

A Conceptual Framework for Enterprise Risk Management performance measure through Economic Value Added

¹ Muhammad Kashif Shad, and ²Fong-Woon Lai,

^{1,2}Management and Humanities Department, Universiti Teknologi PETRONAS

Bandar Seri Iskandar, 31750 Tronoh, Perak, Malaysia.

E-mail: ¹mkashifshad@gmail.com, ²laifongwoon@petronas.com.my

Abstract—Enterprise Risk Management (ERM) is an essential technique used to manage a myriad of risks in a holistic manner. Corporate governance, financial scandals, global competition, and inferior business decisions will all have a catastrophic impact on corporate entities. Many studies have investigated the effect of ERM implementation on a firm's values. Most of them have focused on the financial industry and found a significant positive impact. However, few studies have focused specifically on the objective performance measures of ERM, much less through Economic Value Added (EVA) measure. This paper attempts to propose a conceptual framework for investigating the impact of ERM on the firm's value through EVA performance measure. The study adopts an ERM implementation framework comprising three dimensions, namely, the *governance, structure and process* which will be translate into fourteen implementation elements to be discussed in the paper. The study estimate the effect of ERM on EVA as a standard proxy for firm value. EVA is used for measuring corporate performance in specific way in that it computes company profit by incorporating cost of capital.

Keywords— Enterprise Risk Management, Firm value, Economic Value Added, EVA.

I. INTRODUCTION

Nowadays risk management becomes a necessity instead of an option for the enterprises. The executives and Board of Directors of most of the companies have comprehended the importance of risk management and they have given the primary importance to implement risk management in their business enterprises. Risk management is the process of managing and thinking systematically about all of the risks faced by the organization. Traditionally, organizations manage risks using the silo approach [1]. According to the executives of many organizations, the 'silo' approach is not an effective way [2] to manage enterprise level risks. Therefore, researchers proposed a new methodology named Enterprise Risk Management (ERM) to manage the portfolio of risks [3], [4] and to improve the shareholders values.

A. ERM Definition

The Committee Of The Sponsoring Organization Of The Treadway Commission (COSO) is the leading expert in the field of ERM and they have defined ERM as: "*a process, effected by an entity's board of directors, management and other personnel, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, and to provide reasonable assurance regarding the achievement of entity objectives*" [5]. Through enterprise risk management, all of the risks can be well understood and arranged according to their impact and then can be managed effectively. The information, which has been gotten after managing the risks, can help the executives in making correct and accurate decisions regarding investments, capital utilization, performance evaluation, reward systems, and employee training and evaluation.

B. Global Standards of ERM

ERM frameworks and standards provide different approaches to identify, analyse, respond, and to monitor internal and external threats to an organisation. Various regulatory frameworks globally contribute to the development and improvement of ERM, like International Organization for Standardization ISO 31000, COSO 2004, Federation of European Risk Management Associations (FERMA), the Sarbanes-Oxley act (SOX) in the US. Although elimination of risk is very difficult but to manage risk is much important and that can be possible through these frameworks. ISO released set of principles and generic guidelines in 2009 on risk management. The designed principles can be applied to public, private large or small organization to effectively manage their risks. According to Kevin Knight a Risk Management standards expert the principles and guidelines of ISO 31000 are concise, clear and flexible which will assist corporate governance for managing their company's risk. Previously released standards like AS/NZS 4360 mostly focused on risk management process while ISO 31000 through its principles and guidelines focus on the whole risk management system like its structure, implementation, maintainance and its improvement. ISO is classified into three components

(Principles and guidelines, Framework and Process) [6]. The risk management process is dynamic and consists of the risk identification, risk evaluation and analysis, risk treatment, and risk monitoring [7] The principles and guidelines support the risk management process and establish a link between framework and process of risk management through which the goals of the organization can be achieved. Out of eleven principles of ISO 31000 one principle is directly linked to value creation of firm states that proper risk management process assists to achieve agency's objectives through continuously reviewing and improving the process and systems of risk management. Looking in the perspective of Malaysia there is no specific law like the SOX in US. SOX Act of 2002 was enacted in response to the financial scandals occurring in Enron and WorldCom. SOX require the auditors and Board of Directors to swear under oath that they will make complete, accurate and fact based financial statements. However, according to the Malaysian regulatory framework, the organization should manage risks, according to the Malaysian Code on Corporate Governance. Based on J.K Akram still ERM frameworks need to be specialized for providing a framework to solve a specific risk [8].

