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RESEARCH ARTICLE

Do Voluntary Corporate Risk Disclosures and Board Leadership Effectiveness Predict Firm Performance? The Moderating Role of Audit Committee Financial Expertise in Malaysia

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Abstract: Deficiencies in the quality of risk reporting impede investors' ability to make well-informed investment decisions. In the wake of unexpected corporate collapses, calls for a greater amount of voluntary risk disclosures by the regulators are entirely legitimate, in the expectation that improved risk reporting published in the annual report enables investors to assess a firm's risk profile and its firm value more accurately. This study investigates the relationship between the voluntary corporate risk disclosures (VCRD), board leadership effectiveness, audit committee financial expertise, and firm performance of 290 companies listed on the Kuala Lumpur Stock Exchange (KLSE). To collect and measure the quality of risk disclosures, we performed a manual content analysis method. We employ the partial least square structural equation modeling (PLS-SEM) technique, and the empirical results show that the relationship between VCRD and firm performance is positive and significant. We found a significant and positive relationship between board size and the level of firm performance, as measured by both accounting (ROA) and market-based performance (Tobin's Q) measures. However, CEO duality is found to be non-significant in its association with firm performance. SEM results further demonstrate that audit committee financial expertise has a positive and significant moderating influence on the VCRD-ROA nexus. Overall, the findings of this study demonstrated that the exogenous latent constructs collectively accounted for 30.8% and 69.3% of the variance in ROA and Tobin's Q, respectively. Research contributions, policy implications, and future directions are also discussed in this paper. To the best of the authors' knowledge, no study has yet to examine the interplay between the extent of VCRD, governance mechanisms, and firm performance in Malaysia, following the implementation of the Malaysian Code of Corporate Governance (MCCG) 2017.

Keywords: Risk disclosure, Board Leadership Effectiveness, Firm performance, Malaysian Code of Corporate Governance, Structural Equation Modeling

Companies provide decision-useful risk disclosures alongside the financial statements to present the major business risks and their expected economic consequences on the current and future business performance (Miihkinen, 2013). Over the last decade, the numerous high-profile financial scandals and misleading reporting have clearly illustrated the deficiencies in the quality of risk reporting, which in turn have severely shaken investors' confidence towards truthful corporate reporting. This is premised on the fact that major risks and uncertainties went unreported or were inadequately reported in the annual reports such that investors were unable to assess the company's overall risk profile accurately (Elshandidy & Shrivess, 2016). For instance, Bamber and McMeeking (2015) argued that firms deliberately provide minimal risk disclosures that are generic and boilerplate without any meaningful prioritization of key risks, thereby obscuring the underlying key messages. This has prompted the surge of interest among various professional accounting bodies, regulators, and the academic community in urging firms to place greater emphasis on providing more detailed risk-related information voluntarily in their annual reports (Abraham & Cox, 2007). In this regard, the Institute of Chartered Accountants in England and Wales (ICAEW) stressed that "... we remain committed to the idea that listed companies annual reports should contain information about risks in the broader sense, about actions to manage them and relevant measures" (ICAEW, 1999, p. 3). Such concerns are justified given the increased volatility and complexity of the global business environment in recent years within which companies operate. This problem is further exacerbated by the fact that risk disclosures are buried amid all the uninformative clutter, which inhibits investors' ability to make rational, well-informed investment decisions.

It is well documented in the literature that voluntary corporate risk disclosure (VCRD) plays a crucial role in capital markets. Market participants incorporate such risk-related information into their investment decisions based on risk-reward considerations. Besides, increased levels of VCRD allow investors to evaluate risk exposures and the future business prospects of firms more accurately (Beattie & Thomson, 2007). The series of widespread fraudulent reporting and financial manipulation involving companies such

as Enron, Tyco, and Parmalat have underscored the importance of voluntary risk disclosures and board leadership effectiveness. As a consequence, there has been a burgeoning demand from investors urging for a greater amount of risk disclosures and transparency in financial reporting, especially in relation to information on risks and uncertainties in the non-financial section of the annual report (Bamber & McMeeking, 2015; Miihkinen, 2013).

To date, the extant literature on risk disclosures has mainly focused on the determinants of risk disclosures (e.g., Dobler et al., 2011; Linsley & Shrivess, 2006; Beretta & Bozzolan, 2004). In contrast, empirical studies investigating the relationship between risk disclosure and firm performance have been relatively scarce (Khandelwal et al., 2019), and even fewer studies were conducted in emerging economies. This considerably limits our understanding of how the degree of risk disclosures might be correlated with financial performance and market valuation. For example, Beretta and Bozzolan (2004) contended that the disclosure of risks by the Italian non-financial listed companies was not influenced by company size and industry. In a similar vein, Linsley and Shrivess (2006) examined the risk reporting practices of 79 non-financial companies listed on the UK FTSE 100. They concluded that risk information gap exists and that firm size is significantly associated with risk disclosures, although no significant relationship is found between the risk factors and the number of risk disclosures. In the U.S. context, a similar notable study was conducted by Campbell et al. (2014). Their findings support the growing evidence that firms tend to disclose more extensive risk disclosures in the annual report to reflect the increased levels of risk associated with the business.

In this study, voluntary corporate risk disclosure (VCRD) is defined as providing additional risk disclosures in the annual reports, which are above and beyond the legal requirements such as the Malaysian Financial Reporting Standards (MFRS) and Bursa Malaysia Listing Requirements (BMLR). In Malaysia, various regulatory reforms have been introduced and embedded within the country's stock listing requirements to strengthen VCRD practices among listed corporations. These regulatory reforms may act as a stimulus for companies to adopt higher standards of transparency and accountability, thereby creating vital conditions in attracting foreign direct investments

into the country's capital market (Akhtaruddin et al., 2009).

Against this backdrop, the Securities Commission of Malaysia released an enhanced version of the corporate governance code – that is, the Malaysia Code of Corporate Governance 2017 (hereafter referred to as “MCCG 2017”) in April 2017. The MCCG 2017 can be regarded as an enhanced code that effectively supersedes its predecessors - MCCG 2000, 2007, and 2012. The reinvigorated MCCG 2017 represents a significant milestone within Malaysia's corporate governance landscape, which called for firms to be more proactive in their thought processes about risk management strategies by disseminating a greater amount of decision-useful risk information in financial reporting. Compared to its predecessors, the most distinctive feature of MCCG 2017 is arguably the CARE (i.e., abbreviated from the term C - Comprehend, A - Apply and Re- Report’) approach. This effectively marks a major shift from the previous “ticking-the-box” mindset with mere compliance, which has, to a certain extent, resulted in boilerplate, generic, and uninformative risk disclosures. Additionally, the newly enhanced MCCG 2017 reinforced the importance of audit committee effectiveness to ensure integrity in financial reporting. In this regard, it sets out that “an effective audit committee can bring transparency, focus and independent judgment needed to oversee the financial reporting process” (Securities Commission Malaysia, 2017, p. 34). Surprisingly, following the implementation of MCCG 2017, empirical research investigating the relationship between the extent of risk disclosure and the various corporate governance attributes on firm performance is still ambiguous and scarce. To the best of our knowledge, there is no study that examine the economic consequences of risk disclosure quality following the implementation of MCCG 2017, particularly in exploring the role of audit committee financial expertise in moderating the VCRD-firm performance nexus. Although this study has specific relevance within the Malaysian business environment, it provides relevant insights for regulators and policymakers of other countries within the Asian Pacific region regarding the impact of risk disclosure quality and corporate governance attributes, namely board leadership effectiveness and audit committee financial expertise, on the level of firm performance.

