The Effects of Corporate Governance on Enterprise Risk Management: Evidence from Malaysian Shariah-Compliant Firms

Enny Nurdin Sutan Maruhun, Wan Razazila Wan Abdullah, Ruhaya Atan and Sharifah Norzehan Syed Yusuf

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[1]Enny Nurdin Sutan Maruhun, [1]Wan Razazila Wan Abdullah, [2]Ruhaya Atan and [3]Sharifah Norzehan Syed Yusuf

[1] Faculty of Accountancy, Universiti Teknologi MARA, Perak Branch, Tapah Campus, 35400 Tapah Road, Perak, Malaysia, [2]Accounting Research Institute, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia, [3]Institute of Professional Accountants, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

Abstract

The 2008 global financial scandals have increased pressure on corporations to improve corporate governance practices particularly on risk management. As a response to the crisis, corporate governance reforms have been evidenced. Enterprise risk management (ERM) was introduced as one of the mechanisms that can improve corporate governance practices particularly on risk management. Since its introduction, ERM has received major attention from corporations. Despite the claim that ERM is the solution for corporate governance deficiency, the number of empirical research examining this new field is still limited. Thus, this study aimed at assessing the current development of ERM practices and identifying corporate governance characteristics that influence ERM implementation among Malaysian Shariah-compliant firms. The extent of ERM implementation was measured by using ERM Dimension index (ERMDi). A questionnaire survey was developed based on ERMDi to gather information on the extent of ERM practices. Four corporate governance characteristics were examined that are risk management committee (RMC), board size, proportion of non-executive directors and board expertise and its influence to ERM implementation. The data was analyzed by using Partial Least Squares and Structural Equation Modelling technique (PLS-SEM). Findings of this study show that the extent of ERM implementation among sample firms is at the moderate level and based on PLS-SEM analyses, board size and board expertise has a strong influence to ERM implementation. This study, find support that corporate governance characteristics have a positive and significant association with ERM implementation. The findings of this paper provide an additional empirical evidence regarding the extent of ERM practices and corporate governance characteristics that would influence ERM implementation among Malaysian Shariah-compliant firms.

Keywords: Enterprise Risk Management, Corporate Governance, Partial Least Squares, Structural Equation Modelling, Shariah-Compliant Firms

Introduction

The 2008 global financial crisis has intensified and refocused interest on risk and the environment of systems that operate to manage those risks. Risk is an event that managers need to face in order to gain profit and avoiding risk means giving up the opportunity to gain profit. Manager needs to manage factors that stimulate risk so that they can pursue strategic advantage and opportunity arise from the risks (Miccolis & Shah, 2000). Corporate risk management is a vital activity to ensure business sustainability which in the era of globalization, firms have to encounter a myriad of risks that sometimes is beyond their control. Therefore, an effective risk management system is imperative for firm to be successful and sustained in today's challenging business world.

Weak corporate governance has been blamed as one of the factors that causes major failure in risk management and as a contributing factor to the collapse of many major firms in the fiasco. The impact of the crisis had been the wake-up call for most firms when they were unprepared and surprised by the extensions of the crisis (Harner, 2010). Recuperating from the effects of corporate debacles, policymakers and stakeholders are demanding greater oversight from organizations especially from the board of directors (BODs) and top management for managing key risks that are facing the business. Senior managers need to take more responsibility in managing corporate risks.

Enterprise Risk Management (ERM) was introduced as a new mechanism in predicting risks and helping firms achieve their goals (Arena, Arnaboldi, & Azzone, 2011). This new technique manages risks through an enterprise wide strategy, top-down approach and most importantly, it is driven by the need for firms to manage risks effectively in order to sustain operations and achieve business objectives (Frigo & Anderson, 2011; Kleffner, Lee, & McGannon, 2003; Meulbroek, 2002). ERM requires BODs and top management greater involvement in corporate risk management. Since its introduction ERM has received much attention from industries. Corporate governance is crucial for an effective ERM implementation, a main component that drives ERM in a firm.

