

## Review of Enterprise Risk Management (ERM) Literature

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*After series of both natural and man-made catastrophic events in the start of the 21st century, such as the earthquake in Japan and the recent crisis in the Eurozone, a trend to consolidate risk management policies, termed as Enterprise Risk Management (ERM), is seen in enterprises around the globe. Since then, ERM has been the subject of interest among business practitioners and academics. In general, the current article aims to critically review the existing literature on ERM published to date. Specifically, this paper seeks to provide an overview of the themes in existing ERM literature and offer direction for future research..*

### 1. Introduction

#### 1.1. What is ERM?

According to COSO's ERM Framework (2004, p 2)

“Enterprise risk management is a process, affected 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 risk to be within the risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.”

In other words, ERM integrates risks and adopts an enterprise-wide view of risk management for the whole organization by considering people, processes, and scopes. An enterprise-wide risk management provides a more effective risk management with lower costs (Barton, Shenkir, & Walker, 2002) because it is coordinated across the entire enterprise. It offers a more holistic approach to lowering the overall risk and hazard and, in turn, increases the value of an organization.

#### 1.2. Why ERM?

After series of both natural and man-made catastrophic events in the start of 21st century such as the crash of World Trade Centre, the earthquake in Japan, flash flood in Bangkok, crisis in the Eurozone etc, a trend in enterprises around the globe to intensify and enhance its risk management policies is seen.

Worldwide, organizations have faced a few other internal challenges in dealing with risks. First, the increased duplication of efforts in understanding and managing risks faced by businesses led to inefficiencies. As scope of uncertainties broadened and risks advanced, over time, an increasing number of functions and responsibilities were explicitly created to manage risks each with its own domain. This approach to risk management not only results in an increased burden to organizations, but also an increase in cost and time. Second, the increasing dynamic nature of risks has also imposed difficulties to those involved in managing it. They now find that they lack the necessary capabilities to cope with the nature of this dynamics and change.

These challenges, both external and internal, inevitably shift organizations' approach towards risk management to a new paradigm – instead of looking at risks from a silo-based perspective, businesses now look at risks more holistically; hence, the birth of a new terminology in risk management field called Enterprise Risk Management (ERM) (Connair, 2013).

#### 1.3. Scope and Structure of this Paper

This paper offers a review of the existing literature on ERM. It examines the various aspects of the literature i.e. areas of research, methodological approaches as well as the geographical coverage of the study. For the purpose of this analysis, a total of 92 articles covering various aspects of ERM were reviewed. Where possible, the studies were clustered together under common research theme. Due to the wealth knowledge from those articles, only the main findings are presented in this paper. This paper uses various search engines available on the interactive portal of University of Malaya library such as ABI/INFORM Complete @ProQuest®, Academic Search Premier @EBSCOhost, Science Direct®, Google Scholar to search for ERM literature.

The following part of this article describes the main findings of the existing literature in accordance to the research theme followed by an analysis of the methodology used and the geographical coverage in the literature

reviewed. The subsequent part of this paper identifies gaps and recommendations for future studies. The limitations and conclusion conclude the paper.

## **2. Existing ERM Literature**

ERM as a field in research begin in the 1990s and has progressively evolved with the maturity and the advancement of ERM practices.

### **2.1. Research Themes**

As in any area of interest, literature on ERM covers a very wide scope of topics. Analysis of the existing ERM literature shows that they can be clustered into a few common themes amongst them; the determinants for adoption, the characteristics of firms which adopted ERM, the ERM impact on firm's value performance and the other aspects of the business, ERM practices within those ERM organisations, roles of the key function on ERM, conceptual papers and current issues.

Among the early literature on ERM is a conceptual paper by Miller (1992). The author introduces an alternative to the suboptimal approach of treating uncertainties in isolation from one another as what he termed as the integrated risk management perspective which forms a basis for comprehensive assessment of uncertainty exposures and explicit consideration of the uncertainty trade-offs associated with alternative firm strategies. He argues that the isolated treatment of uncertainties in the existing management literature does not provide an adequate basis for analyzing the risk implications of strategic decisions. In contrast, the integrated risk management perspective provides a framework for identifying and assessing the many types of uncertainties relevant to strategy formulation (Miller, 1992).

#### **2.1.1. Financial Characteristics of Companies which Adopted ERM**

The paper by Miller (1992) did not trigger any empirical research on ERM until a decade later when a couple of researchers embarked on an initial attempt to identify the financial characteristics of companies which adopted ERM. At the time, interest in ERM among business practitioners is heightening, yet empirical research is lacking owing much to the difficulty in identifying firms that are indeed engaging in ERM. To overcome the challenge, pioneers in ERM research used the appointment of Chief Risk Officer who has been identified as responsible for ERM implementation, as a proxy for ERM adoption (Liebenberg & Hoyt, 2003). The study found that although there is no systematic difference between firms that signal their use of ERM by appointing a CRO and other firms of a similar size and industry affiliation, highly leveraged firms are more inclined to appoint CROs implying higher risk companies are more inclined to adopt ERM. It was also found that leveraged firms are likely to derive greater value from CRO's ability to reduce costs associated with risk-shifting problem and to communicate firm's risk profile to external shareholders. Pagach and Warr (2007) who also used the same methodology of CRO announcement to identify companies with ERM found that firms that are more leveraged, have more volatile earnings and have exhibited poorer stock market performance are more likely to initiate an ERM program. When the value of the CEO's option and stock portfolio is increasing in stock volatility, the firm is also more likely to adopt ERM.