Theoretical Framework and Hypotheses Development

Voluntary Corporate Risk Disclosure (VCRD) and Firm Performance

According to Abraham and Shrides (2014), increased levels of VCRD could act as a monitoring mechanism to reduce information asymmetry between managers and investors, particularly as investors gain greater clarity on how the various risk factors are identified, managed, and mitigated. Furthermore, VCRD sends specific signals to the market participants about organizational abilities to manage the various aspects of risks effectively for business sustainability (Oliveira et al., 2011). In this context, signaling theory suggests that profitable firms are more inclined to disseminate more extensive risk narratives to signal their financial strength and superior risk management abilities. This theory focuses on the assumption that firms voluntarily disclose a greater amount of risk-related information so that it can be appreciated by the market participants about the firms' underlying financial strengths, thereby reducing the investment risk (Bebchuk & Weisbach, 2010). Moreover, signaling theory posits that profitable firms are more inclined to disclose more in-depth risk information to differentiate themselves from their rivals and induce investments from investors (Linsley & Shrides, 2006). This implies that undervalued firms have stronger incentives to voluntarily release more risk-related information in the annual reports to reflect their intrinsic value to the market.

Similarly, agency theorists advocate that extensive risk disclosures could act as a monitoring mechanism that minimizes asymmetric information between the management and outside investors (Healy & Palepu, 2001). In support of agency theory, Marston and Polei (2004) presented evidence of managers providing additional voluntary risk disclosures in the annual reports as part of their efforts to justify job performance and their executive remuneration packages. Additionally, from the perspective of agency theory, increased levels of VCRD help minimize principal-agent conflict and the risks of moral hazard as it is essential for investors to analyze the risk-reward considerations in their decision-making process. This is particularly crucial in light of the ongoing global economic uncertainties that have significantly caused massive business disruptions, further compounding business vulnerabilities to the multi-faceted risks that

they face. Using the evidence from UAE companies, Aljifri et al. (2014) presented strong evidence for a positive relationship between voluntary disclosure and firm performance. Besides, Elzahar and Hussainey (2012) and Uyar and Kiliç (2012) concluded that voluntary disclosure has a value-increasing effect in that increased levels of informative disclosures can influence investors' perception of a firm risk and value.

Considering that firms have greater incentives to engage in VCRD to reflect their superior financial performance and project a positive image for the firm, we propose the following hypothesis:

Hypothesis 1a: Ceteris paribus, there is a positive relationship between voluntary corporate risk disclosures (VCRD) and return on assets.

Hypothesis 1b: Ceteris paribus, there is a positive relationship between voluntary corporate risk disclosures (VCRD) and Tobin's Q.

Board Leadership Effectiveness and Firm Performance

It is a widely acknowledged fact that corporate boards serve as instruments of corporate governance to protect the interests of shareholders from the incompetence or malfeasance of directors by ensuring a firm's resources are managed efficiently. The concept of agency theory assumes a fundamental tension resulting from the conflicting interests between the outside investors and corporate managers (Fama & Jensen, 1983; Jensen & Meckling, 1976). Widely regarded as the apex of corporate leadership, the board of directors reviews and approves managerial business strategies and policies, which in turn, contribute to the firm's financial performance. Agency theorists advocate the view that board members monitor the actions of the managers to ensure they act in the best interests of shareholders (Eisenhardt, 1989). Additionally, agency theory acknowledges that the level of board leadership effectiveness depends mainly on three key board attributes: board size, board composition, and CEO duality.

Board Size

The importance of board size as a precursor to board effectiveness is prominently recognized within

the corporate governance literature. As board size increases, it diffuses CEO domination, thereby creating a more conducive environment for directors to provide counsel and sound advice to senior management – a requisite for corporate performance. Dalton et al. (2007) suggested that a larger board size enhances environmental scanning and facilitates access to diverse viewpoints and perspectives in the formulation of a firm's strategic growth options. Larger board size is therefore assumed to be essential to ensure organizational survival, encompassing the financial, operational, and strategic adaptation to the dynamic nature of the external environment. Likewise, several researchers in the emerging economies such as Abidin et al. (2009) and Saad (2010) in Malaysia, Dwivedi and Jain (2005) in India, and Moradi et al. (2013) in Iran highlighted the advantage of larger board size due to the availability of a broader range of expertise and perspectives, which in turn can drive corporate financial performance. Within this context, agency theorists argue that a larger board size contributes to firm performance through vigilant monitoring of managerial behavior, which mitigates agency costs and asymmetric information between managers and shareholders. However, several researchers report evidence that when board size gets too large, these benefits are outweighed by poorer board coordination, communication breakdowns, and slower decision-making (Jensen, 1986; Lipton & Lorsch, 1992). They argued that larger board size is associated with dysfunctional behavior, which lowers group cohesiveness that may undermine the board's strategic contributions. Based on agency theory and the discussions above, we propose the following hypothesis:

Hypothesis 2a: Ceteris paribus, there is a positive relationship between board size and return on assets.

Hypothesis 2b: Ceteris paribus, there is a positive relationship between board size and Tobin's Q.

Board Composition

Despite the considerable research on the association between board composition and firm performance, the empirical findings on the relationship have somewhat been mixed. For example, researchers such

as Dahya and McConnell (2007); Pearce and Zahra (1992); Weir et al. (2002) found that the presence of independent directors is positively associated with firm performance, whereas Agrawal and Knoeber (1996); Hermalin and Weisbach (2003) reported that board independence is negatively associated with firm performance. Much of the empirical reports in support of the agency theory posits that independent directors serve as a check-and-balance mechanism in providing vigilant monitoring over managerial actions, hence limiting the opportunistic behavior of managers (Bebchuk & Weisbach, 2010; Haniffa & Cooke, 2002). Using evidence from four Asian countries (Indonesia, Malaysia, South Korea, and Thailand), scholars such as Ramdani and Wittloostujin (2010) inferred that board independence is particularly more potent in promoting firm performance for high-performing firms as compared to low-performing firms. This finding is reinforced by the empirical findings of Chiang and Lin (2011), which concluded that, based on a sample of Taiwanese firms, a higher proportion of independent directors on the board provides a unique monitoring function, which in turn enhances firm performance. Given the impartiality of independent directors, they are more likely to bring to the board a more balanced view of external factors as a counterweight to the domination of inside directors, thereby enhancing the quality of board decisions and, ultimately, firm performance (Ntim & Soobaroyen, 2013). Additionally, the presence of independent directors adds diversity of perspectives to the board, which better serves the interests of shareholders and promotes greater board leadership effectiveness by diffusing agency conflicts within the firm. Thus, taking into account the above arguments and agency theory, we formulate our third hypothesis as:

Hypothesis 3a: *Ceteris paribus*, there is a positive relationship between board independence and return on assets.

