

FACTORS INFLUENCING THE EFFECTIVENESS OF
ENTERPRISE RISK MANAGEMENT (ERM) IN PUBLIC
LISTED COMPANIES

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ABSTRACT

Using the theory of contingency as the anchor theory alongside the theories of power and empowerment, the current study seeks to investigate into the level of enterprise risk management (ERM) maturity among public listed companies and thereafter the relationship between organisational factors and actors on the perceived effectiveness of ERM in managing risks. In addition, this study aims to examine the mediating influence of tone from the top and the moderating influence of chief risks officer (CRO) and ERM unit. Consistent with earlier propositions, data from 144 Malaysian public listed companies shows significant direct associations between tone from the top, culture and enterprise system with ERM effectiveness in managing risks. There is also evidence of partial mediating influence of tone from the top on the relationship between culture and ERM effectiveness as well as between enterprise systems and ERM effectiveness. However, data from the survey shows no evidence of direct link between structure and ERM effectiveness. Neither is there any statistically significant relationship between strategic role of ERM Champion and ERM effectiveness nor employee involvement and ERM effectiveness. Additionally, findings indicate that the presence of CRO has moderating influence on the relationship between tone from the top and ERM effectiveness. In contrast, the establishment of a separate ERM unit shows no moderating effects at all on the relationship between the variables in the study and the effectiveness of ERM in managing risks. Further examination using qualitative approach of semi-structured interviews and the content analysis of publicly available data suggests that lack of power and empowerment as the possible explanation for such non-association.

ABSTRAK

Berdasarkan teori kontingensi sebagai teori utama dengan disokong oleh teori kuasa dan pemberian kuasa, kajian ini melihat tahap kematangan perusahaan pengurusan risiko (ERM) di kalangan syarikat-syarikat tersenarai awam di Malaysia dan menyiasat persepsi keberkesanan ERM. Kajian ini juga mengkaji peranan faktor organisasi dan kemanusiaan ke atas keberkesanan ERM dalam menguruskan risiko. Selain itu, kajian ke atas pengaruh nada dari pihak atasan sebagai *mediator* serta pengaruh *moderator* daripada Ketua Pegawai Risiko (CRO) dan unit ERM juga termasuk di dalam skop penyelidikan ini. Selaras dengan ramalan sebelum ini, data daripada 144 responden kajian selidik menunjukkan bahawa, ada hubungan langsung yang signifikan antara nada dari pihak atasan, budaya dan sistem perusahaan teknologi dengan keberkesanan ERM dalam menguruskan risiko. Terdapat juga bukti separa pengaruh *mediator* nada dari pihak atasan ke atas hubungan antara budaya dan keberkesanan ERM serta antara sistem perusahaan technology dan keberkesanan ERM. Walau bagaimanapun, hasil kajian menunjukkan tiada bukti hubungan langsung antara struktur dan keberkesanan ERM. Walaubagaimanapun, tiada hubungan statistik yang signifikan antara peranan strategik Juara ERM dan keberkesanan ERM mahupun penglibatan pekerja dan keberkesanan ERM. Hasil kajian juga menunjukkan bahawa kehadiran CRO mempunyai pengaruh *moderator* ke atas hubungan antara nada dari pihak atas dan keberkesanan ERM. Sebaliknya, penubuhan unit Pengurusan Risiko tidak menunjukkan kesan *moderator* pada hubungan antara faktor yang dikaji dengan keberkesanan ERM dalam menguruskan risiko. Pemeriksaan lanjut secara kualitatif iaitu temu bual separa berstruktur dan analisis kandungan dokumen umum menunjukkan bahawa kekurangan kuasa dan pemberian kuasa boleh menerangkan ketiadaan hubungan tersebut.

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LIST OF ABBREVIATIONS

CAS – Casualty Actuarial Society

CB – SEM – Covariance Based – Structural Equation Modelling

CFO – Chief Financial Officer

CIA – Chief Internal Auditor

COSO – Committee of Sponsorship Organisation of the Treadway Commission

CRO – Chief Risk Officer

ES – Enterprise Systems

ERM – Enterprise Risk Management

IIA – Institute of Internal Auditors

ICAEW – The Institute Chartered Accountants in England and Wales

OCI – Organisational Culture Index

OCP – Organisational Culture Profile

OLS - Ordinary Least Squares

PLCs – Public listed companies

PLS-SEM – Partial Least Square – Structural Equation Modelling

RIMS – Risk and Insurance Management Society

S&P – Standards and Poor

TRM – Traditional Risk Management

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CHAPTER 1 INTRODUCTION

1.1 Background of Study

The highly dynamic and competitive business landscape in recent times has seen numerous corporate calamities due to natural and man-made disasters ranging from floods and earthquakes to frauds and scandals. The increasing dynamics shift risk management, a discipline that has in the past focused on mostly hazardous insurable risks, into a new paradigm of discipline.

Organisations worldwide confront new faces of challenges in managing risks which is beyond what traditional risk management can swallow. On the whole, deregulation, intense competition, changing consumer demographics, and the “enabling power” of technology have altered the business landscape, exacerbating the traditional risks faced by banks while adding new ones (Cornwell, 2001).

As business processes get more and more complex, scope of risks and uncertainties broadens, leading to increased duplication of efforts in understanding and managing those risks faced by businesses. For fear that risks and uncertainties are being overlooked and are not managed appropriately, additional functions and responsibilities are created which gradually leads to redundancies, inefficiencies and eventually increase in costs and time affecting the bottom-line of the entities (Nocco & Stulz, 2006).

Additionally, those involved in managing risks find it more and more difficult to cope with the increasing of risks and uncertainties. They lack the necessary capabilities to withstand the increased volume of information around the various sources of risks, and the multidisciplinary nature of the problems associated with them – which go well beyond what one can handle.

The changing landscape, coupled with the increasing dynamics, both external and internal, warrant a paradigm shift in the companies' approach towards risk management. Instead of looking at risks from a silo-based perspective, businesses now look at risks more holistically – hence the birth of a new terminology in the risk management field called Enterprise Risk Management (ERM) (Connair, 2013).

ERM considers and manages all sources of risk, regardless of the type. According to Banham (2004), ERM is a rigorous and integrated approach where companies assess and address all types of risks from all sources within an organisation engaging everyone within the entire organisation, starting from the very top, at the management level, right down to the very bottom employees. It involves managing the risk of a potential loss (downside) as well as the opportunity (upside) created from a systematic risk. It addresses not just hazard risk, but also financial, strategic and operational risks – all in a single portfolio of risk.

The alignment and integration of the risk functions across organisations helps to ensure the best possible risk mitigation strategies and coverage to manoeuvre against duplications and 'blindspots'. ERM enables companies to manage their risks more effectively, efficiently and holistically, focusing on significant ones to analyse core risk management competencies and evaluating how to best utilise the limited resources whilst achieving their business objectives without neglecting completely the trivial ones. Having risks under control gives companies the flexibility and agility to survive competitively.

Since its introduction, ERM is fast gaining in popularity and interest from the industry and regulators. The Harvard Business Review listed ERM as one of the "breakthrough ideas for 2004" (Buchanan, 2004). In parallel, various bodies and agencies in the likes of rating agencies, professional associations, legislative bodies,

regulators, stock exchanges, international standards organisations and consultants have vigorously issued standards, guidance and frameworks for ERM implementation in their quest to encourage firms to adopt ERM (Arena, Arnaboldi, & Azzone, 2010).

In more developed counterpart countries, regulations on ERM are much more matured and advanced as compared to less developed ones. In the US, the ERM framework published by the Committee of Sponsorship Organisation of the Treadway Commission (COSO) 2004 has been suggested to become a world level template for best practice in ERM (Power, 2007). COSO is a coalition of the main accounting and finance trade associations in the United States and formed in the light of concerns about fraudulent financial reporting in the mid-1980s. The sponsors of COSO include: The American Institute of Certified Public Accountants; the Institute of Internal Auditors; the Financial Executives International, the Institute of Management Accountants and the American Accounting Association. ERM is also guided by ISO 31000 which is claimed to be the first globally accepted standard on the practice of risk management (Purdy, 2010).

In the Asia Pacific region, ERM was first formalised as a framework in 1995 by the joint Australian/New Zealand Standard for Risk Management (AS/NZS 4360, 1995) and later on, in 2004 became New Zealand Standard for Risk Management (AS/NZS 4360, 2004) as a guide to ERM practices.

Here in Malaysia, Bursa Malaysia issued the Statement on Risk Management & Internal Control (Guideline for Directors of Listed Issuers) in 2013. Bursa Malaysia is an exchange holding company and a fully-integrated exchange of listed companies in Malaysia, offering the complete range of exchange-related services including trading, clearing, settlement and depository. The 2013 Guidelines superseded the Statement on Internal Control (Guidance for Directors of Public Listed Companies) issued in 2000.

The distinction between the Guidelines, pre- and post-2013 is that prior to 2013, the emphasis was solely on internal controls whereas post-2013, the Guidelines added another emphasis of ensuring appropriate and sound risk management practices are in place (Bursa Malaysia, 2013).

1.2 Motivation of the Study

“The security provided by ERM is at best limited to certain states of the world and at worst it is illusory – the risk management of nothing.”

(Power, 2009, p. 849)

The inspirations to undertake this research is mainly sparked by the above statement by Professor Michael Power, a scholar in the field of risk management.

Risk management is too often treated as a ‘tick box exercise’. Despite all the hype surrounding it and resources invested in it, very few people believe in its effectiveness in managing risks (Bromiley, McShane, Nair, & Rustambekov, 2015) and many even question the need for its existence.

The recent financial crisis is seen as many as a failure of modern risk management actually aimed at preventing the worst consequences of risks. This failure to effectively manage risks especially in time of dire need, has subjected risk management practices to sharp criticism post-crisis (Lewis, 2008; Millo & MacKenzie, 2009; Sorkin, 2010). The lack of understanding of what is involved in implementing and managing a workable, effective and successful ERM (Kasim, Abdul Aziz, & Kasim, 2011) could be as much to be blamed for the failure of ERM.

After almost two decades of its introduction, businesses and scholars are still skeptical about the effectiveness of ERM in managing risks. In his lecture at the

ICAEW's Chartered Accountants' Hall on 23 June 2004, Professor Power submits that globalisation and the changing landscape has revolutionised the nature and sources of risks and uncertainties faced by businesses warranting the need to manage the "risk of everything" (Power, 2004) which impeccably refers to ERM. However a few years after, in 2009, Professor Michael Power questioned the effectiveness of ERM in managing everything and instead viewed this new approach to risk management as the symptoms "of where we have been rather than the cure for the future" (Power, 2009). He goes on to claim that ERM is the "risk management of nothing" (Power, 2009).

This critical view is further fuelled by series of natural and man-made catastrophic events in the start of 21st century, such as the attacks on the World Trade Center, the earthquake in Japan in 2011, thereafter the radiation leakage at Fukushima Nuclear Power Plant, flash floods in Bangkok in 2011, the 2012 crisis in the Eurozone, Greece's bankruptcy, etc.

Corporate collapses which led to economic crisis and recession have been attributed partly to risk management deficiencies. It was further argued that the greatest risk to an organisation is the lack of an effective ERM programme itself, on the basis that an ineffective ERM programme will only lead to weak performance and eventually fall into crisis (Heng, Jifeng, & Jared, 2011; Aebi, Sabato, & Schmid, 2012).

Without doubt, an effective ERM is key to reaping its benefits. Nocco and Stulz (2006) suggests that ERM adds value by ensuring that all material risks and risk-return tradeoffs are thoroughly and deliberately evaluated by managers and employees throughout the firm.

ERM effectiveness has always been the essence of COSO ERM Framework (2004) and ISO 31000 – Risk management Principles and Guidelines (2009), the two most widely recognized risk management frameworks in use today. It is said that the

COSO (2004) framework has at least 100 principles of an effective ERM system (Schanfield, 2009). Similarly, the risk framework issued under ISO 31000 stipulates the 11 principles for an effective ERM.

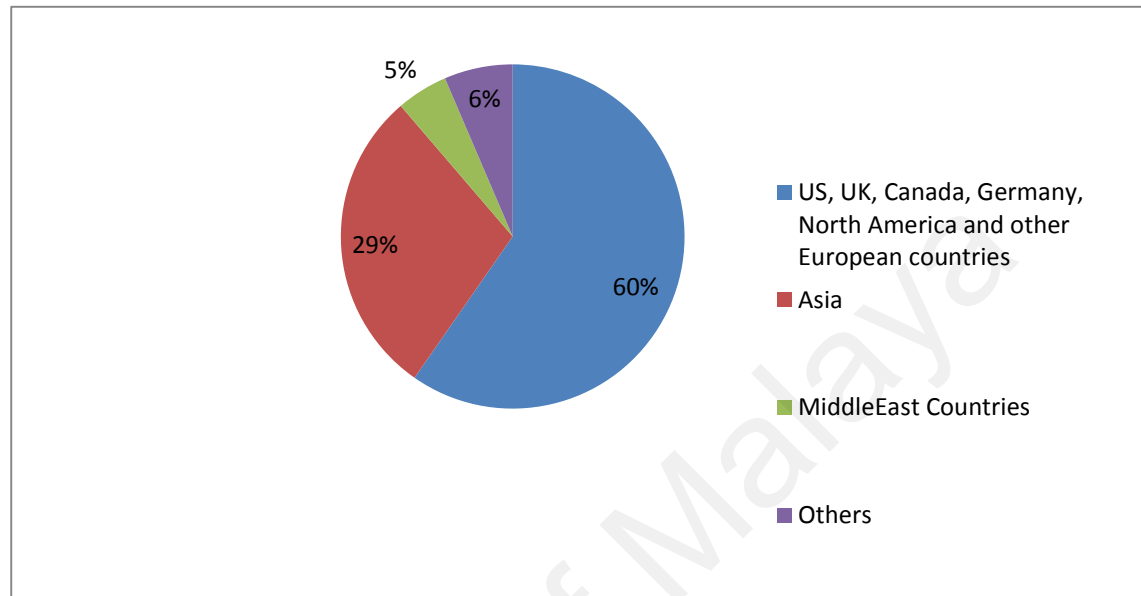


Figure 1.1: Analysis of Empirical Research Conducted on ERM from 2003 to 2014 Based on Regional Coverage

The statement by Power (2009) that ERM is only operational in certain parts of the world can be rationalised based on the account of the existing empirical studies conducted in ERM between the period of 2003 to 2014 whereby 60% of these studies were conducted in the developed countries like the US, UK, Germany, etc. (see Figure 1.1).

Such heavyweight from certain parts of the world leaves us with little room to refute as well as imply a couple of possibilities. First, one may be led to believe that ERM is more mature in the developed countries and second, the security of ERM only applies to developed markets.

In sum, the above doubts surrounding ERM effectiveness in managing risks and the lack of empirical evidence to support the position of ERM effectiveness, in

particular based on the experience from developing markets, are the main inspirations for the study.

1.3 Statement of the Problem

Despite all the rhetoric and money invested in ERM implementation and the alleged losses associated for not implementing it, risk management is too often treated as a compliance issue (Kaplan & Mikes, 2012). Very few people believe in its effectiveness in managing risks. The recent financial crisis is quoted by the skeptics as a failure of ERM in preventing the worst outcome of uncertainties (Bromiley et al., 2015). Not to mention that companies are still vulnerable to losses, wrong business decisions or even miscalculated risks despite adopting ERM.

The persistent losses for the last consecutive three years suffered by Malaysian Airline Systems (MAS), whose aircraft disappeared in 2014 followed by another devastating tragedy of its aircraft being shot down later in the same year, is indeed a devastating episode. On the other hand, Malaysian Airports Holding Berhad (MAHB), the take-off grounds for MAS aircrafts, reported stable profitability for the same three-year period. Both implemented ERM for many years, yet embracing contrasting and extreme consequences, triggering the desire to investigate into the effectiveness of ERM in managing risks.

The Enron and dotcom scandals, the corporate losses from earthquakes and tsunami only makes the case for an effective risk management programme stronger than ever before. Jin (2001) in his report cited that poor corporate governance and poor risk management were among the major contributors to the failure of one tenth of the 800 Malaysian public-listed companies during the 1997 East Asian financial crisis. Indeed, much of the East Asian financial crisis has been attributed partly to the risky financial structures of corporates themselves (Claessens, Djankov, & Lang, 1998).

Corporate failures, fraud, scandals, mismanagement or even business misfortune due to wrong business ventures and catastrophic events, warrant for the need to implement a full-proof risk management approach. At the same time, shareholders, due to fear of losing out on their investment, demand for the management to implement a holistic risk management system.

Further examinations show that ERM practices among Malaysian companies are still in their infancy relative to their counterparts from the developed countries. Based on a survey done in 2008 among companies listed on the main board of Bursa Malaysia, only 42% (or 37 companies) confirmed complete adoption of ERM followed by 36% (or 33 companies) partial adoption. The remaining 18% (or 16 companies) are still planning to adopt or investigating ERM. The other 3% (or 3 companies) announced that they do not have any plans to implement ERM at all (Wan Daud, 2011; Wan Daud, Haron, & Ibrahim, 2011).

Such an adoption rate is somewhat low compared to the statistics on ERM adoption in other developed economies. A survey conducted among all property-liability insurance companies in Germany showed that already in 2007 (just a year before the same survey in Malaysia), 93% of the companies surveyed had implemented ERM (Altuntas, Berry-stölzle, & Hoyt, 2011). This statistics and the overwhelming number of corporate failures clearly indicate a good understanding of the factors which can influence the perceived effectiveness of ERM is somewhat lacking.

The implementation of an effective ERM programme is essential to reaping its benefits. Literature suggests that companies which implemented ERM achieve better firm value. For example, Nocco and Stulz (2006) submits that ERM adds value by ensuring that all material risks and risk-return tradeoffs carefully evaluated by operating managers and employees throughout the firm (Nocco & Stulz, 2006). There are also

evidence to the value adding benefits of ERM (Hoyt & Liebenberg, 2011; Waweru & Kisaka, 2013). ERM aids in decision making and improves business performance (Gordon, Leob, & Tseng, 2009; Gates, Nicolas, & Walker, 2012; Baxter, Bedard, Hoitash, & Yezegel, 2013; Nickmanesh, Zohoori, Musram, & Akbari, 2013; Obalola, Akpan, & Olufemi, 2014).

The factors which are considered in this study include organisational factors namely, culture (Martin, 1992; Miccolis, Kevin Hively, & Merkley, 2001; Kimbrough & Componation, 2009; Muralidhar, 2010), structure (Kleffner, Lee, & McGannon, 2003; Arnold, Benford, Canada, Kuhn Jr., & Sutton, 2007; Arnold, Benford, Canada, & Sutton, 2011), enterprise systems (Lam, 2000) as well the internal human factors namely, tone from the top (Leonard-Barton & Deschamps, 1988; Yetton, Sharma, & Southon, 1999), strategic role of ERM champion (Lam, 2000; Kleffner et al., 2003; Aabo, Fraser, & Simkins, 2005; Beasley, Clune, & Hermanson, 2005a; Mikes, 2008; Wan Daud, Yazid, & Hussin, 2010; Pagach & Warr, 2011; Yazid, Hussin, & Wan Daud, 2011; Mikes, 2014) and the extent of employee involvement (Milani, 1975; Mia, 1988; Aranya, 1990).

To the best of the researcher's knowledge, this is the first attempt to investigate the influence of interaction among the organisational factors alongside human actors on the effectiveness of ERM in managing risks.

The choice of the variables in the study is rationalised from literature review and supported by pre-survey interviews with industry practitioners. In addition to the organisational factors of culture, structure and technology, numerous frameworks on ERM emphasize the importance of the 'tone from the top' for an ERM programme to be effective and successful.

Although a few of the variables in the study, have somewhat been the subject of

research in ERM, they have not been examined in the context of ERM effectiveness. Specifically, none of the studies actually investigates its influence on the perceived effectiveness of ERM in managing risks. As a result, the findings drawn from the existing studies are insufficient to draw sound conclusions on its influence on ERM effectiveness.

To address the above research problem, this research undertakes to provide an updated level of maturity of ERM implementation and to investigate the perceived effectiveness of ERM in managing risks and the factors associated with it. Essentially, this research aims to offer insight into this very area of ERM based on the experience of the Malaysian public listed companies.

1.4 Research Questions and Objectives

This section describes the research questions and objectives the current study seeks to address in response to the research problems discussed in the foregoing section.

Analysis shows that the only data on ERM adoption rate among Malaysians is available from a study which was conducted back in 2008. The study which generated 78% adoption rate is obviously outdated given the fast changing regulatory and business landscape. The 2008 study also suffers from the limitation in the generalisation of the findings due to the low response rate of only 18% as compared to the current norm of 35.7% (Baruch & Holtom, 2008). It also lacks the applicability to industries such as finance and insurance industry because of their exclusion from the samples. The possible obsolete data coupled with the limitations warrant for an updated statistics to be obtained and hence, the first research question for the current study.

RQ1: What is the level of ERM adoption and maturity in Malaysia?

Once the level of ERM maturity in Malaysia is determined, the next question that

comes to mind is on the perceived effectiveness of ERM in managing risks among the adopters. Firms, compelled by the regulatory requirements, seem to invest resources (Curkovic, Scannell, Wagner, & Vitek, 2013) in implementing ERM but not so much the processes to review the effectiveness of such programme (Crawford & Stein, 2004). Implementation of ERM is deemed by many as a 'tick-in-a-box' exercise more than anything else. If such a compliant environment is indeed true, ERM implemented in the organisation is doubtful to achieve the objective it sets out to fulfill.

According to Nocco and Stulz (2006), ERM adds value to the firm provided that it is effective and the mitigating plans are carried out correctly. Drawing from the sharp criticisms confronting risk management practices post-crisis due to its ability to effectively manage risks especially in time of (Lewis, 2008; Millo & MacKenzie, 2009; Sorkin, 2010) and the aroused curiosity surrounding the effectiveness of ERM in managing risks, this study seek to address the following research question on the perceived ERM effectiveness among Malaysian companies.

RQ2: How is ERM perceived to be effective in managing risks?

Organisation theorists recognise that there are numerous organisational factors and actors of the organisation which can influence behaviour and motivation behind the success or effective implementation of any programme or system (Cameron, 1986b; Mia, 1988; Nicolaou, 2000; Arena & Azzone, 2009). The organisational facets consist of culture, structure and enterprise systems whereas the actors consist of top management, ERM Champion alongside other members of the organisation. Specifically, how does the organisational culture, structure and enterprise systems impact ERM effectiveness? And how does tone from the top, the strategic role of ERM Champion and employee involvement indeed influence the effectiveness of ERM in managing risks? These intriguing questions lead us to ascertain the organisational factors and behaviour of the actors which can influence the effectiveness of ERM in

managing risks. Thus the next question this research seeks to address is,

RQ3: To what extent is the perceived effectiveness of ERM in managing risks is contingent upon the organisational factors, namely the organisational culture, structure and enterprise systems and the actors, namely tone from the top, the strategic role of ERM Champion and employee involvement?

Additionally, by virtue of the leadership role and the authority vested within them, support from the management can be ascertained from the allocation of resources and the creation of a conducive environment for the system to nurture and ultimately to be effective (Lucas, 1981). Recognising this importance of tone from the top, the current research seeks to address the following question.

RQ4: How does tone from the top mediate the relationship between culture and the perceived ERM effectiveness in managing risks?

The presence of CRO and the establishment of a separate ERM unit are among the indications that the organisations take ERM seriously. This is because there tend to be huge costs involved in ERM implementation which includes consultancy fees (Makarova, 2014), recruitment of a dedicated risk officer and the establishment a separate unit for ERM, where applicable. The next research question is therefore to investigate the moderating effects of the CRO's presence and the separate ERM unit on the relationship between the variables under study and perceived ERM effectiveness.

RQ 5: To what extent does the CRO presence and establishment of a separate ERM unit moderate the relationship between the organisational factors and actors and perceived ERM effectiveness in managing risks?

The research objectives associated with the research questions are stated as follows:

RO1: To investigate the level of ERM adoption and maturity in Malaysia.

RO2: To evaluate the level of perceived ERM effectiveness in managing risks.

RO3: To investigate whether there is any direct relationship between the organisational factors, namely culture, structure and enterprise systems and actors, namely tone from the top, the strategic role of ERM Champion and employee involvement and perceived ERM effectiveness in managing risks.

RO4: To examine whether tone from the top mediates the relationship between culture and perceived ERM effectiveness and between enterprise systems and perceived ERM effectiveness.

RO5: To examine whether CRO presence and the establishment of a separate ERM unit moderate the relationship between the organisational factors and actors and the perceived ERM effectiveness in managing risks.

1.5 Contributions of the Study

Like any other, this study aims to contribute to the body of knowledge in general and theoretical framework in particular.

The contribution to knowledge is especially prominent given the fragmented nature of the existing research. The findings of the web-based survey whose respondents are members of the Strategic Risk Council of the Conference Board of Canada, uncovered gaps in ERM, especially in the detailed information on integrating risks, the impact of corporate culture (J. Fraser, Schoening-Thiessen, & Simkins, 2008). A further analysis show that attempts to narrow this gap is by a few (Beasley, Chen, Nunez, & Wright, 2006; Gordon et al., 2009; Xin, 2011) barely fulfil the gap due the fragmented nature of the existing ERM studies.

To illustrate the fragmented nature of these study, (Gordon et al., 2009), for example only look at whether the effectiveness of ERM programmes depends on an

appropriate match with the level of board monitoring. Similarly, another study by Beasley et al. (2009) only examine at the performance measurement and incentive system as the drivers for an effective ERM programme. Alongside these studies, another research which uses an experimental approach only investigates two out of eight components of COSO (2004) ERM framework for an effective ERM programme, i.e internal environment and information and communication (Xin, 2011).

Additionally, the human behavioural element is too relevant to be ignored on the basis that whilst ERM is motivated by the top, it is also motivated from underneath which builds the ERM processes and systems. Literature on the influence of top management's support and eventually its participation in the effectiveness of any project implementation (Leonard-Barton & Deschamps, 1988; Thong, Yap, & Raman, 1996; Wixom & Watson, 2001) and in the assimilation of enterprise systems (Chatterjee, Grewal, & Sambamurthy, 2002; Huigang, Saraf, Qing, & Yajiong, 2007) is abundant. The role of project champion is critical to derive consensus and oversee the entire life cycle of implementation. The project champion has the power to set goals and legitimate change (Bingi, Sharma, & Godla, 1999) and ensure that challenges faced during implementation are addressed accordingly (Jarvenpaa & Ives, 1991). In addition to the strategic role of ERM Champion, the involvement and engagement from the risk owners and employees are equally important to ERM effectiveness in managing risks. Drawing on the account of the foregoing research, this research posits that employee involvement throughout the risk management process and activities will improve ERM effectiveness in managing risks as it facilitates the input, flow and exchange of information from the employees who are closest to the risk points and across the organisation. To the best of the researcher's knowledge, none of the existing ERM studies looked into the whole spectrum of the internal human element in the framework. After all, Latour (1987) in order to understand how risk rationalities are being reflected

in practices, we need to follow the actors such as the risk champion who were responsible for bringing ERM live in those organisations.

That said, this study essentially contributes by investigating the effectiveness of ERM in managing risks and beyond that fills the gap by also examining a wider spectrum of internal organisational settings. On the whole, instead of investigating the technical aspects of risk management, this research looks into the perceived effectiveness in managing risks and undertakes the research in the wider social, institutional and organisational context in which it operates (Soin & Collier, 2013). This area of importance in ERM research is simply a response to the proposition that risk management ultimately is a social construct shaped by the contexts they inhabit and not merely a mechanical construct suggesting that the particularity of risk management characteristics in specific organisational settings offers an opportunity for vast research (Bhimani, 2009).

In regards to theoretical contribution, building on the theory of contingency as its anchor theory and theories of power and empowerment, this piece of work goes beyond the commonly accepted contingent variables of culture, structure and enterprise systems (Hofer, 1975) by integrating the internal human element in the contingent framework designed for the study. The organisational contingent factors, no matter how strong they are, will have no effect on the organisational behaviour without the influence of the behaviour of the human agents within the organisations, namely the top management, the champion and the employees. Indeed for any change or initiative to become real, durable and sustainable, action is required throughout the organisation, through culture, structure, technology and people (Schneider, Brief, & Guzzo, 1996). Specifically, the organisational actors consist of those at the top, the initiative drivers or champion and the employees.

The current study seeks to examine the varying degree of interaction between the contingent organisational factors and the internal human elements, thereafter the resultant influence on its effectiveness in managing risks. Ultimately, this inclusion of the internal human element and ERM effectiveness as the contingent and criterion variables, respectively, distinguished the current study from the majority of others which only examined the organisational contingent factors for ERM adoption.

The application of contingency theory in risk management systems is not new although much is dominated by the traditional approach of examining the direct relationship between the variables. This study, however, seeks to apply the more advanced contingency theory by applying the congruence-fit contingency approach and examining the interaction of the multiple contingent variables which ultimately is tested against its influence on the outcome, i.e. the perceived effectiveness of ERM in managing risks.

Specifically, the application of contingency theory and the alignment (or fit) of the organisational factors in particular culture, structure, enterprise systems, tone from the top, the strategic role of ERM Champion with involvement from the employees in the ERM activities contributes to the main highlight of the study. It is hoped that the current study will fill this gap by examining not only the relationship among the organisational factors but also the relationship among the actors within the organisation to ensure that the ERM implemented fulfils the purpose it is set to serve i.e. managing risks.

In terms of geographical coverage for the research, this research adds to the overall geographical state of knowledge and practices on ERM. It contributes by providing insight into the level of ERM adoption, in general, and more critically emphasises the perceived effectiveness of ERM based on the Malaysian experience. Existing studies are mainly based on the experience from developed countries like the

US, UK, Germany, Canada etc. (Kleffner et al., 2003; Liebenberg & Hoyt, 2003; Aabo et al., 2005; Beasley et al., 2005a; Gates et al., 2012; Paape & Speklé, 2012; Quon, Zeghal, & Maingot, 2012; Curkovic et al., 2013). Research found that despite ERM being a concept accepted worldwide, it is always implemented and interpreted in local ways (Mikes, 2009; Arena et al., 2010; Mikes, 2011; Tekathen & Dechow, 2013).

Another contribution which makes the findings distinct and probably more meaningful from others is in terms of the mixed methodology used in the research. The current research used a dual approach of content analysis which is to be complemented by the survey to identify ERM adopters. Past researchers either relied on evidence of the existence of ERM programmes, such as the creation of a specialized managerial position, i.e. Chief Risk Officer (CRO), who is tasked to implement and coordinate ERM programme or to search for evidence of ERM activity in the financial reports, newswire or any other media (Gordon et al., 2009; Hoyt & Liebenberg, 2011; Lin, Wen, & Yu, 2012) or used the survey method (Beasley et al., 2005a; Wan Daud, 2011; Wan Daud et al., 2011; Yazid et al., 2011). Those methods when used independently posed some shortcomings to the legitimacy of the results obtained hence limiting the strength of the conclusion derived. For example, an organisation may be misidentified as an ERM adopter if the firm discloses that one of the board members was previously a chief risk officer of another firm (Type I measurement error) or an ERM adopter may be missed out when the firm's ERM practices are not disclosed using the keywords defined in this paper (Type II measurement error). Additionally, the extent of the risk disclosure itself poses a limitation to this approach to identify ERM adopters. Although there was a high degree of risk disclosure intensity in the reports, it lacks uniformity, clarity and quantification (Lajili & Zéghal, 2005). Studies also found that disclosure on ERM is more voluntary than mandatory in most circumstances (Liebenberg & Hoyt, 2003; Hoyt & Liebenberg, 2011).

Content analysis, on the one hand, while enjoying at least one undeniable strength that it is doable and is economical both in time and money (Babbie, 2015), its findings are subject to the reliability of the coding procedure itself (Aaron, 2001) – in this case, the reliability and completeness of the list of keywords used in the current research as a proxy to ERM being implemented in the organisation. The survey method, on the other hand, may turn out to be catastrophic to researchers, particularly if the response rate is low. Most studies conducted gained less than 20% response rate which depletes the generalizability of the findings. Based on the analysis of all the survey-type studies published between 2000 and 2005 in 17 refereed academic journals, it was found that the average response rate for those studies was reported at only 35.7% with a standard deviation of 18.8 suggesting a somewhat low response with a very wide variation (Baruch & Holtom, 2008).

From the regulatory standpoint, the study seeks to offer a basis for the formulation of policies and guidelines to encourage effective ERM implementation and eventually minimise the losses from business failures if not prevent collapses completely.

From the macro perspective, it is hoped the study will encourage businesses to implement an effective ERM programme which will increase the firms' values and improve performances. Given the benefits of ERM, it is hoped that the current piece of work will aid practitioners and professional bodies by offering insights into what makes a conducive environment for an effective and successful ERM in managing risks. The empirical evidence of the effectiveness of ERM in managing risks is also hoped to change the motivation for ERM implementation from compliance or a 'tick-in-a-box' exercise to a business exercise with commercial sense.

In the long run, the economy should prosper and the standard of living should eventually improve.

1.6 Scope of the Study

The study is essentially a single-country study that looks at the level of ERM adoption and maturity among the public listed companies and investigates perceived ERM effectiveness. The contingent influence of organisational and human factors on perceived ERM effectiveness in managing risks is also examined in this paper.

The contingent variables consists of organisational factors – culture, structure and enterprise systems – and actors – tone from the top, strategic role of ERM Champion and employee involvement. These variables were identified from existing literature and subsequently validated through the pre-survey interviews conducted with the academics and industry practitioners.

Whilst much of the work done on contingency theory considered the external elements such as environmental uncertainty, competitive strategy, product life cycle etc, such elements are outside the scope of the current study. The reasons for the exclusion are doublefold. First, unlike organisational performance which can be influenced by external factors such as market competitiveness, the perception on the effectiveness of ERM in managing risks is clearly an internal affair. Using this rationale, the uncertainty and competitive environment are deemed irrelevant for the current framework. Secondly, the scope of the study is limited to ERM adopters which are defined as those which already have evidence of ERM adoption. Such prerequisites imply that the external environment is already fit for those organisations to adopt ERM and hence irrelevant for the current study.

Data and information collected for the purpose of the study were obtained from the official website of Bursa Malaysia, corporate annual reports, surveys as well as interviews with the relevant people in the industry.

1.7 Research Methodology

The research methodology for the current research is mixed method of explanatory sequential design which is a quantitative approach to be followed by a qualitative approach. The research was designed systematically as shown in Table 1.1 to ensure that the data collected achieved the objectives and the timeline set for the research. Phase 1 to 3 constitute the quantitative part of this study while phase 5 and 6 constitute the qualitative part. Please also see Appendix A for the Research Process Flow.

Table 1.1: Outline of the Research Methodology

Phase	Objectives	Tasks
Phase 1: Content analysis	To identify Malaysian public listed companies (PLCs) listed on the main board of Bursa Malaysia which has evidence of ERM adoption based on the use of certain keywords in the annual reports as a proxy of ERM adoption.	The preliminary phase entails a content analysis of the annual reports of the Malaysian PLCs. During the exercise, a few keywords in the annual reports indicating the presence of ERM are used as a proxy of ERM adoption.
Phase 2: Pre-survey interview	To ascertain the organisational factors influencing the effectiveness of ERM in managing risks and to gain insights as to how the practitioners measure the effectiveness of ERM in their organisation.	The second phase of the research involves formulating a testable conceptual framework for the research through pre-survey interviews with chief risk officers, chief internal auditors and chief financial officers. A semi-structured interview protocol was prepared for the purpose.
Phase 3: Online survey	To distribute online questionnaire survey.	The third phase of the research is to distribute questionnaire to the ERM adopters identified from phase 1 of the study. Online survey is used as a platform for the survey with the hope to increase the response rate from the potential respondents.
Phase 4: Quantitative data analysis	To analyse the data collected.	Data is analysed using SPSS and SmartPLS 3.0. The demographic and ERM profile of the respondents and the organisations they represent are summarised and presented. Thereafter, hypotheses are tested using SmartPLS 3.0 and findings discussed.
Phase 5: Content analysis and interview	To contextualise the scope for the qualitative part of the research and to identify the potential candidates for the interview.	Based on the results of the survey, the scope of the qualitative method for the study is determined. Content analysis of the audited accounts of the potential organisation, particularly the Statement of Risks and Internal Controls are carried out followed by semi-structured interviews with selected participants among survey respondents.
Phase 6: Qualitative data analysis	To analyse the data from the interviews.	The sixth phase is to review the transcribed interview and triangulate the data with the content analysis findings. Common themes were identified and reported.
Phase 7: Analysis of both findings	To discuss the findings based on triangulation of data collected from the qualitative and quantitative part of the research.	Finally, findings from the quantitative and qualitative design of the current study are discussed and presented. Conclusion is drawn based on the findings from both parts of the research.

1.8 Thesis Structure

This thesis has a six-chapter structure as follows.

Chapter 1: Introduction

Chapter One emphasises the background of the study and the inspiration for the research. The problem statements and the research gaps are discussed soon after, followed by the questions and objectives this research seeks to address. The significance of the study in terms of contribution to knowledge, to the industry as well as to the regulatory bodies is also discussed in this chapter. The chapter also discusses the scope of the study and the research methodology in brief before ending with the general organisation of the thesis.

Chapter 2: Literature review

The objective of Chapter Two is to review and examine the existing theoretical and empirical evidence conducted on ERM as well as the regulatory landscape surrounding the implementation of ERM both internationally and locally. The first section provides the various definitions for ERM followed by the regulatory climate, in particular the framework issued on ERM. The following section discusses the current state of the body of knowledge on ERM and the existing studies on the variables selected in the study. The research gap which is the main outcome of the literature review is presented just before the conclusion section.

Chapter 3: Conceptual framework and hypothesis development

Chapter Three discusses the common conceptual and theoretical framework applied in the existing studies on ERM. The underlying theories for this research, i.e contingency theory complemented by theories of power and empowerment, are then identified and explained.

Chapter 4: Research design and methodology

The reliability and validity of any research findings stands on the application of appropriate methodological procedures. Chapter Four is dedicated to explaining the research methodology undertaken in this study, the instruments and statistical methods used and the rationale behind the choices. The chapter also describes the organisation plan of the research including the plan for data analysis.

Chapter 5: Findings and discussion

Chapter Five presents the statistical results and discusses the findings of the analysis and their interpretation. It also discusses the findings of the semi-structured interview is also discussed in this chapter.

Chapter 6: Conclusions

Chapter Six is the concluding chapter. Here, the main findings are presented, implications and limitations of the study are discussed and lastly, direction for future research is outlined.

CHAPTER 2 LITERATURE REVIEW

The objective of the chapter is to review and discuss the current state of knowledge on enterprise risk management (ERM). In this section, we look at the various definitions and the important concepts of ERM.

The chapter is structured as follows. The first four sections discuss the various definitions of ERM, its evolution, the related governing framework and the Malaysian guidelines in regards to ERM. The fifth section reports the literature review of past studies conducted on ERM. The subsequent section discusses the factors that can influence ERM effectiveness in managing risks and the underpinning variables in the study. The factors considered in the study consist of culture, structure, enterprise systems, tone from the top, strategic role of ERM Champion and employee involvement. In addition, the mediating effect of tone from the top in the relationship between the variables is also examined in this study.

The current study also submits to investigate the moderating influence of the CRO and a separate ERM unit. To make the results more meaningful, the regulatory environment and size of the company (specifically main board listed and non-main board listed) and level of ERM maturity are controlled in the framework designed for the study. Thereafter, gaps in knowledge identified from the existing literature are presented followed by the chapter summary.

2.1 What is ERM?

There are various attempts to define ERM as there are equally diverse schools of thoughts and framework governing the implementation of ERM. Such diversity is driven by the background and discipline of the authors and bodies issuing the framework. Bromiley et al. (2015) identify the approach to risks and the firm objectives

as among the dimensions and distinctions in the definition of ERM. Others include value maximisation (e.g. Tillinghast-Towers Perrin (2001) and Casualty Actuary Society (2003)) as one of the dimensions. Most of the definitions of ERM, in fact, use the approach to risk management (e.g., Dreyer and Ingram (2008) and RIMS. (2011)) to describe and define risk management, followed by the achievement of the firm's objectives (e.g. COSO 2004 framework) and ISO 31000).

COSO (2004), which is one of the more commonly used frameworks on ERM, sets out the following to define ERM.

ERM is a process, affected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.

(COSO, 2004, p. 2)

ISO 31000, which is the other common standard used for ERM implementation, offers a much more straightforward definition:

Risk management is coordinated activities to direct and control an organisation with regard to risk. The risk management process aids decision making by taking into account of uncertainty and the possibility of future events or circumstances (intended or unintended) and their effects on agreed objectives.

(ISO 31000:2010)

The foregoing definitions of risk management bring to surface the two common themes of ERM – first, its role towards the achievement of organisational objectives and second, the integrated approach to risk management. Both are distinct from one another in that the former emphasises on the wider organisational setting in which it operates by

stating the involvement of management and other personnel as well as its application in the formulation of the organisational strategy, while the latter emphasises the essence of ERM being the process of coordinating the various risk-managing activities.

Academics have described ERM as an integrated and comprehensive assessment of uncertainties and a few distinguished it with the traditional isolated approach. Examples of definitions that took great efforts in such distinction include:

Unlike the traditional “silo-based” approach to corporate risk management, ERM enables firms to benefit from an integrated approach to managing risk that shifts the focus of the risk management function from primarily defensive to increasingly offensive and strategic. ERM enables firms to manage a wide array of risks in an integrated, holistic fashion.

(Liebenberg & Hoyt, 2003, p. 37)

In contrast to the traditional “silo” based approach to managing risk, the ERM approach requires a company-wide approach to be taken in identifying, assessing and managing risk.

(Kleffner et al., 2003, p. 54)

There are also other schools of thought that advocate that ERM greatly influenced the firm’s value. These value maximisation benefits are included in the definition of ERM (for example DeLoach & Andersen, 2000; Verbrugge et al., 2003). A review of 28 (twenty eight) definitions of ERM offered by scholars and experts from the industry and the regulators, as tabulated in Table 2.1 and Table 2.2, exhibited three different ERM themes in terms of its approach to risk management, achievement of organisational objectives and the firm value maximisation.

Table 2.1: ERM Definitions and Descriptions from Academic Publications

Source	Definition	Approach	Objectives	Value maximisation
(Miller, 1992)	Integrated risk management is an alternative to the suboptimal approach to treating uncertainties in isolation from one another. It offers a basis for comprehensive assessment of uncertainty exposures and explicit consideration of the uncertainty trade-offs associated with alternative firm strategies.	✓		
(Schneier & Miccolis, 1998)	ERM is a systematic and proactive approach to managing risks, which means that risks, risk factors and mitigation programmes are considered on a business-wide basis, internally and externally.	✓		
(DeLoach & Andersen, 2000)	Enterprise-wide risk management is a truly holistic, integrated, forward looking and process-orientated approach is taken to manage all key business risks and opportunities – not just financial ones – with the intent <u>of maximising shareholders value for the enterprise as a whole.</u>	✓		✓
(Dickinson, 2001)	ERM is a systematic and integrated approach of the management of the total risks a company faces.	✓		
(Mottershead & Godfrey, 2001)	Enterprise-wide risk management is an approach that looks across the whole organisation rather than through the traditional functions [and] aligns risk management activities to <u>shareholder value levers</u> ’.	✓		✓
(Hodgkinson, 2001)	Enterprise-wide risk management is a philosophy that is positive and proactive; value based and broadly focused, embedded in processes; integrated into strategy and total operations; and continuous.	✓		
(D’Arcy & Brogan, 2001)	ERM is the process by which organisations in all industries assess, control, exploit, finance and monitor risks from all sources for the <u>purpose of increasing the organisation’s short and long term value to its stakeholders.</u>			✓
(Harrington, Niehaus, & Risko, 2002)	ERM is the idea that emerged in the late 1990s that a firm should identify and (when possible) measure all of its risk exposures – including operational and competitive risks – and manage them within a single unified framework in contrast to the silo approach to risk management.	✓		

Table 2.1: RM Definitions and Descriptions from Academic Publications (continued)

Source	Definition	Approach	Objectives	Value maximisation
(Meulbroek, 2002)	Integrated risk management is the identification and assessment of the collective risks that <u>affect firm value</u> , and the implementation of a firm-wide strategy to manage those risks.	✓		✓
(T. L. Barton, Shenkir, & Walker, 2002)	Enterprise-wide risk management shifts risk management from a fragmented, ad hoc, narrow approach to an integrated, continuous, and broadly-focused approach.	✓		
(Verbrugge et al., 2003)	ERM is corporate-wide, as opposed to departmentalised, efforts to manage all the firm's risks—in fact, its total liability structure—in a way that helps management to <u>carry out its goal of maximising the value of the firm's assets</u> . It amounts to a highly coordinated attempt to use the right-hand side of the balance sheet to support the left-hand side—which, as finance theory tells us, is where most of the value is created.	✓	✓	✓
(Liebenberg & Hoyt, 2003)	Unlike the traditional “silo-based” approach to corporate risk management, ERM enables firms to benefit from an integrated approach to managing risk that shifts the focus of the risk management function from primarily defensive to increasingly offensive and strategic. ERM enables firms to manage a wide array of risks in an integrated, holistic fashion.	✓		
(Kleffner et al., 2003)	In contrast to the traditional “silo” based approach to managing risk, the ERM approach requires a company-wide approach to be taken in identifying, assessing, and managing risk.	✓		
(Miller & Waller, 2003)	Integrated risk management is consideration of the full range of uncertain contingencies affecting business performance.	✓		
(Sobel & Reding, 2004)	ERM is a structured and disciplined approach to help management understand and manage uncertainties and encompasses all business risks using an integrated and holistic approach.	✓		
(Banham, 2004)	ERM is a strategy, organisations can use to manage the variety of strategic, market, credit, operational and financial risks they confront. It calls for high-level oversight of risks on a portfolio basis rather than a discrete management by different risk overseers.	✓		

Table 2.2: ERM Definitions and Descriptions from Standards Setting Organisations, Industry Publications, Industry Associations, Consulting Firms and Rating Agencies

Source	Definition	Approach	Objectives	Value maximisation
(AS/NZS 4360, 1995)	Risk management is the culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects.	√		
(Holton, 1996)	ERM is about optimising the process with which risks are taken.	√		
(Banham, 1999)	The goal of ERM is to identify, analyse, quantify, and compare all of a corporation's exposures stemming from operational, financial, and strategic activities.	√		
Arthur Andersen (Described in (DeLoach & Andersen, 2000))	ERM is a structured and disciplined approach [that] aligns strategy, processes, people, technology and knowledge with the purpose of evaluating and managing the uncertainties the enterprise faces as it creates value....It is a truly holistic, integrated, forward looking and process-oriented approach to managing all key business risks and opportunities – not just financial ones – <u>with the intent of maximising shareholder value</u> for the enterprise as a whole	√		√
(Miccolis, 2000)	ERM is a rigorous approach to assessing and addressing the risks from all sources that threaten the <u>achievement of an organisation's strategic objectives</u> .	√	√	
(Deragon, 2000)	ERM simply seeks to manage interrelationships systemically, in order to minimise variation, reduce inherent risks, and increase positive synergies.	√		
(Tillinghast-Towers Perrin, 2001)	ERM is generally defined as assessing and addressing risks, from all sources, that represent either material threats to <u>business objectives</u> or opportunities to exploit for competitive advantage.	√	√	

Table 2.2: ERM Definitions and Descriptions from Standards Setting Organisations, Industry Publications, Industry Associations, Consulting Firms, and Rating Agencies (continued)

Source	Definition	Approach	Objectives	Value maximisation
(Casualty Actuary Society, 2003)	ERM is the process by which organisations in all industries assess, control, exploit, finance and monitor risks from all sources for the purpose of <u>increasing the organisation's short- and long-term value to its stakeholders.</u>	√		√
(COSO, 2004)	ERM is a process, affected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the <u>achievement of entity objectives.</u>	√	√	
(Dreyer & Ingram, 2008)	We see ERM as an approach to assure the firm is attending to all risks; a set of expectations among management, shareholders, and the board about which risks the firm will and will not take; a set of methods for avoiding situations that might result in losses that would be outside the firm's tolerance; a method to shift focus from "cost/benefit" to "risk/reward"; a way to help fulfil a fundamental responsibility of a company's board and senior management; a toolkit for trimming excess risks and a system for intelligently selecting which risks need trimming; and a language for communicating the firm's efforts to maintain a manageable risk profile.	√		
(ISO 31000:2010, 2010)	Risk management is coordinated activities to direct and control an organisation with regard to risk. The risk management process aids decision making by taking into account uncertainty and the possibility of future events or circumstances (intended or unintended) and <u>their effects on agreed objectives.</u>	√	√	
Risk and Insurance Management Society (RIMS., 2011)	ERM is a strategic business discipline that <u>supports the achievement of an organisation's objectives</u> by addressing the full spectrum of its risks and managing the combined impact of those risks as an interrelated risk portfolio.	√	√	

Based on the common themes identified in the foregoing definitions on ERM, in essence, ERM calls for a centralised and holistic approach (Gordon et al., 2009) to managing risks under a common function or committee within the organisation. This function or committee manages the individual overseers, also known as risk owners, who are tasked to trigger the alarm button and execute the agreed action plans whenever risks occur. It is the whole process to assess risks in a systematic, consistent and efficient way. ERM activities includes identifying, and deciding how much risk the entity can tolerate, assessing mitigation actions or otherwise turning around risks into opportunities. The process offers the benefits of warehousing a comprehensive register of key risk area and to segregate critical from less critical key risk area. In doing so, it determines authority and responsibility and allocates resources accordingly to eliminate, mitigate and manage those identified risks (Banham, 2004).

In simpler words, ERM integrates risks and adopts an enterprise-wide view of risk management for the whole organisation. ERM considers all the factors and actors of the entity providing more effective risk management at lower costs (T. L. Barton et al., 2002) as well as offering a more holistic approach to lowering the overall risk and hazard and, in turn, increases the value of an organisation.

Ultimately, the aspiration of ERM is twofold. First, like any managerial innovation, it warrants for mistakes of the past to be mitigated, if not avoided, by a more rational and synthetic conception of a “canopy-like” risk management view of the organisation (Drori, 2006) with efficient use of scarce resources. Second, ERM also embodies an aspiration for enterprising risk management, explicitly aimed towards value creation. After all, *‘risks are no longer the dark side of opportunities, they are also market opportunities’* (Beck, 1992).

Prominent differences between traditional risk management and ERM according

to COSO (2004) are summarised in Table 2.3 below:

Table 2.3: Differences between ERM and Traditional Risk Management

Traditional Risk Management	Enterprise Risk Management
Risk as individual hazards	Risk viewed in context of business strategy
Risk identification & assessment	Risk portfolio development
Focus on discrete risks	Focus on critical risks
Risk mitigation	Risk optimisation
Risks with no owners	Defined risk responsibilities
Haphazard risk quantification	Monitoring & measurement of risk
“Risk is not my responsibility”	“Risk is everyone’s responsibility”

Source: KPMG LLP

2.2 The Evolution of Risk Management and ERM

The history of risk management has been traced back as early as the Renaissance period from the 14th to 17th century which saw the birth of scholars such as Leonardo Da Vinci and Michelangelo. It all started when a French gambler and mathematician who was also a nobleman dared the famed mathematician Blaise Pascal to solve a puzzle about how to divide the stakes of an incomplete game of chance between two game players, one of whom was ahead. The solution to the puzzle turned out to be the origin of the probability theory which is among the fundamental quantitative tools in risk management. In 1703, Jakob Bernoulli invented the law of large numbers and the process of statistical inferences followed by the development of mortality tables by mathematician scholars in 1725. In 1730, the structure of normal distribution was suggested and the measurement of risk, standard deviation and a much wider use of sampling were discovered.

Later, during the period between World War II and the mid-1960s, the risk

management function evolved and eventually gained its title and core definition. In the beginning, the scope of risk management was narrower and was administered by the Insurance Buyer. The rising loss experience as the business grows then triggered the need to consolidate the input from other departments. The scope then expanded and the title was subsequently 'upgraded' to Insurance Manager. In 1955, the role was again rebranded to a Risk Manager on the rationale that the role is no longer limited to purchasing insurance rather identifying risks and suggesting ways to mitigate them.

A year later, the term risk management was introduced to business organisers setting the beginning of risk management as a discipline (Barlow, 1993). The concept of risk, then, is very much mathematical in principle. Where factors can not be accurately quantified, input from the risk managers is sought. Types of risks then, were limited to pure risks and losses and were managed through controlling and financing statistical tools. Insurance has been the most popular approach in managing corporate risk. This approach is commonly known as Traditional Risk Management (TRM) where risks are managed in silos by independent departments. Each department possesses its own skills and procedures as well as sets of attitude towards risk (D'Arcy & Brogan, 2001) and focused solely on the risks within its own domain.

Only during the later part of the 1990s did some managers start to question the efficiency and effectiveness of managing pure and financial risk separately. They began to consider risk exposures that were not handled by pure risk or financial risk managers. In parallel, along with the era of globalisation, the scope of risks and uncertainties faced by organisations broadened with each creating its own risk management experts, its own term, its own methodology and its own tools. For example, the treasury department dealt with treasury risks through instruments like swaps and derivatives, the insurance department ensured that all assets and risks were insured, the recovery department managed credit risks. Each department reported to a different senior management

member leading to inefficiencies. It then became apparent that a common approach to risk management was preferable to an individual approach and an integrated approach preferable to a separatist. There are also other new breeds of risks emerging such as operational risks and reputational risks warranting the need to manage the “risk of everything” (Power, 2004). This need to identify all risk exposures and address them using a consistent and holistic framework is what triggered the birth of a new philosophy in risk management which came to be known as enterprise risk management (ERM) (Harrington & Niehaus, 2003).

This new focus on the concept of ERM provides an opportunity for risk managers to apply the utmost effective and robust approach to risk management with a canopy view of managing a broader scope and nature of risk faced by the organisation (D’Arcy & Brogan, 2001).

The September 11th event only reinforced the precarious need for this new evolution of integrating and enterprising risk management functions within an entity, in particular, financial services entities. In a report issued by Speer & Associates, an Atlanta-based financial services consulting firm, it was reported that few banks had taken steps to build an Enterprise Risk Management (ERM) infrastructure which went beyond the traditional approach of looking at credit, fraud, and liquidity risk measurements and considered market risk, reputational risk, operational risk, and other factors that were unfavourable to shareholders’ value (Cornwell, 2001).

The above sequence of events and milestones generally described the evolution in the risk management field from where risk management originated, was progressed and eventually enterprised.

2.3 ERM Regulatory Framework

The body of risk management framework consists of at least 15 professional risk-related bodies such as the COSO Treadway Commission, the Federation of European Risk Management Associations, the Casualty Actuarial Society, the Global Association of Risk Professionals, and the Institute of Internal Auditors. As a result, there are at least 15 risk-related frameworks, including COSO (2004) ERM framework, ISO 31000 and AS/NZS (Australian/New Zealand standard) 4360:2004. Some other ERM frameworks/standards include the Federation of European Risk Management Association (FERMA), British Standard, AIRMIC, Risk and Insurance Management Society (RIMS), Risk Maturity Model and FAA Safety Risk Management. For the purpose of the current paper, the discussion on the regulatory framework is confined to ERM framework. For clarity, general risk management activities are outside the scope of the current study.

ERM as a formal framework was first established during 1995 by the Joint Australian/New Zealand Standard for Risk Management (AS/NZS 4360, 1995). In 2004, on the back of high-profile business failures such as Enron, World dotcom, Satyam etc, the Treadway Commission's Committee of Sponsoring Organisation (COSO) 2004 ERM framework was published.

Among all the guidance on ERM, the two most widely and commonly recognised risk management frameworks in use today are the COSO (2004) Enterprise Risk Management Framework and ISO 31000 Risk Management, Principles and Guidelines (2009).

COSO was originally formed in 1985 to sponsor the National Commission on Fraudulent Financial Reporting, an independent private sector initiative often referred to

as the Treadway Commission. COSO stands for the Committee of Sponsoring Organisations of the Treadway Commission, a coalition of the main accounting and finance trade associations in the United States. The Treadway Commission published guidance on internal control in 1992 which provides the antecedent conceptual building blocks for the 2004 framework for ERM. COSO (2004) ERM framework among other standards is issued as a guidance *“to management to evaluate and improve their organisations’ ERM.”*

The Framework suggests a three-dimensional matrix block of the:

- Eight components for an effective ERM; to be evaluated at each of the dimensions;
- Four organisation’s business objectives categories across the top – strategic, operations, reporting and compliance;
- Four organisational structure of – entity, division, business unit and the subsidiary level.

The COSO ERM “cube” model (see Figure 2.1) is intended to display the relationship between the 3 (three) dimensions and is claimed to be a robust model, especially in portraying a complete “end point” picture of ERM. The three-dimensional matrix of the COSO cube addresses parts of the framework during implementation. For example, by taking one slice through the cube, you could construct a plan focused on risk processes related to just one of the strategic objectives or take a different slice and construct a plan to develop risk processes for one business unit.



