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**THE MODERATING EFFECT OF RISK CULTURE ON
ENTERPRISE RISK MANAGEMENT
IMPLEMENTATION IN MALAYSIA**

OTHMAN IBRAHIM



UUM
Universiti Utara Malaysia

**DOCTOR OF BUSINESS ADMINISTRATION
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ENTERPRISE RISK MANAGEMENT IMPLEMENTATION
IN MALAYSIA**

By



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**Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia,
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Business Administration**

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ABSTRACT

Enterprise risk management (ERM) is a systematic way of assessing risk exposure within business organizations. It is also a comprehensive tool and systematic mechanism to predict the likelihood and impact of events, including unexpected occurrences. The objective of this study is to examine the key determinants of ERM implementation amongst Public Listed Companies (PLC's). It is also to examine the moderating effect of risk culture on the relationship between ERM determinants and ERM implementation amongst the listed companies in Malaysia. This research adopted a quantitative orientation to analyze the data obtained from the questionnaire distributed to the companies listed on Bursa Malaysia via their Risk Management Division. Out of 814 PLC's based on the directory of Bursa Malaysia's main board, 300 were taken as a sample in this study. The primary data collection commenced after the pilot test was completed and the data was analyzed using SPSS Version v.18. From the analysis it is found that senior management commitment, chief risk officer, ERM policy, process methodology, risk assessment tool, audit committee, risk management committee, internal audit, rules and regulation and code of practice have a significant and positive relationship with the ERM implementation. The result reveal risk culture is considered as good moderator by positively interacts or increases the interaction between the ERM determinants and the ERM implementation. Hierarchical multiple regression indicated that risk culture played the moderating role in the relationship between senior management commitment, chief risk officer, risk assessment tools, risk management committee and ERM implementation. This study provides significant theoretical and practical contributions for the industry, practitioners, researchers and academician, besides providing a framework for ERM implementation in the listed companies in Malaysia. The results of this research have significant implications for stakeholders such as business or professional practitioner including internal auditors, top management, audit committee, standard-setters or even regulatory bodies and academician in Malaysia. The current study is significant as it helps shed light on the relative importance of the leadership, operating framework, governance mechanism and compliance constructs on ERM implementation in Malaysia. The findings of this study contribute to the body of knowledge in the area of risk governance, compliance and control mechanism that linked with the ERM implementation. The results of this study could serve as a guide to develop a strategy for audit actions in the assessment of ERM practices to further improve the level of ERM implementation by the intended shareholders as a whole.

Keywords: Enterprise Risk Management, Governance Mechanism, Operating Framework, Compliance, Risk Culture

ABSTRAK

Pengurusan Risiko Perusahaan atau *Enterprise Risk Management* (ERM) merupakan satu kaedah pengurusan yang sistematik untuk menilai tahap pendedahan terhadap risiko dalam sesebuah organisasi perniagaan. Kaedah ini juga merupakan kaedah yang komprehensif dan mekanisma yang sistematik untuk menjangkakan kebarangkalian dan implikasi ke atas situasi yang berlaku termasuk kejadian di luar jangkaan. Objektif kajian ini adalah untuk menilai faktor penentu utama yang mempengaruhi pelaksanaan ERM di kebanyakan syarikat penyertaan awam. Di samping itu, kajian ini menilai kesan perantara budaya risiko terhadap hubungan antara penentu-penentu dan pelaksanaan ERM dalam syarikat penyertaan awam di Malaysia. Kajian ini dijalankan dengan menggunakan pendekatan orientasi kuantitatif untuk menganalisis data yang diperolehi daripada soal selidik yang diedarkan kepada syarikat-syarikat penyertaan awam di Bursa Malaysia melalui Bahagian Pengurusan Risiko masing-masing. Berdasarkan 814 syarikat yang tersenarai dalam direktori papan Bursa Malaysia, 300 daripada dijadikan sampel kajian. Pengumpulan data primer dimulakan selepas ujian rintis telah siap dan data dianalisis menggunakan SPSS Versi v.18. Hasil analisis mendapati komitmen pengurusan atasan, ketua pegawai risiko, polisi ERM, metodologi proses, alat penilaian risiko, jawatankuasa pengauditan, jawatankuasa pengurusan risiko, audit dalaman, terma dan perundangan serta kod tatacara menunjukkan hubungan yang positif dan signifikan dengan pelaksanaan ERM. Hasil kajian juga mendapati bahawa budaya risiko menunjukkan hubungan yang baik sebagai faktor pemangkin dengan positifnya berinteraksi serta meningkatkan interaksi di antara faktor-faktor penentu ERM dan pelaksanaan ERM. Hasil ujian regresi berperingkat juga mendapati bahawa budaya risiko menunjukkan peranan sebagai pembolehubah moderator dalam hubungan antara komitmen pengurusan atasan, ketua pegawai risiko, alat penilaian risiko dan jawatankuasa pengurusan risiko dengan pelaksanaan ERM. Kajian ini memberikan sumbangan secara signifikan bagi pembangunan teori dan praktikal kepada pihak industri, para profesional, para penyelidik dan ahli akademik selain menyediakan satu rangka kerja bagi pelaksanaan ERM dalam syarikat-syarikat penyertaan awam Malaysia. Hasil kajian ini juga memberikan implikasi yang signifikan kepada pemegang saham seperti pengurusan profesional termasuklah juruaudit dalaman, pengurusan atasan, jawatankuasa audit, penggubal piawaian, malahan badan perundangan serta ahli akademik di Malaysia. Kajian ini didapati signifikan dalam membantu mengukuhkan hubungan penting dalam kepimpinan, rangka kerja pengoperasian, mekanisma tadbir urus dan konstruk pematuhan terhadap pelaksanaan ERM di Malaysia. Dapatan kajian ini juga memberikan sumbangan kepada ilmu pengetahuan dalam bidang tadbir urus berisiko, pematuhan dan mekanisma kawalan yang berhubung secara langsung dengan ERM. Hasil kajian ini juga boleh dijadikan panduan bagi pembangunan strategi untuk tindakan pengauditan dalam penilaian ke atas amalan ERM untuk menambahbaik tahap pelaksanaan ERM oleh pihak pemegang-pemegang saham secara keseluruhannya.

Kata kunci: Pengurusan risiko perusahaan, Mekanisma tadbir urus, Rangka kerja pengoperasian, Pematuhan, Budaya risiko.

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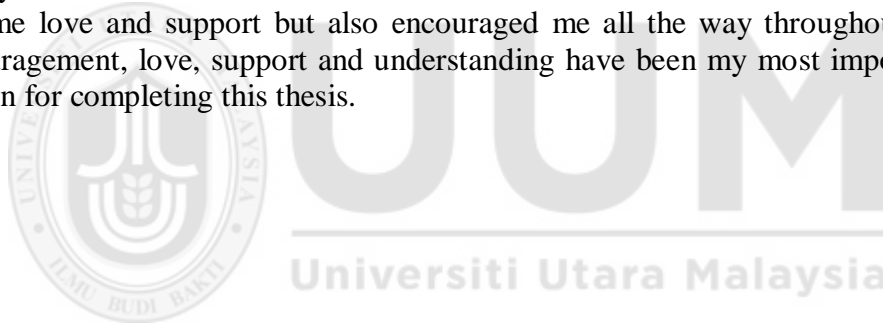


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Appendix A

PUBLIC LISTED COMPANIES IN MALAYSIA

BURSA MALAYSIA

Main Board (1st Board as of 8TH JULY 2014)

SAMPLE QUESTIONNAIRES

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ABBREVIATIONS

Notation	Descriptions
ERM	Enterprise Risk Management
BOD	Board of Directors
SMC	Senior Management Commitment
CRO	Chief Risk Officer
EPOL	ERM Policy
PROM	Process Methodology
AC	Audit Committee
IA	Internal Audit
RMC	Risk Management Committee
RAT	Risk Assessment Tool
RNR	Rules and Regulations
COP	Code of Practice
COSO	Committee of Sponsoring Organization of the Tread way Commission
RC	Risk Culture
FERMA	A Risk Management Standard by the Federal of European Risk Management
MICG	Malaysian Institute of Corporate Governance
IIAM	Institute Internal Auditor Malaysia
SC	Securities Commission
CIA	Chief Internal Auditor
TSE	Toronto Stock Exchange (TSE)
EPOL	Existence of ERM Policy
ISO	International Standardization for Organization

CHAPTER ONE

INTRODUCTION

1.1 Research Background

The term 'risk' refers to uncertain and unpredictable situations that disrupt the process of achieving corporate objectives and creating shareholders' values (Deloach, 2000; Cassidy, 2005). In an unpredictable business cycle, risk is highly uncertain and could negatively affect a company's operations, including but not limited to, strategy operations, human capital, reputational exposure and the legal framework (Shimpi, 2005; Gupta, 2011). Thus, every company has to effectively manage operational risks so that profitability and business growth could be ensured. In the literature, the process of managing risk is termed as Enterprise Risk Management (ERM).

Smith et al. (1997) defined ERM as a tool to manage, measure and mitigate risk exposure that give an impact to the business operations and strategy objectives. In other words, ERM is a value-added tool for business improvement by identifying and analyzing potential risks or hazards inside and/or outside the company, and in turn, determining suitable actions to mitigate them. According to Anthony (2001), ERM is a comprehensive business tool to assist companies to align business strategy, processes, human capital, technology and innovation and knowledge transfer with actions that aim to maintain business sustainability and shareholder's expectation. The role of ERM in mitigating an organization's exposure to business risks is also highlighted in The Committee of Sponsoring Organizations of Tradeway

Commission's (COSO's) (2004). The continuous monitoring and executing the risk mitigation action plans in the business context will ensure that corporate objectives and maximum wealth for shareholders are always achieved (Lam, 2003; Gupta, 2011).

Previous researchers on the ERM have identified a few variables or key contributors to the success of ERM, such as board of directors (BOD), chief risk officers (CRO), institutional leadership, information technology (IT) and role of internal auditor. There are other key independent variables influencing ERM, namely, corporate governance, institutional ownership, size, technology, globalization, risk manager, shareholder value, internal audit, stakeholder pressure, good business practices and improved decision-making. Table 1.1 summarizes previous determinants of ERM success.

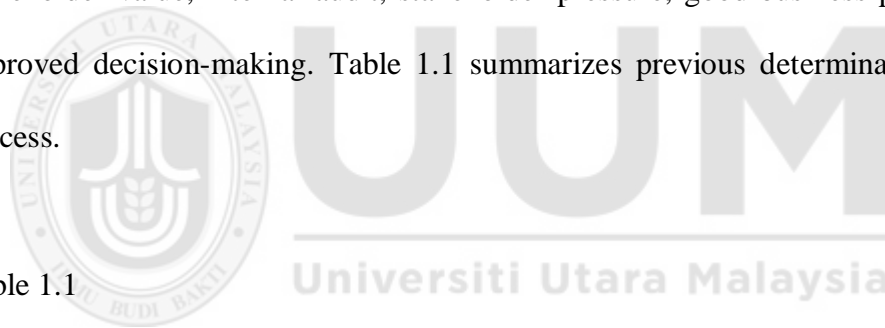


Table 1.1

Summary of past research or studies on ERM

Authors	Topic	Key Determinants / Antecedents influencing ERM Implementation
Kleffner et al. (2003)	The effect of Corporate Governance on the use of ERM: Evidence from Canada. Risk Management and Insurance	a) Risk manager influence b) BOD encouragement c) Directors' and officers' liability d) Compliance with Stock Exchange
Manab et at, (2010)	An EWRM Practice: Between Corporate Governance Compliance and Value Creation: International Review of Business Research	a) Corporate governance b) BOD Mandate c) Shareholder value d) Technological development e) Increase decision-making f) Enriched communication g) Globalization h) Competitive energy i) Stakeholder energy j) Splendid business practice, and k) Disastrous event

Hoyt and Liebenberg (2006)	The value of ERM: Evidence from the U.S. Insurance Industry, Retrieved from http://www.aria.org/meetings/2006papers/Hoyt_Liebenberg_ERM_070606.pdf	<ul style="list-style-type: none"> a) life insurance b) leverage c) intra-industry diversification and reinsurance used d) Institutional ownership e) size f) industrial & international diversification
Daud et al. (2010)	The Effect of CRO on ERM Practices: Evidence From Malaysia: International Business and Economics Research Journal,	<ul style="list-style-type: none"> a) quality of CRO
Liebenberg and Hoyt (2003)	The Determinants of Enterprise Risk Management: Evidence from the Appointment of Chief Risk Officers. Risk Management and Insurance Review	<ul style="list-style-type: none"> a) the existence of CRO
Lam (2000)	EWRM and the role of the CRO - Retrieved from http://erisk.com/learning/research/011_lamriskoff.pdf	<ul style="list-style-type: none"> a) globalization b) changes in the role of risk managers c) regulatory
Hoyt and Liebenberg (2006)	The Value of ERM: Evidence from the U.S. Insurance Industry, Retrieved from http://www.aria.org/meetings/2006papers/Hoyt_Liebenberg_ERM_070606.pdf	<ul style="list-style-type: none"> a) size b) fraction of institutional ownership c) global diversification d) business diversification and e) insurance protection
Pagach and Warr (2007)	An empirical investigation of the characteristics of firms adopting ERM. Retrieved from http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID1010200-code5875.pdf?abstractid=101020	<ul style="list-style-type: none"> a) <i>Market characteristics</i> representative of standard deviation b) <i>Managerial incentives</i> presented by Vega and Delta ratio c) <i>Financial characteristics</i> comprising cash ratio, earnings volatility and size d) <i>Asset characteristics</i> comprising growth options and capacity.
Yazid et al. (2008)	A Cross-Sectional Study on Foreign Exchange Risk Management by Malaysian Manufacturers. International Business Management Journal, 28-32	<ul style="list-style-type: none"> a) Assets b) Employees
Nadine and Joan (2015)	Supporting strategic success through enterprise-wide reputation risk management, The Journal of Risk Finance	<ul style="list-style-type: none"> a) Reputation Risk Strategy b) Reputation Risk Culture c) Reputation Risk Governance d) Reputation Risk Assessment

Udechukwu and Thanos (2012)	Perception variability for categorized risk factors, Industrial Management & data Systems	<u>Categorization of Risk Factors</u> <u>External Factors</u> a. Vendor Performance <u>Internal Factors</u> b. Organizational related c. Country-related d. Organizational culture e. Top Management support f. Communication g. Business process re-engineering h. Software development and testing i. Appropriate business and IT legacy systems j. Project Management k. Knowledge Management l. Business Plan, strategy and vision m. Project Champion
Eija and Peter (2014)	The uncertainties of enterprise risk management; A field study on risk management internal audit practices in a Finnish municipality	a. Legal aspects b. Definition and Operationalization c. Resource availability d. Professional identities' and responsibilities
Eva and Martin (2015)	Risk management in Small Medium Enterprise ("SMEs"): As systematic review of available evidence.	a. Risk Management process b. Characteristic of SMEs c. Risk behavior of SME owners d. SME life cycle
Ernest and Albert (2015)	Risk ranking and analysis in PPP water supply infrastructure projects: An international survey of industry experts	<u>Top Ranked Risk Factors</u> a. Poor contract design b. Water pricing and tariff review uncertainty c. Political interference d. Public resistance to PPP e. Construction time and cost overrun f. Non-payment of bills g. Lack of experience h. Financial risk i. Faulty demand forecasting j. High operational cost k. Conflict between partners

Source: Own research and design

Fraser (2007) highlighted six benefits of ERM as follows: (1) top management commitment and transparency; (2) systematic management risks key drivers; (3) strong support from executive leadership; (4) managing perception and understanding of business competency of the companies; (5) training and educational

profiles; and (6) value creation and cultural diversity. This is further supported by Kevin (2003), whereby they said that the adoption of ERM enables meticulous judgment by top management before making a decision.

From the above discussion, it is clear that an ERM implementation is pivotal as it is part of good business conduct. In this case, ERM can enable a business to be conducted in a more transparent and accountable manner, hence requiring a strong commitment from the BOD and senior management (Gupta, 2011). It is also important to support business strategy and its functionalities in order to maximize shareholders' value and minimize operating costs by mitigating those possible occurrences.

In spite of the importance of ERM in establishing good business conduct, there are only few studies on ERM that have been undertaken in the Malaysian context. Therefore, the readiness of Malaysian companies to manage risks can be questioned. This research intends to contribute to this by investigating ERM from the perspective of Malaysia. Another aspect of ERM that this research intends to investigate is risk culture. Previous studies have taken risk culture as one of the key determinants of ERM (Lima & Castro, 2005). However, this research intends to take risk culture as a moderating factor. This is because every human endeavor is always influenced by an individual's culture (Zakaria, 2013).

Risk culture is defined as the system of behaviors and values existing in the entire organization that assists in shaping risk decisions (Brooks, 2010). In other words, risk culture empowers employees to elevate potential business issues and deliberate

on possible management actions to mitigate them. Thus, it could be argued that the success of ERM depends on the strength of the risk culture that exists in the organization. This justifies the moderating role of risk culture in this research conceptual framework.

To recapitulate, this research intends to examine the key determinants of ERM implementation and to examine the moderating effect of risk culture on the relationship between those determinants and ERM implementation. The proposed determinants are developed based on the information highlighted in Table 1.1.

1.2 Problem Statement

The issue of ERM has received a great deal of attention from most business entities (public and private limited) worldwide, including in Malaysia (Smith, 1997). This is because the failure to manage risk can lead to a significant loss of the current business portfolio, market confidence and stakeholder value (Tansey & Riardon, 1999; Shimpi, 2005). Hence, there is a need to constantly mitigate business risks by measuring and monitoring opportunities and risks and reporting the findings to the management.

As stated above, risk culture is defined as the system of behaviors and values that exist in the entire organization that assists in shaping risk decisions (Steward & Laura, 2009). Thus, it is considered as a fundamental factor in ERM to ensure that the right things are performed within the organizations. KPMG International (2010) conducted a survey amongst 500 bank executives and found that 48% of respondents

stated that risk culture is a key factor in a credit crisis due to wrong decision-making and poor internal control. Thus, without positive risk culture, it is hard to deliver quality products or services to clients; this can ultimately reduce their confidence on the company. Trivializing this issue could lead to serious financial scandals and eventually corporate failure, as evidenced by the East Asian financial crisis in 1997, whereby poor ERM was found to be one of the factors that contributed to corporate failures (Fraser, 2007).

Having an ERM is always linked to investors' confidence on the company and market (Karen, 2007). This scenario is critical to Malaysia because being an open economy, attracting high foreign direct investment is a must for maintaining economic growth. Sustaining economic growth is critical to Malaysia as it aims to achieve a high income developed nation status by year 2020. Thus, every Malaysian company must implement ERM and inculcate positive risk culture amongst staff members so that good ratings for proper business conduct will be given by the international rating houses, which in turn can ensure economic growth of the country.

The manual collection of risk data can be very time-consuming. Some institutions still adopt a multiple spreadsheet to gather and assess information on risk which can be tedious and ineffective. The data then becomes a proactive risk control by the time that information is returned to the responsible risk control department. When the data is manually collected, business and process owners have no option but to allocate their time to evaluate and review paperwork rather than the actual task of

managing their risks within their circle of concern. Thus IT-based ERM system is much needed.

Ineffective real-time information has given an adverse implication to the ERM system monitoring for the business risk mitigation and the quality of decision making process. Although there are a few studies that have identified factors influencing ERM implementation, the moderating factor of risk culture has not or has yet to surface. Several factors are essentially required for the ERM implementation; however, if the level of risk culture among the stakeholders within the company is ignored, it will surely challenge the implementation of ERM, and in turn, the meeting of the company's ultimate objectives.

To recapitulate, the core aim of this study is to examine the key determinants that affect ERM implementation in the Malaysian context. In addition, this study intends to examine the moderating effect of risk culture on the relationship between the key determinants and implementation of ERM in Malaysia.

1.3 Research Questions

Based on the above discussion, the following research questions are proposed:

Question 1: What are the key determinants that affect ERM implementation?

Question 2: Is the relationship between ERM determinants and ERM implementation moderated by risk culture?

1.4 Research Objectives

To answer the above listed research questions, the following research objectives are developed:

Research objective 1: To examine the key determinants of ERM implementation in
Malaysia

Research objective 2: To examine the moderating effect of risk culture on the
relationship between the ERM determinants and ERM
implementation

1.5 Significance of the Study

ERM is an important business tool for corporate ventures to resolve the fundamental issues in terms of business operations and strategic planning. Without adequate or sufficient information on ERM, the economics of scale of businesses would be affected and directly give an adverse effect on the business development cycle. In terms of industrial development in general, ERM can assist in making good business decisions. In addition, ERM would also eventually help the industrial community to ensure better control and continuous adherence to the national code of corporate governance, simultaneously increasing customers' and investors' confidence to sustain or continue the business relationship. All these resulted from the companies' ability in mitigating the potential business issues by using adequate risk management processes and system intervention. This study is a much needed attempt to present a comprehensive assessment of the key possible factors that have a significant effect

on the ERM implementation. This study enables the examination of specific key determinants which can be used to establish an ERM implementation.

The results of this research will be useful for practitioners such as internal auditors, top management, audit committee members, standard-setters, regulatory bodies and academicians in Malaysia, by providing relevant empirical data about ERM issues among listed companies. This study informs internal auditors on the importance of their role as value added support to strengthen the ERM framework. Top management is informed on the importance of their commitment on the ERM implementation in the organization. This study informs BOD, audit committee (AC), risk management committee (RMC) and chief risk officer (CRO) on the role of ERM system implementation in strengthening corporate governance framework. Additionally, this study assists standard-setters, such as the Institute of Internal Auditors of Malaysia (IIAM) in developing relevant Internal Audit standards related to ERM system implementation. This study also assists regulatory bodies such as Bank Negara Malaysia and Securities Commission (SC) in formulating guidelines on corporate governance framework.

The importance of this study lies in its attempt to provide significant theoretical and practical inputs for industrial practices, researchers and academicians. The inputs are in the form of a model or best practices of ERM implementation. The data which was gathered and obtained during the research provides empirical grounding for future research work related to ERM from the perspective of listed companies in Malaysia. To the academicians, this research testifies the relevancy of the Principal-Agent theory as an underlying theory to study ERM implementation and in ensuring

good corporate governance practices among listed companies in Malaysia. It also ensures that ERM system implementation is well ahead compared to previously. All key determinants of ERM implementation which have a significant influence or positive relationship would be feedback for strategic development and internal control improvement.

1.6 Scope of the study

As mentioned above, the objectives of this study is to examine the key determinants that influence the ERM implementation in public listed companies in Malaysia. This study also examines the moderating effect of risk culture on the relationship between ERM determinants and ERM implementation. The scope of the study is public listed companies in Malaysia, specifically companies listed on the main market of Bursa Malaysia. The total listed companies on Bursa Malaysia as at 8th July 2014 was 814 companies. In this research, the companies were randomly selected to represent the total population and grouped under trading and services; properties; consumer products; finance; construction; plantation; hotels; mining; trust; infrastructure; and technology industries. The reason for selecting the above industries is due to their significant contribution to corporate governance practices. In addition, the selection is also due to the following justifications:

- a. All these industries are listed on the main board of Bursa Malaysia and appropriate for examining the key determinants of ERM implementation
- b. All of these industries are already adopting the concept of ERM
- c. The maturity level of implementing ERM for all these industries needs to be examined

- d. All of these industries are connected with the national code of practice of corporate governance (CG); and
- e. Market efficiency and investor confidence on capital investment of these industries are commendable.

As required by Bursa Malaysia, all companies have to implement basic principles of ERM framework. In addition, the requirements are closely associated with mandatory regulations for the internal control system. Nevertheless, the ERM implementation in these companies has not yet been fully tested due to lack of understanding of the risk management framework and risk culture. This study examines the key determinants of ERM implementation from the perspective of the various industries listed on Bursa Malaysia as identified above. The study is based on quantitative research methodology and also supported by some valuable inputs from internal stakeholder engagement, to justify the outcome of the research.

1.7 Organization of the Dissertation

This dissertation is divided into six chapters which provide information on specific issues. The description of each chapter is provided in Table 1.2

Table 1.2

Descriptions of Chapters

Chapter	Description
Chapter 1	The objective of this chapter is to provide the background of the study, problem statement, research questions, research objectives, significance of the study, scope of the study, dissertation organization and definition of key terms.
Chapter 2	This chapter contains the literature review and past research associated with this study. The review presented in this chapter includes a discussion of the overview of risk culture in determining the success of ERM implementation company-wide. This chapter further discusses the key determinants that influence and their relationship to the ERM implementation within the context of listed companies in Malaysia.
Chapter 3	This chapter deliberates on the research framework and hypotheses development.
Chapter 4	This chapter illustrates the research methodology which is adopted in the study, including the research design and instrument, data collection, operational definitions and measurement of the variables, as well as method of data analysis. This chapter also describes in-depth the survey instrument development process. The process is important to establish validity and reliability of the instrument based on pilot test carried out prior to the official survey.
Chapter 5	This chapter illustrates the specific findings, statistical data and its interpretations which are provided in detail. The major

findings are discussed, whereby all data are interpreted and analyzed using standard research tools and techniques based on the research model. Data is further analyzed quantitatively based on numerous hypotheses testing in order to justify the sample size of this study.

Chapter 6

This chapter describes the overall discussion, findings recommendations and conclusion based on the data interpretation and analysis. This chapter summarizes the overall findings drawn from the study. Final conclusions are drawn with regard to the three objectives set for this study in Section 1.3. This chapter concludes the main findings from the results presented in the previous chapter Recommendations are also made for further research. The quantitative and theoretical contributions of the study are considered. Conclusions are drawn and some limitations explained.



1.8 Definition of Key Terms

The following terms are applied extensively in this thesis:

- i) **Internal Auditing:** Internal auditing is an independent, objective and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes.
- ii) **Audit Committee:** By virtue of governance principles, the AC is solely appointed by the BODs. As an independent party, it has an important oversight role
- iii) **Risk Management Committee:** Its function is to oversee ERM program within an organization. The RMC helps and supports top management by coordinating, advising, facilitating and monitoring the overall results of ERM implementation.
- iv) **Chief Risk Officer:** The CRO is responsible for maintaining and regulating the risk management portfolio within organizational parameters. The CRO has a specific task in promoting and sustaining the overall risk management practices within the organization.
- v) **The Committee of Sponsoring Organizations (COSO) of the Treadway Commission - COSO** is an integrated compliance tool to help business associates improve their internal control system. This framework has been embedded into specified policies, procedures and applicable laws to better control activities so as to be aligned with the achievement of their established objectives.

1.9 Summary

The purpose of this chapter is to provide the background of this study. As discussed above, this study intends to examine the key determinants that influence the ERM implementation in the Malaysian context. In addition is to examine the moderating effect of risk culture on the relationship between the ERM determinants and ERM implementation. The findings could be used as a basis to improve the level of ERM implementation among public listed companies in Malaysia. The discussion includes the background of the study, problem statement, research questions, research objectives, significance of the study, scope of the study, dissertation organization and definition of key term.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains the literature review and past research associated with this study. The review presented in this chapter includes a discussion of the overview of risk culture in determining the success of ERM implementation company-wide. This chapter further discusses the key determinants that influence and their relationship to ERM implementation within the context of listed companies in Malaysia. Past literatures and related theories that underpin ERM implementation are discussed in-depth. The discussion begins with the definition of ERM and risk culture profiles and empirical evidence of determinants that influence the ERM implementation. This chapter also describes the conceptual framework used in this study. The conceptual framework illustrates the dependent and independent variables used for ERM implementation.

2.2 Definition of Risk Management

To a layman's understanding, risk management refers to a process of managing a crisis within an agreed parameter, which requires further attention from the management to mitigate it (Eick, 2003). Risk management is an important agenda for business enterprises, especially in the financial sector, since business operations are very much inter-twined with business conditions which are likely to be uncertain in nature. It is also an avenue or platform for business enterprises or associates to

mitigate their potential risks in terms of identifying, analyzing and reporting their business gaps and addressing them in the form of risk mitigation action plans (Gupta, 2011). The process can also help business organizations to reduce the level of severity and the impact of risk exposures. While risk management is an important part of business operations, it is also part of an organization's strategy to reduce potential losses and maximize opportunities.

According to Anthony (2001), risk management is defined as the responsibility of management to identify, measure, monitor, communicate and control risk within the organization. The process therefore consists of risk identification, risk control measures and communication and the on-going monitoring of the risk management program (Priscilla, 2008). A good risk management practice should be independent to the level of risk, adequately defined in its scope, dynamic and integrated with organizational management system assurance and processes, active reporting, monitoring and continuous improvement corresponding to change management (Deloach, 2000). Steward and Laura (2008) defined risk management as a process that seeks to control risks and directly avoid detriments that result from speculative exposures. The objective is to minimize the negative impacts of the events or probability losses while at the same time, helping to maximize the potential of success and minimizing the probability of future losses.

Vaughan (1993) defined risk management as a systematic tool to manage the potential and existing risks and reducing imminent risks faced by the business organizations. According to ISO31000 (2009), risk management is a coordinated activity to direct and control an organization with regards to risk. Risk management

is essential for an organization in balancing threats and opportunities for the optimization of business performance (Skipper & Kwon, 2007). The COSO of the Treadway Commission (Committee of Sponsoring Organization, 2004, p.2) provides the following definition: *“Enterprise risk management is 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 risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity’s objectives”*. Accounting Standard New Zealand 4360 states that risk management is an important part of good management practices in terms of the business system and quality. It is an interactive standard approach of business process improvement including continuous methods and activities to further enhance the existing or future prospects of business development. The standard also indicates that risk management focuses on normal practices which cover the area of identifying new emerging risks and opportunities to improve business performance by emphasizing on mitigation plans to prevent recurrence.

Sahun (2010) stated that integrated risk management is a platform for organizational risk assessment that covers all aspects, including strategy, tactics and exposure across an organization that also involves business opportunity and threat. Managing risk and uncertainty has always been a challenge to all organizations as they continuously take initiatives to improve their business and strive for operational excellence, whilst going the extra mile to mitigate risks and minimize potential losses that could result in financial ruin. Risk management, to some extent, is viewed as an important tool and mechanism that allows a business enterprise to establish its

corporate objectives, to strengthen its corporate governance and simultaneously meet its obligations to shareholders (Stewart & Laura, 2009). Failure to improve the risk management process can severely affect the financial position and damage business reputation. Ultimately, stakeholders' confidence and trust will deteriorate.

To recapitulate this study defines risk management as a process to control risks, enhance benefits, eliminate, reduce and avoid detriments resulting from speculative exposure. The focus of this research is on the implementation of risk management by the organizations which is usually coined as ERM.

2.3 Enterprise Risk Management

The Casualty Actuarial Society (2003) defined ERM as a formal and structured process by which business enterprises, regardless of the type of industry, control, assess and monitor all sources for the interest of stakeholders, either in the short or long-terms. Lam (2000) defined ERM as an integrated conceptual framework for mitigating all types of risk portfolio due to its uncertainty, right from the market, credit, operational and economic capital aspects to maximize firm value. ERM is a comprehensive and systematic program covering company-wide processes, procedures, policies and technology which can be used to measure, monitor and manage risk (Deloach, 2000). It also provides the fundamental requirement that is linked to the prioritization of opportunities as well as strategic decision-making. The literature on ERM can be classified into three research areas: the first attempts to identify factors that explain variations in the adoption of ERM in firms (Pagah & Warr, 2007); the second studies the performance implications of ERM

implementation (Lam, 2000). These streams use large sample cross-sectional research method. The third and recently emerging research stream seeks to understand risk management by applying small-sample, as an organizational and social practice (Regester & Larkin, 2005).

ERM is considered a new era of risk management development and it has grown consistently over the years. The Barings collapse was primarily due to weak internal controls and poor corporate governance (Hespenheide & Funston, R. (2006), which in turn increased the need for ERM implementation in the companies. The incorporation of ERM within business processes involves several activities, such as the identification and assessment of all significant risks. This is important for the development of strategic planning and management. In the wake of mismanagement that brought down some of the largest corporations, ERM has emerged as an essential discipline for any corporation. Currently, there are numerous frameworks or models that support the development of ERM, which include, but not limited to, to the following:

- a) The Combined Code and Turnbull Guidance King II Report;
- b) A Risk Management Standard by the Federal European Risk Management Associations
- c) Australia/New Zealand Standard 4360-Risk Management;
- d) The Committee of Sponsoring Organizations of the Treadway Commission Enterprise Risk Management-Integrated Framework;
- e) The Institute of Management Accountants - A Global Perspective on Assessing Internal Control over Financial Reporting ; and
- f) Base II: The Standard and Poor's Enterprise Risk Management.

The adopted ERM framework must be able to highlight on the standard risk management processes such as risk identification, measurement, reporting and monitoring (Cassidy, 2005). The framework must have the flexibility to enable the business enterprises to focus on the top-down approach and link it to the risk culture that would empower the organization to conduct the program systematically. Additionally, every new employee should be provided with adequate training on risk management awareness which covers all aspects of the ERM program, including but not limited to the policies, definitions, thresholds and procedures. The ERM program should not only evaluate the potential degree of risk exposures, to which specified internal policies and procedures are exposed to, but also cover the assessment on the impact and likelihood of risks. All in-house learning intervention or relevant data or information learned during the assessment process should become a guide to continuously enrich the ERM initiative. As the business environment evolved in the 21st century, businesses and governments have started to adopt a more holistic structure which is widely known as Enterprise-Wide Risk Management (Priscilla & Susan, 2008). According to Barr (2002), these changes often occur as business leaders realize that current risk management tactics can result in a silo or stovepipe approach to risk oversight, whereby individual business functions manage risks related to their own operations with little understanding of and consideration for how they affect other functions within the enterprise. Undertaking ERM enables boards and senior executives to see how risk drivers across numerous functions might interact to create significant risks that influence the organization to align them with its strategic objectives.

According to Berenbein (2004), both top and middle managements have their own deliverables and expectations, whereby top management would segregate the requirements of a company's policies, procedures, applicable laws and regulations, control as well as risk; whilst middle management is required to discharge their responsibilities according to prescribed regulations, policies, strategies, controls and rules by the senior management. Champbell (1987) pointed out that the bottom-up approach is motivated by the requirement of customers on the short-term basis. It has also been predominantly determined by the advances in risk management technology. The general propensity is apparently to establish the bottom-up measures to represent the strategic risks based on the availability of tactical risk measures in business organizations.

Udechukuwu and Thannos (2012) conducted a study to examine the effect of project managers frame variability for categorized risk factors on enterprise resource planning (ERP) projects in Thailand. The findings indicated that both internal and external factors have a strong impact on ERP project success. They concluded that there is a strong inter-relationship between critical risk, success factors and the success of ERP project. The outcome of this study contributes to a better understanding on industrial practitioners and in turn become a basis for determining critical success factors for ERP implementation in the developing countries.

To recapitulate, ERM implementation can be defined as a systematic way of assessing risk exposure within business organizations and comprehensive tool to predict the likelihood and impact of the events, including unexpected occurrences. Due to its important to organizational development and performance, every company

must have proper planning for ERM implementation. This is what this study intends to contribute.

2.4. Risk Culture

Tansey & Riordan (1999) defined culture as a combination of capabilities, customs and law acquired by members of a society, including knowledge, beliefs, art and morals. Lima & Castro (2005) classified culture as “the collective programming of mind that distinguishes the members of one human group from another”. Risk culture can be defined as the system of behaviors and values existing in the entire organization that assists to shape risk decisions (Douglas, 1978). One element of risk culture is the degree to which individuals are aware that compliance rules and risk extend to stakeholders as they pursue their business goals. This risk culture would be a platform to infuse across global organizational capability and consequently be applied for the daily operations and executive decisions. Risk culture however needs standard mechanisms which can empower employees to identify potential business issues and take feasible actions to mitigate risks. A company’s risk culture is a critical element that can ensure that doing the right thing wins over doing whatever it takes (Altman 1998). KPMG’s International Survey (2010) of almost 500 bank executives uncovered that almost half (48 percent) of the respondents cited risk culture as a leading contributor to the credit crisis.

Risk culture must be incorporated into organizational culture and this include commitment, mandate and leadership of the board (Douglas, 2004). It must be translated into strategies that can ensure the achievement of tactical and operational

objectives becomes a basis for delegating risk management accountabilities to business owners throughout the organization. It should support performance measurement, reward, accountability and promoting operational efficiency at all levels. Developing a good risk culture can be achieved by establishing a strategy and protocol and appropriate risk architecture (Finuance & Holup 2005)

According to Lima and Castro (2005), risk culture can be a platform to assess the organizational system of value and behavior which can be used to shape risk decisions. Tansey and Riordan (1999) revealed that risk culture influences the decision-making process for internal stakeholders even though they are not deliberately weighing benefits and risk exposure. From the perspective of risk and compliance, individuals or a business enterprise would eventually understand the standard rules which are aligned to their business goal-setting. Business owners or entrepreneurs must understand the extent to which risk and compliance rules are connected to everyone as they continue to sustain their business goals. An effective risk culture must not only be efficient, but also suit the needs of the business (Muralidhar, 2010; Zeier, 2014). A cultural shift in an organization leading to an increased focus on and reinforcement of risk management is an indicator of increased effectiveness. For example, in a trading operation, a desirable risk culture appropriately balances entrepreneurial activities and control activities so that neither one is meaning a healthy tension exists between the two.

In order for ERM to be effective, the risk culture should be embedded into business operations. Sahun (2010) stated that risk assessment is linked to organizational culture that encourages workers to see risk assessment holistically. It is a mechanical

tool for business execution and encourages constant review in order to compliment professional judgments. According to Brooks (2010), risk culture is a combination of key values, understanding, beliefs and norms that members of an organization share. Risk culture is also a pattern of shared assumptions and values about how things are being carried out within the organization. Brooks (2010) suggests that corporate culture can be categorized as follows: (1) the visible culture is the culture that can be seen, such as the dress code, the office layout, symbols, slogans and ceremonies; and (2) the invisible culture is the culture of deeper values and shared understanding held by the organization. The second is the one that risk culture should be associated with.

Lima and Castro (2005) emphasized that the risk management culture should include the following: (1) mutual trust and confidence - employees should not be afraid of being rejected and should trust one another; (2) support for ideas - employees should be encouraged to suggest new ideas especially when it comes to risk management issues and when put forward such ideas is seen as part of the learning process; (3) challenging, dynamic and motivation - the organizational operations are seen as stimulating, engaging and meaningful and are characterized by action and dynamism; (4) tension and pluralism - employees have a mix of views and ideas whenever issues are debated, as are conflicts and differences on opinions; and (5) freedom of job - employees are given the opportunity to determine their own rhythm, to vary their working methods, to take breaks at their own discretion and consider new ideas.

Regester and Larkin (2005) compared traditional corporate culture with risk management culture and argued that traditional corporate culture does not vary

greatly from a bureaucratically inflexible system. They further argued that risk management corporate culture should include the following: (1) tenacity - the art of scrutinising things; (2) questioning - asking intelligent questions; (3) seeing the big picture - looking at the problem as a whole and understanding the business; and (4) proactive management - understanding financial modelling, strategy, technology and complex financial institutions, organizational change structure resulting from re-engineering, mergers and acquisitions, higher customer requirements for services and deregulation of key industries.

Brooks (2010) suggested that risk management anticipates the combination of various cultures that make the system a consistent whole in which profound assumptions and espoused values of organizational members can be built around the need for melding a culture of reliability. In particular situations, teamwork can develop some behavior by sharing individual beliefs, conducting meetings and seeking consensus in order for management to succeed. The outcome of study stated that knowledge transference requires individuals to come together to interact, exchange ideas and share knowledge with one another for effective risk management (Douglas, 1978). In addition, culture creates individuals who are constantly encouraged to generate new knowledge, solutions and ideas. Risk culture, in other words, is to make sure the level of understanding of risk management implementation is guaranteed and constantly monitored by the assigned authority or delegates within organizational parameters. Risk cannot be eliminated but it has to be controlled and monitored by the business risk owners. Risk culture is a comprehensive approach and well recognized which allows business owners or entrepreneurs to measure the risk exposures and monitor residual risks.

Nadine and Joan (2015) investigated the elements of ERM that could support corporate strategic success. The elements include risk strategy, risk assessment, risk governance and risk culture. The findings indicated the need for the organizations to integrate highly reputable risk management elements into ERM framework. The elements include identifying and understanding the purpose of key stakeholders, appreciating multidimensional and layered effect of events on organizational reputation and monitoring the influence of technological advances. The study gives significant contribution to the current academia literature in terms of the details in identifying reputable determinants, antecedents and drivers.

To recapitulate, risk culture must be dynamic to ensure effective systematic and non-systematic risk management. Thus, this study intends to validate or assess whether risk culture will moderate the relationship between ERM determinants and ERM implementation. In other words, risk culture is the moderating variable in this research conceptual framework. The discussion on ERM implementation is dealt with in the following section.