Hypothesis 3b: *Ceteris paribus*, there is a positive relationship between board independence and Tobin's Q.

CEO Duality

CEO duality is an essential corporate governance mechanism that seeks to ensure a balance of power and authority such that absolute power does not rest

on a single individual. Proponents of agency theory argue that executive managers are opportunistic shirkers who are more likely to advance personal interests if not monitored by the boards (Haniffa & Cooke, 2002). Moreover, when the position of CEO and chairperson is combined, decision-making power becomes concentrated in one individual, thereby constraining the board's effectiveness in reviewing board decisions independently of management. When the concentration of powers is unchecked, it generally gives rise to CEO domination, who may exploit such absolute authority to advance their personal interests (Krause et al., 2014). Additionally, Haniffa and Cooke (2002) asserted that self-serving CEOs might tend to exercise control over the direction and tone of the board meetings such that raising concerns over major corporate decisions is deemed as inappropriate behavior. Agency theorists have thus far argued that the role of CEO and chairperson should be split such that no one individual has unfettered powers of decision and control "to further his own personal interests rather than the interests of shareholders" (Weisbach, 1988, p. 435).

On the contrary, empirical studies by Dalton et al. (2007) and Finkelstein and D'Aveni (1994) documented evidence of the positive effect of CEO duality on firm performance, particularly through the unity of command at the apex of corporate leadership, which helps establish a focal point for quick and decisive decisions to be made. This alternative argument posits that CEO duality projects a strong image of CEO power and allows the CEO to act more pro-organizationally towards achieving the business goal with less interference. Such empowering of command at the top of the corporate structure avoids ambiguous leadership, thereby enhancing the legitimacy of the CEO's actions, which may help to align the CEO's interests with that of shareholders via incentive schemes (Nicholson & Kiel, 2007). On the other hand, within the emerging markets settings, researchers such as Yasser et al. (2011) in Pakistan as well as Agaei et al. (2010), Abbasi and Ahmadi (2012), and Salehi et al. (2018) who studied the boards of Iranian firms provide strong evidence suggesting that there is not one optimal leadership structure as they found no meaningful relationship between CEO duality and various firm performance measures. Therefore, based on these considerations, we propose the following hypotheses:

Hypothesis 4a: Ceteris paribus, there is a positive relationship between CEO duality and return on assets.

Hypothesis 4b: Ceteris paribus, there is a positive relationship between CEO duality and Tobin's Q.

Audit Committee Financial Expertise and Firm Performance

The formation of an audit committee has been well recognized as the single most significant board sub-committee that provides oversight of the firm's financial reporting quality and internal control processes (Contessotto & Moroney, 2013). Extant literature documents evidence that the presence of audit committee financial expertise constrains opportunistic managerial behavior to manipulate financial statements, thereby enhancing financial reporting quality (Abbott et al., 2004; Contessotto & Moroney, 2013; Klein, 2002). Specifically, managers tend to provide overly optimistic qualitative disclosures in the annual reports to induce favorable market reactions towards the firm's stock.

Prior research shows that audit committee members with financial expertise effectively disciplines managers and mitigates the incidence of financial misreporting (Davis & Tama-Sweet, 2012). In this regard, the presence of audit committee members with financial expertise reinforces the capability of the board to probe management decisions more rigorously and therefore exert a stronger influence over the nature and extent of risk disclosures in producing a more balanced and accurate report (Krishnan & Visvanathan, 2008). Prior literature suggests that the formation of an audit committee is associated with firm performance. For example, Krishnan (2005) provided evidence that the inclusion of audit committee members with financial expertise is positively related to a firm's profitability. In another study, Zhang et al. (2007) found that audit committee financial expertise provides a more effective control environment, which is likely to be vigilant in monitoring managerial actions and, in turn, leads to improved firm performance and value.

Similarly, Oradi et al. (2017) studied the relationship between audit committee characteristics and firm performance of firms listed in Iran. They reported a significant positive association between audit committee financial expertise and firm performance.

From an agency theory perspective, the presence of audit committee financial expertise serves as an oversight and monitoring mechanism that alleviates agency conflicts between management and shareholders. One of its main roles is to constrain the propensity of managers to make decisions in the pursuit of self-interest and not the interest of the shareholders as a whole. As such, based on the arguments above, we hypothesize:

Hypothesis 5a: Ceteris paribus, the relationship between VCRD and return on assets is moderated by audit committee financial expertise such that the effect is stronger when the audit committee has a higher presence of members with financial expertise.

Hypothesis 5b: Ceteris paribus, the relationship between VCRD and Tobin's Q is moderated by audit committee financial expertise such that the effect is stronger when the audit committee has a higher presence of members with financial expertise.

Control Variables

Following the practice employed in prior literature, several control variables were included to minimize omitted variables bias in a regression model. In line with prior studies, firm size, firm age, and leverage are included in the model because these factors may affect firm performance and are controlled to account for firm-specific risk characteristics and help mitigate the effects of endogeneity bias (Hermalin & Weisbach, 2003; Vafeas & Theodorou, 1998). Consistent with Leng (2004) and Westphal and Zajac (1995), firm size was measured as the natural logarithm of the book value of total assets. Firm size was included because larger firms can afford more robust corporate governance mechanisms and thus may affect firm performance. Following Al-Shammari et al. (2008) and Haniffa and Cooke (2002), firm age was included as a control variable in the model. Firm age was measured by the time period from the date the company was incorporated to the year of analysis. More established firms have better internal controls that could lead to an improvement in financial performance. We added leverage as a control variable because leverage is often considered to be a monitoring mechanism that reduces opportunistic behavior of managers over the

discretionary use of free cash flows (Elsayed, 2007; Parker et al., 2002).

Methods

Population and Sample

In this study, the sampling frame includes all companies listed on the Main Market of Bursa Malaysia as of December 31, 2017. The source of data collected was the annual reports available on Bursa Malaysia's website (www.bursamalaysia.com). Consistent with prior studies (Haniffa & Cooke, 2002; Ghazali & Weetman, 2006), 52 licensed banking and finance companies are excluded, as these institutions are subject

to specialized regulatory requirements and controls such as the Banking and Financial Institution Act 1989 and Insurance Act 1996. To draw the sample from the population, we adopted the probability sampling technique known as the proportionate stratified sampling technique. This technique minimizes estimation error as all groups of the population are represented in the sample, thereby ensuring homogeneity within a group and heterogeneity across groups (Malhotra, 2010, Sekaran & Bougie, 2013). Year 2017 is chosen as a sample period because it is the first year of MCCG 2017 implementation, which requires listed companies to report their application for the first time. Table 1 summarises the sample selection process, which resulted in 290 firm observations.

