Risk Management Disclosure: A study on the effect of voluntary risk management disclosure toward firm value

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Risk management disclosure

A study on the effect of voluntary risk management disclosure toward firm value

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Abstract

Purpose – The purpose of this paper is to examine the effect of voluntary risk management disclosure (VRMD) on firm value (FV).

Design/methodology/approach – This study uses content analysis approach to collect the VRMD data. FV is represented by three variables: market capitalization, Tobin's Q and market to book value of equity ratio. Based on a sample of 395 firms listed on the main market of Bursa Malaysia in 2011, this study uses multivariate statistical tests to examine the association between VRMD and FV.

Findings – Based on the regression analysis, this study found that the VRMD has a positive and significant relationship with FV. Even though the authors hypothesize that damaging voluntary risk management disclosure (DVRMD) will have a negative and significant relationship with FV, the regression analysis shows that the DVRMD is not significantly related to FV. As expected, the relationship between beneficial voluntary risk management disclosure (BVRMD) and FV is positive and significant. The findings provide evidence that should be of interest especially to firms in terms of deciding upon whether to provide or avoid disclosing voluntary risk management information to their stakeholders.

Research limitations/implications – Notwithstanding the critical empirical findings, this study is limited to only focusing on a one year data. The authors acknowledge the fact that findings from a one year data might not be easily generalized to other time periods. The authors believe a stronger argument could be obtained from evidence based on a longitudinal study or data that incorporate multiple economic conditions. The study highlights the fact that risks management information is important to investors in Malaysia when they make their investments decisions.

Practical implications – To date, regulatory bodies emphasize more on financial risk management disclosure through the enforcement of MFRS 7; while non-financial risk information is less emphasized in current guidelines such as Malaysian Code on Corporate Governance (MCCG) (2012) and Recommended Practice Guide 5 (Revised), which only requires firms to disclose information about non-financial risk management without specific details. As this study has provided evidence on the significance of non-financial risk management disclosures in the capital market, this study could be useful for the regulatory bodies to develop more detailed guidelines on non-financial risk management disclosure in the future.

Originality/value – Most of prior literatures are found to focus on the study of factors that influence the VRMD (such as Linsley and Shrives, 2006; Abraham and Cox, 2007; Hassan *et al.*, 2009; Ismail and Abdul Rahman, 2011). Studies about the effects of voluntary risk management information disclosure is however very scant. Miihkinen (2013) studied the effects of risk management disclosure on information asymmetry. This paper adds to Miihkinen (2013) by investigating the relationship between VRMD and FV. This paper is expected to be the first to investigate on the empirical usefulness of VRMD in a developing country.

Keywords Voluntary disclosure, Risk management, Risk management disclosure, Voluntary risk management disclosure

Paper type Research paper

1. Introduction

Business environment is increasingly volatile and uncertain due to many factors. Studies found non-financial risks are the leading factors contributing to the volatility and uncertainties in today's business environment (Ernst and Young (EY), 2010, 2011, 2013, 2014; Gjerald and Lyngstad, 2015). For example, many unexpected events that happened in a business environment were not always directly linked to financial issues. These events include tragedies such as natural disasters, wars, changes in regulation, instability in politics, changes in global consumer demand and many more, which subsequently affect the survival and sustainability of firms. However, information on non-financial risk management are given less emphasis and therefore less disclosure compared to the disclosure of financial risk management information (Lajili and Zeghal, 2005). The lack of non-financial risk information may mislead investors in their investment decision-making process. According to Cabedo and Tirado (2004), investors make their investment or disinvestment decisions by evaluating both the returns associated to a determined investment project and its risk level. If investors fail to identify actual key risk factors of firms, investors could not assess actual risk level of those firms. This would subsequently lead investors to make wrong investment decision which could end up in a huge loss or disaster to the investors.

Hence, scholars and regulators view non-financial risk management information could be the key to achieve high-quality corporate reporting (Institute of Chartered Accountants in England and Wales (ICAEW), 1999a, b; Canadian Institute of Chartered Accountants (CICA), 2009; Beattie et al., 2004; Amir and Lev, 1996). Prior studies discovered that investors agree the existence of more risk management disclosure would help them in their portfolio investment decisions (Solomon et al., 2000, 2011) which in turn could lead to a reduction in the risk of investing in the reporting firm (Orens and Lybaerts, 2007). As such, investors have requested firms to make improvements in reporting on risk management information especially non-financial risk information as it is still voluntary and a discretionary disclosure in many countries (Financial Reporting Council (FRC), 2011). However, FRC (2011) found that many firms still refuse to increase the disclosure of risk management information. These firms claim that such information would normally be commercially sensitive information that could jeopardize their business and economic condition (FRC, 2011). It is still unclear whether such wariness with regards to the negative impact of more risk management information disclosure among firms is valid. Hence, the controversy between investors and firms regarding voluntary risk management disclosure (VRMD) motivates the aim of this study, which is to examine the effects of non-financial risk disclosure towards firm value (FV).

Suijs (2007) argued that firms would not have an incentive to report sensitive information if they are not sure about the reaction of investors when they disclose the information. The issue on the usefulness of voluntary risk management information is vital to be investigated since even prior research regarding the association between voluntary disclosure and FV are still showing mixed results (such as Al-Akra and Ali, 2012; Uyar and Kilic, 2012; Hassan et al., 2009; Bokpin, 2013; Qiu et al., 2014). Furthermore the results were ambiguous to be generalized in the context of VRMD. Miihkinen (2013) found that non-financial risk management disclosure could reduce information asymmetry and low information asymmetry would normally found to be associated with higher FV (Gordon et al., 2010). However, in the case of risk management disclosure, many firms would believe that disclosing more risks information to stakeholders might actually jeopardize their

value (FRC, 2011). In the case where such assumption is not established, there is therefore a need to conduct an empirical study to investigate the effect of VRMD towards FV.

This study is imperative to be carried out to understand better the situation in an emerging economy such as Malaysia. In the case of Miihkinen (2013) study, the institutional reporting setting in Finland with regards to risk management disclosure is different from Malaysia. Finnish risk reporting environment is far richer than developing countries such as Malaysia since Finnish Accounting Practice Board has issued detailed non-financial risk disclosure guideline (Miihkinen (2013). Several other developed countries such as the UK, Germany and Canada are also found to have published guidelines for non-financial risk disclosure. Even though the guidelines have been criticized for the lack of clarity and uniformity (i.e. differences between countries) (Miihkinen, 2013; Lajili and Zeghal, 2005; Kajuter, 2001), studies found that, the existence of a guideline (be it mandatory or not) is a powerful driver to increase risk management disclosure among firms (Lajili and Zeghal, 2005; Kajuter, 2001).

Malaysia provides an interesting institutional setting to examine the effects of non-financial risk management disclosure on FV owing to the highly voluntary condition on the issue of risk management disclosure. Regulations in Malaysia only require firms to disclose general information about risk management framework and internal control. FRC (2011) suggested that, general information about firm's risk management framework is not enough for investors to evaluate firm's risk level. Investors want more specific information about the key risks faced by firms and how these key risks are being managed by the firms (FRC, 2011). As such, this study aims to examine whether the "specific" non-financial risk information disclosure really has any effects on FV in a developing country such as Malaysia.

Section 2 discusses institutional background in Malaysia regarding risk management disclosure. The Section 3 discusses relevant literature related to voluntary risks management disclosure and FV. Section 4 will discuss the theory utilized in this study and the hypothesis development. Section 5 and 6 will present methodology adopted in this study. Section 7 will present and discuss findings of this study. Finally Section 8 will conclude this paper.

2. Institutional background

Listed firms on Bursa Malaysia are required to comply with the Malaysian Financial Reporting Standards (MFRS) which are adopted from International Financial Reporting Standards. Listed firms are also required to comply with Bursa Malaysia listing requirements as well as the Securities Commission's rules and regulations. To date, only the financial risk management information is required to be disclosed through among others, the enforcement of MFRS 7 Financial Instruments: Disclosure. This accounting standard provides specific guidance on what and how to disclose financial risk management information in firms' financial statements.

However, there is still no specific guideline that proposes what and how to disclose non-financial risk management information in firms' annual report. Paragraph 15.26(b) of the Bursa Malaysia listing requirements requires listed firms to include a statement about the state of risk management framework and internal control Statement on Risk Management and Internal Control (SORMIC) in firms' annual report. In March 2012, the Securities Commission issued the Malaysian Code on Corporate Governance 2012 (MCCG, 2012) which among others discusses the roles of the board of directors in managing risks. Recommendation 6.1 in the MCCG (2012) specifies that, the board

should disclose the main features of the firm's risk management framework and internal controls system in the SORMIC in firms' annual report. It is however the firm's discretion to disclose or not to disclose more specific non-financial risks management information in annual reports.

3. Literature review
3.1 Voluntary disclosure and FV
The Efficient Market Hypothesis generally suggests that a firm's value should reflect all available information reported to the public (Ohlson, 1995). Firms may have incentives to disclose more information voluntarily to increase confidence of stakeholders, particularly investors, on the performance and prospects of firm (Core, 2001). Prior studies have empirically demonstrated that voluntary disclosure positively influenced FV (Amir and Lev, 1996; Al-Akra and Ali, 2012; Uyar and Kilic, 2012; Oliveira et al., 2010; Anam et al., 2011; Vafaei et al., 2011). Amir and Lev (1996) found that when financial information is combined with non-financial information, they demonstrate a positive relationship with FV among US firms. This suggests that non-financial information which is generally voluntary in nature is relevant to investors and complements financial information.