Despite the claim that ERM is the solution for corporate governance deficiency particularly in risk management practices, the number of empirical research studying this new field is still limited. Empirical research examining the current practices of ERM and firm's characteristics that influence the ERM implementation is still lacking (Kleffner et al., 2003; Liebenberg & Hoyt, 2003). Pagach and Warr (2011) argue that little effort has been put in investigating firm's characteristics that influence the firm's decision in implementing ERM. Furthermore, Beasley, Clune, and Hermanson (2005) highlight that academics need to provide insights into firm's characteristics that influence some firms to response to the changing risk profiles by embracing ERM while others are not.

Thus, this study aims to (i) assess the current development of ERM practices and (ii) identify corporate governance characteristics that influence ERM implementation among Malaysian Shariah-compliant firms. Shariah-compliant firms are the focus of this study because of the rapid growth of Islamic Capital Market (ICM) in Malaysia. Even though the number of firms classified as Shariah-compliant over the years has been on the rise, there is very limited empirical research on the business conduct of these firms particularly on risk management.

Literature Reviews
Corporate Governance and Risk Management

The investors' weakening confidence towards firm's risk management practices particularly after the crisis has made corporate governance a top priority for the BODs, top management, auditors, and stakeholders (Sobel & Reding, 2004). Due to this development, the awareness on risk is growing and firm practices have increasingly become organised around risk. Corporate governance components particularly BODs have increased their attention on risk management activities such as identifying, assessing, treating and monitoring risks, as well as, evaluating the effectiveness of management controls to manage risk (Soin & Collier, 2013). In general, corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment. It is the mechanism in which stakeholders of a firm exercise control over corporate insiders and management to protect their own interest (Shleifer & Vishny, 1997). These mechanisms help to reduce agency problem and bring the interests of the managers in line with the shareholders. Among mechanisms that can alleviate corporate governance problem is an efficient risk management system (Walsh & Seward, 1990).

Corporate governance and risk management are linked together to assist how firms can better understand the risks, improve and deliver its objectives and mitigate, assess, and manage risk in an appropriate manner (Zahiruddin & Norlida, 2013). Risk management is a key component of corporate governance. It is an important mechanism in achieving organization's objectives and monitoring agent performance (Demidenko & McNutt, 2010). Therefore, ERM is an important mechanism in the firm governance framework which can be used as a monitoring or controlling mechanism in aligning the principal-agent relationship to reduce agency problem.

Risk Management from Islamic Perspective and Shariah-Compliant Firms

Risk is an important element in Islamic economic activities and must be taken to create wealth and value. It is argued that obtaining profit without assuming business risk is not permissible. Total elimination of risk in financial transaction, which is 'zero risk' may result in the income derived becoming illegitimate. According to Shariah, the profit is only legitimate if it assumes a proportionate risk and should not be gained from risk free contract. Risk taking principle is based on the principle of liability that forms the legitimacy of receiving profit (Agha & Sabirzyanov, 2015). Risk management is an important activity in Shariah-compliant firm and risk management practices in Islamic perspectives are different from conventional framework. From conventional point of view, the primary focus of corporate risk management is to manage and minimize risk, which is limited to economic activities. Whereas, risk management according to Shariah is following the provisions of the Qur'an and the Sunnah of Prophet Muhammad (peace upon him) that promotes the preservation of wealth as one of the most important objectives of the Shariah. Islam recognizes that risk is common in business and prescribes ways on how to manage and minimize the risks (Asyraf, n.d.).

Shariah-compliant is the term used to describe a firm, in which its operation, financial, and investments activities conform to Islamic law. Securities Commission of Malaysia (SC) is the body responsible to undertake the stock screening process and granting Shariah-compliant status to those firms that apply for the status. SC uses two phases of screening process which are quantitative and qualitative assessments to screen firm's activities. In general, Shariah-compliant

status will be given to a firm whose business activities not involve in any of the following matters: (i) financial services based on riba, (ii) gambling, (iii) manufacturing or sale of non-halal (prohibited) products or related products, (iv) conventional insurance, (v) entertainment activities that are non-permissible according to Shariah, (vi) manufacturing or sale of tobacco-based products or related products, (vii) stock broking or share trading in non-Shariah approved securities, and (viii) other activities deemed non-permissible according to Shariah (Laldin, 2008). Public listed firms that have been granted the shariah-compliant status are regarded as ethical firms that adopt and maintain higher standards in running their business activities. Shariah-compliant firm should adhere to ethical corporate governance system, which assures all of the firm's operations, contracts and procedures conform to ethical code including the process of managing risk (Lewis, 2005).

