Examining the link between Enterprise Risk Management (ERM) and organisational financial performance

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Submitted in fulfilment of the requirements for the degree of Doctor of Business Administration

Deakin University
March, 2018
I am the author of the thesis entitled Examining the link between Enterprise Risk Management (ERM) and organisational financial performance

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Abstract

Global economic uncertainty is increasing the pressure on organisations to improve their risk management and achieve higher financial returns. Organisations in many industries are responding by adopting Enterprise Risk Management (ERM) frameworks. This study identifies and tests the link between ERM and organisational performance. It answers the research questions: How do organisations use a guiding framework as part of their ERM implementation? What is the level of ERM implementation maturity in Australia? How is the adoption of ERM associated with improved organisational financial performance? How do moderating and mediating variables influence the success of the ERM program? The research extends the literature by testing the relationship between ERM implementation and financial performance (which has not yet been convincingly demonstrated) and identifying the factors that affect the adoption of ERM and the levels to which ERM is currently implemented. Quantitative data was used to test hypotheses identified from the literature, followed by qualitative interview data which was used to identify the reasons for the supported hypotheses and the associated contextual issues. A statistically significant relationship between ERM implementation and organisational financial performance was identified. This relationship was found to be mediated by organisational specific characteristics. A statistically significant relationship was also identified between the level of ERM implementation and the organisation’s ability to manage its risks. The level of ERM implementation in Australia was found to be highly variable, but generally lower than other developed countries. The level of ERM implementation was also found to be statistically significantly affected by the organisation’s culture. The findings provided insights for practitioners in relation to the key areas on which to focus in ERM implementation, especially organisational culture and the importance of systems connecting the ERM process and strategic decision-making. A number of important topics for future ERM research were also identified.
Dedication

This dissertation is dedicated to my amazing husband Damian Morse. Your continuous love, support and encouragement has made it possible for me to undertake this journey. I will be eternally grateful to you and I would like to thank you for always believing in me, the sacrifices you have made and your patience over the years. You are my best friend, my soul mate and the love of my life and I owe you so much.

I also dedicate this work to my two beautiful boys Sean and Kade who joined us along this journey, I am incredibly blessed to be your mum. I hope this shows you the importance of pursing your dreams and always finishing what you start.
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I have been fortunate to have had the encouragement, support and guidance of family and the Deakin faculty throughout this process.

To my Dad I thank you for instilling a life-long love of learning in me, you have always been right there encouraging me to reach that little bit higher. To my mum I thank you for teaching me that I could be whatever I wanted to be. To all of my other family and friends thank you for always supporting and encouraging me along the way.

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I would particularly like to thank my supervisor Stuart Orr for your guidance, advice and encouragement. Your skills as an educator are unquestionable and you have helped guide my research and provided clarity when I needed it.

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# TABLE OF CONTENTS

## CHAPTER ONE: INTRODUCTION

1.1 Background Statement ................................................. 1
1.2 Problem Statement ....................................................... 3
1.3 Significance of Research .................................................. 5
1.4 Structure of the thesis ..................................................... 6
1.5 Summary ................................................................. 8

## CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction ............................................................... 9
2.2 Traditional Risk Management vs ERM ................................ 10
2.3 ERM Frameworks .......................................................... 13
2.4 ERM and financial performance – achievable benefits ............ 20
2.5 The effect of ERM on organisational financial performance ......... 24
2.6 The effect of ERM on meeting Standard and Poor’s criteria .......... 24
2.7 The effect of ERM on Other Performance Measures ................. 28
2.8 The Effect of ERM on Risk Management Maturity .................. 30
2.9 Summary of Literature review ........................................ 34
2.10 Hypotheses ............................................................... 42
2.11 Summary ................................................................. 48

## CHAPTER THREE: RESEARCH METHODS

3.1 Introduction ............................................................... 49
3.2 Research Design ........................................................ 50
3.3 Research questions ....................................................... 51
3.4 Research variables ....................................................... 51
3.5 Population and Sample .................................................. 52
3.6 Research Instrument ..................................................... 53
3.6.1 Quantitative Instrument: ........................................... 53
3.6.2 Qualitative Instrument ................................................ 61
3.8 Data Collection .......................................................... 67
3.9 Data Analysis Methods .................................................. 69
3.10 Reliability and Validity of Survey Instrument ......................... 70
3.11 Summary ................................................................. 71

## CHAPTER FOUR: RESULTS

4.1 Introduction ............................................................... 73
4.2 Stage One – Survey ....................................................... 73
4.2.1 Demographics ....................................................... 74
4.2.2 Risk Management .................................................. 77
4.2.3 Moderating Variables ............................................... 93
4.3 Survey Summary ....................................................... 96
4.4 Stage 2- Interview Findings .......................................... 99
4.4.1 Risk Appetite Statement .......................................... 100
4.4.2 Maturity ............................................................. 101
4.4.3 Financial effect of risks ............................................. 103
4.4.4 Methods for setting risk objectives ............................... 108
LIST OF TABLES

Table 1: Progression from traditional risk management to ERM ........................................11
Table 2: Literature Summary ..................................................................................................41
Table 3: Literature and Hypotheses Summary Table ............................................................43
Table 4: Research variables and descriptions .......................................................................52
Table 5: Industry distribution for participants ......................................................................75
Table 6: Effect of Organisational Size on the Relationship between ERM Implementation and Performance ..............................................................96
Table 7: The correlation coefficient of the number of strategies and the total average FTEs with outliers removed .................................................................96
Table 8: No. of strategies versus total average FTE’s .............................................................96
Table 9: Support for research hypothesis .............................................................................137

LIST OF FIGURES

Figure 1: COSO ERM Framework .....................................................................................16
Figure 2: Research Variables .............................................................................................42
Figure 3: State in which Head Office was Located .............................................................75
Figure 4: How many regions does your organisation operate in? .....................................76
Figure 5: Number of FTE’s as part of the organisation’s ERM team ..................................76
Figure 6: Number and type of statements in place ...............................................................78
Figure 7: Number of statements in place per organisation (by percentage) .......................79
Figure 8: Risk Objectives ..................................................................................................80
Figure 9: Confidence intervals of risk objectives determination methods .........................81
Figure 10: How often do you review your risk objectives? ................................................82
Figure 11: Are your ERM objectives integrated with the core business activities? ..........83
Figure 12: Supporting elements for the ERM program .......................................................84
Figure 13: Risk identification methods ................................................................................85
Figure 14: Does your organisation formally distinguish between risk types? .................86
Figure 15: How do you assess your risk? ............................................................................86
Figure 16: The number of methods used for risk identification ...........................................87
Figure 17: Effectiveness of risk management .................................................................88
Figure 18: The relationship between evaluating risks and risk appetite statement ............89
Figure 19: Frequency of ERM updates to the board .........................................................90
Figure 20: The level of the organisations which ERM objectives are communicated .........91
Figure 21: Benefits associated with the organisations ERM program ...............................92
Figure 22: Behaviours resulting from the ERM program ..................................................94
Figure 23: Identification of risk types ...............................................................................95
CHAPTER ONE: INTRODUCTION

1.1 Background Statement

The Global Financial Crises (GFC) of 2008/2009 demonstrated how poor governance, over-leveraging and incorrect pricing of risk (Yeoh, 2010) have the power to erode an organisation’s value. As a consequence of the GFC, external parties such as regulators, rating agencies and investors have increased expectations regarding how an organisation should manage their risk. Organisations are trying to meet these expectations whilst simultaneously trying to improve returns for their shareholders, and as a consequence they are turning to Enterprise Risk Management (ERM) as a potential solution.

The Committee of Sponsoring Organisations of the Treadway Commission (COSO) defines Enterprise Risk Management as: “...a process, effected by an entity’s board of directors, management and other personnel, applied in a strategic setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite statement, to provide reasonable assurance regarding the achievement of the entity objectives.” (COSO, 2004, p.2). The COSO definition is quite detailed, however, an ERM system is a well-rounded approach to understanding, quantifying, and managing the risk of an organisation and can be defined simply as “a rigorous and coordinated approach to assessing and responding to all risks that affect the achievement of an organisation's strategic and financial objectives.” (Espersen, D. 2002)

ERM is increasingly being used to improve performance without any real understanding of the mechanisms of its effect on organisational financial performance in some countries (Yang et al, 2018). The investment being made in ERM in many countries, such as Australia, where there is a generally poor level of understanding of ERM implementation and application, combined with the need to improve financial performance in the face of increasing global competition and market instability makes understanding this relationship increasingly important to ensure continued investment. The benefits of ERM include improved financial
results and risk mitigation (Nocco and Stulz, 2006), improved risk management and an increased awareness that translates into better informed decision making (Lai, Azizan and Samad, 2009; Lienbenberg and Hoyt, 2003); reducing the organisation’s risk premium (Lienbenburg and Hoyt, 2003) and a reduction in losses and earnings volatility (Lam, 2003; Soileau, 2010). However, the few empirical studies that have examined the link between ERM and organisational financial performance, including a reduction in earnings volatility, have not produced consistent findings. This is due to methodological differences in the studies and variations of adoption rates across industries. Adding to the complexity of examining this concept is that there is no “off the shelf” solution for organisations seeking to launch an effective enterprise wide approach to risk management. Rather there are numerous approaches to achieving an enterprise view of risks that organisations can tailor to fit their specific needs, and they can choose to only implement elements of the framework, therefore the maturity of this concept varies significantly, even within the same industry (Farrell and Gallagher, 2014).

Whilst the concept of ERM is not new, the extant research has been based in countries where this concept has been in use for some time, particularly in the United States (US). The risk management practices of US organisations has been under ever increasing scrutiny for a number of years. The Sarbanes-Oxley Act of 2002 required publicly traded organisations to utilise a control framework in their internal assessments. Therefore, most organisations adopted the COSO framework for building their internal control system some time ago and ERM is considered to be in a much more mature state in the US (Holt, 2007). In many countries, however, ERM systems have only recently been adopted as normal practice, therefore the skills and capabilities available in these countries is limited. This was demonstrated by the responses to a Global ERM survey conducted by Aon (2010) which required the participant to be implementing or managing an ERM system - 40% of the survey participants were from North and Latin America, 38% were from Europe whilst the remaining 22% represented the rest of the world. The effects of ERM on organisational performance has not been identified in the literature to any extent in these other countries. Therefore, identifying the
relationship between ERM and performance under these conditions is a significant contribution to the literature.

1.2 Problem Statement

Given the rapid pace of change in the global business environment, organisations need to leverage every opportunity available to them whilst navigating an increasingly complex risk landscape. The extant literature (Farrell and Gallagher, 2014; Hopkin, 2014) indicates that by creating a more risk focused culture ERM implementation can reduce the overall risk profile of an organisation. This reduction in the risk profile can in turn reduce the organisation’s cost of capital whilst increasing the organisation’s performance, leading to improved returns for the organisation’s shareholders. Other key financial benefits of ERM in the literature include improved risk management and management awareness that translates into better strategic and operational decision making (Lai, Azizan and Samad, 2009; Lienbenberg and Hoyt, 2003); reducing the organisation’s risk premium (Lienbenburg and Hoyt, 2003); a reduction in losses and earnings volatility (Lam, 2003; Soileau, 2010) and improved focus on risk. While the literature outlines the key financial benefits that can be achieved by implementing ERM, organisations have been unable to realise those benefits (Miccolas, 2003, p.1). Therefore, they need to better understand the link between ERM and organisational financial performance (LeCroix, 2010; Ernst and Young, 2013).

A number of frameworks have emerged to assist organisations with ERM implementation. The two most prominent have been COSO’s ERM integrated framework and ISO 31000. Although both of these frameworks are non-mandatory, they have been influential by providing guidance for assessing, implementing and improving risk management and internal control systems. Furthermore, the adoption of the COSO framework has played a role in early ERM research as it is a globally applicable standard.

While the frameworks have been available, they are not compulsory, therefore, early research into ERM has been variable. The evolution of the concept has not been consistent within industries and most studies have treated ERM as a linear
process; assuming that one component only affects the next. However, more recent research has challenged this assumption and is demonstrating that ERM is not strictly linear, it is a multidirectional, iterative process in which almost any component can and does influence another (COSO, 2004, p.4). In addition to the aforementioned challenges is the techniques used by prior studies to measure successful ERM implementation, such as shareholder value.

Every organisation whether they are profit, non-profit, or government provides value for its stakeholders thus using only shareholder value as a measure of success does not reflect the breath of organisations that utilise ERM programs. Additionally, the value driven by ERM can be both financial and non-financial, therefore an increase in shareholder value does not necessarily indicate that the organisation’s risk management program has been successfully implemented and achieved its objectives.

On this basis the contemporary issue and gap in the literature is how to integrate ERM concepts so they can explain where the optimal balance between growth, return goals and related risks lies. This will enable management to understand how to set strategy and objectives, and efficiently and effectively deploy resources in pursuit of the organisation’s objectives, whether they be profit, non-profit or government service providers and ultimately increase the organisation’s value.

The purpose of this research is to examine the link between ERM and organisational financial performance, focusing on Australian based companies in the ASX300, and members of the Risk Management Association of Australasia (RMIA). The following research questions will be examined:

1. How do organisations use a guiding framework as part of their ERM implementation?
2. What is the level of ERM implementation maturity in Australia?
3. How is the adoption of ERM associated with improved organisational financial performance?
4. How do moderating and mediating variables influence the success of the ERM program?
1.3 Significance of Research

During the GFC the world witnessed how management decisions can incur large losses for an organisation and erode shareholder value. Since the GFC, increasing globalization and volatile economic conditions have continued to challenge the operating environment of organisations. Consequently, ERM has been gaining greater attention as it has the potential to provide an improved approach to understanding, quantifying and managing risk. (Towers and Perrin, 2010, p.4)

While there has been a larger focus on risk following the GFC (Henry, 2011; McAleer, et al., 2012) this has not reduced the desire for organisations to deliver increased returns and value creation for their stakeholders. Therefore, studies have started looking at the relationship between ERM and organisational value (McShane, et al, 2011; Krause and Tse, 2016). As a result “recent empirical evidence provides support for theoretical propositions in the literature that risk management increases organisation value and returns; while reducing return and cash flow volatility”(Krause and Tse, 2016). However, this literature has also provided contradictory results, for example, Li et al (2014) failed to find a relationship between ERM and organisational value. Additionally, the extant literature has focused on shareholder returns as a measure of value creation, however, this method does not accurately capture all of the relevant values, variables or organisation types to which ERM is applicable.

Therefore, even though progress has been made, there is still practical evidence of risk management not being used, not being well understood or being undervalued due to a lack of appreciation for how ERM can mitigate risk and contribute to organisational financial performance. This was identified in a Survey conducted by Towers and Watson (2015, p.4) that found “the level of satisfaction with ERM is much higher for organisations that view risk management as a strategic partner in their business, that is, those that believe ERM adds value by actively seeking to improve the risk and return aspects of decision making or by ensuring that the organisation’s risk taking is not excessive.”
While the literature has been contradictory it has also progressed the debate about whether ERM provides value whilst contributing to improved organisational financial performance and the proposition is better developed than it was five years ago. Given this progress, sufficient constructs have been developed to support an investigation into the relationship between ERM and organisational financial performance.

This study makes several contributions to the risk management literature including testing the association between the ERM variables, defined by the COSO ERM Framework and organisational financial performance. Additionally, the study also examines how specific components of the COSO ERM Framework contribute to overall value including financial return. Testing the relationships between these factors will identify how ERM can be leveraged to improve organisational financial performance, not only for shareholders, but how other organisation types such as government and non-profit can maximise the value they receive for their investment in an ERM framework.

1.4 Structure of the thesis

This thesis is divided into six chapters. The first chapter provides an introduction and background to this research study regarding the relationship between ERM and organisational financial performance and the conflict in the literature regarding this relationship. Chapter One illustrates the problem statement, the purpose of this research study and the study’s significance.

Chapter Two provides a comprehensive review of the literature that focuses on providing a clear understanding of the theoretical foundations, frameworks, and empirical evidence, with the literature purposely limited to areas of research within ERM that is directly related to organisational financial performance.

The literature review outlines the differences between traditional risk management and ERM to highlight the theoretical foundations of ERM. ERM frameworks are then examined, focusing on the two most prominent frameworks that are used to guide organisations in their implementation. These frameworks
have led to predicted financial benefits which are also examined, along with the empirical evidence regarding the relationship between ERM and organisational financial performance. The findings from these four primary literature areas are compared to identify the relevant constructs for the study and the contributions that it will make to the literature. These are expressed as the research questions and hypothesis.

Chapter Three describes the research methods utilised for this study. Key areas in this Chapter include the research variables, population and sample, the research instrument, data collection and data analysis. Both quantitative and qualitative methods were utilised for this study, and these techniques are also discussed in detail in this Chapter.

Chapter Four discusses the results and outcomes of the research, with detailed findings of the quantitative and qualitative research presented. The key findings are integrated into a review summary to illuminate the key findings from the analysis conducted.

Chapter Five focuses on the interpretation of the results of this research study. Through a summary of the results and a discussion of the outcomes in comparison to the literature Chapter Five also identifies the managerial implications of this research.

Finally; Chapter six draws together the conclusions of the research, discusses the limitations associated with the research and provides recommendations for future research.
1.5 Summary

ERM is an evolving management concept and in an increasingly volatile global economic environment, it is becoming an important component of organisational strategy. However, despite the increased focus on the relationship between ERM and organisational financial performance, research in this area has produced inconsistent findings. This study contributes to the debate, by examining the relationship between ERM and organisational financial performance. Specifically: How do organisations use a guiding framework as part of their ERM implementation? What is the level of ERM implementation maturity in Australia? How is the adoption of ERM associated with improved organisational performance? How do moderating and mediating variables influence the success of the ERM program? Answering these questions will identify the factors that enable organisations to leverage their ERM program to create organisation value.

The following chapter will provide a comprehensive review of the literature to provide a description of the theoretical foundations, frameworks and empirical evidence upon which the research hypotheses are based.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

As early as the 1970’s Peter Drucker (1977) commented that “economic activity by definition commits present resources to an uncertain future, for the one thing that is certain about the future, is its uncertainty, its risks. Hence to take risks is the essence of economic activity”. Drucker stated at the time that history has demonstrated that businesses yield greater economic performance only through greater uncertainty, or in other words, through greater risk taking. (Chapman, 2006, p.4). Although the world is fundamentally a different place today than it was in the 1970’s, risk management still plays a pivotal role in assisting an organisation in understanding their strategic direction.

Understanding the strategic direction of an organisation means understanding what drives the creation of value and what destroys it. This suggests that when creating value, understanding the significance of risks and how to manage them is critical. “A business’s ability to prosper in the face of risk, at the same time as responding to unplanned events, good or bad, is a prime indicator of its ability to compete.” (Chapman, 2006, p.3)

A key objective of a modern risk management programs is to reduce the sensitivity of earnings and share price fluctuations to external variables or, for privately owned companies, ensure that their returns are stable. ERM has been gaining increasing attention as a solution which provides a holistic approach to understanding, quantifying, and managing the risk of an organisation. “ERM is a structured approach to align strategy, process, people, technology, and knowledge to identify and manage uncertainties and risks. Providing a comprehensive, integrated framework that enables organisations to proactively manage business risk, ERM aids in the achievement of balance between business needs and risk thresholds to increase competitive advantage and shareholder value.” (Marchetti, 2012, p.7)
Whilst ERM is an integrated approach to managing dynamic, fluid and highly interdependent risks, the practical challenge that most organisations face is how to develop an ERM program that is perceived as valuable and useful in minimising surprises, loss and costs and allows the organisation to become more proactive, rather than reactive in its activities.