Hoyt and Liebenberg (2011) found that in terms of the financial characteristics, the average ERM adopter among insurance companies is larger, less leveraged, less opaque, has less financial slack and lower return volatility than the average nonadopters. ERM adopters also tend to have higher levels of institutional ownership than non users. In terms of impact to firm's value, average firm's with ERM is valued 4% higher than firms without ERM. Such conflicting findings may be due to the methodology used in the studies, the former studies which found no relationship between ERM and value rely on hard data and proxies while the latter is based on the perception of the employees.

In yet another study on the financial characteristics of ERM adopters, Lin, Wen and Yu (2012) found that insurers with higher reinsurance ratio and greater geographical diversification are more likely to implement ERM. These insurers may realize more benefits from ERM so that they are more motivated to embrace this new mechanism. ERM insurers appear to decrease reinsurance purchase and reduce asset portfolio volatility but increase derivatives positions implying that after ERM adoption, the insurers reduce cost of reinsurance through less reinsurance purchase and cost of financial risks via more derivative usage and less volatile asset portfolios.

#### **2.1.2. Determinants for ERM Adoption**

The other group of researchers looked at the determinants for ERM adoption which include various factors but not limited to regulatory influences (Paape & Speklé, 2012); ownership (Liebenberg & Hoyt, 2003; Paape & Speklé, 2012; Pagach & Warr, 2007); appointment of big four audit firms (Beasley, Clune and Hermanson, 2005; Paape & Speklé, 2012); firm and industry-related characteristics as well the business complexity (Gordon Loeb & Tseng, 2009; Lin et al., 2012; Paape & Speklé, 2012); Board of Directors (Gordon et al., 2009;

Muralidhar, 2010; Wan Daud, Haron & Ibrahim, 2011; Yazid, Hussin & Wan Daud, 2011), country of origin – US based vs non US based (Beasley et al., 2005; Liebenberg & Hoyt, 2003), firm size (Gordon et al., 2009).

Among the early studies on factors that affect the ERM adoption within organizations is one by Kleffner, Lee & McGannon (2003). It was found that almost a third of the respondents have adopted ERM and a larger portion of the remaining is moving towards that direction. Among the reasons cited for adopting ERM includes the influence of Risk Manager, encouragement from BOD and compliance with Stock Exchange Requirements with major deterrents being organisational structure and overall resistance to change. In a later study by Beasley et al. (2005), it was suggested that board and senior management leadership on ERM is critical to extensive ERM deployment. Other organizational characteristics, such as size, auditor type, industry, and country of domicile also help to explain the extent of ERM implementation. In another study which looked at the composition of the top management as the determinant for ERM adoption found positive association between ERM and the percentage of outside directors on the board, the separation of CEO and chairman (Desender, 2011).

### **2.1.3. ERM Impact on Firm's Value, Firm's Performance and others**

A couple of studies using secondary data finds significant relationship between a company's level of Enterprise Risk Management implementation and the company's value. The results of this study show that an increase in the level of ERM implementation in companies had a positive contribution to the value of the companies (Waweru & Kisaka, 2013; Hoyt & Liebenberg, 2011).

Notwithstanding the above, Pagach and Warr (2011) find little evidence of any significant changes in various key firm variables among ERM adopters. Specifically, they find limited evidence of risk reduction in the firm's earnings even among firms that is expected to benefit more from ERM (as proxied for by a positive CRO abnormal announcement return).

The indifferent relationship between ERM and firm's value is somewhat consistent to the findings of a couple more recent studies done on insurance companies. Using Standard and Poor's newly available risk management rating of insurance companies in the US, another group of authors find no additional increase in value for firms achieving a higher ERM rating evidence despite the positive association between increasing levels of Traditional Risk Management capability and firm value (McShane et al., 2011). The unexpected direction in the results of the study raises a few questions, one of which is the reliability and credibility of the newly implemented ERM rating by Standard and Poor. These findings are similar to that of the recent study on the listed companies in Malaysia which uses Corporate Governance Codes as the proxy for ERM adoption. Specifically the researchers found that the Codes do not improve ERM practices in those companies and test results even showed evidence of a decline in the firm's value since the Code implementation (Ghazali & Abdul Manab, 2013). Despite the doubts raised by these studies on ERM positive impact on value, this is not necessarily agreed by the stakeholders namely the employees. In a study among the internal and management executives, it was suggested that ERM implementation can help companies improve performance by enabling executives to manage the company better. From the results of the survey, the study finds that firm's value comes from implementing ERM process, which then enables the company to make better decisions (Gates, Nicolas, & Walker, 2012).