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Figure 2.1: COSO ERM “Cube” Model

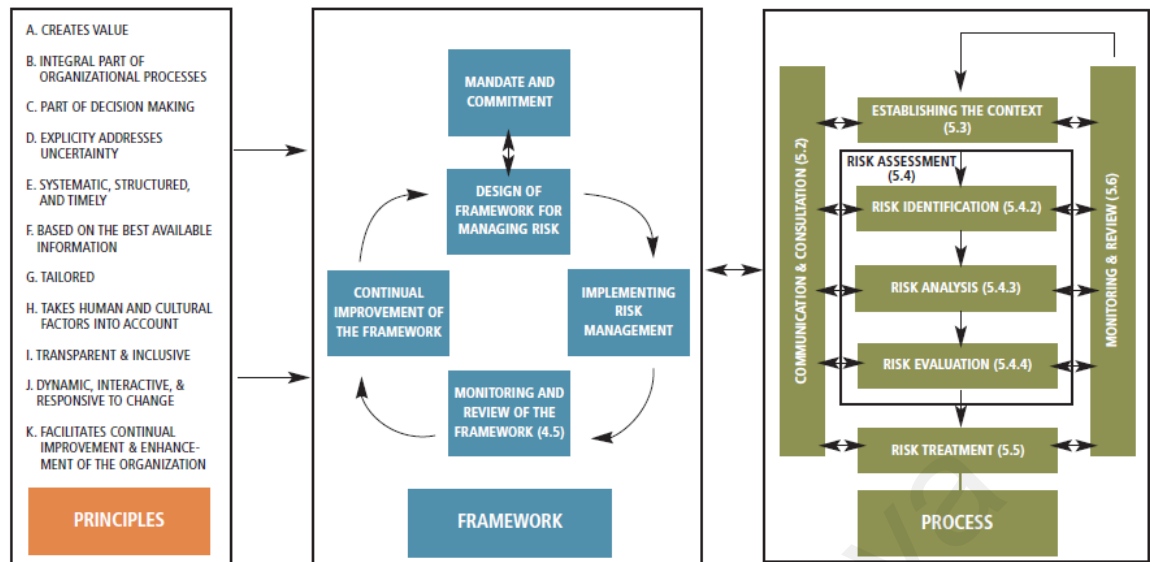
In November 2009, another standard on ERM called ISO 31000 was published by the International Organisation for Standardisation (ISO). ISO 31000 is claimed to be the first globally accepted standard on the practice of risk management (Purdy, 2010). The standard can be used by all organisations, in any country, throughout the life of an organisation and applies to a wide range of activities as well as to any type of risk. It also recognises the need to take into account the varying needs of a specific organisation. ISO 31000, which was drafted on the premise of the Australia/New Zealand risk management standard (AS/NZS 4360:2004), was created by a working group of technical advisors from 29 countries in a series of meetings with strong attendance ranging from 40 to 60 delegates over several years (Knight, 2010). This core group which was ably supported by the expert delegates as well as the national committees earns ISO 31000 the very best of contemporary thought on the management of risk. The Australian & New Zealand Joint Technical Committee unanimously resolved to adopt it as AS/NZS ISO 31000:2009, ultimately sending the AS/NZS 4360 (Knight, 2010) to archive.

Similar to the COSO (2004) ERM Framework, compliance to ISO 31000 is not

intended to be mandatory. The standard in particular outlines the principles that make risk management effective, the risk management framework and the process for managing risk. There are 11 principles of an effective risk management as follows:

1. Creates and protects value;
2. Integral part of all organisational processes;
3. Part of decision making;
4. Explicitly addresses uncertainty;
5. Systematic, structured, and timely;
6. Based on the best available information;
7. Tailored;
8. Takes human and cultural factors into account;
9. Transparent and inclusive;
10. Dynamic, iterative, and responsive; and
11. Facilitates continual improvement of the organisation.

ISO notes that *“the adoption of consistent processes within a comprehensive framework can help to ensure that risk is managed effectively, efficiently and coherently across an organisation.”* Some managers see the ISO 31000 risk management model as intuitive because it moves from principles to framework to processes. The standards strongly emphasises the need to tailor the risk processes to individual organisations. Figure 2.2 demonstrates the relationships between principles, framework, and the supporting risk processes.



This excerpt is taken from ISO 31000:2009, figure 1, on page vii, with the permission of ANSI on behalf of ISO. © ISO 2013 - All rights reserved.

Figure 2.2: ISO 31000 – Risk Management

According to the standard, an effective risk management increases the awareness to identify threats (and opportunities) and treat risk (or leverage on opportunities) throughout the organisation. It improves controls, operational effectiveness and efficiency and helps organisations comply with relevant legal and regulatory requirements and international norms. Additionally, the risk management process establishes a reliable basis for decision making and planning, and appropriately allocates and uses resources for risk treatment ("Standards Developments," 2010).

Despite numerous frameworks and standards guiding the concept, the findings from the “2008 ERM Benchmarking Survey” conducted by the Institute of Internal Auditors (IIAs) and IIA Research Foundation’s Global Audit Information Network suggests that COSO’s Enterprise Risk Management – Integrated Framework is the most commonly used framework to guide the ERM processes. The Framework published by COSO came to be one of the top ten books in one of the surveys conducted to investigate the most useful literature read by risk executives (J. Fraser et al., 2008).

For the purpose of the current study, references are made to both the COSO

(2004) framework as well as the ISO 31000. The rationale of seeking reference from both is that each framework has its own strengths with no one superior to the other. Each is a complement to the other and is capable on its own merit to give this research a more robust knowledge base in ERM (Frigo & Anderson, 2014).

The differences between COSO (2004) ERM framework and ISO 31000 are reflected in the extent of the details, the time when it was published as well as in its applicability. COSO (2004) ERM framework which was published in 2004 provides the detailed processes involved in ERM implementation to the extent that it can be quite ambiguous and cumbersome to the readers (Schanfield, 2009). On the other hand, ISO 31000 published in 2009 offers a more straightforward and simple version for implementation (Frigo & Anderson, 2014). ISO 31000 which was only introduced in 2009 has the benefit of being more up-to-date while the COSO (2004) framework, which has been around for more than a decade, enjoys the benefits of being more commonly referred to in the market (Power, 2007). COSO framework is also more prevalent among financial services companies as compared to the universal nature of ISO 31000 (Knight, 2010; Purdy, 2010) which made the latter more suited and applicable to all types of risks and organisations.

2.4 Malaysian Regulatory Landscape on Risk Management

The Malaysian regulatory landscape on risk management was further streamlined in January 2013 by the Statement on Risk Management & Internal Control (Guideline for Directors of Listed Issuers) issued by Bursa Malaysia. The 2013 Bursa Malaysia Guideline superseded the Statement on Internal Control (Guidance for Directors of Public Listed Companies) issued in 2000. The former introduced new emphasis on ensuring that risk management practices are in place while retaining the emphasis on internal controls which is more prominent in the latter Guidance (Bursa Malaysia,

2013).

The 2013 Bursa Malaysia Guideline among other things:

- provides guidance concerning the disclosures concerning risk management and internal control
- sets out obligations of management and the board of directors with respect to risk management and internal control
- provides guidance on the key elements needed to maintain a sound system of risk management and internal control
- describes the process that should be considered in reviewing its effectiveness.

Whilst the frameworks issued in other parts of the world including Asian countries are more explicit in adopting the leading international ERM framework, the 2013 Bursa Malaysia Guideline takes a more naïve position when it comes to these frameworks. To begin with, the guideline is not expressive in acknowledging ERM as the new approach to integrating risk management practices. There is no mention of ERM in the Guidance rather it refers to risk management activities in much broader term. Nevertheless, it is worth highlighting that the new Guideline did include guidance on risk appetite, which is an extract from: ERM – Understanding and Communicating Risk Appetite – Research Commissioned by COSO (2004) in its Appendix 1. The 2013 Bursa Malaysia Guideline's reference to the COSO (2004) ERM framework is further evident in Appendix 2 of the Guideline which offers some suggested questions in assessing the effectiveness of the company's risk processes. The Guideline also adapts three of the eight components of effective ERM namely control activities, information and communication and monitoring.

The new Bursa Malaysia Guidelines requires companies to disclose their risk policies in their statement of disclosures, and set out the obligations of management and

the board of directors with respect to risk management and internal control. It provides guidance on the key elements needed in maintaining a sound system of risk management and describes the process that should be considered in reviewing its effectiveness.

Other guidelines with regard to risk disclosure that is applicable to listed firms in Malaysia include the Malaysian Financial Reporting Standard (MFRS) 7 (Financial Instruments: Disclosures), MFRS 101 (Presentation of Financial Statements) and MFRS 132 (Financial Instruments: Presentation) issued by the Malaysian Accounting Standards Board (MASB), the accounting body in Malaysia that is responsible for setting the accounting standards. There are also guidelines related to risk management issued by Bank Negara Malaysia (BNM) which are made applicable only to financial institutions. Examples of the guidelines issued by BNM are “Risk Weighted Capital Adequacy Framework (RWCAF) – Disclosure Requirements (Pillar 3)” and “Guidelines on Financial Reporting for Banking Institutions”.

These standards and guidelines normally emphasise risks that are more quantifiable such as financial and credit risks and are lacking when it comes to operational risks. Unlike the 2013 Bursa Malaysia Guideline which is voluntary in nature, these FRSs 101 and 132 as well as the Basel II requirements are mandatory, to which non-compliance can lead to qualification of accounts and a hefty penalty by the relevant governing bodies.

2.5 Past Studies

ERM as a field of research began in the 1990s and has evolved since then alongside the maturity and the advancement of ERM in practice. The first academic article on ERM is believed to be one by Miller (1992), “*A Framework for Integrated*

Risk Management in International Business”. In this conceptual article, Miller defined risks exclusively as the unpredictability or uncertainty in corporate outcome variables. Miller put forward his idea to supersede the singular approach of treating risk in isolation of the other. He introduced the integrated approach to risk management which gives explicit consideration to numerous uncertainties. He argues that the integrated risk management perspective provides a framework for identifying and assessing the many types of uncertainties relevant to strategy formulation as opposed to an isolated approach to managing risks. In 1998, Robert Schneier and Jerry Miccolis, strategy and risk consultants, respectively, at Tillinghast Towers Perrin, introduced a new term in the risk lexicon – *Enterprise Risk Management* – on the basis that these new tenets of managing risks holistically address all the company’s key risks at an *enterprise* level (Schneier & Miccolis, 1998).

Since then, research interest in ERM has grown exponentially leading to a new era of ERM in academe. Among the common research themes in the ERM literature are the determinants for ERM adoption, the financial characteristics of ERM adopter, ERM practices, its impact on firms’ value and performance and to a certain extent, the effectiveness of ERM in managing risks. Another area examined is the role of senior management such as the Board of Directors (BOD), Chief Risk Officer (CRO) and internal audit. See Figure 2.3.

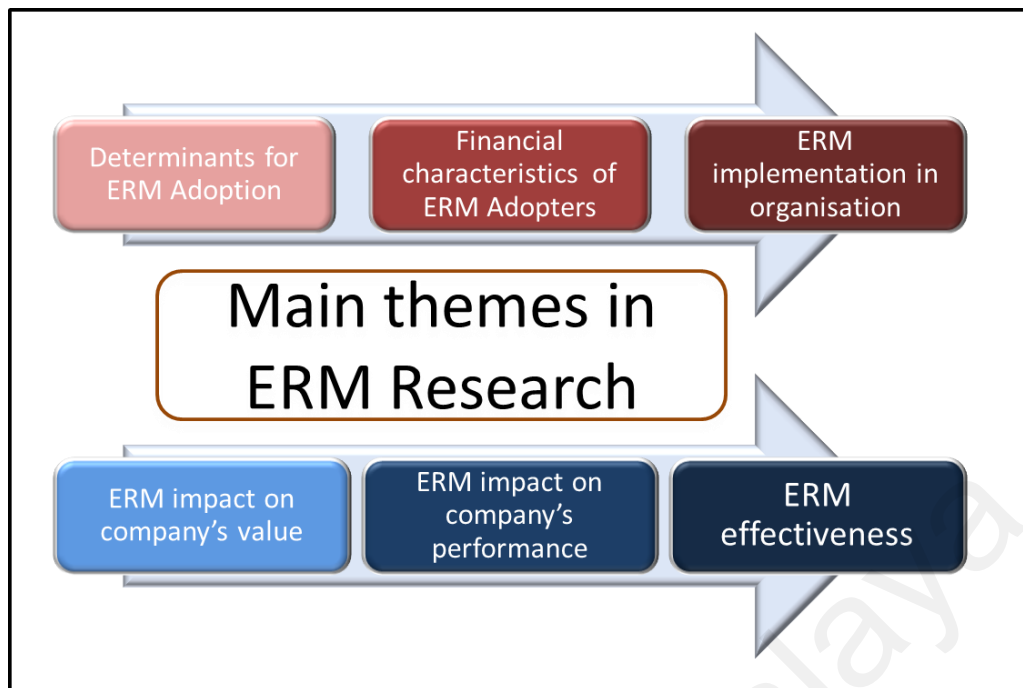


Figure 2.3: Main Themes in ERM Research

The following paragraphs illustrate the nature of research design common in ERM studies and finally the development of ERM studies in Malaysia. Please also refer to Appendix B for the summary of ERM empirical studies published in journals from 2003 to 2014.

In the early phase, ERM studies are mainly exploratory and seek to identify the financial characteristics of ERM adopters (Lam, 2000; Kleffner et al., 2003; Liebenberg & Hoyt, 2003; Pagach & Warr, 2007; Lin et al., 2012). For example, the study by Liebenberg and Hoyt (2003) found that highly leveraged firms are more inclined to appoint CROs. This in turn implies that higher risk companies are more inclined to adopt ERM. Similarly, Pagach and Warr (2007) find that firms which are highly leveraged, volatile and have exhibited poorer stock market performance are more likely to implement ERM. Lin et al. (2012) find that insurers with a higher reinsurance ratio and greater geographical diversification are more likely to implement ERM. The study also found that these ERM insurers appear to decrease reinsurance purchase and reduce

asset portfolio volatility but increase derivatives positions implying that after ERM adoption, the insurers reduce cost of reinsurance and increase cost of financial risks via more derivative usage and less volatile asset portfolios.

Another group of researchers looked at the other determinants for ERM adoption which include various factors of regulatory influences (Paape & Speklé, 2012), ownership (Liebenberg & Hoyt, 2003), appointment of big four audit firms (Beasley et al., 2005a), firm and industry-related characteristics as well business complexity (Gordon et al., 2009), Board of Directors (Gordon et al., 2009; Muralidhar, 2010; Wan Daud et al., 2011), country of origin – US based vs non-US based (Liebenberg & Hoyt, 2003; Beasley et al., 2005a) and firm size (Gordon et al., 2009). Among the early studies on the drivers to ERM implementation within organisations is one by Kleffner et al. (2003). The study finds that almost a third of the respondents have adopted ERM and a larger portion of the remainder is moving towards that direction. The reasons cited for adopting ERM includes the influence of Risk Manager, encouragement from BOD and compliance with Stock Exchange requirements with major deterrents being organisational structure and overall resistance to change. In a later study by Beasley et al. (2005a), it was suggested that board and senior management leadership on ERM is critical to extensive ERM deployment. According to the study, other organisational characteristics such as size, auditor type, industry and country of domicile are also relevant to explain the extent of ERM implementation.

There were also studies conducted to examine how ERM is being rolled out in the actual organisational setting, for example (Arena et al. (2010); Muralidhar (2010); Arena, Arnaboldi, & Azzone, 2011; Tekathen & Dechow, 2013). Most of these studies were case studies and interviews seeking to understand ERM practices in depth in the actual business environment. The most recent case study on a manufacturing company in Germany suggests that popular risk management concepts – such as COSO, for

example – are never real and that all ERM implementations are localized (Tekathen & Dechow, 2013) adding to the insight that ERM is always implemented in local ways (Mikes, 2009; Arena et al., 2010, 2011).

In the context of ERM effectiveness, previous research has shown that there is inconclusive evidence on whether ERM is effective in managing risks and on what makes up the organisational contingent variables favourable for ERM to function and operate effectively. Study on ERM effectiveness has been identified as a research gap for this study and is discussed further in Section 2.7. The summary of ERM effectiveness studies is included in Appendix C.

Another cluster of studies examines the strong link between a company's level of ERM implementation and its value (Waweru & Kisaka, 2013; Lai, 2014; Li, Wu, Ojiako, Marshall, & Chipulu, 2014) and performance (Hoyt & Liebenberg, 2011; Mwangi, 2014; Nyagah, 2014; Obalola et al., 2014; Rasid, Isa, & Ismail, 2014). These studies mainly rely on secondary data in evaluating the value of the company. For example, Waweru and Kisaka (2013), find evidence that an increase in the level of ERM implementation in companies had a positive contribution to the value of the companies under study. By contrast, Pagach and Warr (2011) find little evidence of any significant changes in various key firm variables among ERM adopters. Specifically, they find limited evidence of risk reduction in the firm's earnings even among firms that are expected to benefit more from ERM (as proxied for by a positive CRO abnormal announcement return).

The indifferent relationship between ERM and firm's value is somewhat consistent with the findings of a couple more recent studies done on insurance companies. Using Standard and Poor's newly available risk management rating of insurance companies in the US, another group of authors find no additional increase in

value for firms achieving a higher ERM rating evidence despite the positive association between increasing levels of Traditional Risk Management capability and firm value (McShane, Nair, & Rustambekov, 2011). The unexpected direction in the results of the study raises a few questions, one of which concerns the reliability and credibility of the newly implemented ERM rating by Standard and Poor. This lack of association is almost similar to that of the recent study on listed companies in Malaysia which uses Corporate Governance Codes as the proxy for ERM adoption. Specifically, results shows evidence of a decline in the firm's value since the Code implementation (Ghazali & Abdul Manab, 2013).

With regard to ERM's positive impact on organisational performance, a study among internal and management executives suggests that ERM implementation can help companies improve performance by enabling executives to manage the company better. The results of the survey submit that firm's value comes from implementing the ERM process, which then enables the company to make better decisions (Gates et al., 2012). Research also finds positive association between ERM and accounting performance (Baxter et al., 2013; Obalola et al., 2014).

In terms of research design, drawing on the accounts of 62 empirical studies on ERM published from 2003 to 2014, these indicated that 74% of these studies are quantitative using survey (34%), secondary data (39%) and experiment (1%). The remaining are made up of qualitative (16%) and mixed methods (10%). The qualitative studies in the analysis consist of case studies (13%) and interviews (3%) – see Figure 2.4 below. The earliest case study on actual ERM implementation was conducted in 2002 at the United Grain Growers (UGG), an agricultural company based in Winnipeg, Manitoba. UGG was among the first companies in Canada to implement ERM (Harrington & Niehaus, 2003). A few more single case studies were performed on a single organisation to explore the aspects of ERM implementation in various

organisations, for example the electricity delivery company in Canada, Hydro One (Aabo et al., 2005).

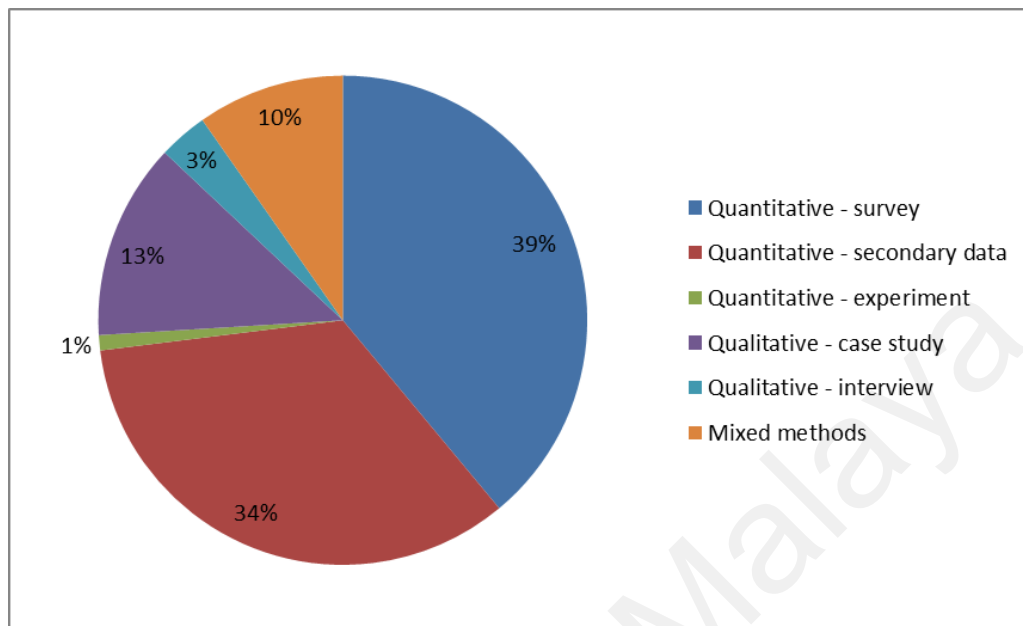


Figure 2.4: Analysis of ERM Empirical Research from 2003 to 2014 by the Research Methodology used in the Research

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

Muralidhar (2010) conducted case studies in six organisations in the Gulf Cooperation Council countries. The study offers insight into the existing ERM models while identifying the determinants of ERM adoption and the most significant challenges for its implementation.

In the meantime, Arena et al. (2010) and Arena et al. (2011) used a seven-year

longitudinal case study on three private Italian companies to examine the organisational dynamics of ERM. The outcome of the cases show how ERM was realised differently across the organisations which reflects the fluid nature of ERM and its ongoing reciprocal interactions with other, pre-existing, practices for controlling uncertainty (Arena et al., 2010, 2011).

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

Of the six mixed method studies conducted on ERM – four are mixed methods of explanatory design, i.e. survey questionnaire followed by case study/interview while the remaining two are mixed methods of exploratory design, i.e. case study/interviews followed by survey questionnaire.

An example of a mixed method study of explanatory design is Kleffner et al. (2003). Using a survey distributed to Canadian Risk and Insurance Management Society members followed by interviews with 19 of the respondents, it is believed to be the first mixed method study done on ERM. The objectives of the study, among others, are to examine the characteristics associated with the use of ERM and to identify the obstacles companies face in implementing ERM hence explaining the need for in-depth understanding which can only be achieved through an interview method (Kleffner et al., 2003).

Similarly, Mikes (2008) conducted a survey and over 50 interviews to investigate the roles that risk departments and senior risk officers play in fifteen large international

banks. The study found that the role of chief risk officers (CROs) had expanded dramatically, with more than half of them involved in firm-level strategic decisions (Mikes, 2008).

A study by Jie (2012) is an example of a mixed method study of exploratory design. The study which examined the importance of risk-oriented internal audit and expanded its applications in organisations so as to ensure the effectiveness of the enterprise risk management.

With regards to ERM practices in Malaysia, although still in its infancy, it appears to be growing fast. In a 2010 study on ERM adoption, already 37 out of 89 respondents confirmed complete adoption of ERM, 33 companies had partially adopted ERM, 4 companies planned to adopt ERM, 12 were still investigating adoption of ERM leaving only the remaining three companies with no intention to implement ERM (Wan Daud, 2011; Wan Daud et al., 2011). The findings of a nationwide survey on risk management practices, conducted a year later in 2011 by the Internal Audit Association of Malaysia (IIAM) and Ernst & Young (EY), revealed that companies began to place importance on the identification, understanding and management of risk because it could help in business decision making, improve business performance and enhance shareholder value (Ernst & Young & Institute of Internal Auditors of Malaysia, 2011).

Malaysian experience in ERM can be traced in a series of studies conducted on ERM from 2010 to 2014 on the various aspects of ERM, namely: (i) the factors affecting the level of ERM adoption within organisations such as (a) the role of CRO (Yazid et al., 2011; Yazid, Razali, & Hussin, 2012); (b) the quality of Board of Director (Wan Daud et al., 2011); and (c) internal auditors (Wan Daud, 2011), (ii) its impact on the values (Ghazali & Abdul Manab, 2013); and (iii) performance of the firm (Nickmanesh et al., 2013) as well as (iv) ERM disclosure practices .

In terms of disclosure practices among Malaysian companies, the findings by Ismail and Rahman (2011) demonstrate that there is more room for improvement on the level of risk disclosure. Findings show that the level of risk management disclosure in Malaysia from 2006 to 2008 was quite consistent each year suggesting that most of the companies perform the same level of risk management disclosure practices from year to year (Ismail & Rahman, 2011).

2.6 Factors Influencing the Effectiveness of ERM in Managing Risks

The factors which are considered in this study include organisational culture (Martin, 1992; Miccolis et al., 2001; Kimbrough & Compton, 2009; Muralidhar, 2010), structure (Kleffner et al., 2003; Arnold et al., 2007; Arnold et al., 2011), enterprise systems (Lam, 2000), tone from the top (Leonard-Barton & Deschamps, 1988; Yetton et al., 1999), strategic role of ERM champion (Lam, 2000; Kleffner et al., 2003; Aabo et al., 2005; Beasley et al., 2005a; Mikes, 2008; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011; Mikes, 2014) and the extent of employee involvement (Milani, 1975; Mia, 1988; Aranya, 1990). In addition, tone from the top is tested as the mediating variable in this research. The presence of CRO and a separate ERM unit as the moderating variables are also examined. This section presents each factor in detail including the findings from the relevant existing effectiveness studies.

2.6.1 Contingent Variables

2.6.1.1 Organisational Culture

Organisational culture is a form of socio-psychological setup and is defined as the collective values, beliefs and principles shared among the members of the same

organisation guiding the thinking and behaviour of members (Cooke & Lafferty, 1989; Cameron & Quinn, 1999). Culture is the underlying shared values and beliefs that are the soul to the entity and is reflected in the behavioural norms or expectations that exert significant influence on employee behaviour and attitudes (Wilkins & Ouchi, 1983; Cooke & Rousseau, 1988).

The inclusion of culture in contingency-based research is not uncommon. It represents the evolution of organisational technical foundations into more sociological concerns (Chenhall, 2003). Culture is a principal aspect of an organisation's function and a critical driver of effectiveness in various studies (Schein, 1983, 1984). Empirical studies have characterised the organisational culture phenomenon and its impacts, particularly on effectiveness (Cooke & Rousseau, 1988; O'Reilly, Chatman, & Caldwell, 1991; Carmeli & Tishler, 2004). Among others, these studies offer invaluable insights pertaining to the roles of specific cultural traits as predictors of effectiveness.

Despite the importance given to culture as an element in an organisation, empirical research with regard to culture and ERM remains somewhat limited. A few studies suggested that cultural barriers are the most critical challenges to ERM implementation (Acharyya & Johnson, 2006; Muralidhar, 2010; Altuntas et al., 2011). Another study on a group of executives from around the globe found that an inappropriate organisational culture and difficulties with organisational turf were among the top barriers to effective ERM implementation (Miccolis et al., 2001).

Kimbrough and Compton (2009) find a positive correlation between organisational culture and the degree of ERM implementation. The study, which was conducted on internal audit executives in the US, found evidence of positive correlation between an organisation's score on OCA and its score on metrics reflecting the degree of ERM implementation with organic culture being more likely to boost the speed of

ERM deployment and effectiveness.

Organisational culture is given a prominent place in ERM frameworks. COSO (2004) ERM framework describes the internal environment based on cultural attributes. It is described as encompassing ethical values, oversight practices and management approaches of the entity. It further includes people competency and how they are developed and organised. These cultural attributes are seen as drivers for risk consciousness within the entity and as such represent a critical factor influencing the effectiveness of ERM in managing risks.

2.6.1.2 Organisational Structure

Structure is the second organisational factor in the study. Organisational structure is defined as the internal pattern of roles, communication, authority and relationships within the organisation.

Otley (1980) submits that organisational structure has a positive relationship with the effectiveness of accounting systems. More recently, C. L. Lee and Yang (2011) find that the use of integrated measures has a stronger favourable influence on organisational performance in mechanistic organisations as compared to organic ones.

Kleffner et al. (2003) has also identified organisational structure as one of the major obstacles for companies to implement ERM. Subsequently, Arnold et al. (2011) examined the influence of ERM on the *ex-ante* development of organisation structures (i.e. information technology systems compatibility and organisational strategic flexibility). The study found a strong link between the effectiveness of ERM processes and organisational structure namely its strategic flexibility which refers to organisational reactivity to new regulatory mandates. The study, which was a sequel

to Arnold et al. (2007), addressed the questions raised from the earlier study as to whether there are structural differences between the four firms that contributed to differing experiences in ERM implementation difficulty and the impact towards organisational flexibility.

2.6.1.3 Enterprise Systems

In general terms, technology is defined as how the organisation's work processes operate (the way tasks transform inputs into outputs) and includes tangible (hardware, materials, people) and intangible (software and knowledge) elements (Chenhall, 2003).

In the old days, organisations operated on "islands of automation" (McKenney & McFarlan, 1982) whereby each application system within the organisation was developed to meet the requirements of a single specific function and they operated independently of one another. Only from the 1980s onwards, trends are seen towards developing single integrated information systems to overcome the problems associated with legacy challenges, cope with Y2K bugs to deliver greater strategic and competitive advantages to support the growing business (Markus & Tanis, 2000; Loonam & McDonagh, 2005).

The focus on enterprise-wide data availability is indicative of the need for high IT compatibility (O'Leary, 2000). Byrd and Turner (2000) define IT compatibility as the ability to share any type of information across any type of technology component. In essence, it promotes transparency which allows access to critical data from anywhere within the organisation through linked and integrated information systems.

According to the Treasury Board (2001), in building an organisation's risk profile, relevant information on the business and processes must be aggregated across the

strategic and operational levels to understand the risks spectrum better (internally and externally) and the related opportunities faced by the organisations. To facilitate such aggregation across the organisation, the Treasury Board further asserts the requirements for technological support that facilitate risk awareness and management through information warehousing (Treasury Board, 2001). On the other hand, for the achievement of ERM objectives, relevant information must be “*identified, captured, and communicated in a form and timeframe that enables people to carry out their responsibilities*” (COSO 2004). This need for data is further highlighted in Ernst and Young’s (2008) prescribed approach for developing an effective ERM (Ernst and Young, 2008).

A study on the effectiveness of risk management guidance issued for local authorities in the UK suggests that in view of the large amount of data involved, use of computer-based system would be ideal (Crawford & Stein, 2004). Levine (2004) asserts that from an implementation perspective, the information needs of ERM necessitate the availability of IT systems that provide a true, unified picture of risk across the organisation (Levine, 2004). Information and knowledge must be aggregated across strategic and operational levels of the enterprise to assist managers in understanding and assessing the existing range of internal and external risks (Treasury Board, 2001). Thus, one of the fundamental challenges of implementing ERM is aggregating the underlying data required to monitor the various components of organisational risk (Lam, 2000).

Davenport (1998) illustrates how a few companies exploited their enterprise systems as levers for control and risk management and as a vehicle to operate and monitor their operations more efficiently and effectively. For example, the adoption of enterprise systems at Owen Corning not only led the company to grow internationally but also cost-effectively through the coordination of order-management, financial reporting and supply chain processes. Another company, Elf-Atochem, benefits from

ES through the consolidation of customer orders and issuance of a single receipt which reduce the risks of missing billing (Davenport, 1998).

2.6.1.4 Strategic Role of ERM Champions

One of the organisational actors included in the current research is the strategic role of ERM Champion. The role of a champion is to promote, support and drive the project he or she is championing. Specifically, he or she provides political support, facilitates information flow for the project, obtains resources required for the project as well as overcoming any resistance which may exist within the organisation (Howell & Higgins, 1990).

Indeed, the appointment of Chief Risk Officer (CRO), which more often than not is tasked to be the ERM champion, is acknowledged as one of the strongest indicators of ERM employment in the organisation (Lam, 2000; Kleffner et al., 2003; Aabo et al., 2005; Beasley et al., 2005a; Mikes, 2008; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011; Mikes, 2014). For example, Wan Daud et al. (2010) investigated the effect of CROs on ERM practices and, based on this study, confirmed the positive association between quality of CRO and level of ERM adoption. The study, as in other studies, however, restricted the task of ERM champion to CRO and imposed limitations to the findings considering that the tasks can be carried out by someone other than the CRO.

Past studies suggests that responsibility as ERM champion does not necessarily lie with the CRO. The role can also be undertaken by the chief executive officer (CEO) (Beasley et al., 2005a; Muralidhar, 2010) or by internal auditors (P. L. Walker, Shenkir, & Barton, 2003; Beasley, Clune, & Hermanson, 2005b; Kasim, 2011; Wan Daud, 2011;

Jie, 2012) and in certain cases, the chief financial officer (CFOs) (Altuntas et al., 2011) or report to one (Beasley et al., 2005a). While ERM researchers and COSO (2004) identify CRO as being the one who works with other managers to set up an effective and efficient risk management system and for helping other managers to give risk information between entire entities (Lam, 2000; Liebenberg & Hoyt, 2003), there is evidence which suggests that not all companies have a full time dedicated risk manager (or CRO) to oversee the risk function in their organisation (Aabo et al., 2005). In Kenya, only 45% of the companies surveyed indicated that ERM implementation in their companies is championed by a CRO while 36% is championed by the head of internal audit. ERM implementation in the remaining 19% are driven by other functions within the organisation (Waweru & Kisaka, 2013).

Mikes (2009) developed a typology of risk managers or risk specialists as the drivers for calculative risk management activities. Additionally, a study found that CFO could also be an affluent person when it comes to ERM implementation (Bloxham & Borge, 2006). Management accountants or CFOs have in recent times been encouraged by their professional associations (IMA – Institute of Management Accountants, 2006; Pollara, 2008) to take on a pro-active role in risk management, so that risks are embedded within the finance department.

Building on this premise, the current study instead of narrowing the champion of risk management to only CRO, also considers other roles such as the CEO, the CFO or the CIA as the possible ERM Champion based on their level of involvement in risk management activities in the organisation.

The appointment of a top executive to champion ERM implementation will not generate the outcome intended if such role does not have sufficient influence and autonomy. Individuals who are higher in rank and/or affiliated with at least one of the

high-status departments tend to possess greater autonomy than individuals lower in rank or affiliated with a lower category (Ibarra & Andrews, 1993). The findings from the study by Beasley et al. (2005b) further suggests that majority of the designated risk officers report directly to the top management team or to the risk management committee which reflects the relatively high organisational position for the role.

Research has shown that companies which failed in the 2008 crisis tend to limit the access of their risk managers to senior management and their boards of directors (Robert & Anette, 2012). In short, the research suggests that the unlimited access, authority and autonomy of the ERM Champion is critical to ERM effectiveness.

2.6.1.5 Employee Involvement

For the purpose of the current study, employee involvement refers to employees' involvement in the design and implementation of the ERM programme. Generally, employee involvement is defined as employees' active involvement in planning and implementation of any intervention embarked on by the organisation (Nielsen & Randall, 2012). One study find a direct positive relationship between employee involvement in the planning and implementation of organisational change interventions to intervention outcomes (Nielsen & Randall, 2012). Similarly, it has also been argued that the likelihood of changes in procedures being appropriate and useful is higher if employees participated in that change (Roskam, 2009).

The common terms for employee involvement include collective management, worker empowerment, worker involvement, participatory decision-making, discrete management, open-book administration, or industrialised equality (Steinheider, Bayerl, & Wuestewald, 2006).

Employee involvement is profound in management accounting research, for example in the field of budgeting (Milani, 1975; Mia, 1988; Aranya, 1990) and transfer pricing (Chen, Pan, & Wang, 2008). The role of employee involvement is also emphasised in the COSO (2004) ERM framework. According to the framework, while the ultimate responsibility lies with the person at the top, everyone who matters within an organisation should participate to some degree in the ERM implementation process. It states that managers “*support the entity’s risk management philosophy, promote compliance with its risk appetite and manage risks within their spheres of responsibility consistent with risk tolerances*”. In simple words, the statement implies that identifying employees who are keys to risks and gaining their buy-in and support is critical to successful ERM implementation. The Proviti Guide to ERM further suggests that the process to implement ERM works best when all the key managers of the organisation contribute (Protiviti Inc., 2006).

2.6.2 Contingent and Mediating Variable – Tone from the Top

“I may have the title, but [CEO] Jamie Dimon is the chief risk officer of the company.”

Barry Zubrow, CRO at JP Morgan Chase in (Kaplan & Mikes, 2012)

The above statement by the CRO of one of the firms which survived the 2008 financial crisis has a very important implication on the risk function. The statement means – in layman terms, that the CRO gets such strong support from the CEO that he overshadows the CRO himself.

Tone from the top in the current study is defined as the support from the top management of the company. Indeed, management support is one of the most studied

variables in studies on implementation success (Sharma & Yetton, 2003). There is extensive evidence in the literature which suggests that tone from the top is crucial in any change of implementation initiatives such as technology (Leonard-Barton & Deschamps, 1988; Yetton et al., 1999) and data warehousing (Wixom & Watson, 2001).

Kotter (1995), for example, emphasises the need to create a conducive ambience that is receptive to changes and offers the necessary resources for those initiatives to take effect successfully. Similarly, studies in enterprise systems implementation also support the notion that management support is one of the critical success factors for the systems implementation (Holland, Light, & Gibson, 1999; Nah, Lau, & Kuang, 2001).

A survey done on Malaysian companies by Yusuwan, Adnan, Omar, and Kamaruzaman (2008) find that lack of management support is identified as the reason for any defect in the implementation of risk management. The data collected from the survey indicates that ERM resistance came mainly from the management (63.0% of the respondents) instead of from the employees (29.6% of the respondents).

2.6.3 Moderating Variable – Presence of CRO and a Separate ERM Unit

Corporate management initiatives to ensure that an effective ERM programme is in place include establishing the organisational structure and defining the roles and responsibilities for risk management, such as the role of CROs (Lam, 2000). Indeed, the hiring of a CRO is one of the strongest indicators of ERM employment in the organisation (Kleffner et al., 2003; Beasley et al., 2005a; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011).

Wan Daud et al. (2010) investigates the adoption level of ERM in Malaysia and the effect of CROs on ERM practices. In this study, the task of the CRO, explained by

COSO (2004) Framework, was investigated. The outcome of the study confirms the earlier studies that found a positive relationship between quality of CRO and level of ERM adoption.

Additionally, COSO (2004) framework recommends for a separate dedicated function to handle strategy – and external-risk management for ERM implementation to be effective. Among other things, the framework outlines that although the size of the risk function may vary from company to company, the function must report directly to the top team implying the importance of such a function within the organisation. Lam (2009) calls for greater impartiality for the risk management function which is independent from the corporate and business unit management. Ultimately, risk management must have an independent voice to be effective. A direct communication channel to the board is one way to ensure that this voice is heard. According to the author, it is only with an independent voice that the risk management functions in the organisation will be effective.

2.6.4 Dependent Variable – Perceived ERM Effectiveness

The dependent variable in the study – perceived ERM effectiveness in managing risks is the crux of COSO (2004) framework. According to the Framework, an effective risk management addresses the upside opportunity associated with any events and mitigates the downside of the negative outcomes which comes with it. It also maintains that ERM is an important process or means and not an end in itself.

In terms of research, ERM effectiveness has been presented as a necessary dependent variable in contingency research to determine the appropriate fit with organisational variables (Otley, 1980; Merchant & Simons, 1986). Beasley et al. (2006)

discusses the conditions necessary for a successful ERM programme. The authors posit that an effective ERM programme should be aligned with performance measurement and incentive systems. In the following year, a guide book on the best practices in implementing an effective ERM programme was published (Collier, Berry, & Burke, 2007) reinforcing the need for an effective ERM in managing risks. Work by Paape and Speklé (2012), Jalal, AlBayati, and AlBuainain (2011), Arnold et al. (2011), Gordon et al. (2009) and Collier et al. (2007) are among the very few studies on the effective implementation of an ERM programme.

For example, Gordon et al. (2009) argues that the relationship between ERM effectiveness and firm performance is contingent upon the appropriate match between ERM and a few contingency factors affecting a firm.

Collier et al. (2007) examines effective risk management practices at a high level of aggregation, using broad categories of practices as independent variables. The study that investigates the effectiveness of risk management guidance issued for the local authorities reveals that the will to implement an effective risk management can be developed if the concepts are sufficiently embedded in the operational procedures.

Paape and Speklé (2012) narrowed the scope of their study by looking at the relationship between specific risk management design choices and their effect on perceived effectiveness of risk management processes and found a positive relationship between the two.

Arnold et al. (2011), on the other hand, examined how the effectiveness of ERM processes from a strategic benefits perspective impacts organisational structure and its ability to respond to changes in the volatile business environment. The findings shows that the effectiveness of ERM processes is very predictive of organisations' strategic flexibility with the relationship being partially mediated by IT compatibility – the ability

to access and utilise enterprise-wide data from across all organisational systems (Arnold et al., 2011). The study draws on the account of the chief internal audit executives hence suffers the bias element of a single respondent (of only the chief audit executives) which may not be reflective of the masses and lack the diverse perspective on the experiences of other chief executives. On the whole, the study concluded that organisations with effective ERM processes and flexible organisational structures already in place incurred little difficulty in implementing new regulatory mandate (in this case SOX 404). On the other hand, organisations that lacked effective ERM processes prior to any publication of new regulatory mandate had weaker implementation processes and had a more difficult experience in complying with the mandates.

The other study by Jalal et al. (2011) seeks to provide empirical evidence that the eight components of COSO (2004) ERM framework are indeed the antecedents for an effective and successful ERM programme (COSO 2004). However, they only apply four out of eight successful factors of good ERM in their study (Jalal et al., 2011).

2.6.5 Control Variable – Regulatory Environment, Size and ERM Adoption Status

By virtue of its potential influence on the study findings, a couple of variables – type of company, i.e. listed or non-listed on the main board of Malaysia, size and the state of ERM adoption – were identified as the control variables in the current study. According to a study conducted on risk management cost effectiveness, due to economies of scale larger firms tend to have lower risks management costs than smaller firms (Schmit & Roth, 1990).

2.7 Research Gap

Based on literature review undertaken for the purpose of this research, there is not much empirical guidance available on perceived ERM effectiveness. Ironically, this is not surprising. A study by Lecy, Schmitz, and Swedlund (2012) suggests that the scholarship on effectiveness is dominated by conceptual and theoretical works and rarely on empirical work. This condition is in the area of ERM (Hoyt & Liebenberg, 2011). The state of ERM effectiveness studies appear to suffer from the same catastrophic dilemma as organisational effectiveness studies and remains as an underexplored 'black box' with only a handful of ERM studies looking at this aspect of ERM.

Despite the vast amount of research done on ERM, very few have looked at ERM effectiveness. Those which looked at ERM effectiveness each deployed their own instruments to measure such effectiveness. To the best of the author's knowledge, work by (Laisasikorn & Rompho, 2014), (Makarova, 2014), Paape and Speklé (2012), Jalal et al. (2011), Arnold et al. (2011), Gordon et al. (2009) and Collier et al. (2007) are among the very few studies on the effective implementation of an ERM programme in an organisation. The following paragraphs summarise these existing studies on ERM effectiveness and how it differs from the current research.

The earliest study on ERM effectiveness can be traced to Collier et al. (2007). The study examined the effectiveness of a guidance issued for the local authorities on risk management instead of ERM itself.

Another study that followed a couple of years later by Gordon and associates is the closest equivalent to the current study. Unlike the current study which uses primary data, Gordon and his associates used secondary data and developed a set of indices to

measure ERM's effectiveness as the criterion variable and the predictor variables consisting of environmental uncertainty, industry competition, firm complexity, firm size, and board of directors' monitoring (Gordon et al., 2009).

Unlike other ERM effectiveness studies, Arnold et al. (2011) and Laisasikorn and Rompho (2014) investigate ERM effectiveness as the independent variable in their studies. Arnold et al. (2011) examined how the effectiveness of ERM processes from a strategic benefits perspective impacts organisational structure and its ability to respond to changes in the volatile business environment. Laisasikorn and Rompho (2014) investigates the impact of a successful ERM system and a performance measurement system on the financial performance of Thai listed companies. This study suggests that the success of an ERM system can be operationalised based on four components consisting of culture, processes, structure and infrastructure.

Another study on ERM effectiveness was carried out in Russia. The study uses the traditional classification of risks namely, strategic risks, legal and compliance risks, operational risks and financial risks in its questionnaire. According to the survey of 120 directors in Russia, 30% of the respondents spent a hefty amount on ERM while the remainder spent nothing on the basis that ERM implementation was economically unfeasible. However, the study is mainly descriptive and vague in terms of its contribution (Makarova, 2014).

While the foregoing studies shed some light on the effectiveness of ERM implementation and processes, save for one by Gordon et al. (2009), none of them actually investigates the effectiveness of ERM in managing risks. Furthermore, none of them actually examined the influence of both the organisational factors and internal human agencies on ERM effectiveness in managing risks. In terms of the operationalisation ERM effectiveness, none of these studies used ISO 31000 as the

guiding framework. COSO (2004) ERM framework appears to be more common among the existing literature on ERM. For example Jalal et al. (2011) and Gordon et al. (2009) with the former using COSO (2004) ERM components as the antecedents for an effective and successful ERM whereas the latter use COSO (2004) ERM objectives to measure effectiveness. On the whole, the fragmented nature of these studies, coupled with the mixed results derived from each, only restrict the conclusion and generalisation of the findings drawn from these studies.

Another prominent feature of the existing ERM studies is the strong domination of the technical aspects of ERM adoption and implementation. Common research themes are namely the financial characteristics of firms which adopted ERM (for example Pagach & Warr, 2011; Lin et al., 2012), the determinants for adoption (for example Beasley et al., 2005a; Paape & Speklé, 2012), the ERM impact on firm's value and performance (for example Gordon et al., 2009; Gates et al., 2012) and the support of senior management such as the Chief Risk Officer (CRO) (for example Beasley, Pagach, & Warr, 2007; Mikes, 2008), Board of Directors (BOD) (for example Wan Daud et al., 2011; Yazid et al., 2011) and internal audit (for example I. Fraser & Henry, 2007; de Zwaan, Stewart, & Subramaniam, 2011) and the implementation of ERM in organisation (for example Arena et al., 2010; Tekathen & Dechow, 2013). Without belittling the contribution of these studies, which offer important insights into the extent of ERM adoption and its value proposition, they do not necessarily imply that ERM implementation is effective in managing risks.

Drawing from the above analysis, the lack of research on ERM effectiveness followed by the research on the social aspects of ERM are among the gaps identified. Firms, owing to the regulatory requirements, seem to invest resources (Curkovic et al., 2013) in implementing ERM but are not so enthusiastic in putting in place processes to review the effectiveness of the risk management programme (Crawford & Stein, 2004)

particularly, in managing risks.

In response to this, the main agenda of the current study seeks to narrow these pronounced gaps which are found in the literature. Although there is growing awareness of ERM and its effectiveness being one of the prerequisites to reaping its benefits, there has been scant research on the area of ERM particularly in its effectiveness in managing risks. Specifically, the existing literature on the organisational factors and internal human agencies which has influence on the effectiveness of ERM is scarce and almost non-existent as highlighted in the preceding discussions.

2.8 Summary

The choice of contingent variables is based on a review of contingency-based literature. Literature on organisational effectiveness, in general and ERM in particular provide additional theoretical support in the development of the contingent framework for this study.

The first contingent variable considered in the study is culture. A group of studies suggested that cultural barriers are the most critical challenges in ERM implementation (Miccolis et al., 2001; Acharyya & Johnson, 2006; Muralidhar, 2010; Altuntas et al., 2011). However, to the best of the author's knowledge, only one study, by Kimbrough & Componation (2009), has looked at culture and found a positive correlation between organisational culture and the degree of ERM implementation. However, the study in 2009 examined the relationship of culture and the degree of ERM implementation and not on its influence on the effectiveness of ERM in managing risks (Kimbrough & Componation, 2009).

Similarly, the influence of organisational structure on ERM implementation has not been the subject of research particularly in understanding its influence on the

effectiveness of ERM in managing risks. A study by Kleffner et al. (2003) identified organisational structure and resistance to change as the major obstacles for companies to implement ERM and this is followed by Arnold and associates in 2011 which found a strong link between effective ERM processes and organisational structure namely its flexibility in reaction to new regulatory mandates (Arnold et al., 2011).

In parallel, an enterprise technology system, which integrates and aggregates the information and knowledge across strategic and operational levels of the enterprise to assist managers in understanding and assessing the existing range of internal and external risks to provide a true, unified picture of risk across the organisation, is critical in the implementation process of ERM.

Tone from the top is another contingent actor examined in the current study. Management support is considered as one of the fundamentals in the implementation of any management initiatives. This is because such implementation requires investment of resources (Makarova, 2014) and sometimes has to be taken as priority over other competing business initiatives, therefore support from management is crucial to put this initiative into real business practices or policies (Holland et al., 1999; Sharma & Yetton, 2003).

Additionally, the power and authority of the risk champion is paramount to the effective implementation of any system or programme. The role needs to be positioned within the organisation in a manner that his objectivity and influence is pronounced. While there is this traditional belief that the role of risk champion is being carried out by the CRO, more recent studies indicate that there could be other roles within the organisation which may be the champion of ERM, especially for smaller set-up entities.

When employees involve themselves in the process, they enhance their appreciation and awareness among social groups and seniors, and improve employees'

value in the firm and ultimately have lower negative consequences of job insecurity in relation with employees with fewer participative decision-making opportunities (Probst, 2005). When members of the organisation are involved in the decision-making process, business communication becomes more efficient and as a results more well-organised outcomes (G. B. Walker, 2007). Employees who were involved in the process of decision-making ultimately attained organisational goals that influenced them. In this procedure, involvement may be exercised as a device that develops business relations, discovers motivations of the workforce and enhances the pace of information transmission across the company.

By virtue of its influence on perceived ERM effectiveness, a couple of variables – type of company, i.e. listed or non-listed on the main board of Malaysia (which define the regulatory framework and size of the company) and the ERM adoption status – were identified as the control variables in the current study.

Although a few of the variables in the study, namely culture, presence of CRO and to a certain extent, employee involvement, have somewhat been the subject of research in ERM, all these studies examine them in the context of its influence on either ERM adoption or to the least effective ERM implementation process. None of the studies actually investigates its influence on the perceived effectiveness of ERM in managing risks. As a result, the findings drawn from the existing studies are insufficient to draw sound conclusions, on its influence on the perceived ERM effectiveness in Malaysia. Thus, it is not known if there are any differences in their influence on the effectiveness of ERM in managing risks as much as they influence the effectiveness of ERM implementation triggering the need for the current study to be carried out.

CHAPTER 3 CONCEPTUAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

3.1 Introduction

Building upon the principles of contingency theory complemented by theories of power and empowerment, the current research proposes that the effectiveness of ERM in managing risks is contingent upon the appropriate interaction between the organisational context and the internal human elements within which it operates.

This chapter has seven distinct sections, including the introduction. The following section 3.2 describes the common theoretical framework in ERM research. In this section, major theoretical foundation in ERM studies will be discussed. Section 3.3 describes the underlying theory to be applied in the current study. The rationale for such choice is also explained in this section. Subsequently, in section 3.4 the conceptual framework for this study is presented and discussed. The development of hypotheses in relation to the influence of the six contingent variables (namely organisational culture, structure, enterprise systems, tone from the top, strategic role of ERM Champion and the degree of employee involvement) on ERM effectiveness is discussed in section 3.5. The mediating influence of the tone from the top and the moderating influence of the CRO presence and a separate ERM unit are also hypothesised in the same section. Description of the control variables follows thereafter in section 3.6 before we conclude the chapter.

3.2 Common Theoretical Framework in ERM Research

Review of existing literature on ERM shows that diversification and portfolio theory (Beasley et al., 2007; Hoyt & Liebenberg, 2011; McShane et al., 2011; Tahir &

Razali, 2011; Kanhai, Ganesh, & Muhwandavaka, 2014) dominate this field, followed by agency theory which is found in three instances (Kasim et al., 2011; and Wan Daud, 2011; Nickmanesh et al., 2013).

Others include construal and psychological ownership theory (Xin, 2011), value maximisation theory of corporate risk management (Woon, Azizan, & Samad, 2011) as well as contingency and stewardship theory (Gordon et al., 2009). There are also a few attempts to apply theories which are less common in management control system research such as dynamic capabilities theory (Musig & Kunsrison, 2012), theory of cooperative games (Altuntas et al., 2011), resource based view and resource capability theory (Arnold et al., 2011), TQM theory building (Curkovic et al., 2013) and absorptive capacity (Arnold, Hampton, & Sutton, 2012). The following discussion provides some examples of how these theories are being applied in ERM research.

The unique characteristic of ERM in managing risks on aggregate basis is akin to the portfolio theory of advocating the same aggregation of assets in the portfolio in order to minimise/maximise the expected costs/return for a given amount of portfolio risk/assets (Beasley et al., 2007; Hoyt & Liebenberg, 2011). ERM calls for a canopy or umbrella concept in which risks are to be managed in the form of a portfolio rather than in silos to allow for better understanding and leverage of inter-risk diversifications and correlations. A group of researchers applies this theory of portfolio to explain the value-creation potential of ERM (Beasley et al., 2007; McShane et al., 2011; Tahir & Razali, 2011; Waweru & Kisaka, 2013). Building on Stultz's work (Stulz, 1996, 2003), Beasley et al. (2007) suggest that the value-creation of ERM works on a portfolio basis. The study finds that the perceived value of ERM adopters by the shareholders is dependent upon the shareholders' cash holdings which can be used to compensate the cost or value associated with ERM. Shareholders of large firms with little cash, value ERM more than those who have more cash. Similarly, shareholders of firms with volatile earnings,

low amounts of leverage and cash on hand attach more values to ERM compared to shareholders of small firms with stable earnings, high amount of leverage and cash on hand. These relationship supports the portfolio theorists that the costs of ERM will compensate the benefits it offer in managing risks, hence lowering the losses (Beasley et al., 2007).

The investigation on banks in Zimbabwe by Kanhai et al. (2014) finds empirical evidence to support that the principle of portfolio view of risks is the most important principle in ERM implementation practices (Kanhai et al., 2014).

Another common theory is agency theory. Agency theory explains the relationship between principals (commonly the shareholders) and agents (commonly the company management team) whereby the principal delegates or hires an agent to perform work in return for reward. The theory posits that the goals of the principal and agent are aligned such that the principal and agent reconcile different tolerances for risk. The use of agency theory in ERM research is found in recent work by Wan Daud (2011) and Nickmanesh et al. (2013). Wan Daud (2011) identifies shareholders as the principal while the chief risk officer, board of directors and internal auditor as the agent to carry out ERM activities more effectively (Wan Daud, 2011). Recognising the important role played by the board of directors, using the same theory of agency and supplemented by the stewardship theories, Nickmanesh et al. (2013) look at the impact of the principal-agent relationship by narrowing the scope to only the board of directors and extending the framework to include organisational performance (Nickmanesh et al., 2013).

Value maximisation theory has also been applied in the study which asserts that ERM implementation maximises firm's value through the tangible and intangible benefits of ERM. In essence, ERM optimises the risk/return profile of the company, lower costs and increase business performance (Woon et al., 2011).

Construal level theory is a theory in social psychology that describes the relationship between psychological distance and people's thoughts to generate certain forms of behaviour. According to the theory, the closer the relationship, the more abstract it will be thought of, and vice versa. High level of construal results in broad-mindedness where people look at the bigger picture and not focusing on details. On the other hand, low level of construal results in narrow-mindedness where people focus on the present in great detail. According this theory, the integrated approach of ERM will be more operational by emphasising the desirability among the employees instead of the feasibility of ERM in the risk management philosophy. Such desirability may improve employees' perceived responsibility for risk management which then stimulates proactive behaviours towards risk management initiatives in the organisation (Xin, 2011).

Using contingency and stewardship theories as the underpinning framework, Gordon et al. (2009) confirm the general proposition that the positive relationship between ERM and firm performance is contingent upon the appropriate match between ERM and the independent variables of ERM environmental uncertainty, competition within industry, firm complexity and firm size as well as monitoring by board of directors (Gordon et al., 2009). This form of contingency fit is what was termed as the congruence form of contingency fit.

Whilst the remaining ERM studies, particularly on the drivers for ERM adoptions (Beasley et al., 2005a; Beasley, Branson, & Hancock, 2009; Paape & Speklé, 2012; Yazid et al., 2012), are silent on the underlying theoretical framework; upon reading the reports, one tends to believe that the studies are very much contingency-based studies of a Cartesian-Congruence form (Gerdin & Greve, 2004).

3.3 Theoretical Framework for Current Research

The current study, which investigates the predictors to ERM effectiveness, seeks to apply the premises of contingency theory as the anchor theory alongside power and empowerment theories to explain the interaction fit between the organisational and internal human factors and ERM effectiveness in managing risks.

Contingency theory of management accounting suggests that there is no universally applicable system of management control that fits all. Rather the choice of appropriate (or fit) systems which are effective is contingent upon the circumstances surrounding a specific organisation (Otley, 1999). Drawing on the same rationale, this study submits that ERM effectiveness is akin to any management system will also depend on the context of the organisation in which it operates. The contingent nature of ERM effectiveness is also acknowledged in COSO (2004) ERM Framework. Here, the framework suggests that organisation has to choose a system which is most appropriate and fitting given the organisational contingent factors which shape the environment within which it operates. To further support the notion, the COSO (2004) framework states that two organisations should not have similar internal control system unless the organisations are identical. These statements in the framework imply that the need for, and the specifics of, ERM may vary in organisational contexts.

Applying contingency theory, this study advances that perceived ERM effectiveness in managing risks is the outcome of (or contingent upon) the perfect fit of the contingent variables consisting of organisational culture, structure and the adequacy of the enterprise systems. On the same footing, the current study seeks to apply the same theoretical foundation to argue that the perfect interaction between the tone from the top, strategic role of ERM Champion and employee involvement also have a positive influence on the perceived ERM effectiveness in managing risks.

Further analysis reveals that the application of such theory in effectiveness studies is not uncommon. It has been used as the theoretical foundation in various fields of organisational, managerial and economic effectiveness research. It is suggested that an effective budgeting process is contingent upon the characteristics of the organisation, environmental circumstances, the technical adequacy of the control system, and the way in which members of the organisation use the information provided by the system (Otley, 1978). Additionally, literature on budgeting shows that inaccuracy of budget estimates are contingent upon the: (1) imperfect forecasting models and (2) divergence between individual and organisational goals leading to distorted, or biased, information input to the accounting system (Otley, 1985).

Contingency theory is also used as the basis to explain the relationship between the degree of fit between organisational requirements for coordination and control with the design of an accounting information system and perceptions of effectiveness about the system (Nicolaou, 2000). Contingency framework can also be traced in the research on business unit effectiveness studies. The study by Jermias and Gani (2004), which uses the fitness landscape approach to test contingency hypotheses about the relationship between business strategy, organisational configurations, management accounting systems, and business unit effectiveness. The empirical evidence from the study finds a positive relationship between the contingent fit, defined as the weighted sum of independent fitness contributions of each variable, with business unit effectiveness (Jermias & Gani, 2004).

Among the most frequently researched external contingency variables is size, typically defined as the number of work-unit members (Fry & Slocum, 1984). Environment, the second external contingency factor, has typically been discussed in contingency theory in terms of a “task” or “technical” environment. This factor is often thought of as the context immediately surrounding the organisation within which the

work unit functions. It is often defined along the axis of “stable” versus “dynamic” and “simple” versus “complex”.