This literature review will examine the difference between traditional risk management practices and ERM in order to highlight the theoretical foundations of this area and how ERM is a departure from traditional risk management methods. Major ERM frameworks will then be examined to identify how they are utilised to guide ERM implementation. This is followed with an examination of the theoretical and empirical benefits of ERM, including the level of maturity of this concept. These four areas are then summarised to identify research trends, gaps in the literature and areas for further research.

2.2 Traditional Risk Management vs ERM

The complexity, volatility and unpredictability of the current economic environment means that organisations now face many varied risks. Although risk management has been utilised since the 1950’s (Dionne, 2013, p.147), like any management process the practice of risk management has evolved significantly over that time to reflect the business environment.

Traditionally, risk management methods concentrated on the reduction of a single source of risk and categorised risks as one of four types (Barton et al, 2004);

- Insurable risk. Risk managers identify risk exposures and implement a risk management program, where risks are readily identifiable or known.
- Internal Controls, which are processes to provide reasonable assurance that policies are being followed.
- Internal audit. Internal auditors pursue assurance that internal controls are working.
- Regulatory compliance. Companies are required to ensure conformity with official requirements imposed by statutes, public agencies or the courts.
This traditional approach to risk management viewed risk as a force to be removed, however, risk is always present and can never be eliminated, regardless of the systems in place (Fraser, J and Simkins, B. 2010). This realisation and the following five important events identified by Segal (2011, p.4) have driven the development of improved risk management practices:

- Basel Accords
- Corporate accounting fraud
- Rating agency scrutiny
- Financial Crises
- Long term trends

These events have shaped the progression from traditional risk management to ERM, which was articulated succinctly by Barton et al (2002, p.5) as follows:

<table>
<thead>
<tr>
<th>Old Paradigm</th>
<th>New Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fragmented – department / function manage risk independently; accounting, treasurer, internal audit primarily concerned.</td>
<td>Integrated, risk management coordinated with senior-level oversight; everyone in the organisation views risk management as part of his or her job.</td>
</tr>
<tr>
<td>Ad hoc – risk management used whenever the managers believed that there was a need.</td>
<td>Continuous – risk management process is ongoing.</td>
</tr>
<tr>
<td>Narrowly focused – primarily insurable risk and financial risks</td>
<td>Broadly focused—all business risks and opportunities considered.</td>
</tr>
</tbody>
</table>

Table 1: Progression from traditional risk management to ERM

ERM provides a tool for increasing risk transparency which is becoming increasingly critical for success and longevity. ERM initiatives have introduced a number of concepts as an alternative to the focus on the four specific single sources of risk associated with traditional risk management. These concepts include:

- “Executive support is critical to the success of the initiative.”
- The development of a risk intelligent culture is beneficial.
• Incorporate risk into strategy.
• Define/determine risk appetite statement early.
• Consider building the ERM program in phases.
• Focus initially on a few agreed-on high risks.
• Use initial work as a platform for expanding the ERM initiative.
• Develop a monitoring process early on.” (Marchetti, 2012, p.14-15)

Integrating ERM into the strategy of an organisation and implementing an ERM program is a complex and challenging task. However, just like any other management concept it has evolved from traditional foundations into the ERM frameworks that are available to organisations today.
2.3 ERM Frameworks

As ERM has gained increased attention, a number of frameworks have emerged to help guide organisations in their implementation. To date, these frameworks have been developed from practice, rather than from empirical or theoretical research. The two most prominent frameworks are COSO’s ERM Integrated Framework and ISO 31000. Each framework identifies its own specific component structure in varying number and definition and an ERM implementation process.

COSO was formed in 1985 in response to challenges arising from a documented increase in fraudulent financial reporting. It was formed by five organisations, which continue to sponsor it today: The American Accounting Association AAA, The American Institute of Certified Public Accountants AICPA, Financial Executives International FEI, The Institute of Internal Auditors IIA, and The Institute of Management Accountants IMA.

COSO’s mission is to provide thought leadership through the development of comprehensive frameworks and guidance for organisations dealing with enterprise risk management, internal control, and fraud deterrence designed to improve organisational performance and governance. In addition to developing these frameworks COSO has developed and published guidance and thought papers aimed at advancing the thinking about these frameworks.

Whilst fraud was the initial focus for COSO in response to highly publicised business failures, new laws and regulations that called for strengthened corporate governance and risk management, led to COSO issuing its framework for enterprise-wide risk management, the Enterprise Risk Management—Integrated Framework, in September 2004. The goal of the framework is to enable organisations to standardise enterprise risk management (ERM) so that they can more easily benchmark, establish best practices, and have meaningful dialogue about the critically important issue of risk management. The COSO framework consists of recommendations and guidance for implementing them.
Although COSO’s framework recommendations are non-mandatory, they have been influential because they provide a reference point against which risk management and internal control systems can be assessed and improved. COSO’s ERM framework has become widely accepted because it defines the essential ERM components, principles and concepts and introduces an enterprise-wide approach to risk management. The framework can be used to design and implement effective ERM processes. Although it has attracted some criticisms, the framework has been established as a model that can be used in different environments and organisation types worldwide.

COSO’s framework includes eight interrelated components (COSO, 2004):

1. **Internal environment** - The internal environment is the tone of an organisation, and determines how risk is viewed and addressed by an organisation’s workforce, including the organisation’s risk management philosophy and risk appetite statement, integrity and ethical values, and the environment in which they operate. It is critical that senior management supports the importance of ERM at all levels of the organisation as the internal environment influences perspectives of risk and the quality of the risk strategy itself.

2. **Objective setting** - Objectives must exist before management can identify potential events affecting their achievement. Enterprise risk management ensures that management has a process to set objectives and that the chosen objectives support and align with the organisation’s mission and are consistent with its risk appetite statement.

3. **Event identification** - Internal and external events affecting achievement of an organisation’s objectives must be identified and distinguishing between risks and opportunities. Opportunities are channelled back to management’s strategy or the objective setting process. The distinction between operational and strategic risks is also important as organisations must pay attention to both the types that could disrupt operations and those that endanger the achievement of the strategic objectives. Organisations must also have processes in place to identify the risks arising from one-off events and those arising from more gradual trends.
4. Risk assessment - Risks are analysed, considering likelihood and effect, as a basis for determining how they should be managed. Risks are assessed on an inherent and a residual basis. As well as mapping the likelihood and impact of individual risks, organisations should also consider how individual risks interrelate. It is important for organisations to use both quantitative and qualitative methods to achieve this.

5. Risk response - Management selects risk responses – avoiding, accepting, reducing, or sharing risk – developing a set of actions to align risks with the organisation’s risk tolerances and risk appetite statement. The risk responses chosen must be realistic, taking into account the costs of responding as well as the impact on the risk.

6. Control activities - Policies and procedures are established and implemented to help ensure the risk responses are effectively carried out. Once designed, controls are required that operate effectively. Control is essential simply because decisions about the management of risk can be subjective.

7. Information and communication - Relevant information is identified, captured, and communicated in a form and timeframe that enable staff to carry out their responsibilities. Effective communication also occurs in a broader sense, flowing down, across, and up the organisation. The information captured and communicated also needs to be relevant and of appropriate quality. Communication though all level of the organisation is an important way of strengthening the internal environment by embedding risk awareness in staff’s thinking.

8. Monitoring – should reflect the principle that unmonitored controls deteriorate over time, the performance of the risk management system is monitored, and modifications made as necessary. Monitoring is accomplished through ongoing management activities, separate evaluations, or both. It is crucial that organisations invest in constantly monitoring and modifying the risk management plan.

The entire COSO ERM framework is presented in figure 1. It illustrates the links between the different objectives. The objectives are shown on the top face of the cube and the eight components outlined above shown on the front. These internal
environment factors represent what is required to achieve the objectives. The third face of the cube represents the organisation’s units, which portrays the model’s ability to focus on parts of the organisation as well as the whole.

When each of the eight components is determined to be effective in supporting each of the four categories of objectives, the board of directors and management have reasonable assurance that they understand the extent to which the organisation’s strategic and operations objectives are being achieved and that the organisations reporting is reliable and that applicable laws and regulations are being complied with.

![COSO ERM Framework](image)

*Figure 1: COSO ERM Framework (COSO, 2004, p.5)*

The COSO framework is not explicitly required by any regulatory body, however it has been adopted by a wide variety of organisations globally to improve the way they manage risk. The COSO framework provides guidance to organisations to improve their internal controls, improve the way they manage risk and provide a reasonable level of assurance to senior management and the board of directors that all risks are being managed. The ERM framework is structured to encourage richer discussion and the exploration of opportunities (Amato, 2016). However, the framework is large and complex and requires dedicated specialist resources. There is also a risk that some organisations will take the framework literally and not tailor the framework to their unique situation. Other issues identified with the framework design include that the potential for a lack of common understanding
or direction on how to determine whether the ERM Framework is effective and the social implications of its implementation (Williamson, 2007).

ISO 31000 is an alternative to the COSO framework which was developed by the International Organisation for Standardisation. The ISO is an independent non-governmental membership organisation made up of 163 member countries and is the world’s largest developer of voluntary International Standards.

In 2009 ISO released ISO 31000 Risk Management – Principles and Guidelines, developed by a working group of international experts from more than 30 countries. Although ISO 31000:2009 provides generic guidelines, it was not intended to promote uniformity of risk management across organisations. Rather, it advocated that the design and implementation of risk management plans and frameworks will need to take into account the varying needs of a specific organisation, its particular objectives, context, structure, operations, processes, functions, projects, products, services, or assets and specific practices employed.

ISO 31000 also provides guidance on how to avoid risk by discontinuing the activity that has given rise to the risk; accept or increase the risk in order to pursue an opportunity; remove the risk source; share the risk and / or retaining the risk by making an informed decision.

Fraser and Simpkins (2010, p.99) highlight that the “ISO framework is designed to be principle based rather than prescriptive, it provides a general framework for ERM with the expectation that individual countries, industrial sectors and organisations will craft their own detailed and specific frameworks to their own unique situations.”

Whilst both the COSO and ISO frameworks have been developed independently and vary in design and purpose, they are both based on the concept that risk management should add net value to the organisation and contribute to the organisation’s financial performance.
Pappe and Speckle surveyed 825 organisations headquartered in the Netherlands, and examined (1) the extent of enterprise risk management (ERM) implementation and the factors that are associated with cross-sectional differences in the level of ERM implementation, and (2) specific risk management design choices and their effect on perceived risk management effectiveness. Their findings identified some issues with the COSO framework. In particular, they found no evidence that the application of the COSO framework improved risk management effectiveness (Pappe and Speckle, 2012, p.533).

However, whilst Pappe and Speckle raised concerns regarding the COSO framework their analysis was purely exploratory in nature and their comments had no grounded theoretical foundations. Additionally, this study was based on secondary data and specific questions and answers were not sought from the participants, therefore the relationship between the COSO framework and other risk factors was not explored.

In a more recent study of 151 Nordic organisations, Lundquist (2014) found that of those participants who knew what frameworks were used for implementing ERM in their organisation, forty-one percent said they used internally created frameworks solely or in combination with other frameworks. Of the listed frameworks, the COSO framework was the most popular; twenty-four percent of respondents followed COSO solely or in combination with other frameworks. The ISO 31000-2009 and the Basel II frameworks were both adopted by nine percent of the respondents, with the organisations using them for implementation guidance either solely or in combination with other frameworks, no other significant externally developed frameworks were identified by Ludquist (2014). The lower results for the Basel II framework could be anticipated as this is an international business standard that requires financial institutions to maintain enough cash reserves to cover the risks incurred by their operations.

Interestingly the results also showed that twenty-nine percent of the organisations surveyed stated that they were using more than one framework to guide their implementation of ERM. This may suggest a level of uncertainty regarding the value of the different frameworks, or as suggested by Lundquist, it could be an
indication of confusion regarding what ERM really is, how it should be implemented and a perception that existing frameworks are difficult to follow (Lundquist, 2014, p.395-396) The alternative view is that organisations may choose components of each framework that suit their needs, ending up with elements of each to ensure a robust program.

The literature has also identified the concern that the COSO framework can be overwhelming for some organisations, particularly small organisations or ones which have not established an ERM culture (Ballou and Heitger, 2005, p.1). However, this criticism could equally apply to the ISO principles framework, as well.

Whilst criticisms have been made of these two ERM frameworks, it should be noted that as with any framework they are a guiding tool and need to be balanced with practicality. Successful frameworks are usually simple to understand and to implement yet allow for sophistication and subtlety in their application and continuous improvement. Both the COSO and ISO frameworks provide the flexibility for organisations to tailor these frameworks to suit their needs. Whilst there may be some concerns regarding the framework this has to be balanced against the fact that “Efforts in risk management should be proportional to the magnitude of the risk and/or the benefits of the risk controls including effects on stakeholders” (Fraser and Simpkins, 2010, p.101). Both frameworks provide a meaningful context for ERM implementation, however, organisations must adjust the frameworks to maximise the value they can derive from them. The process of implementation is an important construct which is considered in this study.

Implementation considerations in ERM research are a very important construct as they have the potential to detract from the fact that when implemented ERM has the ability to improve financial performance, and assist organisations to equip themselves to deal with uncertainties that may render it otherwise unsustainable.
2.4 ERM and financial performance – achievable benefits

Globalisation has led to unprecedented risks and opportunities for organisations across virtually every industry. Technology, industry changes and intense competition combined with the desire for increased shareholder earnings drive organisations to search for new and innovative ways to create value.

Risk management has traditionally been utilised to minimise negative outcomes, however conducting a risk assessment and managing risks in a proactive manner offers potential benefits. Risk management balances risk and reward and “ERM is an approach to align strategy, process, and knowledge in order to curtail surprises and losses as well as to capitalise on business opportunities.”(Marchetti, 2012, p.1) Therefore a well-designed risk management program “encourages and allows an organisation to take intelligent risks. It involves assessing quantitative factors and information as well as considering management experience and judgement.”(Marchetti, 2012, p.1) Intelligent risk taking can derive value for the organisation far beyond conservative risk management approaches.

The advancement of technology and social media has made ERM more important than ever. A negative risk event can result in financial, reputation, brand and relationship losses. However, while an organisation may be adversely affected if it does not manage its critical risks, it will also suffer the same consequences if it does not take enough risks. It will lose its customers if competitors introduce better service, or its competitive advantage will decline if it does not take sufficient research and development (R&D) risks and other organisation’s launch more innovative products (Lam, 2003, p.273-274).

Therefore, ERM should be included as part of the decision making process of the organisation and every risk management program should seek to create value and contribute to organisational financial performance. It should do this by being based on the best available information, address uncertainty, and consider human factors. In addition, risk management should be structured and responsive to change. Ideally, it should be incorporated into the organisation’s operational
processes. The ideal risk management program minimises both spending and the negative effects of risk. (Marchetti, 2012, p.26)

To ensure risk is appropriately managed, a culture that fosters ethical behaviours and integrity is required. “A weak risk culture is one in which employees have little sense of the importance of risk management and their role in it. Such a culture will compromise efforts to manage risk, perhaps fatally. If, on the other hand, risk management is seen as a central part of day-to day operations, it is likely that a strong risk culture is likely in place. Such an environment allows for truly effective risk management.” (Lam, 2003, p.68)

The cultural implications should be a key consideration when trying to leverage the value of ERM because research in this area reveals that the effect of a “risk event” can be either attenuated or exacerbated by the human reaction to that risk event (Olson and Wu, 2010, p.7). The management reactions can be affected by present-day risk perceptions and framing.

Given the constantly changing environment, risk management is now the responsibility of all staff, no matter what role they play within an organisation. In addition, modern risk management requires managers to look beyond the downside of risks as a comprehensive risk management program will also create opportunities to increase value. Some of the main benefits of ERM identified by Marchetti (2012) include:

- Cost savings through an integrated approach to compliance
- Ability to assess current risk position and respond.
- Improved proactive management
- Optimised capital structure and allocation.

Marchetti (2012, p.12) asserted that these benefits can help organisations identify opportunities for risk management and business optimisation that can add 20 to 30 percent or more to shareholder value. Such improvements can be achieved by ensuring that:
• Target investment returns and product pricing are established at levels that reflect the underlying risks.
• Capital is allocated to projects and businesses with the attractive risk-adjusted returns, and risk-transfer strategies are executed to optimise portfolio risk and return.
• The organisation has the appropriate skills to manage all of its risks, to protect against large financial losses or damage to its reputation or brand.
• Performance metrics and incentives, at both the individual and business unit levels, are in congruence with the organisation’s business and risk objectives.
• Key management decisions, such as mergers and acquisitions and business planning, explicitly incorporate the element of risk.”

The benefits of ERM identified by Hampton (2015) consist of the following behaviors:

• “Concentration on the Big Picture. Some risks are critical, and some are relatively unimportant, ERM encourages us to take the big view.
• The Pursuit of the Upside of Risk. Many possible losses are accompanied by possible gains. ERM reminds us of both possibilities.
• Recognition of the Interaction Among Risks. One risk affects others. Do not ignore risk relationships.
• Collaboration for Better Risk Decisions. A variety of individuals can make contributions to risk identification and assessment. Include them in the discussions.
• Employment of Non-legacy Technology. New and powerful systems can facilitate an understanding of our exposures. ERM builds modern structures for identifying and sharing information.” (p.77)

Stakeholders and customers have an interest in understanding how an organisation manages its risks. As highlighted by Decker and Galer (2013, p.193-194), “disclosing key risk information such as risk mitigation or the ERM process will position an organisation as a leader in risk management and may include
public image, increase confidence in management and create a competitive advantage”.

The challenge for any organisation is trying to understand how to leverage risk management to optimise the return for effort expended. The discussion has focused on identifying the benefits of ERM and will now consider the empirical evidence in support of these identified benefits.
2.5 The effect of ERM on organisational financial performance

The literature reviewed in the previous section indicated that ERM has the potential to add organisational value, however this claim is difficult for empirical research to examine as organisations are not required to disclose if they are managing their risks in an integrated manner utilising an ERM framework. Empirical evidence of the value of ERM, especially for large organisations is limited. A report from the Society of Actuaries notes that “Despite the substantial interest in ERM by academics and practitioners and the abundance of survey evidence on the prevalence and characteristics of ERM programs..., there is an absence of empirical evidence regarding the effect of such programs on organisational value. The absence of clear empirical evidence on the value of ERM programs continues to limit the growth of these programs. As a result, executives are justifiably uncomfortable making a deeper commitment to ERM without a clear and quantifiable business case.” (Decker and Galer, 2013, p.15) Some studies (Hoyt and Liebenberg, 2011 and Lundquist, 2016) have produced valuable results and provided a grounded base for further comprehensive projects, such as this study.

Most of the early empirical research in this area focused on the effect of the appointment of a Chief Risk Officer as a proxy for ERM implementation and correlated this with Shareholder value. Results from these early studies were mixed with some asserting a positive correlation and others finding no significant relationship. The primary deficiency in these studies was that they only considered two simple variables and did not consider all of the constructs that ERM represents through a range of associated items. Furthermore, these studies did not consider or control for the internal processes that contribute to and affect ERM implementation and operation.

2.6 The effect of ERM on meeting Standard and Poor’s (S&P) criteria

The introduction of an updated criterion for measuring the effect of ERM by S&P provided a basis for studies to more thoroughly examine the relationship between ERM and organisation value. One of the sub-factors within the management criteria is the “comprehensiveness of enterprise-wide risk management standards
and tolerances.” Initially the criteria was only designed for Financial Services organisations, however, it was expanded to include all organisations in 2012. S&P’s motivation for introducing this criterion was to enable evaluating the extent to which organisations approach risk management from an integrated and organisational wide perspective. The S&P criteria is a measure to determine management’s ability to interpret and make qualitative judgements in response to various risk metrics.