### **2.1.4. Support from Key Positions in the Organization**

Support from the senior management team namely CEO (Beasley et al., 2005; Muralidhar, 2010) CFO of the entity (Beasley et al., 2005), internal auditors (Beasley et al., 2005; Liu, 2012; Kasim, 2011; Wan Daud, 2011) as well as the board of directors (Muralidhar, 2010; Wan Daud et al., 2011) were also identified in the earlier studies as one of the drivers for adoption.

The important role of CRO is paramount in ERM programme on the basis that the impetus for ERM arose when the traditional risk manager and the financial risk manager began reporting to the same individual in a corporation, commonly the treasurer or chief financial officer (D'Arcy & Brogan, 2001). Wan Daud et al. (2010) investigated the adoption level of ERM in Malaysia and the effect of CROs on ERM practices. This survey included 500 major companies from the Malaysia Bursa (exchange). The companies were selected from seven industries: trading and services, consumer products, construction, plantation, industrial products, properties and construction. In this study, the task of CRO, explained by COSO (2004) was considered and it further confirmed the earlier studies which found positive relationship between quality of CRO and level of ERM adoption.

Although some organisations may have a separate ERM unit to focus on the ERM implementation, internal auditors still have significant roles to perform in the implementation of ERM (Bowling, 2005; Scott, Whitley, McCollum, & Salierno, 2004; Tidrick, 2005). In Kenya, 45% of the companies studied in a survey indicated that ERM implementation in their companies are performed by a CRO while 36% indicated that this implementation is championed by the head of internal Audit (Waweru & Kisaka, 2013).

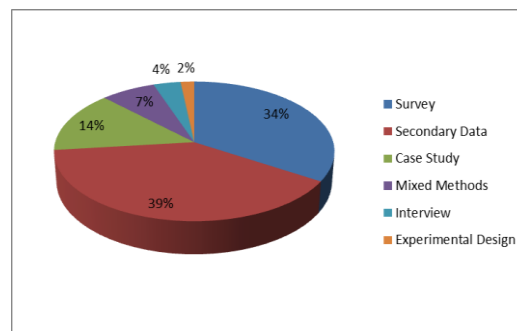
Built on this premise, a study involving 771 internal auditors and 197 ERM executives from Malaysian GLCs further confirmed that internal audit function could significantly influence the degree of ERM implementation (Kasim, 2011).

### 2.1.5. ERM Practices within Organizations

There were also studies conducted to examine how ERM is being rolled out in the actual organizational setting and investigate the ERM implementation process for example Arena et al., 2010, 2011; Muralidhar, 2010; Tekathen & Dechow, 2013. Most of these studies were case studies and interviews seeking to understand in depth the ERM practices in the actual business environment.

## 3. Research Methodology

Of the 92 ERM literature included in the analysis, 56 were empirical paper (the remainings were conceptual papers comprising predominantly quantitative studies followed by qualitative and a few mixed methods research design – see figure 1 below).



**Figure 1** Analysis of Research Methodology Used in ERM Research

### 3.2.1 Quantitative Studies

In terms of methodology, most of the literature found on ERM are conducted empirically, mainly secondary data sourced from annual reports, press announcements, stock prices, annual reports, and data provided by government and non-government bodies like National Association of Insurance Commissioners, COSO, SIC etc.. Quantitative studies using secondary data made up 39% of the total academic research - for example Gordon et al., 2009; Liebenberg & Hoyt, 2003; Lin et al., 2012; Pagach & Warr, 2007). This is followed by primary data collected through survey questionnaires – 34% of the total ERM empirical literature in this analysis. For example, Beasley et al., 2005; Gates et al., 2012; Jalal et al., 2011; Wan Daud et al., 2010; Wan Daud, 2011; Wan Daud et al., 2011; Yazid et al., 2011. Only one study was conducted using experimental method i.e. Liu (2011).

### 3.2.2 Qualitative Studies

Of all the empirical studies, only 18% were qualitative consisting of case studies (14%) and interviews (4%). The earliest study on the actual ERM implementation was conducted in 2002 at the United Grain Growers (UGG), a Winnipeg, Manitoba-based agricultural company which was also among the first company in Canada which implemented ERM (Harrington & Niehaus, 2003). A couple more case studies were performed on a single organization to explore the aspects of ERM implementation in various organizations for example the electricity delivery company in Canada, Hydro One (Aabo, Fraser a& Simkins, 2005).

The most recent case study on a manufacturing company in Germany adds to the insight that ERM is always implemented in local ways (Arena et al., 2010; Mikes, 2009, 2011). The case suggests that popular risk management concepts – such as COSO, for example – are never real, and that all ERM implementations are localized (Tekathen & Dechow, 2013).

Three years later, Mikes (2009) conducted a field-based study in two banks in the UK to explore the forms and uses of ERM and the roles that risk managers have come to play in actual organizational settings. The field studies showed how these two banks maneuvered its risk management strategy within the respective organizational culture – one case demonstrates the interactive use of certain risk controls whilst the other showed how risk controls became significant in a diagnostic capacity in a context where no risk controls were used interactively.

