

Enterprise Risk Management and Firm Performance

Empirical evidence from Vietnam

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Abstract

Enterprise risk management (ERM) has emerged as a new model for managing a complex portfolio of risks. Firms are reluctant to adopt ERM because of the difficulty in quantifying the value side of ERM implementation. Our research draws attention to the performance and value effects of ERM implementation in emerging economies using the case of Vietnam. The paper contributes to the current literature on risk management which is intertwined with management accounting. Though Vietnam had experienced rapid economic growth through massive privatization and inflow of Foreign Direct Investments (FDI), this growth had slowed down in 2009. As with other emerging/transition economies, Vietnam is yet to strengthen its institutional capacity (e.g. legal & market infrastructure) to support its economic expansion. In this study, we test whether firms in Vietnam have proper ERM practices, and that the listed firms could implement at an enterprise level and whether this implementation provides an effective means of improving firm performance and firm value. Our results show strong empirical evidence for the benefits of effective ERM implementation in Vietnam. However, for some firms, ERM implementation has become a costly exercise and has a negative impact on performance.

Keywords: Risk management, emerging economies, firm performance, firm value

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1. Introduction

Enterprise risk management (hereafter ERM) has emerged as a new paradigm for managing a complex portfolio of company risks (Leibenberg & Hoyt, 2003; Beasley, Clune & Hermanson, 2005). The increasing complexity of risks, increasing dependencies between risk sources, stricter regulations on the use of risk management, and the use of ERM systems in rating processes caused ERM to be increasingly relevant. Since the establishment of the Committee of Sponsoring Organizations (COSO) of Treadway Commission (1985), ERM has become a popular strategy for management and is becoming a comprehensive framework that considers a portfolio of risks and a process that aligns with the business's strategy.

The risk is undoubtedly an inherent part of the corporate strategy of doing business (Dickinson, 2001). In fact, taking risk is fundamental for doing business, but ERM provides tools to manage these risks rationally (Smiechewicz, 2001). According to Bhimani (2009), for most modern organisations, the notion of risk management has become embedded in organisational control practices and forms the definition of management control. Organisational and management practices including management accounting systems of cost control and performance

measurement are now extensively influenced by risk management issues. Also, the association between risk management, strategic management actions, and cost containment efforts have become part of the management accounting realm (Bhimani, 2009).

According to Beasley, Clune, and Hermanson (2005), the implementation of ERM aims to enhance a firm's shareholder value by supporting the senior management and the Board to attain an adequate monitoring system and manage the company's risk portfolio. Despite a growing consensus that organizations will boost their performance by employing ERM as a strategic management tool, the empirical evidence confirming the relation between ERM and firm performance is quite limited (Gordon, et. al., 2009). Of particular concern is that risk management characteristics in specific organisational (and country) settings have not been the subject of many research studies (Bhimani, 2009).

The aim of this paper is to empirically test the ERM implementation effects on firm's performance and firm value. Unlike many studies that conducted interviews and empirical tests in developed economies, we are particularly interested in Vietnam, a transitional economy where limited regulatory requirements are in place for risk management practices. Contrary to popular belief, our results indicate that in Vietnam, ERM implementation has a less significant influence on firms' performance, but the market perceives ERM implementation as a value-added practice. To the best of our knowledge, our study represents the first empirical analysis regarding the determinants and the value effects of ERM in a transitional economy.