2.5 Enterprise Risk Management Implementation

The formulation of new theory of ERM is initiated or promulgated by the COSO (2004) and the underlying principles of ERM is using COSO framework. This framework is a basic principle to alleviate the requirement of risk management efforts in a more appropriate manner. Fraser (2007) in his study revealed that an ERM system implementation is embedded within formalized, mature governance and management processes. Organizational culture and formal processes which are

put in place promote understanding of risk, define appropriate risk appetite and approval for decisions that exceed the risk appetite. Deloach (2000) stated that risk management systems are maintained by promoting a transparent view across the organization. An ERM implementation is when each risk event identified is examined through the lens of both the direct loss to the firm and indirect losses that may arise because of damage to the firm's reputation associated with the event. ERM implementation involves the alignment of all risk management processes to ensure the processes are working as intended and the impacts are significant and measurable.

Shenkir and Walker (2006) revealed that the ERM model requires top management commitment for successful implementation. It is also stated that senior management team of companies should be enthusiastic in discharging their responsibility on ERM to ensure protection, conception and enrichment of shareholders' value. Mike (2005) stated that ERM implementation is a comprehensive structure for mitigating risk in order to be aligned with the overall strategic objectives and add value to the internal stakeholders. ERM is also considered as a new paradigm shift for managing business performance and the fundamental aspects of strategic management within corporate development (Lars & Bengt, 2011). ERM is a hot topic and a contemporary area in the traditional risk management disciplines (Roberts, 2004; Beasley & Frigo, 2007; Deloitte Report, 2008). The continuous enhancement of an ERM implementation and capability can signify possible changes in terms of practices and standard philosophy within an organization in mitigating risk exposures within its circle of influence.

Ernest and Albert (2015) studied ERM implementation from the perspective of public private partnership (PPP) in the water supply project. The results of the study concluded that poor risk list and risk rank leads to poor contract design, water pricing and tariff review uncertainty, political interference, public resistance to PPP, construction time and cost overrun, non-payment of bills, lack of PPP experience, financing risk, faulty demand forecasting, high operation costs and conflict between partners. The study gave significant inputs to the governments and investors on how to develop constructive PPP in water supply project through the development of risk mitigation strategy especially in the developed countries, which have moderate or may be poor risk management practices.

Hoyt and Liebenberg (2006) investigated the determinants of ERM of 275 United States insurance companies within a 10-year consecutive period. The prime objective of the study was to determine factors that influence insurance companies to implement ERM whilst predicting the relationship between ERM implementation and business enterprise value. The study also examined selected independent variables, such as international and industrial diversification, percentage of institutional ownership, size and life insurance. The result revealed that size, institutional ownership and international diversification are significant in determining ERM implementation. Kleffner et al. (2003), who are actually pioneer researchers on ERM, conducted a research on ERM in Canada. The overall conclusion of their study that 31% implemented ERM; 29% were found to be sufficiently implementing ERM; and 40% were lacking in practicing ERM. In addition, the research pointed out that the factors that influence companies to implement ERM can be summarized as follows: (1) risk leader or manager's

influence; (2) BODs' commitment and accountability; (3) liability of directors; and (4) conformity with Toronto Stock Exchange principles and procedures

Yusuwan et al. (2008) conducted a study on ERM implementation, specifically in Malaysia, to examine risk awareness and to review the management policy in a construction project. The outcome of the research revealed that ERM affects performance, project budget, quality performance and productivity. ERM is appropriate for the company in the event of politically stable conditions and adaptable for projects with new technology and innovation.

Lam (2000) stated that ERM implementation should be directly linked to changes in the risk manager's role, globalization and applicable rules and regulations. In terms of globalization, effective ERM initiates fast growing technologies, various risks discernment and interdependency of risk. In terms of risk manager's role, risk should be assessed as an opportunity instead of a problem per se. Finally, for the rules and regulations related to the CRO appointment and the RMC establishment are essentially important for every business organization.

Alviunessen and Jankensgard (2009) pointed out that ERM implementation centralizes company-wide information on risk scenarios to mitigate risk. The risk appetite has a significant input on the business and gives an absolute impact to the bottom line, continued existence of a company and financial cash flow. The risk appetite can be identified and appropriate action, such as assessing the tendency of risk occurrence, measuring its rating and mitigating the action performance based on the organizational objectives can be undertaken. Cassidy (2005) argued that the

existence of ERM implementation also drives some components of basic management principles, which include leading, organizing, planning, controlling and monitoring activities in order to minimize the impact of firms' significant risks, such as strategic, operational, reputational and financial risks.

Page and Spira (2004) pointed out that the use of a bottom-up style requires preliminary assessments by different teams which have an obligation to risk identification, monitoring and evaluation. In other practices, control self-assessment (CSA) can be adopted to accommodate risk assessment in the form of questionnaires and workshops coordinated by an independent party. CSA can be a smart technique for stakeholders or business owners to exercise the initial control assessment and to better understand the overall processes. Priscilla and Susan (2008) argued that this process on its own produces narrow and non-comprehensive measures of strategic risk. They further pointed out that the communication part of risk management is totally ignored by top management. Communication and awareness are vital to determine the success of ERM implementation within the business organizations.

A study conducted by Yazid et al. (2008) emphasized foreign exchange risk faced by Malaysian manufacturers that involve in export and import activities. The outcome revealed that 45% of the companies are categorized as users and 55% as non-users. It was discovered that both assets and employees are key factors influencing risk management. In addition, the study also revealed that 18% of ERM users linked their strategic business operations when implementing ERM framework.

Previous studies have identified leverage (Liebenberg & Hoyt, 2003; Pagach & Warr, 2011); size (Colquitt et al., 1999; Liebenberg & Hoyt, 2003; Beasley et al., 2005; Hoyt & Liebeberg, 2011; Pagach & Warr, 2011); and the presence of chief executive officer (CEO) (Pagach & Warr, 2011; Ellul & Yerramilli, 2012) as company-specific factors associated with ERM implementation. Reflecting on the normative literature on the subject (COSO, 2004; ISO, 2009), some have studied the influence of effective corporate governance on ERM adoption (Baxter et al., 2012; Ellul & Yerramilli, 2012). Drawing on the hypothesis that strong corporate governance agents are likely to advocate ERM implementation, Beasley et al. (2006) pointed out that CEO and chief financial officer (CFO) support is linked to overall ERM implementation, while others linked CRO with ERM adoption (Kleffner et al., 2003; Beasley et al., 2006; Paape & Spekle, 2012). Other studies have hypothesized ERM determinants, such as auditor influence and institutional ownership and found mixed results (Pagach & Warr, 2007; Paape & Spekle, 2012). As for regulatory pressure, Kleffner et al. (2003) reported that Canadian companies considered adherence to the Toronto Stock Exchange guidelines as the third most important reason (37%) for their ERM adoption. Paape and Spekle (2012) also found that stock exchange listing helped to explain ERM implementation, but failed to find any association with the existing governance codes or risk management frameworks.

The ERM implementation is the dependent variable of this study. All independent variables namely as leadership, governance mechanism, operating framework and compliance are hypothesized to have significant relationship with dependent variables. The research framework is developed based on studies undertaken by several scholars such as Kleffner et al. (2003); Liebenberg and Hoyt (2003); Hoyt

and Liebenberg (2006); Pagah and Warr (2007); Yusuwan et al. (2008); Rasid and Rahman (2009); Daud et al. (2010); Yazid et al. (2008); Daud, Yazid and Rasid (2010); Rasid (2009); Yazid, Rasid and Daud (2011). This study provides an avenue to the academicians to understand the role of risk culture as a moderator that influences the relationship between ERM determinants and ERM implementation from the perspective of Malaysia. In other words, this study examines the determinants of ERM implementation and the moderating effect of risk culture on the relationship between the ERM determinants and implementation of ERM.

In general business applications, although there are numerous types of risk modeling or conceptual frameworks being applied by various business entities, the principle guide of ERM is actually sharing a common scheme where the quantification of risk identification and prioritization will assist business enterprises to effectively manage the risk profiles within its circle of influence. Out of several schemes of risk management framework, the COSO's (2004) framework is the most popular one. Basically the element of ERM methodology is based on COSO's 1992 Internal Control and Integrated Framework, which helps to formulate the internal control system (Banham (2000). COSO's ERM Integrated Framework has actually broadened its horizon by integrating the internal control system throughout the business enterprise. This framework envisages the key components under the ERM custody, namely:

- a) Internal environment is an integration of the working environment and ethical standard of an ERM philosophy;
- b) Objective setting should be consistent with mission and risk appetite;

- c) Identification refers to common factors affecting an enterprise which represent both internal and external events;
- d) Risk assessment measures the probability of occurrence in terms of likelihood and impact on the business;
- e) Risk response covers the risk mitigation action plan which includes reducing the likelihood of potential losses or severity, risk avoidance and risk transfer;
- f) Control activities should be focused on procedures and policies to ensure ERM's company-wide approach;
- g) Information and communication is the cascading down of information or dissemination of ERM program; and
- h) Monitoring is a process of measuring the success and testifying all measures are appropriately mitigated.

In this study, the focus is to look into ERM implementation from the context of Malaysian PLC. As stated in Chapter 1, the dependent variable is termed as 'ERM implementation'. All risk profiles that enable business organizations to ascertain the adequacy level of ERM implementation and continuous improvement of ERM development are considered. It is argued that ERM determinants per se would not suffice to determine ERM implementation without taking into account the moderating factor that has significant influence on ERM implementation. Thus, risk culture is included as a moderating factor on the relationship between ERM determinants and ERM implementation. ERM has become a critical element for ensuring best practices of the national code of corporate governance reforms (Priscilla & Susan, 2008). Previous researchers have studied specific factors that influence ERM implementation but have produced insignificant results because of an insufficiently specified concept of ERM implementation. This research intends to

appreciate the relationships between independents and dependent variables in terms of top-down and bottom-up approaches of ERM implementation. Thus, the proposed ERM determinants in this study consist of the constructs that represent top management (leadership and governance mechanism), cross-functional activities (operating framework) and subordinates (risk culture and compliance).

In conclusion, from the above discussion, it can be seen that ERM implementation is the dependent variable of this research conceptual framework and its success depends on the awareness of organizational staff members to implement it. In addition, as stated in section 2.4, the relationship between the ERM determinants and ERM implementation is potentially moderated by risk culture within the business organization.

2.6 The Determinants of Enterprise Risk Management Implementation

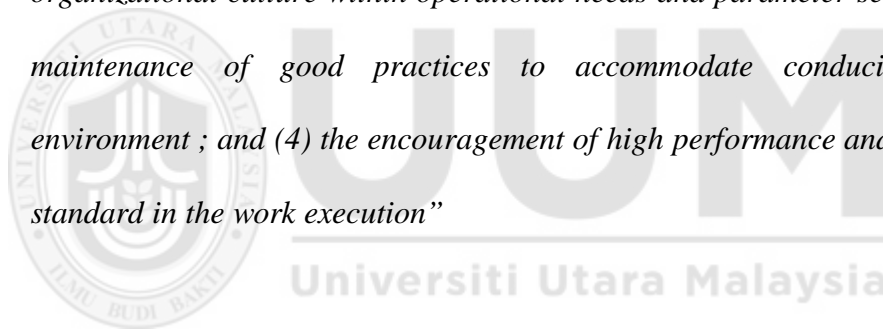
Based on the above preview, ERM determinants in this study are categorized into four constructs as follows: (1) leadership; (2) operating framework; (3) governance mechanism; and (4) compliance. The description of each construct is offered in the following four subsections.

2.6.1 Leadership

In the past literature reviews, an organization highly desires an effective leadership to produce long-term results for business sustainability (Longenecher & Neubert, 2003). In addition, all managers, must be equipped with necessary competencies,

knowledge, skills, support, focus and talent. Debowski (2006, p.9) explained the role of good leaders:

“Leadership has a basic role in shaping and controlling an organization by securing a sense of direction, vision, mission, business strategy and tactics for all associates. Although there is strong recognition of the need to encourage effective leadership at the highest level in any organization, the changing nature of work has necessitated a focus on building leadership capabilities across organizational-wide approach. The characteristics of good leaders tend to reflect four key dimensions: (1) the ability to drive the organization’s goal alignment, business strategy and priorities; (2) the development of the organizational culture within operational needs and parameter setting; (3) the maintenance of good practices to accommodate conducive working environment ; and (4) the encouragement of high performance and world class standard in the work execution”



Leadership is a critical success factor in terms of ERM effectiveness and its implementation (Fraser, 2007). Essentially, risk management activities directly involve the entire organization and decision-making process which in turn are associated with the quality of the BODs and senior management/top management’s commitment level towards risk management culture (Nocco & Sultz, 2006). It also highly depends on the credibility, efficiency and efficacy of management in terms of identifying and evaluating business risks that cover the internal control system and business operations areas as well as the approach to address those risks (Rosa, 2007). Institutional stakeholders should seek advice on ERM initiatives, which apparently are exposed to highest risks and that require dynamic leadership, when deciding on

board appointment (Rosa, 2006). Human resources, IT and strategic issues become board agenda and influence the election of board members who can provide proactive guidance for plan execution.

Leadership, which consists of senior managers and quality of BOD are the key drivers and play an important role in ERM implementation (Whitfield, 2003; Clarke, 2006). Accountability, capability and significant commitment of BODs and top management influence the design of the ERM organizational framework, develop ERM policies and procedures for risk communication across the organization, improve risk reporting structure and provide sufficient resources for ERM implementation (Mikes, 2005). Leadership includes the BOD, senior management and the CRO. The CRO is responsible for risk management activities, whilst the internal auditor plays a monitoring role. It is also important for business organizations to ensure the leadership team fits the current business setting.

The BOD plays a critical role in overseeing an enterprise-wide approach to risk management (Lindsell, 1992). This is because the management is accountable to the BOD. Effective oversight of BOD is pivotal to setting the tone and culture for the ERM implementation through the formulation of high level business strategy, approving broad-based resource allocation as well as the strategy-setting approach (Brian, 2006). The board and senior management should agree on their initial objectives regarding ERM, its benefits and their expectations for successful ERM implementation. In a business enterprise environment, be it public or private institutions, external stakeholders play an important role in determining the success rate of a company and the level of risk exposure that the company is exposed to

(Lam, 2003). The decision to adopt an integrated approach to ERM tools could directly be derived from a company's BOD commitment. The standard for risk management best practices requires that the decision to implement ERM comes from the senior management itself (Yazid, Hussin & Razali, 2009). In this regard, Pagach and Warr (2007), in their research, proposed that firms with greater institutional ownership or stakeholders may have greater pressure to install control that is associated with or related to ERM.

Risk management literature proposes that the process of risk mitigation is technically a top-down approach formulated by the leadership. This view is likewise reflected in the ERM frameworks of COSO and Lam (2003), which emphasizes the importance of top management commitment and corporate governance as the key constructs in the risk management framework. Leadership plays an important role in formulating risk policies, risk-adjusted allocation of resources and initiation of training programs to set the tone of the organization through top-down communication (Lam, 2003). The CEO is directly accountable for and should assume ownership of ERM and set the tone at the top that affects ethics, specified integrity and other common factors of the internal environment (Lindsell, 1992). In a large company, the CEO fulfills this duty by providing leadership commitment to senior managers. Management literature has proposed that senior leadership commitment is paramount in change management throughout the organization. As quoted by Karen & Ian (2007), "managing change is pivotal and a key success factor if there is a strong commitment from top leadership".

Hoyt and Liebenberg (2008) continued their assessment to improve the previous results on ERM. Eight variables were tested, namely: size, life insurance, leverage, intra-industry, diversification, institutional ownership, reinsurance, and international diversification. The outcome of the research showed that larger firms are more dominant and have higher tendency to engage in ERM compared to smaller firms. It is also supported by pressure from leadership and business ownership for companies to implement ERM. The study also shared that leverage and reinsurance are negatively related to ERM.

From the above discussion, it is clear that there is a potential relationship between leadership and ERM implementation. Thus, it is included in this research's conceptual framework as the first construct. In addition, leadership construct consists of the elements of BODs, senior management commitment and CRO.

2.6.1.1 Board of Directors

The BOD commitment and involvement in corporate governance is pivotal in the oversight function of ERM. The BOD must assess the ERM implementation on a timely basis, in particular the management assessment, planned response and highly significant risk exposure. The BOD must be convinced on the appropriateness of the ERM processes and that management is accountable and position themselves to provide solid indication of total risk management practices with the ability to identify, assess and respond to risk at the board level (Deloitte, 1995). Inevitably, the BOD must be furnished with an acceptable level of ERM and risk information or profile to determine if risk management practices are being adhered to in accordance

with the agreed overall policies and standards (Fraser, 2007). In short, the BOD should be able to provide advice on ERM to management provided that all data or information on ERM is completely digested with an adequate and open line of communication to discuss risk issues with senior executives or the CRO.

Manab et al. (2010) conducted a research on the drivers and the success factors of ERM implementation with corporate governance compliance and value creation amongst Malaysian business practices. The tested variables were improved decision-making and communication, globalization, competitive pressure, stakeholder pressure, good business practice, corporate governance, mandate from BOD, shareholder value, technology and catastrophic events. The outcome of the research revealed that five main drivers which contribute to the success of ERM for financial and non-financial companies are good business practices, corporate governance, mandate from BODs, shareholder value and improved decision-making.

The success of ERM implementation depends heavily on the leadership which is normally the BOD commitment. Purchasing decision on ERM must come from the BOD (Fraser, 2007). PriceWaterhouseCoopers (2004), in their study on ERM, mentioned that under the new governance approaches, the role of the BOD includes developing culture and values, establishing internal policies, business strategy formulation, determining risk appetite and monitoring performance. This is supported by Deloitte (1995), whereby BOD commitment and direction towards risk management activities are pivotal and directly influence the ERM implementation.

The BOD is accountable and responsible for making sure that all risks are identified, analyzed, measured, reviewed, controlled and consistently reported to senior level management (COSO, 2004). The selection of the BOD, including the nomination of directors, depends on the significance of risk exposure that requires hands-on leadership from the perspective of stakeholders and business goals (Rosa, 2007). Human resources, IT and strategic issues can empower the BOD and directly influence the selection of directors who eventually can provide advice to the senior management team. The BOD commitment ensures better transparency and accountability of business performance in tandem with the national practices of good corporate governance (Yi & Judith, 2009).

Rosa (2007) stated that the effectiveness of the BOD is derived from an adequate and fair board structure, IT management system, size of the board, authority and responsibilities, performance and business operations. The BOD should have sufficient resources and information to engage with senior management on the current and future state of effective ERM implementation and provide the needed oversight. The BOD must make sure that ERM mechanism is adequately practiced by linking risks to business strategies and objectives, including but not limited to, management action plans (Lars & Bengt, 2011). The BOD should further engage with reliable or independent parties to explore potential risk information, especially from the internal auditors, external auditor and advisors.

The BOD has to make sure that the organizational ERM activities and control framework are effectively cascaded to an appropriate level of intended stakeholders of the company (Liu & Li, 2002). They should proactively initiate necessary action

without assumption to make sure that ERM is effectively controlled and reported. The new listing rules of Bursa Malaysia (2009) state that the board should not solely rely on the specified monitoring processes within business operations to perform its responsibilities (Bursa Guidelines, 2009). This process must be constantly integrated into daily operating activities and the board must regularly review reports on internal control and ERM implementation. In short, the BOD provides oversight with regards to ERM by: (1) understanding the management principles in establishing an effective ERM in the organization; (2) concurring with and consistently being aware of the business risk appetite; (3) reviewing the business portfolio of risk against the appetite; and (4) evaluating the important risks for management to respond in an appropriate manner (IIAM, 2010).

Rasid and Rahman (2009) carried out a study using a standard survey to investigate risk management and accounting practices in financial institutions in Malaysia. The study tested eight variables, namely job designation, length of time holding current position, types of services, revenue, total assets, firm's age, number of services and ownership structure. The outcome of this research revealed that size of the board is not significantly or positively related to ERM development. They concluded that financial institutions are more inclined to adopt ERM because of the compliance issues set by the third party.

Based on the above discussion, there is a potential relationship between BODs and implementation of ERM. This is due to its critical monitoring and oversight role. Thus, it is included in this research conceptual framework.

2.6.1.2 Senior Management Commitment

Senior management commitment has been identified as a key component of ERM embedded under the code of practice of national corporate governance (Ahmad, 2003). Having ownership of the risk management system, they set the tone from the top (Smiechewicz, 2001). Their commitment and capability are pivotal to the success of ERM implementation. Senior management is required to be in charge and manage ERM across the entire organization (Berenbein (2004). Barton et al. (2002) found that senior management support is very important for an organization to implement ERM successfully. This is supported by the finding from Kleffner et al. (2003b) that the existence of silo mentality and senior management's refusal to change are constraints to implementing ERM, which has caused lack of organization buy-in. In another article, Kleffner et al. (2003a) revealed that 61% of the respondents said that the influence of senior management enables companies to implement ERM successfully.

Kaven & Ian (2007) conducted a study to investigate the impact of contingency factors such as external expertise, business vision and top management commitment on new organizational systems development. Primary data was collected from various industries. The outcome of the study revealed that senior management commitment has direct or significant influence on the success of organizational system operations. Berenbien (2004) found that senior management is required to be in charge and manage ERM across the entire organization. Without top and senior management commitment, including knowledge and capabilities of leadership, the ERM program will not be entirely successful (Brian, 2006).

Grimsey and Lewis (2002) conducted a study to determine the level of senior management commitment in project management. The result revealed that top management commitment is considered as one of the critical success factors for project management. Top management support includes a broad range of activities in an organization, including developing project procedures, such as the initiation stage, training programs, establishing a project management office and quality management system. This is supported by Hasanali (2002) in his study that strong leadership and commitment from top management play a prominent role in influencing the success of almost any initiatives within an organization.

Nocco and Stulz (2006) conducted a study to analyze senior management commitment in relation to the decision-making process. The study uncovered that top management support is related to effective decision-making in managing risk and authorizing business process change. A crucial part of a successful project is top management support, the benefit of which are related to processes and management of risk (Lam, 2000). In short, successful risk mitigation profile is contingent upon commitment and support from top management. This is supported by Henriksen and Uhlenfeldt (2006) who stated that senior management formulates, establishes and decides on objectives and strategies for organizational risk management activities, mission and proactive mitigation action plans.

Shenkir and Walker (2006) stated that according to the COSO (2010), the ERM model requires executive management commitment for its rigorous implementation. It has been suggested that the key executives of companies should be committed towards ERM because they are ultimately responsible for the overall protection,

creation and enhancement of shareholders' value. In other words, the success of organizational strategy and the overall effectiveness of ERM implementation depend on the strong support and full commitment of executive leadership. This is agreed to by Barton et al. (2002); and PriceWaterHouseCoopers (2004a) whereby they stated that strong support and senior management commitment are paramount for successful implementation of ERM initiatives.

To recapitulate, it can be seen that there is a close relationship between senior management commitment and successful implementation of ERM. Thus, it is included in this research's conceptual framework.

2.6.1.3 Chief Risk Officer

The position of the CRO is becoming more pertinent to ensure a success of ERM implementation (Lee, 2003). However, it is not clearly defined in many organizations, as to whether it has a conflicting role with other positions in the organization. The CRO should be considered as a bridge to combine all risk and management assurance activities without duplication or repetition within a business entity. The purpose of appointing a CRO is to make sure that risk management activities are effectively executed and independently driven (Lam, 2000). However, it is very unlikely that the organizations appoint a competent or suitable CRO who has extensive expertise and proficiency in various business fields, including but not limited to, financial management as well as litigation pertaining to different markets.

Pagach and Warr (2007) conducted a study to determine specific factors that influence a firm to adopt ERM of which the assessment has some similarities with Hyot and Liebenberg (2006). This study is very much focused on a larger sample of ERM adopters, whereby different models and selected variables were used to test the data. The variables were categorized into four groups, namely: financial characteristics comprising asset characteristics, leverage and growth options; market characteristics of cash ratio, earnings volatility and size; standard deviation of the firm's CRO appointment; and managerial commitment consisting of Vega and Delta's ratio as an alternative to CEO risk-taking incentives. The outcome of the research indicated the increase in leverage of 10% led to an increase of 7.8% for business enterprises hiring a new CRO.

Liebenberg and Hoyt (2003), known as two of the pioneers in ERM, conducted a study using secondary data related to ERM. The study focused on the key success factors that directly influence companies to adopt ERM which is very much focused on the existence of a CRO for implementing ERM. Additional key internal factors related to globalization, corporate governance, technological advancement as well as maximizing the shareholders' value were also considered. The outcome of the study revealed that the CRO's role is paramount when implementing and managing the ERM program.

Daud et al. (2010) conducted a research to examine the direct association between the quality of CRO and level of ERM adoption in Malaysia. In this study, a standard adoption of ERM were considered for instance strategic plan for implementing ERM, evaluating the concept of ERM adoption and complete and partial ERM in

place. The outcome of the study indicated that the quality of the CRO and ERM is positively significant adoption. The role of CRO is pivotal and considered as the key determinant in ERM adoption. The study also revealed that 43% of various business partners or separate entities have apparently completed the ERM program, while the remaining 57% are considered as partial effective ERM implementers. The ERM implementation also needs a dedicated officer who can initiate and monitor the risk management program. Lam (2000), proposed that for ERM to be effective several factors need to be considered, which are risk transfer, stakeholder management, nature of corporate governance, line management, portfolio management and data and technology resources. In the COSO Report (2004), it is clearly stated that to implement ERM, the CRO needs to act as a coordinator and intermediary party with internal stakeholders so that risk management functions can be performed effectively.

The advantage of appointing a CRO is that all risk management activities and issues can be well coordinated (Lam, 2000). The CRO should be able to assess or re-evaluate the business strategy prior to ERM adoption and have specific qualities including: (1) consistent risk consciousness; (2) understanding of the key business processes; (3) an advanced university degree and suitable training in the risk management area; and (4) great interpersonal skills and ability to engage with various level such as managerial and operations levels (Liebenberg & Hoyt, 2003).

The CRO is also considered as a center point or key person who is accountable for the overall risk management functions, ranging from facilitation, coordination, monitoring and reporting the progress to internal and external stakeholders on

relevant risk information within the business entity (Liebenberg & Hoyt, 2003). Lam (2000) indicated that the CRO's responsibilities include but not limited to: (1) establishing a comprehensive ERM framework across the organization; (2) supporting and optimizing the economic resources and risk portfolio through risk management activities and transfer strategies; (3) establishing a risk management monitoring system, specifically on risk metrics, key risk indicators, risk reporting and key performance indicators for ERM; (4) developing risk management policies including but not limited to the quantification of risk management appetite; (5) enhancing ERM framework and processes, including risk performance management, communication, training and development, change management and risk-based auditing; and (6) developing a risk management system for the entire ERM program.

Lee (2003) proposed that the CRO role includes: (1) promoting a risk culture and awareness on business risk program for the entire organization; (2) providing a platform or forum on the risk management system as a one-stop center and communication channel for internal stakeholders manned by highly competent and professional individuals; (3) establishing an efficient approach for financial or non-financial risks; and (4) providing an advisory role by facilitating, coordinating and communicating to the relevant stakeholders and being a focal point for ERM implementation. Lam and Kawamoto (1997) posited that the CRO is very important for driving the ERM program. The CRO must team-up and work closely with supporting teams which is the RMC.

Lam and Kawamoto (1997) suggested that CRO should report to the BOD on ERM and that internal audit functions should report to the Chairman of the BOD or

Chairman of the AC. The quality of the CRO is crucial and highly important for ensuring the success of ERM implementation on a large scale (Daud, 2010). Champbell (1987) found that the role of the CRO in financial institutions has expanded dramatically as it includes strategic business decision and alignment of risk management into the firm's structure. He also indicated that although the ERM concept is widely known in developed countries, it is however fresh or even a long way away in Malaysia. The Economic Intelligence Unit (2005) also discovered that many organizations eventually assign a dedicated personnel who represents senior management for ERM development.

From the above discussion, it can be seen that there is a potential relationship between the CRO and ERM implementation. Thus, it is included in this research conceptual framework.

2.6.2 Operating Framework

Risk management that began as a field of study in the early 1950s was limited in scope to pure loss exposures only, whereby risks were managed through financing techniques and controlling (Skipper & Kwon, 2007). Insurance has been the most popular financing approach in managing corporate risk (Skipper & Kwon, 2007). It has been used to manage property, liability and related insurable risks. This approach is known as traditional risk management (TRM). Under this approach, risks are managed by independent departments or units where each group has its own language, skills and procedures. The disintegration of TRM, the influence of internal factors on business risks and the rapid growth of economies have triggered the need

for a more ERM enforcement. Consequently, most of the organizations now have shifted from TRM to ERM.

A number of ERM operating frameworks are currently being used which includes: (1) Combined Code and Turnbull Guidance, King II Report; (2) A Risk Management Standard by the Federation of European Risk Management Associations; (3) Australia/New Zealand Standard 4360-Risk Management; (4) COSO Enterprise Risk Management Integrated Framework; and (5) The Institute of Management Accountants “A Global Perspective on Assessing Internal Control over Financial Reporting”, Base II, and also the (6) Standard and Poor’s ERM. However these standards share a common structure in terms of identification, prioritization and quantification of risks in order to help corporations effectively manage their exposure to risks.

The most popular framework being adopted currently is the COSO’s framework (Bohn & Kemp, 2006). It is the fundamental basis for managing the internal control system (Bowen et al., 2006). COSO’s ERM Framework integrates these controls throughout an enterprise. In 2004, the COSO released the ERM Integrated Framework where they concluded that ERM refers to a process which directly affects the BOD, management and other personnel. This process assist in designing and identifying potential occurrence or possible risks that may directly or indirectly affect the entity and risk mitigation within its risk appetite as well as provides quality management pertaining to the achievement of the entity’s objectives.

The ERM operating framework provides a conduit for managing an organization's characteristic and systematic risks. Further, ERM focuses on risk management alignment initiatives with business objectives and corporate strategy in order to attain competitive advantage (Ballou, 2005). The current operating framework or guidelines highlight the significance of employees' participation and contribution to risk management (ISO31000:2009; and COSO 2004), which directly justify the need to further study employees' attitude, such as employees' organizational commitment in the process methodology. In ensuring that ERM is effectively implemented, a risk management initiative has been integrated as one of the important factors of corporate governance practices in many countries, including Malaysia, which have introduced their respective corporate governance codes and risk management initiatives. This code of conduct provides guidelines to organizations on the expected standard of behavior regarding stakeholders' requirements, company's performance, fraud and customer service (King III (2012)).

From the above discussion, it is clear that there is a potential relationship between operating framework and ERM implementation. Thus, it is included in this research conceptual framework as the second construct. Operating framework construct consists of the elements of the existing ERM policy, processing methodology and risk assessment tool (RAT).

2.6.2.1 Enterprise Risk Management Policy

According to ISO3100:2010, the ERM policy should clearly state organizational objectives as well as top management commitment and typically address the

following: (1) the rationality of managing risk exposure within the organizational context; (2) association among company's objectives, policies and risk management policy; (3) specific requirements of the risk manager's responsibilities; (4) possibilities of managing risk scenario and conflict of interest; (5) resource management and deployment to support risk management framework and accountability of dealing with crisis; (6) key performance indicators to support risk management performance and its measurement and reporting structure; and (7) continuous improvement and constant review of risk management framework and change management in relation to current risk practices.

According to Ackoff (1987), the ERM policy is considered as an appropriate framework to address all possible issues or challenges, including communication channels or other means for constant awareness and to avoid failure. Fischhoff (1979) offered few solutions related to risk management policy approach and among others suggested interpretation strategy. He emphasized on risk decision strategy and values, possibilities of laypersons' judgments and bias in the context of technical expertise. In another study, Fraser (2007) provided a review of conflicting decisions between experts and laypersons pertaining to risk management in which laypersons have information that the experts lack. He also started from the premise that attributing disagreements to public misperception is often factually wrong and creates societal-perspective corrosion by encouraging disrespect among the parties involved.

Funtowicz and Ravetz (1994) conducted a study to focus on the need for a civilized dialogue on ERM policy which represents three types of research and possible

methods for solution. The discussion also touched on the context of new dimensions sort of science to change the inherited conception of science that is not suffice to match the challenge posed by a need for urgent decisions, disputed values, ERM policy-related science issues, characterized by uncertain facts and high stakes, Funtowicz and Ravetz (1994) differentiated the subject and construct of such problems; the constructs was differentiated between low, medium, or high values. When both construct are low, a conventional technical approach is applicable to be used. With that in place, disagreements are prone to be settled smoothly, either because a substantial amount of information or data has been established or possibly, the disagreements between scientists are not seen to involve critical social issues. This conventional approach is not practical; nevertheless, for high level the ERM policy dimensions are rated as high, whilst the information database is inappropriate and imminent values are at risk.

Duncan (1995), in his research, mentioned the required guidelines with the support of Toulmin's model of argumentation (Toulmin 1958; Toulmin, Reike and Janik, 1979) as the conceptual framework for developing ERM policy discourse and practice. The selected model, emphasizes the essential information for value analysis and ethics, whereby this is actually broader in application than Campbell's (1987) model related to sociology of scientific validity. A possible benefit of Toulmin's model is that it offers a systematic technique to evaluate and critically test the various grounds for claims. Hence, it fulfills the range of claims in terms of experience, ethical argument and scientific knowledge This is also consistent with the study conducted by Roger and Kincaid (2009) where they concluded that the concept of ERM policy has been viewed as an integral part of the negotiation process

and has policy implications in terms of the following: (1) the communication channel or other means in the event of the need for communication; (2) a platform for the purpose of social knowledge in ERM policy making; (3) fundamental aspects of decision-making process and contribution to various management processes; and (4) two-way of knowledge sharing and negotiation to minimize the issue of blaming the public orientation

To recapitulate, it can be seen that there is a close relationship between ERM policy and implementation of ERM. Thus, it is included in this research conceptual framework.

2.6.2.2 Process Methodology

Eva and Martin (2015) analyzed 27 articles on risk management in the context of small medium size enterprises (SME). The aim of this study was to uncover the ambiguities, gaps and contradictions in the past literature in order to outline a platform for future research. The study was conducted based on the three tenets of Tranfield et al (2003), namely, planning the review, conducting the review and reporting and disseminating the review. The analysis focused on bibliographical information, research design and findings based on various types of risk in SME. The outcomes demonstrated the importance of risk management process in SME and that the characteristics of SME did influence organizational strategies. The study also highlighted the need for risk identification, risk analysis, strategy implementation and control in the SME risk management methodology and processes.

In most cases, business organizations are experiencing a significant change on new technologies advancement due to globalization, business technologies improvement and customer requirements. Hence, many business processes within organizations are constantly changing and are dynamic in nature (Childe et al., 1994; Harrison, 1995). Harrington (1991) defined the term 'process' as the transformation of inputs in terms of resources, whilst the outputs can be considered as a result of experiments or outcome of research. The outputs may contribute to another process which can add value to the existing context. 'Process methodology refers to a mechanism that adds value to practices with the objective of dealing with real world situations (Preece & Peppard, 2010). It is expected to offer a mechanism for deliberating on experiences and knowledge as well as offering a standard and structured framework for practitioners to apply or adopt in their operational activities. Additionally, the structured framework and specified methodology are also expected to accommodate further requirements of the specific roles and identification of the skills required to adopt the ERM approach (Adesola & Baines, 2010).

Risk Management is a practical subject and is complicated but the starting point should always be a simple process assessment of the problem. Makomaski (2008) believed that risk management methodology requires not only full dedication from the organization but also participation from all individuals in the organization. Olsson (2008) stated that risk management process itself cannot ensure risk management implementation due to other factors such as suitability and acceptability of the ERM process to the organization and its members. This implies that for risk management to be effectively implemented in an organization, the management

needs to consider the appropriateness or practicality of each of the stages in the risk management process.

Berenbeim (2004) in his study pointed out that risk management is beneficial but cannot guarantee an organization's success. This is due to the limitation of ERM and the tendency to the increase of risk. During a period of stability, the natural order of things are different from a period of stock market crashes, massive prices changes and hyperinflation. The security requirement that entails from having ERM process and process methodology leads the stakeholders' to consider to manage risk or accept risk exposure. ERM standard operating methodology produces positive outcomes for the organization, but it can also be an unsuccessful process if a series of guidelines are not fulfilled or if key components for success are not well taken care of.

Brian (2006) stated that the most important challenges in risk management are reducing costs and aligning them with the overall business strategy. Additionally, risk management is seen as a key to enabling long-term profitable growth, sustaining future profitability and ensuring compliance with regulations. Nocco and Stulz (2006) also pointed out that the structure of risk management is universal and a unique standard is required to decrease the risk of having too many risk standards. For example, in order to minimize redundancy, European risk management associations highlighted the need for different ISO standard since 10 years ago. They argued that the guidelines in ISO are less important than standards. Multiple dimensions of standards, like documents, code of practices, framework, policies and

procedures have been established to focus mainly on risk management at the universal level and accepted company-wide.

Selim and Namee (2009) in their study pointed out that the ISO standard has a direct intervention in the business, achieving reductions in non-conformities and complaints, improvements in customer and supplier satisfaction and improvement in the standardization of work procedures, communication and employee involvement. ISO 31000 (2009) stipulates that the organizations need to have a clear guideline or structured framework and risk management system to ensure they match their risk profiles. The application of the ISO Malaysian Standard was proposed by the Technical Committee on Risk Management under the Authority of Industry Standards Committee on Organizational Management (Sahun, 2010). Since then, risk management practice have been developed within many sectors in order to be aligned with diverse requirements as well as the application of consistent processes within a comprehensive framework to assure that risk is managed coherently, effectively and efficiently throughout business organization. The generic approach of the International Standard is to provide specific guidelines for managing risk in a comprehensive, affordable and credible manner within business organizations.

Devaus (2008) uncovered significant influence of process methodology and standards on ERM implementation. The existence of a great number of process methodologies could confuse the business process and its application. Additionally, the companies that apply risk management standards are certified in both quality and information security management. In most cases, these standards are implemented by the companies that have vigilant planning of resources and time. It is also found that

lack of financial and human resources are a significant impediment to the risk management standard implementation. Cost-benefit considerations may constrain investments to support the implementation of standards.

Eick (2003) conducted a study to discuss key success factors to ERM implementation. The success factors include incorporating value to the business organization by adding efficiencies and value creation to the existing policy, procedures and controls requirement, deploying executive support, incorporating ERM into executive decision-making activities and developing a risk communication channel and reporting. In general, the adoption of a risk management system indicates that there are differences between two perspectives, mainly on procedural framework and risk communication which are categorized as trivial challenges.

Fraser (2007) conducted a study to determine the ERM process in accordance with the Enterprise-Wide Risk Management Guidelines. The purpose of process methodology and techniques is to oversee and review risk based on the strategic flow, as follows: (1) developing the subject or nature of review; (2) analyzing; (3) evaluating; (4) identifying; (5) establishing the possible preventive action plan strategy; (6) overseeing, monitoring and reporting the risk action plan; (7) quantifying the risks; and (8) communicating, advising and consulting the business risk. This is supported by the Standards Australia (2006) and Standards New Zealand (2004) and International Organization for Standardization's (ISO/DIS 31000) risk management framework, model and process methodology, which highlight seven main components to risk appetite: risk identification, analysis, measurement, evaluation, treatment, communication and consultation and controlling of risk

management process or events. The New South Wales Department of State and Regional Development (2005) found that a good guideline for risk management should cover fundamental requirements of risk management process and technique and assist in the implementation of ERM process methodology.

At the international level, Australia and New Zealand have become the frontiers in risk management with AS/NZS 4360:1999 Risk Management, which represents the most comprehensive approach and process methodology of ERM framework that can be used in different scopes and business applications. This standard is one of the most applied in both corporations and listed companies. The standard is in accordance with a draft of ISO31000. Under that standard, risk management is elaborated further under 'Risk Management Guidelines'. Funtowicz and Ravertz (2008) discovered that an ISO standard would be flexible for such an ample discipline as risk management, which is varied in application. In 2009, the International Standardization Organization published a new management standard to support organizations of all sizes in managing risk across the business enterprise entitled, ISO31000:2009 Risk Management-Principles and Guidelines'. A document entitled "A Structured Approach of Enterprise Risk Management and the Requirements of ISO31000" was published by Institute Risk Management, which offers up-to-date guidelines and principles on ERM adoption under the new ISO standards. The Institute of Risk Management (2009) agreed to retain its support for the original risk management standard because it outlines a systematic approach and practical technique to the risk management practices and directly meets the needs of many smaller corporations worldwide.