One of the first studies to use the new criteria was a study of 165 companies in the banking and insurance industry by Baxter et al (2013). They examined two primary research questions, 1. Is ERM program quality associated with organisation complexity, financial risk/resources, and corporate governance? and 2. Will market reactions be positively associated with the level of ERM quality rating, thus contributing to organisation value? Baxter et al (2013) found that organisations with superior ERM programs are more complex, have greater financial resources and better corporate governance, these factors were measured using publicly available data. The results also provided insight into the characteristics of financial services organisations that allocate sufficient resources to integrating risk management activities to achieve a high quality rating by S&P. The study also found “that firm performance as measured by accounting returns, as well as market valuation using Tobin’s Q score, are higher for organisations that invest in higher quality ERM, while controlling for possible endogeneity bias.” (Baxter et al, 2013, p.1291). Tobin’s Q is a commonly used measure of organisational value and is calculated by using “the market value of equity plus the book value of liabilities divided by the book value of assets. This version of Tobin’s Q is suitable for insurance companies because the book value of an insurer’s assets is a good approximation of replacement costs (Cummins, Lewis, & Wei, 2006; Hoyt & Liebenberg, 2011).”

These findings suggest that higher quality ERM programs reduce losses and increase opportunities. It was also found that the share market reaction, through the share price, was, on average, higher for organisations with a strong/excellent S&P ERM rating and improved when ERM ratings increased. There are other
reasons why the market may have reacted positively at the time that the S&P ratings were released, however, these were not considered in this study. Additionally, it should be noted that this study spans the time period of the Global Financial Crises GFC. ERM programs are designed to protect against adverse outcomes and the GFC provided a natural setting in which to examine their effectiveness. The study found no association between ERM quality and returns in the period preceding the crisis, January through August 2008. The authors could not explain this lack of finding, but speculated that market returns in that period were generally high and risk was not viewed as an important issue.

The study by Baxter et al. (2013) also found no association between ERM quality and accounting performance (for this study, accounting performance was measured by examining the Return on Assets (ROA)) during the GFC (September 2008 through February 2009), suggesting that organisations with higher quality ERM were not differentially protected from market declines during the crisis. They did, however, find a strong association between ERM quality and returns in the post GFC period, March through October 2009. This result suggests that as the market rebounded, investors looked at ERM quality as an indicator that the organisation could address future risks in a “more systematic and integrated manner.” (Baxter, R. et al., 2013, p. 1291-92)

The S&P Rating for ERM contains five categories: weak, adequate, adequate with a positive trend, strong and excellent. The categories can be described as follows: A weak ERM program lacks reliable loss control systems for one or more major risks. An adequate ERM program has reliable loss control systems, but may still be managing risks in silos instead of coordinating risks across the organisation. An adequate ERM program exhibits strong/excellent risk control systems but still lacks a well-developed process for making coordinated risk/reward decisions that are necessary for effective strategic risk management. A strong ERM program has progressed beyond silo risk management to deal with risks in a coordinated approach, the capability to envision and handle emerging risks, and well-developed risk-control processes and a focus on optimizing risk-adjusted returns that are necessary for effective strategic risk management. An excellent ERM
program has the same characteristics as a strong ERM program but is even further into the implementation, effectiveness, and execution of the ERM program.

McShane et al (2011) also utilised these S&P categories to examine the relationship between ERM and organisational performance. Their study examined insurance companies because they were considered to be leaders in implementing sophisticated risk management programs. When the study was undertaken in 2008 the economy was uncertain, therefore the finding by Baxter et al (2013) indicates that a superior risk management program should have generated an advantage.

The S&P ERM category was used by McShane et al (2011) as the main independent variable for the study. There were 152 insurer groups rated by S&P in April 2008. The dependent variable was organisational value and Tobin’s Q was used as a proxy for this (McShane et al, 2011, p.646) Using Tobin’s Q reduced the sample to 82 as only publicly traded insurers could be included.

The study identified a positive relationship between ERM and organisational value “as the rating increases over the first three categories—the first three categories are indicative of increasing levels of traditional risk management (TRM)—but there was no additional increase in organisational value as the rating moves beyond TRM into what we consider the ERM realm.”(McShane et al, 2011, p. 642-643). These results advanced the understanding of ERM, however they also raised a number of questions for future research, including “Why does a strong or excellent ERM rating not lead to higher organisation value? Is it possible that a strong ERM culture constrains organisation growth that gets reflected in its market value? Is it possible that organisations with strong ERM systems take bigger risks in areas that constitute their core capabilities?... Is the relationship between ERM and organisation value stable and true in the long run? That is, as other organisations adopt ERM systems, practices, and culture, will the advantages of ERM implementation disappear?”(McShane et al, 2011, p.653)
2.7 The effect of ERM on Other Performance Measures

Other measures of ERM in the literature were based on surveys, secondary data collection and case studies. During 2004, Gates, Nicolas and Walker (2012) distributed 1,000 surveys to audit and risk management executives from organisations that were members of The Conference Board (which is an independent business membership and research association), examining the practical value of ERM. The final sample for the research consisted of 150 organisations. The survey measured the ERM components of objective setting, risk identification, risk reaction, oversight, information and communication, internal environment, management, and performance. Risk identification is a combination of the risk response and risk assessment components of COSO, while observation is a combination of the control activities and monitoring components of COSO. The Gates, Nicolas and Walker (2012) study found that ERM may result in a greater improvement in risk management in medium and smaller sized organisations by improving general management practices, by enabling executives to manage the organisation better. The authors observed that the benefits of ERM may be more pronounced during the implementation of a program, but this was not tested in that project.

A more recent study by Li et al (2014) examined the relationship between ERM and organisational value in the Chinese Insurance Industry. The sample consisted of 150 insurance companies operating in China in 2010, with the data obtained through the China Insurance Regulatory Commission (CIRC). Six hypotheses were tested in this study, however the primary hypothesis was that there is a positive relationship between ERM and organisational value.

The study used return on equity (ROE) as a proxy for organisational value and least squares regression (OLS) modelling to test the hypotheses. The overall findings of the study were mixed and the results for the hypothesis that there is a positive relationship between ERM and organisational value was inconclusive. Although the results were inconclusive, a critical question emerged from this study – could the adoption of ERM “increase the objectivity and transparency of Chinese
organisations to the extent that ERM begins to enhance organisational value” Li et al, 2014, p.8)?

Hoyts and Leibenberg (2011) examined the extent to which insurance companies have implemented ERM programs and then assessed the value implications of these programs. The study focused on insurers in the US in an attempt to control for differences that might arise from regulatory and market differences across industries. Additionally, only publicly traded insurers were selected so the researchers would have access to market based measures of value and any publicly disclosed information on their ERM program.

The data collection for this research was secondary with the primary “sources of information on the extent of ERM implementation by each insurer coming from a search of LexisNexis for the existence of a CRO/Risk Management Committee and a review of SEC filings for evidence of an ERM framework. This was augmented with a general search of other public announcements of ERM activity for each of the insurers in the sample.”(Hoyt and Liebenberg, 2011, p.796)

Hoyt and Liebenberg (2011) used a maximum-likelihood treatment effects model to jointly estimate the determinants of ERM and the relationship between ERM and organisational value. The researchers were able to calculate Tobin’s Q, which was undertaken for each insurer in the sample by focusing on publicly traded insurers. Tobin’s Q was then modelled as a function of ERM use against a range of other factors, such as organisation size, dividends and return on assets. The study found a positive relationship between organisational value and ERM, with insurers with ERM programs valued approximately four percent higher than other insurers. Whilst there was a positive relationship between organisational value and ERM the study was constrained by only examining insurance companies and being reliant on Tobin’s Q as the dependent variable. These two issues limited the ability for the findings of the research to be applied more broadly as other organisations may manage their risk differently.

Barton et al (2002) conducted in depth case studies of five companies in the US. The case studies examined the level of detail that the companies would publicly
disclose about how they managed risk. Barton et al (2002) concluded that, whilst all of the case study companies had all of the major elements of enterprise risk management in place, the area that needed the most development was measurement. “While EAR, VAR, and stress testing are sophisticated measures for financial risk, such measures do not yet exist for nonfinancial risk. Since many of the events in the nonfinancial risk area are random, it is difficult to build models that offer predictability. Nevertheless, as organisations gain experience, they should be able to set up methodologies that provide insights on how to approximate a measure for such risks.” (Barton, et al, 2002, p. 222). The analysis of these case studies identified 18 ways in which ERM can add value. The most commonly identified way was creating, protecting and enhancing value though the management of enterprise wide risk. This involved identifying the effect risk has on both the financial position and earnings, the probability of achieving an earnings goal and the likelihood and significance level of each risk.

A more recent study by Kommunuri, et al. (2016) empirically tested the ERM effects on performance and value of publicly listed organisations in Vietnam. The researchers chose Vietnam as there was no empirical evidence on risk management and there are no regulatory requirements in Vietnam. The parameters of this study were designed to overcome any bias in previous studies as they focused on one specific industry and there are rigorous regulatory compliance requirements in the countries where the studies had been conducted. The study used a cross sectional sample of 199 organisations operating in various sectors. The results of the study did not confirm a direct link between the organisation’s performance and ERM, however it did find that the market perceives ERM as value relevant, therefore Kommunuri et al (2016) concluded that the effect of ERM on organisational value is positive and statistically significant.

2.8 The Effect of ERM on Risk Management Maturity

An alternative approach to examining the effect of ERM and value is to consider the maturity level of risk management and financial performance.

The Aon Risk Maturity Index (2017) is a leading and innovative tool in assessing risk maturity and is built on 10 characteristics of risk maturity:
1. Board understanding and commitment to risk management;
2. Executive level risk management stewardship;
3. Risk communication;
4. Risk culture: engagement and accountability;
5. Risk identification;
6. Stakeholder participation in risk management;
7. Risk information and decision making processes;
8. Integrating risk management and human capital processes;
9. Risk analysis and quantification to understand risk and demonstrate value; and
10. Risk management focus on value creation.

Risk maturity models have five consistent levels against which maturity is measured (KPMG, 2015):

- **Weak**: Risk management is undocumented and in a state of dynamic change.
- **Sustainable**: Risk is defined, but is still managed in silos. Discipline around risk process is unlikely to be rigorous.
- **Mature**: A common risk assessment / response framework is in place. An organisational view of risk is provided to executive leadership.
- **Integrated**: Risk management activities are coordinated across business areas. Common risk management tools and processes used where appropriate, with enterprise wide risk monitoring, measurement and reporting.
- **Advanced**: Risk discussion are embedded into strategic planning, capital allocation, and other processes and in daily decision making. Early warning systems are in place to notify board and management to risks above established thresholds.

Risk maturity was also examined by Ernst and Young (2013) in a survey based on 576 interviews with companies and a review of more than 2,750 analyst and organisation reports. Their findings suggest:

- **The top performing organisations** (from a risk management perspective) implemented on average, twice as many of the key risk capabilities as those in the lowest-performing group.
• Organisations in the top 20 per cent of risk management implementation maturity generated three times the level of EBITDA (earnings before interest, taxes, depreciation, and amortisation) as those in the bottom 20 per cent.

• Financial performance is highly correlated with the level of integration and coordination across risk, control and compliance functions.

Aon and the Wharton School of the University of Pennsylvania examined the relationship between risk maturity and volatility in the share market. Using a sample of 361 publicly traded companies and Bloomberg market data from March 2011 to March 2013, Aon and Wharton identified a relationship between levels of risk maturity and relative stock price returns along with lower levels of relative stock price volatility. They also identified a link between levels of “risk maturity and relative return on equity performance and a link between levels of Risk Maturity and the relative resilience of an organisation’s stock price in response to significant risk events in the financial markets” (Aon, 2013, p.4) The study concluded that the organisations with an advanced risk management process had an 18% higher stock price, while organisations that rated the lowest on the risk maturity scale experienced a stock price decline of 10% in the period from March 2012 to March 2013. In the same period, the organisations with the highest risk maturity score experienced 38% less stock volatility than the organisations with the lowest risk maturity score. From March 2012 to March 2013, organisations with the most mature risk management processes experienced a positive 37% return on equity performance, while the least mature organisations experienced a negative 11% return on equity. The Aon Risk Maturity Index Insight Report, used ten risk management characteristics to identify the maturity of an organisation’s risk management process and determine the correlation between risk maturity and financial performance. The study found that as an organisation’s risk management process improves over time, the organisation becomes more resilient to external and inherent risks.

Further evidence supporting the correlation between risk maturity and financial performance was identified by Farrell and Gallagher (2014) who analysed the valuation implications of ERM maturity utilizing data from the Risk and Insurance
Management Society Risk Maturity Model. The model has a five-point maturity scale and the study examined data over the period from 2006 to 2011. The study found that organisations that have reached mature levels of ERM are exhibiting a higher organisational value up to the magnitude of 25 percent. The study found that those organisations exhibiting a higher level of maturity also have higher levels of executive engagement and this cascaded down through the organisation. Additionally, those organisations that have been able to integrate the ERM process into both their strategic activities and practice display a superior ability to uncover risk dependencies and correlations across the entire organisation and, as a consequence, obtain enhanced value.

In a study conducted by Beasley, Branson and Pagach (2015), members of the American Institute of Certified Public Accountants (AICPA) were surveyed regarding risk oversight within their organisation. The survey was administered over a two year period and resulted in 645 usable surveys. The study found that boards that formally designate responsibility for risk oversight to a board level committee and boards that receive a formal report from management describing the entity’s top risk exposures at least annually were associated with more mature ERM programs. The study also found that ERM maturity is positively associated with boards that have developed a risk appetite statement that articulates how risk is to be considered in the formulation of the strategic plan (Beasley, et al, 2015. p.241).

This finding is supported by a survey conducted by Towers Watson (2015). The survey examined ERM activity in insurance companies across the globe, with 398 insurance executives responding. The results showed that where risk management is treated as a strategic aspect of their business to improve the risk return relationship, the level of satisfaction with the ERM program was higher. Seventy per cent of respondents reported they expected ERM to result in increased shareholder value through enhanced risk/return decision making and 61% expect greater risk taking as the result of an enhanced ability to manage risks.
2.9 Summary of Literature review

This literature review has determined that risk management has been employed by organisations since the 1950’s and initially focused on single sources of risk and reducing the organisations exposure to that risk. Various factors such as corporate accounting fraud, rating agency scrutiny, the global financial crises and long term trends have caused risk management to evolve into a more comprehensive management system called ERM. ERM was determined to offer the benefit of risk transparency, management coordination and providing a continuous and broad focus on all business risks and risk/return opportunities.

Two significant commercial frameworks for ERM were identified – COSO’s ERM Integrated Framework (as outlined on page 13-14) and the ISO 31000 standards - that assist organisations to implement ERM. The two frameworks focus on different components and approaches for implementation. Although these have been found to play an important role in the implementation of ERM in industry, a number of issues have been identified (Fraser and Simpkins, 2010). One of the major issues is their tendency to create a disproportionate focus on risk management, at the expense of other management activities, and generate a culture of compliance rather than risk innovation (Lundquist, 2014; Ballou and Heitger, 2005). The principal benefit of these frameworks identified was that they are flexible and can be tailored to meet organisational needs.

Other benefits identified included the assistance the system provided for capitalising on business opportunities, balancing risk and reward, achieving cost savings through an integrated approach to compliance, assessing the current risk position, more proactive risk management and better capital structure and allocation.

The empirical literature has examined the extent to which the benefits translate to value for organisations that have implemented ERM. Initially this literature focused on the appointment of a Chief Risk Officer as a proxy for ERM implementation and correlated this with shareholder value. Results from these early studies were mixed with some asserting a positive correlation and others
finding no correlation. The literature, however, did not capture the scope of operational effect of ERM and did not provide representative findings. The literature then adopted a more representative variable set, following the introduction of an updated set of rating criteria for management and governance by S&P (McShane et al, 2011; Baxter et al, 2013). The next phase of the literature provided some mixed findings, with some studies determining that the risk management approaches resulting from ‘higher quality’ ERM programs did reduce losses and increase the uptake of attractive opportunities and other studies finding no relationship between the S&P rating and organisational value.

The most recent research in this area has focused on an even broader range of variables. This literature has determined that ERM may improve risk management effectiveness in smaller and medium sized organisations more than in larger organisations. Other studies, however, have determined that whilst a positive relationship can exist between organisation value and ERM, the maturity of the organisation’s ERM program may affect the outcomes and that, in some cases, there is still no relationship between ERM and value.

The rating from S&P is an effective measure of organisational financial performance for ERM research. Not only has it been used as a benchmark in previous ERM studies, but it is also a useful measure of organisational financial performance because “A Standard & Poor’s issued credit rating is a forward-looking opinion about the creditworthiness of an obligor with respect to a specific financial obligation, a specific class of financial obligations, or a specific financial program (including ratings on medium-term note programs and commercial paper programs). It takes into consideration the creditworthiness of guarantors, insurers, or other forms of credit enhancement on the obligation and takes into account the currency in which the obligation is denominated. The opinion reflects Standard & Poor’s view of the obligor’s capacity and willingness to meet its financial commitments as they come due, and may assess terms, such as collateral security and subordination, which could affect ultimate payment in the event of default.” (Standard and Poor’s Rating Definitions, April 27, 2011).
While the S&P Rating is important, risk appetite statement is a core consideration in an ERM framework as it forms an integral part of corporate governance, guides the allocation of resources, influences the organisations attitude towards risk, is multidimensional and guides the monitoring of risks in pursuit of the organisation’s objectives. Additionally, the board should consider the risk appetite statement when it approves management actions, especially strategic plans, budgets and new products and services.

In addition to the above factors as regulators and investors call for greater disclosure of risk management processes the risk appetite statement has become increasingly important, with the statement being broad, but linked in with risk tolerance levels. Therefore, having a risk appetite in place assists in driving the ERM framework throughout the organisation, facilitates discussions around risks and provides a basis for further discussions around risk strategies and objectives.

While a risk appetite statement is a key component to having ERM embedded into an organisation some organisations may not have this in place, depending on where they are at in the lifecycle of developing their framework. However, they may have other statements in place such as a values statement, or a reward system which is linked to risk management or they may have all three if their ERM framework is more advanced in maturity.

The literature suggests that ERM implementation can increase an organisation’s performance and that there is a positive relationship between ERM and organisational value (Barton, et al. 2002, p.1291; McShane et al, 2011, 642-643). Therefore, in this study, organisational financial performance was tested as the dependent variable using S&P’s rating. In reflection of the attention paid in the literature to risk appetite statement, self-reported data was also collected on this measure to determine how it related to the independent variables as an outcome of ERM implementation. This lead to the following two dependent variables:

- Standard and Poor’s (S&P) Rating – S&P issue credit ratings for the debt of public and private companies, and other public borrowers such as governments and their entities. This has been used as a benchmark in previous
ERM studies, and is a useful measure of organisational financial performance because “A Standard & Poor’s issue credit rating is a forward-looking opinion about the creditworthiness of an obligor with respect to a specific financial obligation, a specific class of financial obligations, or a specific financial program (including ratings on medium-term note programs and commercial paper programs). It takes into consideration the creditworthiness of guarantors, insurers, or other forms of credit enhancement on the obligation and takes into account the currency in which the obligation is denominated. The opinion reflects Standard & Poor’s view of the obligor’s capacity and willingness to meet its financial commitments as they come due, and may assess terms, such as collateral security and subordination, which could affect ultimate payment in the event of default.” (Standard and Poor’s Rating Definitions, April 27, 2011)

- Risk Appetite Statement - Risk appetite statement is a core consideration in an ERM approach. Risk appetite statement can be defined as the amount and type of risk that an organisation is willing to take in order to meet their strategic objectives. This variable was measured by determining if the organisation had a risk appetite statement in place and if so, how it was being utilised.