Moving away from developed countries and from the insurance and banking, Muralidhar (2010) conducts case studies in six organisations in the Gulf Cooperation Council countries. The study establishes the understanding of the current existing ERM models while identifying the determinants of ERM adoption and the most significant challenges for its implementation.

Arena and associates (2009) used a 7-year longitudinal case study on 3 private Italian companies to the organizational dynamics of ERM. The outcome of the cases show how ERM was realized differently across the organizations which reflect the fluid nature of ERM and its ongoing reciprocal interactions with the other, pre-existing, practices for controlling uncertainty.

In a case study of six listed large to medium-sized general insurance companies in the UK, Jabbour (2011) used semi structured interviews and documentation evidence to investigate the link between the motives for ERM adoption and ERM use within insurance companies, the relation between ERM determinants and its use, as well as to what extent is change in capital allocation process driven by ERM in insurance companies.

### 3.2.3 Mixed Methods Studies

There are four mixed method study reviewed in this paper - three of them are mixed methods of explanatory design i.e. survey questionnaire followed by case study and one of exploratory design based on interviews followed by survey.

Kleffner, Lee and McGannon (2003) using survey distributed to Canadian Risk and Insurance Management Society members followed by interviews with 19 of the respondents were believed to be the first mixed method study done on ERM. The objectives of the study were among others to examine the characteristics associated with the use of ERM, the obstacles companies face in implementing ERM hence explain the need for in-depth understanding which can only be achieved through interview method.

Another mixed method of explanatory design looks at the development of ERM at four major European Insurance Companies. The study which consisted of 62 semi-structured face-to-face interviews and a structured survey found that despite the call for a holistic approach to ERM, there was no such approach in the four companies studied; rather they approach ERM in parts. CEO leadership and regulations are found to be the most important drivers in ERM implementation whilst communication and cultural barriers are the most important challenges in ERM implementation (Acharyya and Johnson (2006). Mikes (2008) using survey and over 50 interviews seek to assess the roles that risk functions and, in particular, senior risk officers play in fifteen large international banks. The study found that the role of chief risk officers (CROs) has expanded dramatically, with more than half of them frequently involved in firm-level strategic decisions.

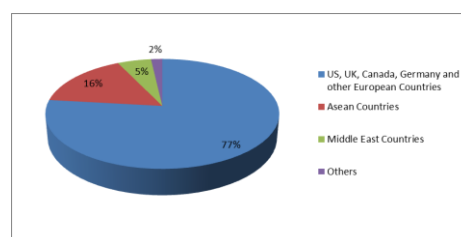
The only mixed method study of exploratory design looks at risk oriented internal audit. The research proposed some strategies and suggestions to promote the application of the risk oriented internal audit so as to ensure the effectiveness of the enterprise risk management (Liu, 2012).

The only study which used open ended interviews to collect data to benefit from the richness of such methodology recommends a split of the internal audit and risk management functions to preserve internal audit independence and clarify internal audit roles. The authors further argue that audit committees are increasingly involved in risk management but there are doubts as to whether they have the time and expertise to undertake more than high level risk reviews and further for separate risk committees should be established to direct risk management, with audit committees adopting a watching brief over the process (Fraser & Henry, 2007).

### 3.3 Geographical Area and Industry

Most studies are based on experience from developed countries like US, UK, Germany, Canada etc. (Aabo et al., 2005; Beasley et al., 2005; Curkovic, Scannel, Wagner and Vitek, 2013; Gates et al., 2012; Kleffner et al., 2003; Liebenberg & Hoyt, 2003; Paape & Speklé, 2012; Quon, Zeghal and Maingot, 2012) although research found that despite ERM being a concept accepted worldwide, it is always implemented and interpreted in local ways (Arena et al., 2010; Mikes, 2009, 2011; Tekathen & Dechow, 2013). As seen from Figure 2 below only a small number of studies were carried out in developing countries. Majority of the studies - 75% of the 56 empirical studies reviewed for the purpose of this paper were conducted in developed countries.

Due to the high regulated nature of the industry, insurance and financial services industry companies were always the choice of industry in ERM related studies. Insurance companies are relatively homogeneous in terms of their investment, financing activities, and regulatory environments, are active in espousing ERM concepts (Grace et al. 2010).



**Figure 2** Analysis of Research Geographical Coverage

#### 4. Direction for Future Research

Fraser and associates in their article posit that much more work is needed in the areas of ERM research and case studies to enable risk executives to learn from the experiences of others who have successfully implemented enterprise risk management. The results of the web-based survey which respondents are the members of the Strategic Risk Council of the Conference Board of Canada, uncovered an important need for more information on ERM, especially detailed information on integrating risks, the impact of corporate culture, and actual case studies (Fraser et al., 2008).