According to Beasley, Clune, and Hermanson (2016), most companies are unable to portray a solid risk management structured framework in place and prefer to have informal approaches. With 65% of businesses not conducting systematic risk analysis prior to major corporate decision and only 42% conducting risk management audits or procedures, risk is considered not being management adequately (Funtowicz & Ravertz, 2008). International standards drive efficiencies for individual organizations, the economies of nations and global trade. The most influential standards are the International Standardization for Organization management leadership standards or ISO9001, a critical standard for improving economic effectiveness and efficiency. As the cornerstone for creating an integrated management system, ISO9001 is a key driver for the future standards and is a perfect leverage tool for ISO31000, which offers a new and much needed guide for the organizations to deal with risk in an ever-changing and challenging global environment. ISO31000 provides a framework that helps reflect on what can happen and why, the consequences, probability of occurrence and the methods to mitigate the consequences or reduce the probability of risk. It is also supported by a range of other national and international related risk management standards.

In short, it could be said that there is a close relationship between process methodology and the implementation of ERM. Thus, it is included in this research's conceptual framework.

2.6.2.3 Risk Assessment Tool

The United Nations agencies are adopting risk assessment software as risk management cycle is privately-oriented (Terzi & Posta, 2010). However, the United Nations Development Program has applied an in-house or off-the-shelf software for documenting risk assessments and responses. The application of the risk assessment tool (RAT) enables business enterprises to garner more benefits from the ERM, including better monitoring opportunities and risk analysis. Shimpi (2002) stated that one of the challenges of disparate systems is combining data across the various channels in a timely fashion. He also pointed out that ERM and consolidated profit and loss reports are usually produced on a daily basis; however, it has been progressively developed towards an integrated systems with the ultimate goal of real-time risk monitoring. IT serves as one of key precursors for the organizations to develop ERM capabilities (Strobel & Krishnan, 2006).

Rolland (2008) conducted a study to review the importance of IT and the effectiveness of risk management systems. RAT can create an important link between corporate performance and risk management. RAT imparts data security on business activity, individual risk and employee level and limiting users' access by time. RAT tools gather data used in the past that so the companies can learn through experience and avoid repeating the same mistakes. Effective risk management information is critical in decision making. Therefore, RAT is another indispensable factor for successful risk management. The organizations must adopt an appropriate technology for betterment and to assist in improving organizational accountability, controls and transparency.

A centralized and integrated RAT could alleviate many of today's issues and mitigating controllable risks. The employees will be more empowered, proactive and diligent in performing their duties and doing the right things if accurate right RAT techniques are in place (Ballou, 2005). The technology can support the ERM system in terms of disseminating reliable data and in turn enables resource allocation to high-risk areas in a more structured and timely manner.

Lange (1998) stated that ERM implementation requires seamless dissemination and proper risk management of information within the organization. RAT is actually considered as an enabler to this by ensuring that risk report is provided to senior management and data is available for risk analysis. IT such as optimization, modeling, stress testing, simulation and scenario analysis can make RAT more effective in estimating various financial impacts of different time horizons and probabilities. Nevertheless, a shared common understanding of policy, procedures and processes is required across business enterprises when implementing ERM. This strategy is needed to create high commitment, continuous awareness and accountability not only among senior management but also key risk business owners and at the same time facilitating the sharing of knowledge and technical know-how throughout the organization.

Duncan (1995) discovered that RAT infrastructure is important to integrate information sharing avenues and resources as well as database and communication technologies within the organization. Strobel and Krishna (2006) opined that RAT offers an integrated and robust avenue for ERM application and in turn as the enabler

to risk management processes. However, the internal auditors should be able to understand the effects of IT to the organizations.

Ramamoorti and Weidenmier (2006) stated that RAT determines organizational structure and influences organizational communication systems; hence, the interaction is built within the organization. If technological communication system does not exist, it can fail the organizations eventually. Risk communication must be consistently reviewed and updated so as to build confidence in the ERM implementation. The communication of organizational risks should be adequate to make sure that risk appetite is developed at the lower management level (Strobel & Krishnan, 2006). In other words, RAT-based communication system and risk awareness are complementary to each other and should be observed concurrently. It deals with various expectations, accountabilities and responsibilities of individuals and groups. This includes a conclusive directive and delegation of authority of the entity's ERM approach. In short, RAT-based risk communications means the application of relevant processes and procedures and are aligned with the risk culture parameter.

According to Lam (2003), RAT applications are very important for enabling ERM in the business processes. For instance, the use of risk simulation software and mathematical modeling in the measurement of business support decisions to generate reliable information for risk analysis including the measurement of probability and severity of risks to senior management (Makomaski, 2008); the utilization of RAT to assist management to segregate the possible risks (Lange

1998); and the use of control mechanism, stop-loss limits and verification to ensure continuous conformity (Ramamoorti & Weidenmier 2006).

RAT software enables risk information to be easily accessible to all levels and subsequently ensures that employees sufficiently know how to exercise or discharge their operational activities and duties effectively without releasing important information which should be made available only to the higher management team (Mikes, 2005). Eventually, the dissemination of all this information enables employees to optimize their daily risk management decisions. This acts as a positive motivator and subsequently increases ERM implementation.

To recapitulate, it can be seen that there is a close relationship between RAT and the implementation of ERM. Thus, it is included in this research conceptual framework.

2.6.3 Governance Mechanism

The governance mechanism consists of three important bodies or entities to spearhead the oversight of organizational commitment related to ERM, namely, AC, IA and RMC (Manab et al., 2010). The success rate of ERM depends heavily on the strong function of these three committees in the business enterprises. These entities are pivotal for determining the ERM implementation in the organizations and provide a platform for senior management to discharge their responsibilities in a more transparent and accountable manner, particularly on matters correlated to the business enterprise, strategic planning and business portfolio.

Governance mechanisms are critical for the ERM implementation because it will fail if the involved employees are not accountable, lack knowledge and do not understand the correlation between risk and ERM benefits (Kleefner et al., 2003). The challenges of risk management are due to unsystematic, informal practices and too many business orientations, which result in lack of indulgence in organization-wide risk exposure and reflection on business aspirations. Having good ERM policy and procedures to support the managerial practices will be useless if not supported by accountable employees in the control area.

From the above discussion, it is clear that there is a potential relationship between governance mechanism and ERM implementation. Thus, it is included in this research conceptual framework as the third construct. As stated above, governance mechanism construct consists of the elements of AC, RMC and internal audit.

2.6.3.1 Audit Committee

The role of AC in the ERM implementation is pivotal as collators of information for the BOD of the holding companies (Lindsell, 1992.) The Combined Code (Finance Risk Committee, 2003) stipulates that the role of AC members is to further strengthen the financial aspects of a companies' operations. Subsequently, the repercussions of an AC not being familiar or expert on financial matters will be great. In addition, the AC must undertake the role of reviewing high risk level areas and be capable of addressing issues related to non-financial risks as far as the business operations are concerned.

Triant and Ayse (2010) stated that the role of AC and BOD in ERM program are equally important. Hodge (2002) supported this by saying that the AC lack of risk ownership. The independence of AC members in providing fair view of ERM implementation is required to ensure its effectiveness. However Zaman (2001), said that it is unreasonable to expect the AC to discharge its duty above or beyond the limit of authority due to time and expertise constraints.

Turely and Zaman (2000) concluded that there is a positive relationship between the independence of the AC from the senior management group and internal audit function. However, it is still uncertain as to whether a strong AC can assist in preventing and detecting control weaknesses. Spira (2003) emphasized on the importance of providing task framework by virtue of professional guidance; however, there is still inadequate support or evidence of substantial benefits accruing from this process.

Kalbers and Fogarty (2010) argued that the AC should examine, analyze and monitor internal audit function and its effectiveness. Both AC and internal audit are important to ensure the success of ERM implementation (Lindsell, 1992). The AC needs a strong internal auditor to provide high quality assurance on ERM procedures and control. Inevitably, internal audit function will act as an independent party to provide value-added services to management besides examining the adequacy of the internal control system on a large scale. If internal audit functions have the capability to evaluate the ERM and report to the AC without amendment, then the AC should have the power to take action against irresponsible management. Although the ultimate goal of the AC is to enhance the effectiveness of ERM by protecting the

internal audit and monitoring internal audit recommendations but the information irregularity between non-executive directors and executives could pose a threat. The literature indicates that the AC is becoming more important to ERM implementation however, there are doubts as to whether they can assist in ensuring continuous improvement and effectiveness of ERM implementation (Kalbers & Fogarty, 1993).

To recapitulate, it can be seen that there is a close relationship between AC and ERM implementation. Thus, it is included in this research conceptual framework.

2.6.3.2 Risk Management Committee

The existence of RMC as one of the governance mechanisms has not clearly been identified and is inconsistent due to the conflicting issues with other mechanism such as the AC and management committee. In a study conducted by Grant Thornton on the 17th Bank Executive Survey (2010), it is found that 35% of banks reported that the RMC is separated from the AC. The survey conducted by Australia Institute Chartered Public Accountant and North Carolina (2010) on 700 entities from various business dimensions discovered that there have been instances whereby the BODs delegates risk oversight to a board-level committee; 70% are of the opinion that the task is delegated to the AC; and another 30% of entities stated that the RMC would eventually review the enterprise's risks.

The Cadbury Committee (1992) advocates that the appointment of oversight committees by the BODs effectively would not buttress specified structures and procedures. Usually RMC is linked to the governance component and oversight

board committee (Fraser, 2007). In general, the RMC has the obligation to assess, monitor and report on ERM implementation, provide sufficient view or advice or to some extent assist in making decisions on implementation strategies and assist management in identifying risk exposures with proper guidance and responses (Anthony, 2001). Usually, the RMC's responsibilities include: (1) ascertaining organizational risk strategies; (2) assessing organizational risk management operations and financial reporting, and (3) conducting continuous compliance review on applicable laws and regulations (COSO 2004; Subramaniam, 2009)

RMC consists of senior managers who are experts in risk management and thus, would be better able to support corporate governance by undertaking an in-depth review of risks and internal control. RMC members are responsible for digesting, discussing and reviewing organizational risk exposure with senior management, reviewing the adequacy and management of the risk procedures and reporting to the BOD on its findings (IIAM, 2006). To recapitulate, it can be seen that there is a close relationship between the existence of a RMC and ERM implementation. Thus, it is included in this research conceptual framework.

2.6.3.3 Internal Audit

Hespenheide and Funston (2006) stated that internal auditors possess splendid risk assessment skill sets and understanding of risk management framework and appetite. The COSO (2004) framework outlines the key components of risk management, including various types of risk indicators and business universe including internal audit. It functions as a support to senior management, BOD and AC by evaluating

risk exposures, recommending improvements and constantly reporting on the adequacy of the entity's ERM process (Beasley et al., 2006).

Eija and Peter (2014) conducted a study to examine the implementation of risk management as a tool for internal audit activities in one Finnish municipal. The study was conducted based on Actor-Network Theory. The publicly available internal documents such as municipal annual reports, internal audit reports, municipal council meeting minutes, national legislation, municipal regulations, guidelines and white papers were reviewed as primary sources. In addition, semi-structured group and individual interviews were also conducted with 13 key actors of various organizational levels. The outcome of the study concluded that risk management created unexpected uncertainties which include legal aspects of risk management solution, definition and operationalisation of risk management, resources available for expanding risk management as well as professional identities and responsibilities of operational managers as defined by the frame devices. They also concluded that internal auditors play a risk management centric role.

The internal auditors play an important role in terms of consulting and assurance services in the area of governance and ERM implementation (Donald, 2007). They also support senior management by ensuring that continuous monitoring of ERM is regularly performed by the business owner and it is performed either directly or upon request by the divisional executives (Ana, 2007). In principle, the internal auditors must maintain a good reputation by providing value-added services to senior management and the BOD in terms of examining, evaluating, recommending

improvements, monitoring and reporting on the strengths and weaknesses of the ERM processes.

The internal audit functions in ERM are related to giving assurance to the risk management activities, risk evaluation and its core processes, evaluating new emerging risk profiles and reviewing the mitigating activities of key risk exposures (Eick, 2003). In a standard practice, the internal audit has an obligation to perform or discharge the six common ERM portfolios, namely, owning ERM processes, providing risk assurance, setting the risk appetite, communicating risk responses, being directly accountable for risk management and making decisions on risk responses (Gramling & Myers, 2006).

Spira (2004) discovered that although internal audit is varied in terms of competencies and skills in practice, they come from the financial background. It however may or may not provide an adequate foundation in risk management consultation. In the research done by the Institute of Chartered Accountants England and Wales (ICAEW) (2000), it was noted that the assurance role of internal audit mainly refers to prioritizing the assessment, managing expectations, mitigating possible action plans and ERM reporting on a regular basis.

Page and Spira (2004a) had a mixed view on the role of internal audit in the ERM implementation, whereby its fundamental role is the involvement in risk management strategy. It focuses more on identifying inherent risk which is beyond the normal internal audit parameter. Although the internal audit does not directly challenge board strategy, it is advisable to objectively segregate the tasks of

observing risks and communicating an opinion and rationale behind actions to be taken by relevant stakeholders.

In 2005, the Institute of Internal Auditors' Research Foundation in the United States of America (USA) conducted a global online survey on the involvement of internal auditors in the ERM. The result was that internal auditors' ultimate focus is ERM, highlighted by 36% of the surveyed organizations. The internal audit should provides value-added services in terms of evaluating, examining, recommending improvements and reporting on the adequacy and effectiveness of ERM processes to both senior management and the BODs. The role of internal audit in the ERM as outlined by the IIAM (2004) are as follows: (1) the core roles of internal audit in ERM; (2) the role which is not played by internal auditors; and (3) the legitimate roles which are undertaken by the internal auditors with safeguards. The recently released joint statement on internal control by the IIAM and Bursa Malaysia stipulates that internal auditors must take the opportunity of the new listing to support their position in the area of corporate governance, control environment and risk assessment in the organizations. In addition, the need to consistently communicate the business development and financial performance of the company to the BOD and AC to leverage with the information related to risk management.

Stewart and Laura (2009) uncovered that internal auditors' high involvement in the ERM provides some implication on their motivation to report a breakdown of risk assessment or procedures to the AC. Based on the COSO framework, that is related to ERM guidelines, the deficiency in ERM implementation and control environment can be easily proven by leveraging the level of risk monitoring capabilities.

To recapitulate, it could be said that there is a potential relationship between internal audit and ERM implementation. Thus, it is included in this research conceptual framework.

2.6.4 Compliance

In daily operating environment of business organizations, staff members must comply with business laws, regulations and other applicable laws or code of practices. This is evident in highly regulated industries such as the public utilities, finance, gambling and banking industries. Compliance can also be associated with an organizations' code of practice on corporate governance. The costs incurred in such compliance schemes can make up a significant portion of the total business operating costs. Hence, relevant statements were included in the questionnaire to ensure rules and regulations and code of practices are linked to ERM implementation when measuring compliance variable.

The code of corporate governance mechanism is established through institutional investors and corporate governance bodies. Risk management is unequivocally linked to corporate governance standards and is a key responsibility of BOD. This specified regulation is eventually adopted by PLC and some of the requirements have been legislated and others are recommended. The significant impact of corporate governance on PLC is demonstrated in the study conducted by Kleffner et al. (2003b) where the result of the study revealed that corporate governance initiative signifies the interest to undertake risk management among listed companies and has become one of the key elements in the ERM implementation. Good corporate

governance has a direct impact on business processes by providing adequate resources in terms of hard and soft infrastructure to reduce the likelihood and severity of risk exposures to the companies and to mitigate their business risk optimally.

From the above discussion, it is clear that there is a potential relationship between compliance and ERM implementation. Thus it is included in this research conceptual framework as the fourth construct. As stated above, compliance construct consists of the elements of rules and regulations and code of practices.

2.6.4.1 Rules and Regulations

Corporate governance laws and regulations at the company level provide the management an autonomy to implement ERM or vice versa at the workplace. The BOD is empowered to manage the corporation but they do not have any risk management expertise in place. In the area where the companies facing an array of risks in their daily operation which could reduce return on investment to shareholders, the Malaysian regulators such as Bursa Malaysia and the Securities Commission have mandated PLC to disclose transactional risk exposures in the annual reports including off-balance sheet activities. These are efforts taken by the Malaysian regulators to safeguard the interests of public investors in accordance with the agreed accounting standards

The regulators play a vital role in improving ERM and risk reporting (Collier, Berry & Burke, 2006; Kleffner et al., 2003). Examples of regulatory pressure include the

Sarbanes Oxley Act in the USA, the New York Stock Exchange (NYSE) Corporate Governance Rules and the Combined Code on Corporate Governance in the United Kingdom (UK). The implementation of these codes is compulsory for publicly traded firms. In the Netherlands, firms listed on the Amsterdam Stock Exchange are required to comply with the Dutch Corporate Governance Code, also known as the Tabaksblat Code, where this code embraces general provisions for ERM maintenance. It has often been argued that ERM mechanism within business organizations takes place in response to regulatory pressure (Collier et al., 2006). This is due to huge pressure on PLC, therefore the expectation for the firm to adopt ERM is logically higher. PLC nonetheless is not the only organizations that have been mandated to implement governance regulations. Governance laws or requirements are also imposed on the non-profit sector and public organizations as well.

In the case of initial public offering exercises, the Securities Commission of Malaysia in July 2000 revised the company law and securities aimed at normalizing the regulatory regime for issuing listing prospectuses. As a result, the companies poised for listing are required to include a specific agenda of risk scenario deliberation or factor analysis in their prospectuses that highlight key parameters to investors on how their investment in the companies' Initial Public Initial Offering can be potentially diluted. The typical risk factors are: (1) business risk caused by political, economic, environmental and social development landscapes; (2) share exposures; (3) applicability and timeliness of information being furnished; (4) investment profiling; (5) regulatory exposure; (6) branding mechanism; and (7) profit forecasting risk. In January 2001, Bursa Malaysia assumed a major restoration

of its Listing Requirements which saw the insertion of a new Chapter 15 that clearly identifies the accountabilities and responsibilities of business directors in relation to corporate governance.

To recapitulate, it can be seen that there is a close relationship between rules and regulations and ERM implementation. Thus, it is included in this research conceptual framework.

2.6.4.2. Code of Practices

The preface of the national code of practice related to corporate governance and leading best practice recommendations have positively pressured for ERM implementation amongst PLC. These directives have encouraged the companies to embrace ERM implementation or risk management practices within business organizations. Vance (2010) opined that corporate governance assures that long-term business aspirations and corporate strategic objectives and management action plans are developed and monitored and a proper management structure which envisages the core elements of organizations, systems and people are in place in order to achieve medium to long-term company objectives, while making sure the structure functions to maintain the reputation, responsibility and integrity of its diverse constituencies. Olsson (2008), said that the lessons learned from the event are that poor corporate governance is derived from the failures of core areas, such as lack of risk management practices, communication breakdown of risk evaluation to the board and managing risk in a silo approach rather than at enterprise level. The report further makes the point that for an organization to have a strong corporate

governance structure, it is not sufficient just to have independence and objectivity. Board members must have necessary skills and expertise in order to effectively govern business risk profiles for the organizations.

The code of corporate governance practice is pivotal and essentially needed to ensure continuous development of ERM implementation. The code of practice and ERM implementation are interrelated and interdependent. The Malaysian Code of Corporate Governance gained prominence in Malaysia after the Asian financial crisis in the second half of 1997 that began in Thailand and later spread to other Asian countries, including Malaysia, Indonesia, South Korea and the Philippines. The initiative to implement a code of practice of corporate governance in Malaysia started with the establishment of the High Level Finance Committee on Corporate Governance in March 1998. Its purpose was to examine the robustness of the corporate governance practices in coping with the rapid changes of the global capital market environment. On March 2000, the Malaysia Code of Corporate Governance was released. The codes provide guidelines on the best practices and standard principles related to corporate governance and determine the direction of ERM in the workplace (Zulkafli et al., 2007, p.4). The codes also integrate risk management as part of good corporate governance practice. Initially, the code was optional however, it has been mandated to all listed companies through the revamped 2001 Listing Requirements of Bursa Malaysia. In October 2007, the Code on Corporate Governance was amended.

The national code of practice of corporate governance is a driving force for the BOD to perform effectively (Securities Commission, 2006). Under the new rules and

governance role of the BOD become important which includes setting business objectives and strategy, establishing value and culture, developing internal policies, ascertaining risk appetite and performance monitoring (PriceWaterHouseCoopers, 2004). This view is supported by Kleffner et al. (2003a) and Deloitte (2004). Kleffner et al. (2003a) discovered that the BOD is becoming more important, directly participates in the area of risk management activities and has high influence on ERM implementation within the organization. From another perspective, ERM has also been considered as one of the top priorities at the BOD level, where the members are directly responsible to ensure all risks faced by an organization are closely reviewed, identified, measured, controlled and reported (Deloitte, 2004). In addition, ERM provides checks and balances to senior managers (Ahmad, 2003).

To recapitulate, it can be seen that there is a close relationship between code of practices and ERM implementation. Thus, it is included in this research conceptual framework.

2.7 Underpinning Theories

The new guide on the Statement on Internal Control for Directors of PLC, (jointly released by the IIAM and Bursa Malaysia) the requirement of the Malaysian Institute of Code of Corporate Governance (MICG) and listing requirements of Bursa Malaysia create the need for ERM implementation within PLC. The new global ISO31000:2009 Risk Management Standards has a significant impact on PLC. It emphasizes on the requirement to comply with the standards, which eventually guide both public and private practitioners to embark on this certification. Past researchers

have reviewed several areas on the implementation of ERM and structure of governance mechanisms such as BODs and reveal that agency theory is the dominant paradigm. In short, three common underpinning theories that are related to this research are as follows: (1) agency theory; (2) corporate legitimacy theory; and (3) cultural theory related to risk management. The definition and description of each theory are offered below.

2.7.1 Agency Theory

The agency theory refers to the contractual association of two parties which are the principal and the agent. The one designated as the principal will engage with another party while the other party appointed as the agent will exercise some form of services on behalf of the principal (Ross, 1973; Jensen & Meckling, 1976). An agency relationship is defined as a binding contract management between the principal and appointed agent to perform some service (Ross 1973). The agent is acting based on self-interest (Jensen & Meckling, 1976; Lam, 2003) and the principal has a major platform for mitigating the agent's behavior to nurture the agent's interest with that of the principal. Additionally, it also offers a lucrative package of employment incentives to the agent by designing a reward structure that would encourage the agent to represent the best interests of the principal by adopting auditing and other governance mechanisms (Lam, 2003).

The theory provides insight into organizational processes and designs (Subramanian, 2006). Kaiser (1999) is of the view that the agency theory focuses on risk mitigation of the problem by selecting certain types of agents and forms of monitoring of their

actions by using various types of positive and negative sanctions. Mike (2005) confirmed that risk management operationally pushes the performance of the firm with the ultimate focus being to increase shareholders' value. In this connection, Brealey & Myers (2002) and Barr & Tagg (2000) agreed that the maximization of shareholders' value is the overall goal of every corporate entity.

The agency theory is related to this study in the form of assisting an organization to achieve strategic objectives and its mission and subsequently maximize shareholders' value (Nocco & Stulz, 2006). Alviunessen & Jankensgard (2009) suggested that active risk management does contribute to shareholders' value. In general, risk management adds value to individual companies and supports overall economic growth by lowering the cost of capital and reducing the uncertainty of commercial activities. An organization that plans to leverage a risk-based methodology work plan for organization would increase the strength of internal control system and maximizing the shareholders' value (Bowen et al., 2006). The agency theory has been used in prior to studies on governance mechanism and committees such as BOD, AC and RMC (Ross, 1973).

In the perspective of monitoring, BOD committees are considerably a good avenue to support better quality monitoring, leading to lower opportunistic behavior by managers (Chau & Leung, 2006; Carson, 2002; Bradbury, 1990) The agency theory suggests that board characteristics, namely independent chairman of the board and non-independent directors are equally important and considered as factors affecting effectiveness of BOD (Chau & Leung, 2006; Carson, 2002; Bradbury, 1990). If there is a good business opportunity that involves high risk, the shareholders would expect

the managers to take the opportunity and maximize their investment returns, while the managers may be hesitate to take that opportunity because the rewards from the risk-taking action would be limited. The business risk owners or entrepreneurial are more concerned about their employment risk and firm survival than profit maximization of shareholders (Baysinger & Hoskisson, 1990; Kim & Buchanan, 2008).

To recapitulate, the agency theory is related to this study in view of the fact that ERM can assist an organization to achieve its business objectives and ultimately maximize shareholders' value. This is evident from the inclusion of leadership, governance mechanism and compliance constructs.

2.7.2. Corporate Legitimacy Theory

The corporate legitimacy theory is a point of reference that has commonly been adopted in order to understand organizational forms and structures in the expense of relevant assumption that business enterprise has to continue its survival (Meyer & Rowan, 1977). In recent years, there has been heightened focus on the structure and strategies adopted by the BOD. This includes the engagement of intended stakeholders' needs and the adoption of monitoring sub-committees for maintaining corporate legitimacy. Further, with the increase of regulatory agencies, monitoring activity, the use of more visible forms of legitimization, such as BOD committees, has become more significant, relevant and prevalent in the companies. Key intended stakeholders, for instance the external auditor, may also play a vital role in promoting the adoption of such governance mechanisms (Meyer & Rowan, 1977).

To recapitulate, the corporate legitimacy theory is directly related to this study in terms of the fact that ERM can support and be aligned with an organization's goals to achieve its business objectives. This is evident from the inclusion of leadership, governance mechanism, and compliance constructs.

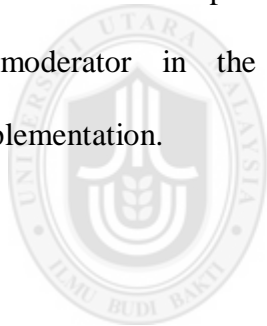
2.7.3 Cultural Theory related to Risk Management.

The cultural theory related to risk management was established by Douglas (1978) and Douglas and Wildavsky (1982). The theory provides specific clarifications on how individuals establish their perceptions on concepts such as risk and threat. Cultural theory cannot be developed without considering social development context (Tansey & O'Riordan, 1999). Douglas and Wildavsky (1982) stated that the values and worldviews are intertwined in certain social and cultural contexts. In the context of risk perception, cultural theory has been adopted in ecology and health areas (Langford et al., 2000; Finucane & Holup, 2005; Marris et al., 1996; Lima & Castro, 2005).

There are two different perspectives, namely, the stability and mobility view under the cultural theory (Langford et al., 2000; Tansey & O'Riordan, 1999). The stability view postulates that individuals are consistent in a cultural bias and expected to attach themselves to social structures with the same type of cultural bias in all areas. Secondly, the mobility view postulates that it is possible for individuals to attach themselves to social structures with different types of cultural bias and in different areas. The theory was previously established for the social organizations and cultures

in which these are empowered. According to Altman and Baruch (1998), cultural theory has been adopted in various of institutions, themes and areas. As stated above, cultural theory has been applied risk perception studies extensively. In this study, the researcher attempts to use cultural theory (risk culture) as a moderator to the relationship between independent variables and ERM implementation. Past researchers have uncovered a link between cultural theory and ERM (Rayner, 1984; Lima ad Castro, 2005; Marris et al., 1996); however, a clear framework for this association is still limited.

To recapitulate, the relationship between cultural theory and risk management focuses on ERM implementation. This is evident from the inclusion of risk culture as a moderator in the relationship between ERM determinants and ERM implementation.



2.8 Summary

The review of the related literature covers leadership, operating framework, governance mechanism and compliance as key determinant of ERM implementation amongst PLC companies in Malaysia. The elements of leadership construct are BOD, senior management commitment and CRO. In terms of governance mechanism, the review focuses on the elements of the AC, RMC and internal audit. The chapter also discusses the elements of the operating framework which are ERM policy, process methodology and RAT which are linked to risk intervention and management program.

The prime concern of this chapter is to establish a conceptual framework by focusing on risk culture that moderate the relationship between the determinants and the implementation of ERM. In short, four constructs namely, leadership, operating framework, governance mechanism and compliance are proposed. The factors that are relevant to this study are summarized in a framework and in turn relevant research hypotheses are proposed. All these are dealt with in the next chapter.

CHAPTER THREE

RESEARCH FRAMEWORK AND HYPOTHESES

3.1 Introduction

This chapter describes the conceptual framework investigated in this study and the subsequent hypotheses development. The conceptual framework illustrates the dependent and independent variables used to establish ERM implementation. Further, this chapter discusses in detail the proposed hypotheses. A summary is provided at the end of the discussion.

3.2. Conceptual Framework

The development of a conceptual framework is an essential step in the research design as it defines the contributions of the study. Sekaran and Bougie (2010) defined conceptual framework as a logically developed framework which describes the relationship between the predicted variables associated to a problematic situation and identified through processes such as interviews, observation and literature review. According to Gupta (2011), a conceptual framework is an epistemology of constructivism that assumes a pluralist and relativist analysis of actuality. Sekaran (2010) stated that a conceptual framework is the premise on which the whole research project is based. Further, Cavana, Delahaye and Sekaran (2010) highlighted that a research framework represents a model of relationship between the factors flowing logically from the citation of previous researchers in the problem area. This study attempts to examine the determinants of ERM implementation. This

relationship in turn is expected to be moderated by risk culture. A conceptual framework that illustrates the relationship between leadership, operating framework, governance mechanism, compliance, risk culture and ERM implementation is presented schematically below in Figure 3.1. The figure presents an overview of the conceptual framework tested in this study.

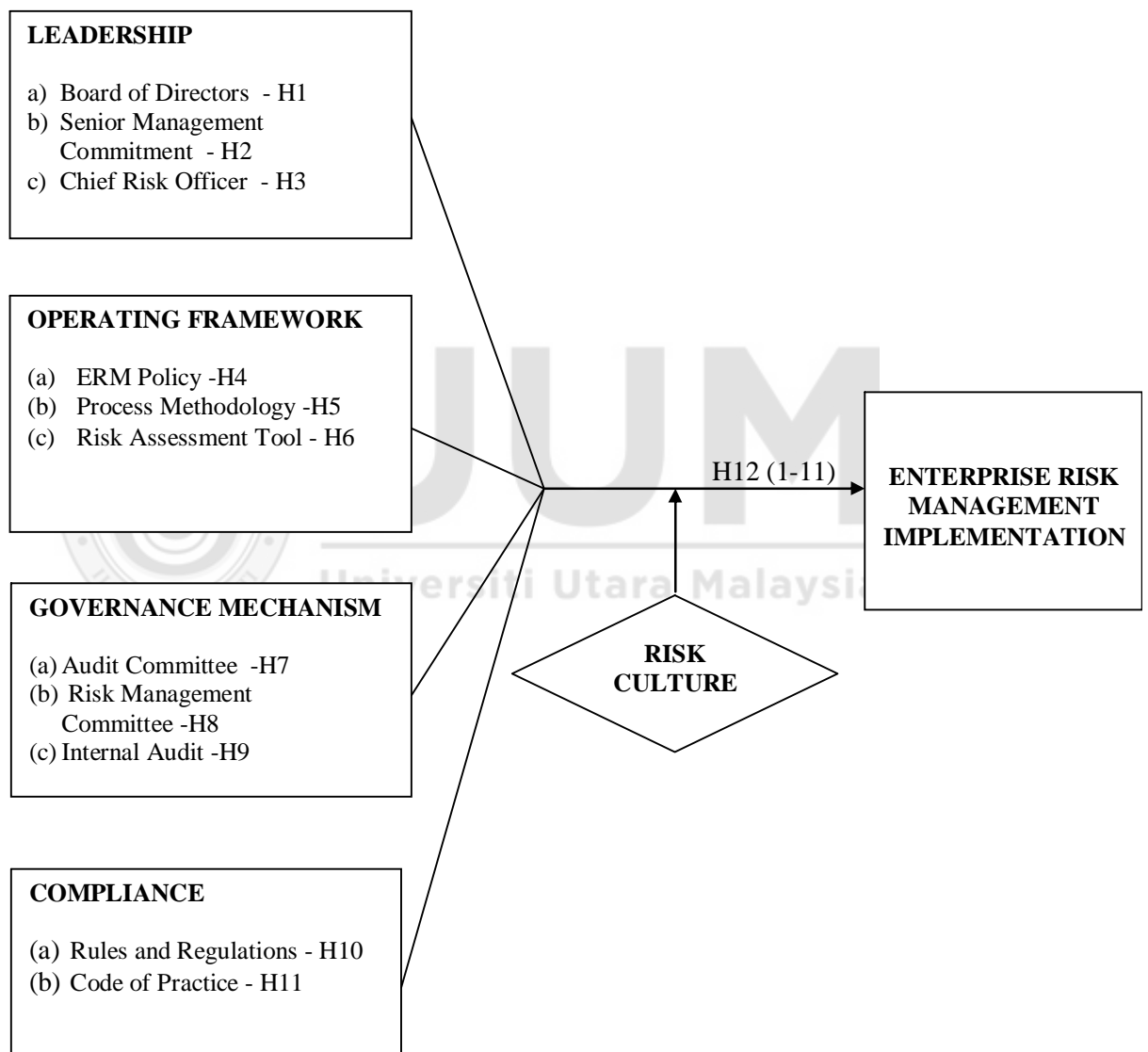


Figure 3.1: Conceptual Framework for moderating effect of risk culture on ERM implementation.

The first construct of the conceptual framework is leadership that comprises of three factors, namely, BOD, senior management commitment and CRO. The second construct is operating framework which includes ERM policy, process methodology and RAT. The third construct is governance mechanism which includes AC, RMC and internal audit. The fourth construct is compliance which includes the rules and regulations and code of practices. In this study, risk culture is expected to moderate the relationship between the four constructs and ERM implementation.

3.3 Hypotheses Development

The hypotheses are linked to the research questions. Based on the conceptual framework the following subsection discuss this research hypotheses

3.3.1 Enterprise Risk Management Implementation

The ERM implementation is derived from the interaction or interrelationship between key determinants that have significant impact on ERM. It can also be interpreted as a systematic integrated action in mitigating risks across an organization to achieve its objectives and at the same time, maximize shareholders' value (Lam, 2000). In addition, it is an organizational-wide approach or a structured process framework which governs the process of identifying, evaluating, analyzing, treating and monitoring risks and aligning them with organizational objectives (Shimpi, 2005).

Deloach (2000, p.5) defined ERM as a holistic approach and systematic program which aligns with corporate strategy, business processes, human resources,

technology innovation and knowledge management to mitigate business uncertainties and help in creating business value for the benefit of shareholders and stakeholders within the business circle of influence. ERM is also one of the key components of good governance practices and is linked to the corporate governance framework, which emphasizes both transparency and accountability (Priscilla & Susan, 2008). It thus enables a business enterprise to support its achievement by proactively identifying and controlling risks. An ERM system is one where there is an appropriate risk culture, decisions are based on an understanding and consideration of risks and risks that are either above or below risk targets are managed towards the target. This implies a continuous monitoring of risk levels and adjustment of responses with appropriate communication throughout the enterprise. The management has to provide a reasonable level of assurance that risks are identified on a timely basis and fairly assessed and appropriate actions taken. The proposed ERM determinants (leadership, operating framework, governance mechanism, compliance) are expected to increase the level of ERM implementation in an organization. This relationship is expected to be moderated by risk culture that exists in that organization.

3.3.2 Leadership

Strong leadership leading to a high commitment in managing risk is needed to ensure continuous executive support for the implementation of integrated ERM (Nocco & Stulz, 2006). This can be done in many ways when an organization's integrated risk management practices mature. The chosen risk champion must be an enthusiastic and knowledgeable supporter of integrated risk management. The champion is

responsible for addressing integrated risk management and supporting executives to meet in both the short term and long terms corporate objectives. Previous studies have indicated that ERM adoption relies heavily on the institutional ownership of leadership (Douglas & Patterson, 2010). The senior management group has to be more proactive, accountable, own the processes in the area of risk management and set the tone at the top. The commitment from senior management group means a continuous participation risk management processes in their respective areas and highlighting the need for ERM in the daily operations through communication, common language and action-orientation (Deloach, 2000).

A review done by the Joint Inspection Unit (2010) on the benchmarking framework on ERM concluded that lack of commitment and assurance level from the UN's top management is considered as the most common reason for not implementing ERM. Although some officials are strongly in favor of ERM implementation, other officials highlighted that their ambiguity on the ERM requirements creates negative perception and low commitment from the top level (D'Arcy, 2001). Senior management commitment to ERM is demonstrated through training of top officials and setting the direction to ensure ERM is implemented (Fraser, 2007). In short, it could be said that leadership has an important role in discharging commitment, accountability and ownership of top management for ERM implementation.

3.3.2.1 Board of Directors

According to the 'Malaysian Code of Best Practices in Corporate Governance, Item 4.17 Section A, The Principal Responsibilities of the Board of Directors', the BOD

should openly presume the responsibility of ascertaining significant or core business risks and ensuring appropriate system implementation to manage these risks. The BOD governs the internal environment component which directly or indirectly influences the ERM implementation within the business organization. Berghe and Levrau (2004) stated that board composition, size and leadership structure are the key parameters of having good corporate governance and high quality board structure. This is supported by Rasid and Rahman (2009) who stated that there is a close and significant relationship between the BOD and ERM implementation. Thus, the following sets of hypotheses are proposed:

H1: The BOD significantly and positively influences ERM implementation

3.3.2.2 Senior Management Commitment

A strong support and full commitment from senior management are necessary for the successful achievement of organizational strategy and the ERM implementation. This is agreed to by Barton et al. (2002), Walker et al. (2002), Eick (2003), Kleffner et al. (2003a, 2003b), Price WaterhouseCoopers (2004), and Bowling and Rieger (2005a). Eick (2003, p. 84) opined that supportive leadership is important to risk managers in terms of providing back-up in the form of clout and mentorship. Senior management commitment and support from top management are very important for ERM implementation. Thus, the following hypotheses are proposed:

H2: Senior management commitment significantly and positively influences ERM implementation

3.3.2.3 Chief Risk Officer

A survey conducted by Ernst & Young (2006) among the executives in charge of ERM revealed that CRO believe that their role is to ensure that risk is being assessed at the senior executive level and efficiently mitigated at the business unit level. Rosa (2007) pointed out that CRO should have attributes such as a well-developed risk perception, hands-on business acumen, relevant educational or professional qualifications in risk management, communication and interpersonal skills that include working with individuals, facilitation and coordination skills in finance, accounting and insurance at relevant party.. This is supported by Liebenberg and Hoyt (2003) that there is a positive relationship between CRO and ERM implementation program. Daud et al. (2010) investigated the relationship between CRO and ERM in Malaysia and found that there is a significant relationship between them. Lam and Kawamoto (1997) found that the CRO is considered as a highly important position for driving the ERM program to make stakeholders understand the importance of ERM implementation. With all these findings, the following hypotheses are developed:

H3: The CRO significantly and positively influences ERM implementation

3.3.3 Operating Framework

The ERM operating framework focuses on aligning risks and risk management initiatives to business objectives and overall corporate strategy in order to attain competitive advantage (Ballou, 2005). In ensuring that ERM is implemented, a risk

management scheme is incorporated as one of the corporate governance codes in many countries which have established their corporate governance codes and risk management framework. The code of business conduct provides specific guidelines to organizations on the expected standard of behavior regarding stakeholders' requirement, company's performance, customer service and fraud (Knight, 2006). Thus, the following sets of hypotheses are proposed.

3.3.3.1 Enterprise Risk Management Policy

Stewart and Laura (2009) found that the existence of ERM policy is based on a technical concept of risk. The study also stated that the management focus is on the lack of public understanding and knowledge exacerbated by the media. The proposed solution is to inform and educate the public on ERM policy because the perception of risk is often inaccurate, thus highlighting the need for warning and educational programs (Walker, 2002). Otway and Thomas (1982) stated that the gap between ERM policy and concept creates ambiguity in ERM practice. In turn, highlighting the need to formulate risk management and ERM policy. Ackoff (1987) pointed out the need for an appropriate structured framework and dimensions to address all possible issues or challenges, including communication channels or other means for risk culture awareness in order to prevent failure. Thus, the following hypotheses are proposed:

H4: The ERM policy significantly and positively influences ERM implementation

3.3.3.2 Process Methodology

Olsson (2007) stated that risk management process itself cannot ensure effectiveness of risk management considering that there are other factors such as suitability and acceptability of the standard process methodology to the organization and its members. This implies that for risk management process methodology to be effectively implemented in an organization the management needs to consider the appropriateness or practicality of each stage in the ERM process. Kevin (2003) pointed out the success factors of ERM implementation include incorporating value to the business organization by adding efficiencies and value creation to the existing policy, procedures and control requirement, deploying executive support, incorporating ERM into executive decision-making activities and developing a risk management awareness and risk communication channel and reporting. Thus, the following hypotheses are proposed:

H5: The process methodology significantly and positively influences ERM implementation

3.3.3.3 Risk Assessment Tool

The RAT is considered as a technological advancement and a business toolkit to support management to drive ERM implementation throughout the organization (Ramamoorti & Weidenmier, 2006). It is an alternative platform of business toolkit that support business processes and it is considered as an ineffective way to adopt ERM practices. Rolland (2008) in his study stated that RAT determines organizational structure and influences communication systems being built-up within an organization. Strobel and Krishna (2006) found that there is a relationship

between RAT and high performance, whereby a vigorous hardware system supports ERM in terms of risk identification, risk measurement analysis and evaluation of complex scenario and risk monitoring processes. RAT is very important for determining the level of understanding and building up confidence for ERM implementation. Stobel and Krishnan (2006) supported this finding whereby RAT-based communication system and risk awareness are complementary to each other and should be observed in totality. Eventually, all information related to risk management can enable employees to optimize their daily risk management decisions, leading to increased ERM implementation. Under this scenario, the following hypotheses are proposed.