The independent variables were drawn from the COSO ERM model. The following eight interrelated components are highly relevant to the financial performance of the organisation, and fit with this study’s hypothesis:

- Internal Environment - The internal environment sets the basis for how risk is viewed and addressed by staff, including the risk management philosophy and risk appetite statement, integrity, and ethical values, and the environment in which they operate.
- Objective Setting - Objectives must exist before management can identify potential events affecting their achievement. Therefore, ERM requires objectives to be set and to be consistent with the organisation’s risk appetite statement.
• Event Identification - Internal and external events affecting achievement of an entity’s objectives must be identified as either risks or opportunities and linked back to the ERM process.

• Risk Assessment - Risks are analysed, considering likelihood and effect, as a basis for determining how they should be managed. Risks are assessed on an inherent and a residual basis to ensure ERM is appropriately managed.

• Risk Response - Management selects risk responses – avoiding, accepting, or sharing risk – developing a set of actions to align risks with the entity’s risk reducing, tolerances and risk appetite statement, this process links back to the risk appetite statement and objective setting.

• Control Activities - Policies and procedures are established and implemented to help ensure the risk responses are effectively carried out, and there is a continuous process of improvement in the ERM framework being employed.

• Information and Communication - Relevant information is identified, captured, and communicated in a form and timeframe that enable staff to carry out their responsibilities. Effective communication engages with all sections of the organisation.

• Monitoring - The extent of the ERM process monitoring and whether modifications are made as necessary. Monitoring is accomplished through ongoing management activities, separate evaluations, or both and is a critical component ensuring the ERM process is being optimised and value is being derived from the program.

In addition to the independent variables, a number of moderating variables were also considered, as follows:

• Culture – Large corporate failures such as Lehman Brothers have demonstrated the important role culture plays in an organisation’s risk management framework. Having a good risk management culture in place does not necessarily mean taking less risks, rather it is about creating an environment where it is harder for an outlier, event or individual to put the organisation at risk, this is one of the key objectives of putting an ERM framework in place.
Therefore, the influence culture plays or is perceived to play in an organisation’s ERM program will be considered in this study.

- Maturity of implementation – In a study examining the valuation implications of ERM Maturity (Farrell and Gallagher, 2014) it was found that organisations that have reached mature levels of ERM are exhibiting a higher organisational value, measured by Tobin’s Q, and this can be of a magnitude of up to 25 percent. Tobin’s Q is the ratio of the market value of an organisation’s assets (as measured by the market value of its outstanding stock and debt) divided by the replacement cost of the organisation’s assets (book value). This highlights the importance of understanding the point in the lifecycle of an organisation’s ERM program as this may directly influence the value that is expected from it. The measure of maturity will be examined by observing the extent to which organisations have implemented the COSO framework elements.

- Skill levels – One of the critical success factors for implementing an ERM program, identified by Driscoll (2014) is to ensure the organisation has the right staff with the necessary skill sets at various levels of the organisation who understand how the ERM process can best engage all levels of the organisation including senior-leadership, executives, and the business unit. Therefore, if the skill set of key staff in the organisation is not right, the maximum value will not be derived from the ERM program. Availability of skills is a key metric for this study.

- Strategic orientation – Strategic orientation plays a role in the success of an ERM program because if the ERM program is not aligned with the direction the business wants to or should go in the future, then there will be competition for resource allocation. Therefore, strategic orientation needs to be understood when assessing an ERM program. This will be examined as part of the research through exploring the relationships between the building blocks of ERM.

- Market conditions – The global financial crises demonstrated that organisations need adaptive approaches if they are going to survive in a constantly shifting market, furthermore it demonstrated that the advantage would go to those organisations that look ahead and plan to be able to withstand external shocks, this is one of the reasons why organisations pursue
ERM programs to assist with dealing with the market conditions. The ability to adjust to market conditions will be measured by what elements the organisation has put in place such as a risk appetite statement.

The extant literature has provided some findings regarding the causal relationship between ERM and organisational financial performance, but not the mechanisms, moderations or mediating effects. Most of this literature is based on research conducted in a mature ERM environment. This literature has indicated that not all organisations which have implemented ERM experience an improvement in their value. This suggests that other factors affect the relationship. The following table summarises the relationships which have been identified or proposed.

<table>
<thead>
<tr>
<th>Literature Review Summary Table</th>
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<tr>
<td>Theme</td>
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<tr>
<td>COSO Implementation:</td>
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<td>Benefits</td>
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<td>Value</td>
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<td>Use in small organisations</td>
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<tr>
<td>ERM and Financial Performance:</td>
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<td>Benefits</td>
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<td>Value</td>
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<td>Large organisations</td>
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<td>Other Studies:</td>
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<td>Value</td>
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<tr>
<td>Use in small organisations</td>
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Table 2: Literature Summary

Table 2 shows that no articles have only identified a relationship between ERM and accounting returns, rather than between ERM and organisational financial performance. Identifying this relationship, particularly in the context of a non-mature ERM environment, is a pressing objective for the extant literature. Additionally, the literature has indicated that there are moderating factors that may influence the effect of an organisation’s ERM program. Factors such as the use of the COSO framework and risk maturity warrant further investigation to determine the effect they have on an organisation’s ERM program and the subsequent influence this has on the return on investment the organisation can expect. This research will extend this literature by answering these questions.
2.10 Hypotheses

The literature has demonstrated that many variables that can influence the success of an ERM framework, the diagram below outlines how these variables are related to each other.

Figure 2: Research Variables

The following hypotheses are put forward based in the review of the literature. They will be tested to answer the research questions. The following table extends the descriptions outlined in table 2 to demonstrate how the hypotheses relate to these variables from the literature. This is then followed by a brief rationale for each of the hypotheses.
<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Relevant Variables</th>
<th>Source</th>
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<tbody>
<tr>
<td></td>
<td>Control activities</td>
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<tr>
<td>H2: The level of ERM implementation is greater when risk characteristics are more numerous</td>
<td>Objective setting.</td>
<td>Ballou and Heitger, (2005); Pappe and Speckle, (2012); Lundquist, (2014).</td>
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<td></td>
<td>Information and communication.</td>
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<td></td>
<td>Skill levels</td>
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<td></td>
<td>Risk response</td>
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<tr>
<td>H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.</td>
<td>Risk Assessment</td>
<td>Barton et al (2002); Gates, Nicolas and Walker (2012); Li et al (2014); Kommunuri et al (2016).</td>
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<td></td>
<td>Strategic orientation</td>
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<td></td>
<td>Monitoring</td>
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<td></td>
<td>Event identification</td>
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<tr>
<td>H6: The effect of ERM implementation on organisational performance is moderated by organisational culture.</td>
<td>Culture</td>
<td>Aon (2013); Farrell and Gallagher (2014)</td>
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<td></td>
<td>Market conditions</td>
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</table>

*Table 3: Literature and Hypotheses Summary Table*
As highlighted in the literature review, the results from the research on the relationship between ERM implementation and organisational financial performance has been mixed (Hoyts and Leibenberg, 2011; Li et al 2014). However, as ERM gains momentum and is embedded into an increased number of organisations, more evidence is emerging that ERM implementation is positively associated with an organisation’s performance. This observation is supported by Ernst and Young’s (2013, p.2) finding that organisations with more mature risk management practices have generally greater growth in revenue, EBITDA and EBITDA/EV. A positive finding for this hypothesis will extend the literature by confirming this relationship and how practitioners can improve their practices to realise this value sooner. This relationship will be tested by the following hypotheses:

**H1: ERM implementation increases organisational financial performance.**

Whilst ERM implementation is likely to be associated with organisational performance, it is likely to also be effected by the organisation’s risk characteristics (Ernst and Young, 2013; Aon, 2013). A study by Ernst and Young (2013) found financial performance is highly correlated with the level of integration and coordination across risk, control and compliance functions. Whilst a study by Aon (2013) found that as an organisation’s risk management process improves over time, the organisation becomes more resilient to external and inherent risks. These characteristics may have an influence on the extent of the ERM program selected through to its implementation and acceptance. A positive finding for this hypothesis will extend the literature by identifying which risk characteristics need to be included in future research as the independent variables and how they relate to the level of ERM implementation. This finding will also help organisations to understand which risk characteristics need to be proactively managed to ensure successful implementation of their ERM program to reap the largest reward. This effect will be tested by the following hypothesis:

**H2: The level of ERM implementation is greater when the risk characteristics are more numerous.**
The financial system in Australian is mature; the main banks have been in operation for over 100 years and have a record of strong profitability driven by strong loan performance (Henry, 2011). It stands to reason that a mature finance industry which is a major source of capital and which manages risk as part of its normal operations would create an expectation of senior managers in all industries that rely on the banking sector to exercise risk oversight and strive to improve their risk performance.

However, whilst there has been some investment in people, processes and supporting technology, ERM implementation in Australia is relatively new. This suggests that, whilst the expectations of risk oversight are probably high, the maturity of ERM implementation available to support risk oversight is probably low. Finding that ERM implementation in Australia is immature would lead to the interesting conclusion that mature financial systems and the expectations this would place on senior management for risk oversight can coexist with immature risk management systems. Therefore, given that the financial system maturity in Australia has been well established, it is important to determine whether ERM in Australia is immature.

Consequently, given the maturity of the financial system in Australia it is important to determine if this has influenced other industries to propel ERM to a greater level of maturity or if it is still in an immature phase.

An ERM mature organisation will possess ERM capabilities that strongly reflect its existing risk appetite and the factors that influence its risk capacity. An immature ERM organisation will possess undefined ERM capabilities that will be connected to less focused or broad risk appetite statements. It is likely, therefore, that ERM maturity influences relationship between ERM and organisational financial performance.

As discussed earlier, the Aon Risk Maturity Index (2017) is popular framework for identifying risk maturity and is built on 10 characteristics:

1. Board understanding and commitment to risk management;
2. Executive level risk management stewardship;
3. Risk communication;
4. Risk culture: engagement and accountability;
5. Risk identification;
6. Stakeholder participation in risk management;
7. Risk information and decision making processes;
8. Integrating risk management and human capital processes;
9. Risk analysis and quantification to understand risk and demonstrate value; and
10. Risk management focus on value creation.

The level of ERM risk maturity is low due to the relative recency of its adoption in the country. This condition provides the opportunity to determine whether a low level of risk maturity affects the relationship between ERM and organisational performance. A positive finding for this test would extend the literature by formally identifying this relationship and identifying the mechanisms of this effect. This relationship will be tested by the following hypotheses;

**H3: The low level of risk maturity in Australia reduces the effect of ERM on organisational financial performance.**

An ERM program distributes responsibility for risk management throughout the organisation. Therefore, ERM implementation embeds risk management into all functions across the organisation and contributes to the control of key business processes (COSO, 2004; ISO 31000, 2009). This should lead to the early identification of risks and consequences thereby reducing their negative effect on the organisational performance. A positive finding for this hypothesis would extend the literature by identifying the mechanisms between ERM implementation and the control of negative effects of risk, especially, identifying the control variables affected by ERM implementation. This finding would also assist practitioners to enhance the value they are deriving from their ERM program. This effect will be tested by the following hypothesis:

**H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.**
In the literature review, the major frameworks utilised to guide ERM implementation were highlighted. Due to the cost of implementing these frameworks, smaller organisations may not be able to fully implement ERM. Organisations that maximise the value derived from their ERM program incorporate staff risk training, risk monitoring and risk reporting across the organisation; utilising integrated technology to ensure the efficiency of this process and eliminate duplication of risk activities (Ernst and Young, 2013, p.9). Larger organisations will have the resources to dedicate to all of these support activities, however, smaller organisations may be unable to achieve this, effecting the implementation of the ERM program. Therefore, the organisation’s size is a moderating variable. A positive finding for this hypothesis would extend the literature by demonstrating that conditions such as organisational size do affect the relationship between ERM implementation and organisational financial performance. This will lead the way for the identification of the effect of other potential moderating variables on this relationship in the literature. Examining this relationship will also assist practitioners to understand how the size of their organisation may affect their ability to use ERM implementation to improve their performance. This relationship will be tested by the following hypothesis:

**H5: The organisation’s size moderates the effect of ERM on organisational financial performance.**

The organisational culture may also affect the contribution of an ERM program to organisational financial performance. In an international survey, “48% of 500 bank executives who participated, cited a deficient risk culture as a leading contributor to the credit crises. As organisations looked for returns in benign markets, the cultures created an attitude of denial about the true underlying risks and their potential impacts.” (Chappell, 2014, p.121). It is likely that organisational culture will affect an ERM program because its implementation requires changes in management practices. A positive finding for this hypothesis would extend the literature by introducing another valuable moderating effect to the literature which provides another mechanism that explains the variations in the relationship identified between ERM implementation and organisational financial
performance. It will also assist practitioners to understand how culture affects their ability to improve performance through ERM implementation. This relationship will be tested by the following hypothesis:

H6: The effect of ERM implementation on organisational performance is moderated by organisational culture.

2.11 Summary
This study will expand upon the previous research examining the relationship between ERM and organisational performance for different organisational ownership. This approach will enable the identification of moderating variables and their effect as well as identifying the key independent variables. The following chapter will discuss the research methodologies that will be utilised, in more detail.
CHAPTER THREE: RESEARCH METHODS

3.1 Introduction

The literature reviewed in chapter two provides an argument for a positive relationship between ERM and organisational financial performance. However, the results of empirical studies to date have been unreliable as many of the influential variables identified in the literature review have been excluded from past studies and as a result have produced inconsistent findings. Additionally, the inconsistent empirical findings may be attributable to the different measurement variables used, such as measuring organisational performance using the S&P Rating in some cases and a self-disclosure process in others. Variation in the findings of many studies may also be attributed to ignoring the effect of ERM implementation maturity. In some cases the inconsistencies may be due to the use of secondary data, which may not be appropriate as “risk management disclosure and discussion relates to specific risks and not whether they are managed in an integrated way” (Lundqvist, 2014, p.397) and this data may not provide a correct representation of all of the organisation’s risk variables. Furthermore, some of the research may not have included an objective measure of the level of implementation of the ERM system, instead relying on the participant’s perception of the level of ERM program implementation.

To address the issues identified with previous research, this project will use all of the variables that were identified in the literature review to test the relationship between ERM implementation and organisational financial performance across a variety of organisations (to identify the effect of moderating variables relating to organisational features). This will require the use of a mixed methods approach. This study will focus on the relationship between the implementation of ERM and organisational financial performance. Firstly, a survey will be conducted, followed by interviews will explore the reasons behind the survey data findings (Yin, 2014). This research will identify the relationship between ERM factors and organisational financial performance and create a basis for future research in this area.
This chapter describes the research methodology that will be used for this study. The chapter commences with an overview of the research design, research variables, population and sample and a description of the mixed methods research instrument. The data collection and data analysis process and the reliability and validity of the survey instrument are then considered.

3.2 Research Design

The research design for this study was a mixed methods approach. Mixed methods emerged around the late 1980s and early 1990s based on work from a diverse range of study areas (Maxwell, 2016, p.13). It has gone through several periods of development including philosophical debate and reflective positions and has subsequently spread to many research disciplines.

An explanatory sequential mixed methods design was utilised in this project, which incorporated both quantitative and qualitative methods to collect data from Australian organisations using an online survey, followed by face to face interviews. The rationale for utilising a mixed methods approach was to take advantage of two methods for collecting data, which would be complimentary. Additionally, the research shows that “a mixed method design, if conducted with deliberate care, is a stronger design than a single method design because the supplemental component enhances construct and internal validity of the data collected by verifying the results from another perspective. Further, with mixed method designs, all components remain intact and are published as a whole.”(Morse and Niehaus, 2009, p.14)

The explanatory sequential mixed methods design involves a two-phase project in which the researcher collects quantitative data in the first phase of the study (in this study through an online survey), the results were analysed and then used to plan the second qualitative phase, (in this study, face to face interviews) to further develop the constructs or relationships resulting from the survey findings. The strength of this design is that the qualitative data are used to explain the quantitative data results.
The data collection for this study proceeded in two distinct phases with quantitative sampling in the first phase followed by purposeful sampling in the second, qualitative phase. To identify the quantitative results to explore in the second phase, the researcher focused on extreme or outlier cases, significant results and unexpectedly insignificant results.

3.3 Research questions

The purpose of this research is to examine the link between ERM and organisational financial performance. To achieve this, the following research questions will be examined:

1. How do organisations use a guiding framework as part of their ERM implementation?
2. What is the level of ERM implementation maturity in Australia?
3. How is the adoption of ERM associated with improved organisational financial performance?
4. How do moderating and mediating variables influence the success of the ERM program?

Answering these research questions will make an important contribution to identifying the relationship between ERM programs and organisational financial performance in the context of a nationally immature ERM environment. It will also provide valuable insights for organisations planning to implement or advance their ERM framework.

3.4 Research variables

The variables used for the study were derived from the analysis of the literature and are summarised in Table Two below. The S&P rating was utilised as the dependent variable representing organisational financial performance as this was the most objective and full measure of organisational financial performance available. The presence of a risk appetite statement was used as a dependent variable as it represented the organisation’s utilisation of risk management to
increase organisational financial performance. Thus it was a measure of ERM’s direct contribution to organisational financial performance.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
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<tbody>
<tr>
<td>Dependent Variables</td>
<td>S&amp;P Rating</td>
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<td>Risk appetite statement</td>
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<tr>
<td>Independent Variables</td>
<td>Internal environment</td>
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<td>Objective setting</td>
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<td>Event identification</td>
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<td>Monitoring</td>
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<td>Moderating Variables</td>
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<td>Maturity of implementation</td>
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<td>Strategic orientation</td>
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<td>Market conditions</td>
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</table>

*Table 4: Research variables and descriptions*

### 3.5 Population and Sample

A list provided by the Risk Management Institute of Australasia (RMIA) and the publicly available list of ASX300 companies was used to identify participants for the survey component of this research. The individuals approached in the target organisations were senior risk managers, the Chief Risk Officer (CRO) or if there was no CRO, the Chief Financial Officer (CFO). Both of these managerial positions have a risk management leadership role. Both lists provided the correct contact details for this person. In this case, a senior risk professional or chief risk officer for each organisation was selected due to the need for expert opinion and the small number of staff in the organisation who would be able to provide the necessary data.
A convenience sampling methodology was used to select participants for the qualitative component of the research using personal contacts and suggestions from the RMIA. Seven candidates was considered sufficient as this data collection provided further information to extend and clarify the constructs and relationships identified in the first stage as recommended by Yin (2011). As suggested by Yin (2011), consideration was given to the complexity of the study topic and the depth of data collected from each of the subjects. As this is a specialist topic and the participants were considered experts in their field, seven participants were sufficient to provide a broad perspective on these issues. Additionally, to overcome any bias resulting from the small sample, consideration was also given to the composition of the research group, i.e. ensuring the data was collected from a variety of organisation types (Yin, 2011). This stage was not used to produce direct findings, its purpose was to extend upon the findings generated from the first, quantitative data analysis stage.