The prior empirical studies on ERM conclude that ERM generally has a significant positive effect on firm performance and firm value. However, most studies concentrate on specific industries and in specific geographical locations (e.g. Hoyt & Liebenberg, 2008 & 2011 on Insurance industry in the U.S; Altuntas, Berry-Stolle & Hoyt, 2011 on industry industries in Germany). The generalisation of their results is limited due to the concentration of studies in one particular industry and in developed economies where there are rigorous regulatory compliance requirements. Though the relevance of performance and value effects of ERM against a set of code of regulatory requirements in the U.S and European markets exist, in Vietnam there are no specific regulatory requirements or Stock Market Corporate Governance guidelines for risk management practices among firms and there is no empirical evidence to date with focus on the risk management practices. Hence the use of a cross-sectional sample of 199 firms operating in different industries listed on both Ho Chi Minh and Hanoi Stock exchanges allows us to identify cross-industry differences regarding ERM implementation effects. Thus, the aim of this paper is to fill the gap and to contribute to the current literature on ERM by providing empirical evidence based on the results. We use a linear regression (OLS) to study the performance and value effects of ERM implementation. The results provide some insights regarding whether ERM can improve firm performance and create value, with a special focus on the Vietnamese market, respective industries. We find a statistically significant positive impact of ERM on firm value. These results confirm the value relevance of ERM.

The paper is organised as follows: section 2 provides a review of related literature, section 3 discusses the relevant hypotheses and research design, section 4 presents findings and discussion, and section 5 concludes the paper, discusses limitations and provides suggestions for future research.

2. LITERATURE REVIEW

Enterprise Risk Management (ERM), as a process to strategically manage risk, has become an indispensable aspect of business operations¹. COSO (2004, p.2) defines ERM as “a process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.” ERM is a process for total risk management and is the focus of all strategic management efforts (Moody, 2003) to give companies a long run competitive advantage. Deloach and Andersen (2000, p.5) states that ERM is “a structured and disciplined approach: it aligns strategy, processes, people, technology and knowledge with the purpose of evaluating and managing the uncertainties the enterprises face as it creates value.” The Organisation for Economic Co-operation and Development (OECD) in Principle VI.D.7 states that “ensuring the integrity of the corporation’s accounting and reporting systems, in particular, systems of risk management, financial and operational control is of utmost importance.” The traditional risk management approach directed organizations to manage risks by silos or risk by risk, but it caused an overlapping and excessive cost in organizations as it did not provide an overall view of risk reporting to senior managers and board of directors (Lam, 2000).

Ample regulations and some prescriptive frameworks have been introduced to encourage businesses to pay serious attention to the risks they face, through improved risk management oversight and ERM implementation. For instance, in the US, the Securities and Exchange Commission (SEC) has mandated that a publicly traded company’s annual proxy statements should include a description of the board’s role in risk oversight. The New York Stock Exchange (NYSE) Corporate Governance Statement, section 303A provides an explicit requirement for registrants’ audit committees to have a written charter outlining the firms’ policies on risk assessment and risk management (NYSE, 2003). The Toronto Stock Exchange requires the establishment and disclosure of a company’s risk management function. The Corporate Governance Council of the Australian Stock Exchange (ASX) has set guidelines for risk management within Australian publicly listed organisations. For a proper implementation of ERM, frameworks have also been proposed such as the COSO’s Enterprise Risk Management- Integrated Framework 2004 and the International Standards Organisation’s ISO 31000:2009 Risk Management-Principles and Guidelines on Implementation as the most widely used. ERM takes into consideration all enterprise-wide risks with a unified framework with an objective to achieve forward-looking risk reward perspectives of a company. ERM frameworks recommend the developing a strong risk culture across all levels of an organisation, appointment of a Chief risk officer (CRO) or a risk management committee (Leibenberg & Hoyt, 2003) to make the implementation more effective.

The literature on ERM also has continued to expand in recent years. Some studies have investigated the determinants that significantly affect the implementation of ERM systems (e.g., Liebenberg & Hoyt, 2003; Lundqvist, 2015) and suggest that ERM adoption is determined by firm size, organization complexity, and the Board support. Other studies investigated on the impact of ERM adoption on firm performance and firm value (e.g. Hoyt and Liebenberg, 2011; McShane, Nair, and Rustambekov, 2011). Beasley, Branson, and Hancock (2010) indicate that the adoption of ERM in US firms is fairly immature. In contrast, Ahmad, Ng & McManus (2014) in their review of the top ASX300 companies in Australia find an extensive implementation of ERM. Pagach and Warr (2010) find that firms with increased

