



Review of Literature on Methodological Approaches of Assessing the Adoption of Enterprise Risk Management Practices

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Authors' contributions

This work was carried out in collaboration between all authors. Author SPGMA designed the study, performed the analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors AJMP and UDPP managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

This study intends to examine the previous researches on Enterprise Risk Management (ERM). On examining the previous researches, it is evident that both primary data based (using robust models) and secondary data based (using Dummy variables) approaches adopted by the previous researchers and those are taken into account and have been reviewed in this paper. In here, researchers have identified that most of the recent studies have used robust models in assessing the adoption of ERM practices, while earlier researchers used dummy variables in assessing ERM practices. Here, in some cases, there are some contradictories of results of the studies in two approaches. Based on the recommendations, conclusions of prior research, and the analysis of the available literature, it has been recommended to use robust models like COSO ERM framework, ISO 31000 etc. in case of assessing the adoption of ERM practices in future studies.

Keywords: *Enterprise risk management; ERM practices; dummy variables; robust models.*

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1. INTRODUCTION

It is troublesome to recognize a proper definition for the term “risk” since it is attached with many aspects. Somehow researchers, professional institutes, and related organizations have defined the term “risk” from their views. According to ISO 31000 [1], risk refers to the effect of uncertainty on objectives where the effect could be a positive or negative deviation from the expected outcome. That means the risk is often described by an event, a change in circumstances or a consequence. Risk refers to a condition in which there exists a quantifiable dispersion in the possible outcomes from any activity (CIMA-Jasmin Harvey and Technical Information Service [2]). Risks can have an impact on an organization in any tenor; short, medium and long term. The terms risk and uncertainty are used interchangeably. Some scholars have been distinguished risk and uncertainty based on the possibility of quantification where the risk is identified as quantifiable uncertainties. The risk can be perceived in three ways as mainly based on its impact; threat which is known as downside risk, uncertainty, and opportunities that are known as upside risk (CIMA-Jasmin Harvey and Technical Information Service [2]).

Every type of business organization including insurance companies should identify that the risk does not continuously come about within the negative results. Therefore, in some cases, accepting a high risk could be an opportunity to generate a high return and such risks are known as upside risks, while the threats or uncertainties are known as downside risks. So, nowadays, it is common to understand that business organizations should accept a certain level of risk as per the risk-return relationship and earn a return to maximize the value to owners. In this case, risk management plays an essential role in maximizing the upside risks and minimizing the downside risks.

Risk management manages the organization's risk as a vital part of the organization's strategic management. Nowadays, many organizations/people have introduced models for ERM (Ex: COSO ERM framework, ISO 31000 [1]). Those provide detailed practical application guides, key components, and risk-management principles for organizations regardless of size. Consequently, Enterprise Risk Management (ERM) is adopted as a strategic tool structured to help management to respond to impending risks and manage uncertainties using an integrated and all-inclusive approach.

2. LITERATURE REVIEW

Risk refers to common business issue and it is always a topic, full of ambiguity and complexity. The understanding and awareness about risk and sophistication of risk management techniques, have been increased remarkably in the recent few years [3]. Meulbroek [4] has mentioned that the goal of risk management is not minimizing the total belongs to a firm, but to choose the optimal level of risk to maximize shareholder value. The professional status of risk management as a mainstream business discipline (e.g., accounting, marketing, strategy, etc) has yet to evolve. According to Dickinson [5], Enterprise Risk Management (ERM) evolution has emerged not only as a concept but also as a management function. Traditional risk management separates risk categories into so-called risk-silos [6]. This means that there are different risk types as market, credit, liquidity and operational risks and those are managed separately. The downside of this method is that because of the splitting up of the risks, every risk needs to be managed individually, leading to inefficiencies in risk management. According to, Gates et al., [7] ERM as an integrated and a disciplined method which exists in organizations and facilitates systematic managing of firm related risks in an organization and helps in achieving the objectives of an enterprise.