Table 1

Sample Selection Process

Step 1: Companies listed on the Main Market, Bursa Malaysia as at December 31, 2017	919	
Less: Banks, insurance, real estate investment trusts, closed-end funds, and special purpose acquisition companies	(52)	
Total companies	867	
Step 2: Obtain the market capitalization of the companies		
Step 3: Divide the entire population into homogeneous groups based on sectorial classifications called strata. Each stratum represents companies from the respective sectorial classification with similar industries.		
Step 4: Based on proportionate stratified random sampling, identify the number of samples required from each stratum based on market capitalization.		
Step 5: From each stratum, companies are chosen randomly:		
Sector	Number of sample companies	% of samples
Trading Services	132	46
Industrial Products	56	19
Consumer Products	33	11
Plantation	23	8
Properties	22	8
Construction	12	4
Infrastructure	5	2
Technology	3	1
Hotels	3	1
Mining	1	<1
Total	290	100
Step 6: Finalize the list of samples.		

Research Design

In this study, to lend credence to its adoption, we follow the risk disclosure framework as adopted by the well-established risk disclosure studies (Kajüter, 2004; Konishi & Ali, 2007; Linsley & Shrivess, 2006).. The risk disclosure framework contained a comprehensive list of risk categories, which consist of financial risk disclosures (FRD), operational risk disclosures (ORD), empowerment risk disclosures (ERD), information processing and technology risk disclosures (IPTRD), integrity risk disclosures (IRD), and strategic risk disclosures (SRD). Accordingly, VCRD is classified according to the risk categories as presented in Appendix A.

Scrutiny of the prior literature on corporate risk disclosure reveals that content analysis is the most dominant research technique to identify and measure the extent of risk disclosure in annual reports (e.g., Beretta & Bozzolan, 2004; Linsley & Shrivess, 2006; Miihkinen, 2013). As the objective of this paper is to measure the quality and quantity of risk disclosure empirically, we adopt the content analysis technique to systematically evaluate the depth and breadth of risk disclosures. Because the nature of risk reporting is fundamentally narrative, the use of sentence as a coding unit is most appropriate on the basis that the meaning of phrases can be better evaluated within a specific context and therefore provides a more complete and meaningful data for further analysis (Milne & Adler, 1999). Following prior literature (Dobler et al., 2011; Elzahar & Hussainey, 2012; Linsley & Shrivess, 2006; Oliveira et al., 2011), we use a sentence approach for coding purposes to detect and classify risk disclosures according to their importance and relevance.

As discussed above, a risk disclosure checklist comprising of 37 risk information items was used to perform a content analysis of the narrative risk disclosures in the annual reports. The methodological rigor of the risk disclosure checklist has been determined by the extent to which the research instruments meet the criteria related to reliability and validity measures. To ensure face validity, the VCRD checklist, the scoring criteria, and the decision rules were subjected to review by an expert panel who are well-versed in the field of risk reporting. The expert panel consists of two academics and three professionally trained accountants who helped to assess the relevance, clarity, and completeness of the risk information items.

Measurement Reliability

The reliability of the coding procedures was assured by following several rigorous approaches. First, to address the issue of subjectivity, two independent coders coded an initial sample of 30 annual reports according to a set of coding schemes and decision rules (Krippendorff, 2004; Milne & Adler, 1999). Reliability was further improved by establishing a set of well-specified coding schemes and decision rules that the coders can refer to. Before the commencement of the full study, a series of training sessions were provided to the coders to discuss the overall research objective, familiarizing themselves with the coding procedures and risk classification rules. To ensure that consistency of coding was occurring, reliability tests were performed by calculating inter-coder reliability, which measures the level of agreement in the coding results between the two coders (Beattie & Thomson, 2007). A score of 0.75 and above implies a satisfactory level of inter-rater reliability (Milne & Adler, 1999). In the first round of coding, the value of inter-rater reliability was calculated as 0.70, which was below the threshold of 0.75, mainly due to disagreements on risk classifications. Subsequently, we performed a second round of coding during which internal inconsistencies and discrepancies were resolved between the coders through discussions. We find the inter-rater reliability improved to 0.88, indicating an adequate level of agreement (Milne & Adler, 1999). Each risk disclosure sentence was evaluated and ranked in terms of its importance on a scale of “1” to “6,” whereby “0” indicates “risk information is trivial or immaterial” and “6” implies “risk information is highly detailed and exhaustive.” This 6-point Likert scale has been widely used in prior studies to measure the quality of risk disclosures (Hooks & Van Staden, 2011). Furthermore, Chang (1994) found that a 6-point scale is preferred to a 5-point scale as a 6-point scale generates better psychometric properties with higher dispersion and statistical reliability. The scoring criteria used in this present research are shown in Table 2.

The Statistical Model and the Definition of Variables

To examine simultaneously the relationship between VCRD, board size, board composition, CEO duality, audit committee financial expertise, and firm performance, the following regression model is formulated:

Table 2*A 6-point Likert Scale Scoring Criteria Used in This Research*

1	the information disclosed is trivial or immaterial.
2	the information contains minimum coverage - only anecdotal or briefly mentioned.
3	the information is descriptive in nature - information is fairly provided, and little meaningful discussion has been made.
4	the information has intermediate detail - information is sufficiently elaborated with discussion on the impact of the issues on the business.
5	the information provides detailed description – information is sufficiently elaborated, and its impact on the business is defined in quantitative terms and may include some narrative descriptions.
6	the information is highly detailed and exhaustive - truly best practice and highly detailed disclosure which contains discussion of business impact including forward-looking information elaborated in quantitative terms useful for investors forecasts.

$$FP = \beta_0 + \beta_1 VCRD + \beta_2 BoD Size + \beta_3 BoD Ind + \beta_4 CEO Dual + \beta_5 Firm Size + \beta_6 Firm Age + \beta_7 Leverage + \beta_8 AC Expert + \beta_9 VCRD * AC Expert + \epsilon$$

where FP is firm performance (as proxied by ROA - an accounting-based performance measure, and Tobin's Q - a market-based performance measure); BoD Size is board size (measured by the total number of directors on board); BoD Ind is board independence (measured by the proportion of independent directors on board); CEO Dual (measured as 1 if the firm's CEO is also chairman of the board of director, and 0 otherwise); Firm Size (measured as the natural logarithm of the book value of total assets); Firm Age (measured by the time period from the date the company was incorporated to the year of analysis); Leverage (measured by the ratio of total debts to total equity); AC Expert (measured by the number of audit committee members who are professionally qualified in accounting or finance); ϵ - the error term. Table 3 presents a full definition and mnemonics of the variables used in this study.

Empirical Results and Discussion

This study adopted a variance-based structural equation modeling (VB-SEM) which allows for simultaneous examination of both theory (i.e., the relationship between the constructs in the model) and the measurement models (i.e., the relationship between

the latent variable and its indicators). Unlike the first-generation statistical technique, SEM has been widely acknowledged as a second-generation multivariate analysis that combines factor analysis and path analysis simultaneously, instead of the piecemeal approach required by traditional regression (Chin, 1998; Tabachnick & Fidell, 2007). As such, it is not surprising that the use of VB-SEM as a causal modeling approach is increasingly gaining popularity within social science research, such as in the area of accounting (Lee et al., 2011), marketing (Hair et al., 2011), and business research (Henseler et al., 2016). Smart PLS version 3.0, a software developed specifically for PLS-SEM, was utilized in this study to test the hypothesized relationships in the regression model.