Methodology

To achieve the first research objective of this study, which is to assess the extent of ERM implementation, a survey methodology was adopted. Previous literatures have shown that survey is the common method used in assessing ERM practices. The questionnaire was designed with the focus of identifying the level of ERM implementation in a firm. The survey questions were constructed according to Enterprise Risk Management Dimension Index (ERMDi) proposed and developed in this study because of the ERM measurement issues highlighted in the literatures.

ERMDi Development Process

Past empirical researches have yielded inconclusive findings regarding the determinants and value creation potential of ERM. Lundqvist (2014) argues that the main cause of the mixed findings is partly due to flaws and inconsistencies in the method used to measure the ERM construct. The lack of a suitable and comprehensive dimension available to measure ERM construct is one of the obstacles in researching in this area (Beasley, Pagach, & Warr, 2008; Gordon, Loeb, & Tseng, 2009; Liebenberg & Hoyt, 2003; McShane, Nair, & Rustambekov, 2011). Inconclusive findings in ERM research are mainly due to different dimension used in measuring ERM and therefore, it is important to have a robust measurement that can measure ERM construct comprehensively.

ERMDi is proposed as an instrument that can measure ERM implementation comprehensively. The instrument development process in this study followed a step-by-step guidelines recommended by Mackenzie, Podsakoff, and Podsakoff (2011) and Lewis, Templeton, & Byrd (2005). Lewis et al., 2005 argue that an instrument development is a critical process particularly in a new research area where the existence of validated instruments is limited. The instrument development process began with an extensive literature review, followed by content adequacy assessments to ensure that a valid and reliable instrument items are produced. The process started with a clear theoretical specification of the ERM construct which included defining the construct, and specifying its premise (purpose) and theoretical domain, as well as the dimensions.

The propose dimension was operationalized by incorporating the important elements and effectiveness of risk management practices as specified in literatures, specifically in COSO's ERM-Integrated Framework and ISO 31000:2009. ERMDi consists of eight principal dimensions that

are measured through 44 items deemed important and relevant in assessing the extent of ERM implementation. The eight interrelated dimensions of ERM are namely, (i) internal environment, (ii) objective setting, (iii) event identification, (iv) risk assessment, (v) risk response, (vi) control activities, (vii) information and communication, and (viii) monitoring. A total of 41 indicators that measuring eight principal components of ERM shows a satisfactory result of reliability and validity thus all of the indicators are remained and used in the final data collection process.

Data Collection

Unit of analysis of this research is firm i.e. publicly traded Malaysian Shariah-compliant firms. The sample is selected from the list of Shariah-compliant firms issued by the Shariah Advisory Council (SAC) of the Securities Commission Malaysia (SC). Samples are selected from the population using simple random sampling method and the final sample is comprised of 201 Shariah-compliant firms from seven industries. This study employed two types of data, which are primary data; collected through survey questionnaire and secondary data that is obtained from firm's annual reports. Primary data was obtained through survey questionnaire that the main objective is to assess the extent of ERM implementation among sample firms. On the other hand, secondary data was used to operationalize the variables that are RMC, proportion of non-executive directors, board size, and board expertise. The secondary data was handpicked from companies' published annual reports. Meanwhile, a structured questionnaire was administered through 'Survey Monkey'TM, a web-based survey software package. The questionnaire required the respondents to rate the extent of ERM implementation in their organizations based on ERMDi. The survey was sent to personnel responsible for risk management activities in the organization that are chief risk officer (CRO), accountant, management accountant, and internal audit officers. At the end of the data collection period one hundred and five responses were received. However, twenty-four were rejected and removed from the sample because the respondents left a substantial number of questions unanswered. Therefore, the final usable sample consists of eighty one respondents.