Prior studies also provide evidence that intellectual capital disclosure has a positive and significant effect on FV (Abdolmohammadi, 2005; Orens et al., 2009; Vafaei et al., 2011; Anam et al., 2011). Similar result was found by Gamerschlag (2012) for human capital disclosure. Al-Akra and Ali (2012) examined the effects of more than 80 items of voluntary disclosure on the value of Jordanian's firms. Voluntary disclosure in their study includes firm background information, information about directors, capital market data, product and service information, employee information, and research information. Al-Akra and Ali (2012) found that the voluntary disclosure has a positive and significant relationship with FV. Uyar and Kilic (2012) investigated the effects of 96 items of information voluntarily disclosed by 129 Turkish firms and found the disclosure to be positively associated with FV. In addition, Uyar and Kilic (2012) suggested that voluntary disclosure is important for emerging markets since they need capital to finance high growth. Consistent with Uyar and Kilic (2012), Iatridis (2013) also pointed out that the voluntary disclosure of environmental information has positive and significant impact on share price in Malaysian capital market.

Several other studies, however, claimed otherwise. Hassan et al. (2009), for example, indicated that voluntary disclosure has significant negative impact on FV in Egyptian capital market. Bokpin (2013) also documented that voluntary disclosure has no significant effects either on the market to book value of equity ratio (MTBR) or stock price in Ghana stock market. Wang et al. (2013) pointed out the same result in Chinese capital market. The result is also supported by recent study from Qiu et al. (2014). Qiu et al. (2014) hypothesized that the environmental and social disclosure will show positive association with FV because communication of the information is believed to be able to give competitive advantages to the firm. This, in turn, will improve FV. Yet, the result of their multivariate test show only social information disclosure has a significant and positive impact on FV. Their environmental information is found to have no significant effects on FV. In the context of risk management disclosure, Miihkinen (2013) found the risk management disclosure to have negative relationship with information asymmetry. Lower information asymmetry would normally found to be associated with higher FV (Gordon et al., 2010). However, FRC (2011) found

firms tend to believe the risk management disclosure may negatively affect FV. Given the continuously lack of established stand in the findings, the association between voluntary disclosure and FV remains an empirical issue that needs to be investigated.

4. Hypothesis development

In recent years, the use of signalling theory to describe a behaviour effect when two parties have access to different information has gained momentum (Connelly *et al.*, 2011). One party, the sender, is assumed to choose how to communicate (or signal) information; and the other party, the receiver, is assumed to choose how to interpret the signal (Connelly *et al.*, 2011). Thus, many prior studies have utilized the signalling theory to explain why firms disclose voluntary information to stakeholders (Sheu *et al.*, 2010; Anam *et al.*, 2011; Uyar and Kilic, 2012). Anam *et al.* (2011) suggested that a firm which has good value as a result of value creation of its capital and resources will try to signal this fact by disclosing more information in the annual reports to its stakeholders. Similarly, Uyar and Kilic (2012) advocated that firms make voluntary disclosure to signal good news to investors. High-performing firms are also reported to have incentives to disclose more information to investors to signal that the firm has better performance than rival firms (Wallace and Naser, 1995; Mavlanova *et al.*, 2012). The disclosure practice could also be explained based on agency theory which posits that managers tend to disclose voluntary information to signal better corporate governance mechanisms and fewer agency conflicts, thereby leading to higher FV (Sheu *et al.*, 2010). This may give benefits to the managers in terms of gaining higher rewards (Healy and Palepu, 2001).

Based on signalling and agency theories, we argue that firms have an incentive to voluntarily disclose more information to investors regarding risk management in order to signal its underlying risk management quality to other parties and to signal that the firms are able to protect and create value for the investors (ICAEW, 1999a, b; Beasley *et al.*, 2005; Connelly *et al.*, 2011). It is assumed that without providing information, stakeholders would not be able to know how firms have fulfilled their risk management accountability and stewardship (ICAEW, 1999a, b). For instance, MCCG (2012, p. 11) states that, "The board must understand the principal risks of all aspects of the company's business and recognize that business decisions involve the taking of appropriate risks". Being an external party to firms, investors lack information on the knowledge of whether the board actually understands the principal risks that are faced by the firms. Thus, providing risk management information to outsiders may help the board to signal their clear understanding about the firm's risk and hence, increase investors' confidence on the prospect and performance of the firm.

Prior studies argued that disclosure of financial information alone is not sufficient to describe the prospect and performance of a firm to increase investor's confidence to invest money in the firm (Beattie *et al.*, 2004). The increasing complexity of business strategies, operations and regulations make it somewhat difficult for investors to appreciate financial information on its own without clear, accompanying explanations (Beretta and Bozzolan, 2004). Therefore, we argue that firms which disclose non-financial risk management information provide a better quality of disclosure and consequently are able to attract more investors and increase FV. ICAEW (1999a, b) also suggested that, firms may be able to obtain benefits from the enhanced risk management disclosure such as in reducing firms' cost of capital. Based on signalling model, Connelly *et al.* (2011) asserted that receiver of information (stakeholder) may

give their feedback upon receiving information from signaller (firms). Thus, the
statement from ICAEW (1999a, b) implies the possibility of firms to get positive
feedback from investors when they disclose risk management information.

Even though there are studies that argue on the potential harmful effect of VRMD
on FV (FRC, 2011; Dobler, 2008), in the case of Malaysia, we contend that investors in
Malaysia would appreciate the non-financial risk management information because of
their bad experience during recession in 1997-1998 and later the global crisis in 2007
and 2008. After the 1997-1998 recession, investors began to realize that they were not
given enough information about risk management and they failed to obtain "accurate
signal" about the prospect and performance of firms (Rahman, 1998).Therefore, we
anticipate that firms which disclose in-depth risk management information will be
able to reduce investor's uncertainties about the performance and prospects of firms
(Deumes and Knechel, 2008; Linsmeier *et al.*, 2002) and hence may increase the FV.
Therefore, we proposed our first hypothesis as follows:

H1. VRMD has a positive relationship with FV.

Prior literatures (Linsley and Shrives, 2006; Beretta and Bozzolan, 2004; Cabedo and
Tirado, 2004; Solomon *et al.*, 2000) suggested that VRMD could assist investors to be
clearer about firms' potential risks and potential prospects when they want to
rationalize on their investments decision making. If firms could disclose clearly the
difference between beneficial and damaging voluntary risk management information, it
is expected that investors would be able to come up with a much better decision making
related to the firms' risk management issue. Linsley and Shrives (2006) found that firms
have inclination to disclose more beneficial (good news) than damaging (bad news)
information regarding risk management. Linsley and Shrives (2006) implicitly stated
that, disclosing good news may give advantages to firms in terms of creating positive
image and building good relationships with external parties. This, in turn, may
increase FV. Verrecchia (1983) asserted that firms are inclined to disclose more good
news to signal their positive attributes to investors and to show that they are better
than other firms in the market for the purpose of attracting investments and enhancing
a favourable reputation.

An empirical study by Ajinkya and Gift (1984) found that, a "good news" forecast is
associated with an upward price revision. Rikhardsson and Holm (2008) showed that
stock returns react positively to good environmental news. Similarly, Milgrom (1981)
suggested that the disclosure of good news about a firm's prospects should always
result in a rise of firms' share price. Dontoh (1989) implied that, firms disclose good
news to influence investors while disclose bad news to avoid competitors from entering
the market. Bokpin (2013) documented that firms prefer to disclose good news than bad
news to the stock market to avoid undervaluation of their shares. Nonetheless, firms
still disclose bad news for some reasons, such as to avoid litigation costs. Skinner (1994)
argued that firms have incentives to preempt the announcement of large negative
earnings surprises to reduce the potential costs of shareholder suits. Based on
attribution theory, Linsley and Shrives (2006) explained firms have incentives to
disclose bad news in a more positive manner so that blame is transferred from
themselves onto uncontrollable events. However, prior empirical studies such as
Ajinkya and Gift (1984) and Rikhardsson and Holm (2008) found disclosing bad news
give negative effects to the firm, where Ajinkya and Gift (1984) found that disclosing
bad news is associated with a downward price revision; and Rikhardsson and Holm
(2008) found that stock returns react negatively to negative environmental news.

Given the advantages of disclosing beneficial information, and disadvantages of disclosing damaging information, we separate our second hypothesis to become two as follows:

H2a. Beneficial voluntary risk management disclosure (BVRMD) has a positive and significant relationship with FV.

H2b. Damaging voluntary risk management disclosure (DVRMD) has a negative and significant relationship with FV.

5. Methodology
5.1 Sample selection
The hypotheses in this study are tested using a sample of 395 non-financial firms listed on the Main Market of Bursa Malaysia in 2011. We exclude financial firms as they are risk management entities and can be expected to make significantly different types of risk disclosure (Linsley and Shrives, 2006). The reason why we use one year data instead of longitudinal basis is because prior literatures (such as Abraham and Shrives, 2014; Miihkinen, 2013; Zaini, 2014) found that VRMD is not significantly different between years. Based on the content analysis done by Abraham and Shrives (2014), they found risk management disclosure remain unchanged over time, indicating disclosure inertia. Miihkinen (2013) also found the same pattern of risk disclosures from 2006 until 2009. Even though the disclosure slightly increased, *t*-test analysis shows the increase is not significant. In Malaysian perspective, Zaini (2014) provided evidence that Malaysian firms also provide insignificant increase voluntary disclosure pattern from 2006 to 2010. Zaini (2014) suggested that voluntary disclosure policy in Malaysia has no change in a short duration (most particularly a duration of five years). Therefore, to some extent, we believe that focusing on one year data may provide contribution in terms of larger sample size. Table I lists the sample firms by industry classifications.