As shown in the analysis, existing ERM literature tends to focus on the technical aspects of ERM namely (i) the characteristics of ERM adopters, (ii) determinants for ERM adoption, (iii) the impact of ERM adoption to firm's value and performance, (iv) the roles of various functions within the organisation such as the CRO, internal auditors as well as the board of directors etc. The main gap in the literature is therefore believed to be in the wider social, institutional and organizational context in which it operates, rather than just focusing on the technical aspects of risk management (Soin & Collier, 2013), in particular in the operations of ERM within the actual organization settings. This area of importance in ERM research is simply an echo from the earlier 2009 special issue of the same journal in which Bhimani posits that risk management is ultimately a social construct shaped by the contexts they inhabit. The researcher emphasizes that the particularity of risk management characteristics in specific organisational settings has not to date been the subject of vast research (Bhimani, 2009). Specifically, despite the studies done on the role of senior executives, limited insights are gain on the role of the various risk champions who are directly involved in the implementation of ERM such as the chief risk officers, chief internal audit manager. Further moew, to date there is no study done to look at the impact of employee involvement throughout the whole process of ERM implementation and enforcement.

Tekathen & Dechow (2013) suggests that there is a need for future research to explore the ways in which risk management is portrayed conceptually compared to actual practices in firms. They suggest that management practice takes on a wholesome, whose properties are more creative than they are necessarily easy to control. This study has suggested that the creative properties of local risk management practices may help firms to overcome (some of) the limits of individual accountability (Tekathen & Dechow, 2013).

The second gap is found in what's involved in implementing and managing a workable, effective and successful ERM (Kasim, Abdul Aziz and Kasim, 2011). Researches by Liu (2011), Jalal, AlBayati and Albuainain (2011) and Gordon et. al. (2009) are among very few work on the effective implementation of an ERM program in an organization from a holistic perspective. These studies concur that the alignment among ERM COSO 2004 components are the antecedents for an effective and successful ERM program. Jalal and associates however only apply 4 out of 8 successful factors of good ERM in their study (Jalal et al., 2011). A few studies has investigated the conditions necessary for a successful ERM program (Beasley, Chen, Nunez, & Wright, 2006; Gordon et al., 2009; X. Liu, 2011). The conditions are only a handful and tend to be very fragmented. For example, Gordon et al. (2009) found that an effective ERM program depends on the appropriate match between the ERM program and the level of monitoring by the board of directors. One study which uses experimental approach, only investigates 2 components i.e internal environment and information and communication (out of 8) of ERM framework for an effective ERM program (Liu, 2011). Other studies posit that an effective ERM program should be aligned with performance measurement and incentive systems (e.g., M. Beasley et al., 2006). Paape and Speckle (2012) looks at specific risk management design choices and their effect on perceived risk management effectiveness. Another study that explores the relationship between ERM design and effectiveness is Collier et al. (2007).

#### 5. Limitations

This paper is not without its limitations. Alas, whilst best efforts have been put to include all existing ERM literature in the analysis, one can never eliminate completely the possibility of oversight. The fluid nature of the knowledge in itself contributes to the challenge in compiling a complete list of literature in any field as new articles is being published even as you are reading this article. The authors wish to mention though than any exclusion of any literature on ERM is not intentional and hope that most of the relevant if not all articles on ERM is included in this review and offers a good foundation for further research in the field of ERM.

#### 6. Conclusion

Our extensive literature review shows that there is much work to be done on ERM. Despite the various studies conducted on the subject it remains a fertile area for research. Whilst there seems to be a general consensus on the technical aspects of ERM such as the drivers and characteristics for ERM adoption, conflicts exists in the impact of ERM on firms values. There is also lack of research done in the aspects of ERM effectiveness in managing risks. Additionally, much work is done empirically, reflecting a dire need for an in depth understanding on the topic. We hope that this literature analysis forms a solid foundation for young researcher to embark a new journey in further research on ERM.