C. Research Objectives

Enterprise risk management is believed to have an impact on a firm's performance. Evidence from various studies has shown that the impact of enterprise risk management practices on a firm's performance is still limited in Malaysian organizations [9]; specifically according to [10], ERM practices in companies listed in Bursa Malaysia are at the initial stage. Hence, the purpose of this paper is to present a conceptual framework which espouses the positive impact of ERM implementation on firm value by employing Economic Value Added analysis. In the proposed conceptual framework, this paper adopts an ERM implementation model by [11], [4]. The proposed ERM model encompasses 3 dimensions namely, structure, governance and process; operationalized by 14 elements which will be discussed in Table II. This framework is more strategic in nature which covers almost all idiosyncratic risks. By implementing the ERM, the executives of the companies will be able to make better decisions through extending and increasing the knowledge about risk profile of the company. The proposed conceptual ERM implementation framework used in this paper will contribute to literature in the development and adoption of ERM measurement via EVA in Malaysian Plc.'s.

Based on the discussed points above, the primary objectives of this paper are twofold:

1. to present a conceptual framework on an ERM implementation model in relation to its impact on firm's value.
2. to hypothesize the significant positive relationships between various elements of ERM implementation with factors of EVA analysis of firm value.

II. LITERATURE REVIEW

A. Enterprise Risk Management

The subject of Risk management has been under consideration since the 1950s. It was the first time when [12] demonstrated that the risk management didn't affect the value of a firm when the market is in a perfect condition. However recently, many authors have verified that risk management occurs because of imperfections in the market and its implementation leads to the firm's overall value.

The modern portfolio theory claims that the risk management concept is not related to the shareholders' value because the shareholders can use two tools, asset allocation and diversification, in order to reduce the risks which they face [13]. Nevertheless, the shareholders are not the only stakeholders for the organization so the risk management should be used by the companies. It could be favorable for the companies to improve the whole firm's performance.

Several studies have advocated that ERM implementation improves firm's performance, like the study by [14], investigating the relationship between ERM adoption and a firm's performance. He used the firm's value as a dependent variable and used Tobin's Q to measure it. In addition, for the ERM implementation, he used the CRO appointment in the company. Based on his study, ERM enabled firms to understand the risks residing within the company, and improve the return on equity and the capital efficiency. He conducted this study in insurance companies and found that the ERM implementation enhanced the value of the firm. Moreover, he saw a difference in Tobin's Q for the firm who using ERM and those who did not. On the basis of the results, he concluded that the ERM implementation led to improving the firm's value.

a. Benefits of ERM implementation

ERM implementation has several tangible and intangible advantages [4]. Organizations should implement ERM to improve decision making, efficient gathering of information, and strengthen corporate governance. Findings from different studies have stated that risk management is the process through which the organization can minimize the earning volatility, encourage job and financial security and improve a shareholder's value in the company. Overall, risk management is a process that enables firms to grow economically and financially as it reduces the cost of capital and the risks of business activities. This paper presents an enterprise risk management framework comprising three dimensions: *Structure*, *Governance* and, *Process*. These dimensions are expected to be related to the firm's value.

B. Structure

Today's business environment requires a proper risk management system to control and manage the risk which the business organizations face. According to [15], the proper risk management program within the operating structure of the firm is very important to handle the challenges which occur or expected to occur ahead in their business operations. To

effectively manage the risk the structure of ERM needs to be specialized so that the management can communicate properly and understand the risk factors. ERM structure establish the policies, processes, competencies, reporting, technology, and set of standards for risk management which help to improve performance and increase the return of current business activities. ERM structure provide understanding and guides to organization for creating new opportunities which in effect improve profit margin.