6. Measurement of variables and data collection methods
6.1 Dependent variable: FV
This study utilizes three measurements for FV, that is, market capitalization (MCAP); Tobin's *Q* (TOBIN) and MTBR. Several prior studies used share price to measure the value of a firm (including Chakhovich, 2013; Vafaei *et al.*, 2011; Oliveira *et al.*, 2010; Core *et al.*, 2002). However, MCAP has been argued to be more accurate in measuring FV. The reason is, MCAP takes into account the market value of a firm as a whole, while share price only measures the value of a firm based only on the price of one share (Uyar and Kilic, 2012; Anam *et al.*, 2011). We calculate MCAP by multiplying firm's outstanding shares with firm's market price per share.

Industry type	Number of firms
Construction	23
Consumer products	67
Industrial products	126
Plantations	20
Properties	44
Trade/services	91
Other industries	24
Total	395

Table I.
Sample

Prior studies also used Tobin's Q (TOBIN) as another measurement for FV (Chen *et al.*, 2014; Chi, 2009). TOBIN measures the ratio of market value and the replacement value of a firm's assets. A lower ratio value (between 0 and 1) means that the cost to replace the firm's assets is greater than the value of its shares. This means that the firm's shares are undervalued. On the other hand, the ratio greater than 1 indicates that the firm's shares are more expensive than the replacement cost of assets, implying that the shares is overvalued. Tobin's Q is measured based on the market value of equity plus the book value of liabilities, divided by the book value of total assets (Pathan and Faff, 2013; Orens *et al.*, 2009; Chi, 2009; Baek *et al.*, 2004). In addition, MTBR may also indicate whether the firm's market value is over or undervalued compared to the book value of its equity. Prior studies, such as Al-Akra and Ali (2012) and Hassan *et al.* (2009) used the natural logarithm of MTBR as a measure of FV. This study measures market value of equity by multiplying the number of outstanding shares with the share price at financial year end as well as six months after the financial year end (Al-Akra and Ali, 2012; Hassan *et al.*, 2009).

Hassan *et al.* (2009) stated that firm's share price six months after the financial year end could ensure that the price has captured all accounting information revealed in firm's annual reports. We utilized the two dates in order to ensure that the FV capture accounting information revealed in firms' annual reports as well as economic factors that might influence firms' share prices. At the same time, the six months after year end date is based on the requirement of Bursa Malaysia that requires every listed firm to submit an annual report within six months from the last day of the accounting or financial year end (Bursa Malaysia, 2012). Additionally the interval of six months can also be a period where all economic events would have been incorporated into the firm's share price and hence assumed to be reflected within the FV (Momani and Alsharari, 2012; London Stock Exchange (LSE), 2015). In the case of our data, the period of six months after year end of 2011 did not involve any critical economic events such as changes in world oil prices (US Energy Information Administration (US EIA), 2013). Furthermore, prior studies found that among many macroeconomic factors, changes in world oil prices is one factor that does not significantly affect changes in firms' share prices (Apergis and Miller, 2009; Al-Fayoumi, 2009). As such we assumed that firm's share price six months after year end has already taken into consideration all economic changes that occur during that time period and would provide a fair reflection of FV. With regards to the book value of equity, it is taken at the end of the accounting year. Share price data are derived from DataStream database while other financial data are derived from financial statements in firm's annual report.

6.2 Independent variable of interest: VRMD
Similar to Linsley and Shrives (2006), we used content analysis method to collect the data of VRMD. Data was collected from three sections of the narrative parts of the Annual Report, namely, Chairman's Statement (CS), Operations Review (OR) and Management Discussion and Analysis (MD&A). We choose these three sections because a prior study by Azlan *et al.* (2009) found that Malaysian firms usually disclose voluntary or non-financial risk management information in these three sections. Findings from studies in other countries also confirm this situation (such as Abraham and Cox, 2007; Linsley and Shrives, 2006; Beretta and Bozzolan, 2004). We exclude "notes to the accounts" section because prior studies (Abraham and Cox, 2007; Dunne *et al.*, 2004) found that this section mainly contains financial risk management information which is mandated by accounting standard, while our focus is mainly on

non-financial risk management information. We also exclude information in the document of SORMIC since firms are required to disclose only general information about risk management framework in the SORMIC document (Malaysian Code of Corporate Governance-MCCG 2012). Whereas, FRC (2011) found that investors sought more meaningful risk management reporting that links reporting on risk management to discussion of strategy and the business model which are usually discussed in the three sections (CS, OR and MD&A sections) (Beattie *et al.*, 2004). We do not deny the possibility of a "sentence" might be disclosing a mandatory requirement which is essentially a voluntary item. However, since prior studies (Abraham and Cox, 2007; Dunne *et al.*, 2004) found the main content of "notes to the accounts" section are financial risk information, we presume if there is any additional item disclosed in that section, it would only be relevant to financial risk management information and not non-financial risk management information.

This study uses the number of "sentences" for the text encoding unit. Past studies (such as Abraham and Cox, 2007; Linsley and Shrives, 2006; Azlan *et al.*, 2009) also used the number of "sentences" as the coding unit in their studies. It is believed that utilizing the number of "sentences" to measure unit is more reliable than other units of analysis (Milne and Adler, 1999). This study adopts the encoding procedure by Linsley and Shrives (2006), in which they proposed that risk management information can be categorized into five types including "operations risk", "strategic risk", "empowerment risk", "integrity risk", and "information processing and technology risk".

In addition, FRC (2011) proposed that the evaluation of risk management information can become more obvious by further in-depth analysis based on availability of a comprehensive set of information provided by reporting firms. For example, risk management information that proposed an action to overcome a current problem would be better than just information on the existence of the current problem. Due to this situation, a score will also be given to "sentences" that specify future action to mitigate a problem faced by firms within their risks management information. Hence scoring units will involve unit "sentences" reporting risks condition faced by firms plus unit "sentences" reporting actions taken to mitigate such problems differentiated by category. Finally the risk management information will be separated into "beneficial" risk management and "damaging" risk management information. As such the procedure to encode VRMD will involve three steps as follows:

Step 1 is to identify sentences that contain VRMD:

(1) A sentence is to be coded as VRMD if:

Example

(a) The sentence explains about key risk faced by the firm (FRC, 2011; Linsley and Shrives, 2006)

"We faced stiff competition in the government tender business which led to lower bid prices and reduced margin" (1 mark)
(CCM Duopharma Biotech Berhad – Annual
Report 2011. Chief Executive Officer's Operations Review, p. 11)

(continued)

Example	
(b) Or, the sentence explains how the key risks were being mitigated (FRC, 2011)	"The firm mitigated the issue by improving the margin through cost management and initiatives in manufacturing efficiencies" (1 mark) (CCM Duopharma Biotech Berhad – Annual Report 2011. Chief Executive Officer's Operations Review, p. 11)

- Linsley and Shrives (2006) suggest, sentences are to be coded as risk disclosure if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the firm or may impact upon the firm in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure.

(2) One (1) mark is to be given to each sentence that contains VRMD.

(3) Tables (whether having quantitative or qualitative data) that provide risk management information should be interpreted as one line equals to one sentence (Linsley and Shrives, 2006).

(4) Any disclosure that is repeated shall be recorded as a VRMD sentence by itself each time it is discussed (Linsley and Shrives, 2006).

(5) If a disclosure is too vague in its reference to risk, then it shall not be recorded as a risk disclosure (Linsley and Shrives, 2006)

Step 2 is to classify each sentence which is coded as VRMD into five risk categories:

(1) The VRMD shall be classified according to the grid listed in Table II.

(2) If a sentence has more than one possible classification, the information is to be classified into the category that is most emphasized within the sentence (Linsley and Shrives, 2006).

Step 3 is to determine each sentence which is coded as VRMD whether it being "beneficial" or "damaging" information:

(1) Risk management disclosure is classified as "beneficial" if it discusses information about opportunities or prospects which have or may have a positive impact on firms (Linsley and Shrives, 2006). Information on how key risks were being mitigated is also categorized as beneficial information because the purpose of a firm to manage risks is to protect and create value for the investor (Beasley *et al.*, 2005).

(2) Risk management disclosure is classified as "damaging" if it discusses information about threats or hazards which have or may have a negative impact on the firm (Linsley and Shrives, 2006).

Table III, panel A, presents examples of how BVRMD encoding was being done in this study; whereas Table III, panel B, presents examples of how DVRMD encoding was being done. One weakness of content analysis is that it is inevitably subjective (Linsley and Shrives, 2006) to the person making the code. Abraham and Cox (2007) suggested that this criticism can be overcome by adopting validation procedures which is to have

Risk category	Risk factors
Operations risk	Customer satisfaction
	Product development
	Efficiency and performance
	Sourcing
	Stock obsolescence and shrinkage
	Product and service failure
	Environmental
	Health and safety
	Brand name erosion
Strategic risk	Environmental scan
	Industry
	Business portfolio
	Competitors
	Pricing
	Valuation
	Planning
	Life cycle
	Performance measurement
	Regulatory
	Sovereign and political
Empowerment risk	Leadership and management
	Outsourcing
	Performance incentives
	Change readiness
	Communications
Integrity risk	Management and employee fraud
	Illegal acts
	Reputation
Information processing and technology risk	Integrity
	Access
	Availability
	Infrastructure

Source: Based on Linsley and Shrives (2006)

more than one person read and code the written document. To increase objectivity, prior to the commencement of the content analysis, two coders encoded the same annual report and an inter-coder reliability analysis using the κ-statistics was performed to determine the reliability and consistency among coders. The inter-coder reliability and consistency for the coders was found to be $\kappa = 0.762$ ($p < 0.001$). According to Landis and Koch (1977), values of κ at higher than 0.7 should reflect a suitable level of agreement among coders.