Building beyond that foundation, modern contingency theorists introduce other human contingent variables such as suppliers and distributors, consumer interest groups, customers and competitors, government and unions (Hofer, 1975; Fry & Slocum, 1984; Hambrick & Lei, 1985; Cameron, 1986b; Souder, Sherman, & Davies-Cooper, 1998; F. G. H. Hartmann & Moers, 1999; Jermias & Gani, 2004). For example, Hofer (1975) proposes 54 possible contingency factors followed by Hambrick and Lei (1985) who suggest a few other contingent factors that may affect strategy.

Thereafter, a study by Jokipii (2010) examines the relationship between the contingent characteristics and the internal control structure of 741 Finnish firms and whether it results in a more favourable assessment that firms adapt their internal control structure to deal with environmental uncertainty and to achieve observed control effectiveness.

In the early years, proponents of contingency theory apply it mainly to explain the extent of how organisational structures or management control and design systems are contingent upon organisational contextual factors such as size, strategy, technology and environment (Hofer, 1975; Waterhouse & Tiessen, 1978; Otley, 1980; Langfield-Smith, 1997). Recently, contingency theory goes beyond the direct contingent relationship and distinguishes itself from the traditionalist by emphasising the form of fit or matching between the contingent variables to result in a certain state of the dependent variable, such as increased performance (Fisher, 1998) or effectiveness (Cameron & Quinn, 1999; Carmeli & Tishler, 2004; Arnold et al., 2011).

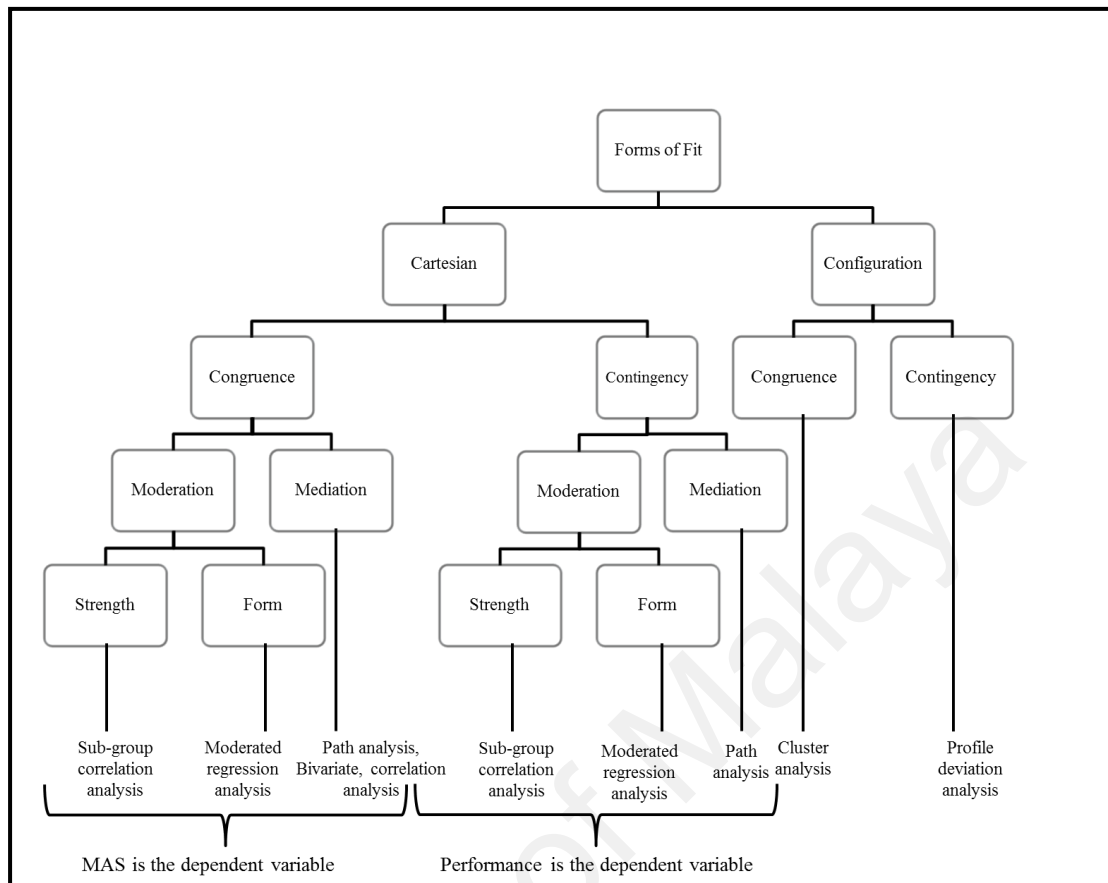
This approach asserts that neither the type of strategy nor the organisational configuration will directly affect performance. Rather, this approach suggests that the

most important determinant of performance is the contingent fit or the interaction between the chosen strategy and its contextual variables.

Gerdin and Greve (2004) advance the different forms of contingency interaction among variables. According to them, unlike the congruence approach which ignores organisational performance in its equation, the contingency approach assumes varying degrees of fit or interaction and therefore goes on to examine its impact on the organisational performance. Advocates of contingency theory advance that there are three alternative forms of fit in contingency theory, namely the selection, interaction and system approaches (Gerdin & Greve, 2004).

For the purpose of the current research, the interaction approach will prevail and the data collected from the survey are analysed using interaction statistical tools as recommended in established contingency-based literature (Schoonhoven, 1981; Drazin & Van de Ven, 1985; F. G. H. Hartmann & Moers, 1999; Gerdin & Greve, 2008).

Contingency-based studies have had a longstanding footprint in the research domain. Gerdin and Greve (2004) developed a hierarchical structure of the many forms of contingency fit found in strategy-based literature (see Figure 3.1 below). The current study takes the form of cartesian-contingency of both moderation and mediation. Specifically, the contingency type of fit assumes a positive association between the organisational factors and internal human elements on the effectiveness of ERM in managing risks. The mediating role of tone from the top and the moderating role of CRO presence and a separate ERM unit is also examined in this study.



(Adapted from “Forms of contingency fit in management accounting research—a critical review” by Gerdin & Greve, 2004, *Accounting, Organisations and Society*, 29, p. 304. Copyright 2004 by Gerdin & Greve)

Figure 3.1: Hierarchical Structure of Different Forms of Contingency Fit used in Strategy-Management Accounting Systems Research

Despite the merits, contingency theory is not without critics. Among others, there are claims that the theory failed to address the issue of power and conflict (Hopper & Powell, 1985). This issue of power is particularly relevant for this research especially in trying to understand the nature of interaction and fit between the organisational actors (namely the top management, ERM champion and the employees) and ERM effectiveness. To address such shortcomings, this study employs the leadership theories of power and empowerment to examine and also to understand the association and the atypical non-association between the organisational actors and ERM effectiveness. Analysis of power (Tannenbaum, 1962; Smith & Tannenbaum, 1963; Kanter, 1989) and

empowerment (Spreitzer, Kizilos, & Nason, 1997; Bennis & Nanus, 2004) are among the principal elements of organisational effectiveness studies.

Power is theorised as the relational concept used to describe the perceived power of an organisational actor over others (Dahl, 1957; Hickson, Hinings, Lee, Schneck, & Pennings, 1971; Hinings, Hickson, Pennings, & Schneck, 1974; Enz, 1988). From the organisational point of view, a person is deemed to have power based on his or her ability (a) to generate outcome or resources which is valuable to the organisation or (b) to address and manage the challenges and uncertainties faced by the organisation (Pfeffer, 1982). From the personal point of view, an actor's power is manifested in his or her (a) structural position in the organisation or legitimate power (b) personality or referent power (c) skills and competencies or expert power (French, Raven, & Cartwright, 1959) and (d) access to specialised knowledge or information (Bacharach & Lawler, 1980). The theory of power is very relevant in the examination of power bestowed upon those at the top of the organisational hierarchy namely the top management as well as the ERM champion.

Empowerment on the other hand can be defined in the sense of delegating the power between the superior and the subordinates (Burke, 1986; Spreitzer, De Janasz, & Quinn, 1999) as well as in the sense of enabling or enhancing the feelings of self-efficacy among organisational members in situations of possible powerlessness (McClelland, 1975; Conger & Kanungo, 1988). According to Conger and Kanungo (1988), there are five phases in the empowering process one of which is employee involvement. Employee involvement will lead to empowering experience among the employees and thereafter arouse the continuing behaviour to accomplish the task objectives. Theory of empowerment is appropriate in the investigation into the involvement of employees in realising the benefits of ERM which is to manage risks effectively. In this regard, the empowering employees to get involved in ERM processes

will ultimately enable the companies to attain the set ERM objectives of managing risks.

3.4 Conceptual Framework

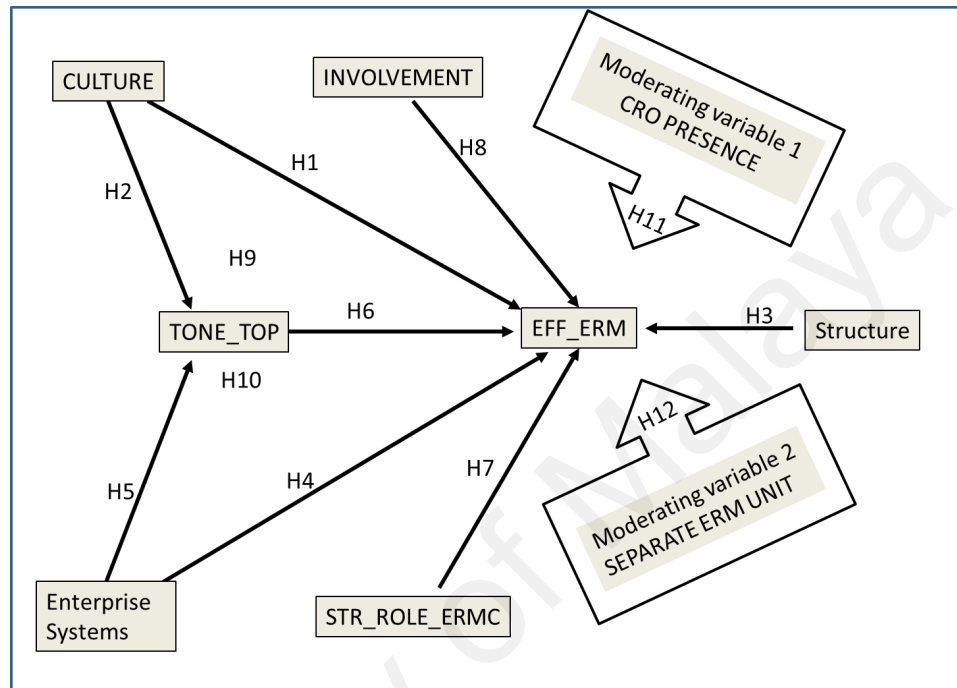


Figure 3.2: Conceptual Framework

Drawing on the literature on the theory of contingency mainly and to a certain degree the theories of power and empowerment, the current research develops a conceptual model to explain how ERM effectiveness is being influenced by the contingent organisational factors and behaviour of the actors.

Figure 3.2 above presents the conceptual framework for the current study. The identification of the contingent variables for the study is based on the review of contingency-based literature, organisational effectiveness in general and ERM in particular. The choice of these variables was further validated by the pre-survey interviews carried out during the design phase of the framework.

As depicted in Figure 3.2, the six contingent variables for the study consist of the

organisational factors of culture, structure, enterprise systems as well as the element of internal human agencies, namely tone from the top, strategic role of ERM Champions and employee involvement. The framework further envisages a mediating relationship of tone from the top between culture and enterprise systems and the perceived effectiveness of ERM in managing risks.

The moderating influence of CRO and ERM unit is also depicted in the framework. These contingencies are likely to create risk awareness within the organisation, facilitate the flow of risk information and encourage openness in discussing and reporting it as well as commitment in implementing the related risks policies. The contingency formulation advanced in this study is that the appropriate fit and interaction between the contingent variables will encourage an effective compilation and warehousing of risk information which in turn will facilitate an effective management of risks.

The identified variables for this study are found to have contingent effects on similar control system effectiveness, thereby justifying the applicability of such variables for the current study on effectiveness of ERM. For example, the contingent variables of structure and technology (Hofer, 1975; Waterhouse & Tiessen, 1978; Otley, 1980; Langfield-Smith, 1997) are common in contingency-based research. They have not, however, been the subject of intense research in ERM studies. In addition, recognising the dominant influence of culture that shapes the behaviour of top management and the members in the organisation, the less common contingent variables of culture, tone from the top, strategic role of ERM Champion and employee involvement are also introduced into the current contingent framework.

3.5 Development of Hypotheses

The current research investigates the extent to which ERM effectiveness is contingent upon the interaction between the organisational factors (culture, structure, enterprise systems) and actors (tone from the top, the strategic role of ERM and employee involvement). To facilitate the investigations, a number of hypotheses are developed and discussed in the following paragraphs.

3.5.1 Organisational Culture

Contingency-based research in management control systems shows strong association between cultural dimensions and elements of a system - such as standardisation, decentralisation) and control system characteristics - such as formality on controls, reliance of accounting performance measures (Carmeli & Tishler, 2004; S. K. J. Lee & Yu, 2004) and organisational effectiveness (Yilmaz & Ergun, 2008; Zheng, Yang, & McLean, 2010)

Organisational culture has been described as an essential predictor of organisational effectiveness (Cooke & Rousseau, 1988; Denison & Mishra, 1995; Cameron & Quinn, 1999; Carmeli & Tishler, 2004; Yilmaz & Ergun, 2008). Similarly, Yilmaz & Ergun (2008) using Denison's theory of culture find that the cultural traits of involvement, consistency, adaptability and mission are positively associated with firm effectiveness. Another study by Carmeli and Tishler (2004) conducted among 93 industrial enterprises hypothesised that internal intangible resources and capabilities (which includes organisational culture) have more influence on firm performance as opposed to environmental and structural factors. The findings of the study show that organisational culture is the third (after perceived organisational reputation and skills of

top management) most influential variable for firm performance.

This leads to the proposition that the ability of ERM in managing risks is contingent upon the perfect interaction with the organisational culture. An imperfect interaction may lead to failure or inability of any initiatives (Schwartz & Davis, 1981) or in this case ERM, to achieve its objectives. Schneider et al. (1996) suggest that there is no single climate or culture that is best for achieving sustained change. What determines the right culture to nurture the subject depends on the industry, markets and the nature of their work force. The role of organisational culture as a contingent factor to ERM effectiveness is evidenced in various organisational effectiveness studies. For example, findings by Carmeli and Tishler (2004) exhibit the positive influence of culture in generating the competitive advantage and above-normal organisational performance. From the COSO (2004) framework standpoint, cultural attributes are recognised as the drivers for risk-awareness and risk-conscious mindset which ultimately represent a critical factor for ERM effectiveness in managing risks. On a similar note, a group of researchers identify cultural barriers as a restraint to ERM effectiveness (Acharyya & Johnson, 2006; Muralidhar, 2010; Altuntas et al., 2011). Based on contingency theory, we therefore propose that:

H1 – There is a positive significant relationship between organisational culture and perceived ERM effectiveness in managing risks.

The prominent influence of organisational culture on ERM effectiveness goes beyond doubts as it defines the values and shapes the behaviour of the employees as well as the degree of interaction among the organisational actors (Barney, 1986) including the top management team. Smircich (1983) further demonstrates the intersection by comparing the concepts of culture from both the organisation and theoretical perspectives. He suggests that bureaucratic cultures respond more favourably

to monitoring than supportive cultures. Involving employees in designing the system, monitoring groups, and restricting monitoring to performance-related activities may improve attitudes toward monitoring in supportive cultures. In fact, organisational culture is considered in the literature as one of the key factors that can stimulate behaviour among members of the organisation towards change or new initiatives. Culture motivates desire in employees to eventually embrace and get engaged in the changes (A. Hartmann, 2006).

Drawing on the intersection and the ability of culture to stimulate behaviour, the current research proposed that there is an implied relationship between culture and the tone from the top and thereby hypothesises that:

H2 – There is a positive significant relationship between organisational culture and tone from the top.

3.5.2 Organisational Structure

A study by Damanpour (1991) on the relationship between organisational structure and innovation shows that the latter influences the capability of an organisation to adopt and implement successfully any innovative initiatives undertaken. In literature, structure has been commonly conceptualised to take the extremes of mechanistic to organic structure (Burns & Stalker, 1961). On one extreme are the mechanistic organisations that are characterised by more layers in the hierarchy, higher centralisation, more formalised, micro controls, and a top-down communication. On the other are the organic structures that are characterised by fewer layers in the hierarchy, greater decentralisation, less formalised, macro controls, and a horizontal communication (Tosi & Carroll, 1976; Hage, 1980; Nahm, Vonderembse, & Koufteros, 2003).

Past studies find interesting distinctions between mechanistic and organic structure with regard to its relationship with system effectiveness. For example, Chia (1995) found that the need for an integration approach in performance measurement systems (PMSs) is higher in organic structures yet the effectiveness of using such PMSs is better achieved in mechanistic structures. The rationale behind such odd relationship can be explained by the better coordination of the varying roles which facilitate a decision-making process in the latter. In other words, while it is easier to adopt an innovation within an organic structure, successful implementation is more achievable in a mechanistic one (Rogers, 2010). Such phenomena can also be explained by the decentralisation nature of the organic structure coupled with a high degree of interaction and flexibility between departments. The lack of coordination whereby different departments have different systems defeats the very fundamental nature of the integration. In support of this notion, the study by Gosselin (1997) finds that an innovative costing system is only partially implemented in organic organisations but is embedded and becomes an integral part in mechanistic organisations. This evidence supports the views that the implementation of innovation is more difficult in organic organisations, due to the lack of formality and standardisation (Burns & Stalker, 1961).

Gouldner (1954) further suggests that procedural specification which is a synonym for mechanistic organisations would be an efficient means of supervision. Similarly, Waterhouse and Tiessen (1978) argue that mechanistic structures (as opposed to organic) is more akin to formalised and specified procedures and there is a greater likelihood that such organisations implement evaluations based on specified procedures. The less formalised the procedures (which is the case in the organic structures), the more costly it will be to implement any initiatives based on measures of specified procedures compared to mechanistic structures. The centralisation of decision-making fosters the flow of information and ultimately improves efficiency and effectiveness

(Jansen, Van Den Bosch, & Volberda, 2006). It can therefore be argued that the effectiveness of using integrated measures such as ERM is higher in mechanistic structures than in organic ones.

Additionally, mechanistic organisation tend to rely more on the level of integration compared to organic structure as it integrates and coordinates various departments with different functions across the organisations. More specifically, the use of integrated measures is more relevant with respect to performance in mechanistic organisations than in organic. The study which among others examines the contingent effect of organisation structure on the design of performance measurement systems (PMSs) find empirical evidence to support that the positive relation between the use of integrated performance measures and organisational performance is lower in organic structures as compared to in mechanistic structure (C. L. Lee & Yang, 2011).

Based on the theory of contingency, the current study therefore proposes that an integrated risk management approach such as ERM would enhance a mechanistic firm's ability to manage risks effectively through the holistic approach of its complex risk management and requirements. It is therefore hypothesised that:

H3 – There is a positive significant relationship between organisational mechanistic structure and perceived ERM effectiveness in managing risks.

3.5.3 Enterprise Systems (ES)

Enterprise systems refers to the integrated software packages of multiple functional applications with a common database (Davenport, 1998). It is a comprehensive warehousing of all business information – sales, inventory, supply chain, customer, financial and accounting information – all in a single repository. Once

data is entered at its source point, the relevant information is updated across the system. The distinct character of enterprise systems is the real time availability of a comprehensive database which allows management to respond and react effectively in the risk events. It allows an end-to-end solution in such a way that a single transaction can “flow through” the entire applications suite, from the source to the end of an automated update of financial and inventory records without additional data entry efforts. In some systems, the integration is further enhanced by linking up to the administrative processes (human resources) and management accounting (Fahy & Lynch, 1999; Granlund & Malmi, 2000; Rom & Rohde, 2006; O'Mahony & Doran, 2008).

The benefits associated with enterprise systems are aplenty. The systems offer universal and realtime access to operating and financial data leading to a streamlined organisational structure, creating flatter, more flexible organisations as well as centralised control of the vast amount of information (Davenport, 1998). Enterprise systems can also be the lever for controls. Some executives incorporate some form of discipline to put the business in order (Davenport, 1998). Holsapple and Sena (1999) suggest that decision-making is improved with enterprise systems implementation. Subsequent study by the same researchers further investigated the perception of the decision-support feature of enterprise systems among the adopters and found that enterprise systems adopters strongly associate the decision-support characteristics with their enterprise systems (Holsapple & Sena, 2003). Spathis (2006) listed a number of accounting benefits of enterprise systems which include flexibility in information generation, increased integration of applications as well as improved quality of financial reporting.

Such a new phenomenon in technology certainly warrants a reshape in the way risk is being managed. The vast amount of information flowing electronically across the

organisation and in cyberspace creates the necessities for risks to be integrated and assessed electronically (Khazanchi & Sutton, 2001; Sutton, 2006). In building an organisation's risk profile, information and knowledge must be aggregated across the strategic and operational levels to assist managers in understanding the range of risks (internally and externally) and the related opportunities (Treasury Board, 2001). Indeed, one of the fundamental challenges of implementing ERM is aggregating the underlying data required to monitor the various components of organisational risk (Lam, 2003; Ernst & Young, 2011, 2013).

The above discussions lead to the general beliefs that the effectiveness ERM is contingent upon the presence of enterprise systems. It is therefore hypothesised that:

H4 – There is a significant positive relationship between enterprise systems and perceived ERM effectiveness in managing risks.

There are various tactics undertaken by behavioural scientists to stimulate change in organisations. Among others, these tactics include the interventions deliberated to enhance the relationships between functions and across levels (Schneider et al., 1996).

Using the decomposed theory of planned behaviour, in particular the attitudinal belief structures, a study by Mahoney (2011) shows that the strategic, transactional and informational benefits offered by the enterprise system is one of the determinants to motivate the top management to support the enterprise systems project.

Additionally, based on the presumption that the top management's primary goal ultimately is to maximise stakeholder wealth through the long-term performance of the organisation (Jensen & Meckling, 1976) and that an integrated systems is associated with high performance, we are proposing that the enterprise system (due to its integrated nature) has a positive contingent influence on the tone from the top. Anthony

(1965), top management will feel more secure with a robust and integrated system which gives them access to information in seconds. It is implied that the enterprise systems and the resulted knowledge on the strategic benefits of ERM offers are a powerful determinant of a top manager's attitude toward supporting the project. Accordingly, the study hypothesises the contingent relationship that:

H5 –There is a significant positive relationship between enterprise systems and tone from the top.

3.5.4 Tone from the Top

The main human element in the current study is tone from the top also known as management support. Based on Abraham Maslow's Hierarchy of Needs, people need trust, support, and cooperate to function effectively. Schneider et al. (1996) find that the sustainable effects from a training programme are negligible unless their superior also accepted into the new training. The findings of a study on a data warehousing project by Wixom and Watson (2001) identify significant positive relationship between management support and the success of any project as it helps to address organisational issues which may hinder its success.

Kaplan and Mikes (2012) and Lam (2000) argue that support from the management team one of the contingent factors for an effective risk management. A company's ability to weather storms is subject to how executives, especially those who are directly responsible for risks, take their risk-management function responsibilities seriously. Kaplan and Mikes (2012) suggest that companies that survive crisis are those where top management are serious about their risk-management function. Their article submits that the degree of autonomy (in line with the theory of power) associated with risk management function is the main element that distinguished the banks that failed in

the financial crisis from those that survived. According to the authors, failed companies have the tendency to relegate their risk management to a compliance function and to their risk managers who have limited access to senior management and their boards of directors.

Lam (2000) suggests that one of the seven critical components of ERM which needs to be addressed by organisations warrants the setting of appropriate tone from the top both in actions and words. Tone from the top not only supports any implementation of new initiatives but can also become the main barrier or the obstacles to an effective programme. For example, TQM models of organisational effectiveness identified 'weak management' as the principal barrier to the successful implementation of a TQM programme (Schneider et al., 1996).

Similarly, lack of management support is also found to be one of the challenges in ERM implementation (Yusuwan et al., 2008). According to the survey findings, there are other challenges which point towards lack of management support. For example, these include lack of expertise to lead the risk management teams/departments, absence of set procedure in risk management as well as lack of training to groom risk experts from within. Although the respondents admitted that they lacked knowledge on risk management, ultimately the responsibility lies with the top management to create such awareness and invest in risk management training. Building upon the theory of power, the study therefore proposes that:

H6 – There is a significant positive relationship between tone from the top and perceived ERM effectiveness in managing risks.

3.5.5 The Strategic Role of ERM Champion

A number of items ERM literature establish the importance of Chief Risk Officer (CRO) as one of the key drivers to ERM adoption (Lam, 2000; Thiessen, Hoyt, & Merkley, 2001; Liebenberg & Hoyt, 2003; Beasley et al., 2007; Wan Daud et al., 2010; Pagach & Warr, 2011). Findings of Mikes (2008) further suggest that the role of a CRO has evolved dramatically from its traditional role of a compliance officer to a business partner. The findings from 15 financial institutions show that CROs are involved in the strategic role within the organisation. Subsequently, Mikes (2014) find that the role of the CRO has evolved beyond ERM implementation to the creation and internalisation risk culture within the organisation.

Although the above suggests that the CRO is the key person driving the implementation of ERM, there were instances where ERM has been successfully implemented without the presence of CRO (Aabo et al., 2005) especially in smaller organisations (Gramling & Myers, 2006). In these instances ERM implementation is driven by other key executives in the organisation, such as the internal auditor (de Zwaan et al., 2011; Boyle & Boyle, 2013) and the CFO (Bloxham & Borge, 2006). Drawing on these notions, the current study instead of limiting the champion role to CRO (as other studies) generalise the role of ERM Champion as one of the contingent variables for effective ERM.

Building upon critical literature on risk management and the theory of power by Huber and Scheytt (2013), we argue that the strategic role of the person(s) who champion the ERM implementation is a contingent factor for an effective ERM programme in managing risks (Huber & Scheytt, 2013). It gives the actor, in this case, the risk champion, some power to augment, extend, or disnormalise the risk activities as it opens up a loophole for fears, panics and anticipations of actors inside the

organisations. Findings from a study conducted among internal audit executives in Malaysia revealed that despite having a separate ERM unit headed by a CRO, only 60% reported that the CRO was primarily responsible for ERM. It is further revealed that other functions such as the CFO, CIA or the Audit Committee were instead primarily responsible for ERM within the remaining 40% of the organisations surveyed (Kasim et al., 2011). This finding reflects the fact that despite leading the ERM unit, the CRO did not necessarily have full control or authority of ERM the implementation programme.

The following hypothesis therefore proposes that the strategic role of ERM Champion affects the perceived effectiveness of ERM in managing risks.

H7 – There is a significant positive relationship between the strategic role of ERM Champion and perceived ERM effectiveness in managing risks.

3.5.6 Employee Involvement

The third human element included in the current research is employee involvement. Employee involvement in contingency-based research can be traced some decades back, for example, Tiller (1983) and Vroom (1959). A more recent study on a data warehousing project implementation identified a significant positive relationship between user participation and the likelihood that the project would finish within the specified timeline, budget and specifications (Wixom & Watson, 2001).

Employees perform an absolutely essential function in creating the climate to sustain implemented change. The employees from across the organisation are the glue that holds the change efforts together, the medium for communication, substance of the change, and eventually the means by which the change becomes enacted behaviourally.

Mikes (2014) suggests that commitment from others in the organisation to accept

a relevant and situationally contingent version of risk management is key to an effective ERM, implying the importance of employee involvement to be considered in the scope of this study.

Ambrose and Alder (2000), which investigates the influence of employee involvement on an employee monitoring system, suggests that employees are more receptive towards an employee-monitoring system if the monitored employees are involved in the design and implementation of the system (DeTienne & Abbott, 1993; Ambrose & Alder, 2000). In the same way, Aiello and Kolb (1995) argued that if employees are involved from the initial phase of a monitoring system implementation and feel that their input is considered in the system development, they may feel greater ownership of their work and more motivated. Similarly, using theory of empowerment, Ottensmeyer and Heroux (1991) demonstrates that when workers are empowered to participate in the design and implementation of computer monitoring systems, chances of buy-in by the workers on the new systems is much higher.

Consistent with the existing literature, the current study posits that employee involvement throughout the risk management process and activities will improve ERM effectiveness. Involvement from employees facilitates the input, flow and exchange of information from the employees who are closest to the risk points to other across the organisation. Drawing upon the theory of empowerment, employees are motivated, through the involvement process, to convey appropriate risk information to the relevant authorities who are presumably the risk owners. Based on this information, the well-informed risk owners together with the ERM Champion then develop an optimal risk strategy to mitigate risks. Employees will also be more receptive towards such risk strategies and activities, knowing that it has their elements of input, which further motivates an even higher level of engagement in the implementation or operational of such strategies. Hence, it is proposed that:

H8 – There is a positive significant relationship between employee involvement in risk management activities and perceived ERM effectiveness in managing risks.

3.5.7 Mediating and Moderating Variables

A mediator specifies how (or the mechanism by which) a given effect occurs (Baron & Kenny, 1986). Specifically, according to Baron and Kenny (1986), a mediator is the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest. A strong relation between the predictor and criterion variable needs to be established first for a mediating influence to occur effectively. On the other hand, moderator variables are typically introduced when there is an unexpectedly weak or inconsistent relation between a predictor and a criterion variable (Baron & Kenny, 1986). The following Sections 3.5.7.1 and 3.5.7.2 justify the choice of mediating and moderating variables identified for this study followed by the hypotheses development.

3.5.7.1 Mediating Influence of Tone from the Top

The words expressed and actions taken by the top management always serves as a powerful tool in sending the message across the organisational community. According to Chatterjee et al. (2002) top management championship or in the context of this study, tone from the top, is a “metastructuring action” which can further define values and norms of how managers should participate in web technological initiatives. The study further suggests that the metastructuring enabling nature of top management shapes the direction of the company and in legitimises the influence and structures the actions of the individual managers and groups.

Empirical evidence further show that top management has strong influence on

organisational culture which in turn impacts shapes employees' attitudes towards and perceived behavioral control over compliance with information security policies (Hu, Dinev, Hart, & Cooke, 2012). Using theory of planned behaviour, the study which integrates the role of top management and organisational culture further report that top management participation in information security initiatives has significant direct and indirect influences on employees' attitudes towards, subjective norm of, and perceived behavioral control over compliance with information security policies.

Along the same vein, this current study submits to introduce tone from the top as the mediating variable in the research model. The investigation into the mediating role of tone from the top or management support is not new in management research. Attempts by Huigang et al. (2007) to explain how top management mediates the impact of external institutional pressures on the degree of usage of enterprise resource planning (ERP) systems highlights the important role of top management in mediating the effect of institutional pressures on IT assimilation.

Ultimately, tone from the top has been found to have a disproportionate influence on organisational outcomes (Child, 1972). Based on this understanding, the current study proposes that top management support can mediate the relationship between culture and ERM effectiveness in managing risks. As such, the study proposes that:

H9 - Tone from the top mediates the relationship between organisational culture and perceived ERM effectiveness in managing risks.

Oh and Teo (2009) finds that enterprise systems play significant roles in building up IT-enabled ERM capabilities. The empirical findings of the study which was conducted on organisations in Singapore also suggest that IT-enabled ERM improves organisational resilience. The potential exploitation of enterprise systems for business assurance which includes enterprise systems-enabled audit-monitoring and risk

management capabilities is huge. Studies show how enterprise systems can be exploited to monitor customers' profitability and incorporate a threshold to trigger action should the profitability experience an alarming downtrend (Davenport, 1998). It is also useful to automate an audit monitoring-surveillance for continuous assurance as well as fraud detection (Best, Rikhardsson, & Toleman, 2009). The potential of enterprise systems-ERM functionality as information enabler offers huge benefits to risk management processes. Its use as an information feeder can be seen through the integration of the enterprise-wide systems to work seamlessly (Protiviti Inc., 2006) with the ERM system.

While there is overwhelming evidence on the positive influence of enterprise systems on organisational effectiveness (Gupta, 2000; Poston & Grabski, 2000; Scapens & Jazayeri, 2003; Rom & Rohde, 2006; Spathis, 2006) and a few on ERM effectiveness in managing risks (Sutton, 2006), the mediating role of tone from the top on the relationship between enterprise systems and ERM effectiveness is rarely examined or non-existent. To the best of the author's knowledge, to date there is no published study that examines whether tone from the top interacts with enterprise systems and eventually improves the effectiveness of ERM in managing risks. In this study, it is proposed that tone from the top may have a mediating effect in the previously identified association between enterprise systems and ERM effectiveness as follows:

H10 - Tone from the top mediates the relationship between enterprise systems and perceived ERM effectiveness in managing risks.

3.5.7.2 Moderating influence of CRO Presence and a Separate ERM unit

Experts suggest that for risk management practices to be effective, a separate function to handle strategic and external risks management is necessary. In addition, theory of power further submits that this function should report directly to the highest authority (Kaplan & Mikes, 2012). The important role of CRO is paramount in ERM

programmes on the basis that the impetus for ERM arose when the traditional risk manager and the financial risk manager began reporting to the same individual in a corporation (D'Arcy & Brogan, 2001). Appointment of Chief Risk Officer (CRO) is indeed acknowledged as one of the strongest indicators of ERM employment in the organisation (Kleffner et al., 2003; Beasley et al., 2005a; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011). Wan Daud et al. (2010) investigated the adoption level of ERM in Malaysia and the effect of CROs on ERM practices. In this study, the task of CRO, explained by COSO (2004) was considered and it further confirmed the earlier studies which found a positive relationship between quality of CRO and level of ERM adoption.

While there are studies which emphasise on CRO presence and the establishment of a separate ERM unit on the level of ERM adoption, research has yet to investigate the moderating effect of the two variables on the relationship between the contingent variables and ERM effectiveness in managing risks. Moderating variable is deemed relevant for the current research model due to the unexpected lack of relationship between some of the contingent variables, namely strategic role of ERM champion and employee involvement and the criterion variable i.e ERM effectiveness (Baron & Kenny, 1986).

Drawing upon the notion put forward by Baron and Kenny (1986) on the rationale for a moderating variable, the lack of relationship based on the analysis of the survey data justifies for a moderator to be introduced. On this basis, the study therefore proposes that:

H11 - Presence of CRO moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks.

H12 - A separate ERM unit moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks.

3.6 Control Variables

3.6.1 Regulatory Environment and Size

Due to the costly outlays and resources required for ERM implementation to take place effectively (Makarova, 2014), the likelihood of firms in regulated industries (Kleffner et al., 2003; Liebenberg & Hoyt, 2003; Beasley et al., 2005a; Gordon et al., 2009) to implement ERM is much higher compared to those which are not regulated.

In addition, the size of the organisation is also likely to affect the extent of ERM adoption (Collquit, Hoyt, & Lee, 1999; Thiessen et al., 2001; Beasley et al., 2005a; Hoyt & Liebenberg, 2011). Beasley et al. (2005) and Hoyt and Liebenberg (2009) found firm size to be positively related to the adoption of ERM. A study by Gordon et al. (2009) further shows a statistically significant positive relationship between company size and the ERM effectiveness which is measured by a special ERM index among the high performing companies.

COSO (2004) framework further acknowledges the importance of firm size when designing an ERM system. Larger firms tend to be more formalised and possess considerable economies of scale to implement ERM. Big firms tend to be more capable to implement a fully functional ERM system. Similarly, larger companies are likely to have higher ERM scores (Desender, 2011) although this notion is not supported by a few (Liebenberg & Hoyt, 2003; Beasley, Branson, & Hancock, 2008; Paape & Speklé, 2012).

Bearing this in mind, the current study which seeks to investigate the effectiveness of ERM in managing risks defined the companies which are listed on the main board of Bursa Malaysia to be the sampling frame for data collection. The rationale behind the sample selection is the main board regulatory and listing

requirements which fulfil the criteria of large and regulated organisations. Among others, the listing requirements for the main board listing require:

- A minimum paid-up capital of RM60 million,
- 5 years profit
- Aggregate profit after tax (PAT) of RM30 million
- Minimum profit after tax of the latest year of RM8 million
- Has business operations (not dormant) in the last 5 years.

In other words, by virtue of the above requirements, one would easily associate the listing on the main board of Bursa Malaysia as an indication that the companies are large and have easy access to funds which can eventually be invested in ERM implementation (Laisasikorn & Rompho, 2014).

Being the frontline regulator of the Malaysian capital market, Bursa Malaysia has issued various sets of rules to stipulate the requirements that need to be met by the listed companies either upon admission and/or on a continuing basis. It administers and monitors compliance with these rules and takes strict, prompt and objective enforcement action for breaches of these rules. In fact, Bursa Malaysia prides itself as being an active supervisor and surveillance body for the Malaysian capital market (source: Bursa Malaysia website).

That said, one would agree that pre-defining the size and the regulatory environment of companies by identifying the main board-listed companies as the target respondents for the current study is most appropriate to generate more meaningful and accurate findings.

3.6.2 ERM Adoption Status

To further improve the quality of responses in regards to ERM effectiveness, the other variable which is controlled in the current research is the ERM adoption status. This is consistent with the approach undertaken by a study on ERM effectiveness by Makarova (2014) which sent out questionnaires to companies which had already implemented some form of risk management standards.

The current study seeks to evaluate the effectiveness of ERM based on self and subjective assessment of the key functions within the organisation. For better judgment and assessment of how ERM is effective in managing risks, the organisation needs to implement ERM. The instruments used to identify the respondents is adopted from established ERM literature (Beasley et al., 2005a; Wan Daud, 2011; Wan Daud et al., 2011; Yazid et al., 2011).

3.7 Summary

This chapter highlighted the common theoretical frameworks underlying the research on ERM as well as organisational effectiveness. The theoretical frameworks common to ERM research, among others, are portfolio theory, agency theory, stewardship theory, construal level theory, etc. Thereon, the theoretical foundation for the current study is identified, i.e. contingency theory as the anchor aided by power and empowerment theories are identified and discussed in detail. The chapter also elaborates how the interaction among the variables is developed into hypotheses to be tested in the current study.

CHAPTER 4 RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

The current study aims to investigate the outcome of six identified organisational and human factors on ERM effectiveness in managing risks in the presence of CRO and a separate ERM unit as the moderating variables. In the cases of culture and enterprise systems, the impact of tone of the top as the intervening variable is also examined.

This chapter outlines the research design and methodology of the mixed method approach undertaken by the current study. The following section explains the rationale behind the choice of methodology. The description of the two methods of data collections namely the online questionnaire and the semi-structured interview formed the subsequent parts of the chapter.

The two main parts of the study i.e. quantitative and qualitative are explained in Section 4.4 and Section 4.5, respectively. In Section 4.4 – Quantitative Design, the population of the study is defined followed by the development of the research instruments, the pre- and pilot-tests and finally the statistical tools used for data analysis. In Section 4.5 – Qualitative Design, (the semi-structured interview section), the interview participants, the interview guide and the method for the interview process are detailed out. Finally, the data analysis tools are outlined before we conclude the chapter.

4.2 Research Design – Mixed Method Approach

As implied by the title of this research, the methodology for the current research is a mixed-methods approach of explanatory sequential design which is a quantitative approach to be followed by a qualitative approach. The current research aims to add to

the existing limited number of mixed-method studies on ERM.

The mixed methods approach which has had its roots over the last 20 years is seen by many as the “multiple ways of hearing and seeing” (Creswell & Plano Clark, 2007; Greene, 2007). This mode of research was chosen partly in response to the recommendation for future studies to opt for a qualitative research method such as case study, in-depth interviews or a combination with a survey questionnaire to have deeper understanding of the subject (J. Fraser et al., 2008; Wan Daud et al., 2010; Yazid et al., 2011).

Quantitative data provides a more general understanding of a problem whilst qualitative data provide a detailed understanding of a problem. Each provides different degrees of understanding and generalisability with own sets of limitations. When researchers quantitatively examine many respondents, the depth of understanding of any one respondent is diminished. On the other hand, when only a small sample is examined, the ability to generalise the results to many is lost. Both are complementary of each other; the limitations of one method can be offset by the strengths of the other. In other words, the combination of both has the potential of providing a more complete understanding of the research problem than either approach by itself (Creswell & Plano Clark, 2007).

Mixed methods research has been defined by Creswell and Plano Clark (2007) – page 5 as:

“...a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a

better understanding of research problems than either approach alone.”

In terms of the current state of ERM as a body of knowledge, quantitative approach appears to be more prominent compared to other approaches. Most of the literature found on ERM is conducted empirically, mainly primary data collected through survey questionnaires (Beasley et al., 2005a; Wan Daud et al., 2010; Jalal et al., 2011; Wan Daud, 2011; Wan Daud et al., 2011; Yazid et al., 2011; Gates et al., 2012) followed by secondary data sourced from annual reports, press announcements, stock prices, and data provided by government and non-government bodies such as the National Association of Insurance Commissioners, COSO, SIC, etc. (Liebenberg & Hoyt, 2003; Pagach & Warr, 2007; Gordon et al., 2009; Lin et al., 2012). A handful number of studies used a case study approach (eight) and a mixed methods approach (six).

The area of ERM being the subject of research in the existing mixed method studies varies. Acharyya and Johnson (2006) believed to be the first mixed method study of explanatory design done on ERM, was to look at the development of ERM at four major European Insurance Companies. The study, which consists of 62 semi-structured face-to-face interviews and a structured survey, finds that despite the call for a holistic approach to managing risks, there was no such approach in the four companies studied. Rather, they approach ERM in parts. CEO leadership and regulations are found to be the most important drivers in ERM implementation, whilst communication and cultural barriers are the most important challenges in ERM implementation. A later study by Mikes (2008) using survey and over 50 interviews seeks to assess the roles that risk functions and, in particular, senior risk officers play in fifteen large international banks. The study found that the role of chief risk officers (CROs) had expanded dramatically, with more than half of them frequently involved in firm-level strategic decisions.

4.3 Data Collection Procedures

For the purpose of this study, three distinct steps of collecting data are designed:

The first phase is the content analysis of annual reports aimed towards identifying companies that have adopted ERM (termed hereinafter as ERM adopters). This identification process has been acknowledged as a major obstacle to ERM-empirical research because firms do not in general, publicly announce the adoption of ERM and tend to disclose only minimal details of their risk management programmes (Liebenberg & Hoyt, 2003; Pagach & Warr, 2010; Hoyt & Liebenberg, 2011). Past researchers, therefore, resorted either to rely on evidence of existence of ERM programme, such as the creation of a specialised managerial position, i.e. Chief Risk Officer (CRO) who is tasked to implement and coordinate ERM programme, or to search for evidence of ERM activity in the financial reports, newswire or any other media. An early study by Liebenberg and Hoyt (2003) argue that a CRO appointment signals the initiation of ERM because CROs are generally appointed to implement and manage ERM programmes. Based on these studies, ERM adopters were identified through a search for keywords such as *enterprise risk management*, *strategic risk management*, *corporate risk management*, *consolidated risk management*, *holistic risk management*, *integrated risk management*, *risk management committee*, *risk committee*, and *chief risk officer* in the company's audited financial statement (Gordon et al., 2009; Hoyt & Liebenberg, 2011; Lin et al., 2012).

The above keywords in general reflect the consolidated and centralised approach to managing risks as opposed to the traditional, silo-based perspective. This is reflected in the used of adjectives such as *enterprise*, *strategic*, *consolidated*, *holistic* and *integrated* to describe the risk management activities in the entity (D'Arcy & Brogan, 2001). Analyses of interviews from six case studies in the Gulf Co-operation Council

(GCC) oil and gas entities found three emerging themes/trends in the GCC oil companies namely, standardisation, integration, and centralisation (Muralidhar, 2010) in support of those adjectives to describe ERM. Keywords such as risk management committee, and chief risk officer generally indicate the presence of a dedicated unit or role to oversee all the risk topics in the organisation which is the impetus to ERM (D'Arcy & Brogan, 2001).

On a separate note, companies' annual reports are accredited documents disclosing company's corporate information. The data contained therein is supposed to be of authoritative and of credible value because it has passed the scrutiny of the audit process. It has been widely acknowledged as a public document more than a private one and that it is a means by which the company uses to communicate with the public. In a study on annual reports which discusses the various perspectives of annual reports from the lens of researchers, the authors argue that annual reports can be viewed from their legitimacy and accountability, which implies that disclosures in the annual reports are driven by the concerns of external parties beyond shareholders (Stanton & Stanton, 2002). In this regard, ERM could well be one of the top concerns of the stakeholders given the value maximisation benefits of ERM (Hoyt & Liebenberg, 2011; Waweru & Kisaka, 2013).

The disclosure via content analysis method is not without its flaws. Among others, the content analysis method suffers from the lack of mandatory disclosure requirement for CRO appointment under Rule 9.04 of the Listing Requirements (LR) by Bursa Malaysia. While Rule 9.04 of the LR states that change of management should be disclosed accordingly, often the role of Chief Risk Officer is not considered as part of the management team. Additionally, there are Type I and Type II measurement errors to be addressed. Type I measurement error occurs when non adopters are misidentified as ERM adopters particularly if such firm discloses that one of the board members was

previously a chief risk officer of another firm, whereas the Type II measurement error is failure to identify ERM adopters when the firm's ERM practices are not disclosed using the keywords defined in this paper.

Recognising the limitations of the content analysis approach and the tendency to overdisclose, the identified ERM adopters from the content analysis are further validated by questionnaire survey (Beasley et al., 2005a; Wan Daud, 2011; Wan Daud et al., 2011; Yazid et al., 2011). Specifically, companies with evidence of ERM adoption are invited to participate in an online survey which includes a question on the state of ERM adoption or level of ERM maturity in the company. A web-based survey method was therefore developed to collect data in the second phase of the research methodology.

The choice of survey type is particularly critical to minimise the incidences of low response. A web-based questionnaire approach has proved to generate higher response rate (Jokipii, 2010; Jalal et al., 2011) as it allows the researcher to monitor the response rate on a regular basis and send reminders to non-respondents. The real time status of the respondent also facilitates for an efficient follow-up strategy to encourage response. Feedback from a pre-survey interview with the industry practitioner is incorporated in the design of the instruments for the research.

The question used to further verify the ERM adopters is adapted from established ERM literature which asked respondents to state the the level of ERM maturity in the company (Beasley et al., 2005a; Wan Daud, 2011; Wan Daud et al., 2011; Yazid et al., 2011).

The third phase is the conduct of semi-structured interviews to enhance the understanding of the survey results. The semi-structured interview was guided by semistructured interview protocol. The targeted interviewees were identified based on

their scores of perceived ERM effectiveness, strategic role of ERM champion and employee involvement.

4.4 Quantitative Design

4.4.1 Respondents to the Online Questionnaire

Being the focus of this study, the most appropriate unit of analysis is the organisation itself (Hopwood, 1972; Birnberg, 2011).

The target respondents for the survey consist of all ERM adopters listed on the main board of Bursa Malaysia. The rationale behind the choice of public listed companies (PLCs) are (1) regulated environment, (2) company size, (3) easy access to information from Bursa Malaysia, (4) easy access to complete and updated list of PLCs and (5) the likelihood of ERM adoption among PLCs are much higher due to Bursa's guidelines. ERM requires huge amount of investment (Makarova, 2014) and PLCs due to their size are assumed to have higher likelihood of implementing ERM. All industries are included in the study although a number of studies opted to exclude financial services (Jokipii, 2010; Wan Daud et al., 2010; Wan Daud, 2011; Wan Daud et al., 2011) due to the highly specialised nature of the industry.

The population for the study is identified by carrying out phase 1 as discussed in the previous section.

- First, the list of all the 818 PLCs as of January 2014 was generated.
- Then, the annual reports (pdf format) for the period ended 2012 or 2013, whichever applicable, were downloaded from the company's website. Out of the exercise, a total of 14 companies whose annual report is not available on the website was omitted, leaving to 804 annual reports (in pdf file) to be analysed.
- Next, we developed special software to look for the keywords in those

documents. The software works to find the pre-defined keywords in the uploaded pdf files.

The report generated by the software displayed for each of the annual reports part of the sentences where the keyword was detected and highlighted those keywords. Ten pdf files were further removed from the sample set due to compatability issues.

Based on the keyword search, a total of 416 out of 794 companies (or 52%) were identified as ERM adopters and qualified to be included in the sampling definition for the survey (see Table 4.1). Finance, industrial products and constructions are among the top three industries disclosing the ERM keywords in their annual reports. The finance industry topped the list with 68% disclosing the ERM terms. This is followed by the industrial products industry with 58% and constructions industry with 54%. All these had occurred due to the high regulated nature of the finance industry and the high risks nature of the industrial products and constructions industries. On the other hand, the lowest three industries demonstrating disclosures are trade services (48%), consumer products (47%) and REIT (31%). Overall, these findings are consistent with the existing empirical studies made by Collquit et al. (1999), Kleffner et al. (2003) , Beasley et al. (2005a) and Soltanizadeh, Rasid, Golshan, Quoquab, and Basiruddin (2014) which find that ERM implementation level varies according to industries.

Next, each of the 416 companies was contacted via telephone to obtain the e-mail addresses of the chief risk officers (CROs), the chief internal auditors (CIAs) and the chief financial officers (CFOs). The chief executive officers (CEOs) are intentionally excluded from the respondent lists to minimise the element of bias because risk management is ultimately the responsibility of the CEO (Bursa Malaysia, 2013). Although the CROs can also pose bias because of their direct involvement in the ERM implementation, the researchers are of the view that the value of their response

outweighs the potential of bias they might have when giving their feedback. As an additional precautionary measure, the data collected from the CROs can be easily identified, truncated and excluded from the analysis to detect any form of ‘bias’. Out of the 416 companies, 86 companies were either not reachable or opted not to participate in the survey. The remaining 330 companies generated a list of 502 e-mail addresses of potential respondents which consisted of 78 CROs, 136 CIAs and 288 CFOs.

Table 4.1: Analysis of ERM Adopters (by Industry)

Industry	Number of companies by industry A	% by industry A/794	Evidence of ERM adoption B	% ERM adopters by industry B/A
Finance	28	4	19	68
Industrial Products	265	33	155	58
Constructions	50	6	27	54
Technologies	21	3	11	52
IPC / Mining / Hotel	10	2	5	50
Plantations	41	5	20	49
Properties	82	10	40	49
Trade/Services	169	21	81	48
Consumer Products	115	14	54	47
REIT	13	2	4	31
	794	100	416	52

4.4.2 Questionnaire Design

Recognising that most of the ERM variables studied in past literature are measured using single item metrics (Paape & Speklé, 2012), the instruments for the current research is designed to have multiple items to minimise the risk of bias and the inaccurate reflection of the actual contribution of ERM (Ittner & Larcker, 2001).

The questionnaire is broken down into six sections with a total of 19 main questions and 86 items. Types of measurement scale are either nominal or interval. Nominal scale is mainly applicable to questions on demographic information while the

interval scale is made up of a seven-point scale with strongly disagree and strongly agree endpoints (Hage & Aiken, 1969).

Section 1 of the questionnaire aims to get the background information of the respondents. Section 2 seeks to identify the ERM Champion for the organisation and his strategic role based on his involvement in the strategic discussions and decision making in the organisation. Section 3 captures the respondents' views on the statements related to culture, structure and the enterprise systems of the organisation which the respondents represent. Section 4 seeks to gain insights on the tone from the top and employee involvement. Section 5 is related to the extent of ERM implementation in the organisation. Finally, the respondents' perception on the effectiveness of ERM in managing risks is sought in Section 6. Please see Appendix D for the complete set of the questionnaire.

4.4.3 Pre-tests and Pilot Tests

Prior to launching the survey campaign, the questionnaire was pre-tested for validity and reliability. Face and content validity exercise was carried out through a pre-test by seven experts in the relevant fields of ERM and statistics, two professionals from the field of audit and finance as well as one audit consultant – each with more than 15 years of experience in their respective area of specialty. Pre-testers were asked to comment on the readability of the instrument, clarity of instructions and/or any other feedback to improve the face and content validity of the questionnaire. They were asked whether or not the questions were clear and measured what they were intended to measure. The feedback from the pre-testers was addressed and incorporated in the questionnaire. One of the major modifications made from the pre-test feedback is on the instrument to measure culture. Initially, the research intended to measure culture based

on Denison's competing value approach. Upon feedback that the instrument was too complex and confusing and could easily be misunderstood by respondents which may lead to low reliability and high number of unusable responses, the instrument was eventually replaced with Wallach's (1983).

Next, the final version of the questionnaire was uploaded into SurveyGizmo, the online survey platform. The platform was chosen due to its flexibility. A pilot test was performed to test the online process and the functionality of the application. The test run involved tests on the workability and the flow of the questionnaire as well as the functionality of the reminder and the reporting features.

The respondents for the pilot tests consisted of risks, internal audit and finance managers of non-listed organisations that have implemented ERM. This is to ensure that the pilot data replicates the actual data collection environment. A total of 30 respondents participated in the pilot tests.

The data collected from the pilot tests was then analysed using SPSS (Statistical Package for Social Science). Based on SPSS reliability analysis, the Cronbach's alpha was well above the appropriate range of 0.8 indicating that the questionnaire was reliable and usable for the current research.

4.4.4 Operationalisation of the Research Variables

There are six main contingent variables in the study. Those are culture, structure, enterprise systems, tone from the top, strategic role of ERM Champion and employee involvement in risk management activities. Placed on the other side of the framework is the dependent variable, namely the effectiveness of ERM in managing risks. This section discusses how the research variables are being operationalised into valid and

reliable research instruments. The instruments to operationalise the variables were developed based on established literature and frameworks governing ERM, namely COSO 2004 and ISO 31000. Where necessary the existing instruments are modified to fit the scope and content of the current study. The complete set of the online instruments is appended on Appendix D.

4.4.4.1 Contingent Variables

4.4.4.1.1 Culture

Being one of the widest and oldest researched variable, instruments for cultural exploration is aplenty. Jung et al. (2009) identified at least 70 instruments for cultural assessment from its electronic searches of 11 bibliographic databases. Among the oldest were the Critical Incident Technique and Wallach's Organizational Culture Index which can be traced back to the mid-twentieth century.

The more recent ones include Hofstede (1980), Schein (1985) and Denison (1990). Hofstede (1980) stresses that there are national and regional cultural groupings that affect the behaviour of organisations. He contends that culture is examined in five dimensions of national influences which consists of power distance; uncertainty avoidance; individualism versus collectivism; (4) masculinity versus femininity; and long-term versus short-term orientation.

Schein (1985), on the hand, classifies culture into three dimensions of assumptions at the first level, values at the second level, followed by artefacts at the third level. Meanwhile, Denison (1990) explains culture in four distinct hypotheses: (1) the consistency hypothesis, (2) the mission hypothesis – the notion that a communal sense of purpose, direction, and strategy can synchronise and move organisational members toward collective goals; (3) the involvement/participation hypothesis – the

notion that involvement and participation will contribute to a sense of responsibility and ownership, and organisational commitment and loyalty; and (4) the adaptability hypothesis – the notion that customs and beliefs that enhance an organisation's ability to receive, construe, and translate information from the various sources into internal organisational and behavioural changes will promote its survival, growth, and ultimately its development. Each of these instruments is developed to suit the climate, complexity and multidimensionality of the subject under research. From their massive review of the existing cultural instruments, Jung et al. (2009) concludes that there is no ideal instrument for cultural exploration and that any measure is seen as “fit for purpose” subject to the intent of use as well as the context within which it is to be applied.

The current study therefore adapts the model proposed by Wallach (1983) which enjoys the impression of being simple and concise (Delobbe, Haccoun, & Vandenberghe, 2002). The model which consists of only three dimensions, enjoys the impression of being simple and concise (Delobbe et al., 2002). Schein's model suffers from too broad explanatory framework while Hofstede model is applicable when national culture is the prominent focus. Wallach's index used in this study is the refined version of the original one proposed in 1968 which was further modified in 1979. Although it is one of the oldest theories, it has survived the test of time (Alder, 2001). Its relevance to current times is evidenced in the application of the index in recent organisational studies (Koberg & Chusmir, 1987; Kanungo, Sadavarti, & Srinivas, 2001; Lok & Crawford, 2004; Zehra & Bukhari, 2015).

Denison's more recent competing value approach was initially considered in this study to measure culture. However, the feedback from pre-tests suggests that it is too complex and confusing and can easily be misunderstood by respondents which may lead to low reliability and high number of unusable responses.

According to Wallach (1983), culture can be defined as the common beliefs, values and norms among employees of an organisation. She further advanced that organisational culture comprises three separate, measurable traits of bureaucratic, innovative, and supportive – see Table 4.2.

Table 4.2: Wallach's (1983) Model of Organisational Culture

Type of culture	Bureaucratic	Innovative	Supportive
Environment	Characterised with clear lines of authority and responsibility, hierarchical and compartmentalised Work is organised and systematic	Characterised by exciting, dynamic and creative, exciting environment	Characterised by open, friendly and harmonious environment akin to an extended family
Nature of company	Large market share in a stable market, mature and cautious	Creative and full of challenges and risks	Warm and fuzzy place to work
Adjectives to describe the companies	power-oriented established solid regulated ordered structured procedural hierarchical sound structure efficient system	driving enterprising challenging stimulating creative results-oriented risk-taking	trusting safe equitable sociable encouraging open relationship-oriented collaborative
Adjectives to describe the employees	well trained monotonous stable saturated followers <i>Suitable for less creative and content individuals or those who are in the comfort zone and like to be controlled</i>	constant pressure burn out and stress hard to balance family-work-play time <i>Suitable for entrepreneurial and ambitious individuals</i>	friendly fair helpful towards each other. <i>Suitable for family oriented individuals or someone who places importance on work-life balance.</i>

Bureaucratic cultures are characterised by clear segregation of duties and responsibilities, highly organised and compartmentalised. Adjectives to describe bureaucratic organisations are hierarchical, structured, regulated, and procedural. Workers in a bureaucratic environment are described as structured and liking to follow

orders. Organisations with innovative cultures are commonly risk-takers and results-oriented and welcome creativity. The company culture is described as driving, enterprising and challenging. Workers in an innovative organisation are described as highly stressed and are constantly under pressure. The core of supportive culture is in its humanistic principles. The company is considered supportive through its attitudes towards the employees that are trusting, equitable, encouraging, relationship-oriented and collaborative. In supportive cultures, workers are described as friendly, fair, and helpful to each other and to the organisation. Supportive cultures promote “family values” such as harmony, openness, friendship, collaboration, and trust (Wallach, 1983).