H6: The RAT significantly and positively influences ERM implementation

3.3.4 Governance Mechanism

The success of ERM implementation also depends on good governance mechanism (Banham, 2000). Business enterprises should give more priority to the staff member's dedication and standard structure of ERM governance based on the degree of sophistication in risk management, business expertise, inherent risk profile, analysis of size, complexity and the nature of their activities and the capacity to absorb the additional workload within existing structures (Mikes, 2005). Large organizations, with sizeable and significantly inherent risk exposure, require distinct and diverse operations (Anthony, 2001). In addition, a sound and dedicated central risk governance resources and the establishment of a formal RMC is required. The magnitude of work to be carried out would justify the need for such a governance mechanism. Although some elements of ERM governance exist, the leadership

behavior and accountability in the implementation process, communication line and reporting might change the predicted outcome (Karen & Ian, 2007). The organizations that implement ERM need to formalize leadership and all other roles and responsibilities. Thus, under the governance mechanism, hypotheses are developed under the element of AC, RMC and internal audit.

3.3.4.1 Audit Committee

According to Lindsell (1992), both audit committee and internal audit have the obligation and trust to enhance the ERM implementation. If audit committees can exercise their duties within the range of control reviews, they would require strong internal audit function to provide them with adequate assurance that ERM procedures and processes are adequate and effective. Kalbers and Fogarty (2010) suggested that larger audit committees are legitimized by continuous organizational support from the audit committee. It should be acknowledged as an authoritative body, such as external auditors and internal audit functions. This is supported by the study of Turely and Zaman (2000) where they concluded that there is a relationship between the independence of the audit committee from executive management and ERM implementation. But survey evidence indicates doubt as to whether a strong audit committee can help prevent and detect control weaknesses (Pricewaterhouse, 2004). Overall, audit committee structures that are consistent with the Blue Ribbon Committee's (1999) recommendations can help strengthen their oversight functions (Turely & Zaman, 2000). Thus, the following hypotheses are proposed:

H7: The AC significantly and positively influences ERM implementation

3.3.4.2 Risk Management Committee

Fraser (2007) found that RMC has gained popularity as an important governance component and oversight committee. The RMC triggers or alerts BOD to constantly review and focus on corporate governance practices within an organization (Smiechewicz, 2001). In other words, RMC reviews the existing risk exposures or emerging issues that influence business operation. Harrison (1987) argued that it is very difficult to observe what work that RMC can do. The higher possibility is that RMC acts an independent role to oversee the overall risk governance and monitor the entire process in order to produce a constructive manifestation. The COSO of the Treadway Commission (1992, 2004), Hermanson (2003), and Selim and Mc Namee (1999) reviewed both actual and perceived quality of internal monitoring and stated that it is likely to be higher and significant when RMC exists compared to a situation where there is no RMC. Based on the above discussion, the following hypotheses are proposed:-

H8: RMC significantly and positively influences the ERM implementation

3.3.4.3 Internal Audit

According to Ana (2007), internal auditors play a significant role in ensuring continuous support and monitoring of ERM and its performance. This is part of their continuous tasks or upon demand from senior management or subsidiaries or divisional executives. Internal auditors work closely with senior management by providing value-added services and assurances on the following: (1) ERM design and function; (2) effectiveness of risk responses and control activities; and (3)

completeness and accuracy of ERM reporting. The Statement of the Malaysian Code on Corporate Governance (2007) under the Securities Commission stipulates that internal auditors should be independent of the activities they audit. This is in tandem with the statement made by Knight (2006) and Protiviti (2006) that risk management is not a new thing in the business world and is part of audit function. Grambling and Myers (2006) indicated that internal audit has an independent party is required to observe and perform the common ERM portfolios, for instance communicating risk responses. Stewart and Laura (2009) found that internal auditors perceive that high involvement in ERM impacts on their willingness to report a breakdown in risk procedures to the audit committee. Based on the above discussion, the following hypotheses are proposed;

H9: The internal audit significantly and positively influences ERM implementation

3.3.5 Compliance

One of the key success factors of ERM is the level of compliance assurance (Lam, 2000). This involves adherence to the specified rules and regulations and standard code of practices. Shimpi (2005) said the ultimate goal of ERM is more about corporate governance and compliance. Berenbeim (2004) stated that compliance is an integral part of ERM; hence, an effective value-based enterprise requires strong reinforcement of the compliance system. The compliance function ensures that all relevant rules and regulations, applicable laws and code of practices are being properly complied with. Thus, the following sets of hypotheses are proposed.

3.3.5.1 Rules and Regulations

Regulators emphasize on the implementation of risk management and capital adequacy in the financial industry to protect the public from default payment (Banham, 2000). From the perspective of the Malaysian regulatory framework, there is no specific law that makes ERM program mandatory in PLC. The closest reference in the Malaysian regulatory framework that demands PLC to manage risk is in the Malaysian Code of Corporate Governance (2007). Thus, the following hypotheses are proposed:

H11: The rules and regulation significantly and positively influence ERM implementation

3.3.5.2 Code of Practices

The code of practices is technically embedded under the corporate governance compliance code (Priscilla & Susan, 2008). It is vital for the implementation of ERM. PriceWaterHouseCoopers (2004b) indicated that the integration between corporate governance, risk management and compliance is required in order to achieve strategic objectives of an organization and at the same time maximize shareholders' value. This is supported by Rosen and Zenios (2001) that corporate governance is a critical requirement for ERM implementation. There are no ERM components that can be achieved without corporate governance compliance. The code of practices stabilize the relationship between shareholders, BOD, top management and intended stakeholders. Ballou (2005) indicated that the organizations have to adhere to rules and regulations, the standard code of practices and standard listing requirements in relation to corporate governance and ERM

implementation. Under the new listing rules and governance approach, the role of BOD become more important, which include setting business objectives and strategy, establishing value and risk culture, developing internal policies, ascertaining risk appetite and performance monitoring (PriceWaterHouseCoopers, 2004). This view is supported by Kleffner et al. (2003a) and Deloitte (2004). Kleffner et al. (2003a) discovered that the Code of Business Conduct become more important related to risk management activities and has strong influence on ERM implementation within the organizations. Thus, the following hypotheses are proposed:

H12: The code of practices significantly and positively influences ERM implementation

3.4 Risk Culture

According to Lima and Castro (2005), risk culture can be interpreted as a behavioral system that envisages the core values and behaviors adopted throughout an organization and assists in shaping the right risk decision-making processes. Tansey and Riordan (1999) pointed out in their study that risk culture influences the management and employees' decisions even if they are not deliberately considering the risks and benefits as a whole. An organization directly benefits from deliberating risk exposure in response to the increase of corporate culture and ERM values, such as strategic, human capital, operational, financial, reputation and legal compliance values (Pagach & Warr, 2007). Bolton (2000) suggested that the Turnbull Guidelines provide the organizations an opportunity to initiate an adequate control culture where ERM is incorporated and a reality check on lessons learnt which are also embedded

as part of daily operational activities within the risk management (Chown, 2000; Viles, 2000; Boswell, 2001; Barlow, 2000).

Lima and Castro (2005) argued that risk culture is crucial for positive change in the mindset or internal system relating to business enterprise and families. It has been highlighted also that an over-emphasis on automated risk assessment will eventually reduce the tendency or likelihood of being able to identify and mitigate risk factors at an optimum level. However, this depends on the extent to which risk management has already been incorporated into strategic planning and operations. It also depends on the availability of risk identification, operational and financial information, staff awareness on the capacity to manage risks and finally the existence of systems and protocols to respond to potential threats and opportunities.

Register and Larkin (2005) found that traditional corporate culture and risk management culture do not vary greatly. In order to make sure that the level of understanding of risk management implementation is guaranteed and constantly monitored by the assigned authority or delegates, the following activities need to be established: (1) ensure continuous awareness and importance of ERM; (2) constant communication on the entity's risk appetite and tolerance; (3) common risk language assistance; and (4) consult with personnel on their roles in supporting the components of ERM implementation.

From the above discussion, it can be seen that risk culture moderates the relationship between ERM determinants and ERM implementation. Thus, the following hypotheses are developed:

- a) H12-1: The influence of BOD on ERM implementation is moderated by risk culture
- b) H12-2: The influence of senior management commitment on ERM implementation is moderated by risk culture
- c) H12-3: The influence of CRO on ERM implementation is moderated by risk culture
- d) H12-4: The influence of the ERM policy on ERM implementation is moderated by risk culture
- e) H12-5: The influence of process methodology on ERM implementation is moderated by risk culture
- f) H12-6: The influence of the RAT on ERM implementation is moderated by risk culture
- g) H12-7: The influence of the AC on ERM implementation is moderated by risk culture
- h) H12-8: The influence of the RMC on ERM implementation is moderated by risk culture
- i) H12-9: The influence of the internal audit on ERM implementation is moderated by risk culture
- j) H12-10: The influence of rules and regulation on ERM implementation is moderated by risk culture
- k) H12-11: The influence of the code of practices on ERM implementation is moderated by risk culture

The above hypotheses are summarized in Table 3.1. They are grouped under the relevant research questions discussed in Chapter 1.

Table 3.1

Hypotheses Development

Research Question	Hypotheses	Narrative
RQ1 What are the key determinants that affect ERM implementation?	H1	H1: The BOD significantly and positively influences ERM implementation
	H2	H2: Senior management commitment significantly and positively influences ERM implementation
	H3	H3: The Chief Risk Officer significantly and positively influences the enterprise risk management's implementation
	H4	H4 : The ERM policy significantly and positively influences the ERM implementation
	H5	H5 : The process methodology significantly and positively influences the enterprise risk management's implementation
	H6	H6: Risk Assessment Tool significantly and positively influences ERM implementation
	H7	H7: AC significantly and positively influences ERM implementation
	H8	H8: RMC significantly and positively influences the ERM implementation
	H9	H9: The internal audit significantly and positively influences ERM implementation
	H10	H10: The rules and regulations significantly and positively influences ERM implementation
	H11	H11: The code of practices significantly and positively influences ERM implementation
RQ2- Is the relationship between ERM	H12	H12-1: The influence of the BOD on ERM implementation is moderated by risk culture

<p>determinants and ERM implementation moderated by risk culture?</p>		<p>H12-2: The influence of senior management Commitment on ERM implementation is moderated by risk culture</p> <p>H12-3: The influence of the CRO on ERM implementation is moderated by risk culture</p> <p>H12-4: The influence of the ERM Policy on ERM implementation is moderated by risk culture</p> <p>H12-5: The influence of process methodology on ERM implementation is moderated by risk culture</p> <p>H12-6: The influence of RAT on ERM implementation is moderated by risk culture</p> <p>H12-7: The influence of AC on ERM implementation is moderated by risk culture</p> <p>H12-8: The influence of RMC on ERM implementation is moderated by risk culture</p> <p>H12-9: The influence of internal audit on ERM implementation is moderated by risk culture</p> <p>H12-10: The influence of rules and regulations on ERM implementation is moderated by risk culture</p> <p>H12-11: The influence of code of practices on ERM implementation is moderated by risk culture.</p>
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3.5 Summary

The prime concern of this chapter is to establish a conceptual framework and highlighting risk culture as a moderator on the relationship between ERM determinants and ERM implementation. Four constructs namely leadership, operating framework, governance mechanism and compliance included in the conceptual framework. Thereafter relevant research hypotheses are proposed.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This chapter discusses on the procedures and methods of inquiry that were applied in this study. The research design of this study aims to ensure that the information obtained is relevant and justifiable. The sample design which specifies the sample frame, size and the system for selecting individual respondents from the population are discussed. The questionnaire design, data collection procedure, data processing and the methods used to achieve a complete database for statistical analysis are also outlined. Matters regarding the response rate are also provided. In short, this chapter outlines the design and procedures of the research, population sampling, instrumentation, measurements, data collection, analysis and operational definition. This chapter also provides a discussion on the process of developing the survey instrument for this research. The discussion is divided into two sections: general appearance of the questionnaire and refinement of the questionnaire. Finally, a summary of the chapter is provided.

4.2 Research Design

Research design is a structured approach for performing market research and is known as a master plan that specifies the procedures for assessing the required relevant information and analysis (Zikmund, 2003). Cassidy (2005) stated that research design consists of two important components: (1) identifying the procedure,

plan or proposal to conduct research; and (2) interaction of philosophy, strategies of enquiry and assurance of validity. It specifies the internal procedures for gathering the business and relevant information in order to resolve the problem statement of a study.

The basic research design that was utilized in this study is survey design. The objective of the survey is to obtain specified and relevant information from the sample of respondents drawn from the population. The researcher first has to decide to what extent the specified information must be collected from the sample of respondents whether it should be collected as accurately as possible at agreed given time and reasonable cost (Neil, 2011). Mail survey are not a drawback; however, low response rates are considered as great challenges and more often than not it will create uncertainties in mail survey although an attempt is progressively carried out to ensure an adequate response rate (Dillon, & Firtle, 2000). These methods are discussed in Chapter 4. Mail survey involves sending a questionnaire by post to the selected sample of respondents.

Considering the size of the sample, costs and time factor, the use of mail survey is suitable for this study. Kanuk and Berenson (2001) emphasized that mail survey is relatively cheaper and faster, free from interview bias and enables respondents to check information and provide well thought of replies. The mailed questionnaire of this research is divided into two components. The first component of the questionnaire contains the organizational profile. The second component is also divided into six parts: questions about the leadership, operating framework, governance mechanism, compliance, risk culture and ERM implementation.

4.3. Operational Definition

The variables in the proposed conceptual framework have been conceptually defined earlier. However, these variables need to be operationalized for data collection purposes. This is dealt with in the following subsections.

4.3.1 Enterprise Risk Management Implementation

Makomaski (2008) defined ERM as an avenue for executive decision process and technically addressing multiple or variation in company goals. The UK Institute of Internal Auditors (IIA, 2004) defines ERM as a comprehensive framework and rigorous process across the organization for risk management practices. It covers the core principles of risk management process, ranging from identifying, assessing and reporting on opportunities and threats which directly may affect the achievement of corporate objectives as a whole.

The above definition of ERM involves certain fundamental concepts which can be summarized as follows: (1) a continuous process for managing uncertainties entirely within the business entity; (2) affected by intended user at multiple stages within an organization; (3) useful and adaptable in strategy planning; (4) applicable across the enterprise including but not limited to risk portfolio; (5) address or determine potential events which eventually affect the entity and to mitigate risk within its risk appetite; (6) ability to offer practical business assurance to the BODs and senior management; and (7) geared to the achievement of common goal-setting which are objectively sound compared to others.

According to Steven (2012), ERM can also be measured as follows: (1) percentage of process areas involved in risk assessment. The more the process owners are involved in risk assessments, the more accurate and forward-looking the information collected will be, both of which are hugely valuable to the organization; (2) percentage of key risks mitigated. The higher the key risks being mitigated, the higher the probability that ERM implementation will be more effective. This will help organizations to prioritize resources to the risks that need stronger coverage, rather than wasting resources on risks that will have no major impact on the organization; (3) percentage of key risks monitored where regular risk assessments enable organizations to detect increased threat levels and identify new emerging risks before they materialize; and (4) number of systemic risks identified, whereby frequent systemic risk identification can detect areas of upstream and downstream dependencies throughout the organization. Other measurements include: (1) increased risk awareness leading to the reinforcement of ERM; (2) periodic risk assessment to determine changes in a company's risk profile and performance which can increase ERM implementation; and (3) frequent review by the BODs, CEO and risk management team to discuss risk management strategy which can lead to increased ERM implementation.

4.3.2 Leadership

In this study, the researcher defines leadership as the fundamental role played by leaders in managing and leading an organization by focusing on the ultimate vision, mission, strategy and tactics in growing the business. The researcher focuses on the BOD, senior management and the CRO in ensuring the success of ERM implementation. This is because ERM implementation depends on continuous support and cooperation from every party in the organizations. Barton et al. (2002), Walker et al. (2002), Eick (2003), Kleffner et al. (2003a; 2003b), PriceWaterhouseCoopers(2004a), and Pagagh and Warr (2007) argues that firms with greater institutional ownership or stakeholders face greater challenges to set up measures that are needed in the ERM implementation.

4.3.2.1 Board of Directors

In this study, the researcher defines BOD as a platform for business organizations to undertake the role of determining organizational and business development direction, setting appetite policy, establishing corporate values and cultures as well as ascertaining the right resources for the organizational structure decided upon by the management group. Berghe and Levrau (2004), in their review, pointed out that board composition, leadership structure and size are the main requirements for ensuring a good and high quality BOD. According to Harrison (1987), the focus of the BOD committees should be more on strategic roles in terms of advising and planning the business besides specific monitoring function of the board by the nomination, remuneration and audit committees. Board composition is distinct in two different perspectives as follows: (1) the function of the board and corporate

performance is determined by the number of directors; and (2) board performance can either be positive or negative depending on the size of the board.

4.3.2.2 Senior Management Commitment

In this study, the researcher defines senior management commitment as an important group of decision makers who have a higher level of authority to shape the business. The researcher argues that senior management must be responsible for looking into: (1) establishing a common risk management policy or vision for improving the organization; (2) encouraging other managers to make process improvements; (3) supporting the process by both word and deed; (4) providing resources; and (5) actively addressing organizational incompetence. Barton et al. (2002) stated that senior management commitment is a precondition for an organization to implement ERM successfully. This is supported by Kleffner et al. (2003b) found that the existence of silo mentality and senior managers' refusal to change are constraints to ERM implementation, and can cause a lack of an organization's buy-in.

4.3.2.3 Chief Risk Officer

In this study, the researcher defines the CRO as a person who has high integrity, is well versed in industrial experience, has the credibility to engage and facilitate with business leaders and ability to advise top managers, especially the CEO. In addition, it can be reiterated that the CRO has a holistic function to establish risk function and is primarily tasked to control and monitor the ERM implementation while working with other managers on reporting the relevant risk information vertically and

horizontally. Mikes (2008) confirmed that current practices suggest that a CRO is not characteristically derived from the level of existing risk managers. This study looks into the commitment of the CRO to ERM implementation based on several characteristics: (1) frequently engaging and facilitating the executive management to further integrate the risk management portfolio into daily activities; (2) formulating a comprehensive and standardized ERM framework and model for the business enterprise; (3) preserving or sustaining a cost-benefit requirement for ERM; (4) continuously educating stakeholders on ERM practices within business operations; (5) working hand-in-hand with unit leaders in making sure that risk assessment is covered in the overall company-wide action and business strategy planning; and (6) monitoring the most significant risk compliance against the standard requirements at optimum level.

4.3.3 Operating Framework

The researcher defines operating framework as the outline of company policies which is generally described as corporate management structure. These include guiding principles on behavior, employment and promotion and contain several other general guidelines for all employees to follow. The operating framework refers to the procedures for managing workflow, policies for bidding for contracts and allocating assets to company divisions. An organization is required to develop an operating framework for risk management to achieve specific goals.

4.3.3.1 ERM Policy

In this study, the researcher defines policy as a set principle, rules and guidelines formulated or adopted by an organization to reach its long-term goals, typically published in a booklet or any other form that is widely accessible. The ERM policy is generally designed to influence all major decisions and actions within the boundaries set. However, procedures and specific methods are employed to translate policies into action in day-to-day operations of the organization. In other words, the establishment of ERM policy will ensure that a point of view held by the governing body of an organization is translated into steps or ERM programs.

4.3.3.2 Process Methodology

In this study, the researcher defines process methodology as a common framework for understanding the cyclical, ongoing nature of processes. It also analyzes the existing process for identifying improvement opportunities. The methodology further guides the business owner through process improvement implementation in conjunction with the risk management process, which includes risk identification, risk assessment, risk treatment, risk measurement and risk reporting cycle. Olsson (2007) stated that ERM process methodology ensures the success of ERM implementation, considering there are other factors, such as suitability and acceptability of the risk management process to the organization and its members, which may limit the ERM implementation.

4.3.3.3 Risk Assessment Tool

As suggested by the Sarbanes-Oxley Act's requirements (COSO, 2004), this study defines RAT as an ERM solution which provides a standard framework for risk management processes, which include identifying, controlling and mitigating risk across the organization. In this study, the researcher views RAT as the basis for aggregating risk assessment, which covers data analysis and producing risk discipline workflows to ensure the processes are automated and synchronized. The RAT provides an infrastructure for building a modern business enterprise with value-added techniques to support the risk management practices within the organization. Many listed companies in Malaysia have been found to be more flexible in ERM processes but at the same time, they pay serious attention to IT-based controls and real-time data analysis in order to ensure compliance with the Sarbanes-Oxley Act's requirements (COSO, 2004).

4.3.4 Governance Mechanism

In this study, the researcher defines governance as a formal structure which focuses on attentive and dynamic leadership and facilitation capacity at the corporate level through the AC, RMC and internal audit. This study views that ERM implementation requires a formal governance mechanism. Apparently, it is highly geared towards a strong senior level manager to administer and lead an organization's ERM framework with specified corporate risk policy, strategy alignment and centralized function with the ultimate role being to ensure the success of ERM implementation. Hence, the responsibility for ERM should be clearly ascertained and formally assigned to players in the existing governance structure.

4.3.4.1. Audit Committee

As suggested by the IIAM (2002), this study defines AC as an independent party within an organization to review the adequacy or strengths and weaknesses of an organization's internal control system. Sarens & Everaert (2009) defined effective AC as an independent committee which has high credibility, integrity and resourcefulness to safeguard shareholders' interest and ensure reliable reporting in terms of risk assessment and control environment through its diligent oversight function. Kalbers and Fogarty (1993) said that the effectiveness of an AC's oversight responsibilities can be measured by five dimensions: (1) reliability of financial reporting; (2) effectiveness of internal audit function; (3) business risk management efficiency; (4) achievement of regulation practices; and (5) reliance on internal auditing practices. The Blue Ribbon Committee (1999) illustrates the role of AC oversight as ensuring timely and high quality disclosure of financial and other information to the board and public market, having internal controls and independence and fraud prevention and detection are promptly handled with transparency and accountability.

4.3.4.2 Risk Management Committee

As suggested by KPMG (2001), this study defines RMC as a party responsible for overseeing, reviewing and monitoring the risk management practices and implementation, comprising core components of ERM processes, strategies, compliance and controls, including financial and non-financial risk exposures. This committee is important for the BOD in discharging their management responsibility

in terms of ERM practices within the business organization. Another aspect of RMC is that as a board sub-committee, its function is also to offer ERM education and establish buy-in for risk management strategy, developing ownership and reviewing the risk report at board level.

4.3.4.3 Internal Audit

As suggested by the IIAM (2002), this study defines internal audit as an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. Internal audit provides value-added services and consultancy review by ensuring a consistent disciplined approach to evaluate and improve risk management effectiveness, including the adequacy of internal control, risk management and governance processes.

4.3.5 Compliance

In this study, the researcher defines compliance as an avenue for business entities to ensure full adherence to the standards, rules and regulations. Berenbeim (2004) noted that compliance is designated as an integral part of ERM; hence, an effective value-based enterprise requires a dedicated reinforcement of compliance systems. The compliance function reviews that all relevant rules and regulations, applicable laws and code of practices are properly complied with.

4.3.5.1 Rules and Regulations

In this study, the researcher defines rules and regulations as a standard or procedure of general applicability adopted by an organization, which includes but not limited to the areas of compliance with human relations, academic, fiscal, research or other management standards and requirements. The researcher further interprets the rules and regulations as statements or procedures, other than a policy, which guide the organization to comply with standard requirements. The organizations have to comply with rules, regulations and listing requirements regarding corporate governance and risk management. Good governance ensures that roles, values, ethics and compliance to applicable laws and responsibilities are implemented in a clear ERM structure with a defined set of accountabilities.

4.3.5.2 Code of Practices

As suggested by the Malaysian Code of Corporate Governance (2013), this study defines code of practices as a core component to ensure effective corporate governance by developing a code for an organization's operations and how its core values are embedded and relate to its key stakeholders. In this study, the researcher focuses on the code of corporate governance to enable the organizations to signify that all regulators testify a proactive BOD, AC and management commitment as critical success factors for ERM implementation. A well designed code of practices, in particular a good corporate governance framework, can provide an avenue for programs designed to improve organizational performance.

4.3.6 Risk Culture

In this study, the researcher defines risk culture as the set of shared values and attitudes within the ERM parameter that determine how risk is being mitigated in an enterprise's daily operations. Douglas and Albert (2010) further interpreted that risk culture can become haphazard, resulting in significantly different risk cultures within an enterprise or even within a particular business unit, function and department. Risk culture is determined by answering several questions, such as: (1) is an organization's perspective strategic or tactical?; (2) does it view itself as evolving or more static?; (3) how are individuals recognized?; and (4) is the focus more on achievement or adhering to a process? Under risk culture, ERM tools: (1) identify risks related to corporate performance reporting and control measures; (2) provide managers with clear and accurate assessment on issue resolution based on past trends or performance which enable managers to determine the business risk exposure across the organization; (3) rationalize and standardize the risk terminology, including the weighting systems; (4) eliminate duplication on risk discipline and concurrently allow business owners to review their risks; (5) rationalize the source of information, policies, procedures and applicable regulations; (6) develop a multiple assessment review of risk at all business enterprise levels, operational level and risk discipline; and (7) develop an executive intelligent for decision-making process in a timely, accurate and visible manner related to business risk information.

4.4. Measurement of Research Variables

Table 4.1 illustrates the measurement of the variables.

Table 4.1***Measurement of Research Variables***

Variables	Measurement	Support & Source
Board of Directors	Number of independence member Board Size composition Members of the board/total Frequent BODs meeting	Kleffner et al. (2003); Mc Kinsey (2008); Yazid, Rasid & Daud (2011). For cross-sectional questionnaire data
Senior Management Commitment	Full Commitment Business Performance Availability of resources	Hoyt and Lienberg (2006). For-cross-sectional questionnaire data
Chief Risk Officer	Standardized Risk Model Cos- benefit on ERM Integrated Risk Procedures	Yazid, Rasid & Daud (2011); Liebenberg & Hoyt (2003); Daud et al. (2010). For cross-sectional questionnaire data
ERM Policy	Compliance Effective Implementation Endorsement	Fischhoff (1979); Funtowicz & Ravetz (1994). For cross-sectional questionnaire data
Process Methodology	Adequacy of process Effectiveness Continuous improvement	Harrington (1991); Preece and Preppard (1996); Hollman & Forrest (1991). For cross-sectional questionnaire data
Risk Assessment Tool	Data Efficiency Timely & up-to-date information Real-time data reporting	Ernst & Young (2008) For cross-sectional questionnaire data
Audit Committee	Financial Reporting Internal Audit Effectiveness	Louis L. Goldberg (2008) For cross-sectional questionnaire data
Risk Management Committee	Frequent RMC meeting Level of risk tolerance Level of risk awareness Linked with corporate strategy	The Economic Intelligent United Ltd. For cross-sectional questionnaire data
Internal Audit	Adequacy of internal control Effectiveness of control	Ahmad Sukri (2011) For cross-sectional questionnaire data
Rules and Regulations	Full Compliance	Collier Burke (2006) Kleffner et al. (2003)

		For cross-sectional questionnaire data
Code of Practices	Full Compliance	Zulkafli et al. (2004) Pricewaterhouse(2004) For cross-sectional questionnaire data
Risk Culture	Organization perspective Evolving or static Individual recognition Achievement or adherence Focus	AON Global Risk Consulting (2010)
Enterprise Risk Management Implementation	Percentage of process areas involved Percentage of key risks mitigated Percentage of key risks monitored Number of systemic risks identified Percentage increase in risk awareness	Steven Minsky (2012) ERM measurement & effectiveness

4.5. Data Collection Procedures and Sample Selection

The procedure of data collection and sample selection are explained in this section.

4.5.1 Data Collection

Data of this study were gathered through a survey approach. Survey is considered to be the favored tool for data collection amongst quantitative researchers (Fowler, 2009). In addition, it is one of the most common data collection methods for examining ERM implementation (Barr & Tagg, 1995; Closson, 1996; Baxter, Terenzini & Hutchings, 2002).

Survey research suits the unit of analysis of this study, which are companies listed under the Main Board of Bursa Malaysia. The survey approach facilitates data collection from the majority of respondents within a short period of time (Fowler, 2009; Zikmund, 2003). In addition, since this study involves hypotheses testing and

validation of the conceptual framework, the survey approach is considered the most suitable (Dwivedi, 2005). It is applicable to this study since as discussed in Chapter 2 and 3, this study has developed a conceptual framework and several hypotheses.

To recapitulate, survey is the most appropriate and feasible approach for this research. This involves the use of a questionnaire. The discussion on survey instrument development process is offered in Chapter 4.

4.5.2 Population and Sampling Frame

Population represents the group of people or other things that a researcher wishes to investigate (Sekaran, 2003). The units of analysis are companies listed on Bursa Malaysia. Thus, the population of this study is the listed companies on Bursa Malaysia as at 8th July 2014. The population data is derived from the Bursa Malaysia Database. The total number of companies or population (N) as at 8th July 2014 was 814. As recommended by Sekaran (2003), the sample for this study was randomly selected totaling 300 respondents.

4.5.3 Study Sampling Procedure

This study focuses on the Malaysian listed companies. Since the number of listed companies in Bursa Malaysia Database is 814, a random sampling was chosen as the sampling technique as suggested by Sekaran (2003), whereby it involves a procedure of stratification, followed by random selection of subjects from each stratum. The population was firstly divided into groups that are equally important and meaningful from the perspective of this study.

4.5.4 Sample Size Selection

This section discusses the sample of this study. As stated above, the identification of the sample is based on disproportionate stratified random sampling method by calculating the number of listed companies based on industries or services in Malaysia. A proper sampling design and size helps to draw conclusion that would be generalized to the population interest. According to Zikmund (2003), sample size is a subset or some part of a larger population. In this study the researcher used a probability sampling type namely simple random sampling to collect data from the respondent. The simple random sampling was utilized to ensure that every element in the population has an equal chance of being selected (Sekaran, 2007). To support the justification of selecting sample size, a sampling table is referred (Table 3.2). Based on the total number of 814 for the population, the total number of sample should be at least 265 respondents. However, to reduce the standard errors in the data, 300 companies are selected of which the target respondent is from the Risk Management Function of the selected listed companies

Table 4.2

Table for Determining Sample Size from a Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: “N” is population size
“S” is sample size.

Source: Krejcie and Morgan (1970)

As the total number of listed companies is 814, as recommended by Sekaran (2003), the proposed sampling size is 300 (please refer to Appendix 1.0: Master List of Data Extraction forwarded by the Bursa Malaysia as at 8th July 2014). The year 2014 was chosen due to the availability of the data and the currency of the data. The selected companies are from the Main Board of Bursa Malaysia.

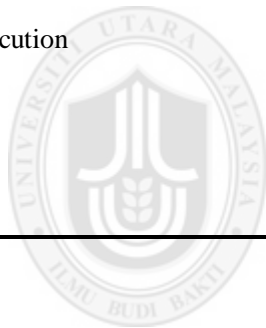
Hair et al. (1998) suggested that the minimum sample size should be at least five times the variables reviewed. A more acceptable size would have a ten-to-one ratio. The present study has 13 variables which represent dependent and independent variables including a moderating factor. The data was collected from the head of the company, head of the risk management department and CRO using mailed survey questionnaire. The sample size or the number of respondents necessary for this study was determined through the level of adopted confidence, whereby a 95% confidence level is the conventionally accepted level for most business research (Sekaran,

2003). The sampling frame or the list of elements from which the sample was drawn was obtained from the database of Bursa Malaysia. The summary of the above discussion is provided in Table 3.3

Table 4.3

Summary of Sampling Design

Target population	All listed companies on Bursa Malaysia
Sampling frame	List of public listed companies provided by Bursa Malaysia
Sampling technique	Randomly selected based on a total of 814. As recommended by Sekaran (2001), total respondents were randomly selected totaling 300 respondents
Execution	Initiated contact through phone calls or emails, sent questionnaires to those who agreed to participate in the survey



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4.6 General Appearance of the Questionnaire

According to Sekaran (2003), besides focusing on wording and measurement, it is also necessary to pay attention to how the questionnaire should look like. The following strategies were adopted to enhance the respondents' motivation to complete the questionnaire. First, a cover letter that discloses the identity of the researcher, conveys the purpose and importance of the survey and guarantees the confidentiality of the information provided by the respondents, was attached to the questionnaire (Sekaran, 2003). Second, the items were grouped based on content similarity and areas (Dillman, 1978; Sekaran, 2003). Third, the items in the questionnaire were arranged in descending order in terms of importance and

usefulness (Dillman, 1978). Fourth, the instructions on how to complete the items in each section were provided (Sekaran, 2003). Last but not least, a thank you note was mentioned at the end of the questionnaire.

4.7 Survey Administration

Prior to designing the questionnaires, the attributes of leadership, operating framework, governance mechanism and compliance were identified through the literature review as mentioned in Chapter 2. The primary research instrument is a self-administered survey questionnaire adapted from past research to gather the related information needed for the study. The use of a questionnaire is a highly common practice for ERM related research (Yazid et al., 2008; Beasley et al., 2006, 2007; Liebenberg & Hoyt, 2003). Sauders et al. (1997) stated that there are few reasons or advantages for employing the survey questionnaire. Firstly, it is highly economical for gathering a large amount of data. Secondly, analysis becomes easier. Finally, it is important for the respondent to understand the content of the survey and expected deliverables.

4.7.1 Questionnaire Development

According to Ismail (2004), there are various types of survey methods which include questionnaire, interviews, observation and content analysis. Devaus (1986) revealed that the questionnaire is the most widely used data collection technique in survey research. Thus, in this research, the questionnaire was used to collect primary data. The research data was collected using the developed questionnaire as described in the next section. This was undertaken to validate the framework of the research. Parasuraman (2004; p.342) indicated that there are no rules that can be followed to ensure a flawless questionnaire. There are two general aspects to every questionnaire: its content and its format (Sommer & Simmer, 2003)

4.7.2 The Structure of the Questionnaire

The questionnaire was designed based on four basic principles as suggested by Dilham (1978). The four principles are applied on the basis that they would increase the respondents' motivation for and confidence in completing the questionnaire. Dilham (1978) further explained that the four principles can be summarized as follows: (1) position the questions based on offensiveness to respondents after the less objectionable ones; (2) take advantage of the cognitive bind that respondents are likely to execute in deciding the order of the questions involved; (3) order the questions in descending order of usefulness; and (4) group the questions that are similar in content together and within areas. As per the above explanation and justification, this research questionnaire is divided into four main parts. Table 4.1 summarizes the structure of the questionnaire in detail. The first part (Part A) is to obtain the organizational profile, which include an initial assessment of ERM performance, alert management, adequacy of training requirement, functionality,

enablers, type of business, company's establishment and ownership. The second part (Part B) contains six sections which represent the factors influencing ERM implementation. Section One is the leadership constructs which consists of BOD, senior management commitment and CRO. Section Two is operating framework construct which consists of ERM policy, process methodology and RAT. Section Three is governance mechanism which consists of AC, RMC and internal audit. Section Four is compliance construct which consists of rules and regulations and code of practices. Section Five is on the moderating variable which is risk culture. Section Six is on the dependent variable of the research which is ERM implementation. Part C of the questionnaire is on respondents' comments and suggestions. Details about the variables are discussed in the following subsection;

Table 4.4

Summary of the Structure of the Questionnaire

Part	Section	Contents
A	Organizational Information	Organization Profile
B	Main Part	
	1 Leadership	Board of Directors Senior Management Commitment Chief Risk Officer
	2 Operating Framework	ERM Policy Process Methodology Risk Assessment Tool
	3 Governance Mechanism	Audit Committee Risk Management Committee Internal Audit
	4 Compliance	Rules and Regulations

	Code of Practices
5 Moderating variable	Risk Culture
6 Dependent variable	Enterprise Risk Management Implementation
C	Suggestion & Additional Questions

The researcher used two types of scale in the questionnaire. In the second part (Part B) of the questionnaire, the researcher used the five-point Likert scale which is developed to investigate whether the respondents agree or disagree with the statements (Cavana et al., 2001). The researcher preferred to use the five-point Likert scale since it has been proven to be the better way of communicating with the respondents (Olakunke, 2003). Mikes (2005) stated that the cross-sectional reliability is greater for five-point Likert scale rather than the seven-point Likert scale. The five-point Likert scale is summarized as follows:-

- (1) Strongly Disagree
- (2) Disagree
- (3) Neither agree nor disagree
- (4) Agree
- (5) Strongly Agree.

Below are the various types of questionnaire references conducted by previous researchers and professional practices which were used in this research:

- a) AON Global Risk Consulting (2010), Global Enterprise Risk Management Survey (2010), Business Intelligence and Risk Analysis.

- b) Ernst & Young (2008) Managing Information Technology Risk, A Global Survey for the Financial Services Industry.
- c) Goldberg and Harsh (2010) The Role of the Board in Risk Oversight , Global Survey for the Conference Board-Trusted Insight for Business Worldwide.
- d) The Economic Intelligent Unit Limited (2010) Committee of Sponsoring Organizations (COSO) of the Treadway Commission Framework Survey.
- e) Ahmad Sukri (2011) Universiti Darul Iman Malaysia (UDM) Adoption of Enterprise Risk Management (ERM) in Government-Linked Companies in Malaysia.
- f) Daud, Yazid and Rasid (2010), The Effect of Chief Risk Officer On Enterprise Risk Management (ERM) Practices: Evidence From Malaysia.
- g) Yazid, Rasid and Daud (2011) An Examination of Enterprise Risk Management Practices among the Government Linked Companies in Malaysia.
- h) Mc Kinsey (2008), Making risk management a value-adding function in the boardroom (Risk Practice).
- i) Steven Minsky (2012), How to measure enterprise risk management effectiveness.

The survey or questionnaire was distributed to the targeted respondents through email and post. Respondents were required to indicate on a five-point Likert scale, their opinions pertaining to leadership, operating framework, governance mechanism, compliance, risk culture and ERM implementation. The detail of the items are dealt with in the following subsections.

4.7.2.1 Board of Directors

This study used an instrument comprising seven items and the five-point Likert scale, to show the influence of the board of directors on ERM implementation. Five items were constructed based on the views of a number of experts such as from McKinsey and Company Risk Practice (2008); and Yazid, Rasid and Daud (2011). Another two items were constructed by the researcher. Table 4.5 illustrates the source and number of items related to BOD.

Table 4.5

The Items Related to Board of Directors

Variable	Number of Items	Source of the Items
Board of Directors	4	i) McKinsey & Company - Risk Practice (2008)
	1	ii) Yazid, Rasid & Daud (2011)
	2	iii) Self-developed

4.7.2.2 Senior Management Commitment

This study employed an instrument comprising seven items and the five-point Likert scale to investigate the influence of senior management commitment on ERM implementation. The items were constructed by the researcher. Table 4.6 illustrates the sources and number of the items related to senior management commitment.

Table 4.6

The Items Related to the Senior Management Commitment

Variable	Number of Items	Source of the Items
Senior Management Commitment	7	Self-Developed

4.7.2.3 Chief Risk Officer

This study used an instrument comprising seven items and the five-point Likert scale to investigate the influence of CRO on ERM implementation. Five items were constructed based on the study undertaken by Yazid, Rasid and Daud (2011). Another two items were developed by the researcher. Table 4.7 illustrates the sources and number of items related to CRO.

Table 4.7

The Items Related to the Chief Risk Officer

Variable	Number of Items	Source of the Items
Chief Risk Officer (2011)	5	i) Yazid, Rasid & Daud
	2	ii) Self-developed

4.7.2.4 Enterprise Risk Management Policy (EPOL)

This study used an instrument comprising seven items and the five-point Likert scale, to investigate the influence of ERM policy on ERM implementation. The items were constructed by the researcher. Table 4.8 illustrates the sources and number of the items related to the ERM policy.

Table 4.8

The Items Related to the ERM Policy

Variable	Number of Items	Source of the Items
ERM Policy	7	Self-developed

4.7.2.5 Process Methodology

This study employed an instrument comprising eight items and the five-point Likert scale to examine the influence of process methodology on ERM implementation. The items were constructed by the researcher. Table 4.9 illustrates the source and number of items related to process methodology.