6.3 Control variables
Based on previous studies, control variables used in this study include firm size, leverage, profit, growth and industry (Uyar and Kilic, 2012; Anam *et al.*, 2011; Al-Akra and Ali, 2012; Hassan *et al.*, 2009; Orens *et al.*, 2009). Past studies control firm size because large firms often disclose more information to investors (Gul and Leung, 2004; Eng and Mak, 2003) and this facilitates large-sized firms to get investment. Therefore large firms tend to have a much higher value than small firms (Al-Akra and Ali, 2012;

Panel A: Examples of beneficial voluntary risk management disclosure encoding

Risk category	Example of beneficial risk	Annual report location	Justification
1. Operational risk	However, to a certain extent, Malaysia benefited from the situations in Japan and Thailand as the disruption in the supply chain had caused the shortfall to be channeled to the component manufacturers located here	Tomei Consolidated Berhad (2011); Chairman's Statement; p. 12	Risk factors: efficiency and performance; environmental In 2011, Japan was struck by tsunami while Thailand hit by massive flood. Both disasters had caused disruption in the supply chain as both are among the biggest manufacturing countries in the world. Nonetheless, the disasters create opportunities to other manufacturing companies in other countries like Malaysia to increase production in order to fill the shortage in the supply chain
2. Strategic risk	Global spending on medicines is projected to hit US$1.1 trillion (RM3.07 trillion) by 2015, and this is an indication of the vast potential opportunities that awaits the firm	CCM Duopharma Biotech Bhd. (2011); Chairman's Statement; p. 7	Risk factor: industry Increase in global spending on medicines may create good business prospect in the pharmaceutical industry
3. Empowerment risk	To face this challenge, we have intensified our driver recruitment efforts as well as offering competitive remuneration package for our drivers	KBES Berhad (2011); Chairman's Statement; p. 8	Risk factor: incentive On page 8 of the Annual Report, the firm claimed that they are facing problem in recruiting new drivers as there is a shortage of drivers in the labour market. Hence, the new remuneration package can be considered as a good incentive to attract trained bus drivers in the future
4. Integrity risk	WCT Berhad was named the Top 15 firms in Malaysia Investor Relations Awards under the medium capitalization category	WCT Berhad (2011); Chairman's Statement; p. 21	Risk factor: reputation Winning an award may raise the firm's image, reputation and prospect
5. Technology and information processing risk	Pelikan group established several online portals for internal and external communication with our stakeholders to maintain constant dialogue and flow of information	Pelikan International Corporation Berhad (2011); Group Operations Review; p. 34	Risk factor: information accessibility Online portals may improve information accessibility and hence may create opportunity to the firm to build good relationship with stakeholders

(continued)

Table III.
Examples of
Voluntary Risk
Management
Disclosure Encoding

Table III.

Panel B: Examples of damaging voluntary risk management disclosure encoding

Risk category	Example of damaging risk	Annual report location	Justification
1. Operational risk	Higher labour costs were incurred by our group to retain our plantation workers and this has consequently impacted our CPO production cost	Hap Seng Plantations Holdings Bhd. (2011); Chairman's Statement; p. 18	Risk factor: efficiency and performance The higher production cost may negatively affect the efficiency and performance of the firm's operations
2. Strategic risk	Financial conditions have deteriorated, growth prospects have dimmed, and downside risks have escalated	HeiTechPadu Berhad (2011); Review of Operations; p. 94	Risk factor: environmental scan The firm may be exposed to the damaging strategic risk due to the negative changes in business environment
3. Empowerment risk	[...] the management has outsourced its entire oil palm plantation and mill operation to a reliable operator to achieve less time, less human effort, higher operation efficiencies and a highly flexible organization structure	Malpac Holdings Berhad (2011); Chairman's Statement; p. 10	Risk factor: outsourcing Although the sentence describes the benefits of outsourcing, in reality, the firm was experiencing problems with its appointed operator. Malpac Holdings took legal action against the appointed operator (see Malpac Holdings Berhad's Annual Report (2011: p. 10). Due to pending litigation with the operator, Malpac Holdings faced another problem as described on page 11 as follows: "Due to the ongoing legal disputes between the Group and the appointed operator, the Group was stuck operationally especially in improvement of the existing operations, replanting of old palms, and did not have full access to production record to analyse and review the plantation operation key performance indicators in year 2011" Based on the information, stakeholders are informed that the outsourcing strategy has negative impact on Malpac Holdings. Thus, the outsourcing strategy is anticipated to cause damaging risk in the future

| 4. Integrity risk | The firm is currently bogged down by a few litigation cases and dispute with the minority shareholder which affected its operations | Taliworks Corporation Berhad (2011); Executive Director's review of operations; p. 22 | Risk factor: reputation The litigation cases may harm the integrity and reputation of the firm |
| 5. Technology and information processing risk | Many will be aware from the announcements by the Firm that this year was marred by the recent discovery of financial irregularities that have cast severe doubts on the accuracy and reliability of the financial reporting of the Group, and which have led to some of the Firm's subsidiaries defaulting in their respective loan repayments and the Firm being classified as an affected listed issuer under Practice Note 17 of the Main Market Listing Requirements of Bursa Malaysia Securities Berhad | Silver Bird Group Berhad (2011); Chairman's Statement; p. 4 | Risk factor: integrity of information "[…] severe doubts on the accuracy and reliability of the financial reporting […]" this information informed stakeholders about damaging risk concerning integrity and reliability of information disclosed in annual report |

Table III.

Hassan *et al.*, 2009). Prior literature also found that leverage usually has a negative and significant relationship with FV because leverage serves as a proxy for financial risk (Orens *et al.*, 2009; Klein *et al.*, 2005; Chen *et al.*, 2006). In terms of profits, previous studies found profit usually have positive and significant relationship with FV because firms with high profits tend to have high performance and prospects, as well as being less risky (Orens *et al.*, 2009; Chen *et al.*, 2006). In the case of growth, firms with higher growth would indicate that they have good prospects in the future (Hassan *et al.*, 2009; Al-Akra and Ali, 2012). Hence, a positive relationship between growth and FV is expected. The industry type is controlled because firms which operate in different industries are anticipated to experience different exposure to risk (Azlan *et al.*, 2009). We have included lagged dependent variable to reduce the problem of omitted variable bias (Hoque *et al.*, 2013; Linck *et al.*, 2009).

6.4 Multivariate model

In order to test our hypotheses, we utilized a multivariate model as shown below. Based on our previous arguments and prior studies, our main multivariate model, which is to test for *H1* is as follows:

$$FV_{it} = \beta_{0i} + \beta_1 FV_{i,t-1} + \beta_2 VRMD_{it} + \beta_3 LnSIZE_{it} + \beta_4 LEV_{it} + \beta_5 PROFIT2011_{it}$$
$$+ \beta_6 PROFIT2010_{it} + \beta_7 GROWTH_{it} + \beta_8 CONS_{it} + \beta_9 TRADESER_{it} + \beta_{10} PROP_{it}$$
$$+ \beta_{11} PLANT_{it} + \beta_{12} CONPROD_{it} + \beta_{13} INDPROD_{it} + \beta_{14} OTHER_{it} + \varepsilon$$

where FV is the Firm value (proxy by market capitalization (MCAP), Tobin's Q (TOBIN) and market to book value ratio (MTBR)); VRMD the Voluntary risk management disclosure; LnSIZE the Natural logarithm of total assets (Uyar and Kilic, 2012; Chen *et al.*, 2014); LEV the Total liability/total assets (Uyar and Kilic, 2012; Baek *et al.*, 2004); PROFIT the Net profit (Uyar and Kilic, 2012; Anam *et al.*, 2011; Orens *et al.*, 2009); GROWTH the Current sales/previous year's sales (Uyar and Kilic, 2012); CONS the Construction sector; TRADESER the Trading or services sector; PROP the Property sector; PLANT the Plantation sector; CONPROD the Consumer product sector; INDPROD the Industrial product sector; OTHER the Other sectors; i the Firm indicator; t the Year indicator; ε the Error term.

In addition, to test our *H2a* and *H2b*, we break down the VRMD variable in our main model into beneficial VRMD (BVRMD) and damaging VRMD (DVRMD) as follows:

$$FV_{it} = \beta_{0i} + \beta_1 FV_{i,t-1} + \beta_2 BVRMD_{it} + \beta_3 DVRMD_{it} + \beta_4 LnSIZE_{it} + \beta_5 LEV_{it}$$
$$+ \beta_6 PROFIT2011_{it} + \beta_7 PROFIT2010_{it} + \beta_8 GROWTH_{it} + \beta_9 CONS_{it}$$
$$+ \beta_{10} TRADESER_{it} + \beta_{11} PROP_{it} + \beta_{12} PLANT_{it} + \beta_{13} CONPROD_{it}$$
$$+ \beta_{14} INDPROD_{it} + \beta_{15} OTHER_{it} + \varepsilon$$

where all variables are as defined in the main model except: BVRMD is the Beneficial voluntary risk management disclosure; DVRMD the Damaging voluntary risk management disclosure. When FV is proxy by market to book value ratio (MTBR), variables of firm size, leverage and profit will be replaced with variables as follow: LnSIZEa the Natural logarithm of (total assets/total equity) (Hassan *et al.*, 2009); LEVa the Total liability/total equity (Hassan *et al.*, 2009); PROFITa the Net profit/total equity (Hassan *et al.*, 2009).