¹ For a detailed description of the progress of risk management over the last five decades and explanation of the challenges of the future, see Neilson, Kleffner and Lee (2005), “The evolution of the role of Risk Communication in Effective Risk Management”

leverage, low cash reserves, and volatile earnings gain from ERM. Their study on 106 US companies observes a significant decrease in stock price volatility after the implementation of ERM (CRO appointment as proxy), and the results are pronounced more for firms with positive abnormal returns. Grace, Leverty, Phillips & Shimpi (2014) find a significant positive impact of ERM on cost and revenue efficiency for 523 US based insurance firms. Hoyt and Liebenberg (2008) also exhibit a significant positive relation between ERM and firm value (Tobin's Q as a proxy). Their results demonstrate an increase in shareholder value (approx. 17%) after ERM implementation. Hoyt and Liebenberg's (2011) study on 117 US insurers also demonstrates a significant positive relation between ERM and an increase of approximately 20% in firm value.

A survey of risk managers in the US by Gates, Nicholas, and Walker (2012) provide support to earlier research that ERM implementation improves firm performance and firm value. Gates et al.'s (2012) survey results indicate that ERM adoption improves management performance regarding reduced earnings volatility, increased profitability, ability to meet strategic goals, and risk-adjusted performance. Eckles, Hoyt, & Miller (2014) notes a significant reduction in stock return volatility for ERM adopting firms. Further, they find that operating profits per unit of risk (ROA/ return volatility) increase after ERM adoption. In a recent study, Edmonds, Edmonds, Leece & Vermeer (2015) observe that the quality of risk management systems is reflected in reduced earnings volatility, particularly for loss-making firms. Their results show that improvements in risk management actions increase market valuations significantly for loss-making firms. Tahir and Rajali (2011) find positive (528 Malaysian firms) but not a significant relation between ERM and firm value. Correspondingly, McShane, Nair, and Rustambekov's (2011) investigation of 82 insurers show the significant positive relation between the traditional risk management (TRM) and firm value but ERM implementation has no significant impact on firm value. In another research, Lin, Wen, & Yu (2012) find ERM implementation to be negatively correlated with firm value (Tobin's Q & ROA). They contend that at the early stage of ERM implementation, it is difficult for investors to decipher the value of ERM and may view it as a costly program whose potential benefits hardly justify its costs.

The above studies, despite some mixed evidence, confirm the theoretical argument that the holistic approach of firms in risk management can add value to a firm. Most prior studies conducted ERM research in the context of developed countries, mostly in the US, with very few studies in emerging economies. The rapid and widespread adoption of market-based policies (e.g. privatization and opening to foreign markets) by emerging economies place domestic business enterprises with strong competitive pressures both in the domestic and foreign markets (Hoskisson et al., 2000). As a result, private and public enterprises of emerging economies see the need to develop strategies to cope with the economic and political changes. Strengthening firm's management control systems help businesses to adopt and effectively implement risk management activities at the enterprise level. However, in emerging and transitional economies the general lack of strong institutional features, such as the legal framework and other institutional policies that provide the basis for effective corporate governance has been the main cause of the slow development of firms in those economies.

We focus our study on Vietnamese firms because we find limited research in emerging economies on the implementation effects of ERM. The history of Vietnam plays a significant role in today's business legal framework and corporate governance. Before the colonization of the French in the late 19th century, Company Law or Corporate forms did not exist in Vietnam. To create a favourable economic and investment environment for companies in Vietnam, the National Assembly of Vietnam ratified the Enterprise Law 2005 which came into force on 1st July 2006 replacing the Enterprise Law of 1999. The Enterprise Law 2005 is the most critical

legal framework that provides the foundation for corporate governance for businesses in Vietnam. Vietnam, as a transition economy, has been experiencing rapid economic growth brought about by the massive privatization and inflow of Foreign Direct Investments (FDI) (Meyer & Nguyen 2005). As the country opens its doors to foreign markets, firms in Vietnam face a new type of risks from competitive pressures both in the domestic and foreign markets. Firms have a need to manage their business risks strategically and strengthen their corporate governance systems and practices to maintain their survival and remain competitive.