Table 4.9

The Items Related to the Process Methodology

Variable	Number of Items	Source of the Items
Process Methodology	7	Self-Developed

4.7.2.6 Risk Assessment Tool

This study employed an instrument comprising seven items and the five-point Likert scale, to determine the influence of RAT on ERM implementation. Since no applicable instrument was available in the past research, the researcher utilized the measurement scale of Ernst and Young (2008) to construct five items. Another two

items were constructed by the researcher. Table 4.10 illustrates the sources and number of items related to RAT.

Table 4.10

The Items Related to the Risk Assessment Tool

Variable	Number of Items	Source of the Items
Risk Assessment Tool	5	i) Ernst & Young (2008) Managing Information Technology Risk
	2	ii) Self-Developed

4.7.2.7 Audit Committee

This study employed an instrument comprising seven items and the five-point Likert scale to investigate the influence of AC on ERM implementation. Five items were constructed based on the views of Goldberg and Harsh (2010). Another two items were constructed by the researcher. Table 4.11 illustrates the sources and number of the items related to AC

Table 4.11

The Items Related to the Audit Committee

Variable	Number of Items	Source of the Items
Audit Committee	5	i) Goldberg and Harsh (2010)
	2	ii) Self-Developed

4.7.2.8 Risk Management Committee

This study employed an instrument comprising seven items and the five-point Likert scale to investigate the influence of RMC on ERM implementation. The items were constructed based on the views of several professional experts. Since no applicable instrument was available in the past research, the researcher developed the measurement scale using COSO Framework (2011). Table 4.12 illustrates the sources and number of items related to RMC.

Table 4.12

The Items Related to the Risk Management Committee

Variable	Number of Items	Source of the Items
Risk Management Committee Organizations of	3	(i) Committee of Sponsoring Organizations of the Treadway Commission Framework (2011).
	4	(ii) The Economic Intelligent Unit Limited (2010) Committee of Sponsoring Organizations of the Treadway Commission (COSO) Framework Survey

4.7.2.9 Internal Audit

This variable comprises seven items with the five-point Likert scale to determine the influence of internal audit on ERM implementation. Five items were constructed based on the views of Ahmad Shukri (2011). Another two items were constructed by the researcher. Table 4.13 illustrates the sources and number of the items related to the internal audit.

Table 4.13

The Items Related to Internal Audit

Variable	Number of Items	Source of the Items
Internal Audit	5	i) Ahmad Sukri (2011) Universiti Darul Iman Malaysia
	2	ii) Self-developed

4.7.2.10 Rules and Regulations

This study employed an instrument comprising seven items and the five-point Likert scale to examine the influence of rules and regulations on ERM implementation. Since no applicable instrument was available in the past research, the researcher developed the measurement scale himself. Table 4.14 illustrates the source and number of items related to rules and regulations.

Table 4.14

The Items Related to the Rules and Regulations

Variable	Number of Items	Source of the Items
Rules and Regulation	7	Self-developed

4.7.2.11 Code of Practices

This study employed an instrument comprising seven items and the five-point Likert scale to determine the influence of code of practices on ERM implementation. Since no applicable instrument was available in the past research, the researcher developed

the measurement scale himself. Table 4.15 illustrates the sources and number of items related to code of practices.

Table 4.15

The Items Related to the Code of Practices

Variable	Number of Items	Source of the Items
Code of Practice	7	Self-Developed

4.7.2.12 Risk Culture

Risk culture is included as a moderator between the ERM determinants and ERM implementation. Since no applicable instrument was available in the past research, the researcher developed the measurement scale using the COSO Framework (2011); AON Global Risk Consulting (2010); Global Enterprise Risk Management Survey (2010); and Business Intelligence and Risk Analysis (2011). Overall eight items were self-developed. Table 4.16 illustrates the sources and number of items related to risk culture.

Table 4.16

The Items Related to Risk Culture

Variable	Number of Items	Source of the Items
Risk Culture (Moderating Effect)	8	i) Committee of Sponsoring Organizations of the Treadway Commission (COSO) Framework (2011).
	2	ii) AON Global Risk Consulting (2010), Global Enterprise Risk Management Survey 2010, Business Intelligence and Risk Analysis
	8	Self-Developed

4.7.2.13 Enterprise Risk Management Implementation

ERM is included as a dependent variable to test the ERM implementation. Since no applicable instrument was available in the past research, the researcher developed the measurement scale using the study conducted by Minsky (2012). Another seven items were constructed by the researcher. Table 4.17 illustrates the sources and number of items related to ERM implementation.

Table 4.17

The Items Related to the Enterprise Risk Management Implementation

Variable	Number of Items	Source of the Items
ERM Implementation	7	Steven (2012), How to measure ERM (2012)
	7	Self-Developed

4.8 Refinement of the Questionnaire

Several scholars have suggested that the reliability and validity of the developed items in the questionnaire must be evaluated (Sekaran, 2003; Straub et al., 2004). Thus, before gathering the primary data, several steps were carried out to further refine the questionnaire of this research. The researcher undertook three steps: content validity, pre-testing and pilot study to further improve the reliability and validity of the questionnaire. This strategy is in tandem with the one suggested by Sekaran (2003) and Straub et al. (2004). Table 4.18 summarizes the list of study variables included in the various stages of refinement of the questionnaire.

Table 4.18

List of Study Variables Included in the Various Stages of Refinement of the Questionnaire

No.	Study Variables	Content Validity	Pre-Testing	Pilot Study
1.	Board of Directors	Yes	Yes	Yes
2.	Senior Management Commitment	Yes	Yes	Yes
3.	Chief Risk Officer	Yes	Yes	Yes
4.	Internal Audit	Yes	Yes	Yes
5.	ERM policy	Yes	Yes	Yes
6.	Process Methodology	Yes	Yes	Yes
7.	Risk Assessment Tool	Yes	Yes	Yes
8.	Audit Committee	Yes	Yes	Yes
9.	Risk Management Committee	Yes	Yes	Yes
10.	Rules and Regulations	Yes	Yes	Yes
11.	Code of Practices	Yes	Yes	Yes
12.	Risk Culture	Yes	Yes	Yes
13.	ERM implementation	Yes	Yes	Yes

4.8.1 Content Validity

As stated in Chapter 3, the process of constructing items in this research began with a review of the relevant theories and previous research work (Selamat & Choudrie, 2007; Lohman, 2009). Items (statements) considered to be relevant were then constructed in this research. To further check for content validity, several rounds of meeting with different experts were conducted (Hair et al., 2006; Straub et al., 2004). For this purpose, personal communications were held between the researcher and the CRO or Head of Risk Management Division during the engagement session. In addition, three academicians who are experts in the field of study were also consulted. Several recommendations from the experts were taken into consideration, as illustrated in the following Table 4.19

Table 4.19

Content Validity Procedure

Content Validity				
No	Examiner Name	Profession & Address	Engagement Date	Remarks
1	Private lecturer & industry practitioner	UUM Graduate -DBA Chief Internal Auditor BURSA MALAYSIA BERHAD	24TH December 2014 at his corporate Office	As per questionnaire sheet
2	Private lecturer & industry practitioner	UUM Graduate -DBA Director of Philips Singapore	24th December 2014 at his house Tman Sjudai	As per questioniate sheet
3	Senior Lecturer Management Faculty Human Resource Division University of Technology Malaysia (UTM)	Senior Lecturer ar UTM Skudai Administartor	23rd December 2014 at UTM Management Faculty	As per questioniate sheet
4	Senior Lecturer University Technology Mara Segamat / Seri Alam Johor	Senior Lecturer- in Economic	25th December 2014 at his home resident Taman Hamoni Skudai	As per questionnaire sheet
5	Senior Lecturer & Deputy Director	Deputy Director Institute Sultan Iskandar of Urban Habit and Highrise University Technology Malaysia - UTM Skudai	25th December 2014 at his home resident Taman Mutiara Rini	As per questionnaire sheet

Recommendations were also made to amend the items or questionnaire for some of the sections, such as BOD, senior management commitment, internal audit, process methodology, AC and code of practices. Several experts believed that the quality of information is important to maintain confidentiality amongst respondents so that their identity is protected and their responses are for academic purposes only.

4.8.2 Pre-Testing

It is important to pre-test the questionnaire to ensure that the respondents understand the given items and there are no problems with the wording or measurement (Sekaran, 2003). Pre-testing involves the use of a small number of respondents to test the appropriateness of the items and their comprehension (Sekaran, 2003). Boyd, Westfall and Stasch (1977) recommended that a sample of 20 is satisfactory for pre-testing. In addition, the pre-testing should use the respondents who are as similar as possible to the targeted respondents (Royal, 1986). To fulfill all these requirements, 20 questionnaires were pre-tested on random samples from various parties, such as industrial players, professional experts and academicians.

During pre-testing the questionnaire, five fundamental issues were addressed, namely: the length of the questionnaire, the understandability of the items, the suitability of the scales, the design of the questionnaire and the time required to complete the questionnaire (Hunt, Sparkman & Wilcox, 1982; Sekaran, 2003). All targeted respondents for pretesting were located within the Southern Economic Regions, as illustrated in Table 4.20. This was due to convenience and proximity factors.

Table 4.20

Pres-Test - Group Respondent (N = 20)

No	Respondent	Category	No Respondent
1	Johor Corporation	Industry Practice	3
2	Port of Tanjung Pelepas	Industry Practice	3
3	UTM Skudai	Academic	6
4	UITM	Academic	3
5	IRDA	Industry Practice	2
6	Iskandar Investment Bhd	Industry Practice	2
7	Professional Team	Professional / Consultant	1
	Total Pre-Test		20

Table 4.21 indicates that 16 (80%) of respondents opined that the length of the questionnaire is appropriate; 19 (95%) respondents reported that the items can be understood; and 19 (95%) of them indicated that the scales used are suitable to measure the items. Fourteen (70%) respondents opined that the design of the questionnaire is suitable for mail survey. In addition, the respondents spent between 10 to 20 minutes to complete the questionnaire. Since the results of the pre-testing were quite encouraging, modification was not required.

Table 4.21

Pre-Test Results (N=20)

No	Questions	Frequencies	Percentage
1	Is the length of the questionnaire appropriate		
	<i>Yes</i>	16	80
	<i>No</i>	4	20
2	Are the items understandable to answer?		
	<i>Yes</i>	19	95
	<i>No</i>	1	5
3	Are the scales suitable to measure the items:		
	<i>Yes</i>	19	95
	<i>No</i>	1	5
4	Is the design of the questionnaire suitable for mail survey?		
	<i>Yes</i>	14	70
	<i>No</i>	6	30
5	How long it takes to complete the questionnaire?		
	<i>Between 10 and 15 minutes</i>	11	55
	<i>Between 16 and 20 minutes</i>	9	45

4.8.3 Pilot Study

This subsection discusses the empirical results and analysis process for the pilot study. One of the advantages of conducting a pilot study is that it might provide advance warning about where the main research project could fail, where research protocols may not be followed or whether proposed methods or instruments are inappropriate or too complicated. This is in tandem with the statement made by DeVaus (1993) whereby he said, “Do not take the risk. Pilot test first.” (p.54). Thus, the purpose of undertaking the pilot study in this research was to establish the reliability of the survey instrument. The refined survey instrument was then used to collect and analyze primary data of this research. A pilot study was conducted with 20 respondents that were selected within the Southern Region, representing industrial practitioners, professionals and academicians. Table 4.22 illustrates the information of the selected respondents. All questionnaires were returned and can be used for data analysis.

Table 4.22

Pilot Test Environment – Group Respondents (N=20)

No	Respondent	Nature of Business	No Respondent	Category
1	Johor Corporation	Properties	1	Industry
2	Port of Tanjung Pelepas	Logistic & Transport	1	Industry
3	Iskandar Investment Bhd	Property	1	Industry
4	Zara Foodstuff (M) Sdn Bhd	Food Industry	1	Industry
5	IRDA	Property	1	Industry
6	Kulim Berhad	Plantation	1	Industry
7	Mutiara Rini Development (M) Sdn Bhd	Property	1	Industry
8	Johor Port Berhad	Logistic & Transport	1	Industry
9	Senai Airport Terminak Services	Logistic & Transport	1	Industry
10	Maybank (M) Berhad- Johor Bahru	Finance	1	Industry
11	RHB Bank (M) Berhad	Finance	1	Industry
12	Pan Pacific Hotel JB	Hospitality	1	Industry
13	Century Logistic Sdn Bhd	Logistic & Transport	1	Industry
14	Massif Bina Construction Sdn Bhd	Construction	1	Industry
15	UEM Sunrise (M) Bhd- Nusajaya Johor	Property	1	Industry
16	Public Mutual Trust Fudn	Trust Fund - Finance	1	Industry
17	Kimloong Construction Sdn Bhd	Construction	1	Industry
18	UM Land (M) Bhd -Pasir Gudang	Property	1	Industry
19	Country Garden Group	Property/ Infrastructure	1	Industry
20	Professional Team / Consultancy	Consultancy	1	Industry

In order to examine the internal consistency of the survey instrument, the Cronbach's alpha values were calculated. Table 4.23 illustrates the results for the Cronbach's alpha values for all variables. Overall, the Cronbach's alpha values for all variables of the pilot study varied between 0.755 for risk culture and 0.877 for ERM policy. Ten variables possessed Cronbach's alpha values above 0.80 (BOD, senior management commitment, CRO, ERM policy, process methodology, risk assessment tool, AC, rules and regulations, code of practices) and another three between 0.70 and 0.80 (internal audit, RMC, risk culture). In other words, none of the variables of this research pilot study demonstrated values below the minimum reliability level (<0.60) (Hair et al., 2006). The good Cronbach's alpha values for all variables imply that they are internally consistent and measure the same variables (Sekaran, 2003).

Table 4.23

Reliability Analysis of the Instrument

Construct	N of item	Cronbach Alpha
Leadership		
Board of Directors	7	0.826
Senior Management Commitment	7	0.833
Chief Risk Officer	7	0.858
Operating Framework		
ERM Policy	7	0.877
Process Methodology	7	0.826
Risk Assessment Tool	7	0.833
Governance Mechanism		
Audit Committee	7	0.858
Risk Management Committee	7	0.771
Internal Audit	7	0.771
Compliance		
Rule and Regulations	7	0.877
Code of Practices	7	0.826
Risk Culture	18	0.755
Enterprise Risk Management Implementation	14	0.803

To recapitulate, as the results of the pilot study are considered acceptable, the survey instrument did not require any modification and was considered appropriate for the primary data collection.

4.9 Survey Procedure

This study utilized stratified random sampling as a sampling technique (Sekaran, 2003; Fowler, 2009; Babin & Griffin, 2010). Stratified random sampling, as its name implies, involves a process of stratification or segregation, followed by random selection of subjects from each types of industries (Sekaran, 2003; Fowler, 2009;

Babin & Griffin, 2010). It allows every element in the population to have equal probability of being chosen (Sekaran, 2003). It also has the least bias and offers the most generalizability (Sekaran, 2003). A total of 300 PLCs on Bursa Malaysia's Main Board were randomly selected. The questionnaires were distributed to the CEO and CRO or Head of Risk Management Division.

The main advantage of mail survey is that a wide geographical area can be covered in the survey (Sekaran, 2003). Since the respondents of this study are randomly selected, mail survey is considered the most appropriate one. Mail survey is less expensive compared to other survey methods, such as face-to-face interview and telephone calls (Ahmad-Mahdzan, 2003; Fowler, 2009). This method is expected to provide a high precision rate if the questionnaires are returned at the same time or nearly at the same time (Ahmad-Mahdzan, 2003). Besides that, mistakes or errors caused by enumerators can be avoided (Ahmad-Mahdzan, 2003). Another advantage of this approach is that the respondents can complete the questionnaires at their own convenience, such as in their house or at the workplace (Sekaran, 2003).

However, there are several disadvantages when using mail survey. The response rate of mail survey is typically low. Techniques used to achieve a better response rate include enclosing a cover letter, increasing the sample size, doing follow-up through telephone, enclosing tokens as incentives with the questionnaire and providing the respondents with self-addressed and stamped return envelopes (Sekaran, 2003). In addition, mail survey is not suitable for complicated and difficult survey questions (Ahmad-Mahdzan, 2003). This problem was overcome by conducting a survey instrument development process (see Chapter 5). In this way, feedback and findings

received from the instrument development process were utilized to improve the questionnaire. Another disadvantage of mail survey is that any doubts the respondents might have cannot be clarified (Sekaran, 2003). This problem was minimized by forming clear, concise and specific items in the questionnaire. This problem is beyond the control of the Head of Risk Management of the listed companies. In the cover letter, the respondents were asked to offer sincere views. Bearing the advantages and disadvantages of mail survey in mind, it was then employed in this research.

4.10 Data Collection

As the main focus of this research is to examine the determinants of ERM implementation amongst PLC in Malaysia, the use of primary data is considered appropriate. Primary data was collected using mailed questionnaires sent to the Head of Risk Management Department or CRO or the person designated by the CEO of listed companies in Malaysia. The questions were firstly pre-tested in a pilot study before administering it into the main study which started in the month of December 2014. This action allowed the researcher to evaluate the likely accuracy and consistency of the responses (Hair et al., 2007). After the design and procedures were modified and the constructs validated, the real data collection began. This involved the cooperation from Bursa Malaysia that helped in determining the sample of this research. The traditional mailed questionnaire is the best alternative when information has to be gathered or collected from a sample that is physically detached (Sekaran, 2003).

In this research, the following guidelines were used to ensure the best response rates possible: (1) the developed questionnaire was pre-assessed twice on its tolerability; (2) confidentiality of results and anonymity of respondents were applied; (3) the covering letters were signed by researcher; (4) reply-paid envelopes were included with the questionnaires to facilitate the return of the questionnaire; (5) a provision was created to choose between fax, post box or email address; and (6) follow-up action on the status of the survey was done. After a few days of posting the questionnaires, a follow-up process via phone call or email was undertaken to ensure that respondents had received the questionnaire; (7) the return date for the questionnaire was included in the covering letter to assist in the second follow-up. A week after the expiry, a second questionnaire was either faxed or emailed to all non-respondents; (8) posting of the questionnaire was carried out in the second week of the month to ensure that the respondents received the questionnaire; and (9) no rewards or incentives were provided for completion of questionnaire. However, respondents could indicate whether they require the results of the survey, which would be supplied to them free of charge.

4.11 Unit of Analysis

The unit of analysis of this study is business organizations or companies listed on Bursa Malaysia. As at 8th July 2014, the total number of listed companies was 814 and a sample of 300 companies were randomly selected, as recommended by Sekaran (2003).

4.12 Respondents

The respondents are the persons in charge of risk management or who actually oversee the company-wide risk management division. The respondents are the key persons in charge of risk management department because the researcher would like this study to be consistent with other studies.

4.13 Data Analysis Techniques

This section discusses the data analysis technique adopted in this study. The data analysis software which was used in this research is SPSS version 16.0. The analysis consisted of four stages: (1) data and variable quality test; (2) descriptive analysis and t-test; (3) multiple regression analysis; and (4) hierarchal multiple regression test. The technique for data analysis for this study is explained in the following subsections.

4.13.1 Data Examination

The first stage of data analysis of this study was data examination and it involved two main steps, namely: data screening and data testing to fulfill the multivariate assumptions. This stage is essential to ensure that the data met requirements for multivariate analyses, such as factor analysis and standard multiple regressions analysis (Hair et al., 2006)

4.13.1.1 Data Screening

The purpose of data screening is to clean the data to a format more suitable for multivariate analysis (Hair et al., 2006). For data screening, three tests were performed: missing data, response bias and outliers identification.

4.13.1.2 Missing Data

Missing data can be defined as valid values when one or more variables is/are not available for analysis (Hair et al., 2006). Two options are available when dealing with missing data (Hair et al., 2006). If the sample is adequate, the questionnaires that have missing data can be excluded from the research. However, if excluding the questionnaires that have missing data results in inadequate sample size for statistical analyses, remedies for missing data can be applied, such as the mean substitution method (Hair et al., 2006).

4.13.1.3 Response Bias

Response bias test is performed to examine whether there is a significant difference between early and late response groups. For this purpose, the early response group was coded as '1' and the late response group was coded as '2'. A period of four weeks was utilized as a benchmark to demarcate between the two groups. This four-week period was considered to be adequate for the respondents to complete and return the questionnaires to the researcher. Chi-square tests and independent sample *t*-tests were run to both groups. The chi-square test was conducted for categorical

variables (demographic profiles) of respondents, such as gender, age or numbers of years. Independent sample t-tests were conducted on the study variables. Significant values ($p < 0.05$) for both tests indicate the existence of response bias while non-significant values ($p > 0.05$) indicate the reverse (Coakes & Steed, 2003; Pallant, 2010).

4.13.1.4 Outliers Identification

Outliers are observations with a unique combination of characteristics distinctly different from the other observations (Hair et al., 2006). This research used multiple regressions to detect both univariate outliers on dependent variable and multivariate outliers on independent variables (Coakes & Steed, 2003). Univariate outliers can be detected using studentized residuals. Studentized residuals are z-scores computed for a case based on the data for all other cases in the data-set (Coakes & Steed, 2003). Coakes and Steed (2003) suggested that a case in the data-set is univariate outlier if the z-score for studentized residual is greater than ± 3.0 . Meanwhile, multivariate outliers can be detected by 127 Mahalanobis distances that are presented in the data set (Pallant, 2005). To identify which cases are multivariate outliers, the researcher determined the critical chi-square value using the number of independent variables as the degree of freedom at alpha level of 0.001 (Pallant, 2005; Tabachnick & Fidell, 2001). In this study, there are four independent variables, namely: leadership, operating framework, governance mechanism and compliance. Any of the cases in the data-set that have a Mahalanobis distance value exceeding this value was designated as multivariate outlier. The identified univariate and multivariate outliers were removed from this research.

4.13.2 Data Testing – Tests on Multivariate Assumptions

Multivariate assumption tests are the foundation for making conclusions and providing statistical results (Hair et al., 2006). They are also a pre-requisite before factor analysis and standard multiple regression analysis can be performed (Hair et al., 2006). There are four tests to meet the multivariate assumptions: normality, linearity, homoscedasticity and multicollinearity (Hair et al., 2006).

4.13.2.1 Normality

The first multivariate assumption is normality. Data normality test is important to assess whether or not the score for each variable is normally distributed (Hair et al., 2006). This research utilized statistics for skewness and kurtosis to assess the normality of data because they are appropriate (Coakes & Steed, 2003). Skewness and kurtosis refer to the shape of the distribution (Coakes & Steed, 2003). Positive values for skewness indicate a positive skew, while positive values for kurtosis indicate a distribution that is peaked. On the other hand, negative values for skewness indicate a negative skew, while negative values for kurtosis indicate a distribution that is flatter (Coakes & Steed, 2003). Normality of data is assumed if statistics for skewness and kurtosis are less than ± 2.58 (as suggested by Coakes & Steed, 2003; Hair et al., 2006). If the statistics for skewness and kurtosis are more than ± 2.58 , transformation is an option that is available to the researcher (Coakes & Steed, 2003).

4.13.2.2. Linearity

The second test to meet the multivariate assumption is linearity. The function of linearity test is to evaluate whether the relationship between the independent and dependent variables of this research is linear or otherwise. This research used residual scatterplots to test this assumption (Coakes & Steed, 2003). From the scatterplot of residuals against predicted values, assumption of linearity is achieved if there is no clear relationship between the residuals and the predicted values (Coakes & Steed, 2003).

4.13.2.3 Homoscedasticity

The next multivariate assumption is homoscedasticity. Homoscedasticity is defined as the assumption that dependent variable(s) show/s similar level of variance across the range of independent variables (Hair et al., 2006). For this purpose, Levene test was conducted on the metric variables against the non-metric variable (gender) of this research (Hair et al., 2006). Homoscedasticity assumption is achieved if the relationship between the metric and non-metric variable is not significant ($p > 0.001$). Meanwhile, the data is said to be heteroscedastic if the relationship between these variables is significant ($p < 0.001$) (Coakes & Steed, 2003; Hair et al., 2006)

4.13.2.4 Multicollinearity

The last multivariate assumption is multicollinearity. Multicollinearity is defined as high correlations amongst two or more independent variables (Hair et al., 2006). Hair et al. (2006) argued that the existence of multicollinearity negatively affects the predictive power of each independent variable. This research used Pearson product-moment correlation coefficient, tolerance and variation inflation factor (VIF) to trace if data suffers the problem of multicollinearity. Based on Pearson product-moment correlation coefficient, multicollinearity problem exists if the correlation between independent variables is above 0.80 (Hair et al., 2006). Based on the tolerance and VIF, data suffers multicollinearity problem if the tolerance value is below a common cut-off threshold value, which is 0.10. This value corresponds to a VIF value of 10 as recommended by Hair et al. (2006).

4.13.3 Goodness of Measures

The second stage of data analysis of this study is to establish the goodness of measures for testing the research hypotheses. To achieve this, the data of this study were initially submitted for reliability and validity tests.

4.13.3.1 Validity Test

Gay and Diehl (1996), Sounders et al. (2007), and Zikmond et al. (2010) argued that validity can be considered as the extent to which the instrument measures what it is intended to measure. It is important to conduct validity test to ensure that the

instrument used in this study shows that the outcomes are based on the required measurement. According to Sounders et al. (2007), there are three groups of validity test: (1) criterion-related validity; (2) construct validity; and (3) content or face validity. However in this study, the researcher undertook content validity and construct validity tests only. These two tests are considered adequate for determining validity of the research instrument (Preece & Peppard, 1996).

Hair et al. (2006) argued that content validity must be established prior to any statistical analyses. In general, content validity is an issue of representation (Straub et al., 2004). Specifically, it refers to the degree to which items in an instrument reflect the business universe to which the instrument will be generalized (Straub et al., 2004). Straub et al. (2004) argued that empirical assessment of this validity is generally not required. Thus, content validity of this research was established through literature review and expert panel's recommendation (Sekaran, 2003; Straub et al., 2004). The second type of validity is construct validity, which testifies how well the results obtained from the use of the measure fit the theories around which the test is designed (Zikmund, 2003). To measure this type of validity, factor analysis test was used.

4.13.3.2 Reliability

In simple words, reliability can be defined as consistency. A measurement is regarded as reliable if it yields the same results when the same technique is applied repeatedly on the same respondents over a different period of time (Baddie, 2001). The well-known or popular measurement for reliability is the value of Cronbach's

alpha, which ranges from 0 to 1. According to Nunnally (1978), the value of 0.6 is the acceptable alpha value for research in general. In the present review, Cronbach's alpha reliability test was conducted to ensure internal consistency of the measurement items. In this regard, reliability test was performed after the factor analysis, and the outcome of the testing for each factor is summarized after each factor analysis.

4.13.4 Descriptive Analysis

A descriptive report describes the phenomena of interest in a given situation (Sekaran, 2003). Descriptive analysis is also used to describe the frequency of distribution of the data, including cross-tabulation, specific research questions and its measurement.

4.13.5 Demographic Statistics

This section discusses the organization's general information and provides detailed updates on information about the respondents. The information includes the background of the companies, types of business, age of company and ownership.

4.13.6 Correlation Analysis

Correlation analysis was carried out to determine the relationship among variables studied. In correlation analysis, correlation coefficient (r) illustrates the level of relationship between variables. The number representing the Pearson correlation is

referred to as a correlation coefficient. It ranges from -1.00 to $+1.00$, with zero representing absolutely no association between the two metric variables. The larger the correlation coefficient, the stronger the linkage or level of association. A strong correlation is represented by a coefficient exceeding the value of 0.5 , whereas a medium or modest correlation is when the coefficient has a value of between 0.5 and 0.2 . Any coefficient possessing a value less than 0.2 will be deemed as showing a weak correlation.

4.13.7 Hierarchical Multiple Regression Test

Hierarchical multiple regression is normally applied to validate theoretically-based hypotheses (Cohen, 2001). It involves hypotheses due to the fact that predictors are also relevant in the analysis. According to Petrocelli (2003), the change in predictability is linked to predictor variables entered later in the analysis. The hierarchical multiple regression tests would eventually focused and contributed by predictor variables. The sets of variables are entered in steps with each independent variable being reviewed in terms of forecasting between the dependent variable and moderator. The hierarchical multiple regression will test the equation

4.14 Summary

This chapter discusses the proposed methodology for the research. It is important to outline the correct design and procedures of the research in order to ensure the viability and validity of the research later. Based on the conceptual framework, 12 hypotheses are developed. This research adopted disproportionate stratified random sampling technique. The sample was 300 respondents based on the listed companies as at 8th July 2014 provided by Bursa Malaysia. Approximately one and half months were spent for data collection process, which started from end of December 2014 until the middle of February 2015. To determine the significant level of dependent and independent variables, the data analysis techniques adopted in this study are also discussed. This chapter also describes in-depth the survey instrument development process. The process is important to establish validity and reliability of the instrument. Data analysis and results of this research are presented in the next chapter.

CHAPTER FIVE
DATA ANALYSIS AND FINDINGS

5.1 Introduction

This chapter discusses the findings of this research. Respondents' response rate is discussed in section 5.2 while section 5.3 explains the non-response bias. The goodness of the data is explained in section 5.4. Respondents' profile is described in section 5.5. Finally, SPSS version 16 is used to analyze and interpret the data. This chapter ends with a summary.

5.2 Response Rate

In this study, the researcher decided to randomly choose 300 respondents from the listed companies on Bursa Malaysia As the total number of listed companies is 814, as at 8th July 2014, as recommended by Sekaran (2003), the proposed sampling size is 300. Hence, 300 questionnaires were distributed to the respondents based on random basis. The questionnaires were distributed in late December 2014 until middle of February 2015. The returned questionnaires were 162. After checking all the questionnaires, the researcher found that eight questionnaires were badly completed. The researcher excluded those questionnaires due to their incompleteness. Hence, 154 questionnaires were considered usable for analysis procedure. Table 5.1 summarizes the distribution of the questionnaire.

Table 5.1

Response Rate to Questionnaire

Response	Frequency Rate
Distributed questionnaire	300
Returned questionnaire	162
Usable questionnaire	154
Not returned questionnaire	138
Badly completed questionnaire	8
Response rate	54%
Usable response rate	51.33%

5.3 Data Examination

Data examination in this study involved data screening and data testing, which aim to meet the multivariate assumptions (Hair et al., 2006).

5.3.1 Data Screening

Data screening or cleaning is essentially important before further analysis of the data collection is carried out (Tabachnick & Fidell, 2001). Data was screened and cleaned to ensure the accuracy of the data collected. This was done by analyzing the original data collected against the source data file. Following Tabachnick and Fidell (2001), data cleaning in this study involved checking the accuracy of the data input, dealing with missing values, detecting and treating the outliers and assessing the response bias.

5.3.1.1 Missing Data

Hair et al. (2006) describe missing data as “*information not available for a case about whom other information is available*”. Missing data for this study was reduced by checking for errors in all the variables at the point of time they were collected. Any unanswered questions were referred back to the respondents. To ensure that all the data were cleaned, frequency distribution and missing value analysis for each variable were conducted. No missing data was found.

5.3.1.2 Response Bias

The issue of non-response bias occurs in statistical surveys if the answers of respondents differ from the potential answers of those who did not answer. For purposes of this research, non-response bias is defined as a bias that exists in survey results when respondents to a survey are different from those who did not respond in terms of demographic or attitudinal variables, or other variables relevant to the survey topic (Coakes & Steed, 2003; Pallant, 2005). It is a function of: (1) the proportion of non-respondents in the total sample; and (2) the extent to which there is a systematic discrepancy between respondents and non-respondents on variables relevant to the inquiry. The presence of non-response bias is a threat to the external validity or generalizability of research findings to the target population of a study (Coakes & Steed, 2003; Pallant, 2005). A well-designed survey and a research-based administration method, following generally acceptable protocols and procedures as well as reporting them in the research analysis, are the first-steps in the attempt to

increase response rates and also control for non-response bias (Coakes & Steed, 2003; Pallant, 2005).

Response bias test was performed to examine whether there is a significant difference between early and late response groups. For this purpose, the early response group was coded as '1' and the late response group was coded as '2'. A period of four weeks was utilized as a benchmark to demarcate between the two groups. The time period is assumed to be sufficient for the respondents to complete and return the questionnaires to the researcher. Independent sample t-tests were conducted on the continuous variables. Significant values ($p < 0.05$) for both tests indicate the existence of response bias while non-significant values ($p > 0.05$) indicate the reverse (Coakes & Steed, 2003; Pallant, 2005).

For the purpose of this study, 94 respondents were treated as the 1st group respondents as they returned the questionnaires in two weeks starting early January 2015. The other 60 respondents were treated as the second group (late reply) as they returned the questionnaire in the middle of January 2015. Mean score for all variables were then computed for both group. The mean scores were compared to examine the differences between the group of responses. The results are shown in Table 5.2. It is found that there are no differences between the two group of responses for all variables. Hence, the data used in this study is free from response bias.

Table 5.2:

Independence Sample t-test for non-response bias test

	Mean		t	Sig.
	1 st wave	2 nd wave		
Enterprise Risk Management Implementation	4.23	4.19	.615	.874
Leadership	4.36	4.27	1.250	.647
Operating Framework	4.22	4.21	.042	.648
Governance	4.00	3.99	.094	.120
Compliance	4.20	4.12	.786	.255
Risk Culture	4.21	4.11	1.217	.138

5.3.1.3 Outliers Identification

The third test of data screening is the identification of outliers. To assist in detecting outliers, this study employed the Mahalanobis D^2 . Mahalanobis D^2 is a multidimensional version of a z-score. It measures the distance of a case from the centroid (multidimensional mean) of a distribution, given the covariance (multidimensional variance) of the distribution. A case is considered as a multivariate outlier if the probability associated with its D^2 is 0.001 or less. D^2 follows a chi-square distribution with degrees of freedom equal to the number of variables included in the calculation. From the analysis, the data of this study showed no cases of D^2 probability score (p) less than 0.001. Thus, no variable is treated as outliers and none was deleted from the data.

5.3.2 Tests on Multivariate Assumptions

After screening the data, tests to meet four assumptions of multivariate analyses were conducted: normality, linearity, homoscedasticity and multicollinearity (Hair et al., 2006). The results of the tests are discussed in the following subsections.

5.3.2.1 Normality test

Normality for all of the data was examined for each item based on the statistical and visual approach. The descriptions of the findings are offered in subsections 5.3.2.1.1 and 5.3.2.1.2.

5.3.2.1.1 Statistical Approach

The data normality distribution was evaluated by the skewness and kurtosis values for each variable. Skewness values illustrate the symmetry of the allocation score and a skewed variable mean the score is not be at the center of the distribution, whereas kurtosis is about the peakedness of distribution which can be either too peaked for instance with short and thick tail or too flat with long and thin tail (Tabachnick & Fidell, 2001). Normal distribution is considered when value of skewness and kurtosis is at zero (0). Positive skewness value will have a cluster of cases to the left at a low value and negative skewness will have the score cluster or pile at the right side with a long left tail (Tabachnick & Fidell, 2001). Kurtosis with values of below zero (0) indicate a relatively flat distribution known as “platykurtic” and the kurtosis values above zero (0) indicate a peaked distribution or “leptokurtic” as recommended by researchers that samples be large enough to prevent underestimation of variance. Seldom will perfect normality assumption be achieved. However, Hair et al (2006) recommend the rejection of the normality assumptions at absolute values of $+3.29$ at $p < 0.001$ significance level; ± 2.58 at $p < 0.01$ significance level; and ± 1.96 at $p < 0.05$ significance level. In order to assess the normality of the variables, the above suggestions were applied and noticeably, none

of the variables fell outside the ± 3.29 at $p < 0.001$ probability range level. This was expected as the sample size was 154. Table 5.3 summarizes the kurtosis and skewness for all the variables. The data shows the variables are normally distributed. Therefore, in conclusion, all the variables do not deviate from the normality test requirement.

Table 5.3:

Skewness and Kurtosis for the Variables

	Skewness		Kortosis	
	Statistic	SE	Statistic	SE
Leadership:	-.529	.195	-.437	.389
Operating Framework:	-.548	.195	-.048	.389
Governance:	-1.114	.195	1.489	.389
Compliance:	-1.032	.195	1.304	.389
Risk Culture	-.620	.195	.601	.389
Enterprise Risk Management Implementation	-.306	.195	-.252	.389

5.3.2.1.2 Visual Approach

The other step in analyzing the data for this study is to examine the normality of the data by assessing the shape of distribution. A test was conducted to determine normality using visual inspections. An informal approach to test normality is to compare a histogram of the sample data to a normal probability curve. The empirical distribution of the data (the histogram) should be bell-shaped and resemble the normal distribution. Figure 5.1 illustrates that the data for leadership is within the normality line; hence, the data for leadership is within the normal curve distribution.

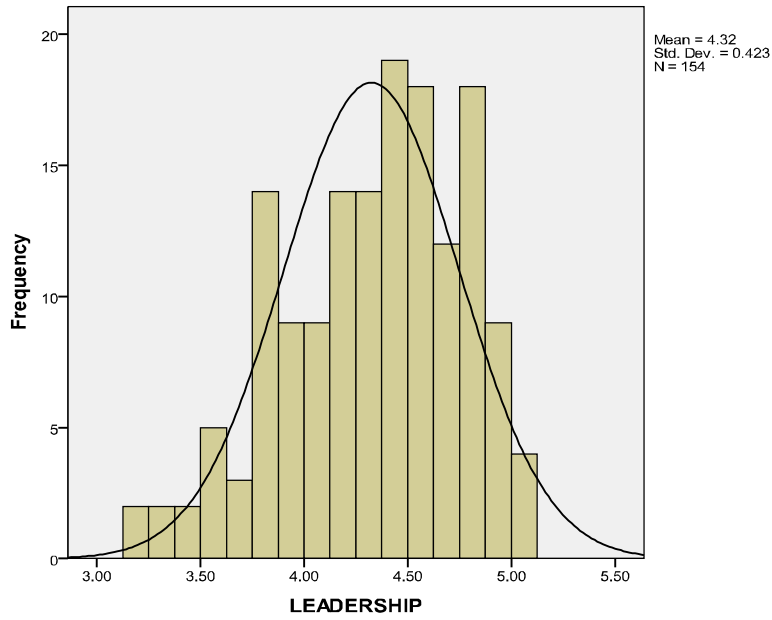


Figure 5.1: Histogram of Leadership

Figure 5.2 illustrates that the data for operating framework is within the normality line; hence, the data for operating framework is within the normal curve distribution.

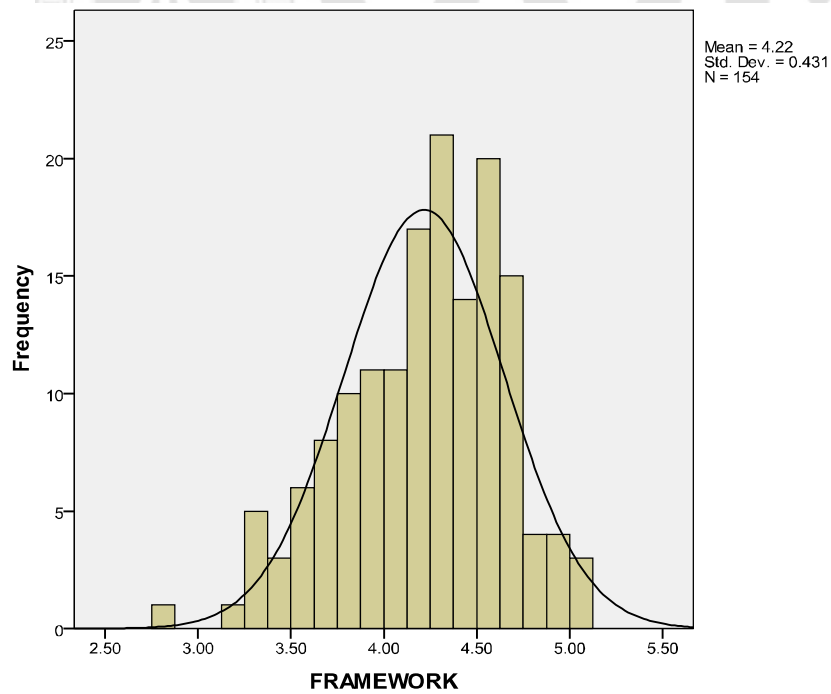


Figure 5.2: Histogram of Operating Framework

Figure 5.3 illustrates that the data for governance mechanism is within the normality line; hence, the data for the governance mechanism is within the normal curve distribution.