Data Analyses and Discussions

This study examines; the current extent of ERM practices and, corporate governance characteristics that influence ERM implementation in Malaysian Shariah-compliant firms. In order to answer the stated research objectives, data gathered through survey questionnaire and secondary data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). This study used PLS-SEM as a tool of analyzing data because of; (i) non-normal data, results of normality test suggesting the violation of normality assumption, (ii) small sample size, PLS-SEM works efficiently when small samples are used to estimate path models comprising many constructs, hence, final data consists of 81 firms and, (iii) scale of measurement, PLS-SEM has received considerable support as the recommended method for estimating both formative and reflective constructs.

Analysis on the Extent of ERM Implementation

The extent of ERM implementation was measured by descriptive statistics (means and standard deviations) computed based on the data collected from the questionnaire by using seven-point Likert scale of 1=strongly disagree to 7=strongly agree. To determine the extent of

ERM implementation among the sample firms, the respondents are rated into three categories that are (i) high extent of ERM implementation, (ii) moderate extent of ERM implementation, and (iii) low extent of ERM implementation. Respondents are classified using semantic scale adapting from the scale used in Lai and Fazilah (2010). The respondents that have the mean scores ranging between 6 and 7 are categorized as high extent, the scale ranging from 4 to less than 6 is categorized as moderate extent and the scale ranging from 1 to less than 4 is categorized as low extent of ERM implementation.

Table 1 summarizes the result of frequencies analysis of the extent of ERM implementation among the sample firms. From the total of 81 companies, 21 companies (26%) are considered as having a high extent of ERM implementation, while the majority of the companies, 58 companies (72%) fall under the category of moderate extent and 2% of the companies were at the low extent of ERM implementation.

Table 1: Extent of ERM Implementation among Companies

No	Extent of ERM	Scale	Frequency	%
1.	High Extent	6 – 7	21	26
2.	Moderate Extent	4 < 6	58	72
3.	Low Extent	<4.0	2	2
		Total	81	100

Table 2 demonstrates the statistical distribution of the scores of the extent of ERM implementation for the whole sample. The mean scores represent the average of the scores of the whole sample (81 participants) on every scale in the questionnaire. The results show that the mean score of the extent of ERM implementation for the total sample is 5.64.

Table 2: Descriptive statistics of the extent of ERM implementation as a whole sample

Variables	Min	Max	Mean	S.D
ERM Implementation	2.77	6.72	5.64	.63

The result reveals that of the firms being surveyed, a majority of them have ERM in place; however, the extent of implementation varies among the firms. They either have an extensive ERM in place or a moderate ERM in place. These findings show a positive movement of ERM practices among Malaysian Shariah-compliant companies where as a whole the level of ERM implementation is at a moderate level. In general, the findings show that the sample firms have moved towards ERM, a holistic approach of managing corporate risks. The current movement in ERM implementation among Malaysian firms is consistent with other countries with evidence showing that a large number of firms have now started to use ERM as a strategic management tool (Pagach & Warr, 2010).

The positive and encouraging level of ERM implementation by Malaysian Shariah-compliant firms can be associated to the concept of risk management from Islamic perspectives. Risk is an important element and a core principal in Islamic financial transactions that must be

taken in order to create value and wealth. From the Islamic point of view, acquisition of profit without assuming business risk is not permissible. In addition, the ultimate objective of risk management according to Shariah law is to protect the safety of people; therefore, it is the responsibility of a firm to manage risk effectively in order to safeguard the wellbeing of its stakeholders. The findings have substantiated that Shariah-compliant firms in Malaysia are following the requirement of Shariah law to take all the necessary actions to safeguard present and future wealth of the business where risk is an event that is attached with the possibility of loss of wealth. Increasing adoption of ERM by Shariah-compliant firms as a risk management tool that is able to defend them in unfavourable events and able to safeguard and preserve stakeholders' wealth is an evidence that these firms are managed according to Islamic law.

Model Estimation using PLS-SEM

PLS-SEM analysis was conducted to examine the reliability and validity of ERMDi and to identify corporate governance characteristics that influence ERM implementation. PLS-SEM is a component-based estimation method. PLS-SEM path models are formally defined by two sets of linear equations: (i) the measurement model (outer model) and (ii) the structural model (inner model). The measurement model specifies the relations between a construct and its observed indicators also known as manifest variables, whereas the structural model specifies the relationships between the constructs (Jörg Henseler, Hubona, & Ash, 2016). PLS-SEM model estimation procedures are empirical measures of the relationship between the indicators and the constructs (measurement model) as well as between the constructs (structural model).