7. Results and findings discussion

7.1 Descriptive statistics

7.1.1 FV. Table IV, panel A, shows descriptive statistics for the FV variables. It shows the average market capitalization (MCAP) increased from 2010 to 2011 (2010: RM1,239 Mil; 2011: RM1,378 Mil). The average value of Tobin's Q and MTBR also indicate good performance (average value > 1). An average value of above 1 means the firm's market value exceeds the book value of assets owned by the firm. Based on kurtosis and skewness of MCAP, TOBIN and MTBR, we found that data of these variables are not normal. Thus, similar to prior studies (such as Uyar and Kilic, 2012; Hassan *et al.*, 2009 and Al-Akra and Ali, 2012), we transformed the MCAP, TOBIN and MTBR variables to natural logarithm (Ln). Descriptive statistics for the transformed data is shown in Table IV, panel B.

7.1.2 VRMD. Figure 1 presents the level of VRMD by category for our sample of 395 listed firms. It shows that the highest level of disclosure falls under the "operational risk" and followed by "strategic risk". This finding is consistent with Azlan *et al.* (2009), suggesting that the trend in disclosing risks management information among listed firms in Malaysia tends to be similar even after several years. The least disclosed information was related to "technology and information processing risk", which is only at 94 sentences. This type of risk disclosure is not high because Malaysian firms may

Variables	Average	Median	SD	Skewness	Kurtosis	Minimum	Maximum
Panel A: Descriptive statistics for firm value variables before transformation							
MCAPYE	RM1,378 Mil	RM129 Mil	RM6,892 Mil	11.191	156.071	RM0.412 Mil	RM10,860 Mil
MCAP6M	RM1,373 Mil	RM126 Mil	RM6,168 Mil	8.895	96.475	RM0.220 Mil	RM83,400 Mil
MCAPYE$_{t-1}$	RM1,239 Mil	RM126 Mil	RM4,721 Mil	6.658	49.425	RM1.763 Mil	RM44,160 Mil
MCAP6M$_{t-1}$	RM1,314 Mil	RM126 Mil	RM5,145 Mil	7.014	57.517	RM1.763 Mil	RM56,720 Mil
TOBINYE	1.01	0.819	0.827	5.938	48.172	0.251	9.818
TOBIN6M	1.04	0.816	0.9	6.145	51.732	0.231	10.926
TOBINYE$_{t-1}$	1.093	0.87	0.934	6.283	53.445	0.373	11.224
TOBIN6M$_{t-1}$	1.11	0.859	0.997	6.23	53.938	0.284	12.199
MTBRYE	1.1	0.658	2.304	10.171	120.78	0.056	33.015
MTBR6M	1.145	0.66	2.53	10.397	127.041	0.007	37.036
MTBRYE$_{t-1}$	1.217	0.733	2.06	8.904	104.312	0.062	29.645
MTBR6M$_{t-1}$	1.251	0.743	2.214	8.579	95.182	0.062	30.765
Panel B: Descriptive statistics for firm value variables after transformation							
LnMCAPYE	18.883	18.67	1.729	0.797	1.254	12.93	25.41
LnMCAP6M	18.888	18.65	1.767	0.679	1.372	12.3	25.15
LnMCAPYE$_{t-1}$	18.935	18.65	1.728	0.798	0.716	14.38	24.51
LnMCAP6M$_{t-1}$	18.93	18.65	1.747	0.827	0.728	14.38	24.76
LnTOBINYE	−0.133	−0.2	0.468	1.359	4.215	−1.38	2.28
LnTOBIN6M	−0.118	−0.2	0.483	1.391	4.131	−1.46	2.39
LnTOBINYE$_{t-1}$	−0.061	−0.14	0.478	1.404	3.892	−0.99	2.42
LnTOBIN6M$_{t-1}$	−0.06	−0.15	0.501	1.337	3.567	−1.26	2.5
LnMTBRYE	−0.333	−0.42	0.765	0.936	2.997	−2.89	3.5
LnMTBR6M	−0.328	−0.42	0.825	0.409	4.386	−4.97	3.61
LnMTBRYE$_{t-1}$	−0.202	−0.31	0.787	0.632	1.981	−2.79	3.39
LnMTBR6M$_{t-1}$	−0.207	−0.3	0.815	0.668	1.844	−2.79	3.43

Notes: $n = 395$. MCAP, Market capitalization; TOBIN, Tobin's Q; MTBR, Market to book value of equity ratio; YE, Year end; 6M, six months after year end; Mil, Million

Table IV.
Descriptive statistics
for firm value
variables

not have extensive international networking system yet to warrant existence of such risks and may also be due to the government policy of still controlling networking of business entities inside the country (Malaysian Communications and Multimedia Commission, 2015). The total VRMD is about 11,152 sentences for the 395 sample firms. The highest level of disclosure in "operational risks" should be expected since such risks information would show firms' effort to maintain business operating survival and sustainability (Beasley *et al.*, 2005). The "strategic risks" disclosure is also high and this could be due to several reasons. Generally it would be the firms' management team that decides upon the kind of information to be disclosed in annual reports. The disclosure of strategic risks could be due to the management intention to assist firms in attracting potential capital providers; or to show to stakeholders how they manage firms' SWOT analysis in order to secure their remunerations and obtain higher annual bonus (Healy and Palepu, 2001). The same arguments can also apply to the reporting of high "operating risks" information.

Figure 2 presents the disclosure level of beneficial and damaging risk management information. It shows that sample firms tend to disclose more beneficial information rather than damaging information. This finding confirms the finding obtained by Linsley and Shrives (2006), where UK firms have inclination to disclose more beneficial than damaging risk information. More disclosure on good news compared to bad news
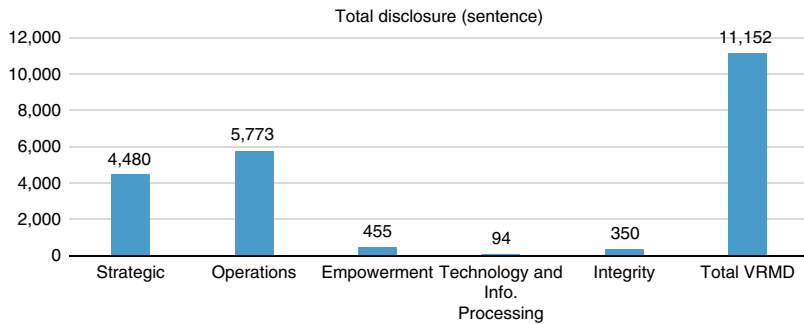
Figure 1.
Levels of VRMD
by category

Note: *n*=395
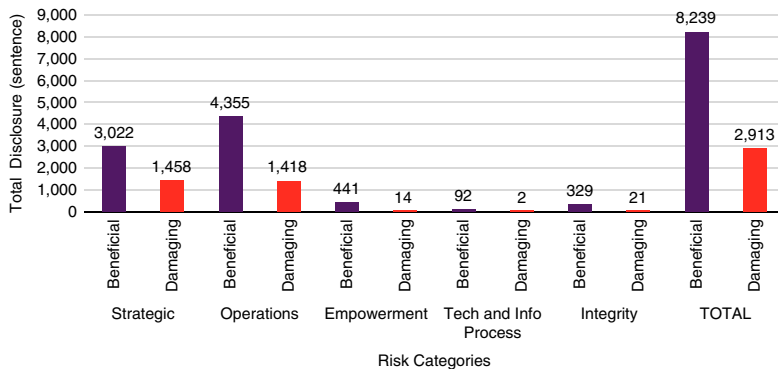
Figure 2.
Levels of beneficial
and damaging
voluntary risk
management
disclosure

Note: *n*=395

is also expected as found in many prior studies (Bokpin, 2013; Rikhardsson and Holm, 2008). Managers would tend to disclose more good news to avoid being blamed for any mishaps in firms (Healy and Palepu, 2001). At the same time, managers might want to show their potential in managing firms, i.e. the case of maintaining reputation. Similarly managers might want to ensure that their remunerations are secured in the future.

7.1.3 Other independent variables. Table V shows descriptive statistics for firm size, leverage, profitability and growth. In terms of firm size, on average, sample firms are found to have RM1,432 Mil of total assets. Average level of leverage was 0.4 which indicate that firms had moderate level of financial risk. Mean level of profitability was decreased in 2011 (RM71 Mil) compared to the profit in 2010 (RM82 Mil). Table V shows that average level of growth is 1.146 which indicates that on average firms obtain better sales in 2011 compared to previous year (in 2010).

7.2 Univariate analysis
Table VI, panel A, shows the result of Pearson correlation test for VRMD, LnMCAP and LnTOBIN. The result shows that VRMD, LnSIZE and PROFIT are positive and significantly correlated with both LnMCAP and LnTOBIN. Table VI, panel B, shows that VRMD and PROFIT have a positive and significant correlation with LnMTBR while LnSIZEa, LnLEVa and GROWTH are not significantly correlated to LnMTBR. The same trend of correlation is found in Tables VI, panels C and D.