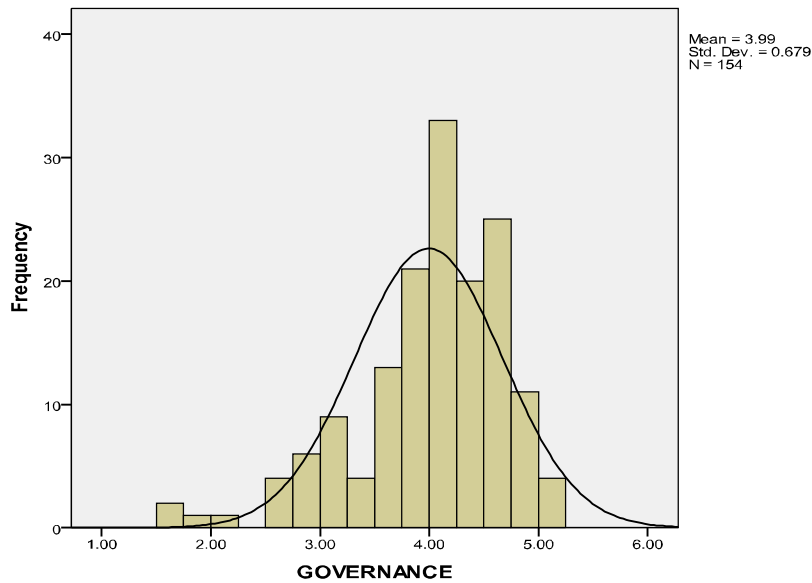


Figure 5.3: Histogram of Governance Mechanism

Figure 5.4 illustrates that the data for compliance is within the normality line; hence, the data for compliance is within the normal curve distribution.

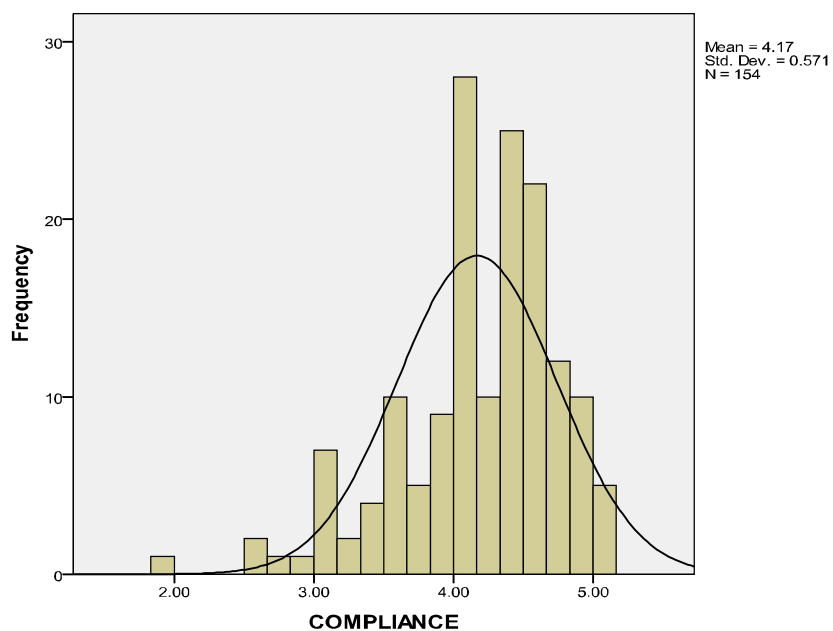


Figure 5.4: Histogram of Compliance

Figure 5.5 illustrates that the data for risk culture is within the normality line; hence, the data for risk culture is within the normal curve distribution

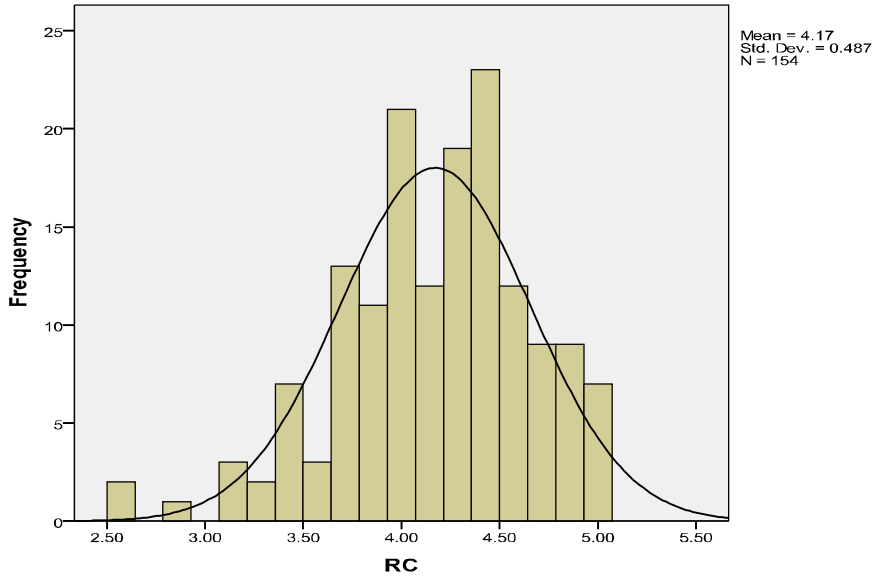


Figure 5.5: Histogram of Risk Culture

Figure 5.6 illustrates that the data for ERM implementation is within the normality line; hence, the data for ERM implementation is within the normal curve distribution.

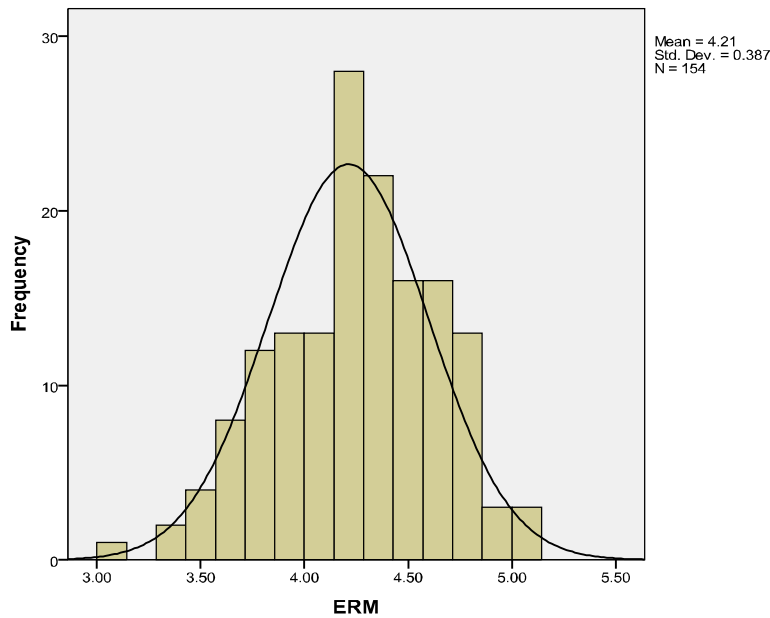


Figure 5.6: Histogram of Enterprise Risk Management Implementation

5.3.2.2 Linearity Test

Another multivariate assumption is linearity of data which is the relationship between the residuals against the predicted values. Linearity refers to the error term of distribution. Linearity is important for regression analysis because correlation can capture only the linear association between variables and if there is a substantial non-linear relationship, it will be ignored in the analysis because it will underestimate the actual strength of the relationship (Tabachnick & Fidell, 2001).

Linearity can be observed by examining the scatterplots (Hair et al., 2006). The results of linearity through scatterplot diagrams for various variables indicate no clear relationship between the residuals and the predicted values. Assessment of all scatterplots of the standardized residual versus standardized predicted values reveal that in all the plots, the residuals are scattered with no systematic or curvilinear

pattern (U-shape distribution); or clustering of residuals as indicated by Tabachnick and Fidell (2007) (refer Figure 5.7). The randomized patterns of the scatterplots indicate that the assumption of linearity is met. Therefore, linearity could be assumed.

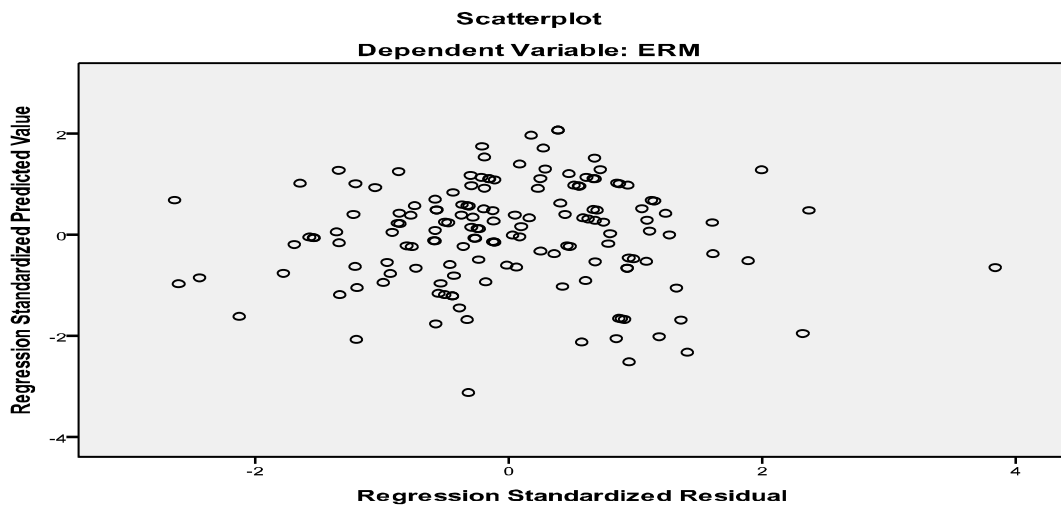


Figure 5.7: Scatterplots of Standardized Residuals against the Predicted Values

5.3.2.3 Homoscedasticity

Homoscedasticity refers to constant variance of the error term and the variance of the dependent variables is approximately the same for different levels of the explanatory variable (Hair et al., 2006). Homoscedasticity is indicated when the width of the band of the residuals is approximately at a different level from the dependent variables and the scatterplot shows a pattern of residual normally distributed around the mean. To check for homoscedasticity, the scatterplots of studentized residuals against the predicted values were used as in Figure 5.8 (Hair et al., 2006). There is a need to inspect the plots of residuals against the predicted values to reveal that the residuals are scattered randomly with no obvious systematic pattern. If there is no

systematic pattern of decreasing of increasing residuals, it can be assumed that the assumption of homoscedasticity is not violated.

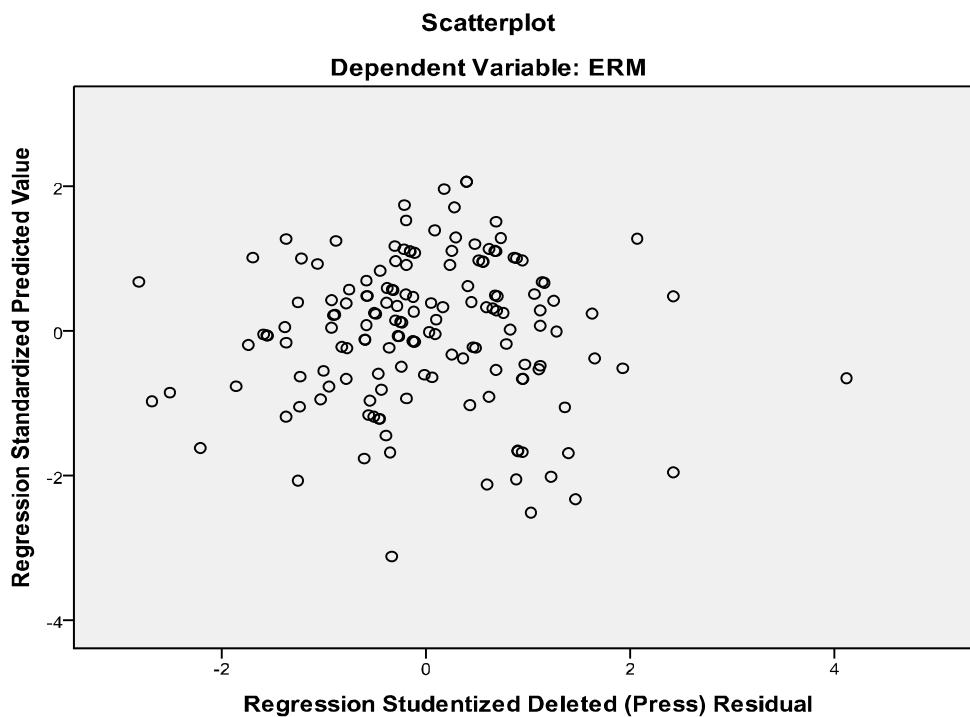


Figure 5.8: Scatterplots of Studentized Residuals against the Predicted Values

5.3.2.4 Multicollinearity

The fourth assumption pertains to multicollinearity and singularity which are related to the correlations between the predicting variables. Singularity occurs when one of the independent variables is merged with other independent variables (Tabachnick & Fidell, 2001). Multicollinearity poses a problem for multiple regression when the independent variables are highly correlated ($r = 0.8$ and above). When such a case happens, the regression coefficients would not be significant due to high standard error. According to Tabachnick and Fidell (2001), tolerance values approaching zero (0) specify the presence of high multicollinearity. The cut-off value for VIF is less than 10 and tolerance value of more than 0.1. Hence, as deliberated in the statistical

analysis, there is no violation of the assumption for this study. All the independent variables have tolerance value of less than 0.1 and VIF value of less than 10 (refer Table 5.4).

Table 5.4
Test of Multicollinearity

	Tolerance	VIF
Leadership	.531	1.884
Operating Framework:	.373	2.682
Governance Mechanism	.579	1.728
Compliance	.609	1.642
Risk Culture	.749	1.335

5.4 Goodness of Measures

The goodness and suitability of the measurement tool were examined by using the validity and reliability tests. The description of these two tests is dealt with in subsections 5.4.1 and 5.4.2. The second stage of data analysis of this study is to establish the goodness of measures for testing the research hypotheses. The data of this study were initially submitted for factor analysis. Thereafter, the internal consistency of the factors was examined by conducting reliability analysis. The results of the both tests are described in the following subsections.

5.4.1 Validity Test

As stated in Chapter 4, the first validity test is content or face validity. It is concerned with the degree to which the scale items represent the domain of the concept under study (Davis & Consenza, 1988) and it involves a systematic and subjective assessment (Hair et al., 2007). This test was carried out during the pre-test stage where the measurement scales were reviewed by a university Professor, who is a research specialist in the area of purchasing behavior. The reason for this strategy was to solicit feedback if any revision or modification is needed to the scale. Upon receipt of the feedback, changes were made accordingly.

The second validity test is construct validity which is achieved through factor analysis. Gibbons, Dempster and Mourray (2009) stated that factor analysis has been extensively used to review the construct validity of a scale or a test. According to Johnson and Wichern (2007), factor analysis was founded by Karl Pearson, Charles Spearman and others in the early 20th Century. Zikmond et al. (2003) and Pallant (2005) described factor analysis as a kind of data reduction approach used to classify the fundamental variables from the original factors. In summary, factor analysis is used to reduce and reclassify a large number of items into smaller items in new variables. Construct validity engages with the level to which the scale or construct signifies and performs like the concept being measured (Davis & Consenza, 1988). Construct validity is reviewed from both the statistical and theoretical perspectives. The mechanisms for the variables in this study were developed from past researchers that agreed with the theoretical construct validity. The principal technique that was performed on all the constructs to support the statistical construct validity was to

evaluate or test the Varimax rotation principal components analysis (PCA). Tabachnick and Fidell (2001) agree on the PCA for factor extraction over explanatory factor analysis (EFA), specifically for empirical summary of data-set. All the factors for variables in this study were segmented as multi-dimensional. The purpose is to corroborate the scales and to agree on the factor loading.

All the independent and dependent variables were presented for PCA to analyze their factor loadings. As a rule of thumb, Tabachnick and Fidell, (2001) proposed that only a variable with a loading of 0.32 and above should be considered. Comrey and Lee (1992) illustrated that any loading that exceeds 0.71 is considered excellent; 0.63 rated as very good; 0.55 rated as good; 0.45 rated as fair; and 0.32 rated as poor. Tabachnick and Fidell (2001) pointed out that the cut-off point for size of loading is a matter of researcher's predilection. For this study, based on the size of loadings which were influenced by homogeneity of scores in the samples, a factor loading higher than 0.45 was selected.

Another consideration for factor analysis as suggested by Tabachnick and Fidell (2001), is Kaiser-Meyer-Olkin (KMO) statistics categorized as a minimum of 0.6 (Kaiser, 1970, 1974). If this value plunges below the minimum value, it is then proposed that either more data be collected or that other variables should be considered (Field, 2009). Hutchison and Sofroniou (1999) analyzed that the KMO values between 0.5 and 0.7 as mediocre; 0.7 and 0.8 good; values between 0.8 and 0.9 as great; and value above 0.9 as superb. Tables 5.5 - 5.8 exhibit the summary of KMO and total variance values for independent and dependent variables.

The measurement scales for leadership consists of 21 items. The Varimax rotated PCA was conducted. Prior to performing the PCA, the suitability of the data for factor analysis was assessed. Correlation matrix indicated item coefficients are 0.4 and above. Table 5.5 exhibits the results for leadership scale factor loading. The KMO value is 0.784, exceeding the recommended value of 0.6 (Kaiser, 1970, 1974) and Barlett’s test of Sphericity (Barlett, 1954) is significant at $p < 0.001$. Since the KMO value is 0.784, it is interpreted as being in the range of “fair” (Hutcheson & Sofroniou, 1999). Table 5.5 also shows that the factor analysis contributed three factors from the 21 items. One item was deleted due to low factor loading. The remaining factors are: BOD (6 items), Senior Management Commitment (6 items) and CRO (7 items). The total variance explained is 52.30%. Only factors with a loading value of 0.45 and above were considered.

Table 5.5

Factor Loading of Leadership Scale

	Factor Loading		
	1	2	3
Factor 1: Chief Risk Officer (CRO)			
b1c	.697		
b2c	.679		
b3c	.769		
b4c	.623		
b5c	.557		
b6c	.517		
b7c	.493		
Factor 2: Senior Management Commitment			
b1b		.821	
b2b		.745	
b3b		.583	
b4b		.633	
b6b		.625	

b7b			.717
Factor 3: Board of Directors (BODs)			
b1a			.867
b2a			.835
b3a			.763
b4a			.595
b6a			.527
b7a			.756
Eigenvalues	5.058	2.935	1.943
Percent of Variance	26.621	15.449	10.226
	KMO		0.784
	Barlett's test of Sphericity		1209.368
	Sig.		0.000

The result for operating framework factor loading is illustrated in Table 5.6. The KMO value is 0.822, exceeding the recommended value of 0.6 (Kaiser, 1999) and Barlett's test of Sphericity (Barlett, 1954) is significant at $p < 0.001$. Since the KMO value is 0.822, it is interpreted as being in the range of "great" (Hutcheson & Sofroniou, 1999). Table 5.6 also shows that the factor analysis contributed three factors from the 21 items. Two items were deleted from the analysis because of low loading. The final factors are Enterprise risk Management policy (6 items), Process methodology (6 items) and RAT (7 items). The total variance explained is 53.37%. Only factors with a loading value of 0.45 and above were considered.

Table 5.6

Factor Loading of Operating Framework Scale

	Factor Loading		
	1	2	3
Factor 1: ERM Policy (EPOL)			
b1e	.428		
b3e	.693		
b4e	.623		
b5e	.588		
b6e	.760		
b7e	.719		
Factor 2: Processing Methodology (PROM)			
b1g		.499	
b2g		.597	
b3g		.712	
b4g		.696	
b6g		.670	
b7g		.691	
Factor 3: Risk Assessment Tool (RAT)			
b1f			.550
b2f			.557
b3f			.513
b4f			.578
b5f			.746
b6f			.742
b7f			.708
Eigenvalues	5.882	2.758	1.500
Percent of Variance	30.958	14.524	7.893
<i>KMO</i>	<i>0.822</i>		
<i>Barlett's test of Sphericity</i>	<i>1227.765</i>		
<i>Sig.</i>	<i>0.000</i>		

The result for governance mechanism factor loading is illustrated in Table 5.7. The KMO value is 0.853, exceeding the recommended value of 0.6 (Kaiser,1999) and Barlett's test of Sphericity (Barlett, 1954) is significant at $p < 0.001$. Since the KMO value is 0.853, it is interpreted as being in the range of "great" (Hutcheson & Sofroniou, 1999). Table 5.7 also shows that the factor analysis contributed three factors from the 21 item. One item was deleted from the analysis because of low

loading. The remaining factors are AC (7 items), RMC (7 items) and Internal Audit (6 items). The total variance explained is 56.52%. Only factors with a loading value of 0.45 and above were considered.

Table 5.7

Factor Loading of Governance Scale

	Factor Loading		
	1	2	3
Factor 1: Audit Committee (AC)			
b1h	.705		
b2h	.761		
b3h	.788		
b4h	.817		
b5h	.757		
b6h	.549		
b7h	.508		
Factor 2: Risk Management Committee (RMC)			
b1i		.537	
b2i		.628	
b3i		.781	
b4i		.732	
b5i		.700	
b6i		.576	
b7i		.692	
Factor 2: Internal Audit (IA)			
b1d			.540
b2d			.717
b3d			.781
b4d			.775
b5d			.697
b7d			.503
Eigenvalues	7.330	2.160	1.814
Percent of Variance	36.651	10.799	9.072
<i>KMO</i>	0.853		
<i>Barlett's test of Sphericity</i>	1605.052		
<i>Sig.</i>	0.000		

The result for compliance factor loading is illustrated in Table 5.8 The KMO value is 0.862, exceeding the recommended value of 0.6 (Kaiser,1999) and Barlett’s test of Sphericity (Barlett, 1954) is significant at $p < 0.001$. Since the KMO value is 0.862, it is interpreted as being in the range of “great” (Hutcheson & Sofroniou, 1999). Therefore, the sample size here is adequate for factor analysis. Table 5.8 also shows that the factor analysis contributed two factors from the 14 items and no items were deleted from the analysis because of low loading. The factors are COP (7 items) and RNR (7 items). The final total variance explained is 56.17%. Only factors with a loading value of 0.45 and above were considered.

Table 5.8

Factor Loading of Compliance Scale

	Factor Loading	
	1	2
Factor 1: Code of Practice (COP)		
b1k	.734	
b2k	.803	
b3k	.810	
b4k	.763	
b5k	.799	
b6k	.703	
b7k	.700	
Factor 2: Rules and Regulation (RNR)		
b1j		.570
b2j		.749
b3j		.748
b4j		.763
b5j		.723
b6j		.618
b7j		.622
Eigenvalues	5.795	2.069
Percent of Variance	41.392	14.776
KMO	0.862	
Barlett’s test of Sphericity	1035.582	
Sig.	0.000	

5.4.2 Reliability Analysis

An internal consistency confirmation of the scales was performed to ensure the reliability of the scales. This can be done by checking the Cronbach's alpha coefficient. The cut-off point for measuring the reliability for this study is coefficient alpha of above 0.65 as recommended by Nunnally and Berntein (1994) and Nunnally (1978). Table 5.9 exhibits the Cronbach coefficient alpha of all variables. In short, all the variables in this study have values more than 0.65.

Table 5.9

Reliability Coefficients for Variables

Variable	N of Item	Cronbach Alpha
Leadership:		
Board of Directors	7	0.792
Senior Management Commitment	6	0.791
Chief Risk Officer	7	0.815
Operating Framework:		
ERM Policy	6	0.760
Processing Methodology	7	0.840
Risk Assessment Tool	6	0.778
Governance:		
Audit Committee	7	0.850
Internal Audit	6	0.790
Risk Management Committee	7	0.807
Compliance:		
Rules and Regulations	7	0.797
Code of Practices	7	0.893
Risk Culture	18	0.792
Enterprise Risk Management Implementation	14	0.724

5.5 Profile of Respondents

This section discusses the organization's general information and provides detailed updates on information about the respondents. The information includes the background of the companies, types of business, age of company and ownership.

Table 5.10 illustrates the findings on the background of companies. In terms of assessing the existing risk management process, result shows that 142 respondents which represents 92.2% stated that the companies have a formal process to perform risk assessment. The remaining 12 respondents which represents 7.8% indicated that there was no formal process in place to perform a risk assessment in the organization. This shows that more than 92% of the total respondents are already adopting a formal risk assessment process.

The result also shows that 142 respondents which represents 92.2% stated that the companies have an alert indicator. The remaining 12 respondents which represent 7.8% indicated that there were no early warning indicators to alert management in the organization. This shows that more than 92.2% of the total respondents are already adopting or implementing an early warning indicator in the organization. Next, result shows that 131 respondents which represents 85.1% stated that the companies have adequate risk management training. The remaining 23 respondents which represent 14.9% indicated that there was no formal risk management training in the organization. This shows that more than 85% of the total respondents have a sufficient or an adequate risk management training program company-wide.

The background of companies related to risk management function shows that 154 respondents which represents 100% stated that the companies need to strengthen the risk management function in the organization. This shows all respondents agreed to the idea of strengthening risk management function within their organizations. The result also shows that 136 respondents which represent 88.3% stated that the companies have standard operating procedure for risk management. The remaining 18 respondents which represent 11.7% indicated that there was no specific or standard operating procedure for risk management in the organization. This shows that more than 88.3% of the total respondents are already adopting and have established the required standard operating procedure for risk management within the organization.

Table 5.10 also illustrates the findings on the background of companies in terms of risk assessment and monitoring software. The result shows that 142 respondents which represents 92.2% stated that the companies have basic risk assessment tools. The remaining 12 respondents which represent 7.8% indicated that they did not use risk assessment and monitoring software. This shows that more than 92.2% of the total respondents are already adopting risk assessment and monitoring software within the organization. 138 respondents which represents 89.6% stated that the companies have a standard modeling tool related to risk management program. The remaining 16 respondents which represents 10.4% indicated that there were no basic modeling tools related to risk management in the organization. This shows that more than 89% of the total respondents have already adopted or implemented a basic modeling requirement on risk management within the organization.

Several industrial sectors are given which are trading, industrial products, consumer products, properties, finance, construction, plantation, technology, hotels and mining. Table 5.10 shows that 35 respondents which represents 22.7% (the highest) come from industrial products; 20 respondents each represent properties and finance, respectively; 19 respondents each representing 12.3% are from technology and consumer products, respectively; 11 respondents, each representing 7.1% are from construction and plantation, whilst the remaining 10 (6.5%), 8 (5.25%) and 1 (0.6%) respondents represent trading, mining and hotel industries, respectively.

The descriptive analysis in Table 5.10 shows that 73 respondents (47.4%), represent the age of the company between the range of 11-15 years; 64 respondents (41.6%) represent the age of more than 16 years; 4 (2.6%) respondents are from companies with the age range of 1-5 years; and 13 (8.4%) respondents come from the age range of 5-10 years. The research also intends to know the ownership of the business based on three dimensions: Bumiputera, Foreign and Others. Others category is classified as Chinese and Indian. The descriptive analysis, as illustrated in Table 5.10, shows that 72 respondents which represents a high percentage (82.8%) are bumiputera companies; two respondents which represents 2.3% indicated that the business is owned by the foreigners; whilst the remaining 13 respondents which represents 14.9% indicated that the business is owned by others.

Table 5.10

Profile of the Organizations

	Frequency	Percentage
Formal process in place to perform a risk assessment		
Yes	142	92.2
No	12	7.8
Early warning indicators to alert management		
Yes	142	92.2
No	12	7.8
Adequate risk management training		
Yes	131	85.1
No	23	14.9
Need to strengthen risk management function		
Yes	154	100
No	0	0
Standard template/standard operating procedures		
Yes	136	88.3
No	18	11.7
Risk assessment and monitoring software		
Yes	142	92.2
No	12	7.8
Modelling tools		
Yes	138	89.6
No	16	10.4
Type of Business		
Trading	10	6.5
Industrial product	35	22.7
Consumer product	19	12.3
Properties	20	13.0
Finance	20	13.0
Construction	11	7.1
Plantation	11	7.1
Technology	19	12.3
Hotels	1	.6
Mining	8	5.2
Age of the Company (years)		
1-5	4	2.6
5-10	13	8.4
11-15	73	47.4
<16	64	41.6
Ownership		
Bumiputra	72	82.8
Foreign	2	2.3
Others	13	14.9

5.6 Descriptive Analysis

A total of 154 questionnaires were usable from the survey. All the variables were measured based on a five-point Likert scale. As reflected in Table 5.11, all the means are higher than three (3), ranging from 3.89 to 4.39. According to Hair et al. (2006), mean values can be categorized into three levels: low, moderate and high. For this study, the categories are divided as follows:

<i>Low:</i>	<i>1.00 to 2.33</i>
<i>Moderate:</i>	<i>2.34 to 3.66</i>
<i>High:</i>	<i>3.67 to 5.00</i>

This suggests respondents highly agreed to all variables and dimensions examined in this study. Table 5.11 shows that all leadership variables are rated as high, which are BOD, senior management commitment and CRO. As for operating framework, ERM policy, process methodology and RAT are also categorized as high impact. As for governance mechanism, AC, RMC and internal audit are rated as high impact. This is similar to compliance constructs whereby the respondents' perception on variables is high. The moderating variable, risk culture, is also rated as high impact. This also applies to the dependent variable, ERM implementation (high impact). All the standard deviations are low, suggesting the variability on the data (Sekaran, 2005). This is clearly specified in Table 5.11, where standard deviations for all variables are low.

Table 5.11

Descriptive Analysis of the Variables

	Mean	Standard Deviation	Level
Leadership:			
Board of Directors	4.36	0.62	High
Senior Management Commitment	4.39	0.50	High
Chief Risk Officer	4.33	0.54	High
Operating Framework:			
ERM Policy	4.12	0.54	High
Process Methodology	4.35	0.52	High
Risk Assessment Tool	4.18	0.60	High
Governance:			
Audit Committee	4.10	0.76	High
Internal Audit	4.21	0.57	High
Risk Management Committee	3.89	0.75	High
Compliance:			
Rules and Regulations	4.26	0.58	High
Code of Practices	4.07	0.72	High
Risk Culture	4.17	0.49	High
Enterprise Management Risk Implementation	4.21	0.39	High

5.7 Correlation Analysis

As mentioned in Chapter 4, correlation analysis was carried out to determine the relationship among the studied variables. Subsections 5.7.1 till 5.7.5 discuss correlation findings in detail.

5.7.1 Leadership

Table 5.12 presents the results of correlation analysis to examine the relationship between leadership and ERM implementation. It is found that all the dimensions

represent leadership construct are significantly associated with ERM implementation as follows: BODs ($r=0.338$, $p<0.01$); SMC ($r=0.587$, $p<0.01$); and CRO ($r=0.712$, $p<0.01$). The positive correlation coefficients (r) indicate the positive relationship among the variables. The increase in each dimension would also increase the ERM implementation.

5.7.2 Operating Framework

Table 5.12 exhibits the results of correlation analysis to examine the relationship between operating framework and ERM implementation. It can be seen that all dimensions that present operating framework construct have significant relationship with ERM implementation as follows: ERM Policy ($r=0.496$, $p<0.01$); Process Methodology ($r=0.745$, $p<0.01$); and RAT ($r=0.590$, $p<0.01$). The positive correlation coefficients indicate the positive relationship among the variables. The increase in each dimension would also increase the ERM implementation.

5.7.3 Governance Mechanism

Table 5.12 also exhibits the results of correlation analysis to examine the relationship between governance mechanism and ERM implementation. As exhibited in Table 5.12, all the governance mechanism factors are significantly related to ERM Implementation as follows: Internal audit ($r=0.636$, $p<0.01$); AC ($r=0.595$, $p<0.01$); RMC ($r=0.607$, $p<0.01$). The positive correlation coefficients indicate the positive relationship among the variables. The increase in each dimension would also increase the ERM implementation.

5.7.4 Compliance

Table 5.12 exhibits the results of correlation analysis to examine the relationship between compliance and ERM implementation. Table 5.12 illustrates that both compliance factors are also significantly related to ERM implementation; Rules and Regulation ($r=0.585$, $p<0.01$); and Code of Practice ($r=0.604$, $p<0.01$). The positive correlation coefficients indicate the positive relationship among the variables. The increase in each dimension would also increase the ERM implementation.

5.7.5 Risk Culture

Table 5.12 presents the results of correlation analysis of the relationship between risk culture as a moderating variable and ERM implementation. Risk culture is found to have significant relationship with ERM implementation ($r=0.500$, $p<0.01$). The positive correlation coefficients indicate the positive relationship between variables. The increase in risk culture would also increase the ERM implementation.

Table 5.12

Relationship among Variables

	ERM	BOD	SMC	CRO	EPOL	PROM	RAT	IA	AC	RMC	RNR	COP	RC
ERM	1												
BOD	.338**	1											
SMC	.587**	.462**	1										
CRO	.712**	.263**	.578**	1									
EPOL	.496**	.309**	.339**	.401**	1								
PROM	.745**	.376**	.545**	.586**	.568**	1							
RAT	.590**	.219**	.407**	.468**	.215**	.465**	1						
IAR	.635**	.226**	.541**	.592**	.282**	.564**	.346**	1					
ACR	.595**	.196*	.397**	.347**	.212**	.493**	.742**	.312**	1				
ERMC	.607**	.105	.290**	.327**	.206*	.451**	.529**	.401**	.610**	1			
RNR	.585**	.351**	.358**	.378**	.430**	.512**	.283**	.346**	.329**	.461**	1		
COP	.604**	.256**	.318**	.361**	.364**	.387**	.272**	.201*	.261**	.254**	.525**	1	
RC	.500**	.188*	.309**	.303**	.249**	.376**	.262**	.129	.234**	.379**	.327**	.474**	1

**p<0.01

*p<0.05

5.8 The Effect of ERM Determinants on Enterprise Risk Management Implementation

Multiple regressions were utilized to examine the ERM determinants on ERM implementation. Multiple regression analysis using Enter Methods were applied with the confidence level of 90 percent ($p < 0.10$). The following results describe the individual outcome based on ERM determinants and ERM implementation obtained findings in detail. Overall, ERM determinants significantly explained 84.8 percent of variance in ERM implementation ($R^2 = 0.848$, $F = 71.85$, $p < 0.01$) (refer Table 5.13).

Table 5.13 indicates the result of multiple regression analysis to examine the effect of ERM determinants on ERM implementation. Two factors under leadership construct significantly influence ERM: Senior management commitment ($B = 0.117$, $t = 2.365$, $p < 0.05$); and CRO ($B = 0.233$, $t = 4.808$, $p < 0.01$). Hence, the results support H2 and H3. These two hypotheses are accepted.

It can be found in Table 5.13 that all factors under operating framework construct significantly influence ERM implementation. They are ERM policy ($B = 0.155$, $t = 2.317$, $p < 0.05$); Process methodology ($B = 0.177$, $t = 3.306$, $p < 0.01$); and RAT ($B = 0.142$, $t = 2.803$, $p < 0.05$). Hence, the results support H4, H5 and H6. The three hypotheses are supported and accepted.

Table 5.13 also indicates the result of multiple regression analysis to examine the effect of governance mechanism on ERM implementation. All factors under governance mechanism construct significantly influence ERM. They are Internal

audit (B=0.178, t=3.870, p<0.01); AC (B=0.128, t=2.337, p<0.05); and RMC (B=0.178, t=3.837, p<0.01). Hence, the results support H7, H8 and H9. The three hypotheses are accepted.

Results of multiple regression also revealed that both factors under compliance constructs significantly predict ERM. They are rules and regulations (B=0.126, t=2.564, p<0.05); and code of practice (B=0.284, t=7.066, p<0.01). Hence, the results support H10 and H11. These two hypotheses are supported and accepted.

Table 5.13

Effect of ERM determinants on ERM Implementation

ERM Determinants	B	t	Sig.
Board of Director	.010	.266	.790
Senior Management Commitment	.117	2.365**	.015
Chief Risk Officer	.233	4.808***	.000
ERM Policy	.155	2.317	.190
Process methodology	.177	3.306***	.001
Risk Assessment Tool	.142	2.803	.423
Internal audit	.178	3.870***	.000
Audit committee	.128	2.337**	.021
Risk management committee	.178	3.837***	.000
Rules and regulations	.126	2.564	.573
Code of practice	.284	7.066***	.000
R ²	0.848		
F	71.851		
Sig.	0.000		

Notes: ***p<0.01, **p<0.05, *p<0.1

5.9 The Effect of Risk Culture on the Relationship between ERM Determinants and ERM Implementation

Hierarchical multiple regressions test were utilized to examine the effect of risk culture on the relationship between ERM determinants and ERM implementation. The following fragments discuss the obtained findings in detail. Results are summarized in Table 5.14.

Table 5.14.

Effect of Risk Culture in the Relationship between ERM determinant and ERM Implementation.

	Standardised Beta					
	Model 1		Model 2		Model 3	
	B	Sig.	B	Sig.	B	Sig.
Model 1: Independent Variable						
Board of Director	.010	.190	.010	.793	.020	.612
Senior Management Commitment	.117**	.015	.101**	.040	.117**	.041
Chief risk officer	.233***	.000	.225***	.000	.270***	.000
ERM policy	.155**	.030	.158**	.016	.134**	.044
Process Methodology	.177***	.001	.153***	.005	.164***	.006
Risk Assessment Tool	.142**	.023	.140**	.040	.150**	.039
Internal audit	.178**	.021	.206***	.007	.172***	.005
Audit Committee	.128***	.000	.148***	.004	.165***	.008
Risk Management Committee	.178***	.000	.140***	.000	.138***	.001
Rules and regulations	.126**	.043	.133**	.047	.119***	.001
Code of practice	.284***	.000	.246***	.000	.225***	.000
Model 2: Moderating Variable						
RC			0.106***	0.009	0.092**	0.036
Model 3: Interaction Term						
rcX-Board of Director					.052	.212
rcX-Senior Management Commitment					.176**	.016
rcX-Chief Risk Officer					.168**	.043

rcX-ERM Policy				-.012	.814
rcX-Process Methodology				-.045	.554
rcX-Risk Assessment Tool				.154*	.061
rcX-Internal Audit				.103	.899
rcX-Audit Committee				-.010	.173
rcX-Risk Management Committee				.139*	.082
rcX-Rules and regulations				.065	.260
rcX-Code of Practices				.030	.503
<i>R</i> ²		<i>0.848</i>		<i>0.855</i>	<i>0.866</i>
<i>F</i>		<i>71.851</i>		<i>69.203</i>	<i>36.479</i>
<i>Sig.</i>		<i>0.000</i>		<i>0.000</i>	<i>0.000</i>
<i>R</i> ² Change		<i>0.848</i>		<i>0.007</i>	<i>0.001</i>
<i>F</i> Change		<i>71.851</i>		<i>6.951</i>	<i>0.968</i>
<i>Sig. F</i> Change		<i>0.000</i>		<i>0.009</i>	<i>0.079</i>

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Model 1 represents the effect of independent variables on ERM Implementation. The model contributes 84.8 percent of variance of ERM. Model 2 represents the effect of independent variables on ERM implementation with the presence of risk culture.

The results indicate that the presence of risk culture in Model 2 has significantly increased the variance to 85.5 percent ($R^2=0.855$, $F=69.203$, $p < 0.001$). Risk culture is also found to have significant association with ERM implementation in Model 2 ($B=0.106$, $t=2.637$, $p < 0.01$). The last model, Model 3, shows the effect of independent variables and moderator variable on ERM implementation with the presence of interaction variables between independent variable and moderator variable. Model 3 also shows the significant changes in the variance ($R^2=0.866$, $F=36.479$, $p < 0.01$). The summary of the model can be found in Table 5.14.

Table 5.14 summarises the results of hierarchical regression to examine the effect of risk culture (RC) as the moderating variable on the relationship between leadership

and ERM implementation. The results indicate that there are significant effects of the interaction between Senior Management Commitment and Risk culture ($B = 0.176$, $p < 0.05$) and CRO and RC ($B = 0.168$, $p < 0.05$). The examination on the interaction plot showed an enhancing effect whereby when senior management commitment, CRO and risk culture was larger, ERM implementation increase (Figure 5.9 and Figure 5.10). The two related hypotheses, H12-2 and H12-3 are supported and accepted whilst H12-1 is not supported.