3. Hypotheses development and empirical method

A commonly agreed view is that an effective implementation of ERM enables improved performance. Corporate governance and shareholder value have been identified as the main motivational factors for ERM implementation. Lloyd and the Economist Intelligence Unit survey (2005) recognises the need for the board and the management to have a systematic understanding of the key risks and decide what needs to be done to mitigate those risks. It also suggests the directors recognize significant opportunities that ERM provides for competitive advantage and enhanced shareholder value. Consistent with the prior empirical literature (as discussed in Section 2), we hypothesize that the implementation of an ERM system significantly impacts firm performance and enhances firm value. We conduct empirical tests using a linear regression based on a five-year sample of firms (e.g. Gordon, Loeb & Tseng, 2009; Tahir and Razali, 2011).

Hypotheses:

H₁: The adoption of risk management at enterprise level (ERM) has a positive effect on firm performance

H₂: The market perception of firm value is greater for firms that adopt risk management at enterprise level(ERM)

Empirical Model:

To test our hypotheses, we use a sample of 199 firms listed in both Ho Chi Minh City and Hanoi Stock Exchanges for periods from 2009-2013. The total firm-year observations are 995. Our variable of interest is ERM. However, relevant control variables are included in the model to control for other influencing factors.

Dependent variable: Our dependent variables are firm performance and firm value. To measure firm performance, we use Return on Assets (ROA) as a proxy. We use Tobin's Q as a proxy as it is the most commonly used measure of firm value in empirical risk management studies (e.g. Smithson & Simkins, 2005). Tobin's Q is used in this study to take the market's perception of the value of the firm's activities, especially risk management actions (Hoyt & Liebenberg, 2011), and is calculated as the market value of equity plus the book value of liabilities divided by the book value of total assets. Tobin's Q value that is greater (less) than 1 implies an efficient (inefficient) use of the firm's assets (Lindenberg & Ross, 1981). The use TobinsQ indicates reliable results as it is hardly subject to managerial manipulation (Lindenberg & Ross, 1981).

To isolate the relationship between ERM and ROA and Tobin's Q, we control for some firm-specific variables described below:

Firm Size: Larger firms tend to show better performance as a result of the amount of resources available for their operations (e.g. Liebenberg and Sommer, McShane and Cox, 2009). We expect the size variable to be positively related to firm performance and firm value. Following prior studies, we apply the natural logarithm of total assets as a proxy for firm size. The other argument is that larger firms are more likely to engage in ERM as their operations tend to be more complex. These firms also are expected to have many resources to invest in ERM program (Colquitt, Hoyt, and Lee, 1999; Hoyt, Merkley, and Thiessen, 2001; Beasley, Clune, and Hermanson, 2005; Standard & Poor's, 2005).

Leverage: Prior studies show a negative relation between leverage and return (Sommer, 1996) as highly leveraged firms are expected to earn lower returns, and so investors have less confidence in the operations of these firms. However, when these firms have proper ERM systems, then they may have lower financial leverage if they have decided to lower their financial risk. This will boost the confidence of investors and results in increased value perception. Some studies find no clear evidence of a relationship between leverage and ERM adoption. Liebenberg and Hoyt (2003) find that firms with greater financial leverage are more likely to appoint a chief risk officer explaining that financial leverage level is a determinant of effective ERM implementation.