Apart from testing the univariate correlation, Pearson Correlation test may also identify multicollinearity between independent variables. Table VI, panels A and C, shows that there is no multicollinearity between independent variables since almost all variables have correlations at below 0.9 (Gujarati and Porter, 2009). However, Table VI, panels B and D, shows that variable LnSIZEa is correlated with variable LnLEVa ($r > 0.9$). Multicollinearity can be solved either by dropping one of the variables or performing a separate analysis (Tabachnick and Fidell, 2001). Therefore, this study addresses multicollinearity by performing separate analysis. Analysis that uses LnMTBR as a proxy of FV is broken down into LnMTBR1 that includes only control variable LnSIZEa while LnMTBR2 that includes only control variable LnLEVa. To ensure that the analysis does not suffer from multicollinearity, we calculated Variance Inflation Factor and tolerance for all independent variables and found none of them indicates a problem of multicollinearity.

7.3 Multivariate analysis and discussion
Table VII, panel A, shows the results of multiple regression analysis to test the effects of VRMD on FV. It shows that VRMD is positive and significantly associated with FV

Variables		Mean	Median	SD	Min.	Max.
Firms size	SIZE	RM1,432 Mil	RM328 Mil	RM4,360 Mil	RM3.8 Mil	RM41,428 Mil
Leverage	LEV	0.400	0.399	0.196	0.010	1.467
Profitability	PROFIT2010	RM82 Mil	RM11 Mil	RM291 Mil	-RM225 Mil	RM2,594 Mil
	PROFIT2011	RM71 Mil	RM12 Mil	RM342 Mil	-RM2,521 Mil	RM3,462 Mil
Growth	GROWTH	1.146	1.069	0.485	0.000	4.844
Note: $n = 395$						

Table V.
Descriptive statistics
for other
independent
variables

Panel A: Pearson correlation analysis for VRMD, market capitalization and Tobin's Q

	LnMCAP	LnMCAP$_{t-1}$	LnTOBIN	LnTOBIN$_{t-1}$	VRMD	LnSIZE	GROWTH	LEV	PROFIT2011
LnMCAP									
LnMCAP$_{t-1}$	−0.038								
LnTOBIN	0.586**	0.035							
LnTOBIN$_{t-1}$	−0.007	0.556**	0.022						
VRMD	0.549**	0.049	0.298**	−0.042					
LnSIZE	0.877**	−0.076	0.251**	−0.031	0.533*				
GROWTH	0.104*	−0.004	0.098	−0.061	0.048	0.073			
LEV	0.021	−0.036	0.188**	−0.064	0.101*	0.245**	0.014		
PROFIT2011	0.679**	−0.002	0.378**	−0.055	0.381**	0.581**	0.256**	−0.096	
PROFIT2010	0.754**	−0.013	0.387**	0.012	0.454**	0.689**	0.100*	−0.030	0.799**

Panel B: Pearson correlation analysis for VRMD and market to book value of equity

	LnMTBR	LnMTBR$_{t-1}$	VRMD	LnSIZEa	LnLEVa	GROWTH	PROFIT2011a
LnMTBR							
LnMTBR$_{t-1}$	−0.001						
VRMD	0.301**	−0.091					
LnSIZEa	0.064	−0.043	0.117*				

Table VI.
Pearson correlations

(*continued*)

	LnMCAP	LnMCAP$_{t-1}$	LnTOBIN	LnTOBIN$_{t-1}$	BVRMD	DVRMD	LnSIZE	GROWTH	LEV	PROFIT2011
LnLEVa	0.038	−0.041		0.106*	0.920**				0.646**	
GROWTH	0.096	0.010	0.048		−0.005	0.029				
PROFIT2011a	0.342**	0.023	0.180**		−0.185**		−0.140**	0.387**	0.128*	
PROFIT2010a	0.367**	0.021	0.288**		−0.152**		−0.119*	0.128*	0.100*	

Panel C: Pearson correlation analysis for beneficial & damaging VRMD, market capitalization and Tobin's Q

	LnMCAP	LnMCAP$_{t-1}$	LnTOBIN	LnTOBIN$_{t-1}$	BVRMD	DVRMD	LnSIZE	GROWTH	LEV	PROFIT2011
LnMCAP										
LnMCAP$_{t-1}$	−0.038									
LnTOBIN	0.586**	0.035								
LnTOBIN$_{t-1}$	−0.026	0.577**	0.005							
BVRMD	0.558**	0.063	0.308**	−0.055						
DVRMD	0.216**	−0.006	0.077	0.012	0.351**					
LnSIZE	0.877**	−0.076	0.251**	−0.046	0.538**	0.242**				
LEV	0.021	−0.036	0.188**	−0.062	0.105*	0.062	0.245**			
GROWTH	0.104*	−0.004	0.098	−0.050	0.130**	−0.231**	0.073		0.014	
PROFIT2011	0.679**	−0.002	0.378**	−0.067	0.421**	0.011	0.581**	−0.096	0.256**	
PROFIT2010	0.754**	−0.013	0.387**	0.003	0.461**	0.176**	0.689**	−0.030	0.100*	0.799**

Table VI.

Table VI.

Panel D: Pearson correlation analysis for beneficial & damaging VRMD and market to book value of equity

	LnMTBR	LnMTBR$_{t-1}$	BVRMD	DVRMD	LnSIZEa	LnLEVa	GROWTH	PROFIT2011a
LnMTBR								
LnMTBR$_{t-1}$	−0.001							
BVRMD	0.310**	−0.092						
DVRMD	0.083	−0.034	0.351**					
LnSIZEa	0.064	−0.043	0.114*	0.098				
LnLEVa	0.038	−0.041	0.114*	0.055	0.920**			
GROWTH	0.096	0.010	0.130**	−0.231**	−0.005	0.029		
PROFIT2011a	0.342**	0.023	0.246**	−0.138**	−0.185**	−0.140**	0.387**	
PROFIT2010a	0.367**	0.021	0.299**	0.097	−0.152**	−0.119*	0.128*	0.646**

Notes: $n=395$. LnMCAP, Log of market capitalization; LnTOBIN, Log of TOBIN's Q; LnMTBR, Log of market to book value of equity ratio; VRMD, Voluntary risk management disclosure; BVRMD, Beneficial voluntary risk management disclosure; DVRMD, Damaging voluntary risk management disclosure; LnSIZE/LnSIZEa, Firm size; LEV/LnLEVa, Leverage; GROWTH, Current sales/previous year's sales; PROFIT/PROFITa, Profitability (net profit). *, **Significant at 0.05 and 0.01 (two-tailed), respectively

Variables	LnTOBIN (YE)	LnTOBIN (6M)	LnMCAP (YE)	LnMCAP (6M)
Panel A: Multiple regression analysis to test relationship between VRMD and firm value (Tobin's Q and market capitalization)				
Constants	0.9451	1.0432	1.8894	2.2992
	(1.6759)*	(1.9208)*	(1.6722)*	(2.0138)**
LnTOBIN(YE)$_{t-1}$	0.0373	–	–	–
	(0.9556)			
LnTOBIN(6M)$_{t-1}$	–	0.0344	–	–
		(0.8565)		
LnMCAP(YE)$_{t-1}$	–	–	0.0016	–
			(0.0708)	
LnMCAP(6M)$_{t-1}$	–	–	–	−0.0053
				(−0.2404)
VRMD	0.0044	0.004	0.0069	0.0064
	(3.1500)***	(2.7278)***	(3.1338)***	(2.8685)***
LnSIZE	−0.0684	−0.0742	0.8784	0.8558
	(−2.6086)***	(−2.9325)***	(18.8687)***	(17.9435)***
LEV	0.6584	0.6378	−1.2355	−1.2807
	(5.19793)***	(4.9443)***	(−4.7552)***	(−4.7763)***
PROFIT2011	0.0000	0.0000	0.0000	0.0000
	(4.0859)***	(4.9002)***	(3.6379)***	(4.3298)***
PROFIT2010	0.0000	0.0000	0.0000	0.0000
	(3.2443)***	(3.3211)***	(2.9606)***	(3.1749)***
GROWTH	0.0851	0.1242	0.1334	0.2818
	(1.0188)	(1.7130)*	(0.9293)	(1.9269)*
CONS	−0.4376	−0.4474	−0.6888	−0.6766
	(−1.8853)*	(−1.8861)*	(−2.0147)**	(−1.9399)*
TRADESER	−0.3351	−0.3181	−0.4568	−0.3977
	(−1.4708)	(−1.3656)	(−1.4098)	(−1.2035)
PROP	−0.5216	−0.5241	−0.7159	−0.6953
	(−2.3099)**	(−2.2763)**	(−2.2295)**	(−2.1332)**
PLANT	−0.3544	−0.3255	−0.441	−0.4079
	(−1.4662)	(−1.3042)	(−1.2541)	(−1.1232)
CONPROD	−0.233	−0.2215	−0.3326	−0.3068
	(−0.9989)	(−0.9294)	(−1.0073)	(−0.9104)
INDPROD	−0.3506	−0.395	−0.5485	−0.6235
	(−1.5452)	(−1.7097)*	(−1.7072)*	(−1.9082)*
Other industries	−0.1927	−0.1772	−0.2481	−0.1852
	(−0.7738)	(−0.7069)	(−0.6915)	(−0.5105)
Adjusted R^2	0.2611	0.2811	0.8446	0.8336
F-statistic	10.9467	12.0043	153.9323	141.9956
p-Value	0.0000	0.0000	0.0000	0.0000
Panel B: Multiple regression analysis to test between BVRMD, DVRMD and firm value (Tobin's Q and market capitalization)				
Constants	0.9359	1.0328	1.9086	2.3184
	(1.6541)*	(1.8927)*	(1.6762)*	(2.007)*
LnTOBIN(YE)$_{t-1}$	0.0382	–	–	–
	(0.9819)			
LnTOBIN(6M)$_{t-1}$	–	0.0354		