Table 4 presents descriptive statistics of the model variables. It shows that, on average, among all the VCRD categories, empowerment risk disclosure (ERD) has the highest mean value of 4.1048. This is followed by financial risk disclosures (FRD), and strategic risk disclosures (SRD) were the second (4.0890) and third (3.6818) highest, respectively. The least disclosed risk disclosure is integrity risk disclosure (IRD), with a mean value of 2.4276. Overall, the mean values of the VCRD categories ranged from 2.4276 to 4.1048, whereas the standard deviation ranged from 0.41401 to 0.66858.

Table 3*Definitions and Operationalization of Constructs*

Acronym	Definitions and operationalization	Prior studies
FP	Firm performance - an accounting-based performance measure (ROA) and a market-based performance measure (Tobin's Q).	Anderson & Reeb, 2003; Demsetz & Villalonga, 2001 Oliveira et al., 2011
VCRD	Voluntary Corporate Risk Disclosure - measured based on a 6-point rating scale according to ranking and prioritization.	Hooks & Van Staden, 2011
BoD Size	Board Size - measured by the total number of directors on board	Elshandidy et al., 2013; Mokhtar & Mellett, 2013
BoD Ind	Board Independence refers to the degree to which the board is made up of a percentage of independent directors on the board	Adams & Ferreira, 2009; Graham et al., 2012; Haniffa & Cooke, 2005
CEO Dual	CEO Duality - assigned to a score of 1 if duality structure exists (i.e., Chairman and CEO are occupied by the same individual), and 0 is assigned for non-duality.	Bebchuk et al., 2011; Haniffa & Cooke, 2002
Firm Size	Firm Size - measured as the natural logarithm of the book value of total assets	Leng, 2004; Westphal & Zajac, 1995
Firm Age	Firm Age - which represents the longevity of a firm and is measured by the time period from the date the company was incorporated to the year of analysis	Al-Shammari et al., 2008; Eisenberg et al., 1998
Leverage	Leverage - is measured by the ratio of total debts to total equity	Cerbioni & Parbonetti, 2007; Meek et al., 1995
AC Expert	Audit Committee Financial Expertise –Measured by the number of audit committee members who are professionally qualified in accounting and/or finance	Ghafran & O'Sullivan, 2013; Ho & Wong, 2001

Further analysis of the distribution shows the mean (3.54) and the median (3.56) values of VCRD categories are close to each other, indicating that each of the VCRD risk category is distributed fairly symmetrically. Panel B reports the descriptive statistics for other variables. Board Size (BS) is between 3 and 14, with an average of eight board members. This finding is consistent with Abdullah (2004) and Germain et al. (2014), who report the number of directors on Malaysian boards averaged around eight. In relation to board independence (BoD Ind), the average is 48.90%, which suggests that sampled companies meet the Bursa Malaysia Listing Requirements (BMLR) that require listed companies to have at least one third (33.3%) of the board comprising of independent directors. It can be observed that approximately 85.2% of the sample firms met the MCCG 2017 recommendation on CEO duality, where the roles of chairperson and CEO

are held by separate individuals to ensure stronger board oversight. In the sample, all companies had financially literate members on the board (minimum = 1; maximum = 3), suggesting that there is an increased awareness to comply with Paragraph 15.09 of Bursa Malaysia Listing Requirement (BMLR) 2018, which stipulates that at least one of the members must be a professionally trained accountant and that they must have passed the relevant professional accounting examinations as prescribed by the Accountants Act, 1967.

Assessing the Reliability and Validity of the Model

PLS path modeling can be formally represented by two sets of linear equations, that is, measurement model (also known as an outer model and traditionally accomplished with factor analysis), and structural model (also known as an inner model and traditionally

Table 4*Descriptive Statistics*

	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
FRD	4.0890	.66858	1.00	6.00	-.022	-.260
SRD	3.6818	.53552	1.00	6.00	-.546	.901
ORD	3.6414	.43271	1.00	6.00	-.530	.642
ERD	4.1048	.42910	1.00	6.00	-.394	.702
ITPRD	3.3164	.41401	1.00	5.00	-.443	-.203
IRD	2.4276	.51162	1.00	5.00	.037	-.497
BoD Size	7.6621	2.10032	3.00	14.00	.591	.227
BoD Ind	.4890	.12627	.20	.86	.467	-.314
CEO Dual	.1552	.36269	.00	1.00	1.915	1.678
AC Expert	1.1724	.38743	1.00	3.00	1.922	2.282
Firm Age	29.8038	18.91262	4.89	112.47	1.473	3.288
Firm Size	5.8314	.91547	1.70	8.10	-.214	1.384
Firm Lev	.4928	.60801	-1.30	3.30	1.913	5.853
Tobin's Q	5.6266	.99823	3.45	7.91	.285	-.821
ROA	.2424	11.06751	-31.12	42.06	.052	.907

accomplished with path analysis). Accordingly, the research model in this study is analyzed in two distinct and separate stages, which involves the evaluation of the measurement model followed by the structural model. It is, therefore, a necessary condition to establish acceptable levels of reliability and validity of the measurement (inner) model before we proceed to the evaluation of the structural (outer) model, following the recommendations of Hair et al. (2014) and Henseler et al. (2016).

In examining the measurement model, this study follows the guide of Hair et al. (2014) and Henseler et al. (2016) to measure how well the constructs are represented by their observed indicators. Generally, each indicator's absolute standardized loadings should be at least 0.70 to indicate satisfactory reliability, whereas the indicator with loadings between 0.40 and 0.70 should only be removed if deleting the indicator leads to an increase in composite reliability. In this study, a total of 14 measurement items (i.e., FRD3,

ORD5, ORD6, ORD9, ERD2, ERD5, ITPRD 2, ITPRD3, IRD1, IRD2, SRD5, SRD6, SRD8, SRD11) were removed because their loadings were below 0.70. The remaining 23 measurement items were retained for further analysis as the outer loadings were greater than the minimum threshold of 0.70. In addition, this research took a more cautious approach. As such, composite reliability was also used to evaluate the internal consistency of the construct reliability. Within the statistics literature (Fornell & Larcker, 1981; Hair et al., 2014), composite reliability is widely regarded to be a better alternative in the estimation of internal consistency in scale items as it captures a more precise estimate of variance shared among the indicator variables. In this study, composite reliability ranged from 0.89 to 0.96 for all the five constructs, thus demonstrating an adequate degree of internal consistency reliability of all the constructs (Bagozzi & Yi, 1988; Hair et al., 2014). The AVE for all constructs also exceeded the threshold of 0.70, confirming the

communality and convergent validity of the constructs (Chin, 1998; Fornell & Larcker, 1981).

To test for possible issues of multicollinearity which may distort subsequent statistical findings, we calculated variance inflation factor (VIF). Scholars suggest a cut-off VIF value of 10, and if the VIF value exceeds 10, it shows the presence of severe multicollinearity issues requiring further investigation (Field, 2009; Gujarati, 2003). Results indicate that the largest VIF value was 1.820, suggesting that there is no serious multicollinearity issue in the regression analysis. In addition to testing multicollinearity in the regression model, we checked the assumptions of linearity, normality, and homoscedasticity, and we found no violations of these assumptions.