In the survey, the respondents were asked to describe the culture of their organisations by indicating the rating ranging from seven (best describe my organisation) to one (least describe my organisation) for the 24 items as shown on Table 4.3.

Table 4.3: Instruments Used to Measure Organisational Culture

Please indicate how each of the following statement describes your organisational culture.							
	Least describe					Best describe	
1. Risk taking	1	2	3	4	5	6	7
2. Collaborating	1	2	3	4	5	6	7
3. Hierarchical	1	2	3	4	5	6	7
4. Procedural	1	2	3	4	5	6	7
5. Relationship Oriented	1	2	3	4	5	6	7
6. Results oriented	1	2	3	4	5	6	7
7. Creative	1	2	3	4	5	6	7
8. Encouraging	1	2	3	4	5	6	7
9. Sociable	1	2	3	4	5	6	7
10. Structured	1	2	3	4	5	6	7
11. Pressurised	1	2	3	4	5	6	7
12. Ordered	1	2	3	4	5	6	7
13. Stimulating	1	2	3	4	5	6	7
14. Regulated	1	2	3	4	5	6	7
15. Personal Freedom	1	2	3	4	5	6	7
16. Equitable	1	2	3	4	5	6	7
17. Safe	1	2	3	4	5	6	7
18. Challenging	1	2	3	4	5	6	7
19. Enterprising	1	2	3	4	5	6	7
20. Established, Solid	1	2	3	4	5	6	7
21. Cautious	1	2	3	4	5	6	7
22. Trusting	1	2	3	4	5	6	7
23. Driving	1	2	3	4	5	6	7
24. Power-oriented	1	2	3	4	5	6	7

4.4.4.1.2 Structure

Structure is defined as the internal organisation's pattern of relationships, authority and communication (Thompson, 1967).

The most commonly studied dimension for structure is centralisation (Rapert & Wren, 1998). It has been used as a proxy for organisational structure in most empirical studies in management accounting for example Gordon and Narayanan (1984), Chenhall and Morris (1986) and Govindarajan (1988) and indeed proved to be a key factor in the design of management accounting systems. Centralisation refers to "the extent to which decision-making power is concentrated at the top levels of the organisation" (Caruana, Morris, & Vella, 1998, p. 18) as opposed to decentralisation which is the extent to which key decisions are made by divisional managers.

Weber (1947) however describes organisational structure as multidimensional instead of unidimensional. He later conceptualised structure into 5 dimensions of specialisation, standardisation, formalisation, centralisation and configuration (Pugh, Hickson, Hinings, & Turner, 1968). 64 scales were developed based on these dimensions and administered to 52 personnel in England. Their findings suggested four dimensions of specialisation, standardisation, formalisation and centralisation to be considered in the operationalisation of structure for research purposes.

The dimensions used to measure structure in this research was adapted from the more recent instruments by Gosselin (1997) which applied the organisational organic and mechanistic continuum developed by Burns and Stalker (1961). Three dimensions based on Gosselin (1997), comprising nature of formalisation, hierarchy and decentralisation were used to distinguish organic and mechanistic structure for the current study. The following paragraphs define each dimension in detail.

Formalisation is defined as the degree to which rules, procedures, instructions, and communications are documented and formalised. Formalisation helps organisations to regulate behaviour of its employees and brings about a situation of predictability in the organisation (Pugh et al., 1968). Decentralisation refers to the level of autonomy delegated to managers. Decentralisation provides managers with greater responsibility over planning and control activities and greater access to information not available to the corporate body (Waterhouse & Tiessen, 1978). On the other hand, hierarchy refers to the depth of the structure reflecting the number of layers in the organisation (Gosselin, 1997).

Mechanistic organisations are characterised by many organisational levels, heavy centralisation, high degree of formalisation, a narrower control range, and higher dependency on vertical communication. On the other hand, organic structures are identified by lesser layers in the hierarchy, greater decentralisation, fewer formal rules, a wider control range, and a horizontal communication (Tosi & Carroll, 1976; Hage, 1980; Nahm et al., 2003). In other words, the higher the scores for the dimension of formalisation and the lower the scores for hierarchical and decentralisation, the more mechanistic is the organisation.

The use of these three multi-dimensions (Gordon & Narayanan, 1984; Chia, 1995) for organisation structure as opposed to a single dimension variable allows for a more comprehensive consideration of structure particularly where the population involves companies from different industries (C. L. Lee & Yang, 2011). The dimensions used in the current study are also common in the investigation of management accounting systems (Gordon & Narayanan, 1984; Chenhall & Morris, 1986; Chia, 1995; Gosselin, 1997) and internal control systems (Jokipii, 2010).

Furthermore, this instrument developed by Gosselin (1997) who investigated the

relationship between structure and the adoption and implementation of activity-based costing (ABC) in manufacturing firms is deemed appropriate because of the similarities shared between the dependent variables in the earlier study and the current one, as both ABC and ERM share the common character of being a new and innovative approach to improve the firm's performance. See Table 4.4. for the instruments.

Table 4.4: Instruments Used to Measure Organisational Structure

Nature of formalisation
1. My organisation establishes rules and procedures to show how employees can make suggestions for changes.
2. My organisation establishes rules and procedures to reflect the experience learned from the past.
3. My organisation establishes rules and procedures to guide employees to implement improvement at work.
4. My organisation establishes rules and procedures to encourage employees to be creative in dealing with problems at work.
5. The employees in my organisation can share opinions with their superior and get involved in making decisions.
Hierarchy
1. There are only few layers in my organisational hierarchy.
2. My organisation is a lean organisation.
3. My organisation has only few management layers between staff at the basic level and CEO.
Decentralisation
1. The employees in my organisation have the authority to correct problems when they occur.
2. The employees in my organisation are empowered and have control over their job.
3. My superiors are supportive of the decisions made by their team.

The instrument has a total of 11 items, consisting of five items on the nature of formalisation, three items on the hierarchy and three items on the level of decentralisation. The respondents were asked to rate the 11 statements given on a seven-point rating scale ranging from one (strongly disagree) to seven (strongly agree) (Gosselin, 1997; C. L. Lee & Yang, 2011)

4.4.4.1.3 Enterprise Systems

Enterprise systems refers to a single software solution which integrates an organisation's business processes (Loonam & McDonagh, 2005). Such systems "seamlessly integrate business processes and information flows up and down, across value chains" (Davenport, 2000) and more recently, in and out of the organisation extending its functionality to include business and supply chain partners (Sutton, 2006; Woosang & Hokey, 2013). Other terms used to describe enterprise systems includes enterprise resource planning (ERP), enterprise-wide information systems (EWIS) and enterprise information systems (EIS). The distinct characteristics of an enterprise systems are the interlinked nature of business transactions, i.e. the high degree of automation and integration (Gupta, 2000) as well as real-time information (Nah et al., 2001).

In this study, enterprise systems are operationalised predominantly based on the instruments used in the study by Woosang and Hokey (2013). Three dimensions of integration, adaptation and configuration were adapted. Another dimension i.e. training, was not included in the current research because it is not within the scope of the current research. A few items were removed and some wordings were replaced to fit into the multi-industry nature (as opposed to manufacturing industry) of the current sampling frame. Three items were added to assess the extent of IT-enabled ERM capabilities within the organisation. Overall, there are 14 items (see Table 4.5) used to measure enterprise systems (see Table 4.5) with a seven-point measurement scale ranging from one (strongly disagree) to seven (strongly agree).

Table 4.5: Instruments Used to Measure Enterprise Systems

General
1. All kinds of business information flow electronically across the organisation.
2. The systems for financial and accounting information, human resource information, supply chain information, where applicable, are fully integrated .
Integration
1. We seamlessly integrate all business modules in the enterprise system technology.
2. We seamlessly integrate all internal business transactions in the enterprise system technology.
3. We seamlessly integrate the enterprise system technology with customer and supplier system , using communication protocols and standards.
Configuration
1. The enterprise system technology in my organisation meets all my organisational needs .
2. The enterprise system technology in my organisation accommodates the relevant changes required.
3. The enterprise system technology in my organisation supports the business processes and practices of my organisation (data fit).
Adaptation
1. We can easily alter the enterprise system technology data items , to fit into changing organisational needs.
2. We can easily alter the enterprise system technology input/output screens , to fit into changing organisational needs.
3. We can easily alter the enterprise system technology reports , to fit into changing organisational needs.
Software for ERM
1. My organisation implements risk management software to capture all risk information which includes the risk events, response and status of each response.
2. The risk management software used in my organisation is accessible to all the applicable risk owners, line management and the dedicated risk team.
3. The risk management software used in my organisation is integrated with all the other operating systems in the organisation.

4.4.4.1.4 Tone from the Top

Tone from the top can be defined as *“the level of commitment of the senior management in the organisation to the project in terms of their own involvement and the willingness to allocate valuable organisational resources”* (Holland et al., 1999, p.

4). Management support or tone from the top is also described as a widespread sponsorship for a project across the management team (Wixom & Watson, 2001). According to Markus (1983), tone from the top overcomes political resistance as well as encourages involvement from across the organisation. The study which premised around theories of resistance illustrates through case studies that employees are more likely to embrace the changes or initiatives supported by the management team given their high status, authority and autonomy within the organisation.

The three items used to operationalise tone from the top are derived from a COSO (2004) framework. A seven-point measurement scale ranging from one (strongly disagree) to seven (strongly agree) is used for the instrument which is shown on Table 4.6.

Table 4.6: Instruments Used to Measure Tone from the Top

1. The internal environment in my organisation provides an appropriate foundation for ERM.
2. The 'tone from the top' sends an appropriate level of emphasis on the importance of ERM in my organisation.
3. A Board of directors or committee of the board in my organisation is actively involved in the risk management activities.

4.4.4.1.5 Strategic role of ERM Champion

Project champion is someone who actively supports and promotes the project, provides information, resource materials as well as political support. The role of project champion who is responsible for overseeing the entire implementation process is critical to the success of the project. He/she is one who has the power to set goals and legitimise change (Bingi et al., 1999; Nah et al., 2001) and ensure that problems arising during the implementation are tackled effectively (Jarvenpaa & Ives, 1991).

This study, instead of limiting the scope to CRO, uses ERM Champion so as to

allow other executives who carries the same responsibility to also be considered in the study and to determine the necessity of engaging a full time CRO to improve the ability of the ERM in managing risks.

On the presumption that the role of ERM Champion is akin to that of CRO, the variable is operationalised based on COSO (2004) definition of the latter. According to COSO (2004) framework, as the champion of ERM, the CRO facilitates the execution of the ERM process and infrastructure. His or her role supports the Board or the designated risk management committee and business unit heads. Using the same inference, ERM Champions are not necessarily experts in calculating risks, but advisors who support managers in taking responsibility for risks (Power, 2007). In other words, the CRO (on the context of this study, ERM Champion) is directly responsible among others for the overall leadership, vision and direction of ERM, establishing an integrated framework for all aspects of risks in the organisation and improving the overall risk management readiness of the organisation.

In the instruments used, the respondents were first asked to identify the ERM Champion in the organisation based on the three main roles of (1) establishing an effective risk management programme, (2) reporting the relevant risk information as well as (3) monitoring all the risk management activities for the organisation. Those roles are adapted from Mikes (2008). Respondents can choose out of the pre-defined roles of chief executive officer, chief risks officer, chief financial officer and chief internal auditor. If it is none of the above, they can choose others (with the specific function to be specified by respondents).

Once the identity of the ERM Champion has been established, the respondents were asked to answer four questions regarding the strategic power of the ERM Champion and his or her involvement in board-level strategic decision making. The four

items were developed to measure the extent of power based on potential-enacted power model by Provan (1980). The first two items measure the position of the champion and his or her reporting line which represent the potential power dimension of the Champion (Provan, 1980). The remaining two items indicate his or her involvement in the projects as well as involvement in board-level strategic decision-making which represent the enacted power dimension (Mikes, 2008). These items were modified from its original version to fit into the current scope and format of the study. The respondents were asked to rate the statements regarding the power of ERM Champion on a seven-point rating scale ranging from one (strongly disagree) to seven (strongly agree) as indicated on Table 4.7.

Table 4.7: Instruments Used to Measure the Strategic Role of ERM Champion

<p>An ERM Champion is primarily responsible for the following tasks in relation to the implementation and coordination of ERM programme.</p> <ul style="list-style-type: none"> • <i>Establishing effective risk management programme for the organisation.</i> • <i>Reporting the relevant risk information up, down and across the organisation.</i> • <i>Monitoring all the risk management activities within the organisation</i> <p>Please choose one of the following role in your organisation who has the responsibility for all or most of the above tasks.</p> <p>A. Chief Executive Officer</p> <p>B. Chief Risk Officer</p> <p>C. Chief Internal Auditor</p> <p>D. Chief Financial Officer</p> <p>E. Others. Please specify _____</p>		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>				
<p>The following statements refer to the power of the ERM Champion whom you have identified above. Please indicate your agreement to each of the following statement by circling ONE of the number/rating below regarding the power of ERM Champion in your organisation.</p>						
<table border="1"> <tr> <td>1. The ERM Champion is a member of the Management team.</td> </tr> <tr> <td>2. The ERM Champion reports directly to the CEO or the Board of Directors or the Audit and Risk Committee.</td> </tr> <tr> <td>3. The ERM Champion is involved in the setting up of new ventures or new projects.</td> </tr> <tr> <td>4. The ERM Champion participates in board-level strategic decision making (i.e. M&A, portfolio rebalancing, etc.).</td> </tr> </table>			1. The ERM Champion is a member of the Management team.	2. The ERM Champion reports directly to the CEO or the Board of Directors or the Audit and Risk Committee.	3. The ERM Champion is involved in the setting up of new ventures or new projects.	4. The ERM Champion participates in board-level strategic decision making (i.e. M&A, portfolio rebalancing, etc.).
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3. The ERM Champion is involved in the setting up of new ventures or new projects.						
4. The ERM Champion participates in board-level strategic decision making (i.e. M&A, portfolio rebalancing, etc.).						

4.4.4.1.6 Employee Involvement

Employee involvement as a variable in research is common in a behavioural-type of research. Numerous amounts of literature provide evidence of employee involvement in the successful planning and implementation of organisational initiatives and change (Roskam, 2009; Nielsen & Randall, 2012) especially in the field of budgeting. There are studies that document the positive relationship between involvement and job satisfaction (for example Kenis, 1979; Hofstede, 2001). According to the studies, the positive association subsequently generates favourable attitudes towards budgeting among employees - the results of increased motivation which is the outcome of involvement (Stedry & Kay, 1966; Brownell & McInnes, 1986).

Three items were developed to measure the extent of employee involvement in ERM activities carried out in the respondent's organisation. The items were adapted from Randall, Nielsen, and Tvedt (2009) with some modifications to fit into the subject of the research. The respondents were asked to rate the statements regarding employee involvement on a seven-point rating scale ranging from one (strongly disagree) to seven (strongly agree) as per Table 4.8.

Table 4.8: Instruments Used to Measure Employee Involvement

Please indicate your agreement to each of the following statement regarding the extent of **employee involvement in ERM activities in your organisation.**

- | |
|---|
| 1. Employees are involved in identifying the key risk area. |
| 2. Employees are involved in defining the risk mitigating initiatives. |
| 3. Management put in great efforts to involve employees in ERM processes/activities. |

4.4.4.2 Dependent Variable – Perceived ERM Effectiveness

Prior to measuring the effectiveness of ERM in the workplace, the respondents were asked to choose the statement which BEST described the level of ERM implementation and the level of ERM adoption in their organisation. This measurement on the extent of ERM implementation is adopted from Paape and Speklé (2012). They added additional descriptive detail regarding manifest ERM practices to the original scale developed by Beasley et al. (2005a). The respondents were also asked to indicate the number of years ERM has been implemented at their workplace – see Table 4.9.

Table 4.9: Instruments Used to Measure Level of ERM adoption

Please choose the statement which BEST described the level of ERM implementation in your organisation.
A. We identify, assess, and control strategic, financial, operational, and compliance risks; ERM is an integral part of the (strategic) planning & control cycle.
B. We identify, assess, and control strategic, financial, operational, and compliance risks; we are in the process of implementing a complete ERM.
C. We identify, assess and control risk in specific area; we are planning to implement a complete ERM.
D. We actively control risk in specific areas (e.g. health & safety, financial risk); we are considering to implement a complete ERM.
Please indicate the number of years ERM has been implemented in your organisation.
A. In the first year of ERM
B. In the year 2 – 3 of ERM implementation
C. In the year 4 – 5 of ERM implementation
D. Beyond the fifth year of ERM implementation
E. Not implementing ERM

Thereafter, respondents are asked on their perceived effectiveness of ERM which is based on the ability in achieving the objectives of ERM as well as the eleven principles for an effective ERM as stipulated in ISO 31000. The following discussion justifies the choice.

Chambers (1992) defines effectiveness as “*doing the right thing*”. According to oxforddictionaries.com, effectiveness is the “*degree to which something is successful in*

producing a desired result". What is seemingly different in definition, in essence refers to the same thing which is the ability to produce the desired results, that it is not just about the ratio of input to output, but instead relates to the extent to which a measurable result is obtained (Ciocoiu & Dobrea, 2010). According to dictionaries.com, when something is deemed effective, it means it has an intended or expected outcome, or produces a deep, vivid impression. On the contrary, an ineffective programme simply means that it does not achieve the objectives it is set to fulfill in the first place (Rainer, 2013).

Guidance from existing studies on how ERM effectiveness can be best measured is almost non-existent. This is because studies on ERM effectiveness in managing risks, empirical or otherwise, are only a handful. Work by (Collier et al. (2007); Gordon et al. (2009); Jalal et al. (2011); Laisasikorn and Rompho (2014)) and Paape and Speklé (2012) are among the very few studies on the effective implementation of an ERM programme in an organisation. While these studies shed light on what makes an effective ERM implementation, each deploys its own technique to measure the effectiveness of ERM processes indicating already the lack of consensus on the appropriate instruments. See also Appendix C for the list of empirical studies conducted in regards to ERM effectiveness.

Collier et al. (2007) examine risk management practices at a high level of aggregation, using broad categories of practices as independent variables, rather than specific instruments and techniques. The study investigates the effectiveness of risk management guidance issued for the local authorities in the UK. It uses structure dimensions of the risk management function, and the risk management processes of risk identification, risk register, reporting and independent review to measure effectiveness. Respondents were also asked to map their organisations as fatalists or risk skeptical, hierarchists, individualists or entrepreneurs or egalitarians or risk aware. The study

reveals that the will to implement an effective risk management can be developed if the concepts were sufficiently embedded in the operational procedures. In this regards, knowledge management is an important element in managing risks.

Paape and Speklé (2012) narrow the scope of their study by looking at the relationship between specific risk management design choices and their effect on perceived risk management effectiveness. They measured ERM effectiveness by merely asking respondents to score the quality of their risk management on a ten-point scale. The broadness and openness of such single-item survey captures only respondents' subjective assessment of the contribution of the risk management system to the attainment of the organisation's (implicit or explicit) risk management objectives using a general statement. In addition, it suffers from the lack of definition of a risk management system, and the dimensions that should be included in the quality assessment.

A study by Arnold et al. (2011) subscribes to the participants' assessment on a five-rating scale on the effectiveness of their firm's ERM procedures at a strategic level. Five statements describing these ERM process was developed for this purpose as follows: 1. Our organisation performs a thorough enterprise-wide risk assessment at least once a year; 2. The strength of our internal control system enhances our organisation's ability to identify events that may affect the achievement of our objectives; 3. Our organisation regularly evaluates the effectiveness of internal controls to mitigate identified risks; 4. Management has effective processes to respond to identified risks; 5. Our risk management procedures provide the necessary information top management needs to monitor changes that could impact our organisation's wellbeing.

The other study by Jalal et al. (2011) used four out of the eight components of

COSO 2004 as the antecedents for a good ERM programme (COSO, 2004). These components are risk assessment, control, communication and monitoring ignoring the remaining four components of internal environment, objective setting, event identification and risk response.

Laisasikorn and Rompho (2014) investigate on the relationship among a successful ERM system, a performance measurement system and the financial performance of Thai listed companies. They suggest that the success of an ERM system can be operationalised based on four components consisting of culture, processes, structure and infrastructure. Each respondent was asked to rate the overall ERM system success score based on the a number of statements related to the components of a successful ERM system using a scale of one to five, where five means the most successful and one means the least successful.

Out of the studies on ERM effectiveness, Gordon et al. (2009) is the only study which uses proxies to measure ERM effectiveness. In the study, they came up with what they termed as ERM Index (ERMI). The index is developed based on ERM's ability to achieve its objectives (based on COSO 2004 framework) relative to strategy. The univariate tests performed to test the mean differences between ERMI for ERM adopters and non-ERM adopters however show insignificant differences between the two groups. The authors even admitted that evidence from the uni-variate test suggests that its ERMI is only a fair and not a perfect, index for measuring the effectiveness of ERM (Gordon et al., 2009).

The tendency to use non-financial qualitative measures instead of using proxies to measure effectiveness is also evident in other effectiveness studies. For example, a company that focuses on product innovation (prospector) may not see consider (short-term) profits as a good measure of the effectiveness of their strategy as financially-

oriented forms do not consider return on investment as a good indicator (Dearden, 1987; Merchant, 1989). Accordingly, user perception is more common to measure effectiveness. For example, system users' satisfaction with the perceived quality of information outputs provided by the accounting system has been suggested as an important measure of its effectiveness (Kim, 1989; Seddon & Yip, 1992; Nicolaou, 2000). The above research essentially reflects that effectiveness is not always measured by financial proxy but by the objectives of the subject/object which effectiveness is being measured which is not always quantifiable. Additionally, according to Reimann (1974), in case where appropriate financial indices to quantitatively measure effectiveness of ERM are hard to obtain or simply non-existent the use of perception by the top executives to measure effectiveness has been the most common alternatives (Lawrence & Lorsch, 1969; Reimann, 1974).

The current study, therefore, used the self-assessment method to measure ERM effectiveness (Bollen, 1998; Jokipii, 2010). Such an approach was supported by Govindarajan (1988) and Govindarajan and Fisher (1990) who argued that due to the numerous possible performance dimensions that are critical in measuring the success of a firm, a subjective approach is the best approach to be taken in measuring effectiveness.

Essentially, there are two parts to the instruments on ERM effectiveness used in this study. The first part is the perceived ERM effectiveness based on the ISO 31000 11 principles for an effective ERM. ISO 31000 is deemed to be more applicable on the basis that it is more up-to-date as well as being more commonly referred to in the market (Power, 2007) as compared to COSO 2004 framework which is more prevalent among financial services companies. See Table 4.10.

The second part of the measurement is developed based on the achievement of

ERM objectives as set out in the definition. Here, the objectives of implementing ERM are derived from analysing the various ERM definitions. According to COSO (2004) framework, the objectives of implementing ERM is twofold, namely “*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 objectives*”.

Table 4.10: Instruments Used to Measure ERM Effectiveness Based on ISO 31000

1. Risk management activities in my organisation create and protect organisational value.
2. Risk management in my organisation is part of the management responsibilities and is embedded in all the organisational processes, including strategic planning as well as change management activities.
3. Risk management helps decision makers make informed choices, prioritise actions and distinguish among alternative courses of action.
4. Risk management activities in my organisation consider all kinds of threats and uncertainties, the nature of those threats and uncertainties, and how they can be addressed.
5. The risk management programme in my organisation is systematic, structured and timely.
6. Risk management in my organisation is based on the best available information including, but not limited to historical data, past experience, inputs from stakeholders and experts, observations and forecasts.
7. Risk management in my organisation is aligned with the organisation’s external and internal context and risk profile.
8. The risk management function in my organisation recognises the capabilities, perceptions and intentions of external and internal people that can facilitate or hinder achievement of the organisation’s objectives.
9. Risk management activities in my organisation involve stakeholders and decision makers at all levels of the organisation in a timely manner to ensure that risk management remains relevant and up-to-date.
10. Risk management in my organisation is dynamic, iterative, and responsive to change.
11. My organisation develops and implements strategies to improve risk management maturity alongside all other aspects of their organisation.

On the other hand, if one were to look at the definition of ERM based on ISO 31000, one may argue that the objective of risk management activities is *to direct and control an organisation with regard to risks*. In other words, an effective ERM programme will enable an organisation to coordinate and manage the full spectrum of risks faced and managing the combined impact of those risks to minimise unfavourable surprises and losses.

Ultimately, five sets of objectives were derived from the definitions, which are then developed into five objective statements as shown on Table 4.11, whereby the respondents were asked to indicate the effectiveness of ERM in achieving these objectives.

Table 4.11: Instruments Used to Measure ERM Effectiveness Based on Objectives

<p>The following statements refer to the organisation's ability to achieve the objectives set for ERM. Please indicate the extent to which the objectives can be effectively achieved in your organisation.</p> <ol style="list-style-type: none"> 1. ERM enhances my organisation ability to identify and assess risk events effectively. 2. ERM enhances my organisation ability to manage risks within its risk appetite and risk tolerance level. 3. ERM enhances my organisation ability regarding the achievement of entity objectives. 4. ERM enhances my organisation ability to minimise unfavourable surprises and losses. 5. ERM enhances my organisation ability to optimise the potential upside effects from the opportunities arising from the uncertainties.
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For the first part i.e. the ISO 31000 eleven principles of ERM effectiveness, the respondents were asked to rate on a scale of one to seven (one strongly disagree and seven strongly agree). As for the observed effectiveness based on ERM's ability in achieving its objectives which is the second part, the respondents were asked to rate on a scale of one to seven (one being entirely ineffective and seven being entirely effective).

4.4.4.3 Moderating Variables – Presence of CRO and a Separate ERM Unit

The moderating variables are categorical data whereby respondents were asked if the organisation appointed a CRO and have a separate ERM unit. These questions are included in Section 1 of the questionnaire which seeks to get background information of the respondents.

4.4.4.4 Control Variables – Regulatory Environment, Size and ERM Adoption Status

Three control variables, namely the regulatory environment, size and the ERM adoption status are controlled in the current study. These variables were controlled to make the findings more meaningful so that they will not interfere with or upset the results of the analysis. By controlling these variables, only companies which are listed on the main board of Malaysia and have implemented ERM will be included in the data analysis. Table 4.12 shows the operationalisation of the control variables selected and their source of information.

Table 4.12: Operationalisation of Control Variables

No	Variables	Acronyms	Operationalisation	Source of Information
1	Regulatory Environment and Size	LISTED	Companies listed on the main board of Bursa Malaysia	Bursa Malaysia
2	ERM Adoption	ERM Adoption	Content analysis to identify ERM adopters based on disclosure in annual reports. Additionally, a question was included in the online questionnaire to indicate the number of years ERM has been adopted in the organisation.	Online Survey

4.5 Qualitative Design

To further supplement the data collected from the online survey, the qualitative tail of the research is designed to offer further explanation and justification on the non-association between the aforementioned variables under study. The qualitative research method used in the current study is predominantly semi-structured interviews, content analysis of the annual reports and any other form of publicly available documents on the company website as well those provided by the interviewee, particularly on the risk management practices.

4.5.1 Interview Participants

The interview participants were selected from the survey respondents' list. The selection is based on the scores of the variables which requires further in-depth investigation namely, ERM effectiveness, and strategic role of ERM Champion and employee involvement. The scores were defined as low and high based on the 33 and 67 percentile - companies which scored below the 33 percentile, will be defined as low and any scores above the 67 percentile will be considered as high in the variable being measured.

The high-low scores were then plotted on an x-y axis four dimensions of:

1. High strategic role of ERM Champion / High ERM effectiveness
2. High strategic role of ERM Champion / Low ERM effectiveness
3. Low strategic role of ERM Champion / High ERM effectiveness
4. Low strategic role of ERM Champion / Low ERM effectiveness

Similarly, the matrix to the right displays the employee involvement and ERM effectiveness ranging in scores from high to low yielding four dimensions of:

1. High employee involvement / High ERM effectiveness
2. High employee involvement / Low ERM effectiveness
3. Low employee involvement / High ERM effectiveness
4. Low employee involvement / Low ERM effectiveness

4.5.2 Interview Guide

An interview protocol was prepared beforehand to ensure that the scope of the study was covered during the interview session. The protocol serves only as guide and should not limit "the natural storytelling urge of the interviewee". Essentially, the actual

questions were tailored in accordance with the flow of the actual interview session to suit the background of the respondents and their role in ERM. On most occasions, there were additional questions to probe for further clarifications from the interviewees.

There were five sections to the guide. The first section dealt with the background information of the respondents followed by Section 2 which sought to gain understanding on the ERM practices within the organisation and ultimately the respondents perceived effectiveness of ERM in managing risks. Section 3 addressed the questions on the extent of employee involvement in ERM activities. Section 4 dealt mainly with the strategic role of ERM Champion. The final section is just a sanity check on the remaining organisational factors identified for the current study. Please refer to Appendix E for the complete interview guide.

4.6 Mode of Data Analysis

This section will discuss in detail the process undertaken before analysing the data collected from both the quantitative and qualitative design.

4.6.1 Data from Quantitative Design

4.6.1.1 Coding and Labelling

The quantitative data to test the hypotheses for the current study was collected through an online survey campaign. Codes and labels were compiled in a codebook prepared for ease of reference.

4.6.1.2 Preliminary Data Analysis

Surveygizmo, the online application used to host the survey generates a spreadsheet of all the responses which is used for data analysis. The spreadsheet eliminated any error which might occur when transferring the data from paper-based responses, as in the case of a mailed survey approach. Only completed responses were included in the data analysis.

Additionally, the online survey was developed in such a way that respondents were required to complete the questions before proceeding to the other parts of the survey. This control feature further eliminated the risks of missing data in the completed responses. To understand the profile of the respondents and to determine any anomalies in the data and/or unusual distribution of data, frequency distribution and descriptive statistics of the data were performed using SPSS prior to hypotheses testing.

To test for non-response bias, the final samples of respondent are divided into early and late respondents (Williams & Seaman, 2001) before the independent T-test were run.

T-test and one-way between-groups analysis (ANOVA) techniques are performed to assess any statistical significant differences in the means between two or more populations (Hair, Black, & Anderson, 2010). Specifically, a T-test was conducted to determine the difference between some of the demographic variables, namely the presence of CRO and establishment of a separate ERM unit to oversee the ERM activities within the entities. On the other hand, one-way between-groups analysis (ANOVA) techniques are performed to assess any statistical significant differences in the means between two or more populations under the demographic variable, such as the department of the respondents and organisational strategy.

Common method bias is referred to as the deviation in survey responses because

of a common method for data collection (Podsakoff et al., 2003). Most researchers agree that common method bias is due to the measurement method rather than the constructs of the instrument (Parast & Adams, 2011). Measurement error affects the validity of the relationships between variables (Podsakoff et al., 2003). The common method bias was tested for the current data using factor analysis method.

4.6.1.3 Hypotheses Testing

The appropriate data analysis method is selected for this study based on the research objective, basis of sampling size, the newly defined constructs as well as the complexity of the path models being constructed for the current work.

Among the method that is common to contingent research is moderated regression analysis (MRA). MRA is used in contingency-based research to establish the existence of statistically significant interaction effects which can be achieved through hierarchical regression analysis (Cronbach, 1987). Moderated regression analysis (MRA) is a specific application of multiple linear regression analysis which regression equation is presented below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 + \epsilon$$

The above equation contains the product term of two variables (X_1 and X_2). This product term represents the moderating effect of X_2 on the relationship between X_1 and Y . X_1 in the equation representing the main effects of X_1 on Y .

Bearing this in mind, partial least square – structural equation modelling (PLS-SEM) is deemed appropriate for the current study on the basis that it is a more “regression-based” approach that, minimises the residual variances of the endogenous constructs. According to Hair, Ringle, and Sarstedt (2011), conceptually and practically,

PLS-SEM is similar to using multiple regression analysis which in the most common method to analyses the cause-effect relationship in a contingent-based studies.

Additionally, as opposed to covariance-based structural equation modelling (CB-SEM), SmartPLS 3.0 is a causal modelling approach aimed at maximising the explained variance of the dependent latent constructs. On the other hand, CB-SEM's objective is reproducing the theoretical covariance matrix, without focusing on explained variance. The rule of thumb says that if the research objective is theory testing and confirmation, then the appropriate method is CB-SEM. In contrast, if the research objective is prediction and theory development, then the appropriate method is PLS-SEM (Hair et al., 2011) which is the tool used for this research.

4.6.1.4 Partial Least Squares (PLS) Analysis

4.6.1.4.1 Overview of PLS

PLS-SEM is an appropriate tool for the evaluation of data quality on the basis of measurement model characteristics. The flexibility it offers in regards to its ability to work efficiently with any sample sizes, less restrictive assumptions on data despite the increased model complexity are among the rationale behind the choice. PLS-SEM can address the many shortcomings of CB-SEM. The constructs' measurement properties are also less restrictive with PLS-SEM. More specifically, PLS-SEM works well even with constructs with fewer items (e.g., one or two) as compared to those that CB-SEM requires (Hair et al., 2011).

The PLS approach is also a useful and flexible tool for statistical model building. It was chosen for this research due to its flexibility and scope, which facilitates the

analysis and investigation of large and complex path models as in this research. Among the determining factors for the choice of PLS, include theoretical and measurement conditions, distributional considerations and practical considerations (Falk & Miller, 1992). PLS is an exploratory methodology that relies on data. The PLS approach matches the researcher's prediction-oriented objective, does not require normal data distribution and accommodates small sample sizes (Chin & Newsted, 1999). According to Chin and Newsted (1999) PLS determinates values for latent variables for predictive purposes, minimises the variance of all dependent variables and creates latent variable component scores using the weighted sum of indicators.

Given the current model with a smaller number of sample size of 144 which emphasises more on the exploration than confirmation, with items of a minimum of three for some of the constructs, PLS-SEM appears to be the most appropriate option.

4.6.1.4.2 Evaluation of the Measurement Model

According to Hair, Hult, Ringle, and Sarstedt (2013), there are five steps in assessing the results of the structural model as depicted in Figure 4.1.

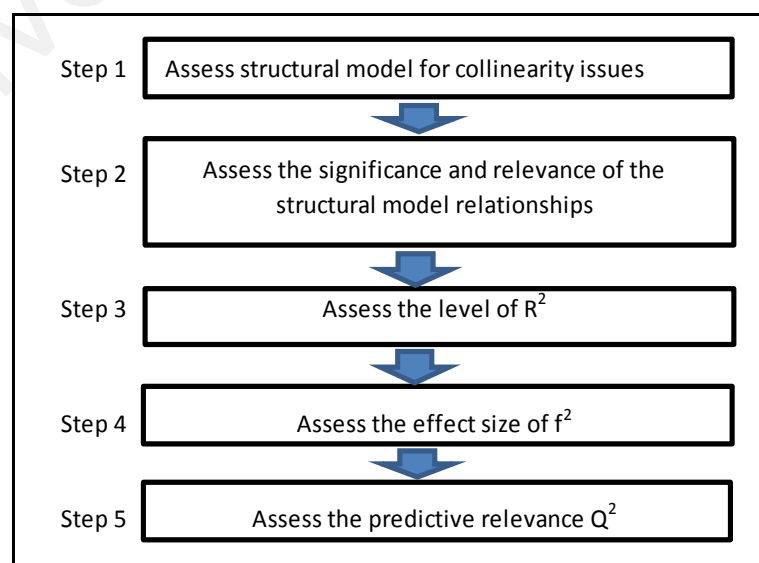


Figure 4.1: Structural Model Assessment Procedure

The evaluation of the structural model for hypotheses is performed in PLS based on the path coefficients (β), t-statistics significant value and the variance explained (R^2). The path coefficients indicate the strength and direction of the relationships among the latent variables which are explained similarly in Ordinary Least Squares (OLS) regression. The structural model is evaluated by examining the R^2 of the dependent variables, the path coefficients (β estimates) and its significance value (p values). Coefficient of determination (R^2) measures the variation of the dependent variable that is explained by the predictor variable. R^2 can range from 0 to 1 (Hair et al., 2013). The larger the R^2 , the greater the explanatory power of independent variables in predicting the dependent variables.

4.6.2 Data from Qualitative Design

All the interviews were tape-recorded except for four occasions. The recorded interviews were subsequently transcribed by professional transcribers who signed a non-disclosure agreement with the researcher to safeguard the confidentiality of the interview. In total, there were 16 interview participants representing six companies which were identified based on high-low scores matrix. Of the 16, 15 interviews were conducted face-to-face while the remaining one was conducted via a telephone interview. Interview data were analysed manually which involved understanding the themes of the feedback, observing the body language, frequency analysis, summation and percentage.

4.7 Summary

This chapter detailed out the research methodology for the study from the data collection process to the development of research instruments to data cleaning and screening to the hypothesis testing and finally to how the data from the interviews was

analysed.

This chapter explained the research design and methodology for the systematic conduct of this study. The study which employs a mixed-method approach of explanatory design, consists of three distinct steps of content analysis, quantitative and qualitative tails of the study. A detailed explanation followed as to how each of the variables was operationalised in accordance to the objectives and scope of the study.

To summarise, the mixed method methodology employed in the current study consists mainly of online survey campaign which represents the quantitative part of the study and the semi-structured interviews coupled with content analysis of publicly available data which formed the qualitative part of the study.

An online survey campaign was launched to collect the quantitative data required to test the hypotheses. The unit of analysis is organisation which is represented either by the chief risks officers, chief financial officers or the chief internal auditor. The measurements used in the current study were mainly adapted from established studies except for the tone from the top and the effectiveness of ERM in managing risks, which is derived from ISO 31000 eleven principles for effectiveness and COSO (2004) framework's definition of ERM. Data is analysed using SPSS and SmartPLS.

Qualitative data was collected for further understanding, using both semi-structured interview as well as publicly available. Prior to the interview, content analysis was performed on the annual report particularly on the Statement of Risk and Internal Control for better understanding of the ERM practices within the organisation.

CHAPTER 5 FINDINGS AND DISCUSSION

5.1 Introduction

This chapter presents an analysis of the data collected from the online survey campaign and the semi-structured interviews, which represents the quantitative tail and the qualitative tail, of this explanatory sequential design. The outcome of the quantitative research design of the current study is discussed in the immediate section of this chapter (Section 5.2). Section 5.2 is organised as follows. Section 5.2.1 presents the profile of the respondent followed by the results of non-response bias in Section 5.2.2. Thereafter, Section 5.2.3 reports the preliminary analysis of the data which includes data screening and profiling. The demographic profiles of the respondents are tabulated in this section. Section 5.2.4 discusses the results of t-tests between the two groups of respondents (a) with and without CRO and (b) with and without a separate ERM unit. The section also reports the results of the analysis of variances (ANOVA) for the different departments which the respondents belong to. Section 5.2.5 presents the assessment on common method bias followed by the systematic evaluation of PLS measurement model in Section 5.2.6. Section 5.2.7 presents the results of the hypotheses testing on (a) the direct relationship between the variables, (b) the mediating effect of tone from the top on the pre-identified relationship as well as (c) the moderating influence of CRO and ERM Unit on the direct relationship between the variables.

Based on the results of the survey, qualitative research questions and objectives were developed in Section 5.3 to further understand the lack of association of some of the relationships in the variables which is inconsistent with the general expectations from the literature. Findings from the qualitative tail of the research are discussed in the subsequent part of this chapter, i.e. Section 5.4. The findings from both tails of the

research is triangulated, synthesised and concluded in Section 5.5.

5.2 Results of the Quantitative Tail – Online Survey Campaign

5.2.1 Analysis of Respondents

Data in the current research was collected via an online survey platform called SurveyGizmo. The campaign was launched by an e-mail invitation to 502 e-mail addresses of potential respondents which comprised of 78 chief risk officers (CROs), 136 chief internal auditors (CIAs) and 288 chief financial officers (CFOs), representing 330 companies on the main board of Bursa Malaysia. A link to the web-based survey was included in the e-mail which led the respondents to the questionnaire hosted on SurveyGizmo. The respondents were required to complete each section before proceeding to the next, which eliminated the risks of missing data or incomplete responses.

The survey campaign ran for a period of six weeks in November to December 2014. Every fortnight, an e-mail reminder was sent out to the respondents who have not completed the questionnaires. In parallel, a follow-up call was also made to increase the response rate among the respondents.

At the end of the six-week period, a total of 186 respondents, representing 156 companies completed the questionnaires. Of the 186 respondents, 30 of them had multiple respondents from the same company (ranging from two to three), and the rest with single informants. Where there were multiple respondents, only one response was used based on the following rank, CRO over CIA and CFO, and CIA over CFO on the basis that according to literature, CRO is the main driver for ERM followed by CIA (Beasley et al., 2005b). Review of literature suggests that the CFO role in ERM is less apparent unless in the absence of both the CRO and CIA and normally come in the form

of support in ERM implementation (Beasley et al., 2005a).

Ultimately, 156 companies participated in the survey yielding a final response rate of 47%. The analysis of respondents is as shown in Table 5.1 below.

Table 5.1: Response Rate

Survey details	Total	Percent (%)
Total number of companies invited in the online survey campaign	330	100
Uncompleted questionnaire for each company	174	53
Completed and final response rate	156	47

5.2.2 Analysis of Response Bias

One of the common issues in a survey-based research is the problem of non-response bias among the respondents. Non-response bias is an important issue that needs to be addressed and considered to reduce the likelihood of sampling bias, systematic error or non-sampling error (Zikmund, 2003).

In order to detect the presence of response bias, an independent sample t-test was conducted to determine whether the data was subject to non-response bias problems in the present study. The first and the last 50 responses were selected and dichotomized into two groups of early and late respondents, respectively.

Table 5.2 presents t-test result of the non-response bias analysis. Based on the result, all the significant values of the Levene's test are not significant at $p > 0.05$. This is also consistent with the results of the t-test for equality of means which indicates that the one-tailed significance of all the main variables is not significant at $p > 0.05$. Results show that there is no significant difference between the means, reflecting that there is no significant difference in the response of the early and late respondents. In other words, non-response bias does not appear to be significantly and adversely affecting the quality

of the current study findings.

Table 5.2: Test of Non-Response Bias

Variables	Early response n = 50		Late response n = 50		t	p	sig
	Mean	Std Deviation	Mean	Std Deviation			
CULTURE	114.88	17.26	115.12	16.35	-0.07	0.94	ns
STRUCTURE	43.36	5.58	43.26	5.88	0.09	0.93	ns
ENT_SYSTEM	54.54	14.97	50.20	16.52	1.38	0.17	ns
TONE_TOP	15.10	3.91	15.46	3.42	-0.49	0.63	ns
STRA_ROLE_ERMC	21.48	4.61	22.60	5.62	-1.09	0.28	ns
INVOLVEMENT	14.74	3.94	15.62	4.11	-1.09	0.28	ns
EFF_ERM	81.74	18.51	81.48	17.80	0.07	0.94	ns

5.2.3 Preliminary Analysis of Data

5.2.3.1 Demographic Profile of Respondents

Table 5.3 presents the profile of the respondents in the current study. The respondents came from various industries. 35.3% of the respondents are from industrial products, followed by 17.3% from trade/services and 15.4% from consumer products. The remaining are from properties (10.3%), constructions (7.7%), finance, plantation (4.5%), technology (3.8%) and others - mining and REITS (1.4%).

In terms of gender diversity, this group of respondents are dominated by males, which made up two-thirds of the total. The demographic analysis also indicates that 63.5% of the respondents are above 41 years old - 43.6% of the respondents were between 41 and 50 years old followed by 18.6% aged between 51 and 60 years old and 1.3% are above 61 years of age. Younger respondents aged between 31 to 40 years old make up about 28.8% of the total respondents followed by 7.7% who are below 31 years old.

In terms of seniority, 93% of the respondents are at least holding a middle

management position. These statistics reflect the seniority and experience of the respondents which ultimately indicate the credibility and quality of the responses. In terms of the department of the respondents, finance has the highest number of representatives followed by internal audit and risks.

Table 5.3: Profile of Respondents (n = 156)

Demographic Profile	Categories	Frequency	Percent
Division	Industrial Products	55	35.3
	Trade/Services	27	17.3
	Consumer Products	24	15.4
	Properties	16	10.3
	Constructions	12	7.7
	Finance	7	4.5
	Plantation	7	4.5
	Technology	6	3.8
	Mining	1	0.7
	REITS	1	0.7
Gender	Male	103	66.0
	Female	53	34.0
Age	Below 31	12	7.7
	31-40	45	28.8
	41-50	68	43.6
	51-60	29	18.6
	Above 61	2	1.3
Department	Finance	56	35.9
	Internal Audit	51	32.7
	Risks	49	31.4
Level	Top Management	72	46.2
	Middle Management	73	46.8
	Junior Management	10	6.4
	Non-management	1	0.6

5.2.3.2 ERM Profile of Respondents

Table 5.4 below reflects the state of the ERM implementation within the organisations under study. In terms of the ERM profiling of the respondents, 57.7% of the respondents have a separate ERM unit which is an improvement compared to the

survey by Collquit et al. (1999) and Altuntas et al. (2011) where only 29.6% and 47.0% of companies, respectively have a separate ERM unit. On the other hand, only 42.9% of the organisation appointed a CRO. This statistics is relatively higher than the 2001 survey by Kleffner et al. (2003) whereby only 13 out of 37 companies (35%) in Canada, which has adopted ERM, has a dedicated CRO. Similarly, in a study by Altuntas et al. (2011) only 10 of 95 property-liability insurance companies (10.5%) in Germany has a dedicated CRO.

The absence of CRO to head the ERM unit may imply the lack of command by the ERM team in spearheading ERM activities within the organisation. Such a mismatch between the establishment of a separate ERM unit and the presence of CRO further raised questions on the operationalisation of the ERM unit as well as the credibility and experience of the person who heads such unit within the organisation, and eventually the effectiveness and quality of ERM implementation.

When asked to identify the ERM Champion for their organisation, 30.8% of the respondents chose chief risk officers or the equivalent head of risks department, followed by the chief executive officers (24.4%) and thereafter chief financial officers (18.6%). Only 10.3% of the respondents identified the chief internal auditors as the ERM Champion while the remaining 25 respondents which made up 16% of the total specified other functions in their organisation as the ERM Champion. These functions consist of chief operating officers in eight instances, risk management committee in three instances and compliance officers in two instances followed by 12 others.

Table 5.4: ERM Profile of the Respondents (n=156)

Demographic Profile	Categories	Frequency	%
ERM Unit	Separate ERM Unit	90	57.7
	No separate ERM Unit	66	42.3
Presence of CRO	There is a CRO	67	42.9
	There is no CRO	89	57.1
ERM Champion	Chief Executive Officer	38	24.4
	Chief Risk Officer	48	30.8
	Chief Internal Auditor	16	10.3
	Chief Financial Officer	29	18.6
	Others	25	16.0
Level of ERM Adoption	No plans to implement ERM.	3	1.9
	Considering to implement a complete ERM.	10	6.4
	Planning to implement a complete ERM.	15	9.6
	In the process of implementing a complete ERM.	46	29.5
	ERM is an integral part of the organisation.	82	52.6
Level of ERM Maturity	Not implementing ERM	12	8.3
	In the first year of ERM	12	8.3
	In year 2 – 3 of ERM implementation	39	24.4
	In year 4 – 5 of ERM implementation	29	18.6
	Beyond the fifth year of ERM implementation	64	40.4
Perceived ERM Effectiveness in Managing Risks	Low scores $\leq 33.3\%$ (poor)	47	32.6
	Medium scores 33.4% - 66.6% (sufficient)	49	34.0
	High scores $\geq 66.7\%$ (excellent)	48	33.3

Table 5.4 also show the level of ERM adoption among the respondents. As tabulated, 52.6% of the respondents report having a fully functional ERM system in place that ERM is an integral part of the (strategic) planning and control cycle. The integral part can be defined as complete implementation of ERM and even more can be embedded in the planning and control process of the entity. Another 29.5% is currently in the process of implementing such a system followed by 17.9% which do not seem to have a complete, systematic and proactive approach to risk management.

Of the total respondents, more than half of the respondent organisations (59.0%) has implemented ERM for more than four years, which again reflects the level of ERM implementation in this country despite its introduction more than a decade ago.

The total scores for the perceived effectiveness of ERM is broken down into three broader levels of effectiveness based on quartiles of poor ($\leq 33.3\%$), sufficient ($33.4\% - 66.6\%$) and excellent ($\geq 66.7\%$). The descriptive analysis of these scores showed that the perceived effectiveness of ERM in managing risks is evenly distributed among the three percentiles.

For the purpose of the current study, only 144 respondents who have implemented ERM were included in the analysis. The remaining 12 companies which are not implementing ERM were excluded. The size of 144 exceeded the recommended minimum 80 (based on dimensions x 10 rule), which is adequate for model testing (Cohen, 1992). Using the 80% statistical power by Cohen (1992), the data collected is more than 80% statistical power at 95% with R^2 of at least 0.25 of minimum 70 sample size according to his table.

5.2.3.3 Descriptive Statistics of the Variables

ERM effectiveness is measured based on the 11-principles for an effective ERM under ISO 31000 as well as the achievement of ERM objectives. All the items are measured based on the respondents' agreement to the statements provided.

As indicated in Table 5.5 below, the observed means for ERM effectiveness (represented by EFF_ERM) which is the dependent variable are well above the theoretical means. These statistics indicate that the respondents perceive that the ERM implementation in the organisations they represent is highly effective in managing risks.

The descriptive statistics for the independent variables in the study - culture (represented by CULTURE), structure (represented by STRUCTURE), enterprise systems (represented by ENT_SYSTEM), tone from the top (represented by TONE_TOP), employee involvement (represented by INVOLVEMENT) and the

strategic role of ERM Champion (represented by STRA_ROLE_ERMC) - are also tabulated in Table 5.5.

As indicated in the Table 5.5 below, the observed means for all the independent variables are above the theoretical mean of 3.50. Among the variables, the mean for strategic role of ERM Champion of 5.55 is the highest. This is followed by tone from the top suggesting that the top management (Mean = 5.13) in the respondents' organisations are highly supportive of ERM initiatives and activities in their organisations. The level of employee involvement (Mean = 5.10) is also perceived to be moderately high.

Similarly, it was also noted that the standard deviation for employee involvement, strategic role of ERM Champion and the tone from the top (in descending order) are moderately high, signifying that the relatively high variation and widely dispersed data from the mean value. In other words, the data is showing a big gap of the two extremes of high and low scores in the variables.

The mean values for culture, is only 4.82 which is only moderate as compared to the theoretical mean but still higher than structure (Mean = 3.92) and enterprise systems (Mean = 3.79). The independent variable with the lowest mean is enterprise system at 3.79, indicating the extent of integration in the information technology in the organisation is perceived to be moderately low.

Additionally, cronbach alpha (α) which is used to measure internal consistency reliability of the scale for the variables as shown in Table 5.5 is above the threshold recommended 0.7 (Nunnally, 1978).

Table 5.5: Descriptive Statistics of the Variables (n=144)

	Mean	Med	Std Dev	Actual Range		Theoretical Range		α
				Min	Max	Min	Max	
EFF_ERM	5.15	5.19	1.15	1.88	7.00	1.00	7.00	0.99
CULTURE	4.82	4.83	0.78	2.88	7.00	1.00	7.00	0.95
STRUCTURE	3.92	3.91	0.49	2.45	5.18	1.00	7.00	0.92
ENT_SYSTEM	3.79	3.89	1.11	1.07	7.00	1.00	7.00	0.94
TONE_TOP	5.13	5.00	1.25	2.00	7.00	1.00	7.00	0.94
STRA_ROLE_ERMC	5.55	5.75	1.32	1.00	7.00	1.00	7.00	0.79
INVOLVEMENT	5.10	5.00	1.34	1.00	7.00	1.00	7.00	0.96

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

α = Cronbach Alpha, VIF = Variance Inflation Factor

5.2.4 Analysis between Groups (T-test and ANOVA)

5.2.4.1 T-tests

In the current study, T-test was conducted to determine the difference in the response on all the variables, namely the presence of CRO (companies with and without CRO) as well as the establishment of a separate ERM unit (companies with a separate ERM unit and without an ERM unit). The purpose for conducting T-test is to detect any element of biases between the two groups of respondents. The decision to test for response bias is driven by the potential differences in ERM activities in the organisations with a CRO and a separate ERM unit. This is based on the general views the resources and the expertise offered by the CRO and a dedicated ERM unit can enhance the effectiveness of ERM in managing risks.

Results of the independent-samples T-test for companies with CRO and without CRO showed that there is no significance difference in all the variables except for the tone from the top.

The T-test results on Table 5.6 showed a significant difference in the scores for tone from the top - companies with CRO (Mean = 5.354) and companies without CRO (Mean = 4.936); $t = 1.977$, $p = 0.050$ (two-tailed). This result is not surprising because the support from the top is only apparent in its own involvement and willingness to allocate valuable resources to the implementation effort (Holland et al., 1999) which involves creating the required role to carry out the implementation process (Roberts & Barrar, 1992). In other words, support from the top varies significantly between the organisation with CRO and without CRO.

To determine the effect size for this difference, the eta squared, one of the most common effect size statistics (Pallant, 2007), is calculated using the following formula. Based on the guidelines by Cohen (2013), the value of eta squared of 0.027 is below the threshold of 0.06 and therefore is said to have a moderate effect.

Eta squared =		$\frac{t^2}{t^2 + (N1 + N2 - 2)}$
t	=	1.977
N1	=	66
N2	=	78
	=	$\frac{1.977^2}{1.977^2 + (66 + 78 - 2)}$
Eta squared =		0.027 (moderate effect)

Table 5.6: T-test Results across Presence of CRO

	Mean	Standard deviation	T-test value	p-value	Sig	Eta squared (effect size)
CULTURE CRO (n = 66) No CRO (n = 78)	4.920 4.738	19.528 17.717	1.407	0.161	ns	
STRUCTURE CRO (n = 66) No CRO (n = 78)	3.866 3.970	5.210 5.593	-1.253	0.212	ns	
ENT_SYSTEM CRO (n = 66) No CRO (n = 78)	3.892 3.699	16.475 14.735	1.039	0.301	ns	
TONE_TOP CRO (n = 66) No CRO (n = 78)	5.354 4.936	4.244 3.199	1.977	0.050	s**	0.03 (moderate effect)
STRA_ROLE_ERMC CRO (n = 66) No CRO (n = 78)	3.702 5.659	4.873 5.627	0.936	0.351	ns	
INVOLVEMENT CRO (n = 66) No CRO (n = 78)	5.227 5.000	4.232 3.807	1.017	0.311	ns	
EFF_ERM CRO (n = 66) No CRO (n = 78)	5.274 5.046	21.113 15.718	1.186	0.237	ns	

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise systems, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness

** The mean difference is significant at 0.05 level

In regards to the T-test results conducted for respondents with and without a separate ERM unit - save for structure, tone from the top, strategic role of ERM Champion and ERM effectiveness, between the respondents with and without a separate ERM unit, the results of the T-test on Table 5.7 detected potential bias in the scores for culture, enterprise systems and employee involvement but only moderately.

Table 5.7: T-test Results across Separate ERM Unit

	Mean	Standard deviation	T-test value	p-value	Sig	Eta squared (effect size)
CULTURE						
Separate ERM Unit (n = 89)	4.930	18.530	2.163	0.032	s**	0.03 moderate effect
No ERM Unit (n = 55)	4.645	18.177				
STRUCTURE						
Separate ERM Unit (n = 89)	3.948	5.216	0.789	0.431	ns	
No ERM Unit (n = 55)	3.881	5.786				
ENT_SYSTEM						
Separate ERM Unit (n = 89)	3.984	15.167	2.764	0.006	s**	0.05 moderate effect
No ERM Unit (n = 55)	3.469	15.283				
TONE_TOP						
Separate ERM Unit (n = 89)	5.333	3.699	2.569	0.011	ns	
No ERM Unit (n = 55)	4.794	3.629				
STRA_ROLE_ERMC						
Separate ERM Unit (n = 89)	3.595	5.029	1.113	0.268	ns	
No ERM Unit (n = 55)	5.643	5.685				
INVOLVEMENT						
Separate ERM Unit (n = 89)	5.266	3.980	1.864	0.064	s***	0.03 moderate effect
No ERM Unit (n = 55)	4.842	3.962				
EFF_ERM						
Separate ERM Unit (n = 89)	5.302	18.888	2.036	0.044	ns	
No ERM Unit (n = 55)	4.905	17.053				

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise systems, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness

*** The mean difference is significant at 0.01 level

** The mean difference is significant at 0.05 level

The following paragraphs discuss the rationale behind the bias and how it might affect the findings. The setting up of a separate ERM unit would certainly facilitate the creating of risk culture and employee involvement because the unit would have dedicated resources to create risk awareness and encourage involvement and engagement from the employees. A separate ERM unit would allow a more structured flow of information, reporting and monitoring among the various levels of employees in the entity. Coordination and facilitation of such would further warrant the use of an integrated system to facilitate the flow of information. Another explanation for such differences in the T-test results could be the characteristics of the companies with a

separate ERM unit. Without doubts, the setting up of a separate ERM unit is not without costs. Hence it could be assumed that only big companies characterised with high business complexities can afford to set up a separate ERM unit. Size matters – because it is only in big companies and/or highly complex businesses that the culture is dominant and visible, employee involvement is just unavoidable and the use of integrated systems is more common to facilitate the flow of information across the organisation. Notwithstanding the above, the magnitude of the differences as shown on Table 5.7 is only moderate based on Cohen (2013) guideline and therefore not expected to have significant impact to the findings.

5.2.4.2 ANOVA

The one-way between-groups analysis (ANOVA) technique is also performed to assess the presence of variances among the main variables for different departments.

The ANOVA results for the main variables by department as shown on Table 5.8 suggest that there are different perceptions on culture, enterprise systems, tone from the top, employee involvement and ERM effectiveness.

The result is expected due to the different role each department plays in the ERM implementation and practices within the organisations. Indeed, scholars suggest that the criteria for effectiveness or any other constructs are based on individuals' values and preferences (Jenkins & Ricketts, 1979; Cameron, 1986a). In order to address the bias from the subjective perception of the individual, it was intended that the current study consider the perspectives from multiple department (Rainer, 2013) to further enhance the quality and accuracy of the findings. This will also improve the response rate instead of otherwise limiting the survey to only the CRO considering that companies do outsource their risks, internal audit and finance function.