Table VII.
Multiple regression
results

Variables	LnTOBIN (YE)	LnTOBIN (6M)	LnMCAP (YE)	LnMCAP (6M)
		(0.8869)		
LnMCAP(YE)$_{t-1}$	–	–	0.0001 (0.0036)	–
LnMCAP(6M)$_{t-1}$	–	–	–	−0.0069 (−0.3123)
BVRMD	0.0059 (3.2359)***	0.0058 (2.9591)***	0.0093 (3.0471)***	0.0091 (2.7983)***
DVRMD	−0.0018 (−0.3755)	−0.0036 (−0.7161)	−0.0031 (−0.3805)	−0.0045 (−0.5323)
LnSIZE	−0.0664 (−2.4999)***	−0.0718 (−2.801)***	0.8812 (18.7355)***	0.8590 (17.8463)***
LEV	0.6497 (4.9831)***	0.6276 (4.6984)***	−1.2498 (−4.7174)***	−1.2960 (−4.7353)***
PROFIT2011	0.0000 (3.5825)***	0.0000 (4.2420)***	0.0000 (3.2623)***	0.0000 (3.8999)***
PROFIT2010	0.0000 (3.38211)***	0.0000 (3.4752)***	0.0000 (3.06791)***	0.0000 (3.2598)***
GROWTH	0.0569 (0.6814)	0.0896 (1.2875)	0.0883 (0.6171)	0.2322 (1.5754)
CONS	−0.4191 (−1.7682)*	−0.4258 (−1.7427)*	−0.6592 (−1.8536)**	−0.6451 (−1.7666)*
TRADESER	−0.3129 (−1.3460)	−0.2921 (−1.2172)	−0.4202 (−1.2430)	−0.3587 (−1.0321)
PROP	−0.5143 (−2.2418)**	−0.5160 (−2.1870)**	−0.7038 (−2.1253)**	−0.6829 (−2.0135)**
PLANT	−0.3233 (−1.2952)	−0.2871 (−1.1050)	−0.3915 (−1.0449)	−0.3535 (−0.9072)
CONPROD	−0.2038 (−0.8528)	−0.1860 (−0.7543)	−0.2844 (−0.8174)	−0.2545 (−0.7113)
INDPROD	−0.3179 (−1.3587)	−0.3555 (−1.4764)	−0.4960 (−1.4479)	−0.5667 (−1.6111)
Other industries	−0.1620 (−0.6349)	−0.1404 (−0.5421)	−0.1980 (−0.5240)	−0.1310 (−0.3404)
Adjusted R^2	0.2608	0.2828	0.8445	0.8337
F-statistic	10.2668	11.3563	143.6497	132.6394
p-Value	0.0000	0.0000	0.0000	0.0000

Notes: $n = 395$. LnTOBIN, Log of Tobin's Q; LnMCAP, Log of market capitalization; YE, Year end; 6M, After 6 months; VRMD, Voluntary risk management disclosure, BVRMD, Beneficial voluntary risk management disclosure; DVRMD, Damaging voluntary risk management disclosure; LnSIZE, Firm size; LEV, Leverage; GROWTH, Current sales/previous year's sales; PROFIT2011/PROFIT2010, Profitability (net profit); CONS, Construction sector; TRADESER, Trading and service sector; PROP, Property sector; PLANT, Plantation sector; CONPROD, Consumer product sector; INDPROD, Industrial product sector. No multicollinearity problem exist because VIF < 10; Tolerance > 0.1. *,**,***significant at $p < 0.1$, $p < 0.05$ and $p < 0.01$

Table VII.

in all FV variables both at the end of the accounting year and also at six months after ($p < 0.01$). Our findings suggest that VRMD is really important and would continuously provide signals needed by investors in making their investments decisions. If investors ignore VRMD information at any time, they might lose competitive advantage of their investments portfolio to other investors who are serious in considering the information. The significant positive relationship between VRMD and FV supports the claim

that investors require risk management information to help them make better investment decisions (ICAEW, 1999a, b; Beasley *et al.*, 2005; Connelly *et al.*, 2011). Risk management information disclosed by the firm should increase investors' confidence in the performance and prospects of the firms. This finding is consistent with Solomon *et al.* (2000) who found that nearly one-third of their institutional investors' respondents stated that they need risk-related information to improve their portfolio investment decision making.

Considering Malaysia as not having much risky environmental situation, for example due to having only one season throughout the year, it is interesting to see that investors in Malaysia are still serious in terms of utilizing risks management information for their quest to value firms. Similarly, in the absence of any serious issue on financial risks in Malaysia in 2011, i.e. the year of our study, it is interesting to see Malaysian investors do incorporate risks management information when they value firms for investment purposes. It could reflect a certain maturity on behalf of Malaysian investors with regards to their investments portfolio choice. Furthermore, the fact that our data consists of voluntary risks management information suggests that investors are serious about the need to see more voluntary information when they want to make their investments decision. Our preliminary findings seem to reject the assumption that risk management disclosure could have a negative impact on FV and support the argument that it could increase investor's certainties about the performance and prospects of firms (Deumes and Knechel, 2008; Linsmeier *et al.*, 2002).

We also run tests to examine the impact of both beneficial and damaging VRMD on FV. Table VII, panel B, shows that the BVRMD has a positive and significant relationship with FV ($p < 0.01$). This finding supports *H2a*. It supports the theory that firms would try to influence reaction of stakeholders by way of disclosure (Wallace and Naser, 1995; Mavlanova *et al.*, 2012). In other words, firms tend to disclose more beneficial risk management information to signal their good performance and prospect. Beneficial risk management information mainly involved information on firms' prospects, opportunities and mitigation of risks that would enhance FV. As such, the findings suggest that investors seriously appreciate such information especially for their investments decision making. For example in the case of operating activities in firms, beneficial risks management information would mean firms provide information that could reflect potential future performance of firms (Deumes and Knechel, 2008; Linsmeier *et al.*, 2002), hence increasing FV. Subsequently such information would be highly required by investors for their decision making (Milgrom, 1981). On the part of firms, such information would signal their high performance and confirm their responsibility and accountability towards capital providers' money. At the same time, firms would also want to show to investors and stakeholders that they are alert towards all prospects and opportunities available for them in the process of managing firms professionally. On the part of investors and stakeholders, our findings suggest that they do recognize the value of such information and hence incorporate the information in their decision-making process, supporting prior studies (Linsley and Shrives, 2006; Beretta and Bozzolan, 2004; Cabedo and Tirado, 2004; Solomon *et al.*, 2000).

With regards to the DVRMD, the multivariate analysis did not find any significant association between DVRMD and FV. Hence, this finding did not support *H2b* that proposed DVRMD to have a negative and significant association with FV. A possible explanation for this finding is probably even though investors were informed that a firm might be exposed to danger or threat (damaging risks), at the same time firms also informed that the damaging risks are being properly managed, hence controllable.

This argument is in line with Tessarolo *et al.* (2010) that found firms have incentive to create positive image by "neutralizing" negative information with positive information. For example, if a firm discloses their damaging risks information, such as increase in production costs was due to increase in labour and raw material costs, firms would also immediately disclose their effort by stating that they will improve profit margin in order to mitigate the problems. Such statements might provide investors and stakeholders with confidence in future firms' performance. At the same time, the fact that firms still disclose damaging risks management information (but at lower level than beneficial information) even though it might jeopardize firms' reputation could be because managers wanted to reduce potential future damage from lawsuits by stakeholders should the risks information leaks from other third parties (Skinner, 1994). Another possible explanation regarding damaging risks management is that managers could be disclosing bad news in a more positive manner as proposed by the attribution theory (Linsley and Shrives, 2006), hence investors see it as something not critical to consider.

In terms of control variables, Table VII, panels A and B, shows that firm size has a negative relationship with FV proxy by Tobin's Q but has a positive relationship with market capitalization. This is consistent with prior studies. Several studies found firm size positively related to FV (such as Uyar and Kilic, 2012; Anam *et al.*, 2011: Al-Akra and Ali, 2012; Hassan *et al.*, 2009) because large firms tend to disclose more voluntary information than small firms. Disclosing more information tends to increase investors' or lenders' confidence about the performance and prospects of the firms (Healy and Palepu, 2001; Mazumdar and Sengupta, 2005). Other studies found firm size is negatively associated with FV (including Orens *et al.*, 2009; Amran and Ahmad, 2009).

In addition, Table VII, panel A, shows that leverage has a positive relationship with FV proxy by Tobin's Q but negative relationship with market capitalization. According to Al-Akra and Ali (2012), the positive relationship between leverage and FV can be explained by agency theory where firms with high leverage will reduce agency costs through the disclosure of information. This, accordingly may reduce the information asymmetry between stakeholders and firm and thus increase the FV. Table VII, panels A and B, also shows that profitability has a positive and significant relationship with FV. This is consistent with prior studies such as Anam *et al.* (2011); Uyar and Kilic (2012); Al-Akra and Ali (2012); Hassan *et al.* (2009) and Orens *et al.* (2009). Similar to prior studies (Uyar and Kilic, 2012; Hassan *et al.*, 2009), we found no significant association between growth and FV. The findings on industry, being negatively associated with FV for several sectors is similar with prior studies such as Hassan *et al.* (2009).