C. Governance

Corporate Governance is responsible for establishing the structure and process to enable a Board of Directors to discharge their legal responsibilities and oversee compliance with legislation [16]. Proper ERM governance makes risk management system to develop the important internal control procedures to avoid loss and safeguard security and profitability [17]. The ultimate aim of the risk management mechanism is linked to creating value in the form of reduction in a firm's cost of capital [18]. The executives of the company are responsible for running the governance board that keep a close eye on overall activities of business and enable everyone to understand their responsibility. Governance became an important issue after the issuance of the Sarbanes-Oxley Act 2002 in the U.S. Simply put, governance dimension of ERM is the set of processes which enables the organization to survive in the market and keep the organization flourishing; it also supports the flow of internal information which helps in making appropriate and timely decisions. This provides efforts to facilitate communication by providing the enterprise comprehensive information about risk, reduce the cost of compliance it uses the best practices and creates an integrated view of risk within organization. Governance the ERM assists in adjusting and aligning cost of capital by taking specific steps to reduce WACC and make sure that risks taken are reliable with the firm's risk appetite.

D. Process

Enterprise Risk Management is a systematic approach. It is a way of thinking which is supposed to be spread throughout the organization. Its main objective is to provide the risk information and risk awareness, response procedures to risk and the understanding by the employees, managers, executives and Board of Directors to look for both opportunities and threats. The proper risk management process helps in integrating business strategies which enable the organization to achieve the desired objectives. Generally, the ERM process consists of 5 steps which are: Risk identification, risk analysis, risk assessment, risk mitigation and risk monitoring.

Effective ERM helps management to reliably achieve its objectives. But ERM, no matter how well designed and operated, does not ensure an organization's success. Meeting objectives can be affected by limitations inherent in all business processes. ERM does not change a naturally poor process into a good one! Risk management means consciously balancing seemingly competing goals like minimal process

cycle time and cost, with output quality and (regulatory) compliance. Providing the up-to-date and comprehensive view on business performance (revenue driver) and compliance performance (cost driver), creates the transparency fundamental to good decision-making [19]. The main objective of every firm is to get realistic rate of return on invested capital in the firm. Invested capital is the total value of firm i.e. sum of owner's equity and worth of all assets employed in the enterprise subtract the liabilities of the firm. The process dimension of ERM provides the way for aligning the risk management strategies with corporate strategic planning.

E. Firm value

The value of the company depends on the ability of the company to plan, allocation of resources, more productive investments, accurate and informed decisions, effectively managing business risks. The accurate performance could be measured by different methods, such as shareholder value, Tobin's Q, return on assets, Economic Value Added (EVA) etc. According to Liebenberg and Hoyt, ERM enhances the firm's value in terms of capital efficiency and return on equity [20]. The studies conducted by [4], [5] debated many advantages of implementing ERM in the organization. These advantages include: reduce risk/return profile of the company, reduce stock price volatility which leads to improving the shareholder's worth, attain competitive advantage, enhance decision making ability, build confidence for investors, minimize the expenditures related to different risk management activities, improve capital efficiency, enhance resource allocation, improve return on equity and reduce the cost of external financing. These advantages lead to a reduction of the cost of capital and improvement of the firm's performance. According to [21] the ERM implementation will affect the value of the shareholders by reducing the cost of capital (via lowered risk premium) and increasing the business efficiency (i.e., higher price-to-earnings ratio for the firm's shares). The relationship between the ERM program and the firm's value enhancement is shown in Figure 1.