To evaluate discriminant validity—a measure to test the extent to which items associated with a construct are empirically distinct from other unrelated constructs—this paper took a more cautious approach and thus adopted a more recent and stringent criterion—the Heterotrait-Monotrait (HTMT) ratio of correlation. As evidenced by Henseler et al. (2015) through a Monte Carlo simulation, the HTMT criterion outperformed other classical approaches. It achieves higher specificity and sensitivity rates in assessing discriminant validity as compared to the cross-loadings criterion and Fornell-Lacker. As a rule of thumb, HTMT values should be lower than 0.85 to establish sufficient discriminant validity among the constructs (Henseler et al., 2016). The results show HTMT values ranged between 0.063 and 0.609, which are significantly below the threshold of 0.85, indicating that the criterion for discriminant validity has been established. Taken together, these findings suggest that all constructs in the research model have met the criterion for both reliability and validity measures.

Bootstrapping procedure was used to assess the magnitude, direction, and significance of the hypotheses proposed in this study to examine the statistical strength of the structural model's estimated parameters. To attain significance levels of path relationships, Hair et al. (2011) recommended using 5,000 bootstrap samples. A path coefficient is statistically significant if the t-statistics at 5% significance level are greater than 1.645 for a one-tailed test.

Table 5 summarizes the results of the multivariate regression analysis. Results of the significance of

path coefficients indicate that VCRD has the strongest positive association with firm performance in both ROA and Tobin's Q. This confirms the predictions of $H_{1a,1b}$ at $p \leq 0.01$. Furthermore, when observing the moderating effect of audit committee financial expertise and VCRD on firm performance, the findings show that the audit committee has a significant positive moderating effect on the impact of VCRD and ROA. This finding supports H_{5a} . The empirical findings suggest that there is a significant positive association between board size and firm performance (both ROA and Tobin's Q) at $p \leq 0.01$. Accordingly, $H_{2a,2b}$ are supported. In $H_{3a,3b}$, we postulated that board independence would significantly and positively influence firm performance. Results shown in Table 5 reveal a significant positive association between board independence and ROA; thus, H_{3a} is supported. In contrast, no statistically significant relationship between board independence and Tobin's Q, thereby H_{3b} is not supported. In line with agency theory, we predicted in $H_{4a,4b}$ that there is a significant relationship between CEO duality and firm performance. The findings reveal a non-significant association between CEO duality and firm performance (both ROA and Tobin's Q), hence $H_{4a,4b}$ are not supported. On the other hand, H_{5b} is not supported as the findings show that audit committee financial expertise has an insignificant moderating influence on the VCRD – Tobin's Q relationship. Conversely, the results show that audit committee financial expertise has a significant and positive moderating effect on the impact of VCRD and ROA. Figures 1 and 2 present the results of the path modeling diagram and PLS estimations for both the ROA and Tobin's Q models, respectively.

To foster a better understanding of the moderation effect, Figure 3 presents the interaction graph in which the green, blue, and red lines in the interaction graph reflect the moderator's high (+1 standard deviation), mean, and low positions (-1 standard deviation), respectively. The nature of such interaction signifies that audit committee financial expertise is a significant positive moderator in that under a given level of VCRD, when AC Expert is high, there is an increase in the level of ROA in which the influence of AC Expert on ROA was more pronounced among companies with a high (as compared to low) ROA level. This thus confirms H_{5a} .

Table 5

Bootstrapping Results: Path Coefficients and T-Statistics

Hypothesized Paths	Std Beta	T-Statistics	Findings
H _{1a} : VCRD → ROA	0.412	6.906*	Supported
H _{1b} : VCRD → Tobin's Q	0.553	11.151*	Supported
H _{2a} : BoD Size → ROA	0.173	2.832*	Supported
H _{2b} : BoD Size → Tobin's Q	0.260	6.524*	Supported
H _{3a} : BoD Ind → ROA	0.168	3.117*	Supported
H _{3b} : BoD Ind → Tobin's Q	0.058	1.389	Not supported
H _{4a} : CEO Duality → ROA	0.001	0.012	Not supported
H _{4b} : CEO Dual → Tobin's Q	-0.003	0.087	Not supported
H _{5a} : VCRD * AC Expert → ROA	0.164	2.095*	Supported
H _{5b} : VCRD * AC Expert → Tobin's Q	0.014	0.331	Not supported
Structural Equation		ROA	Tobin's Q
R ² (Coefficient of determination)		0.308	0.693

* Sig. < 0.01

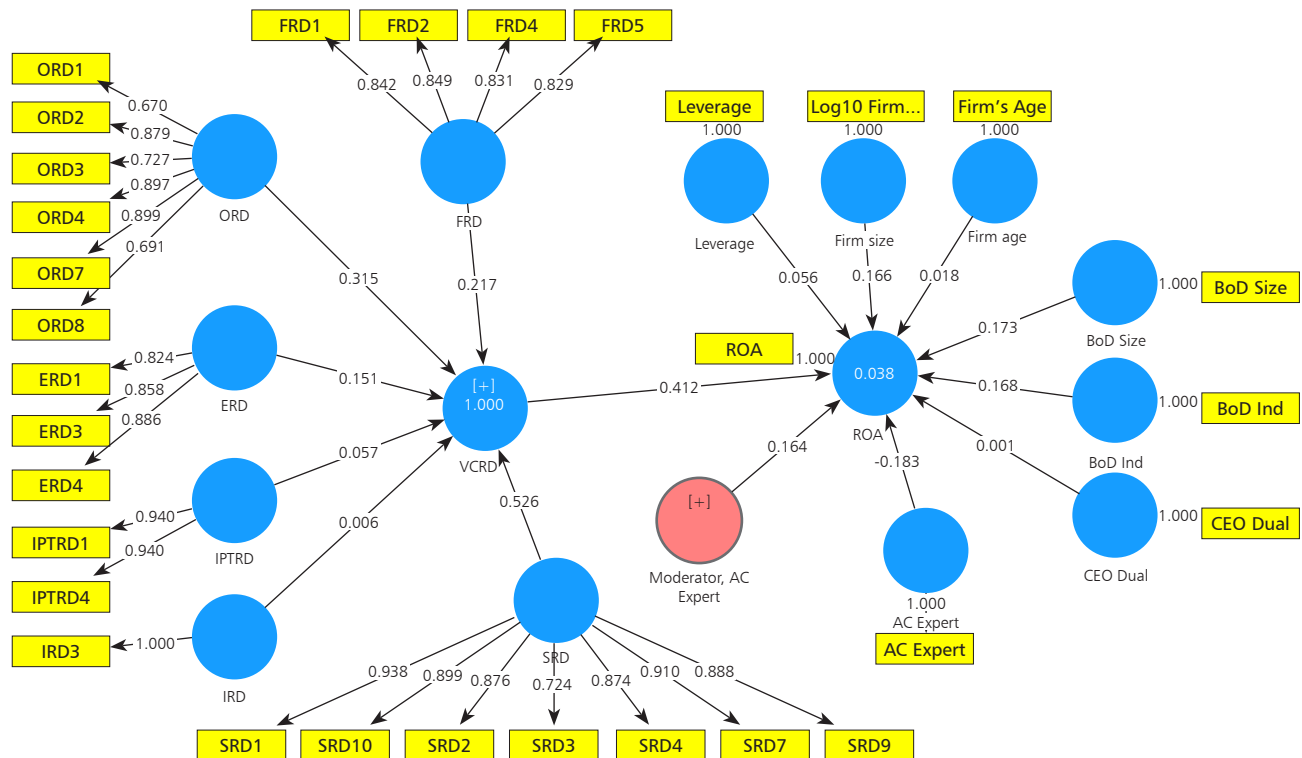


Figure 1. Assessment of Structural Model and PLS-SEM Estimations – ROA (Accounting-Based Proxy)