8. Conclusion

This study examines the effect of VRMD on FV. The results of univariate and multivariate test show that VRMD and BVRMD tend to be positive and significantly associated with FV. Our findings support signalling theory on the argument that VRMD could influence FV and also support prior literature arguments on the importance of disclosing potential risks and prospects information that would provide appropriate signal and therefore could assist investors in making better decisions regarding their investments in firms (Linsley and Shrives, 2006; Beretta and Bozzolan, 2004; Cabedo and Tirado, 2004; Solomon *et al.*, 2000). Alternatively there could also be an explanation based on conflict of agency theory which argues that managers tend to disclose higher voluntary information for personal incentives, such as to influence their

compensation (Healy and Palepu, 2001) apart from to signal firms' risks and prospects. However such evidence related to VRMD is out of the scope of this study.

The expectation that DVRMD would negatively influence FV was not supported. The univariate test found a positive and significant relationship between DVRMD and FV. Nonetheless, even though there is tendency that in the multivariate analysis showed DVRMD to have a negative association with FV, as expected, however they were not significant. A possible explanation for this finding is that investors in Malaysia have more trust in the capital market system of the country whereby it is common knowledge that since many of the listed firms are owned by government linked entities, the expectation is that government is always around to provide financial assistance to firms facing dangers and high risks (Lau and Tong, 2008; Taufil-Mohd *et al.*, 2013). Otherwise managers in general would ensure that they disclose less negative risks information to cover potential negative effects from such information as proposed by Tessarolo *et al.* (2010). Additionally attribution theory proposed that managers could be disclosing bad news in a more positive manner (Linsley and Shrives, 2006) in order to reduce possible negative reaction from investors. Hence the possible reason why DVRMD negative association with FV was not significant.

Findings from this study are expected to have important implications to the regulatory bodies, firms, and investors. To date, regulatory bodies emphasize more on financial risk management disclosure through the enforcement of MFRS 7; while non-financial risk information is less emphasized in current guidelines such as Malaysian Code on Corporate Governance (MCCG) (2012) and Recommended Practice Guide 5 (Revised), which only requires firms to disclose information about non-financial risk management without specific details. As this study has provided evidence on the significance of non-financial risk management disclosures in the capital market, this study could be useful for the regulatory bodies to develop more detailed guidelines on non-financial risk management disclosure in the future.

Findings from this study would also provide evidence that might increase incentives for firms to voluntarily disclose more information about non-financial risk management since it could increase their FV. The findings also provide evidence to investors in terms of being more alert when making investment decisions involving firms' risks since risk management disclosure does tend to be positively associated with FV. Notwithstanding the critical empirical findings, this study is limited to only focusing on a one year data. We acknowledge the fact that findings from a one year data might not be easily generalized to other time periods. We believe a stronger argument could be obtained from evidence based on a longitudinal study or data that incorporate multiple economic conditions. Our study highlights the fact that risks management information is important to investors in Malaysia when they make their investments decisions. Such action would suggest a possibility of further maturity in terms of utilizing important information for decision making among investors in Malaysia, a reflection of an emerging capital market activities.

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Further reading

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Appendix

Variables	LnMTBR1 (YE)	LnMTBR1 (6M)	LnMTBR2 (YE)	LnMTBR2 (6M)
Panel A: Multiple regression analysis to test relationship between VRMD and market-to book value of equity ratio				
Constants	−0.3366	−0.4646	−0.1404	−0.3029
	(−0.9204)	(−1.2450)	(−0.3528)	(−0.7499)
LnMTBR(YE)$_{t-1}$	0.0177	–	0.0171	–
	(0.3704)		(0.3522)	
LnMTBR(6M)$_{t-1}$	–	−0.0031	–	−0.0039
		(−0.0626)		(−0.0763)
VRMD	0.0081	0.0075	0.0084	0.0078
	(3.9214)***	(3.5734)***	(4.0425)***	(3.7084)***
LnSIZEa	0.2507	0.2234	–	–
	(2.2170)**	(1.9280)*		
LnLEVa	–	–	0.0738	0.0580
			(1.7577)*	(1.3503)
PROFIT2011a	1.4117	1.9306	1.3383	1.8544
	(3.2530)***	(4.6089)***	(3.1114)***	(4.4545)***
PROFIT2010a	1.2925	1.2756	1.2651	1.2473
	(3.1133)***	(2.8489)***	(3.0116)**	(2.7631)***
GROWTH	0.0328	0.1375	0.0363	0.1438
	(0.2075)	(0.9435)	(0.2287)	(0.9809)
CONS	−0.7278	−0.7051	−0.7340	−0.7017
	(−2.0874)**	(−1.9785)**	(−2.0268)**	(−1.9016)*
TRADESER	−0.552	−0.4873	−0.5708	−0.4976
	(−1.6507)*	(−1.4173)	(−1.6341)	(−1.3902)
PROP	−0.7453	−0.7065	−0.7743	−0.7280
	(−2.2243)**	(−2.0669)**	(−2.2220)**	(−2.0541)**
PLANT	−0.4358	−0.3807	−0.4567	−0.4010
	(−1.2243)	(−1.0339)	(−1.2514)	(−1.0664)
CONPROD	−0.3954	−0.3648	−0.4157	−0.3780
	(−1.1542)	(−1.0383)	(−1.1701)	(−1.0412)
INDPROD	−0.5845	−0.6469	−0.6072	−0.6615
	(−1.7607)*	(−1.8985)*	(−1.7554)*	(−1.8711)*
Other industries	−0.4041	−0.3362	−0.4317	−0.3576
	(−1.0664)	(−0.8615)	(−1.1007)	(−0.8893)
Adjusted R^2	0.2109	0.242	0.2042	0.2362
F-statistic	9.1017	10.6756	8.7789	10.3738
p-Value	0.0000	0.0000	0.0000	0.0000
Panel B: Multiple regression analysis to test between BVRMD, DVRMD and market to book value of equity ratio				
Constants	−0.2961	−0.4223	−0.1068	−0.2667
	(−0.8021)	(−1.1129)	(−0.2651)	(−0.6489)
LnMTBR(YE)$_{t-1}$	0.0192	–	0.0183	–
	(0.4013)		(0.3783)	
LnMTBR(6M)$_{t-1}$	–	−0.0017	–	−0.0026
		(−0.0336)		(−0.0512)

(*continued*)

Table AI.
Multiple regressions
results (LnMTBR
variable)

Variables	LnMTBR1 (YE)	LnMTBR1 (6M)	LnMTBR2 (YE)	LnMTBR2 (6M)
BVRMD	0.0104	0.0097	0.0106	0.0099
	(3.5491)***	(3.1351)***	(3.6139)***	(3.2270)***
DVRMD	−0.0019	−0.0026	−0.0012	−0.0020
	(−0.2278)	(−0.2981)	(−0.1438)	(−0.2227)
GROWTH	0.2492	0.1019	0.0714	0.1101
	(2.1458)**	(0.7045)	(1.6467)	(0.7580)
LnSIZEa	1.2712	0.2225	–	–
	(2.6495)**	(1.8697)*		
LnLEVa	–	–	1.2024	0.0558
			(2.5228)**	(1.2569)
PROFIT2011a	1.3617	1.7886	1.3304	1.7152
	(3.2839)***	(3.8420)***	(3.1739)***	(3.7087)***
PROFIT2010a	−0.0029	1.3479	0.0028	1.3160
	(−0.0185)	(3.0370)***	(0.0182)	(2.9421)***
CONS	−0.7012	−0.6790	−0.7057	−0.6738
	(−1.9506)*	(−1.8423)*	(−1.8860)*	(−1.7619)*
TRADESER	−0.5177	−0.4536	−0.5356	−0.4627
	(−1.4964)	(−1.2726)	(−1.4784)	(−1.2436)
PROP	−0.7385	−0.7006	−0.7660	−0.7205
	(−2.1604)**	(−2.000)**	(−2.1512)**	(−1.9814)*
PLANT	−0.3908	−0.3362	−0.4136	−0.3580
	(−1.0525)	(−0.8728)	(−1.0844)	(−0.9078)
CONPROD	−0.3526	−0.3233	−0.3728	−0.3359
	(−0.9891)	(−0.8814)	(−1.0053)	(−0.8833)
INDPROD	−0.5382	−0.6019	−0.5606	−0.6158
	(−1.5461)	(−1.6773)*	(−1.5403)	(−1.6475)
Other industries	−0.3568	−0.2896	−0.3851	−0.3111
	(−0.9004)	(−0.7082)	(−0.9355)	(−0.7355)
Adjusted R^2	0.2087	0.2399	0.2017	0.2339
F-statistic	8.4216	9.8813	8.1088	9.5914
p-Value	0.0000	0.0000	0.0000	0.0000

Notes: $n = 395$. LnMTBR, Log of market to book value of equity ratio; YE, Year end; 6M, After 6 months; VRMD, Voluntary risk management disclosure; BVRMD, Beneficial voluntary risk management disclosure; DVRMD, Damaging voluntary risk management disclosure; LnSIZEa, Firm size (Total assets/Total equity); LnLEVa, Leverage; GROWTH, Current sales/previous year's sales; PROFIT, Profitability (net profit); CONS, Construction sector; TRADESER, Trading or service sector; PROP, Property sector; PLANT, Plantation sector; CONPROD, Consumer product sector; INDPROD, Industrial product sector. No multicollinearity problem exist because VIF < 10; Tolerance > 0.1. *,**,***Significant at $p < 0.1$, $p < 0.01$ and $p < 0.05$, respectively

Table AI.

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