H₁: ERM implementation and firm performance (Proxy: ROA)

$$ROA_{i,t} = \beta_0 + \beta_1 Size_{i,t} + \beta_2 Leverage_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Age_{i,t} + \beta_5 Aud_{1,t} + \beta_6 ERM_{1,t} + \beta_7 InspComm_{i,t} + \varepsilon \dots\dots\dots(Eq1)$$

H₂: ERM implementation and firm value (Proxy: Tobin's Q):

$$Tobin'sQ_{i,t} = \beta_0 + \beta_1 Size_{i,t} + \beta_2 Leverage_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Age_{i,t} + \beta_5 Aud_{1,t} + \beta_6 ERM_{1,t} + \beta_7 InspComm_{i,t} + \varepsilon \dots\dots\dots(Eq1)$$

4. DISCUSSION OF RESULTS

4.1 Descriptive statistics

Table 1 reports differences in the means, standard deviations and minimum and maximum values of key variables. Several differences are working considering. Firstly, the univariate results support the view that ERM enhances firm value. Firm value, i.e. the market's perception of firms as represented by Tobin's Q has a mean value of 1.069. The range varies from 0.17 to 8.08. These results show that most firms are concentrated at the lower end of the range. Firm performance (represented by ROA) ranges from -4.36 to 0.82 and the average ROA is 0.092. A few loss-making firms were included in the sample. Though this loss cannot be attributed to risk management implementation, other factors could have influenced the loss. The average firm size calculated as log value of its total assets ranged from 23.18 to 31.96. Most firms are lowly leveraged (mean= 0.246).

4.2 Correlation analysis

The correlations of both dependent and independent variables are reported in **Table 2**. None of the variables are highly correlated, so multicollinearity is not a concern. A few associations

warrant our attention. The Strong positive (negative) association is exhibited between ROA and Tobin's, as we would normally expect, (leverage), growth, ERM, (age). Similarly, Tobin's is strongly associated with the size, Big4, and ERM.

4.3 Multiple Regression results

The empirical results of the influence of ERM on firm performance are stated in Table 3. We first estimate OLS regression of ROA against ERM implementation while controlling for a wide range of financial and governance variables that could influence firm performance. The results show that the regression is statistically significant $F= 41.57$, $p=0.000$ indicating that the optimally weighted combination of the explanatory variables explains firm performance to a statistically significant degree. Accordingly, the model can be generalized to the overall population represented by the sample of 995 observations in our model. The strength of the relationship between the set of independent and dependent variables is reasonably good as the stated independent variables together explain 27.53% (R^2) of the variance in firm performance.

Looking at the unstandardized regression coefficients of independent variables and their effect on firm performance, the coefficient for ERM, -0.098, suggests risk management implementation has no positive impact on the profitability of the firm. In line with some prior studies, our results show that risk management implementation incurs costs for businesses and has no positive effect on some firms' profitability. Leverage has significantly negative impact on firm performance (co-eff: -0.422; $t= -2.62$). However, high leverage firms with proper risk management practices experience significantly positive results on their performance (co-eff: 0.217; $t= 5.08$). Growth and size of firms show significantly and positively related to performance (co-eff: 0.021; $t= 2.51$; co-eff: 0.018; $t= 4.27$ respectively). Our variable of interest (ERM) shows that firms that implement risk management practices experience negative impact (low impact) on their performance (co-eff: -0.098; $t= -4.33$) the results are statistically significant. These results provide weak support for **H₁**.

Insert Table 3 here

Our second OLS regression of Tobin's against ERM implementation, while controlling for a broad range of financial and governance variables, tests the validity of the model and the impact of individual variables on Tobin's. The results show that the regression is statistically significant $F= 12.87$, $p=0.000$ indicating that the optimally weighted combination of the explanatory variables explains the firm value to a statistically significant degree. The strength of the relationship between the set of independent and dependent variables is satisfactory as the stated independent variables together explain 10.52% (R^2) of the variance in firm value. Lower R^2 may also present the fact that the market's perception of the importance of the stated independent variables can be inadequate. The coefficient for ERM, 0.517, suggests that risk management implementation has significantly positive impact on the market value of the firm. Our results support prior evidence that firm's use of proper risk management strategies improves firm value. High leverage firms were able to attract the market as the market perceives them worth investing (co-eff: 0.324; $t= 3.76$). These results support our **H₂**. Interestingly, our results show that highly leveraged firms with risk management practices fail to attract the market (co-eff: -0.952; $t= -6.19$). As Tobin's Q represents market's perception of firm value, the results indicate that the growth of the firm, firm size, employment of a big4 auditor do not have significant visible effects on firm value.

5. CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

The relationship between firm value and ERM is consistent with theory suggesting that increased use of risk management practices helps firms achieve their objectives and improve market's perception of their value. The results also support prior results on the value influencing effects of risk management adoption at the enterprise level. We believe that our study is the first in providing empirical evidence on the significance of risk management on firm performance and firm value in an emerging market such as Vietnam. Further, we are aware that endogenous issues could arise as the variables that influence ERM adoption may influence firm performance and firm value. To detect these problems endogeneity tests such as Heckman two- step procedure could be used. Future studies could use this test in their analysis. Unlike other prior studies that focussed on a particular industry (e.g. insurance, banking), our sample includes firms from multiple industries in Vietnam.

Table1: Descriptive Statistics

Variable	Obs	Mean	StdDev	Min	Max
Tobin'sQ	995	1.069	0.564	0.17	8.08
ROA	995	0.092	0.174	-4.36	0.82
Size	995	26.968	1.645	22.18	31.96
Leverage	995	0.495	0.246	0.03	3.26
Growth	995	0.171	0.589	-0.88	9.40
Age	995	1.526	0.471	0.00	2.56
Auditor	995	0.224	0.417	0.00	1.00
ERM	995	0.427	0.495	0.00	1.00
InspComm	995	0.955	0.208	0.00	1.00
CommSize	995	2.975	0.692	0.00	6.00

Table2: Pearson correlation coefficients for ROA and Tobin's Q determinants

	Tobin'sQ	ROA	Size	Leverage	Growth	Age	Auditor	ERM	InspComm
Tobin'sQ	1.000								
ROA	0.119**	1.000							
Size	0.118**	0.073*	1.000						
Leverage	0.025	-0.462**	0.223**	1.000					
Growth	0.089*	0.099**	0.201**	0.030	1.000				
Age	-0.197**	-0.062*	-0.099**	-0.052	-0.198**	1.000			
Auditor	0.143**	0.061	0.587**	0.078*	0.218**	-0.134**	1.000		
ERM	0.130**	0.116**	0.158	-0.132**	0.069*	-0.064*	0.135**	1.000	
InspComm	0.043	0.003	0.067*	0.004	0.012	0.023	-0.034	0.032	1.000

** and * denote statistical significance at 5% and 10% level respectively

Table3. ERM implementation and Firm Performance and Firm Value

Variable	ROA (Firm performance)	Tobin's Q (Firm Value)
Intercept	-0.1636 (-1.68)	0.7427 (2.11)
Size	0.0181*** (4.87)	0.0129 (0.97)
Leverage	-0.4216*** (-17.66)	0.3239*** (3.76)
Growth	0.0210** (2.51)	0.0248 (0.82)
Age	-0.0229** (-2.23)	-0.2005*** (-5.41)
Auditor	-0.0176 (-0.95)	0.0077 (0.12)
ERM	-0.0983*** (-4.33)	0.5171*** (6.32)
Insp Committee	0.1269 (0.55)	0.0575 (2.13)
F-Statistic	41.57**	12.87***
R ²	27.53	10.52
Adj.R ²	26.87	09.71
Observations	995	995

Variable definition:

Tobin'sQ	Total market capitalization of a firm plus total liabilities divided by its total assets
ROA	Return on assets calculated as EBIT/Total Assets
Size	Natural logarithm of total assets
Leverage	Percentage of assets financed by debt (total debt/total assets)
Growth	Δ in revenue from t ₋₁ to t period divided by t ₋₁ revenue
Age	Natural log of the number of years the firm has been listed on the stock market
Auditor	Represents audit quality using 1 if the firm is audited by a Big4 audit firm and 0 otherwise
ERM	Dummy variable 1 if a firm has risk management practices, otherwise 0.
InspComm	If a firm has inspection committee a dummy variable is used and 0 otherwise

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