3.6 Research Instrument

Both the quantitative and qualitative aspects of this study received Deakin University Ethics approval (approval number EC-BL 57-13). The design is described in the following sections.

3.6.1 Quantitative Instrument:

A survey was chosen as the quantitative research protocol because surveys (Wilkinson and Birmingham, 2003, p.39):

- Collect large numbers of measures effectively.
- Collect data on relationships that are easily quantifiable (pertinent for this research project).
- Protect respondent anonymity: they can be distributed and returned confidentially and without the respondent ever being identified, this was also an important consideration given the nature of the research and the attitudes of the targeted respondents for this project.
- Facilitate an efficient analysis process.
Allow the researcher to retain control over the research, directing how the topic is approached and guiding the respondents to respond to the issues selected, unlike some other instruments such as unstructured interviews.

The weaknesses of using a survey for a research instrument for the project are:

- Ease of production and distribution can result in the collection of far more data than can be effectively used – this issue was overcome by the researcher ensuring their questions were targeted and directly related to the research and targeted to a specific audience.
- Potential respondents receive a large amount of questionnaire requests – to increase the response rate the survey was developed using a professional and proven web survey system (Survey Monkey) and two follow-up reminder emails were sent to participants.

The researcher considered all available methods of distribution for the survey and ultimately chose an online email invitation and a web based survey. Sue and Ritter, (2012, p.16-17), identified the following advantages of using web surveys:

- Speed. A web based questionnaire can be sent to thousands of participants using a distribution list. Responses are typically received quickly and data can be accessed via the software tool in real time.
- Economy. The cost associated with this method is small with most major software providers providing a free version of web survey tools.
- Convenience. Online survey software allows researchers to create the questionnaire, write the email invitation, upload the distribution list and send reminders directly from the software.
- Simplicity. Online survey software does not require technical expertise on the part of the survey developer.

However, there are some disadvantages of using this method, which the researcher had to overcome, which included:
• Availability of a sampling frame. Surveys require access to an email list for the population. The researcher had access to the ASX 300 and the RMIA member email address lists.

• Unsolicited emails. Most email programs use filters to flag, unsolicited messages as junk mail. Some filters will not accept bulk emails. However, for this study there were only three rejections of the survey request email.

The research design also considered the time required to complete the survey. “As a general rule of thumb, a questionnaire should take no more than about 20 minutes to complete. If a respondent is asked to give up more time than this, he or she may abandon part or all of the questionnaire” (Wilkinson and Birmingham, P. 2003, p.17). To determine the time required, a pilot study was conducted in order to test and refine the questions. The pilot group consisted of two risk management professionals. The risk management professionals were asked to provide feedback on the length of the questionnaire, clarity of instructions, any questions that were not clear or were ambiguous and if the layout was clear and attractive. The feedback suggested that the survey was of appropriate duration and made some suggestions for minor clarifications and small cosmetic changes.

The survey was administered utilising Campaign Monitor to manage the email process, enabling the researcher to track the progress of the surveys, without compromising the respondent’s privacy. The letter of invitation can be found in Appendix 1. The data was collected using Survey Monkey (the online web-based survey data collection tool). Additionally, the survey structure was based on the independent variables, which were drawn from the COSO framework and consisted of eight sections as follows:

**Internal environment**: This section consisted of four items, which measured the demographics, how risk is viewed and the organisation’s risk environment. The questions for the internal environment were as follows:

1. In what regions does your organisation operate? This question had five possible answers (Australia, New Zealand, America, Europe and Asia) and respondents were asked to check all that applied. Whilst the survey was only
distributed in Australia, the researcher wanted to understand the operating regions of the participating organisations as this could add to the complexity of the organisation’s ERM program.

2. If your organisation has a rating from S&P what ERM classification (including risk culture) was given at your last review? The respondents were provided with the six S&P categories (excellent, strong, adequate with positive trend, adequate with strong risk controls, adequate and poor) there was also a category for this question was not relevant. This question was critical as the S&P rating was one of the dependent variables. A profitability measure for financial performance was not utilised as the literature (Sherman and Young, 2016) suggests that they are not appropriate measures for this type of study, for the following reasons:

• The way organisations report their data can vary due to the accounting standards,
• Revenue recognition is complex for some types of organisations such as technology companies;
• EBITDA can be noncompatible from organisation to organisation - because of what is included in the calculation;
• There is variation on how the fair value of assets is reported; and
• Operating decisions may influence the reporting data and not accurately reflect the position of the organisation.

In response to these concerns, the S&P rating was selected as a suitable measure as this is an independent and credible measure of the organisations position. It takes into consideration a broader set of variables and is a reflection of the organisations ability to meet their financial obligations.

3. How many full time employees (FTEs) are part of your organisation’s core ERM team? This question would provide insight into the participants’ ERM program size and complexity.

4. Does your organisation have the following in place – a risk appetite policy/statement, a values statement and/or a rewards system that is linked to risk management? The respondents were asked to indicate everything that
applied, as one or more could apply. This question was also important as risk appetite was the other dependent variable in this study.

**Objective setting:** This section consisted of five items, which assessed the organisation’s objectives for their risk management program, how these were set, reviewing the objectives and how these were integrated into the business. The questions for objective setting were as follows:

1. **What are the primary objectives of your risk management program?**
   Respondents were provided with eight options and asked to rank them in order of importance. There was also provision for “other” comments. The eight objectives were: common understanding of risk across functions and business units; better understanding of risk use for strategic advantage; protection against earnings related surprises; ability to effectively respond to risks; cost savings due to effective management of resources; more efficient capital allocation; regulatory compliance; and being able to compensate based on risk adjusted returns. The answer to this question identified the motives for operating with an ERM framework in Australia.

2. **How do you determine what your risk objectives are?** There were six options for respondents to choose from along with the provision for comments if none of the options were relevant. The respondents could choose from: ad hoc discussions at top management planning meetings; structured discussions at top management planning meetings; risk committee meets periodically to discuss risks and keeps top management appraised; risks are identified by internal auditors; business unit leaders identify risks and report their findings to top management; and ERM process owners guide business units through a structured assessment process. This question provides insight to the methods used by organisations for risk objective determination and if this is a structured or a more informal process.

3. **How often does your organisation review its ERM risk objectives?**
   Respondents selected from: on-going process, monthly, quarterly, six monthly and annually.
4. Are your ERM objectives integrated with the core business activities? i.e. strategic planning. This was a yes/no question, however there was a provision for comments.

5. Are your ERM objectives supported by the appropriate infrastructure? There were four infrastructure variables to select from: reporting capability, technology, policies and procedures and human resources.

The five questions for objective setting related to identifying potential risk events which could affect organisational financial performance.

**Event identification:** This section consisted of three items covering the risk assessment process, distinguishing between risk types and quantifying the financial effect of risk. Respondents were asked to answer the following questions:

1. How do you conduct your risk assessment process? Five options were provided to respondents – questionnaire or checklist; internal workshops; department/division based; benchmarking process against other organisations and external consultants.

2. Does your organisation formally distinguish between risk types? The options for this were operational, credit, strategic and market.

3. If you quantify the financial effect of risk how do you do this? Respondents were asked to select all that applied – cash flow impact; shareholder impact; market share impact; reputational impact; supply chain impact and other (open ended comments).

The event identification component measured how the organisation identified the internal and external events that would affect its organisational financial performance and what can be classified as a risk or opportunity.

**Risk assessment:** This section contained one item which assessed the actions of the organisation once they identify a risk. The risk assessment process is important as it is where the risks are analysed and the likelihood and effect are
examined. Risks are managed on both an inherent and residual basis. The question was:

1. Once your organisation identifies a risk, do you – assess the significance of the risk; quantify the financial effect of the risk; assess the likelihood of the risk; assess if there is an underlying opportunity in the risk and an ‘other’ section for open-ended answers.

**Risk response:** This section contained two items, assessing how risk is aligned to the risk objectives and how the organisation evaluates risk. The respondents were asked the following:

1. Once a risk has been identified how do you manage it to align with your risk objectives? Respondents were asked to provide an explanation for this question.
2. Have you evaluated how effectively you are managing your risk? This was a yes/no answer along with the provision for comments if appropriate.

These questions were a measure of determining the level of risk response under the COSO framework. Risk response is where staff identify and evaluate possible responses to risks, which include avoiding, accepting, reducing and sharing risks. Management then select actions which are aligned to the organisation’s risk appetite and tolerance levels.

**Control activities:** This section contained one item, which assessed whether the organisation has appropriate policies and procedures to support their risk responses activities. This question measured whether risk policies and procedures had been established to ensure the risk responses are effectively carried out. The question was:

1. Do you have appropriate policies and processes in place to ensure risk responses are effectively carried out? This was a yes/no response with the provision for comments.
**Information and communication:** This section contained two items, which assessed the risk communication process throughout the organisation. This measured the effectiveness of the ERM program, resulting from the flow of information in terms of depth, breadth and frequency. The questions were as follows:

1. Does your organisation have a CRO or ERM leader who regularly updates the board or a board committee on the risk objectives and what steps are being taken to meet these? This was a yes/no response with the provision for questions.
2. At what level of the organisation are your ERM objectives communicated? Five options were provided to the respondents, these were board; general manager/business unit head; senior manager; manager and all staff.

**Monitoring:** This section contained three items, which assessed the benefits associated with the ERM program, and how the organisation rewards risk based behaviours and the effect of culture on the organisation’s risk objectives. This question measured the effectiveness of the ERM program in terms of its ability to initiate change to the organisation’s operations. The questions for this section were as follows:

1. What benefits have resulted from your organisation’s ERM implementation? The options were improved executive decision making; improved rating from the rating agencies; more targeted organisational/business strategy; more informed risk/reward tolerance; more informed portfolio planning/opportunity selection; risk avoidance; newly identified business opportunities and a section for open-ended comments.
2. Does your organisation? The options were - Promote moving from a culture of blame to advocating learning from its mistakes; reward those who demonstrate compliance with risk based behaviours; openly discuss risk policies, appetite and tolerance levels when making a decision; and ensuring proactive identification and management of risks in everyday decision making.
3. Do you feel your organisation’s culture affects the achievement of your risk objectives? The answer for this question was yes/no and a provision for open-ended comments.

Both continuous and categorical scales were used in the survey. This was considered suitable for the type of data to be collected which represented discrete measures as well as separate states for the variables. Categorical scales were used where the data represented categories such as dichotomous and nominal observations. A table citing the literature used for the development of the survey questions, along with a full copy of the survey can be found in Appendix 2. The questions were reflected the nature of the phenomena and participants and were validated through a pilot of the survey, prior to its release online (see Section 3.6.2).

3.6.2 Qualitative Instrument

The second, qualitative, phase of the study commenced with the design of the interview questions. Interviews were chosen for this phase of the study as they are able to provide (Opdenakker, 2006):

- Synchronous communication which provides the ability for the researcher to take advantage of social cues.
- The data was able to be collected in real time.
- The setting for the interviews was able to be conducted in a relaxed and appropriate environment
- An interview can be terminated when needed.

The weakness of using the face to face method for the interviews was:

- Cost – the interviewer had to travel to conduct all but one interview. This had both time and economic costs associated with it.
- The quality of the data will depend on the interviewer’s skills and communication techniques.
- The data sample was limited due to the availability of participants with the subject expertise required.
The interview was tested using a pilot group comprising one risk professional and one academic. The pilot confirmed that the interview was of an appropriate length and made some suggestions for minor modifications to the questions. A full copy of the interview questions can be found in Appendix 3.

Seven interviews were conducted with risk professionals from organisations located across various locations in Australia and representing a variety of industries, both profit and non-profit. Six of the interviews were conducted face to face, and one was conducted via the telephone. All interviews were recorded with the participant’s permission and notes were taken to ensure accuracy when transcribing the interviews.

As this was a two phase study the interviews were designed to draw further information from subject matter experts where certain trends had been identified in the survey data, therefore the interviews were structured with the following five sections:

1. Demographic/Internal Environment

This section consisted of three questions designed to measure the expertise of the interview participants, determine the state of the organisation’s ERM program when they commenced and the organisation’s risk environment. The questions for the demographic/internal environment were as follows:

• Can you tell me how many years you have been working in the area of Risk Management? And how many years have you been doing this particular role? As this was a two phase study, the purpose of the second phase of the research was to explain the survey findings. This stage of the research was conducted with a panel of subject matter experts. This question confirmed the participants’ qualifications and experience. As highlighted by Morse and Niehaus (2009), this information was necessary to ensure a strong mixed methods design.

• What was the state of your ERM program when you came into the role? How have you developed this? The survey indicated the evolution of ERM in
Australia is in a relatively immature phase, therefore this question was designed to determine the status of the various organisations programs when they entered their role and how they have developed it through their tenure.

- Are you familiar with the COSO framework? As the COSO framework was an important part of the survey design and is a key framework used by many organisations as part of their ERM development it was considered prudent to understand the participants’ knowledge of the framework as it may influence their views on ERM.

2. Risk Appetite / Use of Strategic Risks

Having a risk appetite statement in place is a key component of an ERM framework, however the survey showed that the number of organisations represented with a risk appetite statement was lower than anticipated. As this survey finding was unexpected, it was important to determine if this was more broadly applicable by examining its basis with interview participants. It was also important to understand how risk appetite was being utilised and whether there were moderating factors effecting organisations without a risk statement. This section included three questions about risk appetite/strategic risks, which were as follows:

- Do you have a risk appetite statement in place? As the number of organisations with a risk appetite statement in the survey was lower than anticipated it was important to validate or reject this result with interview participants.
  a. Is this supported by appropriate policies and procedures? The survey showed that the most common supporting infrastructure organisations had in place for their ERM framework was policies and procedures, so this question was designed to validate if this could be a generalised finding.
  b. How would you go about executing, implementing or embedding a risk appetite statement if it is not supported by the appropriate policies and procedures? This question was designed to provide insight into how organisations that responded to the survey and indicated that they
• Do you feel that there is a relationship between risk appetite and strategic risks? The survey indicated that the majority of respondent’s organisations distinguished between operational and strategic risks. However, there was not a statistically significant relationship between risk appetite and strategic risks, which was an unexpected finding. Therefore, this question was designed to investigate the subject matters opinion on this.

  a. Do you think this would differ if you were working for a for profit/not for profit organisation? An assumption stemming from the unexpected findings of the survey was that there were not for profit organisations involved in the survey that may have contributed to the outcome. The researcher wanted to investigate if this would in fact influence the outcome.

• After identifying a strategic risk can you describe how you would go about assessing the significance of this risk? Strategic risks have a significant effect on the ability of an organisation to meet their strategic objectives and this is a key component of putting an ERM framework in place. Therefore, assessing the significance of these risks is an important step in the ERM process and the extent to which an organisation undertakes this process is an indication of the ERM evolution.

  a. Do you think this would differ if you were working for a for profit/not for profit organisation? Due to the composition of survey respondents it was important to validate with subject matter experts if organisation risk assessment and behaviour would change based on the nature of the organisation.

  b. Have you benchmarked your company to know if you have identified all significant risks? As the survey indicated ERM is in a relatively immature phase within Australia it was considered important to understand if organisations were benchmarking themselves when undertaking a risk identification process to determine if there was a cycle of continuous improvement in place.
3. Risk Quantification

Managing risk is part of conducting business. To effectively manage risk, organisations must have a system for quantifying risks and ensuring that the risk management processes are aligned to the organisation’s objectives and strategy. This assessment process requires risk to be viewed through a variety of lenses and at both the aggregate and more granular levels. To identify the risk quantification process, this section included one main question with four sub components to determine if and how organisations were quantifying their risks.

- Can you provide an example of how you quantify the financial effect of your risk? The survey found some unexpected results, particularly in relation to the ranking order of the respondent’s risk objective order. It was anticipated the respondents would rate the financially orientated objectives higher, however as they didn’t, the researcher wanted to delve into this further.
  
  a. Does this process link back to your risk appetite statement? For an ERM Framework to be effective and for the organisation to derive the most value from the program any measurement process should link back to the risk appetite statement.
  
  b. Once you quantify a risk do you then examine it from a strategic perspective? i.e. Can it be used for strategic advantage? The ultimate objective of having an ERM program in place is to move beyond viewing risk as a compliance function and move to using it as a strategic tool, this question was aimed at determining where ERM programs were at within the Australian environment.
  
  c. Have you considered risk for each step in your value chain? ERM should consider risk in each step of an organisation’s value chain and this question was exploring how advanced this process was.
  
  d. Do you allocate capital requirements or resources based on your assessment of risk? An ERM framework can add significant value if there are linkages between tangible financial measures such as capital requirements and the program.
4. Risk Evaluation

Risk evaluation is concerned with assessing the probability and impact of individual risks whilst taking into account any interdependencies or other factors which may influence its effect. A risk evaluation attempts to identify the effect of the risk on the process it is related to and how it is perceived by those who manage or are affected by it. As this is a subjective process, this section focused on one question, with three sub-questions as follows:

- Can you tell me about a circumstance when you evaluated how effectively you were managing your risk? An ERM framework should be a process of continuous improvement and evolution. An important aspect of this is evaluating the effectiveness of how risks are being managed and adapting the program accordingly.
  a. Would you tie this back to your risk appetite statement? To be effective, the evaluation process should be tied back to the organisation’s risk appetite statement to ensure it is measured effectively.
  b. Would you have appropriate policies in place to support this process? To ensure consistency, appropriate policies and procedures should be in place.
  c. How else would you use this evaluation process? The evaluation process can be used to assess how effectively the risks are being managed but if the ERM framework is embedded into the organisation then it may also be used in other areas to improve the organisation’s strategic direction.

5. Implementation

The many pathways and barriers to successful ERM implementation mean that different obstacles and different opportunities may exist for different organisations. Most organisations will have identified some of these barriers and attempted to have overcome them; having learned more about these barriers and how to deal with them in the process. Identifying the difficulty of overcoming the
barriers and the most efficient way of overcoming them is one of the first stages of ERM implementation maturity in a country. Therefore, this section contained two questions to investigate the nature of these barriers and how they can be overcome:

- In your experience what are the most significant obstacles to a successful implementation of an enterprise wide risk initiative? Both the literature and the survey demonstrated there are a number of obstacles organisations face when they are implementing an ERM program. As the interview participants were highly experienced subject matter experts it was prudent to understand their perspective on what they viewed as the largest obstacles.

- What would you do differently if you were starting with a blank sheet of paper to implement an ERM system? This question provided the interview participants with the opportunity to provide insights into what they have learnt during the tenure in their role and the changes they have seen in ERM over that period.

3.8 Data Collection
The survey target group was sent an email with an invitation to participate, containing a link to the survey, which included a plain language statement describing the project and their involvement, including the Deakin ethics approval number and a follow-up contact number in case of questions. Follow-up emails were sent two weeks later and a further four weeks later. A total of 45 survey responses were received from a sample size of 500 organisations. The sample included both ASX300 listed companies and government agencies and private companies (sourced through the RMIA), across 23 industries, which were selected as described in section 3.5. This represented a response rate of 9% which is a reasonable response rate by contemporary quantitative survey standards, although the total number of responses was smaller than expected. It was expected that the high degree of relevance of the survey to the participants would have elicited a greater response rate. It was not possible to increase the number of responses by increasing the sample represented the entire population of risk managers in Australia that could be identified.
The response rate was consistent with response rates for contemporary studies. Survey response rates have been declining in recent years and are now very low for management research surveys. A 2008 study examining survey response rate levels it was found that the average response rate for data collected from organisations was 35.7% with a standard deviation of 18.8% (Baruch and Holtorn, 2008). In more recent research, however, Fryrear (2015) found that response rates for surveys of organisations can be as low as 2%, demonstrating the decline in organisational willingness to participate. The response rate may also have reflected the fact that ERM implementation in Australia is emergent and many of the risk managers in the mailing lists may not have considered themselves sufficiently informed to participate in the survey as a subject matter expert.