Enterprise risk management diversely views risk management. A difference between traditional risk management and enterprise risk management is the focus. Where the main focus of traditional risk management is on financial risks while ERM incorporates strategic and operational risk together with the financial risk into one complete risk management framework. In operational views, ERM is a management process of risk in an enterprise-wide framework which controlling risk is preferred [8]. In strategic views, ERM is intended to reduce the degree of failure in achieving organizational strategic goals over a period of time [5]. ERM is an approach to managing the risks of a modern dynamic business enterprise irrespective of the nature of the risks and sources of the risks. However, the varying adaption of approaches is important in its implementation in a particular business to achieve its business goals within the constraints of available resource, culture, regulatory, market, and social environments. Furthermore, Yusuwan et al., [9] have concluded that size was not related to the extent of ERM development and concluded that financial institutions

tend to adopt ERM because of regulators' requirements.

Many researchers in local & foreign context have tested impact of ERM practices towards performance of the different types of organizations.

In Sri Lankan context, Alawattegama [10] have found that except for communication and monitoring, the adoption of ERM has no significant impact on firm performance in the case of diversified listed companies. And the same researcher [11] has tested the impact of ERM practices of performance in the banking industry and has concluded that none of the ERM functions suggested by the COSO ERM framework has a significant impact of the performance.

In foreign context, many researchers have also tested the relationship between ERM as a full framework/ element/s of the framework and performances of business entities. Ibrahim and Primiana [12] have assert that the internal environment has a significant on organization performances. Furthermore, Kinyua et al. [13] also have recognized that there is a significant relationship between internal control environment and financial performance. And also, Liebenberg and Hoyt [6] has been concluded that having a chief risk officer strengthens the firm's ERM internal environment and adds value to the firm. Teo et al. [14] have identified that goal setting has an impact on employee effectiveness and ultimately improves organizational effectiveness, Palanimally [15] have been found a significant relationship between internal control activities and operational performance. Teo et al. [14] have concluded that goal setting is playing a role in the relationship depicted in the conceptual model and it has an impact on employee effectiveness and ultimately it contributes to improve organizational effectiveness. According to Hoyt and Liebenberg [16], ERM strategy is normally targeting to reduce volatility by preventing aggregation of risk across different sources. According to Solomon and Muntean [17], a company's risk assessment based on of leverage coefficients is required for the predicted behavior analysis for estimating future results. Deloitte et al. [18], has assert that risk assessment is important since it is how enterprises get a handle on how significant each risk is to the achievement of their overall goals. According to Munene [19], there is a significant relationship between the internal control system and financial performance. Further, Eniola and

Akinselure [20] has concluded that effective internal controls will significantly improve financial performance. Palanimally [15] has investigated that the effectiveness of internal control impacted the performance in SMEs. Eikenhout [21] has stated that the improvement in the information of the organization's risk profile is another potential source of value created by ERM. Further, Altanashatet al. [22] has found that Internal Environment, Event Identification, Risk Assessment, Risk Response, Control Activities, Information and Communication, and Monitoring are significant predictors, except for objective setting. These variables statistically and significantly predicted performance of extraction companies in Jordan.

On the other hand, some researchers have concluded and investigated benefits of implementing ERM practices.

Baxter, et al. [23] have investigated whether firms with high-quality ERM systems in place, perform better and are higher valued than firms with lower quality ERM systems in place. Their findings have been proved that a higher level of ERM implementation increases performance by mitigating losses and/or taking advantage of opportunities. KPMG LLP (2010) has surveyed twenty-one US companies in insurance, banking and utilities regarding their current ERM practices. The survey identified five key practices as governance structure and reporting lines, emerging risk identification, risk appetite, use of scenario analysis and economic capital models and risk aware culture and that study has concluded that risk management must be tailored to meet a company's maturity, culture and risk profile and that risk management need to be integrated into a company's business decision processes. In a study on the value implications of ERM in insurance companies, Hoyt and Liebenberg [16] created two main variables; Tobin's Q and ERM, Tobin's Q is the most often used proxy for firm value [24] and the study has concluded that firm engagement in ERM has positive outcomes. The announcement of a chief risk officer (CRO) is used as one of the indicators for ERM implementation. The mean and median Tobin's Q observations are significantly higher in the group with an identifiable ERM program, meaning a higher firm value for the ERM users. Furthermore, Farrell and Gallagher [25] have concluded that ERM practices don't focus on just risk avoidance activities those focus on the value to be gained from exposure to risks for which a firm has a strategic competitive advantage.