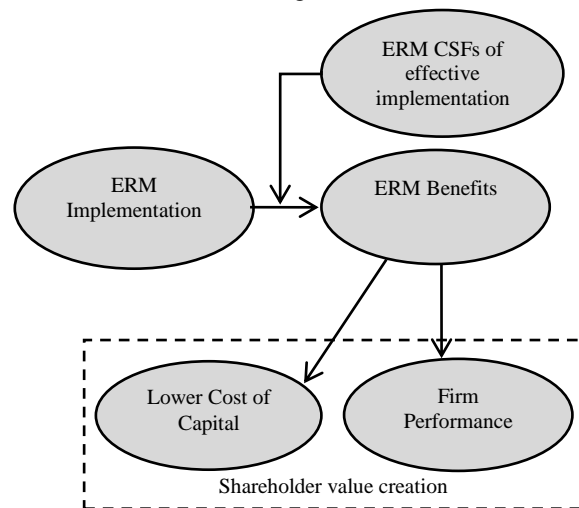


Fig.1 Path diagram of the Causal Relationship between ERM and shareholder value [21]

Figure 1 shows that the benefits of ERM implementation which leads to reduction of the cost of capital and ultimately improvement in the performance of the firm. The effective implementation of the ERM program depends upon some critical success factors (CSFs). CSFs are important in this study because the increase or decrease of the shareholder value depends upon the characteristics of the firm.

F. Performance Measure

The performance measurement is an evolving area of research in finance all over the world. For many years, the executives and shareholders of companies have relied on traditional measures like Return on Capital, Return on Assets, Return on Investments, Earnings per Share, etc. to measure a firm's value [22]. This study intended to use the EVA as a proxy for measuring performance. Hawawini proposed the use of the Economic Value Added (EVA), also known as the economic profit [23]. This is because EVA gives useful information about the short-term and long-term performance. EVA was developed and trademarked by Stern Stewart & Co as a measurement tool in 1989. The shareholders invest their capital in company. In response they need rate of return, named cost of capital [24]. ERM aims to reduce the cost of capital so that the performance of a firm can be enhanced. The cost of capital is measured by using EVA. To identify correct cost of capital is fundamental part of value measuring within the companies. Based on [5], the ERM implementation leads to a lower cost of capital and assists to enhance the business performance of the firm. By using ERM, it can reduce its unsystematic risk profile which leads to reduction in the firm's risk premium and as a result, the cost of capital will be reduced. According to Stern Stewart, EVA is a technique for measuring financial performance and it shows the true profit of the organization through which the value of the shareholder is created over time. We can calculate EVA as:

$$EVA = NOPAT - (TCE \times WACC)$$

Where

NOPAT = Net operating profit after tax

TCE = Total capital employed

WACC = Weighted average cost of capital

EVA is considered to be the most important technique for measuring performance because it focuses on the cost of capital whilst the traditional corporate performance does not consider the cost of capital. Let us compare some traditional performance measures with EVA.

TABLE I. Comparison of various measures

Measures	Return	Capital employed	Cost of capital
NOPAT	✓	×	×
ROCE	✓	✓	×
RONW	✓	✓	×
EPS	✓	✓	×
EVA	✓	✓	✓

From the TABLE I. it is clear that the other tools for measuring performance do not consider cost of capital whilst EVA does.

TABLE II. Dimensions and elements of ERM framework [4]

Dimensions	Elements
Structure	Provide common understanding of the objectives of each ERM initiative
	Provides common terminology and set of standards of risk management
	Identifies key risk indicators (KRIs)
	Integrates risk with key performance indicators (KPIs)
Governance	provides enterprise-wide information about risk
	Enables everyone to understand his/her accountability
	Reduces risk of non-compliance
	Enables tracking costs of compliance
Process	Provides the rigor to identify and select risk responses (i.e. risk-avoidance, reduction, sharing and acceptance)
	Integrates risk with corporate strategic planning
	Integrated across all functions and business units
	Quantifies risk to the greatest extent possible
	ERM strategy is aligned with corporate strategy
	Aligns ERM initiatives to business objectives

III. CONCEPTUAL FRAMEWORK

The proposed conceptual framework features an ERM implementation model with hypothesized causal relationships to firm value through EVA analysis. Fig 2 depicts these causal relationships. The conceptual framework sees the adopted ERM model as an independent variable whose implementation will have a positive impact on the firm's value, which is the dependent variable. The adopted ERM model has three dimensions which made up of fourteen elements [4]. The three dimensions are *structure*, *governance* and *process*. Each of the dimensions is operationalized by some corresponding implementation elements as presented in TABLE II. On the other hand, the measurement for the dependent variable, namely firm value, can be established through EVA analysis. EVA analysis encompasses the examination of NOPAT, WACC and TCE of firm's value. EVA is a technique for measuring financial performance and it shows the true profit of the organization through which the value of the shareholder is created over the time [25].