Table 5.8: One-way ANOVA Test Results across Department

	Mean	F	p value	Scheffe Test			
				Department	Diff	p value	Sig.
CULTURE							
Risk (n = 49)	121.57	3.84	0.02 s**	Risk -> Internal Audit	8.571	0.077	ns
Internal Audit (n = 46)	113.00			Risk -> Finance	9.184*	0.048	s**
Finance (n = 49)	112.39			Internal Audit -> Finance	0.612	0.987	ns
STRUCTURE							
Risk (n = 49)	44.06	1.38	0.26 ns				
Internal Audit (n = 46)	43.13						
Finance (n = 49)	42.24						
ENT_SYSTEM							
Risk (n = 49)	58.41	4.71	0.01 s***	Risk -> Internal Audit	7.799*	0.047	s**
Internal Audit (n = 46)	50.61			Risk -> Finance	8.510*	0.023	s**
Finance (n = 49)	49.90			Internal Audit -> Finance	-7.799	0.047	s**
TONE_TOP							
Risk (n = 49)	16.31	3.42	0.04 s**	Risk -> Internal Audit	0.828	0.550	ns
Internal Audit (n = 46)	15.48			Risk -> Finance	1.939*	0.036	s**
Finance (n = 49)	14.37			Internal Audit -> Finance	-0.828	0.550	ns
STRA_ROLE_ERMC							
Risk (n = 49)	23.29	1.64	0.20 ns				
Internal Audit (n = 46)	21.76						
Finance (n = 49)	21.49						
INVOLVEMENT							
Risk (n = 49)	16.73	4.98	0.01 s***	Risk -> Internal Audit	2.278*	0.020	s**
Internal Audit (n = 46)	14.46			Risk -> Finance	2.041*	0.038	s**
Finance (n = 49)	14.69			Internal Audit -> Finance	-2.278	0.020	s**
EFF_ERM							
Risk (n = 49)	87.14	3.26	0.04 s**	Risk -> Internal Audit	4.882	0.425	ns
Internal Audit (n = 46)	82.26			Risk -> Finance	9.347*	0.041	s**
Finance (n = 49)	77.80			Internal Audit -> Finance	-9.347*	0.041	ns

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

*** - The mean difference is significant at the 0.01 level

** - The mean difference is significant at the 0.05 level

5.2.5 Common Method Bias

There are two methods for testing common method bias, namely (1) factor analysis's variance ratio and (2) Harmon's one-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). For the current study, common method variance is tested using factor analysis variance ratio (Hair et al., 2013) which is determined based on the following conditions: (a) only one factor exists in the factor analysis result and (b) one factor will account for the majority of the variance among the variables (Podsakoff et al., 2003). The factor analysis result shows that ratio of principal factor variance to total

variance is 48.61%, which is less than the threshold of 50.0% as shown in Table 5.9. It can be therefore concluded that common method bias does not exist in this study.

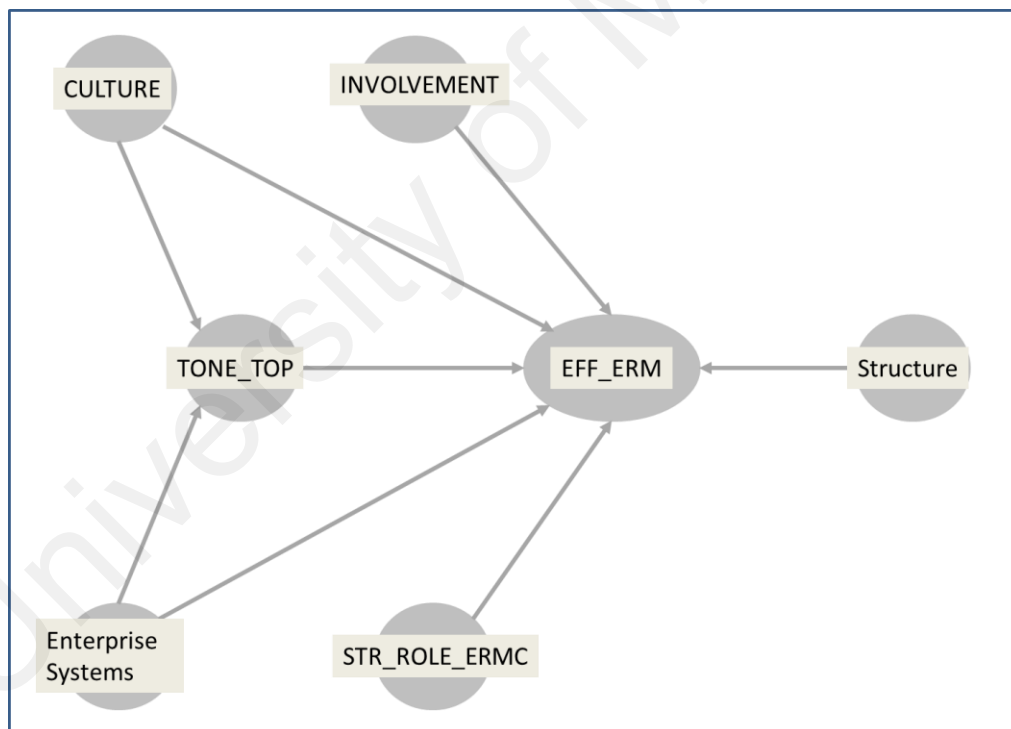
Table 5.9: Common Method Bias

The highest percentage variance of principle factor (A)	Total percentage variance (B)	Ratio (R=A/B) R<50%	Results
37.85%	77.87%	48.61%	Accepted

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	21.20	37.85	37.85	21.20	37.85	37.85
2	4.54	8.11	45.96	4.54	8.11	45.96
3	3.24	5.79	51.75	3.24	5.79	51.75
4	2.49	4.44	56.19	2.49	4.44	56.19
5	2.16	3.86	60.05	2.16	3.86	60.05
6	1.87	3.33	63.38	1.87	3.33	63.38
7	1.75	3.12	66.50	1.75	3.12	66.50
8	1.39	2.48	68.99	1.39	2.48	68.99
9	1.32	2.36	71.35	1.32	2.36	71.35
10	1.28	2.29	73.64	1.28	2.29	73.64
11	1.23	2.19	75.83	1.23	2.19	75.83
12	1.14	2.04	77.87	1.14	2.04	77.87
13	0.89	1.58	79.45			
14	0.84	1.49	80.95			
15	0.78	1.39	82.34			
16	0.73	1.30	83.63			
17	0.70	1.26	84.89			
18	0.63	1.13	86.02			
19	0.55	0.99	87.01			

5.2.6 Systematic Evaluation of PLS Measurement Model

Figure 5.1 below shows the model drawn in SmartPLS version 3.2.0. First of all, we assess the sample size requirements using the 10 time rule and the 80% statistical power method by (Cohen, 1992). Based on the model in Figure 5.1, the maximum number of arrows (from exogenous) pointing at a particular latent variable (endogenous) is 8 and using the 10 times formula, the minimum number of samples required is 80 (8 x 10) samples. On the other hand, according to Cohen's 80% statistical power table at 95% with R^2 of ≥ 0.25 , at least 70 units of samples is required. The sample size used in the data analysis for the current study is 144 samples which are well above the minimum threshold based on both rules.



CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

Figure 5.1: PLS Path Model Estimation

Subsequently, a systematic evaluation of the measurement model was carried out. The evaluation techniques used are the internal consistency (composite reliability),

indicator reliability, convergent validity (average variance extracted) and finally discriminant validity. Reliability is a test of how consistent a measuring instrument measures whatever concept it is measuring whilst validity is a test of how well an instrument that is developed measures the particular concept it is intended to measure (Sekaran & Bougie, 2010).

The first step in evaluating the measurement model is to look at the composite reliability (CR), for internal consistency. Composite reliability (CR) is a more appropriate measure for internal consistency or constructs reliability (Werts, Linn, & Jöreskog, 1974; Henseler, Ringle, & Sinkovics, 2009). According to Hair et al. (2013) the CR values should be above 0.708 while CR below 0.60 is argued to be lack of internal consistency reliability. CR values between 0.60 to 0.708 is acceptable for exploratory research (Hair et al., 2013). This range is consistent with Nunally & Bernstein (1994) who suggest that CR between 0.70 to 0.90 is satisfactory. Based on the CR shown on Table 5.10, CR for all the latent variables in the model is above the threshold of 0.70 indicating that all the indicators are measuring the same phenomenon, indicating satisfactory construct reliability.

The second step is to evaluate the indicator reliability using the outer loading readings. The rule of thumb states that the higher outer loadings has to be in the same group of convergent validity and has to be statistically significant i.e above 0.708 (Hair et al., 2013). Examining the outer loading ensures that the survey items are measuring the constructs they are designed to measure, thus ensuring that the survey instrument is reliable. To determine individual item reliabilities, the researcher looked at their loadings to their respective constructs.

Any items below 0.40 should be eliminated (Hair et al., 2013) while anything between 0.40 and 0.70 should be considered for removal only when deleting the item

improves the composite reliability (CR) or the average variance extracted (AVE).

Table 5.10: Internal Consistency, Composite Reliability (CR)

	Composite Reliability (CR)
CULTURE	0.953
STRUCTURE	0.933
ENT_SYSTEM	0.949
TONE_TOP	0.960
STR_ROLE_ERMC	0.862
INVOLVEMENT	0.976
EFF_ERM	0.987

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

Based on the outer loadings on Table 5.11, all the values of the outer loadings are above 0.708 except for CUL01, CUL03, CUL05, CUL11, CUL24, STRU_H1, STRU_H2, STRU_H3, ES_So1, ES_So2 and ES_So3 (ranging between 0.40 and 0.60) and CUL04, CUL09, CUL12, CUL17, CUL19 and CUL21 (ranging between 0.61 and 0.708). Because none of the indicators is below the threshold of 0.40, we can still keep the indicators for the time being.

The third step in the evaluation of the measurement model is to evaluate for convergent validity. Convergent validity is the extent to which the alternative measures the same constructs. To establish convergent validity, the following were considered: (1) the outer loadings of the indicators and the (2) average variance extracted (AVE). The evaluation of the outer loadings is shown on Table 5.11 and explained in the preceeding paragraphs under the second step to test for indicator reliability (page 159).

Table 5.11: Outer Loadings of all Latent Variables

	CULTURE	STRUCTURE	ENT_SYSTEM	TONE_TOP	STR_ROLE_ERMC	INVOLVEMENT	EFF_ERM
CUL01	0.502						
CUL02	0.736						
CUL03	0.415						
CUL04	0.654						
CUL05	0.437						
CUL06	0.735						
CUL07	0.788						
CUL08	0.811						
CUL09	0.696						
CUL10	0.771						
CUL11	0.480						
CUL12	0.672						
CUL13	0.805						
CUL14	0.719						
CUL15	0.500						
CUL16	0.758						
CUL17	0.691						
CUL18	0.784						
CUL19	0.682						
CUL20	0.718						
CUL21	0.647						
CUL22	0.744						
CUL23	0.842						
CUL24	0.569						
STRU_D1		0.749					
STRU_D2		0.766					
STRU_D3		0.851					
STRU_F1		0.783					
STRU_F2		0.792					
STRU_F3		0.822					
STRU_F4		0.833					
STRU_F5		0.838					
STRU_H1		0.564					
STRU_H2		0.593					
STRU_H3		0.596					
ES_Ad1			0.744				
ES_Ad2			0.713				
ES_Ad3			0.801				

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

Table 5.11: Outer Loadings of all Latent Variables (continued)

	CULTURE	STRUCTURE	ENT_SYSTEM	TONE_TOP	STR_ROLE_ERMC	INVOLVEMENT	EFF_ERM
ES_Co1			0.868				
ES_Co2			0.850				
ES_Co3			0.844				
ES_Ge1			0.697				
ES_Ge2			0.817				
ES_In1			0.906				
ES_In2			0.886				
ES_In3			0.817				
ES_So1			0.457				
ES_So2			0.517				
ES_So3			0.574				
Tone1				0.942			
Tone2				0.970			
Tone3				0.916			
ERMC1					0.824		
ERMC2					0.774		
ERMC3					0.760		
ERMC4					0.761		
Involve1						0.967	
Involve2						0.976	
Involve3						0.953	
ISOEf01							0.902
ISOEf02							0.886
ISOEf03							0.927
ISOEf04							0.926
ISOEf05							0.895
ISOEf06							0.914
ISOEf07							0.934
ISOEf08							0.926
ISOEf09							0.886
ISOEf10							0.926
ISOEf11							0.904
PerEf1							0.928
PerEf2							0.930
PerEf3							0.937
PerEf4							0.905
PerEf5							0.850

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

The AVE is defined as the grand mean value of the squared loadings and is equivalent to the communality of a construct. The AVE should be > 0.50 to reflect that, on average more variance was explained than unexplained in the variables associated with a given construct (Fornell & Larcker, 1981). On the other hand, $AVE < 0.5$ indicates that on average, more errors remain in the items than the variance explained by the construct. As shown on Table 5.12 below, the AVE for all the latent variables is > 0.50 except for CULTURE.

Table 5.12: Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
CULTURE	0.468
STRUCTURE	0.564
ENT_SYSTEM	0.580
TONE_TOP	0.889
STR_ROLE_ERMC	0.609
INVOLVEMENT	0.931
EFF_ERM	0.831

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

To improve the AVE for culture to be above the threshold, the following indicators for culture which are below 0.60, namely CUL01, CUL03, CUL05, CUL11, and CUL24 were removed. The remaining indicators which are below 0.708 were maintained because removing it does not improve the AVE which is already above the threshold required. The improved CR and AVE for the latent variables after removing those 5 items are shown on Table 5.13 below. The removal of these items is necessary to minimise the potential bias in the estimation of the parameters linked to the constructs (Hulland, 1999) thereby improving AVE for CULTURE.

Additionally, individual item reliability (reflected in the cross loadings), as shown on Table 5.14, of the new set of measurements after the removal of those items suggests

satisfactory item reliability, as all factor loadings are higher than 0.6 implying that more than 60% of the variance observed variable is shared with the constructs (Chin, 1998).

Table 5.13: Composite Reliability (CR) and Average Variance Extracted (AVE)

	Composite Reliability (CR)	Average Variance Extracted (AVE)
CULTURE	0.956	0.550
STRUCTURE	0.933	0.564
ENT_SYSTEM	0.949	0.580
TONE_TOP	0.960	0.889
STR_ROLE_ERMC	0.862	0.609
INVOLVEMENT	0.976	0.931
EFF_ERM	0.984	0.849

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

The fourth step is the test for discriminant validity. Discriminant validity refers to the extent to which a construct is truly distinct from other constructs by empirical standards. There are three methods used to assess discriminant validity namely (1) cross loadings (2) Fornell-Larcker criterion and (3) Heterotrait Monotrait Ratio (HTMT) (Hair et al., 2013). Table 5.14 shows the cross loadings for all the latent variables in the measurement model which is greater than all of its loadings on other constructs.

Table 5.14: Cross Loadings of all Indicators

	CULTURE	STRUCTURE	ENT_SYSTEM	TONE_TOP	STR_ROLE_ERMC	INVOLVEMENT	EFF_ERM
CUL02	0.709	0.460	0.445	0.362	0.217	0.336	0.424
CUL04	0.655	0.355	0.434	0.348	0.182	0.365	0.423
CUL06	0.744	0.489	0.497	0.486	0.284	0.424	0.497
CUL07	0.780	0.576	0.500	0.290	0.165	0.269	0.425
CUL08	0.805	0.608	0.498	0.288	0.241	0.292	0.418
CUL09	0.686	0.506	0.437	0.248	0.253	0.221	0.306
CUL10	0.800	0.547	0.436	0.353	0.262	0.320	0.459
CUL12	0.663	0.337	0.297	0.112	0.202	0.166	0.213
CUL13	0.815	0.619	0.499	0.376	0.239	0.352	0.480
CUL14	0.731	0.412	0.461	0.375	0.289	0.336	0.410
CUL16	0.764	0.663	0.486	0.413	0.344	0.373	0.505
CUL17	0.698	0.533	0.409	0.359	0.306	0.289	0.443
CUL18	0.785	0.605	0.437	0.428	0.279	0.383	0.448
CUL19	0.679	0.522	0.389	0.405	0.286	0.296	0.417
CUL20	0.736	0.522	0.533	0.479	0.282	0.442	0.509
CUL21	0.657	0.364	0.389	0.259	0.288	0.179	0.343
CUL22	0.765	0.579	0.502	0.468	0.249	0.341	0.543
CUL23	0.843	0.606	0.543	0.456	0.419	0.383	0.488
STRU_D1	0.453	0.749	0.563	0.378	0.293	0.449	0.435
STRU_D2	0.543	0.765	0.577	0.456	0.290	0.473	0.481
STRU_D3	0.624	0.853	0.630	0.539	0.284	0.509	0.590
STRU_F1	0.666	0.783	0.588	0.345	0.180	0.317	0.450
STRU_F2	0.591	0.792	0.487	0.323	0.324	0.356	0.451
STRU_F3	0.654	0.821	0.535	0.351	0.270	0.421	0.443
STRU_F4	0.608	0.832	0.577	0.386	0.192	0.396	0.468
STRU_F5	0.637	0.839	0.619	0.448	0.279	0.473	0.494
STRU_H1	0.233	0.563	0.348	0.270	0.230	0.231	0.246
STRU_H2	0.295	0.593	0.380	0.279	0.235	0.165	0.290
STRU_H3	0.303	0.596	0.340	0.260	0.273	0.218	0.250
ES_Ad1	0.398	0.450	0.743	0.342	0.235	0.419	0.370
ES_Ad2	0.402	0.483	0.712	0.324	0.190	0.390	0.344
ES_Ad3	0.411	0.493	0.800	0.382	0.181	0.449	0.418
ES_Co1	0.529	0.680	0.868	0.469	0.287	0.517	0.544
ES_Co2	0.502	0.616	0.850	0.504	0.279	0.518	0.534
ES_Co3	0.519	0.624	0.844	0.482	0.277	0.488	0.529

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

Table 5.14: Cross Loadings of All Indicators (continued)

	CULTURE	STRUCTURE	ENT_SYSTEM	TONE_TOP	STR_ROLE_ERMC	INVOLVEMENT	EFF_ERM
ES_Ge1	0.541	0.641	0.699	0.343	0.211	0.441	0.523
ES_Ge2	0.531	0.589	0.821	0.351	0.179	0.377	0.510
ES_In1	0.574	0.637	0.908	0.454	0.232	0.437	0.571
ES_In2	0.587	0.627	0.888	0.463	0.238	0.439	0.532
ES_In3	0.546	0.571	0.818	0.421	0.145	0.368	0.550
ES_So1	0.268	0.191	0.453	0.380	0.129	0.430	0.396
ES_So2	0.312	0.241	0.514	0.422	0.223	0.451	0.436
ES_So3	0.330	0.400	0.571	0.234	0.178	0.273	0.316
Tone1	0.498	0.487	0.525	0.943	0.284	0.672	0.782
Tone2	0.483	0.504	0.529	0.970	0.302	0.729	0.799
Tone3	0.446	0.424	0.448	0.915	0.304	0.639	0.725
ERMC1	0.220	0.215	0.211	0.243	0.822	0.153	0.237
ERMC2	0.310	0.283	0.198	0.247	0.771	0.107	0.281
ERMC3	0.279	0.245	0.274	0.220	0.764	0.252	0.194
ERMC4	0.318	0.320	0.214	0.270	0.763	0.213	0.209
Involve1	0.415	0.443	0.545	0.684	0.179	0.966	0.624
Involve2	0.396	0.475	0.533	0.679	0.188	0.975	0.635
Involve3	0.472	0.544	0.561	0.723	0.271	0.953	0.697
ISOEf01	0.540	0.570	0.562	0.763	0.255	0.624	0.911
ISOEf02	0.532	0.555	0.576	0.747	0.295	0.620	0.895
ISOEf03	0.584	0.566	0.602	0.723	0.276	0.624	0.937
ISOEf04	0.561	0.525	0.588	0.712	0.257	0.611	0.934
ISOEf05	0.491	0.421	0.568	0.755	0.298	0.593	0.910
ISOEf06	0.529	0.529	0.582	0.739	0.285	0.623	0.937
ISOEf07	0.566	0.521	0.581	0.783	0.276	0.645	0.951
ISOEf08	0.537	0.530	0.570	0.772	0.312	0.612	0.939
ISOEf09	0.517	0.521	0.523	0.757	0.303	0.631	0.892
ISOEf10	0.603	0.566	0.630	0.774	0.277	0.644	0.926
ISOEf11	0.574	0.547	0.621	0.743	0.216	0.641	0.902
PerEf1	0.569	0.566	0.585	0.800	0.264	0.704	0.928
PerEf2	0.544	0.537	0.569	0.797	0.290	0.663	0.930
PerEf3	0.570	0.579	0.570	0.773	0.253	0.640	0.937
PerEf4	0.554	0.560	0.578	0.737	0.259	0.641	0.905
PerEf5	0.541	0.509	0.566	0.696	0.235	0.572	0.850

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

The Fornell-Lacker criterion (Fornell & Larcker, 1981) suggests that discriminant validity can be assessed at the construct level. Table 5.15 tabulated the relevant statistics using Fornell-Lacker approach. As shown on the table, all diagonal elements exceed the off-diagonal elements in the corresponding rows and columns, reflecting a sufficient discriminant validity of constructs under such approach.

Table 5.15: Fornell-Lacker Criterion

	CULTURE	STRUCTURE	ENT_SYSTEM	TONE_TOP	STR_ROLE_ERMC	INVOLVEMENT	EFF_ERM
CULTURE	0.742						
STRUCTURE	0.708	0.751					
ENT_SYSTEM	0.621	0.700	0.762				
TONE_TOP	0.505	0.502	0.532	0.943			
STR_ROLE_ERMC	0.362	0.340	0.283	0.314	0.781		
INVOLVEMENT	0.445	0.507	0.567	0.722	0.222	0.965	
EFF_ERM	0.604	0.590	0.636	0.828	0.299	0.692	0.911

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

Additionally, the Heterotrait-Monotrait Ratio (HTMT) which is the estimate of construct correlation on Table 5.16 also shows that all the HTMT is below 0.9 which means that the variables are moderately correlated based on the threshold suggested by Hair et al. (2013).

Table 5.16: Heterotrait-Monotrait Ratio (HTMT)

	CULTURE	STRUCTURE	ENT_SYSTEM	TONE_TOP	STR_ROLE_ERMC	INVOLVEMENT	EFF_ERM
CULTURE							
STRUCTURE	0.717						
ENT_SYSTEM	0.642	0.725					
TONE_TOP	0.516	0.526	0.563				
STR_ROLE_ERMC	0.413	0.403	0.334	0.364			
INVOLVEMENT	0.450	0.514	0.599	0.758	0.264		
EFF_ERM	0.610	0.599	0.654	0.861	0.330	0.708	

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

On the whole, the evaluation of measurement model indicates the reliability and validity of the constructs to proceed with the evaluation of the structural model. The

results for the reflective measurement models are summarised in Table 5.17.

Table 5.17: Result Summary for Reflective Measurement Model

	Indicators	Loadings >0.60	Indicator Reliability >0.60	Composite Reliability >0.708	AVE >0.50	Discriminant Analysis
CULTURE	CUL02	0.709	0.710	0.956	0.550	Yes
	CUL04	0.655	0.653			
	CUL06	0.744	0.744			
	CUL07	0.780	0.782			
	CUL08	0.805	0.807			
	CUL09	0.686	0.688			
	CUL10	0.800	0.799			
	CUL12	0.663	0.662			
	CUL13	0.815	0.815			
	CUL14	0.731	0.729			
	CUL16	0.764	0.765			
	CUL17	0.698	0.695			
	CUL18	0.785	0.786			
	CUL19	0.679	0.680			
	CUL20	0.736	0.735			
	CUL21	0.657	0.656			
	CUL22	0.765	0.765			
	CUL23	0.843	0.844			
STRUCTURE	STRU_D1	0.749	0.749	0.933	0.564	Yes
	STRU_D2	0.765	0.766			
	STRU_D3	0.853	0.851			
	STRU_F1	0.783	0.783			
	STRU_F2	0.792	0.792			
	STRU_F3	0.821	0.822			
	STRU_F4	0.832	0.833			
	STRU_F5	0.839	0.838			
	STRU_H1	0.563	0.564			
	STRU_H2	0.593	0.593			
	STRU_H3	0.596	0.596			

Table 5.17: Result Summary for Reflective Measurement Model (continued)

	Indicators	Loadings	Indicator Reliability	Composite Reliability	AVE	Discriminant Analysis
ENTERPRISE SYSTEMS	ES_Ad1	0.743	0.744	0.949	0.580	Yes
	ES_Ad2	0.712	0.713			
	ES_Ad3	0.800	0.801			
	ES_Co1	0.868	0.868			
	ES_Co2	0.850	0.850			
	ES_Co3	0.844	0.844			
	ES_Ge1	0.699	0.697			
	ES_Ge2	0.821	0.817			
	ES_In1	0.908	0.906			
	ES_In2	0.888	0.886			
	ES_In3	0.818	0.817			
	ES_So1	0.453	0.457			
	ES_So2	0.514	0.517			
	ES_So3	0.571	0.574			
TONE FROM THE TOP	Tone1	0.943	0.942	0.960	0.889	Yes
	Tone2	0.970	0.970			
	Tone3	0.915	0.916			
STRATEGIC ROLE OF ERM CHAMPION	PoERMC1	0.822	0.824	0.862	0.609	Yes
	PoERMC2	0.771	0.774			
	PoERMC3	0.764	0.760			
	PoERMC4	0.763	0.761			
EMPLOYEE INVOLVEMENT	Involve1	0.966	0.967	0.976	0.931	Yes
	Involve2	0.975	0.976			
	Involve3	0.953	0.953			

Now that the construct measures have been confirmed as reliable and valid, the next step is to assess the structural model results. This involves examining the model's predictive capabilities and the relationships among constructs. Prior to assessing the structural model, this model is first examined for collinearity.

The collinearity among indicators was examined using the variance inflation factor (VIF). Multicollinearity is present when the VIF is above the cut-off point of 10 (O'Brien, 2007). As shown on Table 5.18, all the VIF is below 10 indicating that multicollinearity does not exist among the indicators.

Table 5.18: Variance Inflation Factor (VIF) Results

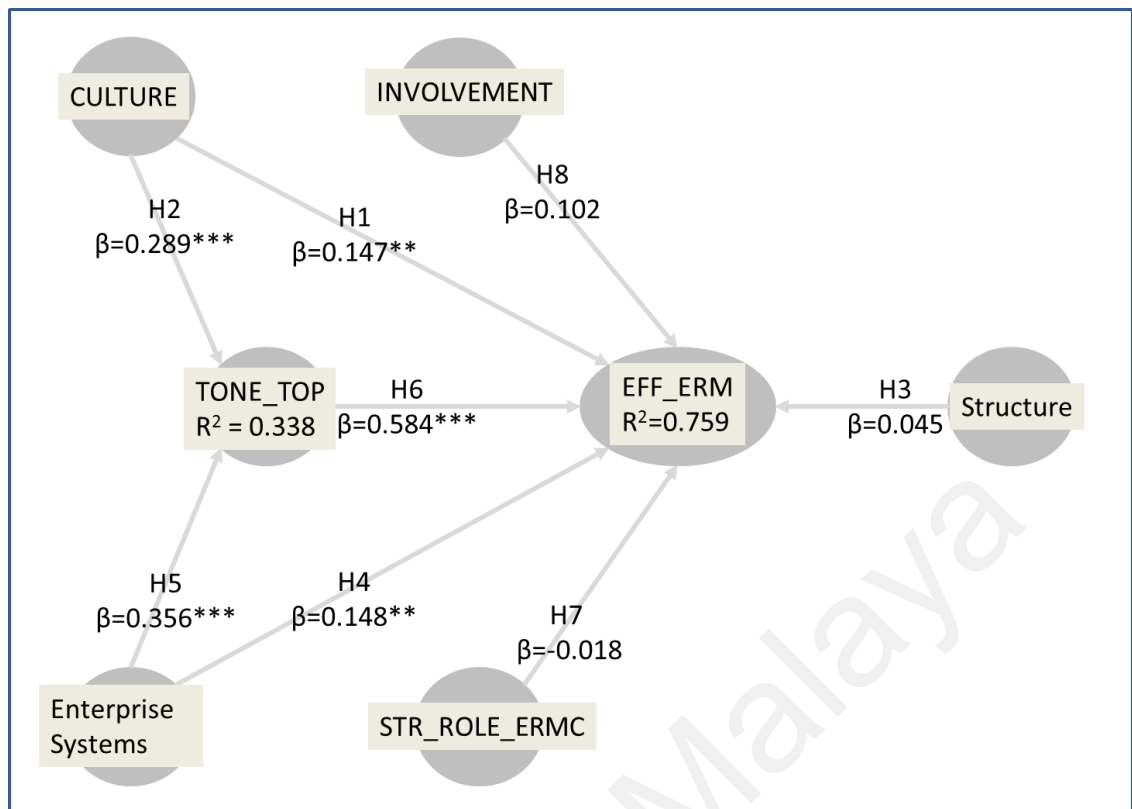
	EFF_ERM	TONE_TOP
CULTURE	2.276	1.623
ENT_SYSTEM	2.330	1.623
INVOLVEMENT	2.349	
STRUCTURE	2.626	
STR_ROLE_ERMC	1.198	
TONE_TOP	2.364	

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STR_ROLE_ERMC = strategic role of ERM Champion

5.2.7 Assessing PLS_SEM Results of the Structural Model

According to Chin (1998), R^2 value provides the explanatory power of a structural model, which can be described as substantial, moderate and weak if the values show 0.67, 0.33 and 0.19, respectively. The evaluation of β , the path coefficients and its significance value are provided in the next section.

The bootstrapping results shown on Figure 5.2 show the significance of the path coefficients. The results indicate that all paths are statistically significant using a one-tailed test (T-statistics > 1.645) except for STRUCTURE→EFF_ERM, STR_ROLE_ERMC→EFF_ERM and INVOLVEMENT→EFF_ERM.



CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

***= significant at the 0.01 level

**=significant at the 0.05 level

Figure 5.2: Bootstrapping Results

5.2.7.1 Hypotheses Testing

Eight hypotheses, H1 to H8, are formulated during the initial phase of the study in order to examine whether there exists positive direct relationship between variables. The hypotheses are presented again in Table 5.19.

Table 5.19: Hypotheses Testing for Direct Relationship Between the Variables

H1:	There is a significant positive relationship between organisational culture and perceived ERM effectiveness in managing risks
H2:	There is a significant positive relationship between organisational culture and tone from the top.
H3:	There is a significant positive relationship between organisational mechanistic structure and perceived ERM effectiveness in managing risks
H4:	There is a significant positive relationship between enterprise systems and perceived ERM effectiveness in managing risks
H5:	There is a significant positive relationship between enterprise systems and tone from the top
H6:	There is a significant positive relationship between strong tone from the top and perceived ERM effectiveness in managing risks
H7:	There is a significant positive relationship between the strategic role of ERM Champion and perceived ERM effectiveness in managing risks
H8:	There is a significant positive relationship between employee involvement in risk management activities and perceived ERM effectiveness in managing risks

Table 5.20: Results of Direct Effects

	Direct Effect	Original Sample (O)	Sample Mean (M)	T Stats	P Values
H1	CULTURE->EFF_ERM	0.147	0.144	1.923	0.027 **
H2	CULTURE->TONE FROM THE TOP	0.289	0.301	2.882	0.002 ***
H3	STRUCTURE->EFF_ERM	0.045	0.046	0.575	0.283 ns
H4	ENT_SYSTEM->EFF_ERM	0.148	0.150	2.302	0.011 **
H5	ENT_SYSTEM->TONE FROM THE TOP	0.356	0.352	4.111	0.000 ***
H6	TONE_TOP->EFF_ERM	0.584	0.581	8.426	0.000 ***
H7	STR_ROLE_ERMC->EFF_ERM	-0.018	-0.007	0.344	0.366 ns
H8	INVOLVEMENT->EFF_ERM	0.102	0.101	1.471	0.071 ns

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

***= significant at the 0.01 level

**=significant at the 0.05 level

H1: There is a significant positive relationship between organisational culture and perceived ERM effectiveness in managing risks

H1 states that organisational culture has a positive relationship with perceived ERM effectiveness in managing risks. As depicted in Table 5.20, it can be seen that this hypothesis is supported ($\beta = 0.147$, $p < 0.05$) which means that the organisational culture has a significant positive influence on ERM effectiveness in managing risks.

Further examination into the components of organisational culture of bureaucratic, innovative and supportive showed that all the dimensions of culture is significantly and positively associated with ERM effectiveness as tabulated in Table 5.21. Relatively, innovative culture ($\beta = 0.386$, $p < 0.00$) has the strongest total effect on ERM effectiveness, followed by supportive culture ($\beta = 0.346$, $p < 0.00$) and finally bureaucratic culture ($\beta = 0.336$, $p < 0.00$). The rationale behind the positive effect of all the three type of culture namely, bureaucratic, innovative and supportive can be due to the nature of ERM which is an evolving initiatives from being a top down initiative in the beginning to an emergent initiative as it gets mature. The former works well in a bureaucratic culture as compared to the latter which works well in a supportive environment.

Table 5.21: Results of the Direct Effect of the Culture Dimensions

Direct Effect	Original Sample (O)	Sample Mean (M)	T Stats	P Values
CULTURE (Bureaucratic) -> EFF_ERM	0.336	0.334	18.479	0.000***
CULTURE (Innovative) -> EFF_ERM	0.386	0.385	20.791	0.000***
CULTURE (Supportive) -> EFF_ERM	0.346	0.347	23.629	0.000***

***= significant at the 0.01 level

H2: There is a significant positive relationship between organisational culture and tone from the top

H2 predicts the relationship between organisational culture and tone from the top. As depicted in Table 5.20, it can be seen that there is a significant direct positive relationship between these variables ($\beta = 0.289$, $p < 0.01$).

H3: There is a significant positive relationship between organisational mechanistic structure and perceived ERM effectiveness in managing risks

In respects to the relationship between organisational mechanistic structure and perceived ERM effectiveness, the results on Table 5.20, do not show any statistically significant relationship between the variables ($p > 0.05$). In other words, the results are not able to support the hypothesised relationship.

H4: There is a significant positive relationship between enterprise systems and perceived ERM effectiveness in managing risk

H4 predicts a positive association between enterprise systems and perceived ERM effectiveness in managing risks. Table 5.20 shows that the variables are significantly correlated with $\beta = 0.148$, $p < 0.05$.

H5: There is a significant positive relationship between enterprise systems and tone from the top

H5 further hypothesises the positive association between enterprise systems and tone from the top. As earlier expected, Table 5.20 shows that the variables are significantly correlated with $\beta = 0.356$, $p < 0.01$.

H6: There is a significant positive relationship between strong tone from the top and perceived ERM effectiveness in managing risks

Table 5.20 shows significant evidence of a highly correlated coefficient for H6. The hypothesis which predicts that tone from the top has a statistically significant positive influence on the effectiveness of ERM in managing risks with current data showing $\beta = 0.584$ ($p < 0.01$).

H7: There is a significant positive relationship between the strategic role of ERM Champion and perceived ERM effectiveness in managing risks

H7 predicts the relationship between strategic role of ERM Champion and the effectiveness in managing risks. Results on Table 5.20 however, does not support the hypothesised relationship.

H8: There is a significant positive relationship between employee involvement in risk management activities and perceived ERM effectiveness in managing risks

With regard to the positive relationship between employee involvement and ERM effectiveness in managing risks (H8), the results in Table 5.20 shows the lack of statistically significant relationship between these variables.

5.2.7.2 The Overall Model

Figure 5.2 (on page 171) shows the path coefficients and the R^2 of the dependent variables. The coefficient determination R^2 of 0.759 for perceived ERM effectiveness indicates that 75.9% of the variances in ERM effectiveness are explained by the independent variables in the current study. The remainings 24.1% is explained by other variables which are outside the scope of this study. On the other hand, tone from the top has the R^2 of 0.338 which indicates that culture and enterprise system only explains 33.8% of the variances in tone from the top.

Once the significance of the relationships has been determined, it is equally important to assess the relevance of the relationships. Path coefficients in the structural model may be significant, but their sizes maybe so small that they do not warrant managerial attention. Structural model path coefficients are interpreted relative to one

another. If one path coefficient is larger than another, its effect on the endogenous latent variable is greater. More specifically, the individual path coefficients of the path model can be interpreted just as the standardised beta coefficients in an OLS regression. These coefficients represent the estimated change in the endogenous construct for a unit change in a predictor construct. Table 5.22 shows the at the relative importance of the exogenous driver constructs in predicting the dependent construct of ERM effectiveness in managing risks (EFF_ERM) As shown in Table 5.22, tone from the top management (TONE_TOP = 0.584) has the strongest total effect on ERM effectiveness, followed by enterprise systems (ENT_SYSTEM = 0.148) and organisational culture (CULTURE = 0.147). In contrast, the effect of employee involvement (INVOLVEMENT = 0.102), organisational structure (STRUCTURE = 0.045) and strategic role of ERM Champion (STRA_ROLE_ERMC = -0.018) is only moderately low.

The exogenous construct of enterprise system (ENT_SYSTEM = 0.356) is also the primary driver (predictor) of tone from the top (TONE_TOP), followed by culture (CULTURE = 0.289).

Table 5.22: PLS Algorithm Default Report - Path Coefficients

	EFF_ERM	TONE_TOP
CULTURE	0.147	0.289
ENT_SYSTEM	0.148	0.356
EFF_ERM		
INVOLVE	0.102	
STRUCTURE	0.045	
STR_ROLE_ERMC	-0.018	
TONE_TOP	0.584	

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

5.2.7.3 Test of Mediation

The current conceptual framework also predicts the mediating role of tone from the top. The hypotheses that examine the mediating role are reflected on Table 5.23. Similar to testing the direct relationship in the preceding Sections, SmartPLS is used to examine the mediating effect. Specifically, we looked at the significance analysis of path coefficient with mediator using the software. Once the mediating influence is detected, the Variance Accounted For (VAF) is computed to assess the strength of the mediating influence (Hair et al., 2013).

As shown on Figure 5.2 (on page 171) there is statistically significant positive direct effect between (i) culture and ERM effectiveness and (ii) enterprise systems and ERM effectiveness in managing risks.

Table 5.23: Hypothesis for Mediating Relationship Between Variables

H9:	Tone from the top mediates the relationship between organisational culture and the perceived ERM effectiveness in managing risks
H10:	Tone from the top mediates the relationship between enterprise systems and the perceived ERM effectiveness in managing risks

H9: Tone from the top mediates the relationship between organisational culture and ERM effectiveness in managing risks

H9 suggests that the tone from the top has a mediating influence on the relationship between culture and ERM effectiveness. Table 5.24 shows that tone from the top has a significant mediating influence between culture and ERM effectiveness ($\beta = 0.168, p < 0.00$). Once the significant relationship is determined, VAF is computed.

Table 5.24: Significance Analysis of Path Coefficients with the Mediator

	Direct Effect		Indirect Effect	Total Effect
	CULTURE -> TONE_TOP	TONE_TOP -> EFF_ERM	CULTURE -> EFF_ERM	CULTURE -> EFF_ERM
CULTURE-> TONE_TOP	0.289 (0.05**)	0.584 (0.00***)	0.168 (0.00***)	0.315 (0.00***)

Table 5.25 shows that 53.5% of the relationship between culture and ERM effectiveness is explained by the mediator. Because the VAF is greater than 20% but less than 80%, the mediating influence is said to be partial mediation (Hair et al., 2013).

Table 5.25: Variance Accounted For (VAF)

	Direct	Indirect	Total	VAF (Indirect/Total)
CULTURE -> TONE_TOP -> EFF_ERM	0.147	0.168	0.315	0.535

H10: Tone from the top mediates the relationship between enterprise systems and perceived ERM effectiveness in managing risks

H10 predicts the mediating role of tone from the top in the relationship between enterprise systems and ERM effectiveness in managing risks. Table 5.26 shows that tone from the top indeed has a significant mediating influence on the variables concerned ($r = 0.208$, $p < 0.00$) (Hair et al., 2013). Once the significant relationship is established, the Variance Accounted For (VAF) is computed to assess the strength of the mediating influence.

Table 5.26 shows that 58.4 % of the relationship between culture and ERM effectiveness is explained by the mediator. In this case, the mediating influence is said to be partial mediation because the VAF is greater than 20% but less than 80% - see Table 5.27 (Hair et al., 2013).

Table 5.26: Significance Analysis of Path Coefficients with the Mediator

	Direct Effect		Indirect Effect	Total Effect
	ENT_SYSTEM -> TONE_TOP	TONE_TOP -> EFF_ERM	ENT_SYSTEM -> EFF_ERM	ENT_SYSTEM -> EFF_ERM
ENT_SYSTEM -> TONE_TOP	0.356 (0.00***)	0.584 (0.00***)	0.208 (0.00***)	0.356 (0.00***)

Table 5.27: Variance Accounted For (VAF)

	Direct	Indirect	Total	VAF (Indirect/Total)
ENT SYSTEM -> TONE_TOP -> EFF_ERM	0.148	0.208	0.356	0.585

5.2.7.4 Test of Moderation

There are two hypotheses developed to test the moderating role of CRO and the ERM Unit as presented again on Table 5.28.

Table 5.28: Hypotheses for Moderating Effect

H11:	Presence of CRO moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks
H12:	A separate ERM unit moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks

H11: Presence of CRO moderates the relationship between the organisational variables and ERM effectiveness in managing risks

In recognition of the role played by CRO as one of the strongest indicators for ERM adoption (Lam, 2000; Kleffner et al., 2003; Aabo et al., 2005; Beasley et al., 2005a; Mikes, 2008; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011; Mikes, 2014), the study hypothesises the moderating influence of CRO in the relationship between the variables, namely culture, structure, enterprise systems, tone from the top, strategic role of ERM Champion as well as employee involvement and

ERM effectiveness. Based on the results between the groups with and without CRO as shown on Table 5.29, the moderating influence of CRO is only evidenced in the relationship between tone from the top and ERM effectiveness.

Table 5.29: PLS-MGA Results for Presence of CRO

	Group 1 : With CRO		Group 2 : No CRO		Group 1 vs. Group 2			
	p (1)	se p(1)	p (2)	se p(2)	p(1) - p(2)	t Value	P Value	
CULTURE -> ERM_EFF	0.075	0.128	0.171	0.095	-0.097	0.622	0.535	ns
ENT_SYSTEM -> ERM_EFF	0.185	0.093	0.154	0.089	0.031	0.244	0.808	ns
INVOLVE -> ERM_EFF	0.006	0.111	0.196	0.076	-0.189	1.459	0.147	ns
STRUCTURE -> ERM_EFF	-0.021	0.124	0.135	0.089	-0.157	1.054	0.294	ns
STR_ROLE_ERMC -> ERM_EFF	0.055	0.105	-0.033	0.068	0.088	0.729	0.467	ns
TONE_TOP -> ERM_EFF	0.726	0.091	0.405	0.108	0.321	2.233	0.027	**

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness

** p < 0.05, ns = not significant

H12: A separate ERM unit moderates the relationship between the organisational variables and ERM effectiveness in managing risks

Having a separate ERM unit is also predicted to have a moderating influence on the relationship between the organisational variables in the study with the effectiveness of ERM in managing risks. The results shown on Table 5.30 however, do not support the hypothesis as earlier predicted.

Table 5.30: PLS-MGA Results for Separate ERM Unit

	Group 1 : Separate ERM Unit		Group 2 : No ERM Unit		Group 1 vs. Group 2			
	p (1)	se p(1)	p (2)	se p(2)	p(1) - p(2)	t Value	P Value	
CULTURE -> ERM_EFF	0.043	0.115	0.224	0.094	-0.181	1.107	0.270	ns
ENT_SYSTEM -> ERM_EFF	0.152	0.087	0.167	0.118	-0.015	0.107	0.915	ns
INVOLVE -> ERM_EFF	0.129	0.105	0.076	0.088	0.053	0.353	0.725	ns
STRUCTURE -> ERM_EFF	0.095	0.107	0.034	0.108	0.061	0.384	0.702	ns
STR_ROLE_ERMC -> ERM_EFF	-0.012	0.082	-0.012	0.063	0.000	0.000	1.000	ns
TONE_TOP -> ERM_EFF	0.599	0.103	0.552	0.105	0.047	0.303	0.762	ns

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness

** p < 0.05, ns = not significant

5.2.8 Summary of Results

Table 5.31 tabulates the extent of the total effects of the predictor variables on the criterion variable. According to the table, the predictor variable which explains most of the variance in the criterion variable is tone from the top, followed by enterprise systems and culture. Specifically, this means that managers should spend more effort on these three main variables if they wish to improve the effectiveness of ERM in managing risks.

Table 5.31: PLS Algorithm Default Report - Total Effects – Sizes

	TONE_TOP	EFF_ERM
CULTURE	0.289	0.315
ENT_SYSTEM	0.356	0.356
EFF_ERM		1.000
INVOLVE		0.102
STRUCTURE		0.045
STR_ROLE_ERMC		-0.018
TONE_TOP		0.584

CULTURE = organisational culture, STRUCTURE = organisational structure, ENT_SYSTEM = enterprise system, TONE_TOP = tone from the top, INVOLVEMENT = employee involvement and STRA_ROLE_ERMC = strategic role of ERM Champion, EFF_ERM = ERM Effectiveness.

The summary of the hypotheses and the results are tabulated in Table 5.32. Overall, the current study supports the earlier predictions on the influence of tone from the top, culture and enterprise system on ERM effectiveness in managing risks. There is also evidence of a partial mediating influence of tone from the top on the relationship between culture and ERM effectiveness as well as between enterprise systems and ERM effectiveness.

Table 5.32: Summary of Hypotheses Testing and Findings

Hypotheses		Findings
H1:	There is a significant positive relationship between organisational culture and perceived ERM effectiveness in managing risks.	Supported
H2:	There is a significant positive relationship between organisational culture and tone from the top.	Supported
H3:	There is a significant positive relationship between organisational mechanistic structure and perceived ERM effectiveness in managing risks.	Not supported
H4:	There is a significant positive relationship between enterprise systems and perceived ERM effectiveness in managing risks.	Supported
H5:	There is a significant positive relationship between enterprise systems and tone from the top.	Supported
H6:	There is a significant positive relationship between strong tone from the top and perceived ERM effectiveness in managing risks.	Supported
H7:	There is a significant positive relationship between the strategic role of ERM Champion and perceived ERM effectiveness in managing risks.	Not supported
H8:	There is a significant positive relationship between employee involvement in risk management activities and perceived ERM effectiveness in managing risks.	Not supported
H9:	Tone from the top mediates the relationship between organisational culture and perceived ERM effectiveness in managing risks.	Supported - partial mediation
H10:	Tone from the top mediates the relationship between enterprise systems and perceived ERM effectiveness in managing risks.	Supported - partial mediation
H11:	Presence of CRO moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks.	Supported for tone from the top
H12:	A separate ERM unit moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks.	Not supported

The above findings support the general views in the existing literature. For example, the influence of culture on ERM effectiveness supports the suggestion that cultural barriers are the most critical challenges in ERM implementation (Muralidhar, 2010; Altuntas et al., 2011) and corroborates with findings from the only study on the influence of culture on ERM by Kimbrough and Compton (2009).

With regard to enterprise systems, a study on the effectiveness of risk management guidelines issued for the local authorities in UK reveals that in view of the large amount of data involved, use of a computer-based system would be ideal

(Crawford & Stein, 2004). Levine (2004) asserts that from an implementation perspective, the information needs of ERM necessitates the availability of IT systems that provide a true, unified picture of risk across the organisation. The general expectations of enterprise systems being another critical driver for an effective ERM is further reinforced by the results of the current study which supports the positive association between highly integrated systems and the effectiveness of ERM in managing risks.

However, contrary to our earlier propositions, there is no evidence of a direct link between mechanistic structure and ERM effectiveness. Neither is there any statistically significant relationship between the strategic role of ERM Champion and ERM effectiveness.

The lack of support between the relationship between mechanistic structure and ERM effectiveness could be due to the hybrid and dynamic nature of the variable itself. On one hand, we have an organic vs mechanistic structure and on the other, we have ERM as a top down vs innovative programme. Recent literature suggests that modern organisations are much more dynamic and adaptive and can take the form of mechanistic or organic structure depending on the situation (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008). According to this new school, successful firms are ambidextrous—aligned and efficient meeting business demands while being receptive and adaptive to changes in the environment (Duncan, 1976; Gibson & Birkinshaw, 2004). Based on these scholars, to be ambidextrous organisations have to reconcile internal tensions and conflicting demands in their task environments instead of trading it off. Additionally, the level and maturity of ERM implementation in the companies under study varied from being in its first year or in the midst of implementation to more than 5 years or being embedded in its processes. Therefore it could well be top down emergent change in the beginning and became an innovation as it matures.

The other findings which are somewhat contrary to the theoretical expectations is the influence of the strategic role of ERM Champion. It contradicts the views that a strong influence of autonomy associated with risk management function especially in a time of crisis (Kaplan & Mikes, 2012) is indeed crucial and that the role of ERM Champion is moving away from a risk controller to a strategic business advisor (Mikes, 2008). The findings are, however, in line with the study conducted on data warehousing implementation which does not indicate any statistically significant relationship between the presence of a strong champion and the project's success (Wixom & Watson, 2001).

Such findings raised an intriguing concern on the status and position of ERM Champion in the organisational hierarchy particularly in the developing markets. The insignificant association may suggest one of the following. Firstly, it could be that unlike the strategic recognition received by its counterparts in developed countries such as the US, UK and Canada, the role of ERM Champion and/or CRO in this region is still perceived as risk controllers. Although such a risk controlling role is still positively related to ERM (Wan Daud et al., 2010), much is needed to be done to transform the stereotype of risk managers. Without doubts, the change in the role is critical to ERM effectiveness by virtue of his knowledge on the overall risks faced by the organisation, making him a valuable asset to the strategic decision makers. Secondly, it could also indicate the absence of a full-time ERM Champion within the organisation. Based on the Profile of the Respondents in Table 5.4 (on page 148), 69.2% of the champions are other than the CROs, implying that they are playing a dual role in the organisation studied hence suggesting possible lack of priorities placed on ERM initiatives. Such a dual role played may also have led them to “go native” becoming deal makers rather than deal questioners (Kaplan & Mikes, 2012). The same could also imply that the image of the ERM Champions with regard to ERM is overshadowed by their so-called

primary role within the organisation as the CEO or the CFO, whichever applicable.

Tests of moderating influence of CRO presence was also performed on the relationship between all the six predictor variables on ERM effectiveness. The results showed that CRO presence moderates the relationship between tone from the top and ERM effectiveness which is consistent with the evidence that CRO presence drives ERM adoption (Kleffner et al., 2003; Beasley et al., 2005a; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011).

A similar test was also performed using a separate ERM unit as the non-parametric moderating variable. The results showed that establishment of a separate ERM unit shows no moderating effects at all on the relationship between the variables in the study and the effectiveness of ERM in managing risks. This could be explained by the lack of a dedicated role to head the ERM units. As shown in Table 5.4 (on page 148) that while 90 of the respondent companies (or 57.7%) of the companies under study have a dedicated ERM, only 67 out of 90 (or 74%) have a dedicated CRO. The lack of CRO to head the ERM unit may imply the lack of command and ultimately effectiveness of the ERM team to carry out its ERM tasks within the organisation.

The absence of relationship among the few variables warrants a scope in a qualitative research approach which is presented in the following sections to investigate the reasons why such a relationship does not exist.

5.3 Research Questions and Objectives for the Qualitative Study

The quantitative findings which showed the lack of associations between the strategic role of CRO and ERM effectiveness as well as between employee involvement and ERM effectiveness raised a couple of research questions which can only be best

addressed through a qualitative research approach. Additionally, two other questions were developed to first of all investigate the actual ERM practices within the organisation and second of all to validate the quantitative findings on the factors which are associated with the effectiveness of ERM in managing risks.

The research questions for the qualitative studies are appended below. RQ1 and RQ2 (qualitative) generally seek to understand ERM practices and the factors that can influence ERM effectiveness. RQ3 and RQ4 (qualitative) were formulated to enhance the understanding of the findings from the survey. Specifically, these objectives seek to investigate the rationale behind the lack of significant influence of CRO and employee involvement on ERM effectiveness from RQ3 of the quantitative study.

RQ1 (qualitative): What are the general ERM practices in Malaysian companies?

RQ2 (qualitative): What are the factors which are positively associated with perceived ERM effectiveness in managing risks?

RQ3 (qualitative): To what extent does the strategic role of ERM Champion influence perceived ERM effectiveness in managing risks?

RQ4 (qualitative): To what extent does employee involvement influence perceived ERM effectiveness in managing risks?

Accordingly, the research objectives for the qualitative study are designed as follows:

RO1 (qualitative): To understand the general ERM practices in Malaysian public companies.

RO2 (qualitative): To confirm the quantitative findings in regards to the factors which can influence perceived ERM effectiveness in managing risks.

RO3 (qualitative): To investigate the influence of the strategic role of ERM Champion on perceived ERM effectiveness in managing risks.

RO4 (qualitative): To investigate the influence of employee involvement on perceived ERM effectiveness in managing risks.

5.4 Results of the Qualitative Study

In general, the results of the questionnaire survey as presented in the previous Section 5.2 show that there is a positive direct influence between tone from the top, enterprise systems and organisational culture on the effectiveness of ERM in managing risks. Additionally, the data found evidence that tone from the top has a partial mediating effect in the relationship between culture and ERM effectiveness as well enterprise systems and ERM effectiveness. While our intuition, which is driven by our knowledge and literature review on the subject, tells us that there is a significant relationship between mechanistic structure, employee involvement, strategic role of ERM Champion, the presence of CRO and a separate ERM unit, these hypotheses as it turned out were not supported by the current research evidence. Specifically, save for the moderating influence of the presence of CRO, the results of the online survey found neither a statistically significant direct relationship between the strategic role of ERM champion and employee involvement and ERM effectiveness nor the moderating relationship of having a separate ERM unit on the relationship between the variables under study and ERM effectiveness.

This qualitative tail of the research is therefore designed mainly to offer further explanation and insights on the non-association between the aforementioned variables under study. The qualitative research method used in the current study is predominantly semi-structured interviews, content analysis of the annual reports and any other forms of publicly-available documents on the company website as well as those provided by the interviewee, particularly on the risk management practices.

5.4.1 Background Information

The interview participants were selected from the survey respondents' list. The selection is based on the scores of the main variables identified for further in-depth investigation, namely ERM effectiveness, and strategic role of ERM Champion and employee involvement. For companies which scored below the 33 percentile, it will be defined as low and any scores above the 67 percentile will be considered as high in the variable being measured.

Based on the scores and the interviewee participants' agreement to participate in the interview, six companies were identified for the interview as depicted on the high-low matrix below. The matrix on the x-axis displays the variable of (i) strategic role of ERM Champion and (ii) employee involvement and while the matrix on the y-axis displays ERM effectiveness ranging in scores from high to low.

All the participating companies fulfilled the following criteria:

- Participated in the online survey
- Implemented ERM for more than five years
- Has a dedicated head of risks with a team of at least three personnel

Additionally, Mars Berhad was identified as the model for case study for its ERM best practices based on the stable profitability for the last five years. The approach to identify a model is deemed necessary to gain an understanding of actual practice of ERM activities before extending the interviews to other companies. The initial 'ice-breaking' interview was conducted with the head of risks department of Mars Berhad and then extended to the other employees who were involved in risk management activities at Mars Berhad. Once an understanding on ERM practices in Mars Berhad has been identified, the researcher went on to interview the other employees within the organisation and thereafter the risk and other officers from other organisations for an in-

depth understanding of the influence of employee involvement and strategic role of ERM Champion as the drivers for ERM effectiveness.

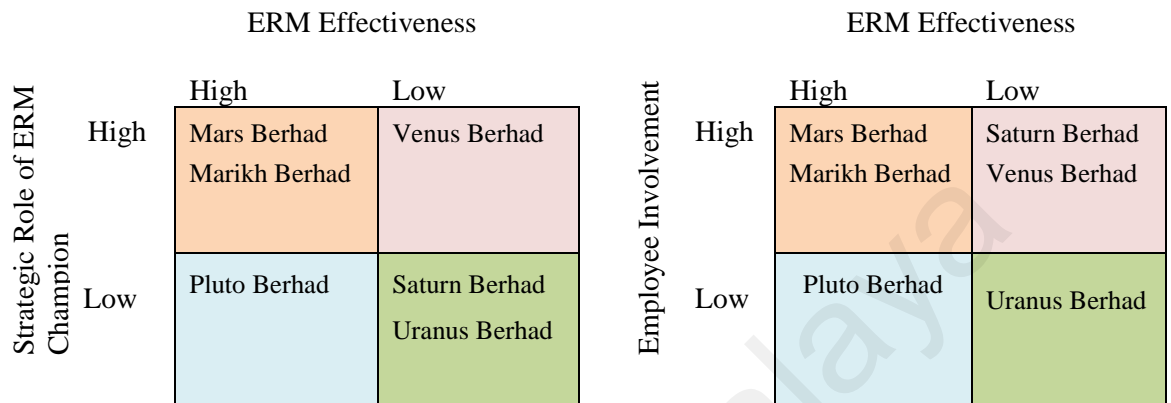


Figure 5.3: High-Low Dimension - Strategic Role of ERM Champion vs ERM Effectiveness and Employee Involvement vs ERM Effectiveness

5.4.2 Profile of the Interview Participants' Companies

Table 5.33 provides the profile of the participating companies who participated in the interview. The table shows that five of the companies are big companies with employees of more than 10,000, while the other one were smaller firms with employees of less than 10,000. The profit before tax (PBT) and the net assets of the companies ranged between RM1.5 million to RM9.1 billion and RM1.9 million to RM46.2 billion, respectively.