Following the completion of the survey analysis, emails were sent to ten potential participants inviting them to participate in the qualitative stage of the research – the interviews. Seven participants agreed to participate in the interviews, as described below:

- One interview conducted in Bendigo;
- One interview conducted via the phone, the interview participant was in Perth;
- Five interviews conducted in Melbourne, with some participants travelling from inter-state to participate.

Participants were provided with a plain language statement describing the project and a consent form to sign and one to keep to inform them of the purpose of the research, which included a form to indicate their desire to be taken out of the study.
3.9 Data Analysis Methods

As the explanatory sequential mixed methods approach was utilised for this research the two datasets were analysed separately (Cresswell, 2014).

The mixed methods approach uses the first stage results to inform the design of the second stage. The qualitative findings are then used to explain the quantitative results. A common research mistake with this method is to merge the two databases, however this is contrary to the intent of the research design (Creswell, 2014).

The quantitative data consisted of 45 responses across 23 industries. The variation in the responses allowed the data to be used to test the effect of a variety of different factors on organisational financial performance. The data was analysed utilising an excel based linear regression tool called XLStatistics. The statistical tests performed were means, standard deviations and linear regression. These statistical tests were the most pertinent to the research hypothesis and data configurations.

The descriptive statistics such as the means and standard deviations were used to analyse the demographic and organisational data from the study. Correlation analysis and linear regression was used to test the relationship between the independent and dependent variables in order to determine if there were any interactions.

The interview data was then analysed using thematic analysis, with a particular focus on the general ideas, the tones of the interviews, and the depth of the interviews. Once the interviews had been transcribed, they were coded. This involved reading the transcripts, making a list of all of the topics represented in the comments, and clustering similar topics together and dividing these into major, unique and unrelated topics. This list was then used to code the interview data. The researcher then found the most descriptive wording for each code, converted these into categories for the thematic analysis, at which point the thematic analysis of interview data was conducted.
3.10 Reliability and Validity of Survey Instrument

Three forms of validity measures apply to mixed method research of this type (Hubley and Zumbo, 1996):

(a) Content validity (do the items measure the content they were intended to measure?) – For this study the researcher ensured that the data which was collected was adequate for validation or rejection of the hypothesis. To achieve this both the survey and interview questions were tested and validated with relevant experts to ensure clarity and that they would achieve the stated objective;

(b) Predictive or concurrent validity (do scores predict criterion measures?) and

(c) Construct validity (do items measure hypothetical constructs or concepts?), construct validity was also tested by validating the survey and interview questions through testing their logic and phenomenological representativeness with subject matter experts prior to distributing the surveys or conducting the interviews.

In more recent research, construct validity has become a key validity objective.

In the explanatory sequential mixed methods approach, additional validity concerns can also manifest themselves. These concerns and how they were addressed are as follows (Creswell, 2014, p.224-225):

- The accuracy of the overall findings may be compromised because the researcher does not consider and weigh all of the options for following up on the quantitative results. This was overcome by the survey component and ensuring all results were analysed and given the appropriate consideration before the survey data were analysed.
- Attention may focus only on personal demographics and overlook important explanations that need further understanding. This issue was overcome by focusing on the analysis that would contribute to the hypothesis and designing the qualitative items for the hypotheses.
• The researcher may also create invalid results by drawing on different samples for each phase of the study. This was mitigated by using participant samples for both stages drawn from participants from the same profession and role function who had had comparable experiences of the phenomena and who had comparable subject matter expertise.

• The number of survey responses received may have been inadequate. The initial sample size for this study was relatively small as ERM is a highly specialised area, and the total (national) target group of risk managers was relatively small. One of the benefits of the mixed methods approach was that it reduced the limitations of a small survey by complementing the survey results with the interview data.

In addition to the steps outlined above, both the survey and interview instruments underwent pilot testing to validate the length, content and clarity of the instruments. The pilot testing resulted in only minor modifications being required.

3.11 Summary

An explanatory sequential mixed methods design was utilised, in which both quantitative and qualitative methods were used to collect data from Australian organisations using an online survey, followed by face to face interviews.

Four research questions were identified which were: How do organisations use a guiding framework as part of their ERM implementation? What is the level ERM implementation maturity in Australia? How is the adoption of ERM associated with improved organisational performance? And How do moderating and mediating variables influence the success of the ERM program?

The variables for this study were identified from the literature with the dependant variables of the S&P rating; independent variables of the internal environment, objective setting, event identification, risk assessment, risk assessment, risk response, control activities, information and communication and monitoring and moderating variables of culture, maturity of implementation, skill level, strategic orientation and market conditions.
The survey was distributed via e-mail due to its speed, economy and simplicity and the sampling design. Risks were minimised by determining how long the survey would take to complete and the usability of having eight sections which align with the independent variables. Following the completion of the survey, participants were selected for the second stage of the research through a convenience sampling process and covered five key areas.

As an explanatory sequential mixed methods approach was utilised for this study the two data sets were analysed separately. The survey data was analysed using descriptive statistics and regression analysis whilst the interview data was analysed using thematic analysis. Furthermore, content, predictive and construct validity were all examined through validating the data collection tools through pilot testing. The next chapter presents the research findings.
CHAPTER FOUR: RESULTS

4.1 Introduction

This study investigated the relationship between ERM and organisational financial performance. The COSO ERM model, literature and S&P rankings were used to identify the variables and the hypotheses were identified solely from the literature. A mixed methods approach incorporating a survey and face to face interviews was used to collect and analyse the data. The sequential mixed methods approach is considered the best design for testing emergent theory because the method employs two different data collection time points and provides for more meaningful interpretation of the data and phenomenon being examined (Hughes, 2016; Teddlie & Tashakkori, 2003). This chapter describes the results and findings of the study, after which the results of the hypothesis testing is presented followed by concluding comments.

4.2 Stage One – Survey

The first phase of this study involved a survey distributed via Campaign Monitor and Survey Monkey between June and August in 2014. The survey required respondents to answer 22 questions, including some open ended questions.

Although the dataset was sufficiently large for regression analysis, the relatively small size did present some challenges. Regression analysis works most efficiently on a larger data sets (Creswell, 2014). The small number of risk managers in Australia led to a relatively small data set. Therefore the data analysis approach was reviewed by a specialist statistician and the approach taken was advised as being the best approach for presenting data from such a unique target group.

Whilst this created some limitations for the regression analysis, meaningful results were still produced regarding the relationship between ERM and organisational financial performance which are presented below, along with frequency charts for the key variables.
4.2.1 Demographics

A total of 45 respondents completed the survey on behalf of their organisations. The organisations represented 23 industries, including government agencies and not-for-profit organisations, from across Australia. However, 5 of the participants had head offices located outside of Australia. The largest group of survey respondents came from government organisations, which was anticipated as they are also leaders in ERM within Australia as they have been early adopters. Local councils and Medical Providers were also important contributors to the survey and this is attributed to the nature of their business and the need to proactively take steps to manage risk. Table 3 and Figure 3 show the industry and geographic distribution of the respondents.

<table>
<thead>
<tr>
<th>Industry</th>
<th>No. Of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>1</td>
</tr>
<tr>
<td>Aviation</td>
<td>1</td>
</tr>
<tr>
<td>Childcare</td>
<td>1</td>
</tr>
<tr>
<td>Consultant</td>
<td>3</td>
</tr>
<tr>
<td>Distribution and Marketing</td>
<td>1</td>
</tr>
<tr>
<td>Electricity</td>
<td>1</td>
</tr>
<tr>
<td>Engineering, contracting and service providers</td>
<td>1</td>
</tr>
<tr>
<td>Finance</td>
<td>1</td>
</tr>
<tr>
<td>Government</td>
<td>7</td>
</tr>
<tr>
<td>Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>Infrastructure development</td>
<td>2</td>
</tr>
<tr>
<td>Insurer</td>
<td>3</td>
</tr>
<tr>
<td>Local Council</td>
<td>6</td>
</tr>
<tr>
<td>Medical Provider</td>
<td>5</td>
</tr>
<tr>
<td>Mining</td>
<td>1</td>
</tr>
<tr>
<td>Not-for-profit</td>
<td>1</td>
</tr>
<tr>
<td>Rail Freight</td>
<td>1</td>
</tr>
<tr>
<td>Training Provider</td>
<td>1</td>
</tr>
<tr>
<td>Utilities provider</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 5: Industry distribution for participants

<table>
<thead>
<tr>
<th>Wine</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>45</td>
</tr>
</tbody>
</table>

To gain a deeper appreciation of the participant’s demographics they were also asked to specify how many regions they operated in; categorised as Australia, New Zealand, America, Europe, and Asia. The majority of participants operated exclusively in Australia, however, 14 respondents also operated in other regions. It was important to identify the regions in which the organisation operated to determine whether they also operated in a high ERM maturity country, such as the US. Operating in these countries, may have had an effect on the broader use of ERM across the organisation. The other regions included New Zealand and Asia. The distribution of the regions that the survey respondents operated in is shown in Figure 4.
The respondents were also asked to indicate the size of their ERM team. The size of the respondent’s ERM team can demonstrate the commitment of resources by the organisation to the ERM program, it also demonstrates a commitment to the program by the organisation. Figure 5 shows that the majority of ERM teams had 1 - 10 team members.

Figure 5: Number of FTE’s as part of the organisation’s ERM team.
4.2.2 Risk Management

In the data analysis, organisation financial value was the dependent variable, measured by the S&P rating and the independent variables were drawn from the COSO framework.

Of the 45 survey respondents, 14 had ratings allocated from S&P. The ratings examine two factors; the primary factor is the likelihood of default – encompassing both capacity and willingness to pay; the secondary factors encompass items such as credit stability and projected recovery, etc. Given the level of scrutiny that companies with an S&P rating undergo, it could be anticipated that they would have some key frameworks. These would include a risk appetite statement, a values statement and/or a reward system that is linked to risk management. It is acknowledged that 14 data points from S&P is a small sample, however 10-20 observations per parameter is a reasonable number of samples with which to detect effects (Harrell, 2015). It is true, however, that the sampling bias introduced by the small number of responses may result in higher variability and less applicability to the general population. However, this study was seeking expert information on a specialised topic and the number of responses was adequate to provide sufficient detail for this aspect of the research.

The relationship between the S&P Rating and the number of strategies/statements (risk appetite statement, value statement and reward system linked to risk management) in the organisation was tested. The results (see Appendix 3) demonstrate a statistically significant relationship (p<0.05) between the S&P rating and the number of the organisation’s risk strategies/statements. This finding is consistent with the literature examining the relationship between ERM and S&P Ratings (Baxter, et al, 2013; McShane, et al, 2011), which focused on US companies. While the sample in this analysis was small, it indicates that the approach taken by Australian organisations may be similar to that of US organisations.

The survey respondents were asked if they had a risk appetite statement in place and, if so, which type. (The results can be found in Appendix 3, Figure 2). Figure 6 shows that the respondents were more likely to have a values statement and that
a large percentage of respondents did not have a reward system that was linked to risk management. Interestingly, the rewards system category is operationally different to the other two categories.

Figure 6: Number and type of statements in place.

The above results show that the statement type that more organisations had in place was a values statement, followed by a risk appetite statement and only a small proportion of respondents had a rewards system that was linked to risk management. Furthermore, 43% of survey respondents had only one of these statements in place, compared to 40% with two and only 17% had all three in place, as demonstrated in Figure 7.
The number of organisations represented by the respondents with a risk appetite statement was lower than anticipated, on the basis of the literature, it was anticipated that the majority (greater than 50%) of organisations would have a risk appetite statement (Deloitte, 2013b). This was interesting, given the results from the analysis of the identified objectives of an ERM framework, shown in Figure 8. Figure 8 depicts the distribution of risk objectives ranked by the survey respondents from one to eight. The most commonly identified risk objective was having a common understanding of risks across functions and business units. Interestingly, some objectives that were expected to rank higher, such as regulatory compliance and more efficient capital allocation, actually ranked quite low. The least frequently identified objective was being able to (financially) compensate based on risk adjusted returns. Risk objectives should be supportive of and consistent with the organisation’s business objectives and strategies. The literature suggests that respondents wishing to derive value from their ERM program will identify the financially orientated objectives more frequently, e.g. Blackmore (2013).
The question asking the respondents about their risk objective selection methods also provided some interesting findings. The results showed that the respondents used either one, three or four methods, with 31% of respondents using three methods, whilst 28% only use one method, 25% use four methods, 9% use five methods and 6% use two methods (results are shown in Appendix 3). This indicates that the majority of the respondent’s companies selected their objectives in more than one way. For example, some respondents determined their risk objectives by structured discussions at senior management planning meetings, where the ERM process owners guided senior managers through a structured assessment.

The internal component of the COSO ERM framework has two principle outputs; an understanding and definition of the organisation’s risk management philosophy and a recognition of the organisation’s risk appetite. These two outputs assist the organisation in the objective setting component when developing a series of objectives to achieve risks as well as formally define the risk appetite in terms of its tolerance for risk. Therefore, it could be expected that there would be a

Figure 8: Risk Objectives
relationship between having a risk appetite in place and the most commonly selected objective by respondents. A statistically significant relationship was identified between risk appetite and the most frequently identified objective of having a common understanding of risk across functions and business units. This result aligns with the COSO ERM model assumption that there should be a relationship between risk appetite and the organisations primary objectives.

The methods used by the respondents to determine the risk objectives are outlined in Appendix 3, however the results show that the four predominate methods for determining risk objectives were formal risk management processes and indicates that the organisations represented by the respondents had structured ERM processes. Figure 9 demonstrates the confidence intervals of the risk objective determination method and shows that the method utilising the risks identified by internal auditors ranked low. This result may have been caused by a variety of reasons, however, given that the risk objectives themselves seem to be compliance driven rather than strategic, the internal audit teams of the respondents may not have ERM included as part of their mandate. This is an indication that ERM implementation may not be well developed amongst the respondent’s organisations.

Figure 9: Confidence intervals of risk objectives determination methods

The finding also confirms the expectation that Australian ERM programs are being driven by risk professionals for risk objectives such as risk compliance reporting, rather than being driven by risk professionals for business or strategic objectives.
This may explain the lack of focus on cost savings and capital allocation when setting objectives.

Risk objectives cannot continue to be used indefinitely because the external risk environment changes. Maintaining the same risk objectives would dilute the value that the ERM program could provide. To examine the renewal of risk objectives, the respondents were asked to state how often their organisations reviewed the risk objectives. The preceding findings suggest that this process would also be structured in a formal manner. The results supported this expectation, with responses falling into two categories of conducting reviews as an on-going process or annually; as depicted in Figure 10 below. If the COSO framework was being used for the ERM process, the respondent’s organisations would have had a more frequent review process and more responses of scores in the middle categories would have been received.

![How often do you review your risk objectives?](image)

*Figure 10: How often do you review your risk objectives?*

The survey results showed that only 65% of the respondent’s organisations had a risk appetite statement and that a larger proportion (71%) set risk objectives using a variety of other methods. If these processes were not integrated with the core business activities, however, there would be a lack of engagement across the organisation and the organisation may not embed the ERM program successfully.
To determine the level of integration, the respondents were asked if their ERM objectives were integrated with the core business activities. The majority of respondents indicated that they were integrated, as shown in Figure 11.

![Figure 11: Are your ERM objectives integrated with the core business activities?](image)

These findings are logical as the most frequently identified risk objective (see Figure 8) was to have a common understanding of risks across business functions and business units. This finding leads to the conclusion that the respondent’s ERM objectives were more often integrated with the core business activities. The infrastructure supporting the ERM framework reported on by the participants will now be considered. The survey respondents were asked if they had any of the four key supporting elements for their ERM program; reporting capability, technology, policies and procedures and human resources. Figure 12 shows that the majority of respondents had one of these elements in their ERM program, most commonly policies and procedures and reporting capabilities. This finding indicates that the participant’s organisations embedded their ERM program utilising these methods.

An interesting observation from this response was that, whilst there were a high percentage of respondents with reporting capabilities, this was not matched by high levels of use of technology. This raised a question about whether low technology reporting processes affect the value that is derived from the ERM program and about the overarching integration of the ERM framework. The low frequency of identification of the support of human resources (27%) is also interesting, however, this finding is consistent with the small proportion of
respondents (18%) reporting that their organisation linked their risk and reward systems.

![Diagram showing supporting elements for the ERM program]

**Figure 12: Supporting elements for the ERM program**

The analysis shown in Figure 12 indicated that policies and procedures were the most commonly noted infrastructure element supporting the organisation’s ERM program. To be effective, policies and procedures should be connected to the risk appetite statement to ensure that the ERM program is linked and embedded into the organisation’s routine operations. A regression analysis of the data determined that there was a statistically significant (p<0.01) relationship between having a risk appetite statement and the statement being supported by appropriate policy and procedures. The results of this analysis can be found in Appendix 3.

To investigate this further, the participant’s response to risk identification should be examined. The majority of respondents indicated that when determining what their risk objectives were they either used internal workshops or department/division based methods. These two methods are internally driven which aligns with the previous finding (see Figure 8, risk objectives) that they have internally focused risk objectives.
Figure 13: Risk identification methods

The literature reviewed in Chapter 2 indicated that it is important to distinguish between risk types to ensure any identified risks are dealt with in an appropriate manner. This was investigated by asking the respondents which of the four major types of risk that were identified in the literature and listed in the survey were utilised in their organisation. The results showed that the majority of respondent’s organisations distinguished between operational and strategic risks (see Figure 14), whilst fewer indicated that their organisations considered credit and market risk identification. Strategic and operational risks are likely to be the more common risk types as all organisations face these risks, compared to market and credit risk which are more likely to be faced by financially based organisations such as banks and insurance companies.
Figure 14: Does your organisation formally distinguish between risk types?

Risk assessment is another important independent variable. Figure 15 shows that the majority of the respondent’s organisations assessed the importance and likelihood of the risk, which is expected from the literature review. However, a number of respondents quantified the financial effect of the risk and determined whether there was an underlying opportunity in the risk as well.

Figure 15: How do you assess your risk?

To continue this analysis, the number of methods of risk identification that the respondents used was also examined. Figure 16 shows that the respondents used various methods to quantify their risk and that the majority used multiple methods.
Figure 16: The number of methods used for risk identification

The respondents were asked how they aligned their risk identification and risk objectives. This survey item allowed for open ended comments. The data showed that a number of respondent’s organisations monitored their risk objectives against their risk appetite statement and took action when the risk objectives fell outside of the appetite parameters. Another common response was that the risks were managed according to their risk rating, and discussed at appropriate management meetings or at the next review depending on the severity of the risk. These respondents indicated that a risk framework was being used, however, one participant noted that the review of risk items was “more of a tick and flick exercise than something given appropriate consideration” and other respondents indicated that they did not take any action to ensure their risks aligned to their risk objectives.