Assessment of the Measurement Model

Prior to structural model examinations it is important to ensure the reliability and validity of the measurement model (outer model). This assessment established whether the instrument items that were used to gather the data actually measured what they were intended to measure. ERM construct was measured using ERMDi and corporate governance characteristics were measured by four variables that are board size, board expertise, proportion of non-executive directors and risk management committee (RMC). ERM and corporate governance are reflectively measured constructs. The reflectively measured constructs assume that the indicators are caused by the underlying construct and therefore, need to be evaluated with regards to its reliability and validity. The first inspection of the reflective measurement model was the assessment of the composite reliability and convergent validity of the constructs. The composite reliability assesses the construct internal consistency means that the construct is internally consistent due to the consistency of measures used meanwhile, convergent validity is assessed by evaluating the reliability of each item used to measure the constructs. Convergent validity was evaluated using three analyses: (i) items reliability, (ii) composite reliability and (iii) average variance extracted (AVE). An established rule of thumb states that a construct should explain a significant part of each indicator's variance means that an indicator's loading should be above 0.70. The indicators with loading below the threshold of 0.70 but above 0.40 should only be considered for removal from the scale when deleting the indicator's results in an increase in the composite reliability or AVE (Hair, Hult, Ringle, & Sarstedt, 2014).

As shown on Table 3, each dimension of the ERM construct had a satisfactory range of factor loadings. As stated previously, the ERM construct was formed based on eight different

dimensions: (i) internal environment, (ii) objective setting, (iii) event identification, (iv) risk assessment, (v) risk response, (vi) control activities, (vii) information and communication, and (viii) monitoring. Each dimension was measured by a group of indicators and from the composite reliability (CR) value, which explains the degree to which the construct indicators indicate the latent construct is 0.866, well above the threshold value of 0.70 (Hair, Hult, et al., 2014). The results signifies that all the indicators measuring the eight dimensions of ERM have integrated into one dimension. The AVE value of ERM construct which is 0.538 is exceeding the threshold value of 0.50 (Hair, Sarstedt, et al., 2014). In conclusion, ERM dimensions have a high level of reliability and convergent validity that demonstrates ERMDi as an efficient measurement of ERM construct.

Table 3: Results of the convergent validity of measurement model

Construct	Dimension/Variable	Outer Loadings	CR	AVE
ERM	Internal Environment	0.662		
	Objective Setting	0.580		
	Event Identification	0.612		
	Risk Assessment	0.754		
	Risk Response	0.674	0.866	
	Controls Activities	0.677		0.538
	Info &	0.715		
	Communication	0.749		
	Monitoring			
Corporate Governance	Board Size	0.806		
	Expertise	*0.755*		
	Portion NEDs	*0.109*	0.775	0.633
	RMC	0.757		
Firm Value	Tobin's Q			
			1.000	1.000

Note: * Variable in italics has been removed due to low loading and Firm Value is a single-item variable.

As for corporate governance constructs; board size, board expertise and RMC yield item loadings are above the threshold value of 0.7, which are 0.806, 0.755 and 0.757 respectively however, a proportion of the NEDs produced very low loading of 0.109. The finding shows that a proportion of the NEDs is a weak dimension of the corporate governance therefore, this variable was dropped as dimension of corporate governance. Thus, board size, board expertise, and RMC are good measurement of corporate governance construct.

Assessment of Structural Model

Once the measurement model had a satisfactory level of validity and reliability, then the second part of the model estimation was conducted, which was to analyse the structural model of the path modeling. In general, the structural model describes the interrelationships among the constructs where the relationships within the structural (inner) model were assessed.

Assessment of the structural model is important to determine how well the empirical data supports the theory and thus, to decide if the theory has been empirically confirmed. The structural model was assessed using two criteria that are the level of the R square (R^2) values, and the significance of the path coefficients. Chin (1998) suggests the three level of R^2 values; 0.67, 0.33 and 0.19 which are interpreted as substantial, moderate, and weak respectively. PLS-SEM determines path coefficient using the bootstrapping (resampling) procedures. In order to measure the statistical significance of the path coefficients, t-values and significant levels were obtained by applying a nonparametric bootstrapping technique (Chin, 1998) which is the standard method used to test the significance of PLS path modeling results (Henseler, Ringle, & Sinkovics, 2009).