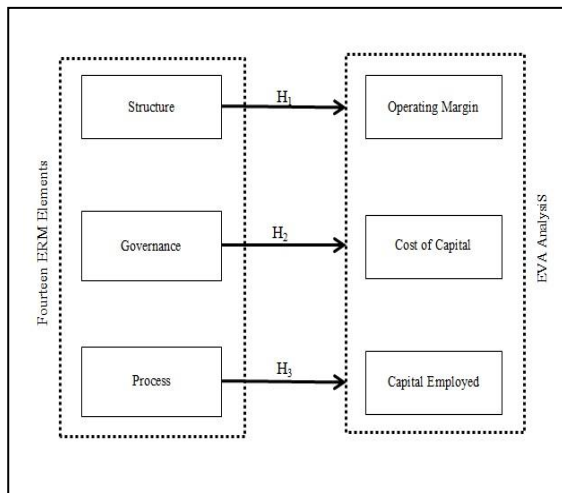


Fig.2 Conceptual framework of ERM implementation framework.

Based on the proposed framework, we hypothesize that:

- H1.** The structure dimension of ERM has significant positive impact on enhancing Operating margin.
- H2.** The governance dimension of ERM has significant Positive relationship with firm’s value through reducing Cost of Capital.
- H3.** The process dimension of ERM will enhance firm’s value by maximizing return on Capital Employed.

IV. HYPOTHESIS TESTING

In this study, the three dimensions (Governance, Structure, and Process) of the ERM implementation model have advocated a positive impact on a firm’s value. To investigate the impact of the ERM practices on the firm’s value, the author presents a multiple regression modeling written as:

$$\begin{aligned}
 Y_1 &= \beta_{1,1}X_{1,1} + \beta_{1,2}X_{1,2} + \beta_{1,3}X_{1,3} + \dots + \beta_{1,i}X_{1,i} + e_1 \\
 Y_2 &= \beta_{2,1}X_{2,1} + \beta_{2,2}X_{2,2} + \beta_{2,3}X_{2,3} + \dots + \beta_{2,i}X_{2,i} + e_2 \\
 Y_3 &= \beta_{3,1}X_{3,1} + \beta_{3,2}X_{3,2} + \beta_{3,3}X_{3,3} + \dots + \beta_{3,i}X_{3,i} + e_3
 \end{aligned}$$

where

- Yi = Firm value factor i
- Xi = ERM implementation elements i
- e = Error term i
- β = coefficient of effect on each factor i

V. CONCLUSION AND FUTURE WORK

This paper has presented an ERM performance measurement framework based on EVA analysis. Moving forward, future research can quantitatively focus on analyzing the impact of each implementation dimension of the adopted ERM model with the respective factors on firm’s value under the EVA analytical model.

ACKNOWLEDGMENT

The authors would like to acknowledge Supervisor Dr. Lai Fong Woon for his support and guidance. I would also like to acknowledge UTP Academic Post Graduate Committee and Management and Humanities department for providing the funding in the form of GA assistantship scheme to pursue my Master studies.