The respondents were also asked if their organisations evaluated how effectively they were managing their risk. The results are shown in Figure 17, which indicates that most respondent’s organisations conducted this evaluation. This result seems inconsistent with earlier findings shown in Figure 9 that the respondent organisation’s risk focus was more focused on their risk objectives. This suggests that some of the respondents may have perceived their organisations are managing their risks in a more integrated manner than the evidence in Figure 17 suggests.
Figure 17: Effectiveness of risk management

The results shown in Figures 16 and 17 confirmed that the survey respondents identified and assessed their risks. The next important question to answer is how the respondent’s organisations responded to identified risks. Figure 18 indicates that the relationship between evaluating risks and possessing a risk appetite statement was not statistically significant. Whilst this result was unexpected, some of the respondent’s additional comments provide insight into why this was not a significant relationship. Some respondents did not conduct a risk evaluation process on a regular basis and the time between risk evaluations for other respondents was also lengthy. This means a number of respondent’s organisations would have little or no empirical basis for establishing their risk appetite statement or its relationship with identified risks.
When conveying messages regarding the operation of ERM, it is important to utilise a common risk language at the strategic management level (PWC, 2017). To determine how organisations are managing their communications at the senior level, the respondents were asked if they have a CRO or ERM leader who provides regular updates. Figure 19 shows that the majority of respondents do have a CRO or ERM leader who provides regular communication for the board.

Figure 18: The relationship between evaluating risks and risk appetite statement
Figure 19: Frequency of ERM updates to the board.

To explore the ERM communications at other levels of the organisation, the respondents were asked to identify the levels of the organisation at which ERM objectives were communicated. Figure 20 shows that the majority of responses identified three levels for ERM communication: the board, general manager/business unit head and senior manager levels, with the frequency of responses being relatively evenly distributed across these three levels. A small proportion of respondents indicated that ERM communication occurred at the management and staff levels. The lower number of responses for managers and all staff suggest that communication regarding ERM objectives was primarily the focus of senior management.

Reporting to senior management levels is of significant importance to ensure they can carry out their risk oversight duty and robust engagement by senior management which strengthens the organisations resilience to significant risk exposures (COSO, 2009). However, to be successful, effective and continuous communication is required throughout the whole organisation and in both directions. This finding identifies a possible weakness in communication about ERM at the management and staff level.
Figure 20: The level of the organisations which ERM objectives are communicated

As depicted above not all respondents indicated that they were communicating to all staff. To understand the implications of this further the relationship between communicating to all staff and the objective of having a better understanding of risk for strategic advantage was examined. As the objective formed part of a ranking question it was re-categorised into high, medium and low, for analysis purposes.

A statistically significant relationship ($p<0.026$) between communicating to all staff and having an objective of better understanding risk for strategic advantage was identified for those respondents reporting communication to all staff. This may indicate that those organisations communicating more broadly regarding their ERM objectives plan to have a direct benefit from the investment that they are making in their ERM program, the results can be found in Appendix 3.

Establishing a continuous ERM exceptions monitoring process facilitates the identification and modification of processes when required. The monitoring and continuous improvement of an ERM program will be most effective when ERM benefits are associated with implementing the program literature (Kerstin, et al, 2014; COSO 2016). To determine whether the respondents associated ERM benefits with implementing the program, the respondents were asked if there were benefits associated with their ERM program. Fifty-eight percent of the participants identified benefits associated with their ERM program. Figure 21 shows that, of the respondents that indicated that there were benefits, the three most commonly identified categories of benefit were improved executive decision making, more informed risk/reward tolerance and a more targeted...
organisation/business strategy respectively. A particularly interesting result was that the benefit of identifying new business opportunities was not frequently identified. This should have ranked higher for organisations with an ERM program. The data also indicated that the majority of respondents selected that there were either three or four benefits associated with their ERM program.

Figure 21: Benefits associated with the organisations ERM program

One purpose of monitoring the ERM program should be to make improvements, therefore it would be expected that there would be a relationship between having a risk appetite statement in place and the number of benefits obtained from the ERM program as this would indicate a cycle of continuous improvement. However, the results in Appendix 3 show that there was no statistically significant relationship between having a risk appetite statement and the number of benefits obtained from having an ERM program in place. This may be due to the lack of a risk appetite statement or failing to measure the benefits obtained from the program or a combination of both.
4.2.3 Moderating Variables

The relationship between the independent variables and organisational financial performance, as measured by the S&P ranking is moderated by a range of other factors. These include culture, maturity of implementation, skill levels, strategic orientation and market conditions. A risk management culture creates an environment where it is harder for an outlier, event or individual to put the organisation at risk, and compliments the objectives of an ERM framework.

Ninety-seven percent of the survey respondents indicated that their organisation’s culture effected the achievement of the organisation’s risk objectives, which is a measure of the success of ERM implementation. This finding was supported by the interview data analysis which identified a key theme of culture as either a significant obstacle or facilitator of implementing ERM.

The effect of culture can also be moderated by the maturity of the ERM implementation. In a study examining the valuation implications of ERM Maturity (Farrell and Gallagher, 2014) it was found that organisations that have reached mature levels of ERM implementation exhibit a higher Tobin’s Q score. The findings also indicated that an ERM culture contributed to the maturity of an ERM implementation. In this study, Figure 22 shows the frequency with which the respondents identified the cultural behaviours that stemmed from their ERM programs. The relatively low frequency of responses indicating that risk managers were perceived as trusted advisors was an interesting outcome. The respondents mostly identified more than one cultural behaviour as being associated with their ERM implementation, averaging 2 and with a maximum of 5.
Figure 22: Behaviours resulting from the ERM program

One of the critical success factors for implementing an ERM program is to ensure the organisation has staff with the necessary skills to engage senior leadership at the executive and unit level (Driscoll, 2014). The majority of the respondents were either board members, general managers or senior managers. This profile suggests that engagement of the upper levels of the organisation with ERM issues would be high amongst the respondents.

Strategic orientation towards the ERM program will influence its effect on financial organisational performance (Soltanizadeh, et al, 2016). The survey respondents were asked if their companies distinguished between risk types to assess the company’s strategic orientation toward risk. The results in Figure 23 indicate that the majority of respondent’s organisations identified their strategic risks, suggesting that the majority of these organisations had a strategic ERM orientation.
Figure 23: Identification of risk types

As indicated by the above result, the majority of the respondent’s organisations had a strategic ERM orientation, therefore, it could be expected that these organisations would have a risk appetite statement in place to reflect this. However, there was not a statistically significant relationship between having a risk appetite statement in place and strategic risks. A number of factors could contribute to this outcome, including the relatively small sample used in the analysis, the maturity stage of the organisation’s ERM program or the fact that there were organisations in the survey which may not be using ERM in a strategic manner.

The literature indicates that organisational size may moderate the relationship between the level of ERM implementation and organisational financial performance (McShane et al, 2011; Baxter et al, 2013). To test for this moderating effect, the S&P Rating was used to represent organisational financial performance (the dependent variable), the number of risk statements was used to represent the level of ERM implementation (the independent variable) and the number of FTE was used to represent the moderating variable (organisational size).

The data was analysed in SPSS first with the z-scores for the variables generated along with the interaction of the independent and moderator variables. The moderation test was then undertaken using the AMOS statistics package. The results are outlined below:
Estimate S.E. C.R. P-label
ZSPDepVar <-- ZNoOfFTEModVar -.019 .919 -.021 .984
ZSPDepVar <-- ZNoOfStateInd -.224 2.809 -.080 .936
ZSPDepVar <-- Interaction 1.382 10.585 .131 .896

Table 6: Effect of Organisational Size on the Relationship between ERM Implementation and Performance

The results showed that the moderating relationship was not significant. To further explore this finding, the relationship between the number of risk strategies and FTE was tested. The findings shown in Table 6 indicated a statistically significant finding (p<.01) and a correlation coefficient of 1, indicating a very strong relationship. Table 7 shows how the number of strategies increases with the average FTE.

<table>
<thead>
<tr>
<th>No. of strategies</th>
<th>Total Average FTEs with outliers removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
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</table>

Table 7: The correlation coefficient of the number of strategies and the total average FTEs with outliers removed

<table>
<thead>
<tr>
<th>No. of strategies</th>
<th>Total Average FTEs with outliers removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>3</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Table 8: No. of strategies versus total average FTE's

4.3 Survey Summary

Whilst the sample size for the survey was small, due to the requirement of the participants to be specialists, the analysis still produced valuable findings that can be generalised to theory. Whilst the sample size for the survey was small, due to the specialist nature of the participants, the analysis has still produced valuable findings that can be generalised to theory. ERM is an emerging research area
therefore, the small sample size did allow the researcher to make inferences about broader trends and patterns with subject matter experts utilised as research participants. Schmidt (1971) and Harrell (2015) both state that the generalisation of findings to theory is possible with a smaller number of subjects per variable when the sampled population is a direct representation of the population that is being examined. The survey analysis produced a number of interesting findings that will assist in progressing ERM within Australia. There was a statistically significant relationship (p<0.05) between the S&P rating and the number of the organisational risk strategies/statements (Risk appetite statement, value statement and reward system linked to risk management). However, a large proportion of respondents did not have a reward system that was linked to the risk management process.

The findings also indicated that the most commonly identified risk objective was having a common understanding of risks across functions and business units. Other objectives that were expected to rank higher, such as regulatory compliance and more efficient capital allocation, ranked quite low in the findings. It was found that respondents were using four methods for determining risk objectives which were all formal risk management processes. This indicates that the respondents used structured ERM processes.

The findings confirmed that respondents who identified their strategic objectives also had a risk appetite statement. While this response was expected, the finding that the relationship between evaluating risks and possessing a risk appetite statement was not statistically significant was unexpected.

Communication is also an important component of ERM and the majority of respondents indicated that they had a leader that regularly updated the board on ERM. ERM communication was also identified at varying levels across all other levels of the organisation.

The respondents indicated that there were benefits from their ERM program; the three most commonly identified benefits were improved executive decision
making, more informed risk/reward tolerance and a more targeted organisation/business strategy respectively.

The survey also highlighted some moderating variables that influenced the effect of the ERM program on organisational financial performance, including culture, maturity of implementation, skill levels, strategic orientation and market conditions.

The survey results provided a strong foundation to explore these themes further with interview participants.
4.4 Stage 2- Interview Findings

After the survey data had been collected and analysed, interviews were conducted with seven risk managers to confirm and explore the key findings from the quantitative data analysis. The seven interviewees represented organisations from six different industries and from profit and not-for-profit organisations. This cross sectional approach was selected to collect a breadth of data. The purpose of the interviews was to expand upon the relationships identified in the survey analysis. The interview participants were selected for their subject matter expertise; six participants were Chief Risk Officers and one was a senior risk manager. They were the most informed risk management subject matter experts available to the researcher. One of the critical success factors for implementing an ERM program is to ensure the organisation has the right staff with the necessary skills (Hamill, 2007). To create and sustain momentum, senior management must demonstrate a strong commitment to ERM through consistent actions and communications. It is for this reason the CROs were considered to be the most suitable subject matter experts.

The interview participants had held risk management positions for an average of 11.3 years, and had been in their current role for an average of 4.4 years. The interview participant’s roles covered a broad range of risk responsibilities, including enterprise risk management, audit, compliance, managing strategic risks and reporting through to the board.

An interview guide was developed, which included open-ended questions, from the relationships identified in the qualitative analysis. The interview questions can be found in Appendix 4. The interviews examined the qualitative analysis findings that:

1. the number of organisations with a risk appetite statement was lower than anticipated (questions 4 and 5)
2. financial performance was not the primary factor driving ERM framework development (question 6 and 7)
3. structured methods were used to set risk objectives and were reviewed annually or continuously (question 8).

4. Implementation obstacles (questions 9 and 10)

The qualitative data analysis identified six themes: The use of risk appetite statement, maturity, understanding the financial effects of risk, risk appetite and strategic risks, methods for setting risk objectives and obstacles to ERM framework implementation. The following sections describe the findings under each of the themes that were identified from the data analysis.

4.4.1 Risk Appetite Statement

The literature identified risk appetite statement as a core consideration in an ERM framework as it forms an integral part of corporate governance, guides the allocation of resources, influences the organisation’s attitude towards risk, is multidimensional and guides the monitoring of risks in pursuit of the organisation’s objectives. To explore the literature further, in the survey, interview participants were asked if they have a risk appetite statement. The interview participants most frequently reported using a values statement, followed by a risk appetite statement and only a small proportion of respondents reported having a rewards system that was linked to risk management. Given the importance of a risk appetite statement asserted in the literature and the lower than anticipated proportion of survey respondents reporting risk appetite statements, the interview participants were asked if they have a risk appetite statements. They were also asked if this was supported by the appropriate policies and procedures and how they would execute, embed or implement a risk appetite statement if they didn’t have the appropriate policies and procedures.

The results showed that five of the seven participants had a risk appetite statement, while two of the seven did not. This compares well with the 65% of respondents’ organisations possessing a risk statement identified in the survey data analysis. The two interviewees who did not have a risk appetite statement either had an alternative risk position that was inadequate and as a result was under review or they were in the process of building the risk appetite statement.
Reflecting the above results, 86% of participants responded that they did have appropriate policies and process to support their risk appetite statement and 14% responded that they didn’t. However, the respondent that did not have the appropriate policies and processes noted that this was due to their risk appetite statement framework being immature and that there was an intent to improve this as part of the evolution of the ERM program once the risk appetite statement had developed.

Given that the interview participants had a risk appetite statement and policies or the intent to do so, the question regarding executing, embedding or implementing a risk appetite statement without having the appropriate policies and procedures was less valuable, however, given the survey responses it was considered important to understand the perspective of subject matter experts on this issue. Themes emerging from the interview participants included:

- There would be no value in doing it this way.
- It is possible, but is a sign of ERM implementation immaturity.

Additionally, participants added that:

- It may also lead to policies and procedures being established on an ad-hoc basis which results in inconsistencies, conflict, challenge and misunderstanding.
- Policies and procedures may not be given the weight they deserve
- The culture and maturity would not be sufficient for a successful implementation.

### 4.4.2 Maturity

Farrell and Gallagher’s (2014) study examined the implications of ERM maturity and found that organisations that have reached mature levels of ERM generate greater organisational value. However, the survey findings indicated that the ERM programs of the participants were generally not well developed. To determine why this was the case, the interview participants were asked to describe the nature of
their organisation’s ERM program when they came into the role and how they have developed it.

Five of the interview participants described their ERM program as unformed, immature, non-existent, or having no foundation. Two interview participants suggested that, due to regulatory requirements, they did at least have an identified risk base to work from, although it was rudimentary. The common theme amongst the interview participants was that their organisation’s ERM programs needed to be further developed and that this development was required before an organisational financial performance benefit could be generated.

The factors relating to the level of development of ERM programs identified were:

- Creating demand
- Gaining senior management support
- Leveraging old process and practices to obtain buy-in for the new practices
- Establishing a framework
- Increasing engagement
- Putting in good policies
- Opening the lines of communication around risk.

These findings supported the survey findings that, whilst organisations in Australia have or are implementing ERM programs, these programs are still evolving and may not have all of the necessary components.

There are two important commercial frameworks for ERM that were identified in the literature, these were COSO’s ERM Integrated Framework and the ISO 31000 standards. Both frameworks were designed to assist organisations to implement ERM. Therefore, it was expected that the interview participants would have used the COSO ERM Framework as part of establishing their own ERM program or at least were aware of them, given their profile in the industry and literature. To test this assumption, the interview participants were asked if they were familiar with the COSO framework. All but one of the interview participants were familiar with
the framework and had either used it or examined it. Their responses fell into one of four categories:

1. Being aware of the framework, but not using it
2. Complying with standards such as the COSO ERM framework, but using it as a test;
3. Using it as a reference point in conjunction with the ISO standards
4. Basing the ERM program on this framework;

The interview participant that was not familiar with the COSO framework was provided with a summary of the framework. After this they confirmed that they were using elements of the framework in their program. Interestingly, this participant was familiar with the ISO framework.

This finding supports the survey responses which indicated organisations are using various elements of the COSO framework but not integrating them, indicating a level of immaturity. The interview results also suggest that the respondents may have been using the COSO framework as a reference point rather than a framework for implementation.

4.4.3 Financial effect of risks

Understanding the financial effect of risks is a key component of deriving value from an ERM program (AON, 2013). Whilst the literature does not agree on the extent to which ERM influences financial outcomes for organisations, the survey demonstrated that the respondents that were assessing the financial effect of their risks were primarily using one or two of five methods (the five methods were cash flow, shareholder, market share, reputational and supply chain effect). To explore the motivations behind this, the participants were asked to provide an example of how they assessed the financial effect of their risk. They were also asked whether this assessment process was linked to their risk appetite statement, if it was examined from a strategic perspective, if the risk has been considered in relation to each stage of the value chain and if capital allocation or resources were based on the assessment of risk.
To assess the financial effect of their risks, interview participants utilised a variety of methods, which included:

- Value at risk methodology;
- Stress testing;
- Consequence matrix
- a bottom up and top down perspective.

One hundred percent of the respondents confirmed that their organisation linked quantifying the financial effect of their risks back to their risk appetite statement. Some common themes identified in their responses were:

- It is all interlinked and is used as part of the stress testing process;
- Used a bottom up and top down approach;
- It is high level and could be enhanced;

Whilst the relationship between quantifying the financial effect and risk appetite statement was not as advanced as the survey results suggested, the interview participants were asked if they examine and assess risks from a strategic advantage perspective. All interview participants indicated that they examined their risks from a strategic perspective, however, this occurred to varying degrees of complexity, with some common themes identified as follows:

- The risk reward relationship is examined and a decision is based on this analysis;
- Most of the analysis is based on downside risk as it is hard to get staff to examine risk in a positive light;
- This is constantly improving as the risk function in the organisation is being asked to optimise the risk return;
- This area is relatively immature, and will be enhanced when there is an increased demand for risk analysis;
- It is an area that has huge potential, but is not being utilised to its full potential.
The results indicated that the participants identified the value in examining risks from a strategic perspective, however, this is an area that is not meeting its full potential, and presents further opportunities.

The participants were asked how they assessed risk in each step of the value chain to explore this issue further. All interview participants had completed this to varying degrees; the common themes that emerged were as follows:

- This is completed in conjunction with the risk appetite statement;
- It is completed as part of the risk appetite statement process;
- Independent external parties assist with this process;
- It is more process driven than it should be;
- The process for doing this is changing and provides a different perspective on the risks examined to the normal perception of those risks.

The respondents also all responded that they allocated resources based on their assessment of risk to some degree, however, some had a more developed approach than others. The common themes identified were:

- Risk appetite statement, strategy and capital are all interlinked;
- This is built into the business planning process;
- Improvement in this area is required;

There was significant variation in the responses of the interview participants, which may have reflected a difference in the maturity of their program. The participants with more mature ERM programs incorporated more components such as risk appetite statement, strategy and capital in their assessment. Incorporating more components appears to have improved the value, which the program created.

Another interesting result stemming from the survey results was the relationship between the risk appetite statement and strategic risks. This relationship is important as a risk appetite statement is the amount and type of risk that an organisation is willing to take in order to meet its strategic objectives. This includes
both the organisation’s risk appetite as well as its risk tolerance (Boghdadi, 2015). The survey found that those respondents that had distinguished their strategic objectives also had a risk appetite statement. These two relationships were explored further with the interview participants. The participants were asked whether they felt there was a relationship between risk appetite statement and strategic risks and if they felt their opinion on this matter would vary based on whether they were working for a profit / not-for-profit organisation. The participants were asked the second component of the question to explore the potential for the organisation ownership to influence the results.

The survey did not find a statistically significant relationship between having a risk appetite statement and strategic risks, which was in contrast to the literature and expectations, therefore this required further investigation. The common themes identified by the participants included:

- The risk appetite statement and strategic risk should complement each other;
- Combining risk appetite statement and strategic risk makes the process more dynamic;
- If utilised together risk appetite statement and strategic risks can be used to take positive risks.