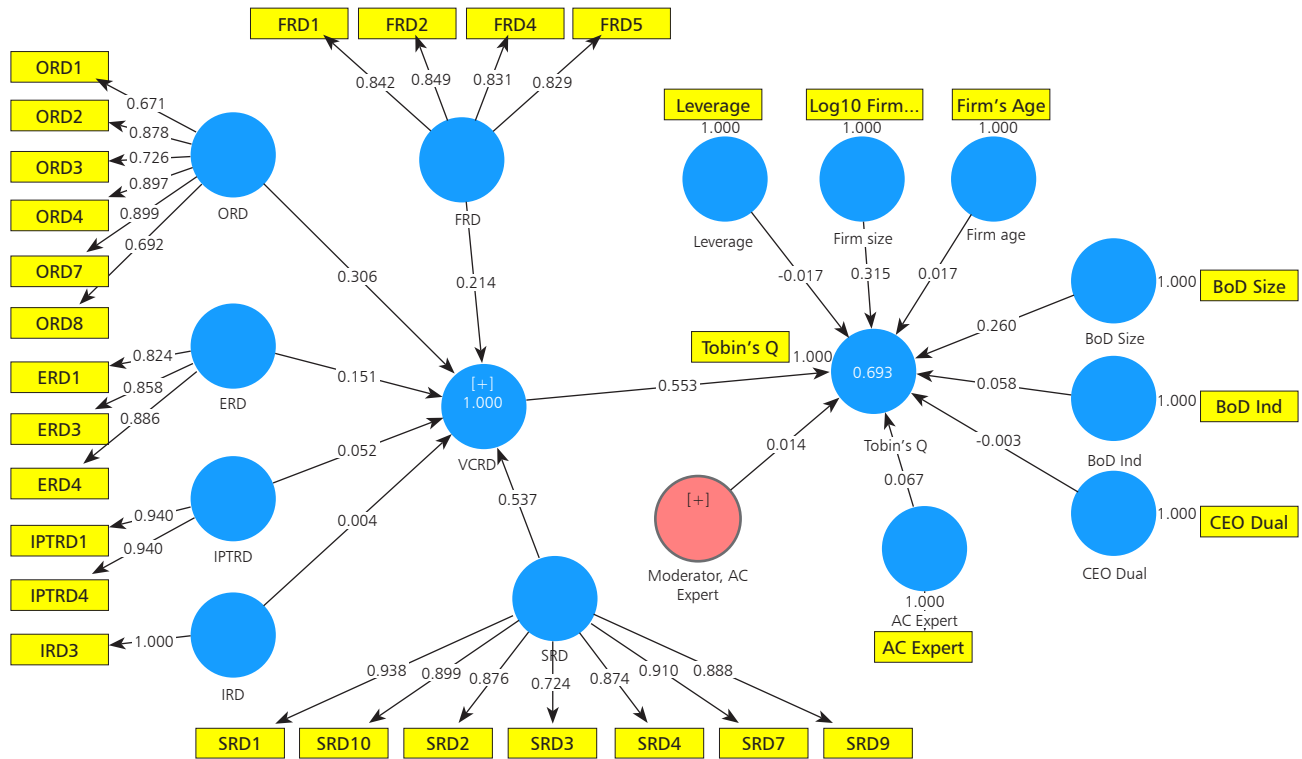


Figure 2. Assessment of Structural Model and PLS-SEM Estimations – Tobin's Q (Market-Based Proxy)

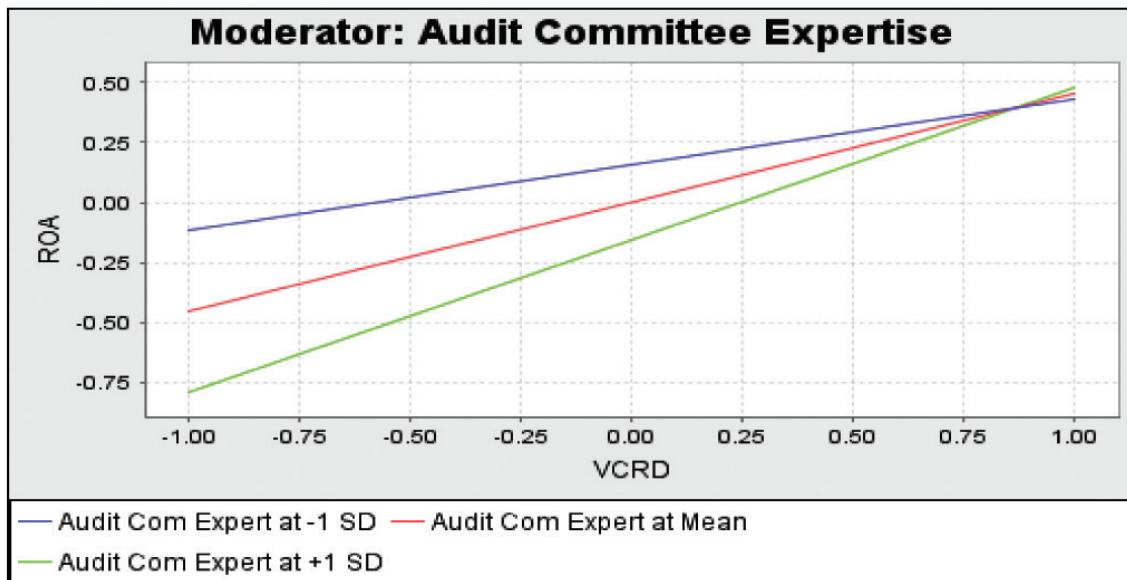


Figure 3. The Moderating Effect of Audit Committee Financial Expertise (AC Expert) on the Relationship Between the Level of Voluntary Corporate Risk Disclosure (VCRD) and ROA

Summary of Findings

Empirical evidence of this study indicates a significant positive association between VCRD and firm performance, as measured by both ROA and Tobin's Q. These results are in line with prior arguments raised by Linsley and Shrivess (2006) and Ntim et al. (2013), which find evidence that detailed risk disclosures serve as a signaling instrument by firms to convey their superior financial performance to the market participants. In this regard, this result corroborates the central tenet of signaling theory that companies voluntarily disseminate high-quality risk disclosures to signal their superior firm performance, thus differentiating themselves from rival firms. This point of view is confirmed by other studies conducted in emerging countries such as Taiwan (Sheu et al., 2010), which highlights firms with greater levels of transparency are positively associated with firm value. In addition, this study's findings reveal a significant positive correlation between board independence and ROA. This result is largely in line with Bebchuk and Weisbach (2010) and Pearce and Zahra (1992) that the presence of independent board directors can better control and minimize the exploitation of managers engaging in opportunistic behavior. In this vein, independent directors are often seen as "decision experts" who are more able to provide sound advice and counsels to the management in the formulation of strategic directions that are value-maximizing (Haniffa & Cooke, 2002). Similar to prior studies (Hermalin & Weisbach, 2003), we found a non-significant relationship between board independence and Tobin's Q. A possible reason for this finding is that appointment of independent directors was often seen as a perfunctory routine lacking to satisfy the regulatory requirements, rather than providing a system of checks and balances against any managerial excesses. More interestingly, the findings indicate that CEO duality was not significantly correlated with firm performance, both ROA and Tobin's Q.