REFERENCES

- [1] Beasley, Mark S., Richard Clune, and Dana R. Hermanson. "Enterprise risk management: An empirical analysis of factors associated with the extent of implementation." *Journal of Accounting and Public Policy*, 2005, pp 521-53.
- [2] Walker, Paul L., and William G. Shenkir. "Implementing enterprise risk management." *Journal of accountancy* Vol. 205 No. 3, 2008, pp. 31-3.
- [3] Nocco, Brian W., and René M. Stulz. "Enterprise risk management: Theory and practice." *Journal of Applied Corporate Finance* 18.4, 2006, 8-20.
- [4] Lai, F. W, Azizan. A. A and Samad. M.F.A. "Shareholders Value Creation through Enterprise Risk Management". *International Journal of Business Research*, 2010, 44-57.
- [5] COSO, Committee of Sponsoring Organizations of the Treadway Commission. *Enterprise Risk Management-Integrated Framework*. 2004.
- [6] Airmic, A. *IRM. A Structured Approach to Enterprise Risk Management (ERM) and the Requirements of ISO 31000*. London, UK: 2010. The Public Risk Management Association.
- [7] ISO 31000: Risk management – Principles and guidelines on implementation. 2010. iso.org
- [8] Jalal-Karim, Akram. "Leveraging enterprise risk management (ERM) for boosting competitive business advantages in Bahrain." *World Journal of Entrepreneurship, Management and Sustainable Development* 9.1, 2013, pp. 65-75.
- [9] Tahir, Izah Mohd, and Ahmad Rizal Razali. "The Relationship between Enterprise Risk Management (ERM) and Firm Value, Evidence from Malaysian Public Listed companies." *Management* 1.2, 2011, pp 32-41.
- [10] Yazid, A.S., Razali A.R. and Hussin, M.H. "A Preliminary Study of Enterprise Risk Management among Malaysian Business Enterprises". *National Business Management Conference*, 2008, Universiti Darul Iman Malaysia.
- [11] Lai, F. W., & Samad, F. A. "Enterprise Risk Management Framework and The Empirical Determinants of Its Implementation". *International Proceedings of Economics Development & Research*, 1. . 2011.
- [12] Modigliani, Franco, and Merton H. Miller. "The cost of capital, corporation finance and the theory of investment." *The American economic review* 48.3, 1958, 261-297.
- [13] Markowitz, H. "Portfolio Selection". *The Journal of Finance*, 7., 1952, 77 - 91.

- [14] Hoyt, Robert E., and Andre P. Liebenberg. "The value of enterprise risk management." *Journal of Risk and Insurance* 78.4, 2011, 795-822.
- [15] Lai, F. W. "An examination of value enhancing enterprise risk management implementation framework for Malaysian public listed companies". 2011, (Doctoral Dissertation, University of Malaya Kuala Lumpur).
- [16] Institute of directors in South Africa. King report on governance for South Africa. Johannesburg. 2009
- [17] Drennan, Lynn T. "Ethics, governance and risk management: lessons from mirror group newspapers and Barings Bank." *Journal of Business Ethics* 52.3, 2004, pp. 257-266.
- [18] Ramly, Z., & Rashid, H. M. A. "Critical review of literature on corporate governance and the cost of capital: The value creation perspective". *African Journal of Business Management*, 4(11), 2010, 2198-2204.
- [19] Sven.R, Jorna M. "How to implement effective enterprise risk management. Building a sustainable governance risk & compliance solution". Business white paper. 2011.
- [20] Liebenberg, Andre P., and Robert E. Hoyt. "The determinants of enterprise risk management: Evidence from the appointment of chief risk officers." *Risk Management and Insurance Review* 6.1, 2003, pp 37-52.
- [21] Lai, F.W, Azizan, A.A and Samad,M.F. "A Strategic Framework For Value Enhancing Enterprise Risk Management." *Journal of Global Business and Economics* 2.1, 2011, 23-47.
- [22] Kaur, M., & Narang, S. "Shareholder Value Creation in India's Most Valuable Companies: An Empirical Study". *IUP Journal of Management Research*, 8(8), 2009.
- [23] Hawawini, Gabriel, Venkat Subramanian, and Paul Verdin. "Is performance driven by industry- or firm- specific factors? A new look at the evidence." *Strategic management journal* 24.1, 2003, 1-16.
- [24] Kraus, C. EVA/RAROC versus MCEV earnings: a unification approach. *Geneva Papers on Risk and Insurance—Issues and Practice*, 2012.
- [25] Stern, J.M, Stewart, G.B. & Chew, D.H., (1991). The EVA Financial Management System. *Journal of Applied Corporate Finance*, 8(2), 32-46.