Table 5.33: Profile of the Companies Participating in the Interviews

Respondent	Company (Type of Industry)	Type of Ownership	Number of employees	PBT (RM)	Net assets (RM)
Mr A Ms B Ms C Mr D Ms E Mr F	Mars Berhad (Industrial Products)	GLC	>10,000	553mil	10.5bil
Ms G Ms H	Pluto Berhad (Consumer Products)	MNC	>3,000	315mil	2.7bil
Mr I Mr J Ms K	Saturn Berhad (Trade/Service)	Newly listed	14,000	1.2bil	10.2bil
Ms L Mr M	Uranus Berhad (Consumer Products)	GLC Newly listed	>19,000	1.5mil	1.9mil
Mr N Mr O	Venus Berhad (Consumer Products)	GLC	103,507	3.9bil	40.7bil
Mr P	Marikh Berhad (Financial Services)	GLC	47,000	9.1bil	46.2bil

5.4.3 Profile of the Interview Participants

Semi-structured interviews were performed on a total of 16 participants which represent six companies. The participants in the interview consist of members of the board, senior management, managers and executives with varying roles and responsibilities in relation to ERM.

Each interview session took between 45 minutes to 90 minutes and was conducted in the interviewees' office except for two interview participants who requested for the interview to be conducted outside office for convenience reason. The interview consists of 14 face-to-face interviews and one telephone interview.

Table 5.34 provides the profile of the interviewees who participated in the interview which shows a balanced gender composition of eight each for male and female participants. All the interview participants were highly experienced in their position with length of service of at least eight years. The interview participant with the

longest employment is Mr D and Mr O, the Chairman of the Risk Management Committee (RMC) of Mars Berhad and Marikh Berhad, respectively who has been in employment for more than 30 years. Except for one, all the participants held top management positions. The background of the participants varies, with two from the board of directors, six from risks, five from audit, two from operations and one from finance, all of whom are directly involved in the risk management activities in their organisation in their respective function.

Table 5.34: Profile of the Interview Participants

Name	Gender	Company	Position	Department	Length of service
Ms A	Female	Mars Berhad	Senior Manager	Risk - ERM champion	25 yrs
Ms B	Female		Senior Manager	Operations	15 yrs
Ms C	Female		Head of Audit	Audit	17 yrs
Mr D	Male		Chairman of RMC	Board	>40 yrs
Ms E	Female		Senior Executive	IT	8 yrs
Mr F	Male		Risk Executive	Risk	8 yrs
Ms G	Female	Pluto Berhad	Head of Risk	Risk – ERM champion	8 yrs
Ms H	Female		Head of Audit	Audit	12 yrs
Mr I	Male	Saturn Berhad	Chief Risks Officer	Risk – ERM champion	22 yrs
Mr J	Male		Head of Audit	Audit	25 yrs
Ms K	Female		Head of Finance	Finance	22 yrs
Ms L	Female	Uranus Berhad	Head of Audit	Audit	25 yrs
Mr M	Male		Audit Manager	Audit	10 yrs
Mr N	Male	Venus Berhad	Chief Risks Officer	Risk - ERM champion	27 yrs
Mr O	Male		Chairman of RMC	Board	>40 yrs
Mr P	Male	Marikh Berhad	Chief Risks Officer	Risk – ERM champion	27 yrs

5.4.4 Findings from the Qualitative Data

5.4.4.1 ERM Practices and its Perceived Effectiveness Within Organisations

The findings from the interview send a mixed understanding on ERM practices which is consistent with studies suggesting that ERM is a worldwide concept. It is always implemented and interpreted in local ways (Mikes, 2009; Arena et al., 2010; Mikes, 2011; Tekathen & Dechow, 2013). There were a number of similar themes such as setting up of board risk management committee, appointment of risk coordinator, regular risk review cycle etc yet each are different in many ways.

Based on the interview, ERM activities in all the six participating organisations is supported by a dedicated risk management department headed by either a chief risks officer in three instances or a senior manager in the remaining three cases.

Although the ultimate responsibility for risk management lies with the board of directors, in all instances, the board delegated the responsibilities to the board committee established to oversee the effectiveness of risk management in the organisations. Five out of the six participating organisations established a separate committee to review the solely the risks management affairs while the remaining one company set up a committee to review audit and risk management affairs jointly. Generally, the scope of the risk management committee is to formulate the overall risk management strategy of the company and approve any major risks decision undertaken by the company. Only major risks or the top few risks will get discussed by this sub-committee of the board. To further facilitate and enhance the continuous monitoring and evaluating of the all risks related matters, five of the participating organisations established a committee at the management executive level. The scope of this committee is to scrutinise and evaluate all the risks area prior to presenting the major

ones to the board risk management committee. This will ensure that all risks area get the necessary level of attention and to avoid only the major risks getting attention by the board and the others being overlooked.

When asked to explain ERM practices within the organisations, all of them appear to have common understanding on the new approach of risk management practices of looking at risks holistically instead of individually. The main risks management processes of risk identification, assessment, mitigations, monitoring and communication are practised in the participant organisations. The interviewees also acknowledged ERM implementations as a journey over time and not something that can be implemented overnight. Mars Berhad, for example, took almost eight years to be where it is now and yet there was still room for improvement. ERM implementation is an evolution over time - it was only three years ago that Mars Berhad came up with the risk appetite for the company which maps the probability against the severity of the impact should the risk event materialise. Thereafter, in 2012, the policy on Project Risk Assessment was endorsed and communicated in 2012 making it compulsory for risks to be considered in any projects undertaken by Mars Berhad. In Uranus Berhad, the risk management committee was only established in 2013 to assist the board in fulfilling its statutory and fiduciary responsibilities in relation to risk management taking over the responsibilities from the audit committee.

In most instances, an external consultant is engaged for the first time implementation. In the case of Mars Berhad, Jardine Lloyd Thompson and for Pluto Berhad, PricewaterhouseCoopers Malaysia was respectively engaged to assist in the implementation of ERM. This is rather common owing to the fact that companies may not have inhouse experts in risk management and therefore are forced to seek expertise support (Makarova, 2014).

All the six companies practice a quarterly sign-off on the risk registers and except for two which uses an Excel spreadsheet; the remaining participating companies operate risk management databases in special ERM software to facilitate the update and sign-off by the relevant personnel.

In terms of the governing framework, all the participants' companies implemented ISO 31000 save for two in the financial services industry in which COSO 2004 framework is more prominently applied. Please refer to Appendix F for the main ERM practices in the participating companies.

When asked about the effectiveness of ERM in managing risks, the common theme from the interviews is that, even before ERM is being introduced, managing risks has always been in the company's veins and subconsciously embedded in the day-to-day running of the companies. However, as the company grows bigger, needs arise for the risk activities to be managed consciously and cautiously in a more systematic and structured manner. Indeed, the Chairman of the Board Risk Management Committee welcomed this new approach to managing risks because it is the only way to *"keep the company afloat"*. As member of the Board which is ultimately responsible for the management of risks, he gets the comfort of knowing that risks are being managed at a one-stop centre instead of being fragmented as it used to before.

5.4.4.2 Factors Which Can Influence Perceived ERM Effectiveness

The empirical evidence from the survey showed the presence of positive relationship between tone from the top, enterprise system and culture and ERM effectiveness but lack of evidence of employee involvement, ERM champion as well as mechanistic structure as the drivers for ERM effectiveness.

Similar to the findings of the survey, the interview findings suggests that tone

from the top seems to be the theme of the day when it comes to ERM implementation. The first statement which Ms A gave was that she is lucky because the CEO of Mars Berhad when she joined the company about eight years ago it was very supportive.

“the MD was saying that in addition to the risk management which he knows that I’m familiar with; something that he wants me to do is also business continuity management because he said that as an airport we need to have a continuity plan. So, I said to him, honestly, I don’t have any experience so, he said it’s okay, you can appoint a consultant to assist.”.

Both Ms G and Ms H also agreed that in Pluto Berhad, the tone from the top when it comes to risk matters was quite strong. According to Ms H, the head of internal audit, the support from the top is evidenced in the establishment of:

“a dedicated Risk Management Committee” in mid-2013 which “shows that, you know, at the board they think that it deserves time and attention. So, on a quarterly basis, half a day is being spent by board members to talk about risk.”

The same is also observed in Uranus Berhad with the setting up of its risk committee, also in 2013. The setting up of risk management committee from among members of the board further marked an important milestone in getting the management support.

The other common factors which are identified by the interview participants are ERM champion, employee involvement and enterprise systems. The participants mostly gave less merit to mechanistic structure in terms of its role to drive ERM effectiveness. For example, Mr I, Mr J and Mr P suggest that organisational structure is not as important as the other variables examined in this study. However, when asked on the role of ERM Champion and employees, all the interview participants were unanimous on their importance to warrant an effective ERM in managing risks.

The respondents generally agree that the role of ERM champion is key to ERM effectiveness. Mr D and O who are the Chairman of Risk Management Committee of Mars Berhad and Venus Berhad, respectively were both agreeable to the critical role which the ERM champion plays in making sure that the ERM is effective in achieving its objectives of managing risks.

In regards to employee involvement, Ms A for example, sees her role as the head of risk management and her team only as the facilitator and coordinator. At the end of the day, it is the commitment and involvement of the employees from all levels which determined the effectiveness of ERM in managing risks. She used her company's programme called Operational Readiness and Testing (ORAT) which coordinates the business continuity plans for Mars Berhad. All the tests and trainings are conducted by the employees with her department only facilitating the process. Ultimately, the input and action plans documented in ORAT belong to the employees who are responsible to execute them when the situation arises. This view is echoed by Ms G (Pluto Berhad), Mr I (Saturn Berhad) and Mr N (Venus Berhad).

On a whole, other than the positive influence of the strategic role of ERM champion and the extent of employee involvement on ERM effectiveness, the feedback from the interview participants are consistent with the quantitative findings of significant relationship between tone from the top, enterprise systems and culture as the pre-requisites for ERM effectiveness.

Given the above contradiction among literature, findings and the general intuitions in regards to the influence of the strategic role of ERM champion and the extent of employee involvement on ERM effectiveness, further probe were carried out to narrow down the discussions towards these variables which findings are discussed in the subsequent sections.

5.4.4.3 The Strategic Role of ERM Champion and Perceived ERM Effectiveness

Despite the research propositions, the findings from online survey suggest lack of associated relationship between the strategic role of ERM Champion and ERM effectiveness. To further clarify the findings, Section 5 of the interview protocol consists of questions in relation to the strategic role of the ERM Champion.

The non-risks participants were asked to state whose name comes to mind when the researcher was asked to name the ERM Champion for their company and all the nine non-risks interviewees has appropriately identified the CRO or the head of risks as the ERM Champion. Not all of them agree, though, that the identified Champion carries the necessary skill sets and the authority required to carry out their Champion role effectively. The interviewees from two companies questioned somewhat the effectiveness of the ERM Champion – on the basis that the ERM Champions in the companies lack the charisma and competencies to be visible in their role and ultimately to be in command and the driver for ERM change management initiatives. This is, however, not surprising because in the remaining instances the ERM Champion is merely the head of risks whose authority is diluted in the reporting structure when the position has to report to another senior management team. In Mars Berhad for example, the head of risks is only a senior manager and is reporting to the Senior General Manager, Planning. Interviews with the other participants from the same company suggest that despite the lack of recognition, Ms A is certainly a talent to retain. She appears to be competent and initiated various initiatives to promote risks management culture among the employees. According to Ms E, Ms A has a major influence on risks initiatives in Mars Berhad, that she was addressed as “Ms A Risks” among colleagues. one of the risk coordinators at Mars Berhad. When asked about Ms A’s influence, Ms C,

the head of internal audit responded:

“surely there is influence, of course, ...that’s why things are happening in terms of conferences, awards, circulars, e-mails sign-offs etc. I mean, there must have been some level of influence, if not things (all these events) wouldn’t have reached here (organised at Mars Berhad).”

This view is however not shared in Uranus Berhad. When interviewed, the audit counterparts questioned the effectiveness of the Head of Risks and further recommend for the recruitment of a credible CRO who will be reporting directly to the Chief Executive Officer of the company. Same as in the case of Saturn Berhad, whereby Ms K argues that given the specialised nature of the oil and gas industry, it is crucial for the ERM Champion of the company to possess some technical knowledge in order to be effective in what he does. In Jupiter, due to the company size, the CRO role is shouldered by the Chief Financial Officer and managed by a small risk management team supported the group risk management team.

The interview findings with the participants consisting of champions and non-champions revealed that champions displayed greater transformational, leadership behaviour to a significant extent than did non-champions. In addition, they initiated more influence attempts, and used a greater variety of human relations and communication skills than that of non-champions (Howell & Higgins, 1990).

Only three out of six companies included the role of ERM Champion in the C-suite by having a Chief Risks Officer alongside the Chief Executive Officer and the Chief Financial Officer. In Pluto Berhad, although the ERM Champion is only a manager, she reports directly to the CEO which reflects somewhat the recognition from the management team that risks management is under the responsibility of the highest person. When asked why the position was not a CRO, the response was that it is not

necessary because risk management activities in that company are quite stable and mature, hence no major risk surprises are actually expected. After all, being a multinational company which processes are monitored and controlled by the Singapore counterpart, the control and risk culture is already embedded in the mindset of the employee. This however, may not gel well with the rest of the employees who may perceive the lack of office position as lack of power and importance as far as risk management is concern.

The Chairman of the Board Risk Management Committee for Mars Berhad, Mr D, who is also the member of risks management committee for a couple other listed companies, Uranus Berhad and Jupiter Berhad, which are also participant organisations in the study, makes a general comparison of how risks are being managed at each of these three companies. While the fundamentals of ERM components are almost similar for all three, he recognised that each has a differing level of maturity and expertise both in appearance and in fact, in terms of risks management intelligence within the organisation.

Based on his seatings in various meetings of the three companies coupled with his formal and informal interactions, Mr D is of the view that the standards of ERM intelligence at Venus Berhad as impressed by Mr N (the CRO of Venus Berhad), is much superior compared to the other two companies. When asked why, he explained his views with the way the comprehensive risks overview he got from the reports of ERM Champion at Venus Berhad and the professed knowledge he has on facts and figures when it comes to the risks (at least the top ones) faced by Venus Berhad. One distinct characteristic of the ERM Champion among the three companies under comparison is that only the ERM Champion at Venus Berhad holds the position of CRO, which gives him the benefits of authority and autonomy that comes with the title.

Mr O, the Chairman of the Risk Management Committee at Marikh Berhad expressed a very crucial point whereby he submitted that the effectiveness of CRO himself is determined by his own credibility and command to drive and champion the ERM initiatives undertaken by the organisation. Based on the interviews conducted, Mr O seems to be very pleased and satisfied with the performance of his CRO as compared to Mr D, the chairman of the Risk Management Committee at Mars Berhad. This is further reflected in the lack of authority in respect to their ERM champion which is impressed upon the researcher by the other interview participants.

The above findings from the interview undoubtedly suggests that the strategic role of champion is only 'real' both in fact and in appearance if the position is recognised as a deserving a C-suite holder or even in its standing and credibility, if the position report directly to the risk management committee. In other words, the extent of the influence in the strategic role of the ERM Champion is determined much by the authority and autonomy of the person who carries the role.

Additionally, the need for a CRO is somehow not seen as important in the organisations under the qualitative study except for a couple of regulated companies, i.e financial institutions. Of the six companies which were investigated, it is learnt that only two have a chief risks officer.

Additionally, while all the participating organisations have a dedicated ERM unit, the ERM unit is not seen as effective due to the lack or authority of the person who heads the team. This explains its lack of moderating influence on the relationship between the factors under study and the perceived effectiveness of ERM in managing risks.

5.4.4.4 Employee Involvement and Perceived ERM Effectiveness

With regard to the employee involvement, all the organisations interviewed assigned the responsibility to the risk coordinator, who then compiled the risks information from the identification process to coming up with the mitigating action plans.

Quantitative data of the current study however show that there is no significant relationship between employee involvement and ERM effectiveness in managing risks, although based on the content analysis and semi-structured interview findings, all the participant organisations seem to be delegating down the tasks of identifying, assessing and ultimately mitigating risks to the risk champion or coordinator appointed at the divisional or unit level which is consistent with the theory of empowerment in its delegation sense (Burke, 1986). Practically all the interview participants acknowledged that the employees closest to the processes or the risks points are the best persons to carry out risk responsibilities effectively. The head of risks of Mars Berhad insisted that she and her risk teams is:

“only the facilitator in making sure that risks are being identified, assessed and monitored regularly and ultimately the mitigation actions being formulated and put into action when the risks is triggered”.

She contended that:

“in most events of risks materialising, time is critical and it is a matter of urgency that the appropriate employee reaction has to be impulsive. There won't be sufficient time for the risk units to be consulted and hence the need for employees to get involved and engaged in the risk management activities in the organisation. This will ensure that the employees know by heart what they are supposed to do in such loss or even life-threatening situation”..

When asked if employee involvement is crucial to an effective ERM, Mr P, the chief risks officer from Marikh Berhad, one of the major banks in Malaysia, responded using the analogy of the “three lines of defence” policy practised by the Bank – the first line of defence being the risk-taking units, the second one, risk-control units followed by internal audit as the final or third line of defence. The risk-taking units are the line management who are responsible for the day-to-day management of risks inherent in their business activities. The risk-control units, which are the second line of defence, are responsible for setting up risk management frameworks and developing tools and methodologies for the identification, measurement, monitoring, control and pricing of risk complemented by internal audit, which provides independent assurance of the effectiveness of the risk management approach. This is further echoed by Mr J, the head of audit of Saturn Berhad who explained that in his company:

“the first line of defence is the line management where the operations team right up to the head of the business units are the first line of defence to deal with the situations at hand, in this case any risk occurrences or uncertainties faced by the units. The second line of defence is the health, safety and environment team and other corporate offices such as human resources, corporate finance and corporate risks and finally, the third of line of defence is the internal and external auditors”.

For effective and efficient coordination between the first and second line of defence, risk coordinators are appointed for each division or business unit. The risk coordinators are responsible for coordinating all the risk management processes at the divisional level and ultimately prepare and update the risk registers on a regular basis. Facilitating the organisation and reporting of the risk registers is the risk department which sits in the second line of defence. Review by the internal auditor is performed on a regular basis to provide an independent assurance of the effectiveness of the risk

management approach.

While employee involvement is agreed by all the interviewee participants as an important element for ERM effectiveness, getting Malaysian employees to become involved has its own sets of challenges, mainly driven by culture. According to Ms A, unless probed and provoked, input and feedback from Mars Berhad employees is difficult to come by. Unlike their western counterparts, Malaysians are generally of the agreeable sort and introvert. Malaysians are also less open compared to the Americans (Mastor, Jin, & Cooper, 2000). Other barrier to getting employee engagement and commitment is the support from the superior. In all instances, the risk coordinators appointed at the business unit or departmental level has his or her main role in the organisation. In situations when resources are scarce, more often than not, risk management gets less priority by the middle management whom the risk coordinators report to.

To lift these barriers and to promote an open culture and to encourage employees' feedback, companies have developed a few initiatives. In Mars Berhad for example, the risks department organised events such as an annual risks conference and a risks day. The conferences and the risks day help to create awareness and to get buy-in from the heads of division, as well the employees. Among the highlights of the events is the sharing of best practices by the risk practitioners who are invited to give a talk during the conference. Such a sharing session is important to relay the importance and relevance of ERM in today's corporate world. Additionally, the event is attended by the board members as well as the senior management team as an emphasis of it being also in the agenda for the board and the senior management team. Additionally, the efforts and commitment by the risk coordinator alongside the head of the division is recognised through the best manager awards and the attractive prizes to the award winners just to create the reward for those who are actively involved in the ERM process. These

initiatives however, were not common in the other participating organisations which explained the lack of positive influence of employee involvement.

High scores of employee involvement is not a guarantee to the effectiveness of ERM in managing risks. One of the possible reasons could be the complexity of the business which will be elaborated in the subsequent discussions.

Figure 5.3 (on page 189) shows that both Venus Berhad and Saturn Berhad have a high employee involvement but somewhat low in ERM effectiveness. On the other hand Pluto Berhad, which gets low scores on employee involvement, perceived that its ERM practices are highly effective in managing risks. Upon further investigation, it was found that both Venus Berhad and Saturn Berhad are a group of diversified units with profit before tax of RM3.9 billion and RM40.7 billion and net assets of RM1.2 billion and RM10.2 billion, respectively. According to a statement in its annual reports, Venus Berhad is a:

“Malaysia-based diversified multinational involved in key growth sectors, namely, plantation, industrial equipment, motors, property and energy & utilities with a total workforce of 103,000 employees and presence in 26 countries around the globe.”

Similarly, Saturn Berhad is

“one of the world’s largest integrated oil and gas service and solution providers with principal business ranging from end-to-end services and solutions to the upstream petroleum industry covering activities such as engineering, construction, installation and commissioning of offshore pipelines and structures, provision of accommodation and support vessels, drilling services, topside maintenance services, underwater and diving services, geotechnical and geophysical services and project management through to development and

production. It has a total workforce of over 9,000 people coupled with global presence in over 20 countries including Malaysia, China, Australia, Middle East, America, Brazil and many more”.

Entities of such diversity and size inevitably is highly complex, hence imposing further hindrance to putting in place an effective ERM no matter how high is the level of employee involvement, hence explaining the non-association between employee involvement and ERM effectiveness in managing risks.

5.5 Summary

This chapter provides discussion for the results from the online survey campaign and the content analysis of the company annual reports and the semi-structured interviews. The detailed results of the online questionnaire, which includes the demographic and the ERM profile of the respondents, the descriptive analyses of the main variables (both dependent and mediating variables) followed by the descriptive analyses of the independent variables. Thereafter, the analyses between and among groups using t-tests and the analysis of variance (ANOVA) are presented and discussed to determine any significant difference in the selected demographic data which may have an influence on the variables under study. A few of the analyses show significant differences, suggesting further examination into the nature of the differences and how it may affect the findings of the study.

Partial Least Squares (PLS) techniques are used to determine the properties of the PLS measurement model followed by the hypotheses testing. The test of the mediation is based on the mediation condition by Hair et al. (2013).

The moderating influence of presence of CRO and the establishment of a separate ERM unit is tested using PLS by comparing the results of the different sub-groups of

data for each moderating variable.

On the whole, consistent with earlier predictions, the results of the current study found significant direct links between tone from the top, culture and enterprise system with ERM effectiveness in managing risks. There is also evidence of partial mediating influence of tone from the top on the relationship between culture and ERM effectiveness as well as between enterprise systems and ERM effectiveness. However, contrary to our propositions, there is no evidence of a direct link between mechanistic structure and ERM effectiveness. Neither is there any statistically significant relationship between strategic role of ERM Champion and ERM effectiveness, nor employee involvement and ERM effectiveness.

Additionally, the survey results show that the presence of CRO only has a moderating influence on the relationship between tone from the top as the driver for ERM effectiveness. On the other hand, establishment of a separate ERM unit shows no moderating effects at all on the relationship between the variables in the study and the effectiveness of ERM in managing risks.

The second part of the chapter provides discussion on the result from the semi-structured interviews and the content analysis of the publicly available data. The findings from the interviews and the content analysis generally confirmed the earlier propositions on the role of culture, structure, enterprise systems, tone from the top, strategic role of ERM Champion and employee involvement on the criterion variable, which is ERM effectiveness in managing risks.

Notwithstanding the general understanding, the lack of recognition on the role of ERM Champion as well as the complexity of the business of the respondents may have diluted the influence of ERM champion and employee involvement on ERM effectiveness, hence the non-association findings.

CHAPTER 6 DISCUSSION AND CONCLUSIONS

6.1 Introduction

This final chapter comprises six sections. The aim of this chapter is to conclude this dissertation. After this introduction section, the following Section 6.2 will summarise both the quantitative and qualitative findings and how these findings address the objectives of the current research. Thereafter in Section 6.3, research implications are discussed. The research implications are broken down into two parts: theoretical as well practical implications. Section 6.4 presents the limitations of the study. Section 6.5 outlines the directions for future research. The conclusion in Section 6.6 is the closure for the chapter.

As emphasised throughout this dissertation, the investigation on the perceived effectiveness of ERM in managing risks is lacking, let alone the investigation into the organisational factors and actors which can influence ERM effectiveness (Soin & Collier, 2013).

To narrow the gap, this study proposes a comprehensive model to blend both the organisational factors and actors and examines the relationship between these variables and the perceived effectiveness of ERM in managing risks.

Using contingency theory as the pillar theory aided by theories of power and empowerment, the study investigates the direct relationship between the organisational factors of culture, structure and enterprise systems, and actors of tone from the top, the strategic role of ERM Champion and employee involvement and perceived ERM effectiveness. Moreover, the current study seeks to examine the mediating role of tone from the top in the relationship between culture and ERM effectiveness and between enterprise systems and ERM effectiveness. Finally, the model in the study examines the

moderating influence of the categorical variables of CRO presence and a separate ERM unit.

In this Chapter Six, the concluding discussions on the findings are driven by five objectives for quantitative alongside four objectives for the qualitative part of this research. The qualitative study is undertaken to enhance the understanding on ERM practices, in general and to explain the rationale behind survey results, in particular. Specifically, RO3 and RO4 of the qualitative research for this study are designed to explain the rationale behind the lack of significant influence of the strategic role of ERM champion and employee involvement on ERM effectiveness.

During the initial stage, the following five research objectives were designed for the quantitative research of this study.

RO1: To investigate the level of ERM adoption and maturity in Malaysia.

RO2: To evaluate the level of perceived ERM effectiveness in managing risks.

RO3: To investigate whether there is any direct relationship between the organisational factors, namely culture, structure and enterprise systems and actors namely, tone from the top, strategic role of ERM Champion and employee involvement and perceived ERM effectiveness in managing risks.

RO4: To examine whether tone from the top mediates the relationship between culture and perceived ERM effectiveness and between enterprise systems and perceived ERM effectiveness in managing risks.

RO5: To examine whether CRO presence and the establishment of a separate ERM unit moderates the relationship between the organisational factors and actors and the perceived ERM effectiveness in managing risks.

Subsequently, the following five research objectives were designed for the qualitative study to find the explanation behind some of the findings from the survey:

RO1 (qualitative): To understand the general ERM practices in Malaysian public companies.

RO2 (qualitative): To confirm the quantitative findings in regards to the factors that can influence perceived ERM effectiveness in managing risks.

RO3 (qualitative): To investigate the influence of the strategic role of ERM Champion on perceived ERM effectiveness in managing risks.

RO4 (qualitative): To investigate the influence of employee involvement on perceived ERM effectiveness in managing risks.

6.2 Discussions of Findings

Data collected from Malaysian public listed companies is used to test the hypotheses developed for this study. The online survey which ran for a period of six weeks generated 186 respondents, were later reduced to 144 usable responses after removing the multiple respondents and companies that had not implemented ERM.

In addition, content analysis in the form of a review of the company's annual audited accounts, particularly the Statement of Risk and Internal Control, as well as semi-structured interview were carried out to gain further insight and in-depth understanding of the subject, particularly in justifying the unexpected findings from the survey. A total of six companies participated in the interviews. The selected companies had a combination of high/low ERM effectiveness and strategic role of ERM champion as well as high/low ERM effectiveness and extent of employee involvement participated in the interview. These companies are represented by sixteen individuals consisting of members of the board, senior management, managers and executives with varying roles and responsibilities in relation to ERM.

6.2.1 Summary of Research Objectives (Quantitative and Qualitative)

The research objectives for both quantitative and qualitative data and the relevant hypothesis, findings as well as conclusion are summarised on Table 6.1.

Table 6.1: Summary of Research Objectives, Hypotheses and Findings

Research Objectives (Descriptive)	
RO1: To investigate the level of ERM adoption and maturity in Malaysia.	
Findings	Conclusion
Out of the 156 respondents, 82 companies (or 52.6%) submitted that ERM is the integral part of the organisation, followed by 46 (or 29.5%) which is in the process of implementing a complete ERM. 25 companies (or 16%) are considering or planning to implement a complete ERM. Only 3 out of 156 companies do not plan to implement ERM at all.	The level of ERM adoption and maturity is moderately high. Overall, 73% has evidence of ERM implementation. More than half (53%) have adopted a complete ERM in the workplace.
RO2: To evaluate the level of perceived ERM effectiveness in managing risks.	
Findings	Conclusion
Only 48 companies (or 33.3% of the respondents) perceived ERM as highly effective in managing risks followed by 49 others (or 34%) which have medium scores. The remaining 47 companies (or 32.6%) have low scores in regard to perceived ERM effectiveness in managing risks.	Based on the findings, majority or 67.3% of the respondents perceived ERM as moderately or highly effective in managing risks.

Table 6.1: Summary of Research Objectives, Hypotheses and Findings (continued)

Research Objectives (Quantitative)		
RO3: To investigate whether there is any direct relationship between the organisational factors, namely the organisational culture, structure and enterprise systems and actors namely, tone from the top, strategic role of ERM Champion and employee involvement and perceived ERM effectiveness in managing risks.		
Hypothesis	Findings	Conclusion
H1: There is a significant positive relationship between organisational culture and perceived ERM effectiveness in managing risks.	Supported	Empirical evidence indicates that culture, enterprise systems and tone from the top has a significant positive relationship on ERM perceived effectiveness in managing risks. However, the same is not reflected in the relationship between structure, strategic role of ERM Champion and employee involvement and perceived ERM effectiveness. In addition, the empirical evidence confirms the significant relationship between culture and tone from the top as well as between enterprise systems and tone from the top.
H2: There is a significant positive relationship between organisational culture and tone from the top.	Supported	
H3: There is a significant positive relationship between organisational mechanistic structure and perceived ERM effectiveness in managing risks.	Not supported	
H4: There is a significant positive relationship between enterprise systems and perceived ERM effectiveness in managing risks.	Supported	
H5: There is a significant positive relationship between enterprise systems and tone from the top.	Supported	
H6: There is a significant positive relationship between tone from the top and perceived ERM effectiveness in managing risks.	Supported	
H7: There is a significant positive relationship between the strategic role of ERM Champion and perceived ERM effectiveness in managing risks.	Not supported	
H8: There is a significant positive relationship between employee involvement in risk management activities and perceived ERM effectiveness in managing risks.	Not Supported	

Table 6.1: Summary of Research Objectives, Hypotheses and Findings (continued)

Research Objectives (Quantitative)		
RO4: To examine whether tone from the top mediates the relationship between culture and perceived ERM effectiveness and between enterprise systems and perceived ERM effectiveness in managing risks.		
Hypothesis	Findings	Conclusion
H9: Tone from the top mediates the relationship between organisational culture and perceived ERM effectiveness in managing risks.	Supported - partial mediation	Empirical evidence indicates partial mediating effects of tone from the top in the relationship (a) between culture and perceived ERM effectiveness and (b) between enterprise systems and perceived ERM effectiveness.
H10: Tone from the top mediates the relationship between enterprise systems and perceived ERM effectiveness in managing risks.	Supported - partial mediation	
RO5: To examine whether CRO presence and the establishment of a separate ERM unit moderates the relationship between the organisational factors and actors and perceived ERM effectiveness in managing risks.		
Hypothesis	Findings	Conclusion
H11: Presence of CRO moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks.	Supported for tone from the top	Empirical evidence indicates that presence of CRO moderates only the relationship between tone from the top and perceived effectiveness in managing risks.
H12: A separate ERM unit moderates the relationship between the organisational variables and perceived ERM effectiveness in managing risks.	Not supported	

Table 6.1: Summary of Research Objectives, Hypotheses and Findings (continued)

Research Objectives (Qualitative)	
Research Objectives	Conclusion
RO1 (qualitative): To understand the general ERM practices in Malaysian public companies	There were a number of similar themes such as setting up of a board risk management committee, appointment of risk coordinator, regular risk review cycle, etc. yet each are different in many ways.
RO2 (qualitative): To confirm the quantitative findings in regards to the factors which can influence perceived ERM effectiveness in managing risks.	Except for structure, generally, interview participants concurred on the model proposing the positive relationship between the organisational factors (which consists of culture and enterprise systems) and the perceived ERM effectiveness as well as the relationship between the internal human agencies (which consists of tone from the top, strategic role of ERM Champion and employee involvement) and the perceived ERM effectiveness.
RO3 (qualitative): To investigate the influence of the strategic role of ERM Champion on perceived ERM effectiveness in managing risks.	<p>Out of the six participating companies, only three has its ERM Champion as part of the senior management team. There were also questions raised on the skill sets and the authority of the champion. Bear in mind, Not many companies has CRO (only 43% has a CRO) and only 31% of them is regarded as the ERM champion. It could be that the role is not considered crucial within the organisation (see Table 5.4)..</p> <p>The lack of the association between the strategic role of the champion and ERM effectiveness can be explained by the lack of power from the lack of title and lack of skills which is explained by the theory of power. They are not part of the management team. They have limited access to the management team.</p>
RO4 (qualitative): To investigate the influence of employee involvement on perceived ERM effectiveness in managing risks.	<p>Our interview findings suggests two rationale behind the non-association.</p> <p>First, business complexity hinders the positive impact from employee involvement.</p> <p>Second, The scope and the motivations behind the risk coordinators varies from coordinating for the sake of compliance to one who is so committed and dedicated.</p> <p>The nature of ERM which is very formalised and procedural limits one's ability to get more involved. The lack of motivations on the part of the risk coordinators and ultimately the employees can be due to the failure of empowering in its enabling sense (from lack of awareness and from poor lack of authority). As a results, employees are demotivated to accomplish task objectives (Ogboro&Obeng, 2000) which is key to ERM effectiveness.</p>

Accordingly, the following Figure 6.1 presents the research model for this research. The first eight hypotheses tested the direct relationship between the variables. Hypotheses 9 and 10 tested the mediating role of tone from the top in the model. Finally, hypotheses 11 and 12 examined the moderating role of CRO and a separate ERM unit.

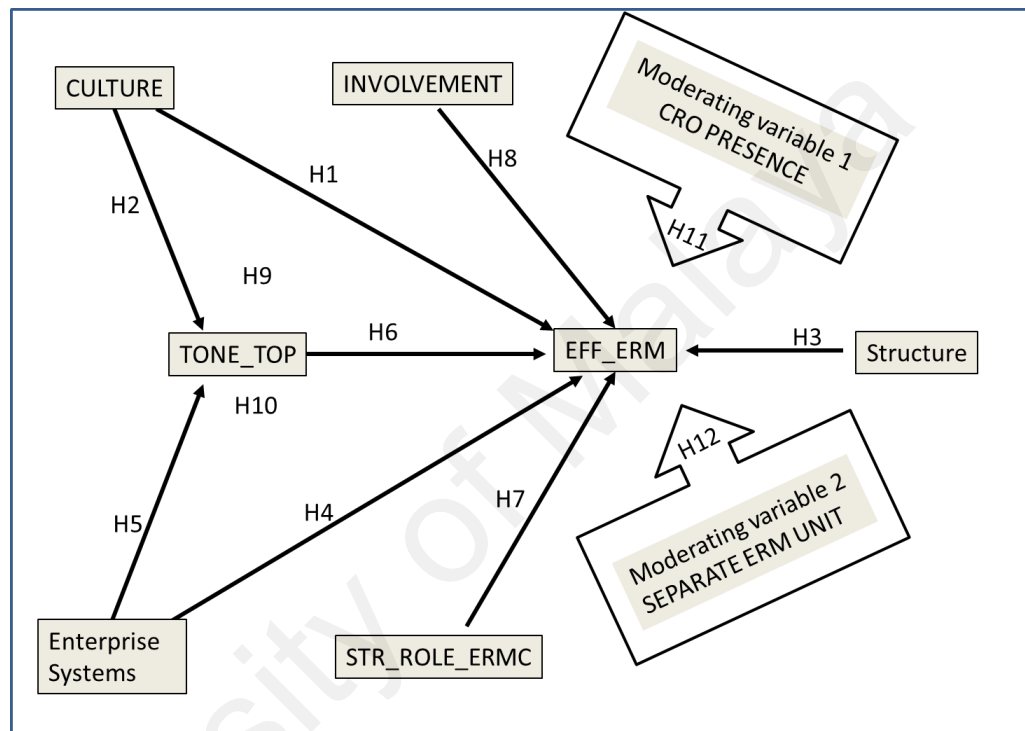


Figure 6.1: The Research Model of the Study

6.2.2 Research Objectives (Quantitative and Qualitative) Revisited

The current section reports the quantitative findings in relation to the research objectives. Where applicable, the findings from qualitative study are also discussed to enhance the understanding on ERM practices, in general and to explain the rational behind survey results, in particular.

For the purpose of this research, quantitative data consists of data from (i) content analysis of keyword search and (ii) 144 online survey respondents. Qualitative methods consist of (i) content analysis in the form of a review of the company's annual audited

accounts, particularly the Statement of Risk and Internal Control, as well as (ii) semi-structured interview. These qualitative methods were carried out to gain further insight of the subject, particularly in justifying the unexpected findings that are contrary to the general expectation and with the literature.

6.2.2.1 Research Objective 1

RO1: To investigate the level of ERM adoption and maturity in Malaysia.

In terms of the level of ERM adoption, more than half of the respondents (52%) indicated that ERM is an integral part of the (strategic) planning and control cycle, implying a complete implementation of ERM which is embedded in the planning and control process of the entity. In comparison, a similar survey conducted in Malaysia in 2008 on 89 companies and in 2009 on 817 organisations headquartered in the Netherlands indicate that 42% (Wan Daud et al., 2010; Wan Daud, 2011) and 11% (Paape & Speklé, 2012) respectively, of the respondents has reached such a level of ERM adoption as compared to 53% in the current study – see Table 6.2. Additionally, there were only 2% in the current study that have no plans to implement ERM as compared to 14% and 3% in the Netherland study and 2008 Malaysian study, respectively.

Comparison between the level of adoption between the current findings and the earlier study conducted in 2008 show a fairly reasonable increase with 82 companies, stating that ERM is an integral part of the organisation in 2014 as compared to 37 in 2008. Despite the difference in the sampling size and method, one is not doing injustice to construe that there is still much to be done to encourage ERM practices in this part of the world.

Table 6.2: Comparative Analysis on the Level of ERM Adoption

Years of Survey/ Categories	2008 ¹		2009 ²		2014 ³	
	Frequency	%	Frequency	%	Frequency	%
No plans to implement ERM.	3	4	114	14	3	2
Considering to implement a complete ERM.	12	14	318	39	10	6
Planning to implement a complete ERM.	4	5	192	24	15	10
In the process of implementing a complete ERM.	33	36	102	12	46	29
ERM is an integral part of the organisation.	37	42	91	11	82	53
Total	89	100	817	100	156	100

1 - Mail survey among Malaysian public listed companies (Wan Daud et al., 2010; Wan Daud, 2011)

2 - Mail survey among companies headquartered in Netherlands (Paape & Speckle, 2012)

3 - Online survey among Malaysian public listed companies with evidence of ERM adoption in the annual report (this survey)

In terms of ERM maturity, more than half of the 156 respondent organisations (59.0%) have implemented ERM for more than four years. This high level of adoption reflects the high level of ERM implementation among Malaysian PLCs despite its introduction merely a decade ago. Down in the list are another 24.4% and 8.3% which have implemented ERM for more than three years but less than four years and more than two years but less than three years, respectively – See Table 5.4 on page 148. The remaining 8.3% of the companies stated that they are not implementing ERM.

The level of ERM adoption is driven by a number of factors. The main factor is costs. Prior to enjoying the benefits, there is a costs or ‘investment’ (Makarova, 2014) attached in the implementation of ERM which poses obstacles to smaller companies in implementing ERM. In many initial roll-out instances, external consultants were engaged to support the ERM set-up processes (Makarova, 2014) due to lack of internal know-how in risk management. The consultation fee is far from negligible because of the specialised nature of the field and the need to fit into the unique characteristics of the company. Additionally, once implemented, the need for regular update entails for dedicated risk officers to be hired and preferably a separate ERM unit to be set up. This places further load on the operating expenses, not to mention the small and limited risks

talents which pose challenges in hiring the right risks team. As it stands, ERM is considered by many as the additional back-room effort whose benefits are neither tangible nor quantifiable.

The other important factor to improve the adoption rate is regulations (solvency and corporate governance). Study suggests that without strong enforcement by the regulators, companies might not have ERM or at least not implemented in such a speedy manner (Acharyya & Johnson, 2006). This is further supported by the current findings that companies in the finance industry, which is known for its stringent regulations, recorded the highest number of ERM adopters of 68% of the total industry followed by the companies in the industrial products industry. This high adoption rate in the finance industry is consistent with the common view that the finance industry, given its tight regulatory environment and a relatively more stable ERM practice compared to other industries (Liebenberg & Hoyt, 2003; Beasley et al., 2005a; Pagach & Warr, 2007; Wan Daud, 2011; Wan Daud et al., 2011). On the same basis, the lack of ERM guidance and regulations could well explain the reason for the remaining companies which has yet to implement ERM. Unlike in developed countries where ERM is more mature based on the development and evolution of the standards and frameworks governing ERM, local guidances for ERM is still lacking. Bursa Malaysia's move to introduce risk management in its 2013 guideline is already a huge step despite taking too long to react. Needless to say, despite 'borrowing' parts of ERM 2004 framework in its blueprint, the Bursa Malaysia guideline is not too open to encourage companies to implement ERM specifically rather refer to risk management in its broader perspective.

6.2.2.2 Research Objective 2

RO2: To Evaluate the Level of Perceived ERM Effectiveness in Managing Risks.

The total scores for the perceived effectiveness of ERM are also analysed by identifying the scores for low-, medium- and high-perceived effectiveness based on three broad levels of effectiveness namely poor (≤ 33.3), sufficient (33.4 - 66.6) and excellent (≥ 66.7). The descriptive analysis of these scores on Table 5.4 (on page 148) showed that 34.0% of the respondents perceived its ERM effectiveness in managing risks as sufficient followed by 33.3% who believe that the level ERM effectiveness in their organisations is excellent. According to the COSO (2004) framework, an excellent ERM addresses the upside opportunity associated with any events and mitigates the downside of the negative outcomes which comes with it. The remaining 32.6% considered that ERM in the workplace is poor in terms of its ability to manage risks faced by the organisation.

6.2.2.3 Research Objective 3

RO3: To investigate whether there is any direct relationship between the organisational factors namely the organisational culture, structure and enterprise systems and actors namely, tone from the top, strategic role of ERM Champion and employee involvement and perceived ERM effectiveness in managing risks.

Eight hypotheses were tested under RO1, namely H1, H2, H3, H4, H5, H6, H7 and H8. H1, H3 and H4 propose a positive relationship between the organisational factors consisting of culture, structure and enterprise systems and perceived ERM effectiveness. On the other hand, H6, H7 and H8 predict a positive influence of the organisational actors namely tone from the top, strategic role of ERM Champion and

employee involvement on perceived ERM effectiveness in managing risks. H2 and H5 hypothesise the association between culture and tone from the top and between enterprise systems and tone from the top, respectively.

Based on the empirical results, the main contingent variable for predicting perceived ERM effectiveness is tone from the top, which explained 58.4% of the variances in the dependent variable, followed by enterprise systems and organisational culture, with each contributing 14.8% and 14.7%.

While the above findings are consistent with the generally accepted views, the empirical evidence did not indicate any significant relationship between the remainder of the contingent factors in the research model and perceived effectiveness. These variables are organisational structure, strategic role of ERM Champion and employee involvement.

Specifically, H1 predicts a positive relationship between organisational culture and perceived ERM effectiveness in managing risks. Consistent with the findings from the only study which investigates the influence of culture on ERM implementation by Kimbrough and Compton (2009), the current study found empirical support for the hypothesis ($\beta = 0.147$, $p < 0.05$). The findings support the general notions that cultural barriers are the most critical challenges in ERM implementation (Muralidhar, 2010; Altuntas et al., 2011).

H2 proposes that culture has a positive influence on the tone from the top. Empirical evidence in this study showed a significant positive relationship between culture and tone from the top ($\beta = 0.289$, $p < 0.01$). These findings provide support for existing literature regarding the role of culture to motivate desire in employees (in this case, to motivate support from the top) to eventually embrace and become engaged in the changes (A. Hartmann, 2006). This is also consistent with the general understanding

on the role of organisational culture in defining the values and shaping the behaviour of the members of the organisation (Cooke & Lafferty, 1989; Cameron & Quinn, 1999) including the top management team.

In H3, a positive relationship between mechanistic structure and perceived ERM effectiveness is proposed. Despite the study by Arnold et al. (2011), which found a strong link between the effectiveness of ERM processes and organisational structure, namely its strategic flexibility which implied organisational reactivity to new regulatory mandates, the empirical evidence in the current study suggested otherwise.

The possible explanation behind such contradiction is threefold. First of all, contingency theory suggests that the design of the organisational structure is contingent upon the demands of the external environment namely market, technology etc (Lawrence & Lorsch, 1969). Additionally the extent of influence of these demands is found to be greater in high-performing as compared to low-performing firms (Reimann, 1974). Greater independence and freedom which is akin to organic organisation seem to be the themes enjoyed by high-performing firms which has higher likelihood to implement ERM (Gordon et al., 2009; Pagach & Warr, 2010; Gates et al., 2012; Lin et al., 2012; Nickmanesh et al., 2013). On the other hand, our hypothesis predicts a positive association between mechanistic organisations and the integrated measures to managing risks (C. L. Lee & Yang, 2011). Such a paradoxical combination between the likelihood of high-performing firms to implement ERM and between mechanistic organisations and ERM may be the possible reasons for the lack of association.

Secondly, recent literature suggests that modern organisations are much more dynamic and adaptive – they can take the form of mechanistic or organic structure depending on the situation. According to this new school of thought, successful firms are ambidextrous, aligned and efficient, meeting business demands while being

receptive and adaptive to changes in the environment (Duncan, 1976; Gibson & Birkinshaw, 2004). Based on these scholars, to be ambidextrous, organisations have to reconcile the internal tensions and conflicting demands in their task environments instead of trading it off in the earlier studies. Duncan (1976) put forward an idea of dual-structure for businesses to fit into the dynamic business environments, whereby implementation of administrative innovations such as activity-based-costing works well in mechanistic organisations, while technical innovations work well in organic organisation (Gosselin, 1997). Drawing from these findings from Gosselin (1997) and the dual-structure view by Duncan (1976), inferences are made that in the beginning stage of ERM implementation, being akin to administrative innovation, the organisation will take the form of mechanistic structure. As ERM implementation in the organisation eventually matures, the set-up will adapt to the organic-type structure to facilitate the innovative ideas from the team. Based on these premises, the differing state of ERM maturity of the respondents and hence the type of structure which can influence ERM effectiveness, could possibly be the justifications for the non-association between organisational structure and perceived ERM effectiveness as suggested by the current empirical evidence.

Thirdly, the insignificant relationship could also be due to the lack of clear distinction as to whether ERM is a top-down vs an emergent programme. The level and maturity of ERM implementation in the companies under study varied from being in its first year or in the midst of implementation, to greater than five years or being embedded in its processes. Therefore, it could well be top down emergent change in the beginning and became an innovation as it matures.

H4 hypothesises that enterprise systems and perceived effectiveness of ERM in managing risk are positively related. The general expectation of enterprise systems being a critical driver for an effective ERM is substantiated by the results of the current

study. The positive association is evidenced between a highly integrated system and the perceived effectiveness of ERM in managing risks ($\beta = 0.148$, $p < 0.01$). The current finding is consistent with the study on the effectiveness of risk management guideline issued for the local authorities in the UK. The UK study reveals that due to the large amount of data involved, use of a computer-based system would be ideal (Crawford & Stein, 2004). Similarly, Levine (2004) asserts that from an implementation perspective, the information needs of ERM necessitate the availability of IT systems that provide a true, unified picture of risk across the organisation.

H5 proposes a positive relationship between enterprise systems and tone from the top. Analysis of data conducted from the online survey supports the hypothesis ($\beta = 0.356$, $p < 0.01$). The results indicate that an integrated systems supports flow of information, in particular in respect of the relevant initiative, to the management team and will in turn kindle the support towards that particular initiative. This information can be with regard to the progress or success of the initiative or any other information that may trigger supports towards such an initiative.

Positive influence of tone from the top on perceived ERM effectiveness in managing risks is predicted in H6. The results from the current quantitative analysis ($\beta = 0.584$, $p < 0.01$) are consistent with the findings of Kaplan and Mikes (2012) and Lam (2000). Such findings suggest that the project team should get support and buy-in from the management prior to ERM implementation. Top management that sets the right tone with regard to ERM will ensure the effectiveness of ERM in managing risks.

In H7, the positive association between the strategic role of ERM Champion and perceived ERM effectiveness is proposed. The findings from the current study are somewhat contrary to the views that strong influence of autonomy associated with risk management function especially in time of crisis (Kaplan & Mikes, 2012) is indeed

crucial and that the role of ERM Champion is moving away from a risk controller to a strategic business advisor (Mikes, 2008). The findings are also inconsistent with that of Wan Daud et al. (2010) who found a positive relationship between quality of CRO and level of ERM adoption.

Such findings raised an intriguing concern on the status and position of ERM Champion in the organisational hierarchy, particularly in developing markets. The insignificant association may suggest one of the following. Firstly, it could be that unlike the strategic recognition received by its counterparts in developed countries such as the US, UK and Canada, the role of ERM Champion and/or CRO in this region is still perceived as a risk controller and not as a strategic business partner. Secondly, it could also indicate the absence of a full-time ERM Champion within the organisation. Based on the descriptive statistics in Table 5.4 (on page 148) that 69.2% of the champions are other than the CROs, implying that they are playing a dual role in the organisation hence suggesting possible lack of priorities placed on ERM initiatives. Such a dual role played may also have led them to “go native”, becoming deal makers rather than deal questioners (Kaplan & Mikes, 2012). The same could also imply that the image of the ERM Champions with regard to ERM is overshadowed by their so-called primary role within the organisation as the CEO or the CFO.

To further understand such non-association, in-depth semi-structured interviews were conducted with the aim **of investigating the influence of the strategic role of ERM champion on perceived ERM effectiveness in managing risks - RO3 (qualitative)**. The interview findings of sixteen interview participants from six organisations indicate that, where the CRO is tasked to be the ERM Champion, often he or she is not part of the management team. Although the function reports directly to the audit committee or the head of governance, their responsibility is confined to risk-related matters. In these instances, their personnel grade is not senior enough to give

them the authority they require to carry out their function more effectively. Not only that, the limited access to the management team deprive them of the strategic decisions and directions of the company which then restricts their ability to advise the management team accordingly in the risks that may exist in the strategic ventures of the company. Moreover, the quality and competency of the ERM champion is also being questioned as they do not possess the calibre and the required skills and expertise in regards to ERM. Not to mention the limited exposure as perceived by the interviewees especially from abroad. Out of the six ERM Champions interviewed, only two have an international stint in their credentials.

The above observational findings signify the absence of a high-level structural position (French et al., 1959) and the restricted access to high-level information (Bacharach & Lawler, 1980) – both of which indicate lack of principal sources of power. According to Conger and Kanungo (1988), theory of power suggests that organisational actors who lack power are less likely to generate the desired outcomes as the impact of their efforts is being thwarted by those with more power. This could well be the reasons why there is no significant evidence to support the association between the strategic role of ERM Champion and the effectiveness of ERM in managing risks.

Another objective of collecting qualitative data in this study is to understand the rationale behind the lack of relationship between employee involvement and perceived ERM effectiveness as hypothesised in H8. Specifically, RO4 (qualitative) is aimed **to investigate the influence of employee involvement on perceived ERM effectiveness in managing risks - RO4 (qualitative)**. Here, the interview findings suggest that the general practice of the respondent organisations is to appoint a risk coordinator, the scope and the motivations behind the risk coordinators varies from coordinating for the sake of compliance to one who is so committed and dedicated towards implementing ERM. The lack of motivation on the part of the risk coordinators and ultimately the

employees can be due to the failure of empowering in its enabling sense. Employee participation is suggested to be one of the strategies in the empowerment process (Conger & Kanungo, 1988) to motivate employees to generate the desire to accomplish task objectives. However, if such strategy, which is in this case employee involvement in ERM activities, fails to generate that persisting behaviour to attain the objectives of managing risks, it could well be at the expense of ERM effectiveness.

Another possible explanation is the complexity of the business which poses challenges to implement an effective ERM. To support this, the interview findings from two participating organisations, each with a contrasting combinations of high employee involvement but somewhat low in ERM effectiveness (Venus Berhad) and the other with low employee involvement but high ERM effectiveness (Pluto Berhad) were compared. Our investigations revealed that the diversified, highly complex and large size of Venus Berhad in itself was a challenge to putting in place an effective ERM no matter how high was the level of employee involvement. On the other hand, Pluto Berhad with a matured and stable market demonstrated a highly effective ERM despite the low employee involvement.

6.2.2.4 Research Objective 4

RO4: To examine whether tone from the top mediates the relationship between culture and perceived ERM effectiveness and between enterprise systems and the perceived ERM effectiveness in managing risks.

Findings from the current study show significant direct relationship between the organisational culture and the perceived effectiveness of ERM (H1) and between enterprise systems and perceived ERM effectiveness (H4). For RO4, two hypotheses predicting the mediating role of tone from the top on the proven direct association are

tested. Accordingly, H9 hypothesises the mediating role of tone from the top in the relationship between culture and perceived ERM effectiveness. H10, examines the mediating role of tone from the top in the relationship between enterprise systems and the perceived effectiveness of ERM in managing risks.

Attempts were made by Huigang et al. (2007) to explain how top management mediates the impact of external institutional pressures on the degree of usage of enterprise resource planning (ERP) systems. The study highlights the important role of top management in mediating the effect of institutional pressures on IT assimilation. According to the study, tone or support from the top can be in the form of its own involvement or in the form of allocating the organisational resources. L. Barton (2001) suggests that the top management need to identify, anticipate and eventually manage the crisis, risks or uncertainties – even to prepare formal standing procedures as a guideline to the rest of the organisation. Support from the management is attested from the allocation of resources on the recruitment of a dedicated role and unit to drive ERM, training and education as well as the facilitation of a conducive environment (Lucas, 1981) for ERM to be effective.

Specifically, the current study proposed that support from the top will facilitate the establishment of the right culture. This in turn generates the right element and degree of bureaucratic, innovative and supportive measures towards the successful and effective ERM in managing risks. Similarly, support from the top is anticipated to be reflected in the enterprise systems implementation which ultimately generates a favourable effect on ERM effectiveness.

Results of the tests conducted on H9 indeed show that tone from the top has a significant mediating influence between culture and ERM effectiveness ($\beta = 0.168$, $p < 0.00$) with 53.5% of the relationship between culture and ERM effectiveness being

explained by the mediator. Such size of strength in the mediating influence is said to be partial mediation (Hair et al., 2013).

H10 predicts the mediating role of tone from the top in the relationship between enterprise systems and ERM effectiveness in managing risks. The empirical findings confirmed that tone from the top indeed has a significant mediating influence on the variables concerned ($r = 0.208$, $p < 0.00$) (Hair et al., 2013) with 58.5% strength as measured by the Variance Accounted For (VAF). In this case, the mediating influence is said to be partial. Partial mediation implies that there is not only a significant relationship between the mediator and the dependent variable, but also some direct relationship between the independent and dependent variable.

6.2.2.5 Research Objective 5

RO5: To examine whether CRO presence and a separate ERM unit moderates the relationship between the organisational factors and actors and the perceived ERM effectiveness in managing risks.

RO5 attempts to investigate the moderating role of CRO presence (H11) and a separate ERM unit (H12) in the relationship between the variables.

While previous studies indicate that the presence of CRO and the establishment of a separate ERM unit is positively associated with the level of ERM adoption, researchers have yet to investigate the moderating effect of the two variables on the relationship between the factors and perceived ERM effectiveness in managing risks.

Based on the full SmartPLS analysis, it is evident that the relationship between tone from the top and ERM effectiveness is higher for companies with CRO (H11). This is consistent with the implied understanding that the appointment of a CRO is one of the

strongest indicators of ERM employment in the organisation (Kleffner et al., 2003; Beasley et al., 2005a; Wan Daud et al., 2010; Pagach & Warr, 2011; Yazid et al., 2011). This is further reinforced by Kaplan and Mikes (2012) who suggested that for risk management practices to be effective, a separate function, in this case, CRO, to handle strategic and external risks management is necessary. The presence of a quality CRO (Wan Daud et al., 2010) as well as a separate and dedicated ERM unit undoubtedly facilitate to a great extent the ERM implementation and ultimately its effectiveness in the workplace as the CRO and his or her team seek for support from among the management and employees, to develop the ERM guidelines and processes as well as coordinate the activities resulting therefrom. Simply put, having such a sponsor will eventually moderate positively the relationship between the predictors and ERM effectiveness.

However, unlike the presence of a CRO, the moderating influence of a separate ERM unit is not evidenced in the current empirical analysis. Such lacking in the moderating influence reflects the lack of association between a separate ERM unit on perceived ERM effectiveness in managing risks. This missing link somewhat contradicts Lam (2009) who argues that greater impartiality of the risk management function is a factor for an effective ERM implementation. The rationale behind such lack of moderating influence is twofold. First, there were already successful instances especially in smaller organisations whereby ERM is driven by other key executives in the organisation, more commonly by the chief executive officer (CEO), the internal auditor (de Zwaan et al., 2011) or the chief financial officer (CFO) (Bloxham & Borge, 2006) and without a separate ERM unit. These executives undoubtedly possess the right skills and competency to perform the role of ERM champion in a smaller set-up in which business uncertainties and complexities are not as varied and as huge as their bigger counterparts. Second, the lack of expertise and skills in the ERM unit in itself

can lead to the failure of the ERM unit to be effective in their role in driving ERM implementation in the workplace as suggested by another Malaysian study done recently (Yusuwan et al., 2008).

The lack of a strong moderating influence of the CRO presence and a separate ERM unit not necessarily imply the trivial impact of both. The insights however, offer good news to smaller companies, which may not have the resources and allocation to hire a dedicated person and unit or due to the less complex nature of the business. To smaller entities, it means they can still implement an effective ERM despite not having a CRO or a separate ERM unit.

6.2.2.6 Research Objectives 1 & 2 (Qualitative)

The following Section 6.2.2.6 and Section 6.2.2.7 address the two other objectives for the qualitative study.

RO1 (Qualitative) : To understand the general ERM practices in Malaysian public listed companies.