The R^2 values of dependent variables can be considered at moderate level which is at 0.321. The results highlight that the corporate governance construct explained 32.1 % of the total variance of ERM implementation. Figure 1 presents the results of the PLS analysis of the structural model.
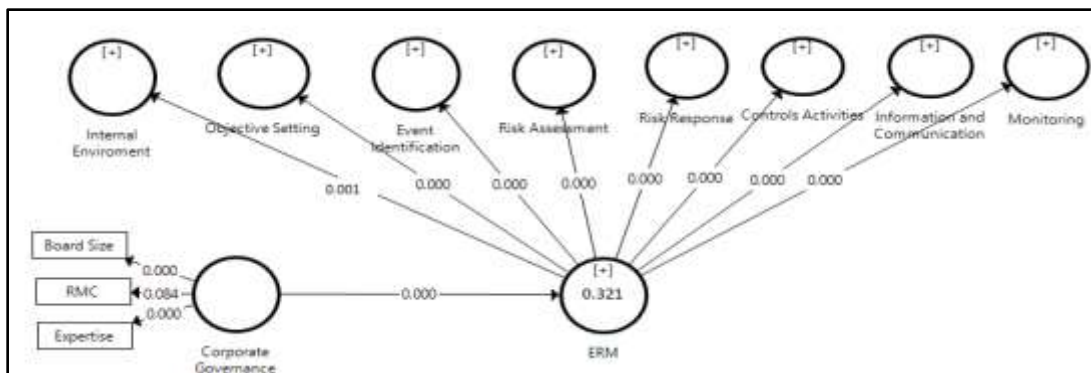

Figure 1: The results of relationship among corporate governance and ERM and ERM

Dimension
        The structural model analyses confirmed that the eight dimensions of ERM was significantly related to the construct, the co-efficient (β) are ranged from 0.044 to 0.272 and are all significant, p<0.001 as shown on Table 4. Table 5 shows that two of corporate governance variables; Board size and board expertise are the significant dimension of corporate governance. Board size and board expertise with the co-efficient (β) of 0.298 and 0.242 respectively are the important determinant of ERM implementation.

Table 4: Path Co-Efficient of ERM Dimensions

Path	Co-efficient (β)	*t*-value	*p*-value
Internal Environment→ ERM	0.044	3.261	0.001
Objective Setting → ERM	0.059	3.895	0.000
Event Identification → ERM	0.149	7.375	0.000
Risk Assessment → ERM	0.176	10.336	0.000
Risk Response → ERM	0.150	7.713	0.000
Control Activities → ERM	0.149	4.888	0.000
Info & Communication → ERM	0.149	7.471	0.000
Monitoring → ERM	0.272	10.616	0.000

Notes: $p < 0.001$

Table 5: Path Co-Efficient of Corporate Governance Characteristics

Path	Co-efficient (β)	*t*-value	*p*-value
Board Size-ERM	0.298	3.953	0.000
RMC-ERM	0.119	0.876	0.084
Board Expertise-ERM	0.242	3.838	0.000
ERM-Firm Value	0.081	0.663	0.508

Notes: $p < 0.001$

The findings substantiated that the corporate governance characteristics in particular board size and board expertise are significant determinants of ERM implementation among Malaysian Shariah-compliant firms.

Conclusions

Findings of this study substantiated the significant role of corporate governance as a driving force to ensure that a firm practices a comprehensive and effective risk management technique such as ERM. Two corporate governance attributes, which are (i) board size, and (ii) board expertise are significant determinants of ERM implementation in Malaysian Shariah-compliant firms. In general, the findings show that the Malaysian Shariah-compliant firms have moved towards ERM, a holistic approach of managing corporate risks. Descriptive analyses shows that the overall ERM penetration level among the Malaysian Shariah-compliant firms are at moderate extent. This study provide additional empirical evidence regarding determinant of ERM implementation and Enterprise Risk Management Dimension Index (ERMDi) that was developed in this study can be used both by practitioners in assessing the maturity level of ERM program in their organisations and, by academics in their empirical research.

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