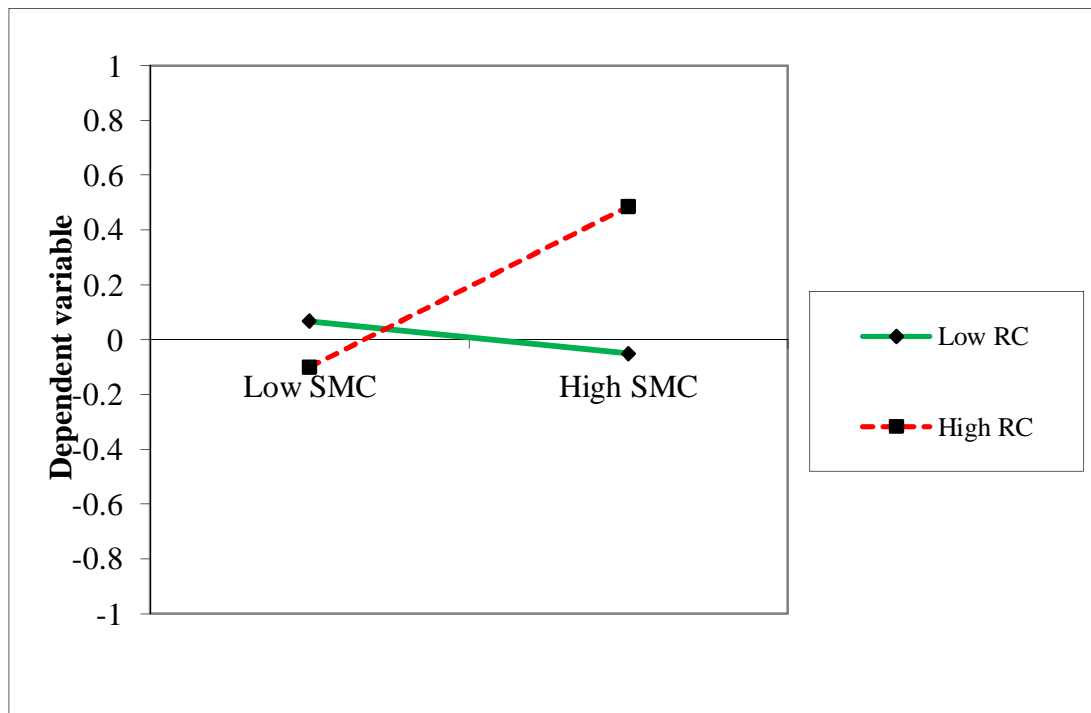


Figure 5.9: Moderating effect of Risk Culture on the Relationship between Senior Management Commitment and ERM Implementation

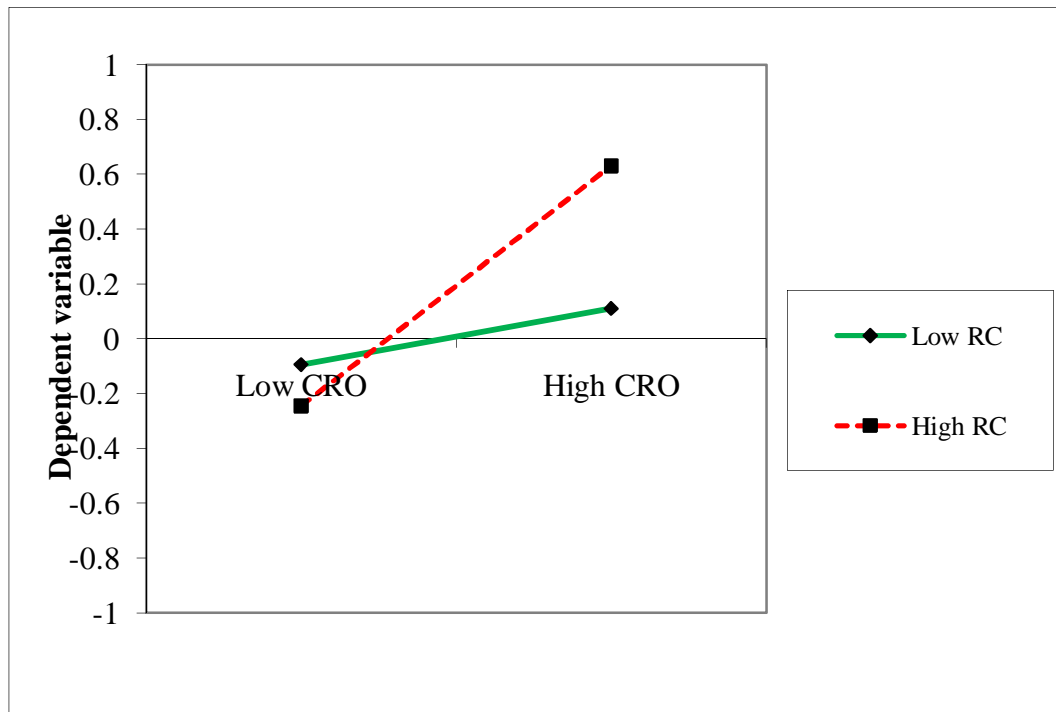


Figure 5.10: Moderating effect of Risk Culture on the Relationship between CRO and ERM implementation

It can also be found in Table 5.14 that there are significant effects of the interaction between RAT and Risk Culture ($B= 0.154, p<0.1$). The examination on the interaction plot showed an enhancing effect whereby when RAT and Risk Culture was larger, ERM Implementation increase (Figure 5.11). The results only support H12-6.

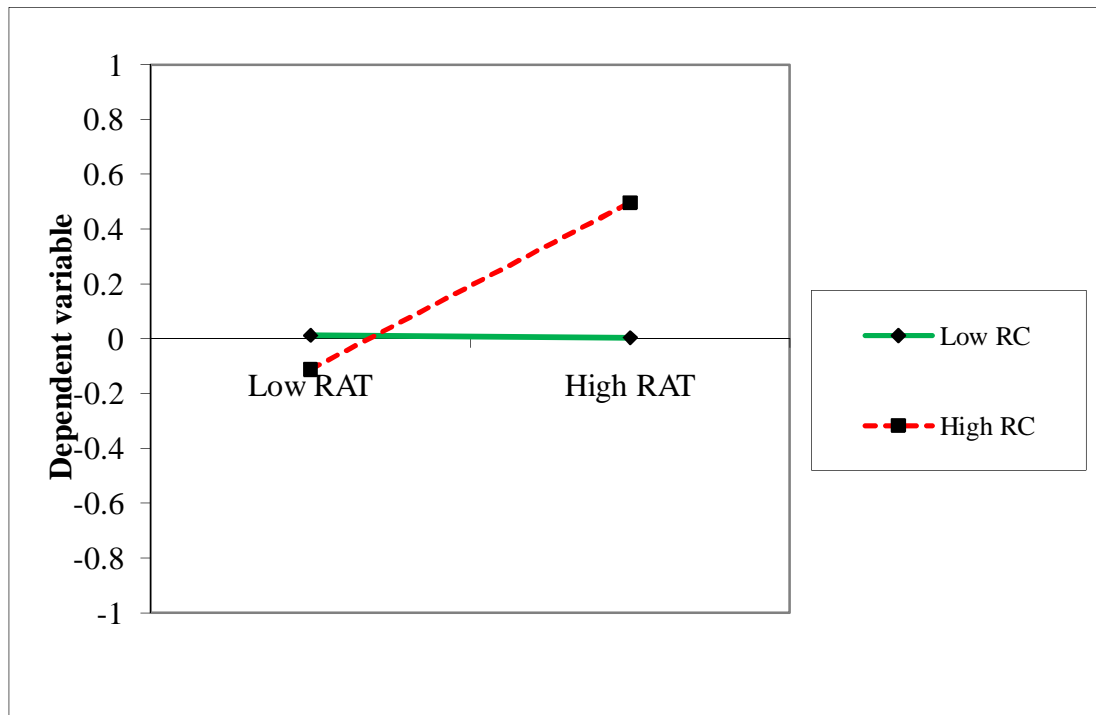


Figure 5.11: Moderating effect of Risk Culture on the Relationship between RAT and ERM Implementation

Table 5.14 also summarises the result of hierarchical regression to examine the effect of risk culture as the moderating variable in the relationship between governance mechanism and ERM implementation. Model 3 shows the effect of independent variable and moderator variable on ERM implementation with the presence of interaction variable between independent variable and moderator variable. The results indicate that there are significant effects of the interaction between RMC and Risk Culture ($B=0.139$, $p<0.1$). The examination on the interaction plot showed an enhancing effect whereby when RMC and Risk Culture was larger, ERM implementation increase (Figure 5.12). The results successfully support H12-8.

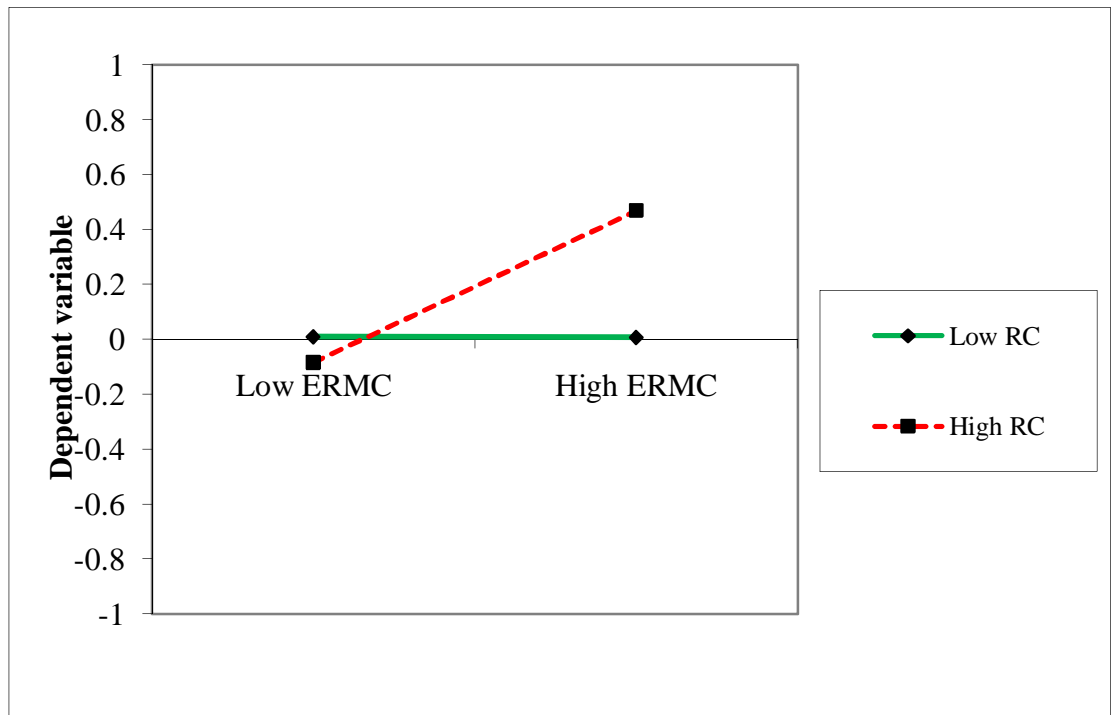


Figure 5.12: Moderating effect of Risk Culture on the Relationship between RMC and ERM Implementation

As exhibit in Table 5.14, the results also indicate that there are no significant effects of the interaction between interaction terms with ERM implementation. Thus, this result fails to support H12-10 and H12-11.

5.10 Summary

This chapter summarizes the findings obtained from the data analysis of the survey that was conducted to examine the core objectives of this research. The initial outcome basically describes the response rate of the survey which is highlighted in the beginning of this chapter. The response rate is 54% with 154 usable questionnaires out of 300 respondents. This is followed by the section that deliberates on non-response bias, followed by the descriptive statistical analysis to explain the general information of the respondents and the independent and dependent variables of this research. The study also examined the effect of moderating factor on the ERM implementation in Malaysian listed companies. Data analysis was then deliberated by using few statistical techniques: descriptive analysis, correlation, multiple regression and hierarchical regression. Twelve (12) major hypotheses were developed to test the variables and multiple regression analysis was utilized to test the hypotheses.

CHAPTER SIX

DISCUSSION, CONCLUSION AND RECOMMENDATION

6.1 Introduction

This chapter discusses the overall results of hypotheses analysis. As discussed in Chapter 2, there are four constructs in this research: leadership, operating framework, governance mechanism and compliance. In order to guide the reader through this research, detailed relationship between independent variables, dependent variable and moderator variable are presented in advance. This chapter also includes the main findings from the results presented in the previous chapter and suggests some recommendations for the appropriate regulatory bodies, relevant agencies and interested parties to consider. It consists of seven sections. Section 6.2 presents a summary of the findings. The implications of the study are highlighted in Section 6.3. Section 6.4 is concerned with the contributions of the study. Next, Sections 6.5 and 6.6 report the limitations of the study and suggestions for future research. Section 6.7 concludes the entire study.

6.2 Research Hypotheses Test Results

This research is based on a quantitative method and the hypotheses are analyzed by using multiple regression analysis. Twenty two hypotheses were tested based on two research objectives for all variables and it can be summarized as follows:-

- a) *Research objective 1:* To examine the key determinants of ERM implementation in Malaysia (H1 to H11)

- b) *Research objective 2:* To examine the moderating effect of risk culture on the relationship between ERM determinants and ERM implementation (H12(1)-11)

In the first research objective, out of 11 hypotheses, 10 variables tested were found to be supported and significantly related. These include the leadership construct (senior management commitment, CRO), operating framework construct (ERM policy, process methodology, RAT); governance mechanism construct (AC, RMC and internal audit) and compliance construct (rules and regulations and code of practices). The above variables are significantly supported and accepted and all the variables have a positively significant relationship with ERM implementation (excluding BOD under leadership construct). Table 6.1 shows the details of the results.

Table 6.1
Summary of Hypotheses Test

RQ1- What are the factors that determine enterprise risk management implementation?

	B	Sig.	Assessment
H1: The BOD significantly and positively influences ERM implementation	.010	.190	Not Supported
H2: Senior management commitment significantly and positively influences ERM implementation	.117	.015	Supported
H3: CRO significantly and positively influences ERM implementation	.233	.000	Supported
H4: The ERM Policy significantly and positively influences ERM implementation	.155	.030	Supported
H5: The process methodology significantly and positively influences ERM implementation	.177	.001	Supported

H6: The RAT significantly and positively influences ERM implementation	.142	.023	Supported
H7: The AC significantly and positively influences ERM implementation	.178	.000	Supported
H8: The RMC significantly and positively influences the ERM implementation	.128	.021	Supported
H9: The Internal Audit significantly and positively influences ERM implementation	.178	.000	Supported
H10: The rules and regulations significantly and positively influence ERM implementation	.126	.043	Supported
H11: The Code of Practices significantly and positively influences ERM implementation.	.284	.000	Supported

6.3. Leadership

As explained in Chapter 2, there are three independent variables under this construct: BOD, senior management commitment and CRO. The results of the regression test for the involved variables discussed in the next three subsections.

6.3.1 Board of Directors

In this study, BOD is part of the code of corporate governance and plays an important role in the company's overall risk management practices. BOD is directly associated with the internal environment component and must have the requisite composition for ERM to be effective. As clearly mentioned by Berghe and Levrau (2004), board's composition, size and leadership structure are the key components of good corporate governance.

The outcome of the regression analysis as illustrated in Table 5.13 confirms that there is no significant relationship between BOD and ERM implementation (since the $\beta = 0.010$, $t=0.266$, $p>0.01$). Therefore, hypothesis H1 is not supported. This result does not indicate a strong association with or support the agency theory in the ERM context. The relationship between BOD and ERM implementation is also positive ($\beta = 0.010$). This result, however, is not in tandem with the previous study conducted by Rasid and Rahman (2009) where it is reported that there is a significant relationship between BOD and ERM implementation. The current results illustrates that BOD does not influence ERM implementation through their strong commitment and support in corporate governance practices. The first buy-in of the ERM implementation should come from the BODs. This is also supported by the previous studies by PriceWaterhouseCoopers (2004), Deloitte (1995), Yi & Judith (2009), and Rosa (2006). BOD commitment and direction towards the development of risk management activities directly influence the ERM implementation. BOD is inevitably accountable for making sure that all risks are identified, analyzed, measured, reviewed, controlled and consistently reported to the senior level. In addition, BOD commitment ensures better governance practices which are aligned with the national practices of good corporate governance framework.

The insignificant relationship found between BOD and ERM implementation raises the question of BOD involvement in ERM implementation in the companies. Thus, BOD should be active in ensuring the success of ERM implementation through thorough and prudent oversight activities.

6.3.2 Senior Management Commitment

In the present study, it is hypothesized that senior management commitment significantly influences ERM implementation. Total buy-in and absolute commitment from the senior management is required to manage ERM across the entire organization. This also includes a broad range of activities in the organization in terms of development through few stages such as project initiation stage, training programs, establishing a project management office and a quality management system. Senior management commitment sets the tone from the top. Previous studies such as Miccolis (2003b), Barton et al. (2002), and Kleffner et al. (2003b), found that senior management support is a primary input for an organization to implement ERM. The outcome of the study reveals that senior management support directly or significantly influences the success level of the organizational system within business operations and this finding is supported by Ifinedo (2008).

The above findings are consistent with this study whereby it is confirmed that there is a significant relationship between senior management commitment and ERM implementation ($B=0.117$, $t=2.3658$, $p<0.1$), as illustrated in Table 5.13. Therefore, hypothesis H2 of the current study is supported and accepted. This result implies that senior management commitment is one of the critical success factors in the ERM implementation. This scenario is in tandem with agency theory. In other words, a continuous relationship between senior management commitment and ERM is required to ensure the effectiveness of ERM implementation through thorough and prudent oversight activities.

6.3.3 Chief Risk Officer

In the present study, it is hypothesized that CRO significantly and positively influences ERM implementation. The CRO role includes promoting risk culture and awareness program for the entire organization related to business risk, provide an advisory role by facilitating, coordinating and communicating to the relevant stakeholders and be a responsible person to oversee and monitor the ERM implementation. CRO is also considered as a center point or key person who is accountable for the overall risk management functions, ranging from facilitation, coordination, monitoring and reporting the progress to internal and external stakeholders on relevant risk information within the business entity. The advantage of appointing a CRO is that he or she can ensure that all risk management activities and issues are well coordinated.

The result of this study indicates that there is a strong relationship between CRO and ERM implementation ($B=0.233$, $t=4.808$, $p<0.01$) (as illustrated in Table 5.13). This result is parallel with past studies. For example, Daud et al. (2010) found that CRO and effective ERM is positively related because CRO position is pivotal and considered as the key determinant in the adoption of ERM. The result of this study is also consistent with Liebenberg and Hoyt (2003) whereby they uncovered that there is a positive relationship between CRO and ERM implementation.

From the above finding, it could be said that there is a positive relationship between CRO and ERM implementation and hence, H3 is accepted and supported. The regression result is also aligned with the correlation test between

variables (as illustrated in Table 5.13 which confirms that there is a positive linear relationship between CRO and ERM implementation. In other words, CRO has a strong influence on the ERM Implementation within the business organization. It is argued that the significant relationship between CRO and ERM implementation is due to the nature of CRO's role that is to support the development of ERM in companies. CRO's position involvement is also vital to ensure that communication and reporting are well structured and maintained. In short, CRO should be active to ensure the success of ERM implementation through thorough and prudent oversight activities.

In summary, CRO and senior management commitment which are under leadership construct under have significant relationship with ERM implementation. Thus **H2 and H3** are fully supported the agency theory. In this case, the focus is focuses on risk mitigation of the problem by selecting certain types of agents and forms of monitoring of their actions by using various types of positive and negative sanctions. Additionally, risk management pushes the performance of the firm with its ultimate focus that is increasing shareholders' value. The theory is related to this finding in the form of executing all risk mitigations plan and monitoring ERM implementation. However **H1** which represents the BODs is found to be not related to ERM implementation.

6.4 Operating framework

As explained in Chapter 2, there are three independent variables under this construct: ERM policy, process methodology and RAT. The results of the regression test for the involved variables are discussed in the next three subsections in relation to the

dependent variable which is ERM implementation are discussed in the next three subsections.

6.4.1 ERM Policy

In the present research, it is hypothesized that the ERM policy significantly and positively influences ERM implementation. Previous studies by Ackoff (1987) and Roger and Kincaid (2009) discovered that risk management policy should be communicated appropriately. If the policy is not structured by not taking into consideration all relevant dimensions, then ERM implementation will fail. Thus adequate actions must be taken to solve the arising problems systematically. The ERM policy is much needed in the case where organizational database is not well developed, communicated, and monitored.

The result of the regression test of this research (as displayed in Table 5.13) confirm that ERM policy is significantly associated with ERM implementation ($\beta = .155$, $t = 2.317$, $p < 0.1$). Hence H4 is accepted. This result supports the corporate legitimacy and agency theory as suggested in Chapter 2. This scenario was also obtained by Duncan (1995), Toulmin (1958), and Toulmin, Reike, and Janik (1979) whereby they investigate the conceptual framework for realistic structure of ERM policy communication. This is also consistent with the study conducted by Roger and Kincaid (1981) whereby they found the concept of risk is considered as an integral part in negotiation, knowledge sharing, decision making and teamwork processes for ERM development.

The regression result is also aligned with the correlation test between variables which confirm that there is a positive linear relationship between ERM policy and ERM implementation ($p < 0.01$). The finding further confirms that the ERM policy has an influence on the ERM implementation. In addition, the ERM policy is communicated to all stakeholders within the business organization in order to ensure the continuous monitoring of ERM. ERM implementation demands a commitment from all parties within the business enterprise - not only process and tools but also other factors such as communication and commitment being guided by approved policy. The understanding of ERM policy and procedure is highly important for all stakeholders within the organization. Finally, the risk owners should be committed to carry out the ERM assessment and align it with the overall framework, ERM policy and procedures. The significant relationship between ERM policy and ERM has a direct implication on ERM implementation due to the fact that ERM policy significantly supports the development of ERM within companies. The ERM policy is also vital to ensure continuous communication and reporting standards are well structured and maintained. The ERM policy should also ensure the success of ERM through thorough and prudent oversight activities.

6.4.2 Process Methodology

In the present research, it is hypothesized that the process methodology significantly and positively influences ERM implementation. The integration of ERM process methodology into an organization's annual planning and budgeting processes is important for the organizational success. The regression results (as displayed in Table 5.13) show that the relationship between process methodology and ERM

implementation is positively significant ($\beta = .177$, $t = 3.306$, $p < .001$). This result supports the axiom of the agency theory and corporate legitimacy theory. The theory suggests that if there is a good high risk business opportunity, the shareholders would expect managers to take that opportunity and maximize their investment returns. However, the managers hesitate to take that option because the rewards from the risk-taking project would be limited. The business risk owners or entrepreneur are more concerned about their employment risk and firm survival rather than profit maximization of shareholders.

Olsson (2007) stated that ERM process methodology itself cannot ensure the effectiveness of risk management because there are other factors such as the suitability and acceptability of the risk management process to the organization and how its members managing the ERM implementation. This implies that for risk management to be effectively implemented in an organization, the management needs to consider the appropriateness or practicality of the implementation of each of the stages in the risk management process. These results are in line with the results found in the correlation test variables, which confirm that there is a positive linear relationship between process methodology and ERM implementation ($p < 0.01$). Therefore, hypothesis H5 is accepted and supported.

Previous studies have confirmed that continuous communication across the organization is important for the risk management process. The New South Wales Department of State and Regional Development (2005) proposed a practical guide for risk management which provides a basic understanding of risk management in small businesses and helps in implementing the process methodology for the ERM

implementation. This is supported by the Standards Australia and Standards New Zealand (2004) and International Organization for Standardization (ISO/DIS 31000). All these imply that continuous improvement initiatives are highly necessary to ensure that ERM implementation is well accepted not only in big companies but also small companies.

6.4.3 Risk Assessment Tool

In the present research, it is hypothesized that the RAT significantly and positively influences the ERM implementation. RAT should be formalized and aligned with the ERM process to promote a consistent approach to risk management. Leveraging RAT will generate effective reporting and provide senior management with visibility into the benefits and value of the risk assessment tool. In addition, the RAT can also monitor and report risk programs and contributes to the success of IT risk management initiatives within the organization. The regression results (as displayed in Table 5.13) show that the relationship of RAT and the ERM implementation is significant and positive ($\beta = .142$, $t = 2.803$, $p < 0.01$). In this case, H6 is accepted and supported. This result also supports the suggestion of the agency theory and corporate legitimacy theory whereby the business risk owners or entrepreneur are more concerned with their employment risk and firm survival than profit maximization of shareholders. The theories also suggest that ERM can help an organization to achieve its business objectives and ultimately maximize shareholders' value. In a nutshell, the theories also indicate the need of having general risk management to add value to individual companies and support overall

economic growth by lowering the cost of capital and reducing the uncertainty of commercial activities.

This study uncover that RAT is important to ensure the success of ERM implementation within business organizations. The result of the present study is aligned with Strobel and Krishna (2006) where they found that there is a relationship between IT and high performance whereby vigorous system hardware supports ERM in terms of risk identification, risk measurement and analysis as well as the evaluation of complex risk universe so that it can be aligned with company-wide risk policy implementation. Ramamoorti & Weidenmier (2006) stated that IT determines organizational structure and has an influence on the organizational communication system built within the organization. The regression results are in line with the correlation test between variables which confirm that there is a positive linear relationship between the RAT and ERM implementation ($p < 0.01$). The finding further confirms that the risk assessment tool significantly influences the ERM implementation.

In summary, the findings of this research support hypotheses H4, H5 and H6. In other words, there are positive and significant relationships between ERM policy, process methodology and RAT and ERM implementation.

6.5 Governance Mechanism

As explained in Chapter 2, there are three independent variables under this construct: AC, RMC and internal audit. The results of the regression test for the involved variables are discussed in the next three subsections.

6.5.1 Audit Committee

In the present research, it is hypothesized that AC significantly and positively influences ERM implementation. Verschoor et al. (2002) uncovered that the AC and BOD roles in ERM program are important and highly demanding. The AC role is to review with management the internal control system and financial reporting that are relied upon to provide reasonable assurance of compliance regarding an organization's risk management processes. In addition, AC oversee certain aspects of ERM, including review of major operational, reputational, legal and compliance issues and steps the management has to take to monitor and control risk exposure.

The regression results show that the relationship between AC and ERM implementation is significant and positive ($\beta=.128$, $t=2.337$, $p>0.01$). Thus H7 is accepted and supported. This result also supports the agency theory and corporate legitimacy theory. In short, AC is important to ensure the success of ERM implementation within business organizations. This outcome is also aligned Kalbers and Fogarty (2010) where they found that there is a potential relationship between AC and ERM implementation. According to Lindsell (1992), the AC's role in risk management is important as collators of information for the BOD in the holding company. Kalbers and Fogarty (2010) suggested larger AC to support BOD. This is

supported by Turely and Zaman (2000) whereby they found that there is a need to make AC independent from senior management group and their activities in relation to the internal audit function. The regression results are in line with the result of the correlation test which confirm that there is a positive linear relationship between AC and ERM implementation ($p < 0.01$).

6.5.2 Risk Management Committee

In the present research, it is hypothesized that RMC significantly and positively influences ERM implementation. According to Fraser (2007), the RMC is very important and linked to the governance components and BOD oversight functions. Anthony (2001) stated that RMC has the obligation to assess, monitor and provide sufficient advice in making decisions on implementation strategies and identifying risk exposures with proper guidance and response. The RMC members are responsible for reviewing the state of affairs of their organization's risk exposure and must report to the BOD on its findings.

The regression results (as displayed in Table 5.13) show that the relationship of RMC and ERM implementation is significant and positive ($\beta = .178$, $t = 3.837$, $p > 0.01$). Hence hypothesis H8 is accepted. This result supports the agency theory and corporate legitimacy theory. It implies that RMC is one of the key success factors in ERM implementation within the business organizations. This outcome is consistent with Kalbers and Fogarty (1993) where they said that there is a potential relationship between RMC and ERM implementation. The COSO of the Treadway Commission (2004), Hermanson (2003), Selim and Mc Namee (1999) stated that

both actual and perceived quality of internal monitoring is likely to be higher and significant when a RMC exists compared to a situation when there is no RMC.

Based on the above discussion, it could be said that there is a positive relationship between RMC and ERM implementation. The regression results are also in line with the correlation test between variables which confirm that there is a positive linear relationship between the RMC and ERM implementation. The findings further confirm that RMC significantly influences ERM implementation. Implicit in this finding is that RMC supports agency theory and corporate legitimacy theory in the context of ERM. The significant relationship between RMC and ERM has a direct implication on ERM implementation due to the fact that the existence of RMC significantly supports the development of ERM within companies. The involvement of RMC is vital to ensure continuous efforts in ensuring communication and reporting standards are well structured and maintained. Thus RMC must be active in ensuring the success of ERM through thorough and prudent oversight activities.

6.5.3 Internal Audit

In the present study, it is hypothesized that internal audit significantly and positively influences ERM implementation. In principal, internal audit maintains a good reputation by providing value-added services in terms of examining, evaluating, recommending improvements, monitoring and reporting on the strengths and weaknesses of internal control, governance and risk management assurance. Internal auditors should play an effective role in ERM by giving assurance to the risk management activities, risk evaluation and its core processes, evaluating of new

emerging risk profiles and reviewing the mitigating activities of key risks exposure. In this study, internal audit supports the ERM implementation by providing consulting and advisory services, including the assurance profile of organizational needs, especially on the global approach of ERM implementation. As indicated in the current study's results, the association between internal audit and ERM implementation (as illustrated in the Table 5.13) is found to be significant ($\beta=.178$, $t=3.870$, $p>0.01$). Hence hypothesis H9 is accepted and supported.

The current results are consistent with previous studies. For instance, Stewart and Laura (2009) found that the internal auditors perceived that high involvement in ERM impacts on their willingness to report a breakdown in risk procedures to the audit committee. Page and Spira (2004a) discovered a mixture of views for internal auditors on effective ERM, whereby the essence of the fundamental role is their involvement in risk management strategy. Notwithstanding, it has got to be focused more on identifying inherent risk which is beyond the normal internal auditor's parameter.

In addition, the above results are in line with the results found in the correlation test which confirm that there is a significant relationship between internal audit and ERM implementation. The findings further confirm that internal auditors have influence on ERM implementation.

In summary, the above discussion related to the governance mechanism constructs, which are represented by the AC, RMC and internal audit support hypotheses H7,

H8 and H9. The acceptance of H7, H8 and H9 are also means that the agency theory and corporate legitimate theory are supported in the context of ERM implementation.

6.6 Compliance

As explained in chapter two, there are two independent variables under this construct: Rules and Regulations and Code of Practices. The results of the regression test for the examination of the variables in relation to the dependent variable which is ERM implementation are discussed in the next subsection.

6.6.1 Rules and Regulations

In the present research, it is hypothesized that the rules and regulations significantly and positively influence the ERM implementation. Organizations have to comply with rules, regulations and listing requirements regarding corporate governance. Good governance ensures that ethical values, codes, roles, compliance to applicable laws and responsibilities are implemented in a clear ERM structure with a defined set of accountabilities. The regression results (as illustrated in the Table 5.13) show that the relationship of rules and regulations and ERM implementation is significant and positive ($\beta = .126$, $t = 2.564$, $p < 0.01$). This result also supports the agency theory and corporate legitimacy theory. This current study implies that rules and regulation is also one of the critical success factors in making ERM implementation within the business organization.

Corporate governance laws and regulations at the state level give corporate management autonomy to implement ERM or to have no ERM frameworks in place at all. According to Collier et al. (2006), the ERM initiatives within organizations come about in response to regulatory pressure, the pressure being higher for larger public listed firms. Therefore, the expectation for the firm to adopt ERM is feasibly higher. In addition, some trader organizations have more elaborate ERM systems than organizations that need not conform to explicit governance expectations. The regression results are in line with the correlations which confirm that there is a positive linear relationship between rules and regulations and ERM implementation. The findings further confirm that rules and regulations significantly influence ERM implementation. Implicit in this finding is that rules and regulations support the suggestion of theories. Hence, hypothesis H10 is accepted and supported. The significant relationship between rules and regulations and ERM has a direct implication on ERM implementation due to the fact that rules and regulations significantly support the development of ERM within companies. The rules and regulations are also vital to ensure continuous effort that communication and reporting standards are well structured and maintained. This RNR variable is also important for ensuring the success of ERM through thorough and prudent oversight activities.

6.6.2 Code of Practices

In the present research, it is hypothesized that the code of practice significantly and positively influences the ERM implementation. Ballou (2005) pointed out that organizations have to comply with a standard code of practices and listing

requirements related to corporate governance and ERM. The introduction of principles of good corporate governance and better code of practice recommendations has influenced the ERM implementation within business organizations. The code of practice encourages organizations to manage proactively rather than reactively, thus facilitating a degree of accountability in decision-making by balancing actions in terms of the cost of avoiding threats or enhancing opportunities and the benefits to be gained. The code of practices and conduct also provide guidelines to organizations on the expected standard of behavior regarding fraud, customer service, stakeholders' requirements and company's performance.

The regression results show that the relationship of code of practices and effective ERM is significantly and positively associated ($\beta = .284$, $t = 7.066$, $p < 0.00$). This result supports the agency theory and corporate legitimacy theory. This current study implies that the code of practices is one of the critical success factors in making ERM implementation within business organizations. This is supported by Rosen and Zenios (2001) where the code of practices on corporate governance is very important for ERM implementation; no ERM component can be achieved without corporate governance compliance. PriceWaterHouseCoopers (2004b) indicated that the integration between corporate governance, risk management and compliance is required to achieve business strategies and objectives and maximizing shareholders' value. The regression results are in line with the correlation test which confirm that there is a positive linear relationship between code of practices and ERM implementation. The findings further confirm that the code of practices significantly influences ERM implementation. The present study also posits that the code of practice supports the suggestion of theories. Hence, hypothesis H11 is accepted and

supported. The significant relationship between code of practice and ERM has a direct implication on ERM implementation due to the fact that code of practice significantly supports the development of ERM within companies. The code of practice is also vital to ensure continuous communication and reporting standards are well structured and maintained. This code of practice variable should also be proactive in ensuring the success of ERM through thorough and prudent oversight activities.

In summary, the above discussion related to the compliance construct which is represented by the rules and regulations and code of practices supports both hypotheses H10 and H11 which test the ERM implementation. It can summarize that H10 and H11 are fully supported and also support the agency and corporate legitimate theory.

6.7 Risk culture as a moderating factor

In the past research, risk culture is defined as the system of values and behavior present throughout a business enterprise that increases the significant influence of risk decisions. Zeier (2014) viewed that risk culture is a combination of key values, understanding, beliefs and norms that members of an organization share. He further reiterated that risk culture can be categorised into visible and invisible culture by way of promoting right values and constant awareness to intended parties within business enterprises, such as symbols, slogans and ceremonies and deeper values and shared understanding held by the organization. Risk culture is an integrated approach to risk assessment which allows business units to measure risk exposures and

monitor residual risks by both impact and likelihood which is consistent across the enterprise.

Under normal circumstances, risk culture also focuses on the degree to which individuals understand that risk and compliance rules applied to business strategies and long-terms goals. This is supported by the board members by instilling the right ERM culture besides providing an outside perspective on ERM processes to embrace the philosophy of ERM right from the top. Table 6.2 depicts the overall summary of the hypotheses by focusing on risk culture as moderating variable in the relationship between ERM determinants and ERM implementation.

Table 6.2

Summary of Hypothesis Tested

		B	Sig.	Assessment
H12-1:	The influence of BOD on ERM implementation is moderated by risk culture	.052	.212	Not Supported
H12-2:	The influence of senior management commitment on ERM implementation is moderated by risk culture	.176	.016	Supported
H12-3:	The influence of the CRO on ERM implementation is moderated by risk culture	.168	.043	Supported
H12-4:	The influence of the ERM Policy on ERM implementation is moderated by risk culture	-.012	.814	Not Supported
H12-5:	The influence of process methodology on ERM implementation is moderated by risk culture	-.045	.554	Not Supported

H12-6:	The influence of RAT on ERM implementation is moderated by risk culture	.154	.061	Supported
H12-7:	The influence of AC on ERM implementation is moderated by risk culture	-.010	.899	Not Supported
H12-8:	The influence of RMC on ERM implementation is moderated by risk culture	.139	.073	Supported
H12-9:	The influence of the internal audit on ERM implementation is moderated by risk culture	.103	.182	Not Supported
H12-10:	The influence of rules and regulation on ERM implementation is moderated by risk culture	.065	.260	Not Supported
H12-11:	The influence of code of practices on ERM implementation is moderated by risk culture.	.030	.503	Not Supported

In the preset research, risk culture is hypothesized as a moderator on the relationship between ERM determinants and ERM implementation. The current study shows that there is no strong association of risk culture on the relationship between BOD and ERM implementation. This result directly does not support the cultural theory in the context of risk management. This result contradicts to the findings of Berghe and Levrau (2004) where their outcome indicated that board composition, size and leadership structure are key parameters of focused presentation and having good corporate governance culture and high quality board structure. Lima and Castro (2005) pointed out that risk culture is a behavioral system that envisages the core values and behaviors adopted throughout an organization and hence assists in shaping the right risk decision-making process. Implicit in this is that the influence

of risk culture on the relationship between BOD and ERM implementation is not supported. Hence, hypothesis H12-1 is rejected.

The present study also hypothesizes that the influence of senior management commitment on ERM implementation is moderated by RC. The result indicates that there is strong relationship and interaction between senior management commitment and risk culture ($\beta= 0.176$, $p<.0.05$) based on Model 3 as illustrated in Table 5.14. This result directly supports the cultural theory, in the context of risk management. Implicit in this finding is that the influence of risk culture on the relationship between senior management commitment and ERM implementation supports the suggestion of the cultural theory. Hence, hypothesis H12-2 is accepted and supported. This finding is consistent with Regester and Larkin (2005) whereby risk management corporate culture should include organizational change structure resulting from higher customer requirements for services of key industries. Another past study conducted by Tansey and Riordan (1999) pointed out that risk culture influences the management and employees' decisions even though they are not deliberately considering the risks and benefits as a whole. They further reiterated that an organization may directly benefit from deliberating their risk appetite within each category in response to the increase of corporate culture and value of ERM implementation company-wide, such as strategic, human capital, operational, financial, reputational and legal compliance.

The present study also hypothesizes the influence of CRO on ERM implementation is moderated by RC. The result indicates that there is a strong relationship and interaction between CRO and risk culture (with $\beta= 0.168$, $p<.0.05$) based on Model 3

as illustrated in Table 5.14. This result directly supports the cultural theory related to risk management. Implicit in this finding is that the influence of CRO and ERM implementation moderated by risk culture and in turn supports the suggestion of cultural theory. Hence, hypothesis 12-3 is accepted and supported.

The current study also hypothesizes the influence of ERM policy and process methodology on ERM implementation is moderated by risk culture. The study shows that there is no strong association of risk culture that influences the ERM policy on ERM implementation. This result directly does not support the suggestion of the cultural theory related to risk management. The current findings somehow do not match previous research conducted by Regester and Larkin (2005) who found that traditional corporate culture and risk management culture do not vary greatly from a bureaucratic inflexible system. They further reiterated that communication should be effectively initiated to ensure continuous awareness and importance of ERM and the entity's risk appetite and tolerance. Implicit in this finding is that the influence of risk culture on the relationship between ERM policy and process methodology and ERM implementation does not support the suggestion of the cultural theory. Hence, both hypothesis H12-4 and H12-5 are not supported.

The present study hypothesizes the independent variable of operating framework that is RAT. This variable is hypothesized to see the influence of operating framework dimension on ERM implementation by using risk culture as a moderator. As illustrated in Table 5.14 Model 3 shows the effect of RAT and risk culture on ERM implementation with the presence of interaction variable between independent variable and moderating variable. Model 3 clearly makes significant changes in the

variance ($R^2=0.011$, $F=0.968$, $p<0.1$). These results also indicate that there are significant effects of the interaction between RAT and risk culture ($B= 0.154$, $p<0.1$). The examination of the interaction plot showed an increase whereby when RAT and RC was larger ERM increase as specified in Figure 5.11. The results show that H12-6 is supported and accepted.

The present study also hypothesizes the independent variables of AC, RMC and internal audit to illustrate the influence of these variables on ERM implementation by using risk culture as a moderator. The outcome of the analysis indicates that the influence of RMC on ERM implementation is moderated by the risk culture. Model 3 shows the effect of independent variable and moderator variable on ERM implementation with the presence of interaction variable between independent variable and moderator variable. The results show that there are significant effect between RMC with risk culture ($B=0.139$, $P<0.1$). The examination of the interaction plot showed an increase whereby when RMC and risk culture was larger, ERM increase as specified in Figure 5.12. Thus, the hypotheses is supported H12-8.

Model 3 makes significant changes in the variance ($R^2=0,011$, $F=0.968$ $p<0.01$). The results also indicate that there are no significant effects of the interaction between AC and risk culture ($B= -0.010$, $p>0.01$) and internal audit and risk culture ($B.103$, $p>0.01$). The outcomes indicate that both hypotheses are not strongly associated and the increase in the relationship between the independent variable and dependent variable is moderated by risk culture. The result of hypotheses indicates that both H12-7 and H12-9 are not supported and accepted. The weak relationship for both AC and internal audit is not aligned Munro (2004) and Tansey and Riordan (1999)

whereby they said that risk management is linked to organizational culture that encourages workers to see risk assessment in a holistic view and as a mechanical tool for business execution. In the present research, there are no strong associations of risk culture that influence the internal audit on ERM implementation. This result directly does not support the suggestion of the cultural theory related to risk management. Implicit in this finding is that the influence of risk culture between internal audit and ERM implementation does not support the suggestion of the theory. Hence, hypothesis H12-9 is rejected.