During the interview, participants were also asked to describe the ERM practices within the organisation they represented. To understand the processes better, the researchers also performed a content analysis of the participants' annual reports, particularly the statement of risks and internal controls and verified the facts with the participants during the interview. The data collected from both approaches were then compiled and summarised. Based on the data collected, it can be generally concluded that while there are many common themes for ERM practices among the companies, there are also pertinent differences subject to the specifics and the contexts of the organisation within which it operates – see also Appendix F.

6.2.2.7 Research Objective 2 (Qualitative)

RO2 (Qualitative): To confirm the quantitative findings with regard to the factors that can influence the perceived ERM effectiveness in managing risks.

All the interview participants agreed on the need for organisations to implement ERM in order to manage risks more effectively as compared to the traditional approach. Except for structure, generally, they concurred on the model proposing the positive relationship between the organisational factors (which consists of culture and enterprise systems) and the perceived ERM effectiveness as well as the relationship between the internal human agencies (which consists of tone from the top, strategic role of ERM Champion and employee involvement) and the perceived ERM effectiveness.

On the whole, the interview participants were generally in agreement with the strong influence of tone from the top, culture and enterprise systems on the ERM effectiveness in managing risks; they were equally intrigued by the findings that the other variables, namely the strategic role of ERM Champion, employee involvement, CRO presence and the establishment of a separate ERM unit do not have a significant association in the relationships.

6.3 Implications of Study

6.3.1 Knowledge Implications

Like any other, the main implication of this study is the addition to the body of knowledge. Investigation into ERM effectiveness research based on our analysis has been scant. In addition, none of the existing ERM effectiveness studies actually examined the influence of both the organisational factors and actors on ERM effectiveness. Largely, the technical aspects of ERM adoption and implementation dominate the current state of knowledge in ERM. To recap, the more common research

themes are namely the financial characteristics of firms which adopted ERM (e.g. Pagach & Warr, 2011; Lin et al., 2012), the determinants for adoption (e.g. Beasley et al., 2005a; Paape & Speklé, 2012), the ERM impact on firm's value and performance (e.g. Gordon et al., 2009; Gates et al., 2012) and the support of senior management such as the Chief Risk Officer (CRO) (e.g. Beasley et al., 2007; Mikes, 2008), Board of Directors (BOD) (e.g. Wan Daud et al., 2011; Yazid et al., 2011) and internal audit (e.g. I. Fraser & Henry, 2007; de Zwaan et al., 2011) and the implementation of ERM in organisation (e.g. Arena et al., 2010; Tekathen & Dechow, 2013). Without belittling the contribution of these studies, which offer important insights into the factors and extent of ERM adoption and its value proposition, they do not necessarily imply that ERM is effective in managing risks. Neither have they investigated the factors that drive ERM effectiveness in managing risks.

The second implication is in the application of multiple theories in its attempts to develop a comprehensive model that investigates both the organisational and human settings to provide explanations with regard to the effectiveness of ERM in managing risks. Such a blend of the two themes is also the highlight of this study because to the best of the researchers' knowledge, none of the literature thus far has this area covered and investigated. In light of the dual nature of the variables namely the elements of the organisational settings as well as the organisational actors, this study is premised upon contingency theory, together with the theories of power and empowerment. In other words, the current study submits that the effectiveness of ERM in managing risks is contingent upon the presence of the contingent factors comprising both the organisational settings and the power and empowerment of the organisational actors.

The fundamentals of contingency theory suggest that the choice of an appropriate (or fit) and effective systems is contingent upon the circumstances surrounding a specific organisation (Otley, 1999) and using the same logic, the effectiveness of ERM

akin to any management system will also depend on the context of the organisation in which it operates. The theory is further reinforced by the COSO (2004) framework which suggests that two organisations should not have similar ERM specifics and may vary in accordance with the organisational contexts.

Additionally, theories of power and empowerment are also deployed in this study to explain the conduct and influence of the organisational actors namely top management, ERM champion as well as employees in regards to ERM effectiveness. Theory of power in the current study suggests that the absence of high-level structural position (French et al., 1959) and the restricted access to high level information (Bacharach & Lawler, 1980) may lead to lack of power on the part of the ERM champion and hence explain the generating of desired and undesired outcomes (of ERM effectiveness and ineffectiveness). This is consistent with findings that the impact of their efforts of those with less power can easily be thwarted by those with more power (Conger & Kanungo, 1988). Similarly, the lack of empowerment in its enabling sense explains the lack of motivation among the employees to generate the desire to accomplish task objectives (McClelland, 1975; Yukl, 1989; Ugboro & Obeng, 2000) of producing an effective ERM in managing risks.

The third implication is reflected in the multiple method approach. As discussed in the preceeding chapter, prior studies in ERM are predominanatly quantitative in nature. To refresh, based on our analysis of 62 empirical studies published between 2003 and 2014, the majority or 74% of ERM empirical studies are quantitative using survey (34%), secondary data (39%) and experiment (1%). The remaining are made up of qualitative (16%) and mixed methods (10%). Qualitative studies in the analysis consist of case studies (13%) and interviews (3%) – see Figure 2.4 (page 48).

The current study, however, employs a multiple method approach in different

phases of the study to identify the ERM adopters and to collect data that is distinct from other ERM studies. Specifically, this study employs a three-step approach of content analysis followed by an online survey questionnaire and finally the case study approach. To the best of the researcher's knowledge, this is the first research on ERM effectiveness that uses such a multiple approach.

The few ERM studies which actually looked at ERM effectiveness deploy their own set of instruments to measure ERM effectiveness which applicability is limited to a certain extent (see Appendix C). None used ISO 31000 as the guiding framework to operationalise ERM effectiveness. The instruments used in the current study seek to address some if not all of the limitations imposed by each of the instruments used in existing ERM studies. Additionally, the ISO 31000 11 principles for ERM effectiveness are used to operationalise ERM effectiveness.

Furthermore, in terms of data analysis approach, thus far, none of the ERM research has used the Partial Least Square (PLS) regression technique. Bearing this in mind, PLS-SEM is deemed appropriate for the current study on the basis that it is a "regression-based" approach that minimises the residual variances of the endogenous constructs. According to Hair et al. (2011), conceptually and practically, PLS-SEM is similar to using multiple regression analysis which is the most common method to analyse the cause-effect relationship in a contingent-based studies.

As opposed to covariance-based SEM (CB-SEM), SmartPLS 3.0 is a causal modelling approach aimed at maximising the explained variance of the dependent latent constructs. CB-SEM's objective is to reproduce the theoretical covariance matrix, without focusing on explained variance. The rule of thumb says that if the research objective is theory testing and confirmation, then the appropriate method is CB-SEM. In contrast, if the research objective is prediction and theory development, then the

appropriate method is PLS-SEM (Hair et al., 2011) and hence justifies the choice of using SmartPLS as the tool to analyse data in this study.

6.3.2 Practical and Policy Implications

Given the benefits of ERM, the findings of this study are set to offer insights into what makes a conducive environment towards an effective and successful ERM in managing risks. In the Malaysian perspective, the current study seeks to shed some light onto the level of ERM adoption among Malaysian companies as disclosed in the financial statement. The empirical evidence is also hoped to change the motivation for ERM implementation from compliance or a “tick-in-a-box” exercise to a business sense exercise. Other organisations can learn and hopefully emulate the experiences of companies that have successfully implemented enterprise risk management in the workplace.

The findings from this study on the significant influence of the top management on culture and ERM effectiveness alongside report that lack of management support topped the list of the challenges in ERM implementation in Malaysia (Yusuwan et al., 2008) tell us that management support should be gained if they want to implement ERM. The critical role of top management in shaping the organisational culture which in turn define the employees’ attitude towards ERM implementation as proven in this study makes it a good case for top management to take a more proactive role in ERM implementation. Concerted efforts by senior management team to instil the required risk culture and risk mindset among the employees can certainly orchestrate a more appropriate setting for ERM to be effective. From the macro perspective, the findings of this study serve to motivate businesses to implement ERM to manage risks and uncertainties effectively. By having an effective ERM, eventually business losses are

minimised and failures prevented. In the long run, the economy will prosper and the standard of living will improve.

From the regulatory standpoints, the statistics on the level of ERM adoption and maturity should trigger the relevant authorities and agencies to come up with a quick win as well as long-term resolution to further improve the adoption rate. The impact of the Bursa Malaysia 2013 Guideline on adoption rate is evidenced in the increase of ERM disclosure as compared to before the Guideline is in place (Togok, Isa, & Zainuddin, 2016). This is consistent with prior studies which suggest that without strong enforcement by regulators, companies might not have implemented ERM or at least, not in such a speedy manner (Acharyya & Johnson, 2006). The regulatory influence is further reflected in the practice of the finance industry which is known for its stringent regulations, tight regulatory environment and a relatively more stable ERM practice as compared to other industries (Liebenberg & Hoyt, 2003; Beasley et al., 2005a; Pagach & Warr, 2007; Wan Daud, 2011; Wan Daud et al., 2011).

The current findings could provide the foundation for an ERM framework applicable to this part of the world i.e the Asean Economic Community (AEC). The relevant authorities from the member countries in collaboration with the local risk professional association should review the existing ERM frameworks such as COSO (2004) framework and ISO 31000 for its applicability and if necessary localise it to meet the AEC needs (Mikes, 2009; Arena et al., 2010; Mikes, 2011; Tekathen & Dechow, 2013). By doing so, companies, especially smaller ones who cannot afford dedicated risk personnel will be more guided in the details of ERM implementation.

The findings on the variables which have the most influence should offer further bases for the formulation of policies and initiatives to encourage effective ERM implementation. An ERM awareness drive targeting specifically the top management

can be launched by the relevant agencies to create awareness and ultimately get their buy-in to set the right tone in regards to ERM.

6.4 Limitations of Study

Survey data for this research are obtained from multiple sources, namely the groups of chief risk officers, chief internal auditors and chief financial officers, which may have different views of the level of ERM effectiveness in their organisations. While it is intended to have a multiple perspective to minimise the impact of such bias the small data size could aggravate the influence on the variances especially in a developing country such as Malaysia, where ERM is considered as a fairly new concept and where compliance attitude is not as high as in the developed markets.

Another limitation is found in the varying level of ERM implementation. The level of ERM implementation of the 144 respondents used to test the hypotheses ranged from less than one year to over five years of implementation. This gives rise to diverse evaluation in terms of the effectiveness of ERM in managing risks. Understandably, organisations which are more matured in ERM may perceive its ERM to be highly effective as compared to those who are new to ERM. One of the ways to address this issue would be to get the feedback from the perspective of one group of respondents only, for example, the chief risks officers, chief internal auditor or the chief financial officer, provided that, of course, the population is big enough for data analysis.

The current study is also limited in terms of time setting. Firstly, the study measured all research variables at a single point in time, which limits the analysis on a cause-effect relationship (Douglas, 1976). Secondly, the use of summated responses to questionnaire items that appear on the same instrument can never be free completely from any form of bias, in particular in the form of (i) common method bias (ii) non-

response bias, and many more.

Though care was taken to pre-test the questionnaire and validate these data extensively through psychometric analyses, which has not indicated any violations of scale reliability and validity, the inherent limitation of the survey method can never be completely ignored. For example, like any survey instruments, the choice of measurement is critical to ensure that the correct data is collected. An inappropriate conceptualisation of the variables particularly structure, strategic role of ERM champion and employee involvement may have led to inaccurate findings to a certain extent. This is also acknowledged as a limitation on this study.

6.5 Suggestions for Future Research

Following the compelling evidence provided in the current study that top management support promotes an effective ERM, it would be useful to investigate the antecedents which can motivate top management support. The main findings of the current study clearly indicate that a better understanding of the factors that influence top management support is urgently needed. Specifically, further investigation into the theories of power and empowerment is believed to offer huge insight in the identification of the factors that are likely to influence the top manager's support, ERM champion and employees towards an ERM implementation.

Furthermore, the research model developed for the current study, particularly the concept of perceived ERM effectiveness in managing risks and its fit with contingent variables, offer empirically observable indicators that could be examined in a pre and post-implementation context. Specifically, additional insights into these indicators may be gained by longitudinal studies based on the research model. The study described in this dissertation was cross-sectional and examined the level of ERM adoption as well as

the other variables in the framework at a given point in time. A longitudinal study based on the proposed research model may help explain how the variables changes pre and post-ERM implementation.

Additionally, future research could explore other instruments to measure the variables. For example, future studies on culture could consider using other instruments to measure the variable. Other than Wallach (1983), three more recent approaches to operationalise culture: (a) Organizational Culture Profile (O'Reilly et al., 1991) (b) Organizational Culture Inventory (Cooke & Lafferty, 1989) and (c) Competing Values Framework (Quinn & Spreitzer, 1991; Cameron & Quinn, 1999). The use of observable indicators vis-a-vis the self-assessment method may also reduce the subjective element in the assessment of effectiveness. This set of indices can consist of indicators such as company failures, C-suite rotation, early board member departures as well as bad news announcements.

6.6 Conclusions

The current study offers insight into the level of ERM adoption in Malaysia and the perceived ERM effectiveness in managing risks among the companies that adopt ERM. The conceptual framework is developed for the current study that seeks to investigate the organisational factors that can influence ERM effectiveness in managing risks. In this study, the interaction between the organisational settings and the internal human elements were investigated. The mediating influence of the tone from the top and the moderating influence of CRO presence and a separate ERM unit were also examined.

The findings of the survey illustrates the top-down nature of ERM and how well it trickles down the organisational hierarchy given the right settings consisting of risk-

mindful culture and good enterprise system. . From a broader perspective, putting ERM in place only sets the beginning of the journey. This research demonstrates how optimising the benefits of ERM require an appropriate setting of risk culture and systems to nurture its processes to success. More importantly, this settings is not given but deliberately and carefully seeded and sowed in the organisation. Shifting the orientation of the risks culture and mindsets is strategic and transformational and takes years of efforts in engaging the organisation across functions and from top to bottom.

This study has contributed useful results for both professionals and researchers in the area of ERM. ERM experts and policymakers will find the level of ERM adoption and the perceived level of ERM effectiveness in managing risks useful in various respects. Policy makers can further improve the level of adoption by regulating the conduct of ERM and by incentivising the adopters and penalising the non-adopters. Experts may find the need to review the principles for ERM effectiveness in managing risks. Additionally, senior management can benefit from the study knowing that their support is positively associated with the perceived ERM effectiveness in managing risks.

The empirical evidence from the quantitative analysis shows that tone from the top is the main driver for ERM effectiveness in managing risks, followed by enterprise systems and organisational culture. While literature shows that the quality of the CRO is the driver for ERM adoption, the strategic role of ERM champion as evidenced in this study is not necessarily the driver for ERM effectiveness in managing risks. Similarly, the findings show lack of association between employee involvement and ERM effectiveness. Further examination using a qualitative approach suggests that each organisational case is unique and has other factors which influence the results greatly.

REFERENCES

- Aabo, T., Fraser, J., & Simkins, B. J. (2005). The rise and evolution of the chief risk officer: enterprise risk management at Hydro One. *Journal of Applied Corporate Finance*, 17(3), 5-5.
- Aaron, A. (2001). Traditional, interpretive, and reception based content analyses: improving the ability of content analysis to address issues of pragmatic and theoretical concern. *Social Indicators Research*, 54(2), 139-172.
- Acharyya, M., & Johnson, J. (2006). Investigating the development of enterprise risk management in the insurance industry: an empirical study of four major European insurers. *The Geneva Papers on Risk and Insurance, Special Issue July*, 55-80.
- Aebi, V., Sabato, G., & Schmid, M. (2012). Risk management, corporate governance, and bank performance in the financial crisis. *Journal of Banking & Finance*, 36(12), 3213-3226.
- Aiello, J. R., & Kolb, K. J. (1995). Electronic performance monitoring and social context: impact on productivity and stress. *Journal of Applied Psychology*, 80(3), 339.
- Alder, G. S. (2001). Employee reactions to electronic performance monitoring: A consequence of organisational culture. *The Journal of High Technology Management Research*, 12(2), 323-342.
- Altuntas, M., Berry-stölzle, T. R., & Hoyt, R. E. (2011). Implementation of enterprise risk management : evidence from the German property-liability insurance industry. *Geneva Papers on Risk & Insurance*, 36(3), 414-439.
- Ambrose, M. L., & Alder, G. S. (2000). Designing, implementing, and utilizing computerised performance monitoring: Enhancing organizational justice. *Research in personnel and human resources management*, 18, 187-220.
- Anthony, R. N. (1965). *Planning and Control Systems: A Framework for Analysis*. Boston MA: Harvard University Press.
- Aranya, N. (1990). Budget instrumentality, participation and organizational effectiveness. *Journal of Management Accounting Research*, 2, 67.
- Arena, M., Arnaboldi, M., & Azzone, G. (2010). The organizational dynamics of enterprise risk management. *Accounting, Organisations and Society*, 35(7), 659-675.

- Arena, M., Arnaboldi, M., & Azzone, G. (2011). Is enterprise risk management real ? *Journal of Risk Research*, 14(7), 779-797.
- Arena, M., & Azzone, G. (2009). Identifying organisational drivers of internal audit effectiveness. *International Journal of Auditing*, 13(1), 43-60.
- Arnold, V., Benford, T., Canada, J., Kuhn Jr., J. R., & Sutton, S. G. (2007). The unintended consequences of Sarbanes-Oxley on technology innovation and supply chain integration. *Journal of Emerging Technologies in Accounting*, 4(1), 103-121.
- Arnold, V., Benford, T., Canada, J., & Sutton, S. G. (2011). The role of strategic enterprise risk management and organisational flexibility in easing new regulatory compliance. *International Journal of Accounting Information Systems*, 12(3), 171-188.
- Arnold, V., Hampton, C., & Sutton, S. G. (2012). Enterprise risk management as a strategic governance mechanism in B2B-enabled transnational supply chains. *Journal of Information Systems*, 26(1), 51-76.
- AS/NZS 4360. (1995). AS/NZS 4360 Risk Management Standard,. Retrieved <http://infostore.saiglobal.com/store/details.aspx?ProductID=381545b> (accessed on May 4, 2015)
- Babbie, E. (2015). *The practice of social research* (12 ed.). Wadsworth: Cengage Learning.
- Bacharach, S. B., & Lawler, E. J. (1980). *Power and politics in organizations*: Jossey-Bass San Francisco.
- Banham, R. (1999). Kit and Caboodle: Understanding the skepticism about enterprise risk management. *CFO Magazine*, 63.
- Banham, R. (2004). Enterprising views of risk management. *Journal Of Accountancy*, 197(6), 65-71.
- Barlow, D. (1993). The evolution of risk management. *Risk Management*, 40, 38-38.
- Barney, J. B. (1986). Organisational culture: can it be a source of sustained competitive advantage? *Academy of Management Review*, 11(3), 656-665.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in

- social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Barton, L. (2001). *Crisis in organizations II*. Cincinnati, OH: South-Western College Publishing.
- Barton, T. L., Shenkir, W. G., & Walker, P. L. (2002). *Making enterprise risk management pay off: How leading companies implement risk management*. Upper Saddle River: Financial Times / Prentice Hall PTR.
- Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organisational research. *Human Relations*, 61(8), 1139-1160.
- Baxter, R., Bedard, J. C., Hoitash, R., & Yezegel, A. (2013). Enterprise risk management program quality: determinants, value relevance, and the financial crisis. *Contemporary Accounting Research*, 30(4), 1264-1295.
- Beasley, M. S., Branson, B. C., & Hancock, B. V. (2008). Rising expectations. *Journal of Accountancy*, 205(4), 44-46, 48, 50-51, 10.
- Beasley, M. S., Branson, B. C., & Hancock, B. V. (2009). ERM: opportunities for improvement. *Journal of Accountancy*, 208(3), 28-32, 12.
- Beasley, M. S., Chen, A., Nunez, K., & Wright, L. (2006). Working hand in hand: balanced scorecards and enterprise risk management. *Strategic Finance*, 87(9), 49-55.
- Beasley, M. S., Clune, R., & Hermanson, D. R. (2005a). Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*, 24(6), 521-531.
- Beasley, M. S., Clune, R., & Hermanson, D. R. (2005b). ERM: a status report. *The Internal Auditor*, 62(1), 67-72.
- Beasley, M. S., Pagach, D. P., & Warr, R. S. (2007). Information conveyed in hiring announcements of senior executives overseeing enterprise-wide risk management processes. *SSRN Working Papers*.
- Beck, U. (1992). *Risk society: towards a new modernity* (Vol. 17). London: Sage
- Bennis, W. G., & Nanus, B. (2004). *Leaders*. New York: Harper Business Essentials.

- Best, P., Rikhardsson, P., & Toleman, M. (2009). Continuous fraud detection in enterprise systems through audit trail analysis. *Journal of Digital Forensics, Security and Law*, 4(1), 39-60.
- Bhimani, A. (2009). Risk management, corporate governance and management accounting: Emerging interdependencies. *Management Accounting Research*, 20(1), 2-5.
- Bingi, P., Sharma, M. K., & Godla, J. K. (1999). Critical issues affecting an ERP implementation. *IS Management*, 16(3), 7-14.
- Birnberg, J. G. (2011). A proposed framework for behavioural accounting research. *Behavioural Research in Accounting*, 23(1), 1-43.
- Bloxham, E., & Borge, D. (2006). Risk management and the CFO : A risk or an opportunity? *Corporate Finance Review*, 10(5), 21-26.
- Bollen, K. A. (1998). *Structural equation models*. New York: John Wiley & Sons Ltd.
- Boyle, J. F., & Boyle, D. M. (2013). The role of internal audit in enterprise risk management. *Internal Auditing*, 28(4), 3-10.
- Bromiley, P., McShane, M. K., Nair, A., & Rustambekov, E. (2015). Enterprise risk management: review, critique, and research directions. *Long Range Planning*, 48(4), 265-276.
- Brownell, P., & McInnes, M. (1986). Budgetary participation, motivation, and managerial performance. *Accounting Review*, 61(4), 587.
- Buchanan, L. (2004). Breakthrough ideas for 2004. *Harvard Business Review*, 2, 13-16.
- Burke, W. (1986). Leadership as empowering others. In S. Srivastara (Ed.) (Ed.), *Executive power* (pp. 51-77). San Francisco: Jossey-Bass
- Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.*
- Bursa Malaysia. (2013). *Statement on risk management & internal control (guidelines for directors of listed issuers)*. Kuala Lumpur.

- Cameron, K. S. (1986a). Effectiveness as paradox: Consensus and conflict in conceptions of organisational effectiveness. *Management Science*, 32(5), 539-553.
- Cameron, K. S. (1986b). A study of organisational effectiveness and its predictors. *Management Science*, 32(1), 87-112.
- Cameron, K. S., & Quinn, R. E. (1999). *Diagnosing and changing organisational culture: Based on the competing values framework*. Reading MA: Addison-Wesley Publishing
- Carmeli, A., & Tishler, A. (2004). Resources, capabilities, and the performance of industrial firms: A multivariate analysis. *Managerial and decision economics*, 25(6-7), 299-315.
- Caruana, A., Morris, M. H., & Vella, A. J. (1998). The effect of centralization and formalization on entrepreneurship in export firms. *Journal of small business management*, 36(1), 16.
- Casualty Actuary Society. (2003). Overview of enterprise risk management. retrieved from <http://www.casact.org/area/erm/overview.pdf> (accessed on August 19, 2014)
- Chambers, A. (1992). *Effective Internal Audits: How to plan and implement*. Boston, MA: Pitman.
- Chatterjee, D., Grewal, R., & Sambamurthy, V. (2002). Shaping up for e-commerce: institutional enablers of the organisational assimilation of web technologies. *MIS Quarterly*, 65-89.
- Chen, S., Pan, F., & Wang, Y. (Cartographer). (2008). Participation in transfer pricing: the role of affective and cognitive mechanisms. Retrieved from <http://ssrn.com/abstract=1216222> (accessed on Feb 2, 2014)
- Chenhall, R. H. (2003). Management control systems design within its organisational context: findings from contingency-based research and directions for the future. *Accounting, Organisations and Society*, 28(2), 127-168.
- Chenhall, R. H., & Morris, D. (1986). The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. *Accounting Review*, 61(1), 16-35.

- Chia, Y. M. (1995). Decentralization, management accounting system (MAS) information characteristics and their interaction effects on managerial performance: a Singapore study. *Journal of Business Finance & Accounting*, 22(6), 811-830.
- Child, J. (1972). Organisational structure, environment and performance : the role of strategic choice. *Sociology*, 6(1), 1-22.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295-336.
- Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partial least squares. In R. H. (Ed.) (Ed.), *Statistical Strategies for Small Sample Research* (pp. 307-341). Thousand Oaks, CA: Sage Publications
- Ciociu, C. N., & Dobrea, R. C. (2010). The role of standardization in improving the effectiveness of integrated risk management. In G. Nota (Ed.), *Advances in Risk Management* (pp. 1-18). doi: ISBN: 978-953-307-138-1, InTech, Available from: <http://www.intechopen.com/books/advances-in-risk-management/the-role-of-standardization-in-improving-the-effectiveness-of-integrated-risk-management> (accessed on June 16, 2014)
- Claessens, S., Djankov, S., & Lang, L. (1998). East Asian corporates: growth, financing and risks over the last decade: World Bank Policy Research Working Paper No. 2017.
- Cohen, J. (1992). A power primer. *Psychological bulletin*, 112(1), 155.
- Cohen, J. (2013). *Statistical power analysis for the behavioural sciences* (Rev. ed.). New York: Academic press.
- Collier, P. M., Berry, A. J., & Burke, G. T. (2007). *Risk and management accounting: Best practice guidelines for enterprise-wide internal control procedures*. Oxford: CIMA Publishing/Elsevier.
- Collquit, L. L., Hoyt, R. E., & Lee, R. B. (1999). Integrated risk management and the role of risk manager. *Risk Management and Insurance Review*, 2, 43-61.
- Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, 13(3), 471-482.

- Connair, S. (2013). Enterprise risk management: From silos to strategic objectives. *Armed Forces Comptroller*, 58(1), 24-26.
- Cooke, R. A., & Lafferty, J. C. (1989). *Organizational cultural inventory (OCI)*. Plymouth, MI: Human Synergetics.
- Cooke, R. A., & Rousseau, D. M. (1988). Behavioural norms and expectations a quantitative approach to the assessment of organisational culture. *Group & Organisation Studies (1986-1998)*, 13(3), 245.
- Cornwell, T. (2001). Risk management comes into sharper focus after Sept 11 disaster. *National Mortgage News*, 26(7), 16.
- COSO. (2004). Enterprise risk management-integrated framework. http://www.coso.org/documents/COSO_ERM_ExecutiveSummary.pdf (accessed on Dec 18, 2013)
- Crawford, M., & Stein, W. (2004). Risk management in UK local authorities: The effectiveness of current guidance and practice. *The International Journal of Public Sector Management*, 17(6/7), 498-512.
- Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. CA: Sage. Thousand Oaks, CA: Sage.
- Cronbach, L. J. (1987). Statistical tests for moderator variables: Flaws in analyses recently proposed. *Psychological Bulletin*, 102(3), 414-417.
- Curkovic, S., Scannell, T., Wagner, B., & Vitek, M. (2013). Supply chain risk management within the context of COSO's enterprise risk management framework. *Journal of Business Administration Research*, 2(1).
- D'Arcy, S. P., & Brogan, J. C. (2001). Enterprise risk management. *Journal of Risk Management of Korea*, 12(1), 207-228.
- Dahl, R. A. (1957). The concept of power. *Behavioral Science*, 2(3), 201-215.
- Damanpour, F. (1991). Organisational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555-590.
- Davenport, T. H. (1998). Putting the enterprise into the enterprise system. *Harvard*

Business Review, 76(4).

Davenport, T. H. (2000). *Mission critical: Realizing the promise of enterprise systems*. Boston: Harvard Business Press.

de Zwaan, L., Stewart, J., & Subramaniam, N. (2011). Internal audit involvement in enterprise risk management. *Managerial Auditing Journal*, 26(7), 586-604.

Dearden, J. (1987). Measuring profit center managers. *Harvard Business Review*, 65(5), 84-88.

DeLoach, J. W., & Andersen, A. (2000). *Enterprise-wide risk management: strategies for linking risk and opportunity*. Financial Times Prentice Hall.

Delobbe, N., Haccoun, R. R., & Vandenberghe, C. (2002). Measuring core dimensions of organisational culture: A review of research and development of a new instrument. *Unpublished manuscript, Universite catholique de Louvain, Belgium*.

Denison, D. R. (1990). *Corporate culture and organizational effectiveness*. New York: John Wiley & Sons.

Denison, D. R., & Mishra, A. K. (1995). Toward a theory of organisational culture and effectiveness. *Organisation Science*, 6(2), 204-223.

Deragon, J. (2000). Old knowledge with a new name. *E.Risk.com*. Retrieved from <http://riskmania.com/pdsdata/Old%20Knowledge%20With%20a%20New%20Name-erisk.pdf> (accessed on August 19, 2014)

Desender, K. A. (2011). *On the Determinants of Enterprise Risk Management Implementation*. Rochester. <http://ssrn.com/abstract=1025982> (accessed on Nov 26, 2013)

DeTienne, K. B., & Abbott, N. (1993). Developing an employee-centered electronic monitoring-system. *Journal of Systems Management*, 44(8), 12-15.

Dickinson, G. (2001). Enterprise risk management: Its origins and conceptual foundation. *Geneva Papers on Risk & Insurance*, 26(3), 360-366.

Douglas, J. D. (1976). *Investigative social research: Individual and team field research*.

Thousand Oaks: Sage Beverly Hills.

Drazin, R., & Van de Ven, A. H. (1985). Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 514-539.

Dreyer, S., & Ingram, D. (2008). Standard & Poor's to apply enterprise risk analysis to corporate ratings <http://www.nyu.edu/intercep/ERM%20for%20Non-Financial%20Companies%205.7.08.pdf> (accessed on May 7, 2014)

Drori, G. S. (2006). Governed by governance: The new prism of organisational change *Globalisation and Organisation: World Society and Organisational Change*, GS Drori, JW Meyer, and H. Hwang, Editors (pp. 91-118)

Duncan, R. B. (1976). The ambidextrous organisation: Designing dual structures for innovation. *The Management of Organisation*, 1, 167-188.

Enz, C. A. (1988). The role of value congruity in intraorganizational power. *Administrative Science Quarterly*, 284-304.

Ernst & Young. (2011). *The evolving IT risk landscape : The why and how of IT risk management today*. Paper presented at the Insight on IT risks business briefing.

Ernst & Young. (2013). Managing IT risk in a fast-changing environment, *EMEIA FSO IT risk management survey*: Ernst & Young.

Ernst & Young, & Institute of Internal Auditors of Malaysia. (2011). 2011 Survey on risk management practices in Malaysia. Kuala Lumpur.

Ernst and Young. (2008). The future of risk management and internal control. *New York: EYGM Limited*.

Fahy, M., & Lynch, R. (1999). *Enterprise resource planning (ERP) systems and strategic management accounting*. Paper presented at the European Accounting Association EAA Conference, Bordeaux, France.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. Akron, OH, US: University of Akron Press.

- Fisher, J. (1998). Contingency Theory, Management Control Systems and Firm Outcomes: Past Results and Future Directions. *Behavioural Research in Accounting*, 10, 47-64.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39-50.
- Fraser, I., & Henry, W. (2007). Embedding risk management: structures and approaches. *Managerial Auditing Journal*, 22(4), 392-409.
- Fraser, J., Schoening-Thiessen, K., & Simkins, B. J. (2008). Who reads what most often? A survey of enterprise risk management literature read by risk executives. *Journal of Applied Finance*, 18(1), 73-91.
- French, J. R., Raven, B., & Cartwright, D. (1959). The bases of social power. *Classics of Organization Theory*, 311-320.
- Frigo, M. L., & Anderson, R. J. (2014). Risk management framework: Adapt, don't adopt. *Strategic Finance*, 96(1), 49-53.
- Fry, L. W., & Slocum, J. W. (1984). Technology, structure, and workgroup effectiveness: A test of a contingency model. *Academy of Management Journal*, 27(2), 221-246.
- Gates, S., Nicolas, J.-L., & Walker, P. L. (2012). Enterprise risk management: a process for enhanced management and improved performance. *Management Accounting Quarterly*, 13(3), 28-38.
- Gerdin, J., & Greve, J. (2004). Forms of contingency fit in management accounting research—a critical review. *Accounting, Organisations and Society*, 29(3–4), 303-326.
- Gerdin, J., & Greve, J. (2008). The appropriateness of statistical methods for testing contingency hypotheses in management accounting research. *Accounting, Organisations and Society*, 33(7–8), 995-1009.
- Ghazali, Z., & Abdul Manab, N. (2013). Enterprise risk management and value creation: initial findings amongst non-financial public listed companies in Malaysian Bourse. *Asian Economic and Financial Review*, 3(7), 913.
- Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating

- role of organisational ambidexterity. *Academy of Management Journal*, 47(2), 209-226.
- Gordon, L. A., Leob, M. P., & Tseng, C.-Y. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of Accounting and Public Policy*, 28(4), 301-327.
- Gordon, L. A., & Narayanan, V. K. (1984). Management accounting systems, perceived environmental uncertainty and organisation structure: An empirical investigation. *Accounting, Organisations and Society*, 9(1), 33-47.
- Gosselin, M. (1997). The effect of strategy and organisational structure on the adoption and implementation activity-based costing. *Accounting, Organisations and Society*, 22(2), 105-122.
- Gouldner, A. W. (1954). *Patterns of industrial bureaucracy*. New York: Free Press
Patterns of industrial bureaucracy.
- Govindarajan, V. (1988). A contingency approach to strategy implementation at the business-unit level: integrating administrative mechanisms with strategy. *Academy of Management Journal*, 31(4), 828-853.
- Govindarajan, V., & Fisher, J. (1990). Strategy, control systems, and resource sharing: Effects on business-unit performance. *Academy of Management Journal*, 33(2), 259-285.
- Gramling, A. A., & Myers, P. M. (2006). Internal auditing's role in ERM. *The Internal Auditor*, 63(2), 52-56,58.
- Granlund, M., & Malmi, T. (2000). *The liberations and limitations of ERP-systems for management accounting*. Paper presented at the 23th EAA Conference.
- Greene, J. C. (2007). *Mixed methods in social inquiry*. San Francisco: Jossey-Bass.
- Gupta, A. (2000). Enterprise resource planning: the emerging organisational value systems. *Industrial Management & Data Systems*, 100(3), 114-118.
- Hage, J. (1980). *Theories of organisations: Form, process, and transformation*. New York: John Wiley & Sons.

- Hage, J., & Aiken, M. (1969). Routine technology, social structure, and organisation goals. *Administrative Science Quarterly*, 366-376.
- Hair, J. F., Black, W. C., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective (Seventh Edition ed)*. New Jersey: Pearson Prentice Hall.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks: Sage Publications.
- Hair, J. F., Ringle, C., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-151.
- Hambrick, D. C., & Lei, D. (1985). Toward an empirical prioritization of contingency variables for business strategy. *Academy of Management Journal*, 28(4), 763.
- Harrington, S., & Niehaus, G. (2003). United Grain Growers: Enterprise risk management and weather risk. *Risk Management and Insurance Review*, 6(2), 193-217.
- Harrington, S., Niehaus, G., & Risko, K. J. (2002). Enterprise risk management: the case of united grain growers. *Journal of Applied Corporate Finance*, 14(4), 71-81.
- Hartmann, A. (2006). The context of innovation management in construction firms. *Construction Management and Economics*, 24(6), 567-578.
- Hartmann, F. G. H., & Moers, F. (1999). Testing contingency hypotheses in budgetary research: An evaluation of the use of moderated regression analysis. *Accounting, Organisations and Society*, 24(4), 291-315.
- Heng, Y. S., Jifeng, Y., & Jared, L. (2011). Enterprise risk management in financial crisis. *IUP Journal of Risk & Insurance*, 8(3), 7-21.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing (AIM)*, 20, 277-320.
- Hickson, D. J., Hinings, C. R., Lee, C. A., Schneck, R. E., & Pennings, J. M. (1971). A strategic contingencies' theory of intraorganizational power. *Administrative Science Quarterly*, 216-229.

- Hinings, C. R., Hickson, D. J., Pennings, J. M., & Schneck, R. E. (1974). Structural conditions of intraorganizational power. *Administrative Science Quarterly*, 22-44.
- Hodgkinson, R. (2001). Enterprise-wide risk management In Hunt, B. (ed.) *Risk Management Guide 2001*: London: White Page.
- Hofer, C. W. (1975). Toward a contingency theory of business strategy. *Academy of Management Journal*, 18(4), 784.
- Hofstede, G. (1980). *Culture's consequences*. Beverly Hills: Ca: Sage.
- Hofstede, G. (2001). *The game of budget control* (Vol. 6): Psychology Press.
- Holland, C. P., Light, B., & Gibson, N. (1999). *A critical success factors model for enterprise resource planning implementation*. Paper presented at the Proceedings of the 7th European Conference on Information Systems.
- Holsapple, C. W., & Sena, M. P. (1999). *Enterprise systems for organisational decision support: A research agenda*. Paper presented at the Proceedings of AMCIS.
- Holsapple, C. W., & Sena, M. P. (2003). The decision-support characteristics of ERP systems. *International Journal of Human-Computer Interaction*, 16(1), 101-123.
- Holton, G. A. (1996). Closed form value at risk. *Contingency Analysis*. retrieved from <http://www.contingencyanalysis.com/frame/framevar.htm> on June 21, 2015.
- Hopper, T., & Powell, A. (1985). Making sense of research into the organisational and social aspects of management accounting: A review of its underlying assumptions. *Journal of management Studies*, 22(5), 429-465.
- Hopwood, A. G. (1972). An empirical study of the role of accounting data in performance evaluation. *Journal of accounting research*, 156-182.
- Howell, J. M., & Higgins, C. A. (1990). Champions of technological innovation. *Administrative science quarterly*, 317-341.
- Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management.

- Hu, Q., Dinev, T., Hart, P., & Cooke, D. (2012). Managing Employee Compliance with Information Security Policies: The Critical Role of Top Management and Organizational Culture. *Decision Sciences*, 43(4), 615.
- Huber, C., & Scheytt, T. (2013). The dispositif of risk management: reconstructing risk management after the financial crisis. *Management Accounting Research*, 24(2), 88.
- Huigang, L., Saraf, N., Qing, H., & Yajiong, X. (2007). Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management. *MIS Quarterly*, 31(1), 59-87.
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, 20(2), 195-204.
- Ibarra, H., & Andrews, S. B. (1993). Power, social influence, and sense making: Effects of network centrality and proximity on employee perceptions. *Administrative Science Quarterly*, 38(2), 277-303.
- IMA – Institute of Management Accountants. (2006). Enterprise risk management: Frameworks, elements, and integration, statements on management accounting.
- Ismail, R., & Rahman, R. A. (2011). Institutional investors and board of directors' monitoring role on risk management disclosure level in Malaysia. *IUP Journal of Corporate Governance*, 10(2), 37-61.
- ISO 31000:2010. (2010). Risk Management – Principles and guidelines. Geneva: International Standards Organisations. <http://www.iso.org/iso/home/standards/iso31000.htm> (accessed on August 19, 2014)
- Ittner, C. D., & Larcker, D. F. (2001). Assessing empirical research in managerial accounting: a value-based management perspective. *Journal of Accounting and Economics*, 32(1), 349-410.
- Jabbour, M. (2011). The impact of enterprise risk management on capital allocation in insurance companies. <http://ssrn.com/abstract=1910283> (accessed on Nov 11, 2013)
- Jalal, A., AlBayati, F. S., & AlBuainain, N. R. (2011). Evaluating enterprise risk management (ERM): Bahrain financial sectors as a case study. *International Business Research*, 4(3), 83-92.

- Jansen, J. J., Van Den Bosch, F. A., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52(11), 1661-1674.
- Jarvenpaa, S. L., & Ives, B. (1991). Executive involvement and participation in the management of information technology. *MIS Quarterly*, 205-227.
- Jenkins, A. M., & Ricketts, J. A. (1979). Development of an instrument to measure user information satisfaction with management information systems. *Unpublished working paper, Indiana University, Bloomington*.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3:4, 305-360.
- Jermias, J., & Gani, L. (2004). Integrating business strategy, organisational configurations and management accounting systems with business unit effectiveness: a fitness landscape approach. *Management Accounting Research*, 15(2), 179-200.
- Jie, L. (2012). The enterprise risk management and the risk oriented internal audit. *iBusiness*, 4(3), 287-292. doi:10.4236/ib.2012.43036 (accessed on Nov 21, 2013)
- Jin, F. E. (2001). Poor risk management causes ailing firms' downfall. *Business Times (Malaysia)*. <https://www.highbeam.com/doc/1P1-44962006.html> (accessed on March 3, 2015)
- Jokipii, A. (2010). Determinants and consequences of internal control in firms: a contingency theory based analysis. *Journal of Management & Governance*, 14(2), 115-144.
- Jung, T., Scott, T., Davies, H. T., Bower, P., Whalley, D., McNally, R., & Mannion, R. (2009). Instruments for exploring organisational culture: A review of the literature. *Public Administration Review*, 69(6), 1087-1096.
- Kanhai, C., Ganesh, L., & Muhwandavaka, R. (2014). An investigation of the extent of adoption of enterprise risk management (ERM) by banks in Zimbabwe. *International Journal of Business & Commerce*, 3(7).
- Kanter, R. M. (1989). Power failure in management circuits. *Harvard Business*, 65-75.
- Kanungo, S., Sadavarti, S., & Srinivas, Y. (2001). Relating IT strategy and organisational culture: an empirical study of public sector units in India. *The Journal of Strategic Information Systems*, 10(1), 29-57.

- Kaplan, R. S., & Mikes, A. (2012). Managing risks: A new framework. *Harvard Business Review*, 90(6), 48-60.
- Kasim, M. A. (2011). *Enterprise risk management (ERM) in Malaysian high performance GLCs: A study of the status of implementation, the role of internal audit and the impact on organisational performance*. (PhD), Universiti Teknologi Mara.
- Kasim, M. A., Abdul Aziz, A., & Kasim, I. (2011). *Enterprise risk management (ERM) in Malaysia*. USA: LAP Lamber Academic Publishing GmbH & Co. KG.
- Kenis, I. (1979). Effects of budgetary goal characteristics on managerial attitudes and performance. *Accounting Review*, 54(4), 707.
- Khazanchi, D., & Sutton, S. G. (2001). Assurance services for business-to-business electronic commerce: a framework and implications. *Journal of the Association for Information Systems*, 1(1), 11.
- Kim, K. K. (1989). User satisfaction: A synthesis of three different perspectives. *Journal of Information Systems*, 4(1), 1-12.
- Kimbrough, R. L., & Componation, P. J. (2009). The relationship between organisational culture and enterprise risk management. *Engineering Management Journal*, 21(2), 18-26.
- Kleffner, A. E., Lee, R. B., & McGannon, B. (2003). The effect of corporate governance of the use of enterprise risk management: Evidence from Canada. *Risk Management and Insurance Review*, 6(1), 53-73.
- Knight, K. W. (2010). AS/NZS ISO 31000:2009 - The new standard for managing risk. *Keeping Good Companies*, 62(2), 68-69.
- Koberg, C. S., & Chusmir, L. H. (1987). Organisational culture relationships with creativity and other job-related variables. *Journal of Business Research*, 15(5), 397-409.
- Kotter, J. P. (1995). Leading change: why transformation efforts fail. *Harvard Business Review*, March-April, 50-67.
- Lai, F. W. (2014). Enterprise risk management and its value creation transmission mechanism. *Recent Advances in Environmental Sciences and Financial Development*, 46.

- Laisasikorn, K., & Rompho, N. (2014). A study of the relationship between a successful enterprise risk management system, a performance measurement system and the financial performance of Thai listed companies. *Journal of Applied Business and Economics*, 16(2), 81.
- Lajili, K., & Zéghal, D. (2005). A content analysis of risk management disclosures in Canadian annual reports. *Canadian Journal of Administrative Sciences*, 22(2), 125-142.
- Lam, J. (2000). Enterprise-wide risk management and the role of the chief risk officer. *white paper, ERisk.com, March*, 25.
- Lam, J. (2003). Ten predictions for risk management. *RMA Journal*, 85(8), 84-87.
- Lam, J. (2009). Key requirements for enterprise-wide risk management: Lessons learned from the global financial crisis. *The RMA Journal*, 91(8), 22-26, 11.
- Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organisations and Society*, 22, 207-232.
- Latour, B. (1987). *Science in action*. Cambridge: Harvard University Press.
- Lawrence, P. R., & Lorsch, J. W. (1969). *Organisation and environment: Managing differentiation and integration* (Vol. III). Homewood: Richard D. Irwin.
- Lecy, J. D., Schmitz, H. P., & Swedlund, H. (2012). Non-governmental and not-for-profit organisational effectiveness: A modern synthesis. *Voluntas*, 23(2), 434-457.
- Lee, C. L., & Yang, H. J. (2011). Organisation structure, competition and performance measurement systems and their joint effects on performance. *Management Accounting Research*, 22(2), 84-104.
- Lee, S. K. J., & Yu, K. (2004). Corporate culture and organisational performance. *Journal of Managerial Psychology*, 19(4), 340-359.
- Leonard-Barton, D., & Deschamps, I. (1988). Managerial influence in the implementation of new technology. *Management Science*, 34(10), 1252-1265.
- Levine, R. (2004). Risk management systems: understanding the need. *Risk Management*, 32(2).

- Lewis, M. (2008). Introduction. In M. Lewis (Ed.), *Panic! The Story of Modern Financial Insanity* (pp. 3-13). London: Penguin
- Li, Q., Wu, Y., Ojiako, U., Marshall, A., & Chipulu, M. (2014). Enterprise risk management and firm value within China's insurance industry. *Acta Commercii* 14(1), 10 pages. doi: doi:10.4102/ac.v14i1.198 (accessed on March 1, 2014)
- Liebenberg, A. P., & Hoyt, R. E. (2003). The determinants of enterprise risk management: evidence from the appointment of chief risk officers. *Risk Management & Insurance Review*, 6(1), 37-52.
- Lin, Y., Wen, M.-M., & Yu, J. (2012). Enterprise risk management: Strategic antecedents, risk integration, and performance. *North American Actuarial Journal*, 16(1), 1-28.
- Lok, P., & Crawford, J. (2004). The effect of organisational culture and leadership style on job satisfaction and organisational commitment: A cross-national comparison. *Journal of Management Development*, 23(4), 321-338.
- Loonam, J., & McDonagh, J. (2005). Exploring top management support for the introduction of enterprise information systems: a literature review. *Irish Journal of Management*, 26(1), 163.
- Lucas, D. (1981). *Implementation: The key to successful information systems*. New York: Mc-Graw Hill.
- Mahoney, M. L. (2011). *An examination of the determinants of top management support of information technology projects*. (PhD PhD.), Stevens Institute of Technology, Ann Arbor. Retrieved from <http://search.proquest.com/docview/881293382?accountid=28930> (accessed on May 28, 2015)
- Makarova, V. A. (2014). The effectiveness of risk management implementation in Russian companies. *World Applied Sciences Journal*, 31(5), 833-839.
- Markus, M. L. (1983). Power, politics, and MIS implementation. *Communications of the ACM*, 26(6), 430-444.
- Markus, M. L., & Tanis, C. (2000). The enterprise systems experience—from adoption to success. *Framing the domains of IT research: Glimpsing the future through the past*, 173, 207-173.

- Martin, J. (1992). *Cultures in organisations: Three perspectives*. New York: Oxford University Press.
- Mastor, K. A., Jin, P., & Cooper, M. (2000). Malay culture and personality a big five perspective. *American Behavioural Scientist*, 44(1), 95-111.
- McClelland, D. C. (1975). *Power: The inner experience*. Oxford: Irvington Power.
- McKenney, J. L., & McFarlan, F. W. (1982). The information archipelago-maps and bridges. *Harvard Business Review*, 60(5), 109-119.
- McShane, M. K., Nair, A., & Rustambekov, E. (2011). Does enterprise risk management increase firm value? *Journal of Accounting, Auditing & Finance*, 26(4), 641-658.
- Merchant, K. A. (1989). *Rewarding results: Motivating profit center managers*. Boston: Harvard Business School Press.
- Merchant, K. A., & Simons, R. (1986). *Research and control in complex organizations: an overview*: Division of Research, Graduate School of Business Administration, Harvard University.
- Meulbroek, L. (2002). Integrated risk management for the firm: A senior manager's guide. <http://ssrn.com/abstract=301331> (accessed on April 16, 2014)
- Mia, L. (1988). Managerial attitude, motivation and the effectiveness of budget participation. *Accounting, Organisations and Society*, 13(5), 465-475.
- Miccolis, J. A. (2000). Enterprise risk management in the financial services industry: Still a long way to go. <http://www.irmi.com/expert/articles/2000/miccolis08.aspx> (accessed on August 19, 2014)
- Miccolis, J. A., Kevin Hively, & Merkley, B. W. (2001). *Enterprise risk management: Trends and emerging practices*. Altamonte Springs: The Institute of Internal Auditors Research Foundation.
- Mikes, A. (2008). Chief risk officers at crunch time: Compliance champions or business partners? *Journal of Risk Management in Financial Institutions*, 2(1), 7-25.

- Mikes, A. (2009). Risk management and calculative cultures. *Management Accounting Research*, 20(1), 18.
- Mikes, A. (2011). From counting risk to making risk count: Boundary-work in risk management. *Accounting, Organisations and Society*, 36(4-5), 226.
- Mikes, A. (2014). The triumph of the humble chief risk officer. *Harvard Business School, Boston, MA*.
- Milani, K. (1975). The relationship of participation in budget-setting to industrial supervisor performance and attitudes - A field study. *The Accounting Review*, 50(2), 274.
- Miller, K. D. (1992). A framework for integrated risk management in international business. *Journal of International Business Studies*, 311-331.
- Miller, K. D., & Waller, H. G. (2003). Scenarios, real options and integrated risk management. *Long Range Planning*, 36(1), 93-107.
- Millo, Y., & MacKenzie, D. (2009). The usefulness of inaccurate models: towards an understanding of the emergence of financial risk management. *Accounting, Organisations and Society*, 34(5), 638-653.
- Mottershead, N., & Godfrey, A. (2001). From theory to practice: Evolving Your organisation's risk management In Hunt, B. (ed.) *Risk Management Guide 2001*. . London: White Page.
- Muralidhar, K. (2010). Enterprise risk management in the Middle East oil industry. *International Journal of Energy Sector Management*, 4(1), 59-86.
- Musig, P., & Kunsrison, R. (2012). The effect of continuous enterprise risk management improvement on internal audit work success of the institute of higher education. *Journal of the Academy of Business & Economics*, 12(5).
- Mwangi, M. L. (2014). *The relationship between risk management and financial performance of the top 100 small and medium enterprises in Kenya*. (Master of Science), University of Nairobi.
- Nah, F. F.-H., Lau, J. L.-S., & Kuang, J. (2001). Critical factors for successful implementation of enterprise systems. *Business process management journal*, 7(3), 285-296.

- Nahm, A. Y., Vonderembse, M. A., & Koufteros, X. A. (2003). The impact of organisational structure on time-based manufacturing and plant performance. *Journal of Operations Management*, 21(3), 281-306.
- Nickmanesh, S., Zohoori, M., Musram, H. A. M., & Akbari, A. (2013). Enterprise risk management and performance in Malaysia. *Interdisciplinary Journal of Contemporary Research In Business*, 5(1), 670-707.
- Nicolaou, A. I. (2000). A contingency model of perceived effectiveness in accounting information systems: Organisational coordination and control effects. *International Journal of Accounting Information Systems*, 1(2), 91-105.
- Nielsen, K., & Randall, R. (2012). The importance of employee participation and perceptions of changes in procedures in a teamworking intervention. *Work & Stress*, 26(2), 91-111.
- Nocco, B. W., & Stulz, R. M. (2006). Enterprise risk management: Theory and practice. *Journal of Applied Corporate Finance*, 18(4), 8-20.
- Nunnally, J. (1978). Psychometric methods. New York: McGraw-Hill.
- Nyagah, B. K. (2014). *The effect of enterprise risk management on financial performance of pension fund management firms in Kenya*. University of Nairobi.
- O'Leary, D. E. (2000). *Enterprise resource planning systems: systems, life cycle, electronic commerce and risk*. Cambridge: Cambridge University Press.
- O'Mahony, A., & Doran, J. (2008). The changing role of management accountants; evidence from the implementation of ERP systems in large organisations. *International Journal of Business and Management*, 3(8), 109-115.
- O'Reilly, C. A., III, Chatman, J., & Caldwell, D. F. (1991). People and organisational culture: A profile comparison approach to assessing person-organisation fit. *Academy of Management Journal*, 34(3), 487.
- O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673-690.
- Obalola, M. A., Akpan, T. I., & Olufemi, A. A. (2014). The relationship between enterprise risk management (ERM) and organisational performance: Evidence from Nigerian insurance industry. *Research Journal of Finance and Accounting*, 5(14), 152-160.

- Oh, L. B., & Teo, H. H. (2009). An empirical study of IT-enabled enterprise risk management and organisational resilience. *CONF-IRM 2009 Proceedings*, Paper 9. <http://aisel.aisnet.org/confirm2009/19> (accessed on Sept 13, 2014)
- Otley, D. (1978). Budget use and managerial performance. *Journal of Accounting Research*, 16(1), 122-149.
- Otley, D. (1980). The contingency theory of management accounting: achievement and prognosis. *Accounting, Organisations and Society*, 5, 413–428.
- Otley, D. (1985). Developments in management accounting research. *Management Accounting*, 67(3), 37-42.
- Otley, D. (1999). Performance management: a framework for management control systems research. *Management Accounting Research*, 10(4), 363-382.
- Ottensmeyer, E. J., & Heroux, M. A. (1991). Ethics, public policy, and managing advanced technologies: The case of electronic surveillance. *Journal of Business Ethics*, 10(7), 519-526.
- Paape, L., & Speklé, R. F. (2012). The adoption and design of enterprise risk management practices : An empirical study. *European Accounting Review*, 21(3), 533-564.
- Pagach, D., & Warr, R. (2007). An empirical investigation of the characteristics of firms adopting enterprise risk management. *North Carolina State University working paper*. <http://ssrn.com/abstract=1010200> (accessed on Nov 16, 2013)
- Pagach, D., & Warr, R. (2010). *The effects of enterprise risk management on firm performance*. Rochester. Retrieved from <http://ssrn.com/abstract=1155218> (accessed on Nov 21, 2013)
- Pagach, D., & Warr, R. (2011). The characteristics of firms that hire chief risk officers. *Journal of Risk and Insurance*, 78(1), 185-211.
- Pallant, J. (2007). *SPSS survival manual: A step-by-step guide to data analysis using SPSS version 15*. Nova Iorque: McGraw Hill.
- Pfeffer, J. (1982). *Organizations and organization theory*. Massachusetts: Pitman
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common

- method biases in behavioural research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879.
- Pollara, J. B. (2008). FGRC: Seize the opportunity. *Strategic Finance* (May), 58-59.
- Poston, R., & Grabski, S. (2000). *The impact of enterprise resource planning systems on firm performance*. Paper presented at the Proceedings of the twenty first international conference on Information systems.
- Power, M. (2004). The risk management of everything. *The Journal of Risk Finance*, 5(3), 58-65.
- Power, M. (2007). *Organized uncertainty: Designing a world of risk management*. Oxford: Oxford University Press.
- Power, M. (2009). The risk management of nothing. *Accounting, Organisations and Society*, 34, 849-855.
- Probst, T. M. (2005). Countering the negative effects of job insecurity through participative decision making: lessons from the demand-control model. *Journal of Occupational Health Psychology*, 10(4), 320.
- Protiviti Inc. (2006). Guide to enterprise risk management: Frequently asked questions: Protiviti Inc.
- Provan, K. G. (1980). Recognising, measuring, and interpreting the potential/enacted power distinction in organisational research. *The Academy of Management Review*, 5(4), 549-559.
- Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1968). Dimensions of organisation structure. *Administrative Science Quarterly*, 13(1), 65-105.
- Purdy, G. (2010). ISO 31000: 2009—setting a new standard for risk management. *Risk analysis*, 30(6), 881-886.
- Quinn, R. E., & Spreitzer, G. M. (1991). *The psychometrics of the competing values culture instrument and an analysis of the impact of organisational culture on quality of life*: Emerald.

- Quon, T. K., Zeghal, D., & Maingot, M. (2012). Enterprise risk management and firm performance. *Procedia - Social and Behavioural Sciences*, 62(0), 263-267.
- Rainer, L. (2013). *Insights into the effectiveness of internal audit: A multi-method and multi-perspective study*. (PhD), Université Catholique De Louvain. Retrieved from <http://hdl.handle.net/2078.1/124464> (accessed on Feb 15, 2014)
- Raisch, S., & Birkinshaw, J. (2008). Organisational ambidexterity: Antecedents, outcomes and moderators. *Journal of Management*, 34(3), 375-409.
- Randall, R., Nielsen, K., & Tvedt, S. D. (2009). The development of five scales to measure employees' appraisals of organisational-level stress management interventions. *Work & Stress*, 23(1), 1-23.
- Rapert, M. I., & Wren, B. M. (1998). Reconsidering organizational structure: a dual perspective of frameworks and processes. *Journal of Managerial Issues*, X(3), 287-302.
- Rasid, S. Z. A., Isa, C. R., & Ismail, W. K. W. (2014). Management accounting systems, enterprise risk management and organisational performance in financial institutions. *Asian Review of Accounting*, 22(2), 128 - 144.
- Reimann, B. C. (1974). Dimensions of structure in effective organisations: some empirical evidence. *Academy of Management Journal*, 17(4), 693-708.
- RIMS. (2011). FAQ on SRM and ERM. Why strategic management? retrieved from <http://www.rims.org/resources/ERM/Documents/> (accessed on April 20, 2014)
- Robert, K. S., & Anette, M. (2012). Smart companies match their approach to the nature of the threats they face. *Harvard Business Review*, June.
- Roberts, H. J., & Barrar, P. R. N. (1992). MRPII implementation: key factors for success. *Computer Integrated Manufacturing Systems*, 5(1), 31-38.
- Rogers, E. M. (2010). *Diffusion of innovations* (4th ed.). New York: The Free Press.
- Rom, A., & Rohde, C. (2006). Enterprise resource planning systems, strategic enterprise management systems and management accounting: A Danish study. *Journal of Enterprise Information Management*, 19(1/2), 50-66.
- Roskam, E. (2009). Using participatory action research methodology to improve worker health *Unhealthy Work: Causes, Consequences, and Cures* (pp. 211-228).