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## Appendix 1

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
1	Enterprise Risk Management : Strategic Antecedents, Risk Integration, and Performance	Lin, Weng and Yu (2012)	Secondary data	Characteristics of firms with ERM - firm indicator, Amount of reinsurance purchase, degree of financial derivative, geographic diversification, business diversification, Asset return volatility (risky asset portfolios). Sub theme - impact of ERM on firm performance.	US
2	The Determinants of Enterprise Risk Management : Evidence from the Appointment of Chief Risk Officers	Liebenberg and Hoyt (2003)	Secondary data	Characteristics of Firm w ERM - Earnings volatility, Stock Price Volatility, Average Leverage, Average Market to Book Ratio, Financial Opacity, Avg % Institutional Ownership, US/Canadian Subsidiary.	US
3	An Empirical Investigation of the Characteristics of Firms Adopting Enterprise Risk Management	Pagach and Warr (2007)	Secondary data	Characteristics of ERM adopters - Leverage, Financial slack, Earnings volatility, Asset opacity, R&D intensity, Growth options, Market performance, Volatility of firm's stock returns, Managerial incentives, Industry membership, Operating segments, Institutional ownership.	US
4	The Characteristics Of Firms That Hire Chief Risk Officers	Pagach and Warr (2011)	Secondary data	Characteristics of ERM adopters - Leverage, Cash ratio, Operating cashflow volatility, Tax save, Size, Opacity, Market to Book, Sales Growth, Standard Deviation of Returns, Number of Operating Segments, Institutional Ownership, Managerial Risk-Taking Incentives.	US
5	An empirical examination of the interrelations of risks and the firm's relation with enterprise risk management	Pooser (2012)	Secondary data	Characteristics of ERM adopters - Return on Assets (NI/Net Assets), Change in Direct Premiums Written, Change in Net Income, SIZE, Concentration of Insurers in an Insurance Line, Mutual Dummy Variable, Public Firm Dummy Variable, BEST's Capital Adequacy Ratio, Kenney Ratio (NPW/PHS), Firm Geographic Concentration.	US Insurance companies
6	On the Determinants of Enterprise Risk Management Implementation	Desender (2007)	Secondary data	Determinants for adoption - CRO, Board Independence, Separation of CEO and Chairman, Agency Costs, Size , External Audit Firm.	US
7	Internal Control Enterprise RM and Firm Performance	Gordon, Loeb and Tsang (2009)	Secondary data	Determinants for ERM adoption - Environmental uncertainty, Industry Competition, Size, Complexity, Board Monitoring. Sub theme - ERM on firm performance	US
8	The Relationship between organisational Culture and ERM	Kimbrough and Componation (2009)	Survey	Determinants for ERM adoption - culture.	US
9	Enterprise risk management: An empirical analysis of factors associated with the extent of implementation	Beasley, Clune, and Hermanson (2005)	Survey	Determinants for adoption - Request from CEO and CFO, BIG4 audit firm, size, education, type of industry, country of origin (US based and nonUS based). Sub theme - Impact of ERM on firm value.	US
10	ERM: Opportunities for Improvement	Beasley, Branson and Hancock (2008)	Survey	Determinants for adoption - Barriers to ERM, role of Senior Executive.	US
11	Determinants of Enterprise Risk Management (ERM): A Proposed Framework for Malaysian Public Listed Companies	Yazid, Razali and Hussin (2012)	Survey	Determinants for adoption - CRO, leverage, profitability, international diversification, institutional ownership, size, and turnover.	Malaysia
12	The Adoption and Design of Enterprise Risk Management Practices: An Empirical Study	Paape and Speklé (2012)	Survey	Determinants for adoption - Regulatory Influence - Corp Governance regulation, and Listing regulation, Internal Influence - Presence of CRO and Audit Committee, Ownership, External Auditor Influence, Firm and industry characteristics.	Netherland
13	The effect of Corporate Governance on the Use of Enterprise Risk Management : Evidence from Canada	Kleffner, Lee and McGannon (2003)	Mixed method	Determinants for adoption - Company specifics i.e size, industry, type of ownership, background of CRO, organisation of risk management function etc	Canada Insurance companies

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
14	Enterprise Risk Management : A Process of Enhanced Management and Improved Performance	Gates, Nicolas and Walker (2012)	Survey	ERM Impact on firm performance	US
15	The Effects of Enterprise Risk Management on Firm Performance	Pagach and Warr (2010)	Secondary data		US
16	Enterprise risk management and firm performance	Quon, Zeghala and Maingota (2012)	Secondary data	ERM Impact on firm's value	Canada
17	ERM and Firm Performance in Malaysia	Nickmanesh, Zohoori, Musram and Akbari (2013)	Secondary data		Malaysia
18	The Value of Enterprise Risk Management	Hoyt and Liebenberg (2011)	Secondary data	ERM Impact on Total Risks in Insurance Companies	US Insurance companies
19	Does Enterprise Risk Management Increase Firm Value	Mc Shane, Nair and Rustambekov (2011)	Secondary data		US
20	The Effect of Enterprise Risk Management Implementation on the Value of Companies Listed on the Nairobi Stock Exchange	Waweru and Kisaka (2013)	Secondary data	ERM Impact on performanc and during crisis	Kenya
21	Enterprise Risk Management And Value Creation: Initial Findings Amongst Non-Financial Public Listed Companies In Malaysian Bourse	Ghazali and Abdul Manab (2013)	Secondary data		Malaysia
22	Enterprise risk management, adverse selection, and the insurance industry	Zhang (2005)	Secondary data	ERM impact on firms' risk taking behavior	US Insurance companies
23	Enterprise Risk Management Program Quality: Determinants, Value Relevance, and the Financial Crisis	Baxter, Bedard, Hoytash and Yezegel (2013)	Secondary data		US Banks
24	The Impact of Enterprise Risk Management on the Marginal Cost of Reducing Risk: Evidence from the Insurance Industry	Eckles, Hoyt and Miller (2010)	Secondary data	ERM impact on firms' capital allocation methods	UK Insurance companies
25	The Impact of Enterprise Risk Management on Capital Allocation in Insurance Companies	Jabbour (2011)	Case Study		US Insurance companies
25	Enterprise Risk Management as a Strategic Governance Mechanism in B2B-Enabled Transnational Supply Chains	Arnold, Benford, Hampton and Sutton (2012)	Survey	ERM Impact on Supply Chain Relationship	North American
27	Enterprise Risk Management	Hennessey and Bennett (2013)	N/a	ERM impact on Credit Portfolio Management	N/a
28	United Grain Growers: Enterprise Risk Management And Weather Risk	Harrington and Niehaus (2003)	Case Study	ERM practices within Organisation	US
29	Enterprise risk management and continuous re-alignment in the pursuit of accountability: A German case	Tekathen and Dechow (2013)	Case Study		Germany
30	Investigating the development of enterprise risk management in the insurance industry: an empirical study of four major European insurers	Acharyya and Johnson (2006)	Mixed method	ERM Impact on Credit Portfolio Management	European Insurance companies
31	The organizational dynamics of Enterprise Risk Management	Arena, Amaboldi and Azzone (2010)	Case Study		Italy
32	Is enterprise risk management real?	Arena, Amaboldi and Azzone (2011)	Case Study	ERM practices within Organisation	Italy
33	Enterprise Risk Management in the Middle East Oil Industry : An empirical investigation across GCC countries	Muralkhdar (2010)	Case Study		Gulf Cooperation Council
34	Implementation of Enterprise Risk Management: Evidence from the German Property-Liability Insurance Industry	Altuntas, Berry-stölzle and Hoyt (2011)	Structured telephone interviews	ERM practices within Organisation	Germany
35	A comparative study of enterprise risk management and decision making criteria used in developing soccer-specific stadiums for major league soccer	Sakiewicz (2006)	Survey		US
36	Current Practices of Enterprise Risk Management in Dubai	Rao and Marie (2007)	Survey	ERM practices within Organisation	Dubai
37	Evaluating Enterprise Risk Management (ERM) : Bahrain Financial Sectors As a Case Study	Jalal, AlBayati, and AlBuainain (2011)	Survey		Bahrain
38	Enterprise Risk Management : Theory and Practice	Nocco (2006)	N/a	ERM practices within Organisation	N/a