The present study also hypothesizes the effect of compliance dimensions, i.e., rules and regulations and code of practices between ERM implementation by applying risk culture as a moderator. The outcome of the analysis indicates that there is a weak association or insignificant relationship for RNR ($\beta = 0.065$, $p > 0.01$) and COP (with $\beta = .030$, $p > 0.01$). Table 5.14 summarises the result of hierarchical regression to examine the effect of risk culture as the moderating variable in the relationship between compliance and ERM implementation. Model 3 shows the effect of rules and regulation and risk culture on effective ERM with the presence of interaction variable between independent variable. Model 3 makes insignificant changes in the variance ($R^2 = 0.011$, $F = 0.968$, $p > 0.01$). The results also indicate that there are no significant effects of the interaction between both interaction terms with ERM implementation. Thus, this result fails to support the hypotheses. Therefore, the present study implies that the influence of compliance constructs of rules and regulation, and code of practice on ERM implementation does not support the theory. Hence, hypothesis H12-10 and H12-11 are rejected and not supported. The weak relationship of both rules and regulations and code of practice for the present

study differs from past research conducted by Tansey and Riordan (1999) whereby they argued that risk culture influences the decision-making process for internal stakeholders even though they are not consciously weighing risks and benefits. They further argued that from the perspective of risk and compliance, business enterprises would eventually understand the standard rules aligned with their business goal-setting. Zeier (2014) also viewed that a risk culture can be a platform to assess the organizational system which can be used to shape risk decisions.

In summary, the results reveal that risk culture partially interacts or increases the interaction between independent variables and moderating variable. Risk culture is also a good moderator in the relationship between ERM determinants and ERM implementation. Risk culture significantly increases the effect and strong interaction between independent variables (senior management commitment and CRO) in the leadership factor and ERM implementation. It is also discovered that risk culture also moderates the relationship between RAT in the operating framework and ERM implementation. Finally, risk culture significantly increases the effect and strong interaction between the governance structure as independent variable for RMC and ERM implementation. In a nutshell, all hypotheses represented by the leadership construct (H12-2 and H12-3); operating framework construct (H12-6; and governance mechanism construct (H12-8) significantly increase the effect and have strong relationship or interaction between independent variables and dependent variable moderated by risk culture. Hence, all the above variables have a strong relationship and good interaction and hence it is accepted and supported.

6.8. Summary of the Findings

This study attempts to provide concrete justification, support and evidence on the need to identify which factors of the four constructs, namely, leadership (BOD, senior management commitment and CRO), operating framework (ERM policy, process methodology and RAT), governance mechanism (audit committee, RMC and internal audit) and compliance (rules and regulations and code of practices) are associated or significantly influence the ERM implementation in Malaysian PLC.

In addition, this study also examines the moderating effect of risk culture on the relationship between the determinants and ERM implementation. The dependent variable in this study is the ERM implementation while the independent variables are categorized into four main constructs as described in the beginning of this chapter. The previous lessons learnt on the corporate scandals or financial distress events such as Enron and World Dot.Com, are a wake-up call for business corporations to emphasize on the basic requirements of implementing good governance practices. Most of the root causes were mainly due to poor corporate governance and risk management practices. In the East Asian financial crisis of 2007, weak corporate governance and poor risk management were found to be the main contributors of companies' failure. The internal failure of governance issues was actually the main reason for companies to implement and adopt the risk management framework. Hence, strong risk management systems and basic governance practices have been enforced, specifically in the financial industry, after the failure of many financial companies. The ERM implementation can be materialized provided that the tone from the top and continuous monitoring for the entire processes are adopted

throughout divisional levels within the organization and aligned with business strategies.

A risk culture is considered as fundamental factor in ensuring that the right things are performed or over doing whatever it takes. Although risk culture has become a threshold for developing good ERM practices, several business practices however show evidence of inadequate commitment and buy in issues. Additionally, to ensure the ERM processes are effectively implemented within the organizations, risk culture should be emphasized and constantly monitored. This means it must be incorporated into the company's core values, beliefs and objectives and communicated throughout the company. This study is premised on the reason that some companies in Malaysia do not have a formal system in terms of ERM to mitigate their business and operational risks or even safeguard new ventures. This lack of mitigation controls could be due to a misunderstanding of the ERM methodology and techniques to steer the business direction more appropriately. That could also involve the quality of decision making where the need to have a conducive risk portfolio instrument to assist in mitigating business risks and minimizing the business impact from financial and operational destruction which unexpectedly occur due to wrong prediction of the financial business model.

Ineffective IT on ERM to drive the real-time information for the business risk exposure has some implications on the quality of the decision-making process. All determinants are essentially required for the ERM implementation; however, if the level of risk culture among the stakeholders within the company is underestimated, it will surely challenge the implementation of ERM. Under the Security Commission

and the Malaysian Code of Corporate Governance (2007), all listed companies must have a systematic approach to ERM portfolio. The purpose is to examine the robustness of the efforts of corporate governance practices in coping with the rapid changes of the global capital market environment. The International Organization for Standardization (ISO) which has introduced a new chapter of ISO31000 Risk Management Compliance acknowledges that organizations operate in uncertainty and an international risk management framework must be adopted by any business associate independently. Based on the above problems, the current study develops two research questions:

Question 1: What are the key determinants that affect ERM implementation?

Question 2: Is the relationship between ERM determinants and ERM implementation moderated by risk culture?

In order to address these questions, the researcher developed a conceptual framework and research hypotheses. The study developed 22 hypotheses to be examined based on the research model. The study examined a sample of 300 PLC from the 814 PLCs based on the master list database provided by Bursa Malaysia as of 8th July 2014 under the Listing of Companies on the Main Market. The whole data collection process is done for one and half month. The data collection was analyzed to determine the significance level of both the dependent and independent variables. It started with a pilot test on 20 samples within the Johor Southern Region of Iskandar Malaysia group of companies. This pilot test is primarily to determine the construct validity and reliability of the developed questionnaire prior to final circulation to the selected sample of 300 companies. The real data collection is commenced after the

pilot test. A questionnaire is designed for data collection from the respondents and the data is analyzed using SPSS V.16 software.

This study is a much needed attempt to present a comprehensive assessment of the key possible factors that have significant effect on ERM implementation. This study enables the identification of specific factors which can be used to implement ERM. In this study, the researcher deployed descriptive analysis, factor analysis, correlation and step-wise regression. In order to determine the relationship between ERM implementation (as dependent variable) and the independent variables, multiple regression analysis was adopted.

In order to determine whether there is a significant relationship between independent variables and ERM implementation, the multiple regression analysis is used in this research. The results of this study are quite encouraging as a number of variables have relationships with ERM implementation. The independent variables which have significant associations or positive relationship with ERM implementation include senior management commitment, CRO, ERM policy, process methodology, RAT, AC, RMC, internal audit, rules and regulations and code of practices. Conversely, some variables are not significantly related to the dependent variable, such as BOD.

This study also focused on the relationship between the determinants and risk culture. The independent variables which have significant associations or positive relationship with risk culture include senior management commitment, CRO, RAT, RMC and code of practice. Conversely, some variables are not significantly related to the dependent variable, such as BOD, ERM policy, process methodology, AC,

internal audit, rules and regulations as well as code of practice. In terms of moderating effect of risk culture, the study concludes that some variables are well connected, such as senior management commitment, CRO, RAT and RMC. Other independent variables were found not supporting or having insignificant relationship between ERM determinants and ERM implementation when moderated by risk culture.

The current study reveals that RMC is significantly supported and this finding is aligned with the previous research conducted by COSO of the Treadway Commission (1992, 2004), Hermanson (2003), and Selim and Mc Namee (1999). All of them, suggested that the quality of internal monitoring is likely to be higher and significant when RMC exists compared to a situation when there is no RMC with respect to risk management.

6.9 Implications of the Study

This study attempts to provide significant theoretical and practical contributions to industrial practitioners, researchers and academicians, besides providing a model or best practices of ERM for listed companies which can be effectively implemented. The outcome of this research can improve the current state of ERM within industries, specifically listed companies. This study is also important for business practitioners or corporate managers to test the contributions of the new variables besides the existing review by past researchers that could enrich ERM implementation. An effective ERM implementation will support the industrial community to ensure better control and adherence to the national code of corporate governance. In

addition, it will also increase the customers' and investors' confidence to sustain the business relationship and to mitigate potential business issues if supported by adequate ERM processes. The methodology deployed in this study has some implications in the context of ERM's implementation.

There is no specific discussion that the current study has provided enough information linking to the determinants of ERM and ERM implementation and leveraging risk culture as moderating effect to determine the influence of independent factors within listed companies in Malaysia. The current study makes a significant contribution to the ERM literature by deploying a survey instrument to collect primary data and by examining the risk culture as a moderator and to see the influence of ERM determinants on ERM implementation. This study supports the theoretical proposition by providing evidence on the key success factors of ERM implementation. Based on the data gathering and descriptive analysis, there is an addition contribution knowledge to this research in the area of ERM between the key determinants of ERM and ERM implementation. The results indicate that there are areas for improvement in terms of key success factors, i.e., leadership, operating framework, governance mechanism and compliance.

Several authors of previous studies have highlighted or provided explanation regarding the key factors associated with ERM implementation; however, only some have systematically studied ERM and the determinants of ERM by focusing on a few dimensions of operating framework, governance mechanism, leadership and compliance. In addition, the application of risk culture as moderating effect can be considered since some the findings fully support the hypotheses. Therefore, this

study contributes to the empirical knowledge and literature in the area of leadership, operating framework, governance mechanism and compliance, in terms of ERM implementation in Malaysia.

The governance mechanism related variables are also established by this study. Based on the review undertaken, past studies have remained silent about it. Therefore, the results of this study contribute to improving understanding on AC, RMC and internal audit in relation to ERM implementation. In addition, the findings also indicate that the relationship between RMC and ERM implementation positively is moderated by risk culture. This means risk culture influences or increases the significance level between the RMC and ERM implementation. Similarly, the findings also indicate the relationship between senior management commitment, CRO, RAT and ERM implementation are positively moderated by the risk culture. In terms of the leadership dimension, the result indicates that senior management commitment and CRO have a significant influence in determining the ERM implementation with the existence of risk culture as a moderator. The current study also contributes and supports the previous studies whereby senior management commitment and CRO must continuously make sure that effective ERM implementation is performed in a systematic and comprehensive manner with appropriate documentation processes as per standard requirements.

The current study examines the association of operating framework attributes and ERM implementation. Some new independent variables are included, i.e., ERM policy, process methodology and RAT. These variables are related to the risk management process and to enrich the operational system and increase the process of

managing risk at optimum level. By including these new variables, more contributions are made to the extent literature and more evidence is provided on the effects of the operating framework on ERM implementation. In addition to this, RAT is also considered since the hypotheses show a positive relationship with ERM implementation. With the inclusion of a few variables, it has led to significant contribution to ERM implementation.

In the area of governance mechanism, all the independent variables contribute to the ERM implementation. The AC, RMC and Internal Audit show a significant relationship with the ERM implementation. The AC, RMC and internal audit are also part of good corporate governance practices. The AC and RMC must meet regularly with the CRO with regards to the company's ERM processes, controls and capabilities. The AC's role also includes responsibility for overseeing of certain aspects of risk management, including reviewing operational, reputational, legal and compliance aspects and the steps the management has to take, monitor and control risk exposure. The result indicates that a strong AC, RMC, internal audit function and accountability in the organization will ensure that ERM is effectively implemented with the guidance of a proper system, structure, processes and resource management requirements. The positive relationship has contributed to knowledge and it has opened an avenue for future research on ERM implementation.

In the field of compliance, rules and regulations as well as code of practices in relation to the national code of corporate governance, are very important for ERM implementation. The initiative for the code of practice of corporate governance in Malaysia started with the establishment of the High Level Finance Committee on

Corporate Governance in March 1998. The purpose was to examine the robustness of the efforts on corporate governance in coping with the rapid changes of the global capital market environment. On March 2000, the code included guidelines on principles and best practices in corporate governance and the direction for the implementation of corporate governance in Malaysia. The code incorporates risk management as part of good corporate governance practices. The code of practices of corporate governance is a driving force for the BOD to perform effectively. Under a new listing ruling and governance approach, the activities of the BOD have become broader, which include setting business strategy and objectives, determining risk appetite, establishing culture and value, developing internal policies and monitoring performance. From another perspective, ERM is also considered as one of the top priorities at the BOD level where the directors are directly responsible to ensure all risks faced by an organization are identified, assessed, measured and controlled sufficiently. The current result indicates a strong association between the variables and ERM implementation, thus demonstrating a positive implication by increasing the contribution to knowledge.

This study makes theoretical and practical contributions for industrial practices, researchers and academicians, besides providing a proposed framework of ERM implementation for future research. To the academicians, this research justifies the use of the agency theory in the area of implementation in ensuring good corporate governance practices among listed companies in Malaysia and also making sure that ERM implementation is ahead compared to the previous arrangement. All key determinants of ERM and ERM implementation are hypothesized, whereby it clearly indicates some significant and positive relationship. Hence, the findings could be

useful as a feedback whereby the principals have the ability to counter any weaknesses within procedures or processes before a significant effect on the overall internal control system of the organization can be seen.

The results of this research have significant implications for stakeholders, such as business or professional practitioners, including internal auditors, top management, audit committee, standard-setters or even regulatory bodies and academicians in Malaysia. It provides relevant empirical data about ERM in listed companies. To business practitioners, the study reveals the determinants that influence ERM implementation as follows: (1) internal auditors on their important role in adding value and support to strengthen the ERM framework; (2) board members, AC and RMC as independent parties to strengthen the corporate governance framework and the effectiveness of ERM; (3) standard-setters, e.g., the IIA, in developing standards related to internal audit roles in ERM implementation; (4) regulatory bodies, e.g., the Bank Negara Malaysia and Security Commission in formulating guidelines on national best practices of corporate governance.

6.10 Contributions

In the past studies on ERM, many researchers have agreed that the key success factors for ERM implementation depend on the internal and external environment. In this study, there is strong relationship between ERM implementation, leadership, operating framework, governance mechanism and compliance. The outcomes of this study signify these important elements contribute to ERM implementation. In principle, the practical and theoretical contributions of the study are as follows:

6.10.1 Theoretical Contribution

The current study makes significant theoretical contributions based on the variables' assessment. Firstly, a few underpinning theories related to this study are applied, such as the agency theory, corporate legitimacy theory and cultural theory related to ERM implementation. These theories are to some extent integrated in order to strengthen the knowledge of corporate governance related to ERM implementation. In addition, an integrated conceptual framework from various studies is also deliberated and introduced. Secondly, the suitability of various variables is determined empirically and the framework is validated within the context of ERM implementation with the support of risk culture as moderator. This moderating effect shows significant increases in variance of ERM implementation for few variables, such as senior management commitment, CRO, RAT, RMC. In addition, survey method was adopted as a means of primary data. Thirdly, some of the independent variables which was previously identified by the several other researcher are also used to support the study, such as leadership (senior management commitment and CRO); operating framework (ERM policy, process methodology and RAT), governance mechanism (AC, RMC and internal audit function); and compliance (rules and regulations and codes of practices) are integrated into the framework to improve their relationship with the ERM's implementation. The implication is that if the risk management practitioners are willing to make the role of leadership, operating framework, governance and compliance, they should validate or at least support the stakeholders considering these attributes and complement the ERM implementation within the organization. Further, not many past studies have tested risk culture as a moderating variable between the ERM determinants and ERM

implementation in the listed companies. In this study, some of the variables are accepted and justify the positive association between ERM determinants and ERM implementation. The current study recommends the inclusion of these independent variables in the assessment of ERM implementation by using risk culture as a moderator. Besides, the current study also improves the contribution of independent variables, such as leadership, operating framework, governance mechanism and compliance, to support the findings.

Lastly, the agency, corporate legitimacy and cultural theories related to risk management and ERM implementation are highlighted in this study in relation to ERM determinants and risk culture. Specifically, the theory is also supported the motion of implementing a good governance of ERM practices in the organization by ensuring a total commitment and accountability from the senior management and risk leader to managing the business risk. It includes the standard risk management processes in the area of risk identification, risk measurement, risk treatment and monitoring and reporting. In a nutshell, the continuous awareness and training processes are also imminent to ensure that the risk culture are significantly important to ensure ERM is implemented at the business operation and organization as whole. The study further deliberates that the cultural theory is related to ERM implementation which has not been applied in the past research or studies within the context of ERM implementation as well as risk culture as a moderating factor. It is noted that this theory complements both the agency theory and corporate legitimacy theory and supports the findings. The theory was actually applied to provide justifiable explanation for the risk culture and its moderating effect between ERM determinants and ERM implementation.

6.10.2 Methodological Contribution

The current study contributes methodologically through the development and validation of the survey instrument. Creation and validation of research instruments for variables established by theory imply that the strength of the variables and the theoretical connection to change in measurement are tested. Developing research instruments on the basis of ERM literature represents a moderate contribution to scientific practice in this area, as quoted by Boudreau and Geffen (2004). In another circumstance, the results derived from this study and the application of factor analysis provide a new assessment for the attributes or independent variables, and possibly this mechanism can be used or adopted for examining the ERM in other corporate governance fields. Lastly, the previous researchers on ERM approach and its arguments would be an avenue to justify the consideration that establishing an instrument in for ERM implementation is an important contribution to the current and future research methodology.

6.10.3 Contribution to Academia

In the past studies done by both international and local researchers on ERM, the results have been mixed. In the context of Malaysia's business perspective, many researchers have been focused on key success factors or critical elements in determining the ERM implementation. By looking at the past studies, the current findings actually complement and contribute to the knowledge; its significant findings enrich the understanding of the ERM implementation, particularly in an emerging business economy, like Malaysia. In this study, various types of companies

listed on Bursa Malaysia were used as samples to determine the relationship between ERM determinants and ERM implementation, with risk culture as a moderating variable. The results provide useful update and latest information for future academic research work.

Past researchers have used a different theoretical framework to justify their findings and assessment as compared to the current research. With this new finding or development, the results could be useful to deliberate or serve as a signal and guide for relevant stakeholders, including but not limited to the external parties, intended or interested parties, such as the external auditor, government officials, policy makers, business owners, auditors and potential or existing investors to increase their confidence in the ERM implementation in a business entity, and ultimately their investment.

In spite of the fact that the current research contributes practically, theoretically, and academically, it cannot be exonerated from some important limitations. The next section deliberates on some of the study's limitations encountered during and in the course of performing this research

6.11 Limitations of the Study

This study is merely focused on corporations or business organizations and all relevant stakeholders within the business cycle of concern. Other important stakeholders, such as business owners, investors, managers of organizations, external auditors, tax auditors or legal compliance officers are not taken into consideration.

Therefore, it is important to provide an avenue for these intended parties to give a real impact to the study as a whole. Hence, focusing on the business corporations or organizations without extending it to other important or relevant stakeholders may constitute a restriction or limitation of the study. In addition, this study does not take into consideration other variables, like financial and internal control system, organizational structure, social impact and governmental policy.

This research is limited because of the difficulty in studying the variables in a complex environment, such as listed companies. Future research can consider reviewing the success or implication of ERM implementation in the context of small-medium industries and multinational corporations. A comparative study between listed companies, multinational corporations and small-medium industries can be considered to examine the effectiveness or relevancy of ERM implementation. The aforementioned limitations therefore provide an opportunity to improve the study on ERM and its determinants in the future.

6.12 Suggestions for Future Research

The ultimate reason for conducting this study is to identify the determinants that affect the of ERM implementation in Malaysia. This study also examines the moderating effect of risk culture between the determinants and ERM implementation. The dependent variable in this study is ERM implementation, while the independent variables are categorized into four main components: leadership, operating framework, governance mechanism and compliance. It is suggested that research in the future extends this study by examining the following:

- a) The impact of financial and internal control systems on effective ERM implementation
- b) Since risk culture is considered as moderating effect, future examination can be done to signify the cultural effects on corporate performance in terms of low, medium and high cultural implication to the organization
- c) The relationship of effective ERM in association with corporate performance in terms of profitability, sustainability and liquidity
- d) Change in legal framework and governance rules towards effective ERM adoption in listed companies in Malaysia
- e) The risk awareness program and culture behavior to determine the effectiveness of corporate governance implementation in listed companies.
- f) Specific revision to examine the corporate governance and corporate performance as independent variables to determine the effectiveness of ERM adoption.

In addition, the suggestions or perhaps opinions of stakeholders, including the business community or associates, external auditors, chief risk officer, and relevant authority must be considered in future research since these interested or intended parties are highly important for ERM implementation. Inevitably, the specific groups within the circle of influence or concern must be taken into consideration for ERM implementation within the business corporation. Finally, future research can also look into conducting a comparative study between regions to discover the differences and similarities of listed companies in terms of ERM development.

6.13 Conclusion of the Study

The outcome of this research reveals that there is a significant and positive relationship between ERM determinants and ERM implementation. The independent variables which represent leadership (senior management commitment and CRO), operating framework (ERM policy, process methodology and RAT), governance mechanism (AC, RMC and internal audit) and compliance (rules and regulations and code of practices) directly support the previous findings with the additional contributions to knowledge in the area of ERM implementation in Malaysia. The risk culture as a moderating effect was tested to determine the relationship between ERM determinants and ERM implementation.

The result of hypothesis testing reveals that a few independent variables of the leadership construct (e.g., senior management commitment and CRO), operating framework construct (RAT) and governance mechanism construct (RMC) are fully supported and accepted. The other independent variables were found to be insignificant and not accepted. From this assessment, the insertion of the interaction between senior management commitment and CRO with risk culture has significantly increased the effect on ERM implementation. The outcomes of the study also show that the risk culture is a good moderator in the relationship between ERM determinants and ERM implementation.

The result of this study also suggests that senior management commitment under the leadership construct fully supports the ERM implementation, which concurs with previous findings by Barton et al. (2002); Walker et al. (2002), Eick (2003), Kleffner

et al. (2003a; 2003b), Price WaterhouseCoopers (2004), and Bowling and Rieger (2005a). Other independent factors, such as operating framework (e.g., RAT); and governance mechanism (e.g., RMC) are also strongly connected and significantly increase the effect on ERM implementation. Other independent variables, such as compliance (i.e., rules and regulations and code of practices) require further improvement as these factors are considered highly important to determine the ERM implementation.

The current findings are also aligned with past researchers and found to be significant and concurrent with previous studies conducted by Ciocoiu and Dobrea (2010) whereby they viewed that successful ERM implementation requires support and correlation of ERM determinants and dependent variables in the area of governance mechanism, leadership and operating framework and compliance. Finally, rules and regulations are also equally important to make sure the ERM implementation is aligned with specified rules and applicable laws. The current study is also aligned with past research conducted by Collier, Berry and Burke (2006), and Kleffner et al. (2003), where it is found that the regulators are pressing firms to improve risk management and risk reporting.

The current study is significant in the sense that it helps shed light on the relative importance of the leadership, operating framework, governance mechanism and compliance constructs on ERM implementation in Malaysia. The independent factors, such as RAT, ERM policy, process methodology, AC, RMC code of practices and rules and regulations, in relation to ERM unfolded in this study could serve as reference to academia and as a catalyst for further investigations.

Following a thorough revision and discussion of the study's objectives achieved and related prior literature, the general and individual implications of the outcomes of the study are deliberated to give further details about their importance from the academic and stakeholders' points of view. In addition, theoretically and practically, the study's findings have significant value in terms of the research model developed and can be used as an explanatory model for ERM determinants and ERM implementation. In the auditing field for instance, the adoption of the risk based methodology approach is essentially important that linked to the yearly internal audit plan development. The auditor shall use the related information on ERM perspectives to conduct the audit based on high risk areas besides audit universe. Hence this model contributes to the knowledge in the area of risk governance, compliance and control mechanism that have linked with the enterprise risk management implementation. From the ERM perspective, the results of this study could serve as a guide to develop a strategy for audit actions in the assessment of ERM practices as this has the potential to improve the level of ERM implementation by the stakeholders as a whole.

6.14 Summary

This chapter further discusses the findings and overall results deliberated in chapter six. Firstly, the research hypothesis test results for the first research question show that out of 11 hypotheses, 10 hypotheses are accepted and positively associated with the dependent variable; only one independent variable is found to be insignificant and not supported. As for the final research question on risk culture as a moderator to determine the influence of independent variables on ERM implementation, it is revealed that four out of eleven hypotheses are accepted and have a strong relationship with risk culture to influence the independent variables against the dependent variable. This study indicates that seven hypotheses have a weak relationship and are not supported. The discussion of results is also followed by specific review of all hypotheses with some comparative analysis on the current study with past research. The results of this study provide further insight into the factors that have significant impact on ERM implementation in the context of Malaysia's PLC.

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UUM
Universiti Utara Malaysia



**CHIEF EXECUTIVE OFFICER
CHIEF RISK OFFICER
HEAD OF RISK MANAGEMENT**

Dear Sir

I am undertaking a research entitled **“The Moderating Effect of Risk Culture on Enterprise Risk Management Implementation in Malaysia.”** This study is undertaken to fulfill the partial requirement of the academic program leading to a Doctor in Business Administration (DBA) at the Universiti Utara Malaysia (UUM). By taking 15 minutes of your valuable time, you are providing information that is pertinent to this study.

I would be obliged if you could provide your comment for this questionnaires based on your honest opinion. There is no right or wrong answer. Please make a full effort to answer each question.

I would like to assure you that all answers will be kept strictly **confidential** and will be used only for this research. The code of the instrument is known only to the researcher and will not be communicated to any other parties in any form.

The Chief Executive Officer, Chief Risk Officer or Head of Risk Management Department from public listed companies in Malaysia have been asked to complete this survey. Please complete the questionnaire and return it using the self addressed (stamped) envelope or fax to 07-5042155 or email to othman0872@yahoo.com or othman0872@gmail.com .

If you have any inquiries or problem in answering the questionnaire, do not hesitate to contact me at 019-7345060 or above email.

Thank you very much for your kind assistance.

Yours sincerely,

.....
(Othman bin Ibrahim)
DBA Candidate
Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia

ORGANIZATION'S INFORMATION PROFILE

PART A: Organization Profile

(PLEASE TICK ✓ IN THE APPROPRIATE BOX)

For the purpose of this study, the current state of affairs of risk management practices would be required to gauge the understanding of risk management framework at your organization. Please tick either "Yes" or "No" to the given question stated below.

- 1) Is there a formal process in place to perform an assessment of enterprise wide risk?

Yes
No

- 2) Does your organization have early warning indicators in place to alert management of potential risk events (e.g. system failure, project delay, fraud, new product from competitors)?

Yes
No

- 3) Is adequate risk management training provided to management and other personnel to ensure that adequate capability exists within the business?

Yes
No

- 4) Do you think there is a need to strengthen your risk management function?

Yes
No

- 5) Do you have appropriate enablers in place to support the risk management activities?

Descriptions	Yes	No
Standard template / Standard Operating Procedures		
Risk Assessment and monitoring software		
Modeling tools		

7. Type of business of the company under Bursa Malaysia listing

<input type="checkbox"/>	Trading
<input type="checkbox"/>	Industrial products
<input type="checkbox"/>	Consumer products
<input type="checkbox"/>	Properties
<input type="checkbox"/>	Finance
<input type="checkbox"/>	Construction
<input type="checkbox"/>	Plantation
<input type="checkbox"/>	Technology
<input type="checkbox"/>	Hotels
<input type="checkbox"/>	Mining
<input type="checkbox"/>	Trust
<input type="checkbox"/>	Infrastructure

8. Years company has been established

- 1 - 5 years
- 6 - 10 years
- 11 - 15 years
- 16 years and above

9. Majority ownership of your company

- Bumiputra
- Chinese
- Indian
- Foreign
- Others

Please specify: _____

10. Name of your company (optional) : _____



PART B: Main Part

SECTION 1: LEADERSHIP

For each of the statements, please indicate the extent to which you agree with the **board of directors (BOD) in relation to enterprise risk management (ERM) implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

**1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A),
5 = Strongly agree (SA)**

No.	Statement	SD	D	N	A	SA
1.	BOD understand and review management's vision for ERM	1	2	3	4	5
2.	BOD expect management to obtain an independent assessment of the company's ERM practices	1	2	3	4	5
3.	BOD spend real time with management to focus on/ deliberate the core areas related to risk issues	1	2	3	4	5
4.	BOD put in place robust board-level risk reporting to ensure the board has full transparency on key risks	1	2	3	4	5
5.	BOD determine how ERM process should integrated with the strategic planning development	1	2	3	4	5
6.	BOD review the competencies of the board in fulfilling its risk oversight duties	1	2	3	4	5
7.	BOD conduct an annual board self-assessment	1	2	3	4	5

For each of the statements, please indicate the extent, to which you agree with the **senior management commitment in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

**1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A),
5 = Strongly agree (SA)**

No.	Statement	SD	D	N	A	SA
1.	Strong support and full commitment from senior management are necessary for the successful achievement of ERM organizational strategy and its effectiveness	1	2	3	4	5
2.	Senior management should have ownership of ERM system because it is considered as a key component of corporate governance	1	2	3	4	5
3.	Senior management must set the tone from the top to ensure full accountability for all business owners to support the ERM process	1	2	3	4	5
4.	Senior management should agree on ERM objectives and its key success factor	1	2	3	4	5

5.	Senior management should identify actions to enhance ERM activities related to the identified significant risks exposures	1	2	3	4	5
6.	Senior management should report the entity's top risk exposures to the board on a regular basis	1	2	3	4	5
7.	Senior management should monitor risk indicators to track future or potential emerging risks on a regular basis	1	2	3	4	5

For each of the statements, please indicate the extent to which you agree with the **chief risk officer (CRO) in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	CRO should develop integrated risk governance reporting procedures for the RMC	1	2	3	4	5
2.	CRO should inculcate ERM awareness among senior executives	1	2	3	4	5
3.	CRO should develop ERM framework for the company	1	2	3	4	5
4.	CRO must have expertise on cost benefit analysis for evaluating ERM project management and development	1	2	3	4	5
5.	CRO must ensure all employees understand the important of ERM implementation	1	2	3	4	5
6.	CRO should collaborate with unit leaders to ensure risk assessment is included in the business strategy plans	1	2	3	4	5
7.	CRO should collaborate with unit leaders to ensure risk assessment is in accordance with organizational compliance standard.	1	2	3	4	5

SECTION 2: OPERATING FRAMEWORK

For each of the statements, please indicate the extent, to which you agree with the **ERM policy in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	ERM policy must be observed by all functional units such as procurement, IT, supply chain management, Finance etc	1	2	3	4	5

2.	The company should have clear policy on ERM practice	1	2	3	4	5
3.	ERM policy should state clearly who is accountable for mitigating business risk within their functionalities	1	2	3	4	5
4.	ERM policy should determine how effective communication can be established in the organization	1	2	3	4	5
5.	ERM policy should explain the process of identifying, defining, quantifying, comparing, prioritizing and treating all types of risks	1	2	3	4	5
6.	The understanding of ERM policy influences stakeholders' commitment on its implementation	1	2	3	4	5
7.	All risk owners should be committed to ensure risk assessment is aligned with ERM framework	1	2	3	4	5

For each of the statements, please indicate the extent to which you agree with **process methodology in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:-

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	A continuous communication in the company is important to ERM process	1	2	3	4	5
2.	The communication of ERM philosophy should be more aware publicly and transparent within organization	1	2	3	4	5
3.	The identification of targeted benefits to be achieved through the deployment of ERM is important	1	2	3	4	5
4.	The articulation of risk appetite for the organization and/or business unit should be developed and cascaded down to business unit.	1	2	3	4	5
5.	The establishment of a clear linkage between strategic planning and ERM is paramount	1	2	3	4	5
6.	The integration of ERM process into annual planning and budgeting are critical to company's sustainability	1	2	3	4	5
7.	The inclusion of inherent and residual level of risk exposures in the assessment process are highly required	1	2	3	4	5

For each of the statements, please indicate the extent to which you agree with the **risk assessment tool ("RAT") in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	A formal RAT is critical for developing a sustainable methodology that enables risks to be identified and measured	1	2	3	4	5
2.	RAT should be formalized and aligned with ERM process to promote consistency and efficiency	1	2	3	4	5
3.	Common risk and control taxonomy and libraries enable an organization to effectively assess, and manage risk	1	2	3	4	5
4.	A leveraged RAT generates effective report to the management about the benefits and value of the information technology risk management program	1	2	3	4	5
5.	The use of RAT support technological risk management program	1	2	3	4	5
6.	RAT enables risk program monitoring process and in turn contributes to the success of information technology risk management initiatives	1	2	3	4	5
7.	There is a clear articulated and well-understood information technology RAT in the company	1	2	3	4	5

SECTION 3: GOVERNANCE MECHANISM

For each of the statements, please indicate the extent to which you agree with the **audit committee role in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	Audit committee meets regularly with the CRO in relation to the company's ERM processes, controls and capabilities	1	2	3	4	5
2.	Audit committee role is to review company's risk assessment and approved policies and procedures at least on an annual basis	1	2	3	4	5
3.	Audit committee is to review internal control system and financial reporting relied upon to provide reasonable assurance of compliance with the company's operational ERM process	1	2	3	4	5
4.	Audit committee role is to retain responsibility for oversight of certain aspects of ERM, including review of major operational, reputation, legal and compliance to monitor and control such risk exposures	1	2	3	4	5
5.	Audit committee is also to oversee risks related to financial statements integrity, including preparation and oversight of the ERM processes	1	2	3	4	5

6.	Audit committee is to review the company's processes and policies with respect to risk assessment and ERM program company-wide	1	2	3	4	5
7.	Audit committee also need to oversee management of accounting, auditing external financial reporting and internal control risk on ERM assessment	1	2	3	4	5

For each of the statements, please indicate the extent to which you agree with the **risk management committee (RMC) in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	The existence of RMC is to provide a clear and practical guidance for the implementation of ERM	1	2	3	4	5
2.	The existence of RMC is to ensure ERM can add value to the business organization	1	2	3	4	5
3.	The existence of RMC is to enable the management to determine the risk that the company can tolerate in relative to the stated objectives	1	2	3	4	5
4.	RMC should link ERM practices with corporate strategy development	1	2	3	4	5
5.	The existence of RMC will ensure that risk information is timely and up-to-date	1	2	3	4	5
6.	The existence of RMC is important to instill risk awareness at the workplace	1	2	3	4	5
7.	RMC should identify new trend of industrial risk which may impact company's existing governance, risk and compliance activities	1	2	3	4	5

For each of the statements, please indicate the extent to which you agree with the **internal audit in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	The internal audit should support ERM implementation for business sustainability	1	2	3	4	5
2.	The internal auditor should have adequate knowledge on ERM practices	1	2	3	4	5
3.	The internal audit is to coordinate ERM function between departments	1	2	3	4	5
4.	The internal audit should advice ERM team on how to establish effective implementation of ERM	1	2	3	4	5

5.	The internal audit should suggest feasible activities for mitigating risk in the business organization	1	2	3	4	5
6.	Internal audit department should perform its own risk assessment	1	2	3	4	5
7.	Internal audit department should monitor the implementation of ERM in the organization	1	2	3	4	5

SECTION 4: COMPLIANCE

For each of the statements, please indicate the extent to which you agree with **rules and regulation in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A),

5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	Complying with the regulatory requirements enables the company to effectively implement ERM process in a more structured manner	1	2	3	4	5
2.	ERM is explicitly linked with corporate governance standards and has been referred as a key responsibility of the board of directors	1	2	3	4	5
3.	Disclosure requirements with respect to ERM would encourage superior transparency and management within the business organizational and operational requirement.	1	2	3	4	5
4.	Good governance ensures that ethical values, codes, roles, compliance to applicable laws and responsibilities are implemented in a clear ERM structure with a defined set of accountabilities	1	2	3	4	5
5.	The corporate governance principle focuses on ERM is a primary value added system driving internal compliance, control and good governance and guidance	1	2	3	4	5
6.	The company has to comply with rule, regulation and standard of listing requirement regarding the corporate governance and risk management	1	2	3	4	5
7.	The company implements ERM that is in line with guidelines proposed by COSO ERM Framework	1	2	3	4	5

For each of the statements, please indicate the extent to which you agree with the **code of practice in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A),

5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	The introduction of good corporate governance and best practice has influenced ERM practices in the business organizations	1	2	3	4	5
2.	Effective ERM can strengthen corporate governance process and improve transparency, fairness, accountability and responsibility	1	2	3	4	5
3.	Code of good governance would establish proactive organization that is concerned with accountable decision making, through a balanced actions between cost of avoiding threats or enhancing opportunities and the benefits to be gained	1	2	3	4	5
4.	Good governance leads to effective and efficient ERM performance	1	2	3	4	5
5.	Code of good governance highlights that proactive board, proactive audit committee, independent internal audit function and management sponsorship are critical success factor for ERM implementation	1	2	3	4	5
6.	Code of good governance provides standard for monitoring fraud, customer service, stakeholders' requirement and business performance	1	2	3	4	5
7.	The effectiveness of every ERM component relies heavily on code of practice of governance compliance.	1	2	3	4	5

SECTION 5: SUCCESS RANKING IN CREATING A RISK CULTURE

As business growing, one company should evaluate the need for broadening organizational risk culture and practice. Below is a list of activities that are related to risk culture and in turn could be used to increase ERM implementation. For each of the statements, please indicate the extent to which you agree with the **risk culture in relation to ERM implementation**. Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	A continuous ERM education for directors and executives	1	2	3	4	5
2.	Risk appetite is clearly communicated in the company	1	2	3	4	5
3.	The business organization responds effectively to external opportunities and threats	1	2	3	4	5
4.	Business owners will manages and takes risk in accordance with its stated risk appetite	1	2	3	4	5
5.	Senior management will considers the long term impact of its strategic decisions on its risk appetite	1	2	3	4	5

6.	The mission, value and values of this company are clearly communicated	1	2	3	4	5
7.	The business owners or leader within company is doing a good job at taking calculated risks	1	2	3	4	5
8.	ERM in the company is at the same par with other companies in the same industry	1	2	3	4	5
9.	Risk information is integrated into decision making	1	2	3	4	5
10.	Competency in analyzing and managing risk is always ensured by the management	1	2	3	4	5
11.	Manner in which senior management responds to bad news is in accordance with the standard practice	1	2	3	4	5
12.	Sufficient resources within risk function remit for senior management if being challenged	1	2	3	4	5
13.	Appropriate risk taking behaviors rewarded through performance management process	1	2	3	4	5
14.	Development and communication of risk management philosophy is communicated at the workplace	1	2	3	4	5
15.	Senior management setting the “tone at the top”	1	2	3	4	5
16.	Clear accountabilities for risk within overall governance framework	1	2	3	4	5
17.	ERM education and training for business-unit management	1	2	3	4	5
18.	Transparency in communicating of risk information in a broaden manner.	1	2	3	4	5

SECTION 6: ENTERPRISE RISK MANAGEMENT IMPLEMENTATION

An ERM implementation is one that produces materially complete information on a timely basis in relation to organizational residual risk status. It is embedded within formalized, mature governance and maintained by reporting that promotes a transparent view across the organization. For each of the statements, please indicate the extent to which you agree with the areas which enable the situation leading to **ERM implementation**.

Please indicate whether they apply to your company by circling the appropriate number as indicated below:

Please circle the appropriate choice.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

No.	Statement	SD	D	N	A	SA
1.	The alignment of business strategic objectives increases ERM implementation	1	2	3	4	5
2.	The alignment of business value drivers and risk management value drivers increases ERM implementation	1	2	3	4	5
3.	Frequent review of risk management strategy by audit committee can increase ERM implementation	1	2	3	4	5
4.	Frequent BOD meeting to discuss risk management strategy can increase ERM implementation	1	2	3	4	5

5.	Frequent meeting between CEO and risk management team to identify business risks and form relevant strategy can increase ERM implementation	1	2	3	4	5
6.	The increase in business strategy implementation failure is due to improper risk mitigation plan from the CRO	1	2	3	4	5
7.	The implementation of business strategy is always being delayed due to late intervention from the CRO	1	2	3	4	5
8.	The more process owners involved in risk assessments, the more accurate and forward-looking the information collected will be, both of which are hugely valuable to organization	1	2	3	4	5
9.	Frequent identification of systemic risks can increase ERM implementation	1	2	3	4	5
10.	The increased engagement of right people and focus intensity resulting from effective integration makes organizational risk assessment more insightful	1	2	3	4	5
11.	More key risks being monitored during risk assessment enables companies to detect and identify new emerging risks before they materialize	1	2	3	4	5
12.	Periodic risk assessment to determine changes in company's risk profile and performance can increase ERM implementation	1	2	3	4	5
13.	The increase in risk awareness leads to the reinforcement of ERM	1	2	3	4	5
14.	The higher key risks is being mitigated the higher tendency that ERM will be more effective	1	2	3	4	5

PART C. Suggestion

Additional Question

If you have any suggestions or recommendation for the ERM implementation within the company (specify, if any)

“Thank you very much for your valuable time and patience for completing this questionnaire”