- Scapens, R. W., & Jazayeri, M. (2003). ERP systems and management accounting change: opportunities or impacts? A research note. *European Accounting Review*, 12(1), 201-233.
- Schanfield, A. (2009). More to risk management than COSO ERM (Vol. 208, pp. 14-15): American Institute of Ceritified Public Accountants.
- Schein, E. H. (1983). The role of the founder in creating organisational culture. *Organisational dynamics*, 12(1), 13-28.
- Schein, E. H. (1984). Coming to a new awareness of organisational culture. *Sloan Management Review*, 25(2), 3-16.
- Schein, E. H. (1985). *Organisational culture and leadership: A dynamic view*. San Francisco: Jossey Bass.
- Schmit, J. T., & Roth, K. (1990). Cost effectiveness of risk management practices. *The Journal of Risk and Insurance*, 57(3), 455-470.
- Schneider, B., Brief, A. P., & Guzzo, R. A. (1996). Creating a climate and culture for sustainable organisational change. *Organisational Dynamics*, 24(4), 7-19.
- Schneier, R., & Miccolis, J. (1998). Enterprise risk management. *Strategy & Leadership*, 26(2), 10-16.
- Schoonhoven, C. B. (1981). Problems with contingency theory: testing assumptions hidden within the language of contingency" theory". *Administrative science quarterly*, 349-377.
- Schwartz, H., & Davis, S. M. (1981). Matching corporate culture and business strategy. *Organisational dynamics*, 10(1), 30-48.
- Seddon, P., & Yip, S.-K. (1992). An empirical evaluation of user information satisfaction (UIS) measures for use with general ledger accounting software. *Journal of Information Systems*, 6(1), 75-92.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: a skill building approach*. UK: Wiley.

- Sharma, R., & Yetton, P. (2003). The contingent effects of management support and task interdependence on successful information systems implementation. *MIS Quarterly*, 27(4), 533-556.
- Smith, C. G., & Tannenbaum, A. S. (1963). Organizational control structure: A comparative analysis. *Human Relations*, 16(4), 299-316.
- Sobel, P. J., & Reding, K. F. (2004). Aligning corporate governance with enterprise risk management. *Management Accounting Quarterly*, 5(2), 29.
- Soin, K., & Collier, P. (2013). Risk and risk management in management accounting and control. *Management Accounting Research*, 24(2), 82-87.
- Soltanizadeh, S., Rasid, S. Z. A., Golshan, N., Quoquab, F., & Basiruddin, R. (2014). Enterprise Risk Management Practices among Malaysian Firms. *Procedia - Social and Behavioral Sciences*, 164, 332-337.
- Sorkin, A. R. (2010). *Too big to fail: The inside story of how Wall Street and Washington fought to save the financial system and themselves*. New York: Penguin.
- Souder, W. E., Sherman, J. D., & Davies-Cooper, R. (1998). Environmental uncertainty, organisational integration, and new product development effectiveness: A test of contingency theory. *Journal of Product Innovation Management*, 15(6), 520-533.
- Spathis, C. (2006). Enterprise systems implementation and accounting benefits. *Journal of Enterprise Information Management*, 19(1/2), 67-82.
- Spreitzer, G. M., De Janasz, S. C., & Quinn, R. E. (1999). Empowered to lead: The role of psychological empowerment in leadership. *Journal of Organizational Behavior*, 20(4), 511-526.
- Spreitzer, G. M., Kizilos, M. A., & Nason, S. W. (1997). A dimensional analysis of the relationship between psychological empowerment and effectiveness satisfaction, and strain. *Journal of Management*, 23(5), 679-704.
- Standards Developments. (2010). *Professional Safety*, 55(8), 43-45.
- Stanton, P., & Stanton, J. (2002). Corporate annual reports: research perspectives used. *Accounting, Auditing & Accountability Journal* 15(4), 478-500.
- Stedry, A. C., & Kay, E. (1966). The effects of goal difficulty on performance: A field

experiment. *Behavioural Science*, 11(6), 459-470.

Steinheider, B., Bayerl, P., & Wuestewald, T. (2006). *The effects of participative management on employee commitment, productivity, and community satisfaction in a police agency*. Paper presented at the Paper presented at the annual meeting of the International Communication Association, Dresden International Congress Centre, Dresden, Germany.

Stulz, R. M. (1996). Rethinking risk management. *Journal of Applied Corporate Finance*, 9(3), 8-24.

Stulz, R. M. (2003). *The revolution in corporate finance* (4th ed ed.): Blackwell Publishing.

Sutton, S. G. (2006). Extended-enterprise systems' impact on enterprise risk management. *Journal of Enterprise Information Management*, 19(1/2), 97-114.

Tahir, I. M., & Razali, A. R. (2011). The relationship between enterprise risk management (ERM) and firm value: evidence from Malaysian public listed companies. *International Journal of Economics and Management Sciences*, 1(2), 32-41.

Tannenbaum, A. S. (1962). Control in organizations: Individual adjustment and organizational performance. *Administrative Science Quarterly*, 236-257.

Tekathen, M., & Dechow, N. (2013). Enterprise risk management and continuous re-alignment in the pursuit of accountability: A German case. *Management Accounting Research*, 24(2), 100-121.

Thiessen, K., Hoyt, R. E., & Merkley, B. M. (2001). *A Composite Sketch of a Chief Risk Officer*, Toronto, September.

Thompson, J. D. (1967). *Organisations in action: Social science bases of administration*.

Thong, J. Y. L., Yap, C.-S., & Raman, K. S. (1996). Top management support, external expertise and information systems implementation in small businesses. *Information Systems Research*, 7(2), 248-267. doi: 10.2307/23010862

Tiller, M. G. (1983). The dissonance model of participative budgeting: an empirical exploration. *Journal of Accounting Research*, 581-595.

- Tillinghast-Towers Perrin. (2001). Creating value through enterprise risk management - A practical approach for the Insurance Industry. retrieved from <http://www.towersperrin.com/tp/getwebcachedoc?webc=till/usa/2001/200106/2002051306.pdf> (accessed on August 19, 2014)
- Togok, S. H., Isa, C. R., & Zainuddin, S. (2016). Enterprise risk management adoption in Malaysia: A disclosure approach. *Asian Journal of Business and Accounting*, 9(1), 83.
- Tosi, H. L., & Carroll, S. J. (1976). *Management: Contingencies, structure, and process*: St. Clair Press Chicago.
- Treasury Board. (2001). *Integrated risk management framework*. Treasury Board, Canadian Government, Ottawa.
- Ugboro, I. O., & Obeng, K. (2000). Top management leadership, employee empowerment, job satisfaction, and customer satisfaction in TQM organizations: an empirical study. *Journal of Quality Management*, 5(2), 247-272.
- Verbrugge, J., Smith, C., Niehaus, G., Briscoe, C., Coleman, W., Lawder, K., . . . Chew, D. (2003). University of Georgia roundtable on enterprise-wide risk management. *Journal of Applied Corporate Finance*, 15(4), 8-26.
- Vroom, V. H. (1959). Some personality determinants of the effects of participation. *The Journal of Abnormal and Social Psychology*, 59(3), 322.
- Walker, G. B. (2007). Public participation as participatory communication in environmental policy decision-making: From concepts to structured conversations. *Environmental Communication*, 1(1), 99-110.
- Walker, P. L., Shenkir, W. G., & Barton, T. L. (2003). ERM in practice. *The Internal Auditor*, 60(4), 51-55.
- Wallach, E. J. (1983). Individuals and organisations: The cultural match. *Training & Development Journal*, 37(2), 28.
- Wan Daud, W. N. (2011). The role of the quality internal audit support in enterprise risk management (ERM) practices: evidence from Malaysia. *International Journal of Business and Social Science*, 2(5), 189-197.
- Wan Daud, W. N., Haron, H., & Ibrahim, D. N. (2011). The role of quality board of directors in enterprise risk management (ERM) practices: evidence from binary

- logistic regression. *International Journal of Business and Management*, 6(12), 205-211.
- Wan Daud, W. N., Yazid, A. S., & Hussin, H. M. R. (2010). The effect of chief risk officer (CRO) on enterprise risk management (ERM) practices: evidence from Malaysia. *The International Business & Economics Research Journal*, 9(11), 55-64.
- Waterhouse, J. H., & Tiessen, P. (1978). A contingency framework for management accounting systems research. *Accounting, Organisations and Society*, 3, 65-76.
- Waweru, N., & Kisaka, E. (2013). The effect of enterprise risk management implementation on the value of companies Listed on the Nairobi Stock Exchange. *Journal of Applied Finance and Banking*, 3(3), 81-105.
- Weber, M. (1947). *The theory of social and economic organisation*. London: Oxford University Press.
- Werts, C. E., Linn, R. L., & Jöreskog, K. G. (1974). Intraclass reliability estimates: Testing structural assumptions. *Educational and Psychological measurement*, 34(1), 25-33.
- Wilkins, A. L., & Ouchi, W. G. (1983). Efficient cultures: Exploring the relationship between culture and organisational performance. *Administrative Science Quarterly*, 28(3), 468-481.
- Wixom, B. H., & Watson, H. J. (2001). An empirical investigation of the factors affecting data warehousing success. *MIS Quarterly*, 25(1), 17-41.
- Woon, L. F., Azizan, N. A., & Samad, M. F. A. (2011). A strategic framework for value enhancing enterprise risk management. *Journal of Global Business & Economics*, 2(1), 23-47.
- Woosang, H., & Hokey, M. (2013). Assessing the impact of ERP on supplier performance. *Industrial Management and Data Systems*, 113(7), 1025-1047.
- Xin, L. (2011). *A holistic perspective of enterprise risk management*. (PhD PhD), Washington State University, Ann Arbor. Retrieved from <http://search.proquest.com/docview/924154960?accountid=28930> (accessed on Nov 16, 2013)
- Yazid, A. S., Hussin, M. R., & Wan Daud, W. N. (2011). An examination of enterprise

risk management (ERM) practices among the government-linked companies (GLCs) in Malaysia. *International Business Research*, 4(4), 94-103.

Yazid, A. S., Razali, A. R., & Hussin, M. R. (2012). Determinants of enterprise risk management (ERM): a proposed framework for Malaysian public listed companies. *International Business Research*, 5(1), 80-86.

Yetton, P., Sharma, & Southon, G. (1999). Successful IS innovation: the contingent contributions of innovation characteristics and implementation process. *Journal of Information Technology*, 14(1), 53-68.

Yilmaz, C., & Ergun, E. (2008). Organisational culture and firm effectiveness: An examination of relative effects of culture traits and the balanced culture hypothesis in an emerging economy. *Journal of World Business*, 43(3), 290-306.

Yukl, G. A. (1989). *Leadership in organizations*: Pearson Education India.

Yusuwan, N. M., Adnan, H., Omar, A. F., & Kamaruzaman, J. (2008). Clients' perspectives of risk management practice in Malaysian construction industry. *J. Pol. & L.*, 1, 121.

Zehra, H. T., & Bukhari, I. (2015). Relationship between organizational culture and in-role job performance among private sector bank employees. *Pakistan Business Review*, 17(3), 541-561.

Zheng, W., Yang, B., & McLean, G. N. (2010). Linking organisational culture, structure, strategy, and organisational effectiveness: Mediating role of knowledge management. *Journal of Business Research*, 63(7), 763-771.

LIST OF PUBLICATIONS AND CONFERENCES WHERE PAPERS ARE PRESENTED

Publications

1. Operationalising enterprise risk management (ERM) effectiveness. *Journal of Accounting Perspectives*, Vol. 7, December 2014, pages 28-48 (Non-ISI/Non-SCOPUS Cited Publication).
2. Enterprise risk management adoption in Malaysia: A disclosure approach. *Asian Journal of Business and Accounting*, Vol 9(1), June 28, 2016, pages 83-104. (Non-ISI/SCOPUS Cited Publication).

Conferences where Papers from this Thesis were presented

1. Review of Enterprise Risk Management (ERM) Literature. Paper presented at the International Conference on Technology and Business Management, March 2014.
2. Operationalising Enterprise Risk Management (ERM) Effectiveness. Paper presented at the 16th Malaysian Finance Association Conference, Kuala Lumpur, June 2014.
3. Behavioural Factors Influencing the Perceived Effectiveness of Enterprise Risk Management (ERM) in Managing Risks. Paper presented at the Asian Academic Accounting Association 16th Annual Conference, Bandung. November 2015.

OPERATIONALISING ENTERPRISE RISK MANAGEMENT (ERM) EFFECTIVENESS

Salinah Togok, Che Ruhana Isa and Suria Zainuddin

Abstracts

Studies on ERM effectiveness appear to suffer from the same catastrophic dilemma as that of organizational effectiveness. To the best of the author's knowledge, very little research has been done on the effectiveness of ERM in managing risks. Based on the guidance from the COSO (2004) framework and the existing literature coupled with the insights gathered from semi-structured interviews, the current article aims to demarcate a workable model, and, thereafter, an instrument to be operationalized in ERM effectiveness studies. The findings suggest that the COSO framework is still relevant for ERM and that to improve the robustness of the effectiveness instrument, a multidimensional approach is key. This paper suggests a multiple model approach comprising a process model, system resource model and outcome model for measuring ERM effectiveness. Additionally, the perspectives from various ERM stakeholders of the risk, including the risk function itself, such as from the internal audit and finance or other members of the management team, may enhance the assessment of the effectiveness of ERM in managing risks. It is hoped that the model and instrument developed in this paper will encourage more studies to be conducted on the effectiveness of ERM in particular. From the practical standpoint, with some modifications to the fit, the instrument can also be applied to evaluate the effectiveness of ERM implementation in the respective organisations.

Keywords: Enterprise Risk Management, ERM, effectiveness, research instrument

JEL Classification: G32, L25

1. Introduction

Organisational effectiveness is vital for organisational survival and has been given a prominent place in both the corporate and academic domains. Cameron (1986), in his paper on consensus and conflicts in organisational effectiveness, suggests a few common research trends. First of all, he states that despite the ambiguity and confusion surrounding organisational effectiveness, it remains central to organisational science and cannot be ignored in theory and research. Secondly, according to him, scholars agree that consensus on the most appropriate set of indicators for effectiveness is non-existent. Thirdly, Cameron suggests that the criteria for effectiveness are based on the values and preferences of individuals with no specific construct boundaries, with different

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Enterprise Risk Management Adoption in Malaysia: A Disclosure Approach

Salinah Hj Togok*, Che Ruhana Isa and Suria Zainuddin

ABSTRACT

Manuscript type: Research paper

Research aims: This paper aims to identify Malaysian companies that had adopted Enterprise Risk Management (ERM) and to determine the intensity of risk disclosure practised before and after the implementation of the 2013 Bursa Malaysia Guidelines on Risk Management and Internal Control.

Design/Methodology/ Approach: This study used a dual approach of content analysis followed by an online survey. In the first phase, content analysis was performed on the annual reports of 754 Malaysian public listed companies by using the common terms used in ERM. In the second phase, an online survey was circulated among 330 ERM adopters which were identified from the content analysis approach.

Research findings: Findings from the content analysis show that the overall level of risk disclosure before and after the current guidelines had increased by five (5) per cent. Findings from the online survey further suggest that 53 per cent of respondents confirmed that ERM is indeed an integral part of their organisation.

Theoretical contributions/ Originality: This study seeks to broaden current literature on risk disclosure by investigating the regulatory impact on disclosure practices. The second contribution lies in the use of dual approaches to data collection: content analysis and online survey, both of which enhance the accuracy of findings without adversely impacting on its generalisability and the costs of conducting this research.

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Review of Enterprise Risk Management (ERM) Literature

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

1. Introduction

1.1. What is ERM?

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

Operationalising Enterprise Risk Management (ERM) Effectiveness

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1. Introduction

Organisational effectiveness is a necessity to organisational survival and has been given a prominent place in both corporate and academic domain. Cameron (1986) in his paper on consensus and conflicts in organisational effectiveness suggests a few common trends in the area of research. First of all, he states that despite the ambiguity and confusion surrounding organisational effectiveness, it remains central to the organisational science and cannot be ignored in theory and research. Secondly, according to him, scholars agree that the consensus on the most appropriate set of indicators for effectiveness is nonexistent. Thirdly, Cameron suggests that the criteria for effectiveness are based

Behavioural factors influencing the perceived effectiveness of enterprise risk management (ERM) in managing risks

Abstracts

Purpose

This paper investigates the behavioural factors influencing the effectiveness of Enterprise Risk Management (ERM) in managing risks and the mediating effect of culture on the relationship between the variables. Specifically, the internal human behaviors included in the investigation are tone from top and the extent of employee involvement in ERM activities. The paper also examined the mediating influence of organisational culture in the overall framework.

Design/methodology/approach

In this work, data was collected through an online survey administered on Malaysian public listed companies which have evidence of ERM implementation.

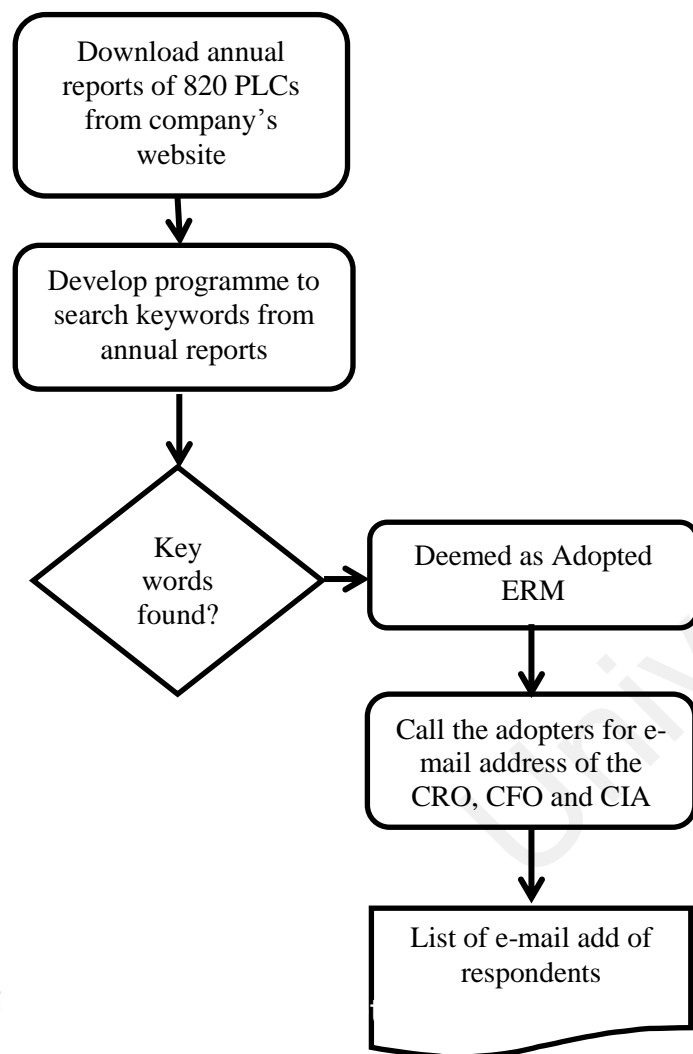
Findings

The findings of the current study contribute to our understanding that perceived ERM effectiveness is positively influenced by tone from the top, organisational culture and employee involvement. Nevertheless, contrary to our predictions, our current evidence shows lack of mediating influence on the relationship between the predictor variables and the perceived ERM effectiveness in managing risks.

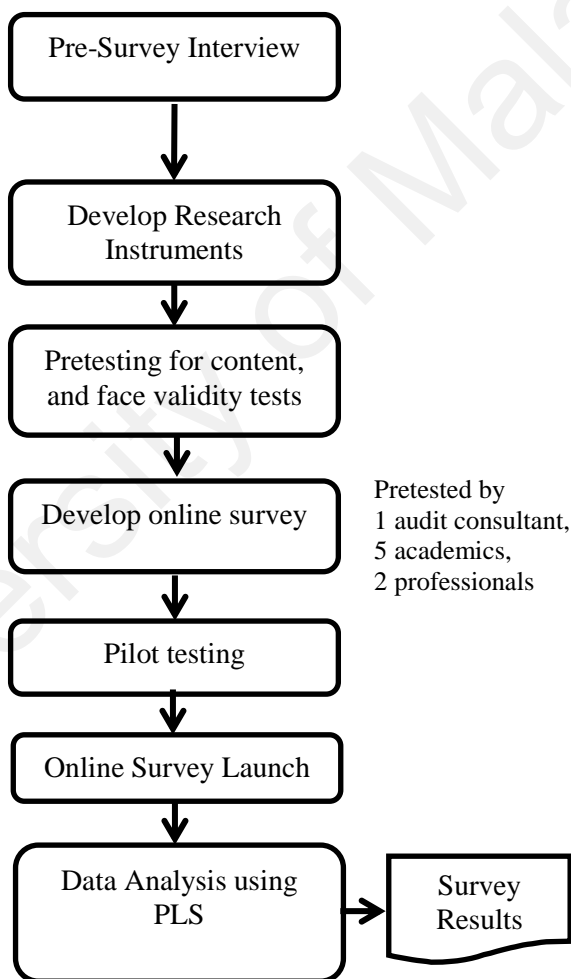
Practical implications

Given the benefits of ERM, the current piece of work will aid practitioners, professional bodies by offering insights into what make up a conducive environment towards an effective and successful ERM in managing risks. The empirical evidence of the effectiveness of ERM in

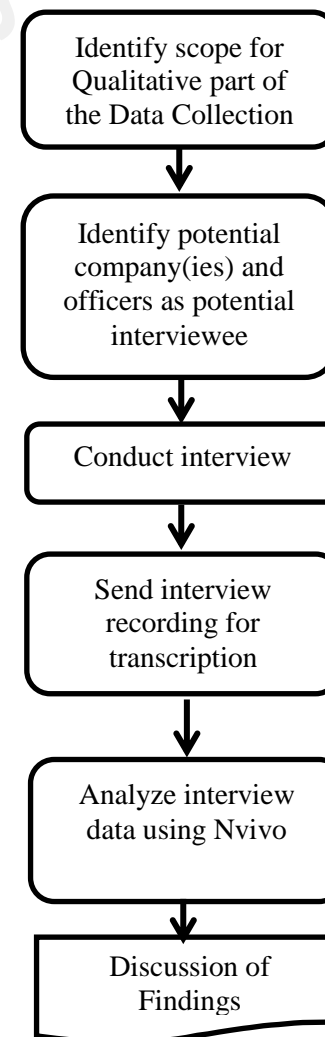
Step 1 – Sample Definition using content analysis of annual reports



Step 2 – Quantitative approach of collecting data using online



Step 3 – Qualitative approach of collecting data using semi-structured interview and content analysis



List of Empirical Studies Published in Journals Conducted on ERM from 2003 to 2014 (N=62)

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
1	The characteristics of firms that hire chief risk officers	Pagach and Warr (2010)	Secondary data	Financial characteristics of ERM adopters	US
2	Enterprise risk management : strategic antecedents, risk integration, and performance	Lin, Wen and Yu (2012)	Secondary data	Financial characteristics of ERM adopters	US
3	The determinants of enterprise risk management : evidence from the appointment of chief risk officers	Liebenberg and Hoyt (2003)	Secondary data	Financial characteristics of ERM adopters	US
4	The effect of corporate governance on the use of enterprise risk management : evidence from Canada	Kleffner, Lee and McGannon (2003)	Mixed method - survey -> interview	Financial characteristics of ERM adopters	Canada
5	Determinants of enterprise risk management (ERM): A proposed framework for Malaysian public listed companies	Yazid, Razali and Hussin (2012)	Survey	Determinants for ERM adoption	Malaysia
6	ERM: opportunities for improvement	Beasley, Branson and Hancock (2008)	Survey	Determinants for ERM adoption	US
7	Enterprise risk management: An empirical analysis of factors associated with the extent of implementation	Beasley, Clune, and Hermanson (2005a)	Survey	Determinants for ERM adoption	US
8	The adoption and design of enterprise risk management practices: an empirical study	Paape and Speklé (2012)	Survey	Determinants for ERM adoption and relationship between risk management design choices and ERM effectiveness	Netherland
9	The effect of enterprise risk management implementation on the value of companies listed on the Nairobi Stock Exchange	Waweru and Kisaka (2013)	Secondary data	ERM Impact on firm's value	Kenya
10	Enterprise risk management and value creation: initial findings amongst non-financial publiclisted companies in Malaysian bourse	Ghazali and Abdul Manab (2013)	Secondary data	ERM Impact on firm's value	Malaysia

List of Empirical Studies Published in Journals Conducted on ERM from 2003 to 2014 (N=62) (continued)

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
11	The relationship between enterprise risk management (ERM) and firm value: evidence from Malaysian public listed companies.	Tahir and Razali (2011)	Secondary data	ERM Impact on firm's value	Malaysia
12	Does enterprise risk management increase firm value	Mc Shane, Nair and Rustambekov (2011)	Secondary data	ERM Impact on firm's value	US
13	The value of enterprise risk management	Hoyt and Liebenberg (2011)	Secondary data	ERM Impact on firm's value	US
14	Enterprise risk management and firm performance in Malaysia	Nickmanesh, Zohoori, Musram and Akbari (2013)	Secondary data	ERM Impact on firm's performance	Malaysia
15	Enterprise risk management : A process of enhanced management and improved performance	Gates, Nicolas and Walker (2012)	Survey	ERM Impact on firm's performance	US
16	Enterprise risk management and firm performance : a contingency perspective	Gordon, Martin and Chih-Yang (2009)	Secondary data	ERM Impact on firm's performance (ERM effectiveness)	US
17	Management accounting systems, enterprise risk management and organizational performance in financial institutions	Rasid, Isa and Ismail (2014)	Secondary data	ERM Impact on firm's performance	Malaysia
18	The relationship between enterprise risk management (ERM) and organizational performance : evidence from Nigerian insurance industry	Obalola, Akpan and Olufemi (2014)	Secondary data	ERM Impact on firm's performance	Nigeria
19	Enterprise risk Management program quality : determinants, value relevance, and the financial crisis	Baxter, Bedard, Hoitash and Yezegel (2013)	Secondary data	ERM Impact on firm's performance during crisis	US Banks
20	The value of investing in enterprise risk management	Grace, Leverty, Phillips and Shimpi (2014)	Survey and secondary data	ERM Impact on firm's performance during crisis	US

List of Empirical Studies Published in Journals Conducted on ERM from 2003 to 2014 (N=62) (continued)

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
21	A study of the relationship between a successful enterprise risk management system, a performance measurement system and the financial performance of Thai listed companies	Laisasikorn and Rompho (2014)	Survey and secondary data	Impact of a successful (effective) ERM and Performance measurement system on firm's performance	Thailand
22	Enterprise risk management as a strategic governance mechanism in B2B-Enabled transnational supply chains	Arnold, Hampton and Sutton (2012)	Survey	ERM Impact on Supply Chain Relationship	North America
23	Enterprise-wide risk management and organizational fit : a comparative study	Arnaboldi and Lapsley (2014)	Case study	ERM impact on budgeting	UK
24	Integrated risk management and product innovation in China : the moderating role of board of directors	Wu and Wu (2013)	Survey	ERM impact on product innovation (moderating role of board of directors)	China
25	The rise and evolution of the chief risk officer : enterprise risk management at Hydro One	Aabo, Fraser and Simkins (2005)	Case study	Role of CRO in ERM implementation	Canada
26	The effect of chief risk officer (CRO) on enterprise risk management (ERM) practices : evidence from Malaysia	Wan Daud, Yazid and Hussin (2010)	Survey	Role of CRO in ERM implementation	Malaysia
27	Risk management at crunch time: are chief risk officers compliance champions or business partners?	Mikes (2008)	Mixed method - survey -> interview	Role of CRO in ERM implementation	UK Banks
28	Information conveyed in hiring announcements of senior executives overseeing enterprise-wide risk management processes	Beasley, Pagach and Warr (2007)	Secondary data	Role of CRO in ERM implementation	US
29	Governance and shareholder response to chief risk officer appointments	Gupta, Prakash and Rangan (2012)	Secondary data	Role of CRO in ERM implementation	US
30	Integrated risk management and the role of risk manager	Collquit, Hoyt and Lee (1999)	Survey	Role of CRO in ERM implementation	US

List of Empirical Studies Published in Journals Conducted on ERM from 2003 to 2014 (N=62) (continued)

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
31	Internal audit involvement in enterprise risk management	de Zwaan, Stewart and Subramaniam (2011)	Experimental design	Role of internal audit on ERM implementation	Australia
32	The enterprise risk management and the risk oriented internal audit	Liu (2012)	Mixed method - interview -> survey	Role of internal audit on ERM implementation and its application on ERM effectiveness	China
33	The enterprise risk management and the risk oriented internal audit (ERM) practices : evidence from Malaysia	Wan Daud (2011)	Survey	Role of internal audit on ERM implementation	Malaysia
34	The effect of continous enterprise risk management improvement on internal audit work success of the institute of higher education	Musig and Kunsrison (2012).	Survey	Role of internal audit on ERM implementation	Thailand
35	Embedding risk management : structures and approaches	Fraser and Henry (2007)	Interview	Role of internal audit on ERM implementation	UK
36	ERM: a status report	Beasley, Clune and Hermanson (2005)	Survey	Role of internal audit on ERM implementation	US
37	The role of quality board of directors in erm practices: evidence from binary logistic regression	Wan Daud, Haron and Ibrahim (2011)	Survey	Role of BOD on ERM	Malaysia
38	An examination of enterprise risk management (ERM) practices among the government-linked companies (GLCs) in Malaysia	Yazid, Hussin and Wan Daud (2011)	Survey	Role of CRO and BOD on ERM implementation	Malaysia
39	Evaluating enterprise risk management (ERM) ; Bahrain financial sectors as a case study	Jalal, Albayati and Albuainain (2011)	Survey	ERM practices within organisation (ERM effectiveness)	Bahrain
40	Enterprise risk management (ERM) practices of private higher education institutions in Botswana : a critical analysis	Rudhumbu (2014)	Survey	ERM practices within organisation	Botswana

List of Empirical Studies Published in Journals Conducted on ERM from 2003 to 2014 (N=62) (continued)

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
41	Current practices of enterprise risk management in Dubai	Rao and Marie (2007)	Survey	ERM practices within organisation	Dubai
42	Enterprise risk management and continuous re-alignment in the pursuit of accountability: a German case	Tekathen and Dechow (2013)	Case study	ERM practices within organisation	Germany
43	Implementation of enterprise risk management: evidence from the German property-liability insurance industry	Altuntas,Berry-stölzle and Hoyt (2011)	Survey	ERM practices within organisation	Germany
44	Enterprise risk management in the Middle East Oil industry : an empirical investigation across GCC countries	Muralidhar (2010)	Case study	ERM practices within organisation	Gulf Cooperation Council
45	Is enterprise risk management real?	Arena, Arnaboldi and Azzone (2011)	Case study	ERM practices within organisation	Italy
46	The organizational dynamics of enterprise risk management	Arena, Arnaboldi and Azzone (2010)	Case study	ERM practices within organisation	Italy
47	Risk and management accounting: best practice guidelines for enterprise-wide internal control procedures	Collier, Berry and Burke (2007)	Mixed method - case study -> survey	ERM practices within organisation (ERM effectiveness)	UK
48	United Grain Growers: enterprise risk Management and weather risk	Harrington and Niehaus (2003)	Case study	ERM practices within organisation	US
49	Enterprise risk management strategies for state departments of transportation	Hallowell, Molenaar and Fortunato (2012)	Mix method	ERM practices within public entities	US
50	An exploratory study of enterprise risk management pillars of ERM	Lundqvist (2014)	Survey	ERM practices and the framework used.	Sweden
51	Investigating enterprise risk management maturity in construction firms	Zhao, Hwang and Low (2014)	Mix method - survey -> case study	ERM maturity and ERM Practices within organisation	Singapore

List of Empirical Studies Published in Journals Conducted on ERM from 2003 to 2014 (N=62) (continued)

No	Title	Authors	Research Method	Main Research Theme (sub theme)	Country
52	Developing fuzzy enterprise risk management maturity model for construction firms	Zhao, Hwang and Low (2013)	Survey	ERM maturity and ERM Practices within organisation	Singapore
53	Enterprise risk management: insights from a textile-apparel supply chain	Moon, Mo and Chan (2014)	Interview	ERM maturity and ERM Practices within organisation	Hongkong
54	The role of enterprise risk management and organisational strategic flexibility in easing new regulatory compliance	Arnold, Benford, Canada, Sutton (2011)	Survey	Effectiveness of ERM Programme - in reaction to new regulatory mandates.	US
55	The effectiveness of risk management implementation in Russian companies	Makarova (2014)	Survey	ERM practices within organisation and the effective risks assessments	Russia
56	The relationship between corporate strategy and enterprise risk management: evidence from Canada	Ben-Amar, Boujenoui, Zeghal (2014)	Secondary data	Relationship between strategy and risk management approach	Canada
57	Enterprise risk management in financial crisis	Heng Yik, Jifeng and Jared (2011)	Secondary data	Current Issues in ERM - financial crisis	US
58	Integration of carbon risks and opportunities in enterprise risk management systems: evidence from Australian firms	Subramaniam, Wahyuni, Cooper, Leung, Wines (2014)	Survey	Risks and opportunities of ERM approach carbon pricing mechanism	Australia
59	Who reads what most often ? A survey of ERM literature read by risk managers	Fraser, Schoening-Thiessen and Simkins (2008)	Survey	Literature on ERM	Canada
60	Supply chain risk management within the context of COSO's enterprise risk management framework	Curkovic, Scannell, Wagner, and Vitek (2013)	Survey	ERM based on COSO 8 components	North America
61	An investigation of the extent of adoption of enterprise risk management (ERM) by banks in Zimbabwe	Kanhai, Ganesh, & Muhwandavaka (2014)	Survey and secondary data	Level of ERM adoption	Zimbabwe
62	Risk management and calculative cultures	Mikes (2009)	Case study	Value-based ERM approach	UK Banks

Summary of ERM Effectiveness Studies

No	Title	Authors	Research Objectives (in regards to effectiveness)	Operationalisation	Findings
1	Risk and management accounting: best practice guidelines for enterprise-wide internal control Data collection method: Questionnaire followed by interviews	Collier, Berry and Burke (2007)	To investigate the effectiveness of risk management guidance issued for the local authorities in UK	Uses dimensions of structure of the risk management function, and the risk management processes of risk identification, risk register, reporting and independent review to measure effectiveness	The study reveals that the will to implement an effective risk management can be developed if the concepts are sufficiently embedded in the operational procedures, implying that knowledge management is an important element in managing risks..
2	Enterprise risk management and firm performance: a contingency perspective. Data collection method: Questionnaire	Gordon, Martin and Chih-Yang (2009)	To investigate whether the relationship between ERM and firm performance is contingent upon the proper match between ERM and five key contingency variables (environmental uncertainty, industry competition, firm size, firm complexity, and board of directors' monitoring and firm performance).	Develops a set of ERM index (ERMI) to measure ERM effectiveness based on ERM's ability to achieve its objectives (based on COSO 2004) relative to strategy.	The findings confirm that the ERM-firm performance relation is indeed contingent on the proper match between ERM and the five variables. The findings also suggest that its ERM Index (ERMI) is only fair and not a perfect measure of ERM effectiveness.
3	Evaluating enterprise risk management (ERM): Bahrain financial sectors as a case study Data collection method: Questionnaire	Jalal, Albayati and Albuainain (2011)	To investigate the relationship between eight components of COSO 2004 ERM and ERM effectiveness.	Uses only four out of the eight components of COSO 2004 (risk assessment, communication, monitoring and control) as the antecedents for a good ERM programme (COSO, 2004).	Findings show lack of association between risk assessment & ERM, communication & ERM, monitoring & ERM, but there is a relationship between control & ERM.
4	The effectiveness of risk management implementation in Russian companies Data collection method: Questionnaire	Makrova (2014)	To determine the most effective ERM programme for Russian companies.	Information not available.	Information not available.

Summary of ERM Effectiveness Studies (continued)

No	Title	Authors	Research Objectives (in regards to effectiveness)	Operationalisation	Findings
5	The role of enterprise risk management and organisational strategic in easing new regulatory compliance Data collection method: Questionnaire	Arnold, Benford, Canada and Sutton (2011)	To investigate the relationship between an organisations' pre-regulatory effectiveness of enterprise risk management (ERM) processes and their reactivity to new regulatory mandates.	Uses a five-rating scale on the effectiveness of ERM procedures at a strategic level. Five statements describing ERM process were developed for this purpose.	Findings indicate presence of direct relationship between ERM effectiveness on the strength of the control environment and the indirect relationship between ERM effectiveness on control environment via compatibility and strategic flexibility as the mediator. Findings also support the propositions that organisations with effective ERM processes and flexible organisational structures react quickly to change in the regulatory landscape.
6	The adoption and design of enterprise risk management practices: an empirical study Data collection method: Questionnaire	Paape and Speklé (2012)	To investigate the relationship between specific risk management design choices and their effect on perceived risk management effectiveness	Uses a single item statement on quality of risk management whereby respondents are asked to rate on a ten-point scale.	Findings show no evidence that application of the COSO framework improves risk management effectiveness. In addition, the study finds that perceived risk management effectiveness is associated with the frequency of risk assessment and reporting, and with the use of quantitative risk assessment techniques.
7	A study of the relationship between a successful enterprise risk management system, a performance measurement system and the financial performance of Thai listed companies Data collection method: Questionnaire and secondary data	Laisasikorn and Rompho (2014)	To investigate how the relationship between and effective ERM system (ERMS) and a performance measurement system (PMS) with the financial performance.	Uses four components consisting of culture, processes, structure and infrastructure (based on COSO 2004). Each respondent was asked to rate the statements related to the components using a scale of 1–5.	The findings suggest that both systems are sources for companies' competitive advantage and sustainable growth. However, the results of the study also indicate that success of the ERMS and PMS have a weak positive correlation with the financial performance of an organisation.

Faculty of Business and Accountancy
 Universiti Malaya
 Lembah Pantai 50603 Kuala Lumpur
 Date

Dear Sir/Madam,

EFFECTIVENESS OF ENTERPRISE RISK MANAGEMENT (ERM) IN MANAGING RISKS

This survey is part of the thesis for the PhD programme undertaken at the Faculty of Business and Accountancy, University of Malaya. **The study is designed to further expand the body of knowledge regarding the factors influencing the effectiveness of ERM in managing risks.** The information you provide will help us to better understand the relationship between the organisational factors and ERM effectiveness in managing risks. There are a total of 19 main questions in the questionnaire which are broken down into the following six sections:

Section 1 : BACKGROUND INFORMATION

Section 2 : ERM CHAMPION IN YOUR ORGANISATION

Section 3 : CULTURE, STRUCTURE AND ENTERPRISE SYSTEM TECHNOLOGY OF YOUR ORGANISATION

Section 4 : EMPLOYEE INVOLVEMENT AND TONE FROM THE TOP

Section 5 : ERM IMPLEMENTATION IN YOUR ORGANISATION

Section 6 : PERCEIVED ERM EFFECTIVENESS IN MANAGING RISKS IN YOUR ORGANISATION

To maximise the usefulness of your response, we wish to ask you to please answer all questions in the questionnaire and answer them as frankly and as honestly as possible. It should take approximately 30 uninterrupted minutes to complete the questionnaire.

The information you provide will be kept strictly confidential and used solely for the purpose of the current thesis. Only those who are directly involved in the thesis preparation will have access to the data collected.

We wish to thank you in advance for your kind understanding and support. In the meantime, please do not hesitate to contact the corresponding researcher, Ms Salinah at +6013-325 6166 if you have any questions regarding the survey.

Yours sincerely,

Salinah Hj Togok

Assoc Prof Dr Ruhana Che Isa

Dr Suria Zainuddin

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 Kuala Lumpur

SECTION 1: BACKGROUND INFORMATION

Please choose only ONE answer by indicating (✓) in the relevant box provided.

1. Gender ☐ Male ☐ Female
2. Age ☐ 30 and below ☐ 51 - 60
☐ 31 – 40 ☐ Above 60
☐ 41 - 50

3. Please state your current position and your job title:

<input type="checkbox"/> Top Management	Job title: _____
<input type="checkbox"/> Middle Management	Job title: _____
<input type="checkbox"/> Junior Management	Job title: _____
<input type="checkbox"/> Non-management	Job title: _____

4. Length of service (in number of years)

In employment	<input type="text"/> <input type="text"/> years
In current position	<input type="text"/> <input type="text"/> years

5. Industry (predefined)

<input type="checkbox"/> Manufacturing	<input type="checkbox"/> Technology
<input type="checkbox"/> Industrial Product	<input type="checkbox"/> Property
<input type="checkbox"/> Consumer Product	<input type="checkbox"/> Plantation
<input type="checkbox"/> Trade and Services	<input type="checkbox"/> Construction
<input type="checkbox"/> Others. Please specify _____	

6. Type of Organisation

<input type="checkbox"/> Public Listed Company (PLC)
<input type="checkbox"/> Government-Linked Companies (GLCs)
<input type="checkbox"/> Multinational Companies (MNCs)
<input type="checkbox"/> Others. Please specify _____

7. Does your organisation has a separate ERM unit?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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8. Does your organisation has a dedicated Chief Risk Officer?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------

SECTION 2: ENTERPRISE RISK MANAGEMENT (ERM) CHAMPION IN YOUR ORGANISATION

The following question identifies the ERM Champion in your organisation. Please choose only ONE of the roles below to be identified as ERM Champion based on the following primary responsibilities in relation ERM activities.

9. A Risk Champion is primarily responsible for the following tasks in relation to the implementation and coordination of ERM programme.

- *Establishing effective risk management programme for the organisation.*
- *Reporting the relevant risk information up, down and across the organisation.*
- *Monitoring all the risk management activities within the organisation*

Please choose one of the following role in your organisation who has the responsibility for all or most of the above tasks.

F. Chief Executive Officer

G. Chief Risk Officer

H. Chief Internal Auditor

I. Chief Financial Officer

J. Others. Please specify _____

10. The following statements refers to the power of the ERM Champion whom you have identified from Question 10 above. Please indicate your agreement to each of the following statement by circling **ONE** of the number/rating below regarding **the power of ERM Champion in your organisation.**

	Strongly Disagree				Strongly Agree			
1. The ERM Champion is a member of the Management team.	1	2	3	4	5	6	7	
2. The ERM Champion reports directly to the CEO or the Board of Directors or the Audit and Risk Committee.	1	2	3	4	5	6	7	
3. The ERM Champion is involved in the setting up of new ventures or new projects.	1	2	3	4	5	6	7	
4. The ERM Champion participates in board-level strategic decision making (i.e. M&A, portfolio rebalancing, etc.).	1	2	3	4	5	6	7	

SECTION 3: CULTURE, STRUCTURE AND ENTERPRISE SYSTEM TECHNOLOGY OF YOUR ORGANISATION

Please choose only **ONE** answer by circling the relevant number/rating.

11. Please indicate how each of the following statement describes your organisational culture.

	<i>Least describe</i>					<i>Best describe</i>	
1. Risk taking	1	2	3	4	5	6	7
2. Collaborating	1	2	3	4	5	6	7
3. Hierarchical	1	2	3	4	5	6	7
4. Procedural	1	2	3	4	5	6	7
5. Relationship Oriented	1	2	3	4	5	6	7
6. Results oriented	1	2	3	4	5	6	7
7. Creative	1	2	3	4	5	6	7
8. Encouraging	1	2	3	4	5	6	7
9. Sociable	1	2	3	4	5	6	7
10. Structured	1	2	3	4	5	6	7
11. Pressurised	1	2	3	4	5	6	7
12. Ordered	1	2	3	4	5	6	7
13. Stimulating	1	2	3	4	5	6	7
14. Regulated	1	2	3	4	5	6	7
15. Personal Freedom	1	2	3	4	5	6	7
16. Equitable	1	2	3	4	5	6	7
17. Safe	1	2	3	4	5	6	7
18. Challenging	1	2	3	4	5	6	7
19. Enterprising	1	2	3	4	5	6	7
20. Established, Solid	1	2	3	4	5	6	7
21. Cautious	1	2	3	4	5	6	7
22. Trusting	1	2	3	4	5	6	7
23. Driving	1	2	3	4	5	6	7
24. Power-oriented	1	2	3	4	5	6	7

12. Please indicate your agreement to each of the following statement about your **organisation structure**.

Nature of formalisationStrongly
DisagreeStrongly
Agree

1. My organisation establishes rules and procedures to show how employees can make suggestions for changes	1	2	3	4	5	6	7
2. My organisation establishes rules and procedures to reflect the experience learned from the past.	1	2	3	4	5	6	7
3. My organisation establishes rules and procedures to guide employees to implement improvement at work.	1	2	3	4	5	6	7
4. My organisation establishes rules and procedures to encourage employees to be creative in dealing with problems at work.	1	2	3	4	5	6	7
5. The employees in my organisation can share opinions with their superior and get involved in making decisions.	1	2	3	4	5	6	7

HierarchyStrongly
DisagreeStrongly
Agree

1. There are only a few layers in my organisational hierarchy.	1	2	3	4	5	6	7
2. My organisation is a lean organisation.	1	2	3	4	5	6	7
3. My organisation has only few management layers between staff at the basic level and CEO.	1	2	3	4	5	6	7

DecentralisationStrongly
DisagreeStrongly
Agree

1. The employees in my organisation have the authority to correct problems when they occur.	1	2	3	4	5	6	7
2. The employees in my organisation are empowered and have control over their job.	1	2	3	4	5	6	7
3. My superiors are supportive of the decisions made by their team.	1	2	3	4	5	6	7

13. Please indicate your agreement to each of the following statement about your organisation **enterprise systems technology**.

GeneralStrongly
DisagreeStrongly
Agree

1. All kinds of business information flow electronically across the organisation.	1	2	3	4	5	6	7
2. The systems for financial and accounting information, human resource information, supply chain information, where applicable, is fully integrated .	1	2	3	4	5	6	7

IntegrationStrongly
DisagreeStrongly
Agree

1. We seamlessly integrate all business modules in the enterprise system technology.	1	2	3	4	5	6	7
2. We seamlessly integrate all internal business transactions in the enterprise system technology.	1	2	3	4	5	6	7
3. We seamlessly integrate the enterprise system technology with customer and supplier system , using communication protocols and standards.	1	2	3	4	5	6	7

ConfigurationStrongly
DisagreeStrongly
Agree

1. The enterprise system technology in my organisation meets all my organisational needs .	1	2	3	4	5	6	7
2. The enterprise system technology in my organisation accommodates the relevant changes required.	1	2	3	4	5	6	7
3. The enterprise system technology in my organisation supports the business processes and practices of my organisation (data fit).	1	2	3	4	5	6	7

AdaptationStrongly
DisagreeStrongly
Agree

1. We can easily alter the enterprise system technology data items , to fit into changing organisational needs.	1	2	3	4	5	6	7
2. We can easily alter the enterprise system technology input/output screens , to fit into changing organisational needs.	1	2	3	4	5	6	7
3. We can easily alter the enterprise system technology reports , to fit into changing organisational needs.	1	2	3	4	5	6	7

Software for ERMStrongly
DisagreeStrongly
Agree

1. My organisation implements risk management software to capture all risk information which includes the risk events, response and status of each response.	1	2	3	4	5	6	7
2. The risk management software used in my organisation is accessible to all the applicable risk owners, line management and the dedicated risk team.	1	2	3	4	5	6	7
3. The risk management software used in my organisation is integrated with all the other operating systems in the organisation.	1	2	3	4	5	6	7

SECTION 4: EMPLOYEE INVOLVEMENT and TONE FROM THE TOP

Please choose only **ONE** answer by circling the relevant number/rating.

14. Please indicate your agreement to each of the following statement regarding the extent of **employee involvement in ERM activities in your organisation.**

	Strongly Disagree				Strongly Agree		
1. Employees are involved in identifying the key risk area.	1	2	3	4	5	6	7
2. Employees are involved in defining the risk mitigating initiatives.	1	2	3	4	5	6	7
3. Management put in great efforts to involve employees in ERM processes/activities.	1	2	3	4	5	6	7

15. Please indicate your agreement to each of the following statement regarding the extent of **tone from the top in regards to ERM activities in your organisation.**

	Strongly Disagree				Strongly Agree		
1. The internal environment in my organisation provides an appropriate foundation for ERM.	1	2	3	4	5	6	7
2. The 'tone from the top' sends an appropriate level of emphasis on the importance of ERM in my organisation.	1	2	3	4	5	6	7
3. Board of directors or committee of the board in my organisation is actively involved in the risk management activities.	1	2	3	4	5	6	7

SECTION 5: ERM IMPLEMENTATION IN YOUR ORGANISATION

Please choose only **ONE** answer by indicating (✓) in the relevant box provided

16. Please choose the statement which BEST described the level of ERM implementation in your organisation.

- A. We identify, assess, and control strategic, financial, operational, and compliance risks; **ERM is an integral part of the (strategic) planning & control cycle.**
- B. We identify, assess, and control strategic, financial, operational, and compliance risks; **we are in the process of implementing a complete ERM.**
- C. We identify, assess and control risk in specific area; **we are planning to implement a complete ERM.**
- D. We actively control risk in specific areas (e.g. health & safety, financial risk); **we are considering to implement a complete ERM.**
- E. Risk management is mainly incident-driven; **no plans exist to implement ERM.**

17. Please indicate the number of years ERM has been implemented in your organisation.

- A. In the first year of ERM
- B. In the year 2 – 3 of ERM implementation
- C. In the year 4 – 5 of ERM implementation
- D. Beyond the fifth year of ERM implementation
- E. Not implementing ERM

SECTION 6: ERM PERCEIVED EFFECTIVENESS IN MANAGING RISKS

Please choose only **ONE** answer by circling the relevant number/rating.

18. The following statements refer to the **11 principles of an effective risk management according to ISO 31000: 2009**. Please indicate your agreement to each of the following statement in respect to the ERM practices in your organisation.

	Strongly Disagree				Strongly Agree			
1. Risk management activities in my organisation create and protect organisational value.	1	2	3	4	5	6	7	
2. Risk management in my organisation is part of the management responsibilities and are embedded in all the organisational processes , including strategic planning as well as change management activities.	1	2	3	4	5	6	7	
3. Risk management helps decision makers make informed choices, prioritise actions and distinguish among alternative courses of action.	1	2	3	4	5	6	7	
4. Risk management activities in my organisation considers all kinds of threats and uncertainties , the nature of those threats and uncertainties, and how they can be addressed.	1	2	3	4	5	6	7	
5. Risk management programme in my organisation is systematic, structured and timely .	1	2	3	4	5	6	7	
6. Risk management in my organisation is based on the best available information including but not limited to historical data, past experience, inputs from stakeholders and experts, observations and forecasts.	1	2	3	4	5	6	7	
7. Risk management in my organisation is aligned with the organisation's external and internal context and risk profile.	1	2	3	4	5	6	7	
8. Risk management function in my organisation recognises the capabilities, perceptions and intentions of external and internal people that can facilitate or hinder achievement of the organisation's objectives.	1	2	3	4	5	6	7	
9. Risk management activities in my organisation involve stakeholders and decision makers at all levels of the organisation in a timely manner to ensure that risk management remains relevant and up-to-date.	1	2	3	4	5	6	7	
10. Risk management in my organisation is dynamic, iterative, and responsive to change .	1	2	3	4	5	6	7	
11. My organisation develops and implements strategies to improve risk management maturity alongside all other aspects of their organisation.	1	2	3	4	5	6	7	

19. The following statements refer to **the organisation ability to achieve the objectives set for ERM**. Please indicate the extent to which the objectives can be effectively achieved in your organisation.

	<i>Entirely Ineffective</i>				<i>Entirely Effective</i>			
1. ERM enhances my organisation ability to identify and assess risk events effectively.	1	2	3	4	5	6	7	
2. ERM enhances my organisation ability to manage risks within its risk appetite and risk tolerance level.	1	2	3	4	5	6	7	
3. ERM enhances my organisation ability regarding the achievement of entity objectives .	1	2	3	4	5	6	7	
4. ERM enhances my organisation ability to minimise unfavourable surprises and losses .	1	2	3	4	5	6	7	
5. ERM enhances my organisation ability to optimise the potential upside effects from the opportunities arising from the uncertainties.	1	2	3	4	5	6	7	

Study on the Factors Influencing Perceived Effectiveness of ERM Implementation in Managing Risks (hereafter referred to as the Current Study)

Introduction script at the beginning of the interview session

This Interview forms part of the Case Study. The objective of this interview is to gain insight into ERM practices within Organisations, in particular its effectiveness in managing risks and the organisational factors that can influence its effectiveness. The conduct of this interview is purely for academic purposes. We are not engaged by your management team or any parties to audit the processes in your organisation or to evaluate your performance.

Your management team is, however, aware of the research that we are currently conducting and written approval has been obtained to conduct this interview with you. There are no right or wrong in the answers to the questions although it may be worth highlighting that the ERM practices in your organisation are among the best in the country. Therefore we would appreciate it if you could be as truthful and frank as possible in giving your feedback or expressing your views.

Please be assured that your identity will not be disclosed in any form of publication or report which maybe produced upon completion of the case study. Any form of input gathered from this interview will be used only for academic purposes and specific to the preparation of the current study.

This questionnaire consists of 5 sections of open-ended questions as follows:

Section 1 – Background information

Section 2 – ERM practices within organisations and its effectiveness in managing risks

Section 3 – Employee involvement in ERM activities

Section 4 – Strategic Role of ERM Champion

Section 5– Organisational Setting

SECTION 1 – BACKGROUND INFORMATION

In this section we would like to know your background and the background of the organisation which you are representing.

Please tell me about yourself.

1. Name of the Interviewee:
2. Department:
3. Position:
4. How long have you been in the position:

SECTION 2 – ERM PRACTICES WITHIN ORGANISATIONS AND ITS EFFECTIVENESS IN MANAGING RISKS

In this section, we would like to know the ERM practices, in particular its effectiveness in managing risks.

1. Please describe what is your role in ERM in your organisation?
2. Can you describe the Risk Management practices in your organisation?
3. Tell me about about ERM approach of managing risks?
4. In what way does ERM affect your work?
5. In what way does ERM affect the ability of the company in managing risks?
6. To what extent do you think ERM is effective in managing risks?

SECTION 3 – EMPLOYEE INVOLVEMENT IN ERM ACTIVITIES

In this Section we would like to understand the nature and extent of employee involvement in ERM activities.

1. Describe your role in ERM activities in your company? Please describe the extent of your involvement. *(for example as risk owner, as coordinator, if in risk dept., as an enforcer, if in audit dept. etc.)*
2. How do you support ERM in your company? Please describe the extent of your support.
3. How do you describe employee involvement in ERM activities in your company?
4. How often do you get involved in ERM activities? *Daily, weekly, monthly, annually, or regularly.*
5. Tell me how does the management encourage employees to participate in the ERM activities. *(Does the management make it compulsory? Does management impose some form of penalty if employees do not participate?)*
6. In your opinion, to what extent does employee involvement or involvement affect the effectiveness of ERM in managing risks?

SECTION 4 – STRATEGIC ROLE OF ERM CHAMPION

In this Section we would like to understand the nature of ERM Champion at MAB.

1. If you were asked to name the ERM Champion for MAB, whose name comes into your mind? Please explain why. To whom does the ERM Champion report to in the organisation: to the management team / Board Risk Management Committee?
2. How do you describe his or her seniority/authorities in this company?
3. How do you describe his influence or autonomy concerning the future direction of the company?
4. Is risk topic a compulsory item in the checklist when assessing the feasibility of any projects (for example merger, acquisition, new development projects) to be undertaken by the company?

SECTION 5 – ORGANISATIONAL SETTINGS

In this Section we would like to understand the organisational settings of this company.

1. How do you describe the organisational culture in the company in regards to risk management? (*Pointers: Is it team work or individual culture, risk taker or risk averse culture? Is risk embedded in the culture?*)
2. How do you describe the enterprise system in MAB from the operation point of view and from ERM point of view?
3. How do you describe the tone from the top when it comes to ERM initiatives? (*Pointers: Does ERM gets top priority by the top management? Does management team drive ERM?*)
4. What are the initiatives done by the top management of this company to embed the risk awareness culture among employees?

Script to conclude the interview session

Thank you very much for your feedback.

Summary of ERM Practices

Company	Mars Berhad	Pluto Berhad	Saturn Berhad	Uranus Berhad	Venus Berhad	Marikh Berhad
Industry	Industrial Products	Consumer Products	Trade/Service	Consumer Products	Consumer Products	Financial Services
Interview Participants	Mr A - Head of Risk Ms B – Risk Coordinator Ms C - Head of Audit Mr D - Chairman of Risk Management Committee Ms E - Risk Coordinator Mr F - Risk Executive	Ms G - Head of Risk Ms H - Head of Audit	Mr I - CRO Mr J - Head of Audit Ms K - Head of Finance	Ms L - Head of Audit Mr M - Audit Manager	Mr N - CRO Mr O - Chairman of Risk Management	Mr P – CRO
Presence of CRO	x	x	√	x	√	√
Separate ERM Unit	√	√	√	√	√	√
Board Risk Management Committee	Board Risk Management Committee	Risk Management Committee (July 2013)	Audit and Risk Management Committee	Board Governance & Risk Management Committee	Risk Management Committee	Risk Management Committee, Credit Review Committee

Summary of ERM Practices (continued)

Company	Mars Berhad	Pluto Berhad	Saturn Berhad	Uranus Berhad	Venus Berhad	Marikh Berhad
Corporate Risk Management Committee at Management Executive Level	Corporate Risk Management Committee (2013)	Management Risk Committee	no information	Risk Management Committee (dissolved early 2014)	no information	Group Asset & Liability Committee, Group Executive Risk Committee, Group Management Credit Committee, Group Operational Risk Management Committee
Engaged consultant to implement	√	√	x	√	no info	no info
Appointment of risk coordinators	√	√	√	√	√	√
Number of times the risk register is being signed off	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Use of ERM Software	√	√	x	√	x	√
ERM Framework	ISO 31000	ISO 31000	ISO 31000 and COSO 2004 framework, where applicable	ISO 31000	ISO 31000	COSO 2004 Framework