order construct is replaced by its latent variable score to be treated as an observed variable in the model. Then, path coefficients are tested with PLS algorithm. Moreover, in the second step, weights and parameter significance are calculated by bootstrapping resampling method with 2000 replications (Chin, 1998). All of the analyses will be implemented by Smart PLS 2.0.M3 (Ringle *et al*, 2005).

PLS path modeling is a statistical analysis that combines regression analysis and components-based structural equations modeling (Abdi, 2010; Henseler *et al*, 2011). PLS estimates parameters by simultaneously modeling the structural and measurement paths. The advantage of using PLS is its possibility to analyze models with formative constructs and to cope with small sample size (Wixom and Watson, 2001; Tenenhaus *et al*, 2005; Henseler *et al*, 2011).

In the first step of the repeated indicator method, a second-order latent variable can be formed by specifying a latent construct representing all items of the first-order latent variable (Becker *et al*, 2012). Here, as the second-order construct has three underlying first-order

Table 5: Path coefficient estimates of index on dependent variables

	R^2	Estimate	Standard error	t-value	Percentile at 95 per cent confidence intervals
Return on assets	0.08	0.50	0.24	2.11★	[0.10; 0.90]
Operating return on assets	0.12	0.43	0.24	1.79★	[0.04; 0.82]
Tobin's Q	0.19	0.76	0.27	2.78★★	[0.31; 1.21]
Return on equity	0.05	0.10	0.14	0.69[ns]	[−0.13; 0.33]
Tobin's Q estimation	0.22	0.73	0.27	2.71★★	[0.29; 1.17]
Earnings per share	0.15	0.42	0.23	1.81★	[0.04; 0.79]
Dividend to earnings ratio	0.17	−0.36	0.32	1.11[ns]	[−0.89; 0.17]
Altman z-score	0.09	0.20	0.28	0.70[ns]	[−0.27; 0.66]
Leverage	0.13	−0.38	0.10	1.65★	[−0.54; −0.22]

Note: $t(0.05, 1999) = 1.646$, $t(0.01, 1999) = 2.328$, $t(0.001, 1999) = 3.094$; [ns] indicates not significant (based on $t(1999)$, one-tailed test); ★, ★★ and ★★★ indicate statistical significance at the 0.05, 0.01 and 0.001 levels respectively.

construct, it should be specified by using all items of the three underlying first-order latent variables. It means that the second-order construct consists of 10 items. In repeated method, although the model is formative-formative, the second-order construct is specified reflective and roughly all of the variance of the second-order construct is explained by the first-order constructs (Wetzels *et al*, 2009; Becker *et al*, 2012; Ringle *et al*, 2012).

Table 4 shows the path coefficient estimates, standard error, *t*-statistics, and 95 per cent confidence intervals from the repeated indicator method by applying a bootstrapping method with 2000 replications and as shown, all sub-indices were significant at 95 per cent confidence level.

Next, in order to address the possible endogeneity issue in this research, we follow the Wooldridge's (2002) two-step approach. First, the possibly endogenous variable, MTDI, is regressed on all control variables and an exogenous instrument. Second, the research dependent variables are regressed on all control variables and fitted value for MTDI, obtained from the first stage. Path coefficients of this step are true estimation of the model parameters and significant path coefficients indicate MTDI is an endogenous variable in the model (Antonakis *et al*, 2010). Similar to the Black *et al* (2006) research, we use an asset size dummy variable as

the exogenous instrument (defined to equal 1 if the market value of total assets is greater than RM 650 million; and 0 otherwise). Table 5 shows the results of the hypotheses testing in the second step of our PLS analysis when after replacing the second-order construct by its latent variable score the path coefficients and R^2 of dependent variables were examined by addressing endogeneity issue and path modeling algorithm and *t*-statistics and 95 per cent confidence intervals of path coefficients were assessed by applying a bootstrapping procedure with 2000 replications.

The findings show that transparency and disclosure practices that is measured by MTDI, has a significant positive effect on company performance measured by return on assets, operating return on assets, Tobin's Q, Tobin's Q estimation and earnings per share and hence, the first hypothesis is supported. Moreover, as it is shown, this research does not detect any significant effect of MTDI on Altman z-score as a proxy to measure bankruptcy risk, which means the second hypothesis is not supported at 95 per cent confidence level. Furthermore, the third hypothesis is supported as the results show MTDI has a significant negative effect on leverage. However, this research could not find any significant relationship between MTDI and dividends payout ratio and the null hypothesis of the fourth hypothesis is not rejected.

Implications of the findings and recommendations

The positive effect of corporate disclosure practices on company performance shows that disclosing more information by companies leads to higher company performance. This finding is the indication of market positive signal to companies with higher level of disclosure. Indeed, companies that disclose more information to the public are decreasing information asymmetry between insiders and outsiders that subsequently, results in monitoring and capital costs reduction (Cheung *et al*, 2010). Higher level of disclosure and transparency improves management accountability and firm value. Investors are more likely to evaluate performance of these companies higher and this increases investment interest and the company performance. Although this research could not detect any significant relationship between corporate disclosure practices and Altman z-score, we do not claim that corporate disclosure does not affect bankruptcy risk. It is because first, we only failed to reject the null hypothesis that can be because of the research small sample size and lack of statistical power. Second, we measured bankruptcy risk by using only Altman z-score that is reliant on the quality of the underlying financial statement information. Besides, while Altman z-score is not suitable for many industries, it should not be the only factor used to evaluate a company's financial health as it does not capture all aspects of factors influencing corporate solvency (Warren, 2009; Bhunia *et al*, 2011). The negative significant effect of company transparency level on company leverage found in this research is because of investors' preference and interest in investing in companies with higher level of disclosure. Besides, companies with lower level of disclosure tend to have more debt in their capital structure to retain control rights and absolute ownership (Haque *et al*, 2009).

This research could not find any significant relationship between MTDI and dividends to earnings ratio. We explain this finding by considering the likelihood that companies with lower level of disclosure may pay dividends as high as companies with high level of disclosure to compensate their lack of transparency and reduce market pressure and cost of capital.

Overall, Malaysian listed companies can improve their financial performance and increase investor confidence and interest by following the best corporate governance practices and disclosing more information on their corporate governance practices.

CONCLUSION

This research enhanced TDI by employing PLS path modeling and a second order formative construct index to examine the effect of corporate disclosure practices on company performance, bankruptcy risk, leverage and dividends payout ratio. Disclosure and transparency has documented significant positive effects on company performance. It means firms with higher level of corporate disclosure practices have higher performance. Moreover, the negative effect of transparency level on leverage is indicative that companies with lower level of transparency use more debt in their capital structure. The findings confirm the importance for Malaysian listed companies to adhere to the best practices recommended by MCCG 2012. However, this research could not find any significant relationship between corporate disclosure level with dividends payout ratio and bankruptcy risk. The main limitation of this study is relying mainly on annual reports. Other sources of information such as press conferences, analysts' meetings and so forth. were excluded. This could be an opportunity for future studies. In addition, future research can be conducted during different periods especially during economic crisis as the role of corporate governance can be more salient during economic downturn (Francis *et al*, 2012). Moreover, research on firms with family and concentrated ownership can be a topic for future studies as family ownership firms may be less concerned with disclosure and transparency.

NOTES

1 For example, Malaysian Code on Corporate Governance 2000, Singapore Code of Corporate Governance 2001, Thailand Code for Best Practice for Directors of Listed Companies 2002, Bangladesh Code of Corporate Governance 2004, Hong Kong Corporate Governance Code 2004.

2 For example, Enron Corporation, Tyco International and WorldCom.

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