According to KPMG International [26], there are four main reasons in the case of US companies exercise ERM. These are: (i) the organization desire to reduce potential financial losses (ii) the organization desire to improve business performance (iii) due to the regulatory compliance requirements and (iv) the organization desire to increase risk accountability. On the other hand, Price water house Coopers [27] has been noted that firms in Finland are motivated to implement ERM because of: (i) adopt good business practice; (ii) due to corporate governance pressure; (iii) getting competitive advantage and (iv) regulatory pressure and also investment community pressure. Based on some prior studies [28, 6] main advantages of ERM include: greater probability of reaching firms' goals, reduction in the cost of capital, greater understanding of main risks and optimization of the portfolio of risks, reduction in the volatility of cash flows, definition of intervention priorities, improvement in compliance to norms, smaller number of unforeseen events and the consequential losses, greater push to change and greater response speed to varied business conditions and greater tendency to risk in order to have greater returns.

3. METHODOLOGY

Here, researchers have observed the methodological approaches of measuring ERM practices (operationalizations) of prior researchers who have studied on ERM practices. And categorized them in to two categories as,

- 1) Studies which have used dummy variables (Secondary data) in assessing the adoption of ERM practices.
- 2) Studies which have used more robust models (Primary data) in assessing the adoption of ERM practices.

Then, researchers analyzed the recommendations/ findings of the prior researchers and tried to come up with a conclusion which gives a direction to future

researchers who wish to study on ERM practices.

Selection of research papers: Here, researchers have not priorities any journal or any author. Researchers just search related publications through online search using the key term as “Enterprise Risk Management”.

4. RESULTS AND DISCUSSION

In prior empirical literature various determinants and implications relates to ERM have been studied and documented. Most prior studies have expressed the relationship between ERM practices and the performance of businessfirms [10, 5, 12, 13, 6, 14, 7, 16, 29, 30]. And most of the prior researchers have used dummy variables such as the presence of chief officer, risk committee, big four auditors when assessing the adoption of ERM by business firms & some prior researchers have used some robust models (Based on COSO, ISO 31000 [1], etc). Table 01, represents the categorization of the studies to above identified two methodological approaches.

In case of studies that have been used dummy variables in assessing the adoption of ERM practices, it has been concluded as high level of practicing / strong impact towards performances in most cases. But in case studies that have used more robust models do not show that much of a strong level of practicing/ impact towards performance. And also, most of the most recent studies are operationalized based on the robust models / Primary data.

It has also been criticized by some scholars claiming nominal variables cannot reliably measure the extent of ERM adoption by a firm. As an example, Hoyt and Liebenberg [16], suggest the researchers are required to find more robust models for assessing the extent of ERM implementation.

Table 1. Categorization of main studies

Studies which have used dummy variables (Secondary data) in assessing the adoption of ERM practices	Studies which have used more robust models (Primary data) in assessing the adoption of ERM practices
Beasley et al. [29], Liebenberg and Hoyt [6], Pegach and Warr, 2011; Kinyua et al. [13], Teo et al. [16], Gates et al. [7], Hoyt and Liebenberg [16], Kiprop and Tenai [30].	Alawattegama [10], Alawattegama [11], Altanashat et al. [22], Rao et al. [8], Abeyrathna and Lakshan [31].

5. CONCLUSION

The paper starts with the definition of ERM and its development. Then the some of the available literature were drafted. The further section discusses based on two approaches such as studies used dummy variables (Secondary data) in assessing the adoption of ERM practices and studies based used robust models (Primary data) in assessing the adoption of ERM practices.

Many of prior researchers have greatly relied upon dummy variables when assessing the degree of ERM adoption by business firms and concluded that the extent of ERM adoption has a positive and significant relationship with firm value. It has been criticized by some scholars claiming nominal variables cannot reliably measure the extent of ERM adoption by a firm. Some researchers have recently identified that gap of existing literature and tried to fill that through their studies. So, it recommends using robust models like COSO ERM framework [32], ISO 31000 [1], etc in case of assessing the adoption of ERM practices in future studies.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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