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
39	Information Conveyed in Hiring Announcements of Senior Executives Overseeing Enterprise-Wide Risk Management Processes	Beasley, Pagach and Warr (2007)	Secondary data	Role of CRO in ERM implementation	US
40	Governance and Shareholder Response to Chief Risk Officer Appointments	Gupta, Prakashand Rangan (2012)	Secondary data		US Insurance companies
41	The Effect of Chief Risk Officer (CRO) on Enterprise Risk Management (ERM) Practices : Evidence From Malaysia	Wan Daud, Yazid and Hussin (2010)	Survey	Role of BOD on ERM	Malaysia
42	Integrated Risk Management and the Role of Risk Manager	Collquit, Hoyt, and Lee. (1999)	Survey		US Insurance companies
43	The Rise and Evolution of the Chief Risk Officer : Enterprise Risk Management at Hydro One	Aabo and Simkins (2005)	Case Study	Role of CRO and BOD on ERM implementation	Canada
44	Risk Management at Crunch Time: Are Chief Risk Officers Compliance Champions or Business Partners?	Mikes (2008)	Mixed method		UK Banks
45	Enterprise-wide risk management and the role of the chief risk officer	Lam (2000)	N/a	Role of internal audit on ERM implementation	N/a
46	The Role of CRO in Adoption and Implementatin of ERM - A Literature Review	Saeidi, Sofian, Abdul Rasid and Saeid (2012)	N/a		N/a
47	The Role of Quality Board of Directors in ERM Practices: Evidence from Binary Logistic Regression	Wan Daud, Haron and Ibrahim (2011)	Survey	Role of internal audit on ERM implementation	Malaysia
48	An examination of Enterprise Risk Management (ERM) Practices among the Government-Linked Companies (GLCs) in Malaysia	Yazid, Hussin and Wan Daud (2011)	Survey		Malaysia
49	The Effect of Continuous Enterprise Risk Management Improvement on Internal Audit Work Success of the Institute of Higher Education	Musig and Kunsrison (2012).	Survey	Role of internal audit on ERM implementation	Thailand
50	ERM: a status report	Beasley, Clune and Hermanson (2005)	Survey		US
51	The Role of the Quality Internal Adult Support in Enterprise Risk Management (ERM) Practices: Evidence from Malaysia	Wan Daud (2011)	Survey	Role of internal audit on ERM implementation	Malaysia
52	The Enterprise Risk Management and the Risk Oriented Internal Audit	Liu (2012)	Mixed method		China
53	The Enterprise Risk Management (ERM) and role of intemal auditors in the ERM implementation: A review of related literature on measurement instruments	Kasim and Mohd Hanafi (2012)	N/a	Role of internal audit on ERM implementation	N/a
54	ERM in Practice	Walker, Shenkir and Barton (2003)	N/a		N/a
55	Embedding Risk Management : Structures and Approaches	Fraser and Henry (2007)	Interview	Role of internal audit on ERM implementation	UK
56	The ethics of enterprise risk management as a key component of corporate governance	Demidenko and McNutt (2010)	N/a		N/a
57	Enterprise Risk Management and sarbanes-oxley compliance: a model of convergence in accounting audit practice	Spicer (2006)	Secondary data	Role of internal audit on ERM implementation	US
58	Optimised Enterprise Risk Management	Abrams, Känel, Müller, Pfitzmann and Rusch	N/a		N/a
59	Economic exposure and integrated risk management	Miller (1994).	N/a	Role of internal audit on ERM implementation	N/a
60	A Framework For Integrated Risk Management In International Business	Miller (1992)	N/a		N/a
61	Enterprise Risk Management and the Process of Risk Assessment	Nourbakhshian, Rajabinasr, Hooman, and Se	N/a	Role of internal audit on ERM implementation	N/a
62	Enterprise risk management: A systems-thinking framework for the event identification phase	O'Donnell (2005)	N/a		N/a
63	Enterprise Risk Management : Its Origin and Conceptual Foundation	Disckinson (2001)	N/a	Role of internal audit on ERM implementation	N/a
64	Enterprise Risk Management: Current Initiatives and issues	Simkins (2008)	N/a		N/a
65	Enterprise Risk Management: A Best Practice Approach	Francis and Paladino (2008)	N/a	Role of internal audit on ERM implementation	N/a
66	Key Requirements for Enterprise-wide Risk Management: Lessons Learned from the Global Financial Crisis	Lam (2009)	N/a		N/a