The results suggest that separating the roles of CEO and chairperson of the board did not impact stock returns of Malaysian listed firms. From this finding, it can thus be inferred that the demarcation of roles and responsibilities between CEO and the chair may not be necessary when companies are well-run with strong leadership at the top of the firm (Finkelstein & D'Aveni, 1994). This interesting finding implies that within the Malaysian context, the designation of a

chairperson is more of a symbolic gesture to appease the regulators rather than a conscious effort to restrict unfettered powers being concentrated in the hands of one individual. In this regard, the findings of no significant association between CEO duality and firm performance are consistent with a number of studies conducted in the emerging economies such as Salehi et al. (2018) in Iran and Yasser et al. (2011) in Pakistan.

In addition, our findings support the signaling theory and prior studies on the arguments that audit committee financial expertise is closely tied to VCRD and firm performance. Audit committee members who are equipped with financial expertise have been demonstrated to possess the technical know-how that enhances the quality of final reporting (Contessotto & Moroney, 2013; Krishnan & Visvanathan, 2008). Likewise, insights from empirical research (Abbott et al., 2004; Krishnan, 2005) have previously argued that due to personal risks stemming from litigations and negative career outcomes, financially literate audit committee members are more likely to constrain opportunistic risk misreporting and accounting irregularities. More crucially, we find corroborating evidence in that the interaction of VCRD and firm performance is positively associated with the presence of audit committee financial expertise. The result is similar to the findings as reported by Ghafran and O'Sullivan (2013) and Abbott et al. (2004) that the presence of directors with accounting and finance expertise is significantly associated with enhanced controls and stronger firm performance. This role reflects the tenets of signaling theory that predict firms are more likely to confer assurance to shareholders by providing more decision-useful risk information, which, in turn, lead to higher market visibility and lower agency costs (Haniffa & Cooke, 2002).

Conclusion

In recent years, expectations of increased transparency in firms' risk reporting practices have surged dramatically following the rapid pace of globalization and the ensuing uncertainties in an increasingly complex global business environment. In this paper, our motivation mainly stems from the intensifying interest in voluntary corporate risk disclosure (VCRD) and governance practices by exploring a critical issue: whether risk disclosures and

governance mechanisms can influence the level of firm performance. Accordingly, the main aim of this study is to empirically investigate the interplay between risk disclosures, governance mechanisms, and firm performance from the perspectives of agency theory and signaling theory. This research adds to the current literature on corporate voluntary risk disclosures by being the first study to examine the moderating impact of audit committee financial expertise on the VCRD-firm performance relationship.

Based on a sample of 290 firms listed on the Malaysian Stock Exchange, our empirical results demonstrate a positive and statistically significant association between VCRD and firm performance (ROA and Tobin's Q). In addition, we also find that governance mechanism such as board size has a significant positive impact on firm performance. On the contrary, the absence of a significant relationship between CEO duality and firm performance suggests that separating the roles of CEO and chairperson tends to have no significant impact on firm performance. When we examine the moderating effect of audit committee financial expertise on the VCRD-firm performance relationship, we find that audit committee financial expertise has been demonstrated to positively moderate the impact of VCRD and ROA, complementing the theoretical viewpoints of agency theory and signaling theory. This leads to an important conclusion – profitable firms tend to signal their superior financial performance by disclosing more detailed decision-useful risk information to enhance corporate reputation.

Findings from this study offer several contributions towards the extant literature and policy horizons. This study contributes to the literature by illustrating that transmission of comprehensive risk disclosures in the annual reports could be interpreted as sending positive signals to the capital market about their underlying financial strength, thus distinguishing themselves from firms with lower profitability. The findings also imply that firms should move away from the conventional “box-ticking” approach in risk reporting practices which leads to boilerplate and non-specific risk disclosures. Understanding the consequent economic benefits of providing decision-useful risk narratives in the annual reports may assist standard setters and policymakers to review their approach in developing a more robust risk disclosure framework. Because investors are the consumers of financial reporting who rely on risk-related information to make well-informed

investment decisions, such disclosure reforms are most appropriate and necessary.

Further, the results of this study provide evidence that firms with a higher presence of audit committee financial expertise are associated with higher firm performance. Essentially, our study highlights the significance of decision-useful risk narratives in the capital market, without which investors are unable to impound such firm-specific risk information into their investment decisions. Regulatory bodies and policymakers can make practical use of these findings to introduce more comprehensive risk reporting guidelines, primarily designed to encourage firms to disclose additional forward-looking and quantitative information in the annual report while improving board leadership effectiveness.

Notwithstanding the above-mentioned contributions, the paper has some limitations which may provide promising opportunities for future research. Firstly, this study focuses only on firms in the Malaysian context, a reflection of an emerging country capital market. As such, the findings may have limited applicability in the context of developed countries whose institutional, legal, and economic settings may substantially differ. Similar research in the future can be extended to other markets. Secondly, we acknowledge the fact that this is a cross-sectional study and that findings obtained from one-year data might not be generalized at multiple time points. Future studies may extend the current investigation longitudinally to assess whether such research findings fluctuate over time. However, the findings are yet reliable as prior investigations show that variations in risk disclosure trends across time periods are non-significant (e.g., Abraham & Shrivs, 2014; Miihkinen, 2013). Finally, we also encourage future research to expand the model in this study to include other factors such as ownership structures and audit reputations that may be associated with firm performance. However, we leave the investigation of these variables to be pursued in future research.

Declaration of ownership

This report is our original work.

Conflict of interest

None.

Ethical clearance

This study was approved by our institution.

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Appendix A

Voluntary Corporate Risk Disclosure (VCRD) Categories

Risk Disclosure Categories	Risk Information Items
Financial risk	Interest rate Exchange rate Commodity Liquidity Credit
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
Empowerment risk	Leadership and management Outsourcing Performance incentives Change readiness Communications
Information processing and technology risk	Integrity Access Availability Infrastructure
Integrity risk	Management and employee fraud Illegal acts Reputation
Strategic risk	Environmental scan Industry Business portfolio Competitors Pricing Valuation Planning Life cycle Performance measurement Regulatory Sovereign and political

Source: Linsley and Shives (2006)