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
67	A strategic framework for value enhancing enterprise risk management	Woon and Adul Samad (2011)	N/a	Concepts in ERM - General	N/a
68	Integrated risk management in construction enterprises – theoretical approach	Tworek (2012)	N/a		N/a
69	The Implications of COSO's Proposed ERM Framework	Hermanson (2003)	N/a		N/a
70	Enterprise Risk Management	Chitakomkijasil (2010).	N/a		N/a
71	Internal control and enterprise risk management – from traditional to revised COSO model	Krstić and Doričević (2012)	N/a	Concepts in ERM - internal control	N/a
72	Enterprise Risk Management	D'Arcy (2001)	N/a	Concepts in ERM - COSO Framework	N/a
73	Is IT next for ERM?	Ramamoorti and Weidenmier (2006)	N/a	Concepts in ERM - Automation	N/a
74	The End of Enterprise Risk Management	Martin and Power (2007)	N/a	Concepts in ERM - Regulatory Influence	N/a
75	Game Analysis of Internal Control and Risk Management	Yanhong and Qing (2013)	N/a	Concepts in ERM - Game Analysis	N/a
76	Enterprise Risk Management in Financial Crisis	Heng Yik, Jifeng and Jared (2011)	Secondary data	Current Issues in ERM - financial crisis	US
77	Decentralized Enterprise Risk Management For Global Companies	Erkan (2006)	Secondary data	Current Issues in ERM - Centralised vs Decentralised ERM	US
78	The dispositif of risk management: Reconstructing risk management after the financial crisis	Huber and Scheytt (2013)	N/a	Current Issues in ERM - financial crisis	N/a
79	Enterprise Risk Management: Current Initiatives and Issues Journal of Applied Finance Roundtable	Betty (2008)	N/a	Current Issues in ERM - General	N/a
80	Risk and risk management in management accounting and control, Editorial	Soin and Collier (2013)	N/a	Current issues in ERM - Direction for future	N/a
81	A Holistic Perspective of Enterprise Risk Management	Liu (2011)	Experimental Design	Effectiveness of ERM Programme - Antecedents	US
82	The Role of Enterprise Risk Management and Organisational Strategic Flexibility in Easing New Regulatory Compliance	Arnold V, Benford T, Canada J, G Sutton S	Survey	Effectiveness of ERM Programme - in reaction to new regulatory mandates.	US
83	Working Hand in Hand : Balanced Scorecards and ERM	Beasley, Nunez and Wright (2006)	N/a	Effectiveness of ERM Programme - in relation to Balanced Scorecard and Incentive system	N/a
84	Enterprise Risk Management Through Strategic Allocation Of Capital	Ai, J., Brockett, P. L., Cooper, W. W., & Golden, L. L.	N/a	Mathematical Approach to ERM	N/a
85	Stochastic optimization for enterprise risk management	Zhang (2006)	N/a	Mathematical Approach to ERM	N/a
86	Computing Value At Risk: A Simulation Assignment To Illustrate The Value Of Enterprise Risk Management	Hoyt, Powell and Sonmer (2007)	N/a	Mathematical Approach to value of ERM	N/a
87	Indicators and metrics used in the enterprise risk management (ERM)	Scarlat, Chirita and Bradea (2012)	N/a	Mathematical approach to ERM - use of indicators and metrics	N/a
88	Risk management and calculative cultures	Mikes (2009)	Case study	Mathematical Approach to ERM	UK Banks
89	Who reads what most often ? A survey of ERM literature read by Risk Managers	Fraser, Schoening and Simkins (2008)	Survey	Literature on ERM	Canada
90	Enterprise Risk Management and the Influence of External and Institutional Corporate Governance Practices of Firm's Value	Ionesco (2012)	N/a	Regulatory vs ERM	N/a
91	The Enterprise Risk Management (ERM) and role of internal auditors in the ERM implementation: A review of related literature on measurement instruments	Kasim, and Mohd Hanafi (2012).	N/a	Literature on ERM	N/a
92	The Seveso Directives and Their Application to Enterprise Risk Management	Bentes and Cruz (2014)	N/a	Regulatory vs ERM	N/a