It may be that the survey respondents were reporting that their organisations did not associate the relationship between having a risk appetite statement and strategic risks, however, from a professional perspective, when the interview participants were asked about this in depth, they were able to acknowledge that a potential relationship existed. This suggests that risk managers may be able to identify this relationship, but do not normally recognise it in their risk management roles. Seventy-five percent of the participants suggested that the organisation ownership would not have a large effect on the relationship between having a risk appetite statement and strategic risks. The common reasons identified by these participants included:

- The two variables should interlink no matter what organisation ownership you are running to ensure they compliment each other;
• The risk framework principles should be the same regardless of the organisation type
• Stakeholders have different objectives, but it is still necessary to act in the best interests of them;

The two participants that believed that the organisation type would make a difference suggested that it was dependent on the mechanism of accountability to stakeholders. For example, paying dividends may influence behaviour or the regulatory requirements that the organisation may be required to meet.

Strategic risks are also an important element of an ERM framework because when the organisation assesses the importance of risks, the overall success of the ERM program will improve. This observation was supported by the survey findings which showed that the majority of respondents assessed the importance and likelihood of the risk, which is in line with conducting a traditional risk assessment. However, a number of respondents also quantified the financial effect of the risk and determined whether there was an underlying opportunity in the risk as well. The interview participants were asked how they assessed the importance of these risks, if this process would differ for a profit versus not-for-profit organisation (ownership) and whether they benchmarked their performance against that of others.

All interview participants had a process of assessing the importance of their risks, with the common themes identified as follows:

• The assessment process varies by risk type;
• The ERM framework guides our process;
• Examining likelihood and consequences
• Ranking and scenario analysis processes;

When asked if this process would differ for a profit versus not-for-profit organisation 71% of the respondents indicated that it would not, 14% indicated that it would and 14% fell into the ‘other’ category. The respondents that indicated that it would not, took a similar position to the response to the
preceding question, indicating that the principles would be the same regardless of the organisation type. The 14% that responded that it would not indicated that the risks of a for-profit organisation may be more fluid than a not-for-profit, therefore the process may have to be adjusted accordingly. The remaining respondents indicated that it would be dependent on what was important to the organisation as to whether it would differ.

When asked if they had benchmarked their important risks against competitors, all interview participants indicated that organisations participated in some form of benchmarking, even if this was not a formal process. The main benchmarking processes were gaining information through consultants and participating in conferences and peer and industry body events.

It is interesting that the respondents identified the importance of information sharing, even though the current processes were informal and limited. This is an area where there is an opportunity to increase best practice to improve the value organisations derive from their ERM program.

4.4.4 Methods for setting risk objectives

The survey respondents indicated that they evaluated risk as part of their ERM program, however, the survey findings also indicated that some respondents may have perceived that they were managing their risks in a more integrated manner than was the case. The interview participants were asked if they evaluated how effectively they were managing their risks, if this was connected to the risk appetite statement process, if there were appropriate policies to support this process and if this evaluation process was used in any other manner.

Common themes emerging from the interview participant’s responses to how effectively they were managing their risks included:

- Reporting and tracking evaluated risks against established tolerance levels;
- Independent party conducted an evaluation to validate results;
• Currently undertaken, however could be improved by examining it more holistically to ensure there are no unintended consequences

• The effectiveness of controls are assessed.

Three of the participants stated that they connected their evaluation of managing their risks to their risk appetite statement, two didn’t connect their evaluation to the process and the remaining two indicated that it was either too early in their program for this or they had not considered it to a large extent at this point in time. The common themes which emerged included:

• Risk appetite statement is seen as a guide, therefore not linked with this evaluation process;

• The linkage is there, but it is a general linkage – the results of the evaluation are more likely to effect operational process rather than risk appetite statement

• It is a delicate balance between having the right amount of oversight and the transparency to track it.

Seventy-one percent of the participants indicated that they had the appropriate policies in place to support the evaluation process. The common themes identified were:

• The ERM framework that is used requires this;

• It is part of the continuous improvement process

• It is on the list to be developed.

The responses to the question of whether the participants used this evaluation process for any other purpose produced some varied and interesting results, as follows:

• It is used as an enabler to improve the business;

• It is used for continuous improvement;

• It is used in an attempt to be more proactive
• It is a process that is not being used well and could be used much more effectively.

The findings suggest that the level of evaluation of risk that the participant’s organisations used varied with the ERM maturity in the organisation.

4.4.5 Obstacles to ERM framework implementation

The literature suggests that ERM program implementation may be incomplete due to internal organisational implementation obstacles (Negus, 2010). This was also identified in the survey findings which identified culture, maturity of implementation, strategic orientation and market conditions as potential obstacles. The responses from the interview participants identified the following themes as significant obstacles when implementing ERM:

• Culture;
• Over complicating it;
• Board and CEO support or lack of support;
• Executing the theory into practice;
• Education and understanding
• Obtaining quality data to enable meaningful reporting;

These themes have two common factors; (1) the importance of the support of the senior management and (2) cultural factors. These two themes are consistent with the findings of the literature identifying the obstacles to successful ERM implementation (Negus, 2010). They suggest that successful ERM implementation requires commitment, quality staff and disciplined execution.

To finish the interviews, respondents were asked what they would do differently when implementing an ERM framework in the future. The objective of this question was to identify opportunities to enhance the ERM process. Responses included:

• Removing the manual based components to enable the focus to be on the strategic aspects;
• Ensure the culture is suitable as a starting point so staff are open to having the conversations;
• Starting off with the risk appetite statement and linking everything back to this;
• Having a better understanding of what other companies within Australia are doing in respect to the practical issues surrounding implementation and leveraging value;
• ERM needs to be measurable and manageable;
• Focusing on both the business needs and the framework from the beginning, rather than just the framework
• Ensuring staff view ERM as a journey, getting them on board and taking them along with you.

One of the interesting findings to emerge from this question was that almost all the participants indicated that they could improve their ERM implementation and were interested in knowing how other organisations were implementing their ERM process. Information sharing may be an important factor in moving the focus of ERM processes away from compliance to value creation.

4.5 Summary of interview findings
The findings from the survey component suggested that the respondent’s ERM programs were not fully developed and, whilst they possessed many of the necessary components, they had not managed to coordinate these adequately to achieve the benefits that would be obtained from an integrated ERM program. The interviews supported the findings from the survey that the ERM programs were frequently not fully developed. The interview participants described their programs as unformed, immature, non-existent or requiring investment. This is supported by the survey findings of a low level of development of ERM in the respondent’s organisations.

The literature indicates that risk appetite statements are a key contributor to the success of ERM implementation (Rittenberg and Martens, 2012). The survey showed that respondents were more likely to have a values statement than a risk
appetite statement and the interview results demonstrated that 71% participants had a risk appetite statement. The interview participants without a risk appetite statement indicated that their organisation’s understanding of risk was inadequately developed for ERM implementation or they were in the process of building one. This result supports the survey findings that risk appetite statement is a focus for industry and that all the survey and interview participants were aware of its value.

A high proportion of both the survey respondents (63%) and interview (86%) participants indicated that they also had the appropriate policies and procedures to support the use of the risk appetite statement. The survey also identified a statistically significant (p < .05) relationship between possessing a risk appetite statement and having policies and procedures to support the statement. The interview participants concurred with this finding and indicated that if policies and procedures were not in place there would be no value in doing it this way and if it was implemented this way it may be a sign of an underdeveloped approach to risk management.

Another important relationship identified in the literature was the relationship between risk appetite statement and strategic risks (Boghdadi, 2015). The survey results found no statistically significant relationship between possessing a risk appetite statement and assessing strategic risks. In contrast, 100% of the interview participants indicated that there was the potential for a relationship between these two variables. This is an area that is not meeting its full potential, which presents further opportunities. Seventy-one percent of the interview participants stated that whether the organisation was for- or not-for profit would have no effect on this relationship, whilst the remaining 29% stated that it was dependent on the mechanisms though which the organisation was accountable to stakeholders. The contrasting results between the survey and interview participants could be attributed to the potential that the surveyed organisations were probably not using their risk appetite statement to assess the strategic risks. The interview participants confirmed that this is an area that is currently underdeveloped. All the participants stated that they used some form of benchmarking
to evaluate their risk assessment process, however, they also identified the need for more ERM implementation information sharing.

The interview participants indicated that they assessed the financial effect of their risks utilising a variety of methods. All participants connected the financial effect of the risk assessment to their risk appetite statement. How the assessment of the financial effect of risks was assessed varied between participants. This may also explain why the survey did not identify a statistically significant relationship between having a risk appetite statement and benefits of an ERM program.

All interview participants reported that they evaluated the effectiveness of their risk management, however only 43% of participants considered the effectiveness in relation to their risk appetite statement. By comparison, 71% of participants indicated that they had appropriate policies and procedures to support the evaluation process. They reported utilising this process for a range of purposes varying from improving the business to establishing an efficient risk management evaluation process.

The interview findings were consistent with the survey findings that the majority of respondents believed that the organisational culture affected achieving risk objectives. The interview participants stated that an inappropriate organisational culture was one of the most significant obstacles to successfully implementing an ERM program. All interview participants also indicated that that their ERM programs could be improved and that more transparency in information sharing around ERM implementation would be helpful.

The themes identified in the interview data regarding developing an ERM program included creating demand; gaining senior management support; leveraging old process and practices to obtain buy-in for the new practices; establishing a framework; increasing engagement; putting in good policies and opening the lines of communication around risk. However, the results also showed that the ERM programs of the participants were relatively underdeveloped and there appeared to be a failure to integrate the various components of the ERM process.
4.6 Support for the hypothesis

The hypothesis for this research were developed from the extant literature which is in a state of rapid development (Gatzert and Martin, 2015). The survey and interview data which supports or reject these hypothesis are summarized below.

**H1: ERM implementation increases organisational financial performance.**

To examine the relationship between ERM and organisational financial performance the relationship between the organisation’s S&P Rating and the number of strategies (risk appetite statement, value statement and reward system connected to risk management) was examined quantitatively. It was anticipated that organisations with a S&P rating would have a number of risk statements, because these organisations needed to have been identified as having reasonably developed risk management to qualify for a rating. The number of risk strategies is a measure of the completeness of ERM implementation (The Public Risk Management Association, 2010).

A statistically significant relationship (p<0.005) between the S&P rating and the number of risk strategies / statements of the survey respondents (a measure of ERM implementation) was identified. The statistically significant relationship supported hypothesis H1.

**H2: The level of ERM implementation is greater when the risk characteristics are more numerous**

The construct of ERM implementation was measured by the two variables of the presence of a risk appetite statement and the organisation’s objective of having a strategic understanding of risk. If an organisation has a risk appetite statement, it is anticipated that this would result in the organisation having a strategic understanding of risk. The relationship between the first variable, the presence of a risk appetite statement, and the organisational characteristic of having a common understanding of risk across functions and business units was found to be statistically significant (p<0.05). The relationship between the second variable representing ERM implementation, the objective of better understanding risk for
strategic advantage, and the organisational characteristic of communicating ERM objectives to all staff was also found to be statistically significant (p<0.05). These results indicated that there is a strong relationship between these two dimensions of ERM implementation and two different organisational risk characteristics.

The results of the interviews further supported the association between ERM and organisation specific characteristics. The two themes of inappropriate culture and the support of senior management as key obstacles to implementing a successful ERM program emerged from the interviews. The findings from the survey and the interviews supported hypothesis H2.

**H3: The low level of risk maturity in Australia reduces the effect of ERM on organisational financial performance**

To test this hypothesis, the relationship between having a risk appetite statement, which indicates the level of ERM implementation and the activity of identifying strategic risk which indicates the extent of application was examined. The literature indicated that there is a positive relationship between these two variables when the ERM implementation is mature (Farrell and Gallagher, 2014). However, the relationship between these two variables was found not to be statistically significant, which indicates that the levels of ERM implementation are not yet mature in Australia. This result suggests that ERM will not be effective in Australia for the identification of strategic risk at the industry level. This finding was anecdotally supported by a global study by Deloitte (2103a) that found whilst most companies were making advances in their strategic risk management capabilities, but that most also needed to improve these capabilities significantly.

This hypothesis was also examined by testing for the existence of a risk appetite statement, value statement or a reward system which was linked to the survey respondent’s risk management practices. The presence of a risk statement linked to the respondent’s management practices was an indication of the maturity of the ERM implementation (RIMS, 2017). The majority of respondents had a values statement, more than half of the respondents had a risk appetite statement linked to their risk management and only a small number of respondents claimed that
they had a rewards system that was linked to their risk management. Therefore, the research findings supported the hypothesis that ERM in Australia is still in an immature phase (H3).

**H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.**

This hypothesis was tested by measuring the relationship between having a risk appetite statement and it being supported by the appropriate risk policies and procedures. When a risk appetite statement is developed, it is expected that it would be supported by policies and procedures. The relationship was found to be statistically significant (p<0.05). This finding suggests that the participant’s organisations with a high level of ERM implementation utilised policies to manage risk.

The interview participants indicated that they would not develop a risk appetite statement without the appropriate policies and procedures, which also supports this finding. They also indicated that they all examined risks from a strategic perspective, however, noted that more development of this capacity was needed in their organisations. These findings support hypothesis H4.

**H5: the organisation’s size moderates the effect of ERM on organisational financial performance.**

To test this hypothesis, the moderating effect of the number of FTEs (representing organisational size) on the relationship between the number of risk statements (level of ERM) and the S&P Rating (organisational financial performance) was examined. It was anticipated from the literature that the number of FTE’s would have a moderating effect, however, this relationship was found not to be significant. To examine this relationship further, the relationship between FTE and the number of risk strategies was examined. The relationship was found to be significant (p<0.1) and strong (correlation coefficient = 1). The strong relationship between FTE and the number of risk strategies explains the absence of moderation effect. FTE cannot be expected to have a significant moderating effect on a
relationship affected by the number of risk strategies, when it directly and strongly affects the number of risk strategies. This finding suggests that the number of risk strategies may, in fact, be a mediator of the effect of organisational size on organisational financial performance, however, this finding is outside the scope of the current project.

The interview findings confirmed that the extent of an ERM program was more closely related to organisation size than organisation ownership, supporting the relationship identified between organisational size and number of risk strategies. The analysis did not support hypothesis H5.

**H6: The effect of ERM implementation on organisational financial performance is moderated by organisational culture.**

Ninety-seven percent of the survey respondents indicated that their organisation’s culture effected the achievement of the organisation’s risk objectives, which is a measure of the success of ERM implementation. This finding was supported by the interview data analysis which identified a key theme of culture as either a significant obstacle or facilitator of implementing ERM.

To test this hypothesis further, the relationship between the presence of a risk appetite statement (as an indicator of a successful ERM implementation) and having supporting policy and procedures in place, which indicates the culture’s acceptance of risk management practice, was examined. The relationship between the risk appetite statement and policy and procedures was found to be statistically significant (p<0.01), supporting the hypothesis that there is a relationship between the success of ERM implementation and organisational culture.

These findings support hypothesis H6.

**4.7 Summary**

The analysis supported five of the six hypotheses and indicated some interesting conclusions regarding the effect of ERM on organisational financial performance in Australia.
There was a statistically significant relationship (p<0.05) between the S&P rating and the number of the organisational risk strategies / statements (risk appetite statement, value statement and reward systems) linked to risk management. However, a large proportion of the respondents did not have a reward system that was linked to risk management. The interviews and the survey findings determined that the ERM programs of the organisations represented by the participants were not fully developed. The interview participants described their programs as unformed, immature, non-existent or requiring investment. The interview participants whose organisations did not possess a risk appetite statement indicated that their organisation’s understanding of risk was inadequately developed for ERM implementation or they were in the process of implementing ERM.

A high proportion of both the survey respondents (63%) and interview (86%) participants indicated that their organisations have adopted the appropriate policies and procedures to support the use of the risk appetite statement for decision-making. A statistically significant (p < .01) relationship was identified between possessing a risk appetite statement and having policies and procedures to support the statement. The survey results found no statistically significant relationship between possessing a risk appetite statement and strategic risks, however. In contrast, 100% of the interview participants indicated that there was a relationship between these two variables. The contrasting results between the survey and interview findings could be attributed to the existence of a significant potential relationship between these two variables, but a practice of not considering the relationship between possessing a risk appetite statement and strategic risks. The interview participants supported this contention by confirming that use of this relationship in decision-making was under-developed.

It was found that respondents were using four methods for determining risk objectives, indicating that the respondent’s organisations had structured ERM processes. The most popular risk objective was having a common understanding of risks across functions and business units. The research also determined that the
participants’ organisations that distinguished their strategic risk objectives also had a risk appetite statement.

All interview participants reported that they evaluated the effectiveness with which they managed their risk, however only 43% of participants used this to inform their risk appetite statement creation process. By comparison, 71% of participants indicated that they had the appropriate policies and procedures to support the evaluation process.

Communication was found to be an important part of the ERM programs. For example, the majority of survey respondents indicated that their CEO regularly updated the board on the ERM status and that ERM communication occurred (to varying degrees) across all other levels of the organisation.

All interview participants indicated that they assessed the financial effect of their risks utilising a variety of methods. All survey and interview participants indicated that they used the findings from assessing the financial effect of the risks in the development of their risk appetite statement. The process for assessing the financial effect of risks varied across the participants’ organisations.

The three most commonly identified categories of benefit of implementing ERM were improved executive decision making, more informed risk/reward tolerance and a more targeted organisation/business strategy respectively. The survey data analysis identified moderating variables that influenced the relationship between possessing an ERM program and organisational financial performance, which included culture, maturity of implementation, skill levels, strategic orientation and market conditions.

The interview participants indicated that developing their ERM program required the creation of interest within the organisation; senior management support; leveraging old process and practices to obtain buy-in for the new practices; establishing a framework; increasing engagement; establishing appropriate policies and developing risk communication channels.
CHAPTER FIVE: DISCUSSION

5.1 Introduction
The purpose of this research was to test the link between ERM and organisational financial performance. The findings, outlined in chapter four, demonstrated that there are a number of internal and external forces driving the development of ERM within Australia. The results demonstrated that ERM was implemented with an operational and procedure focus, rather than a competitiveness maximising objective.

The survey consisted of 45 respondents, comprising ASX300 companies, government agencies and private companies, across 23 industries. A quantitative analysis was used to test six hypotheses and involved means, standard deviations and linear regression. Interviews with seven senior risk managers were then used to expand upon the significant relationships identified from the quantitative analysis. The interviews collected data on four issues identified in the quantitative analysis:

1. the number of organisations with a risk appetite statement was lower than anticipated (Interview questions 4 and 5)
2. financial performance was not the primary factor driving ERM framework development (Interview question 6 and 7)
3. structured methods were used to set risk objectives and were reviewed annually or continuously (Interview question 8)
4. Other implementation obstacles may exist (Interview questions 9 and 10)

The quantitative and qualitative findings supported five of the six hypotheses. This chapter discusses how these findings compare with and extend the extant theory in this domain. The hypothesis are:

H1: ERM implementation increases organisational financial performance.

H2: The level of ERM implementation is greater when the risk characteristics are more numerous
H3: The low level of risk maturity in Australia reduces the effect of ERM on organisational financial performance

H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.

H5: The organisation’s size moderates the effect of ERM on organisational financial performance.

H6: The effect of ERM implementation on organisational financial performance is moderated by organisational culture.

H1: ERM implementation increases organisational financial performance.

The relationship between ERM implementation and organisational financial performance has been contentious and the findings in the extant literature have been mixed.

A statistically significant relationship (p<0.005) between the S&P Rating and the number of risk strategies / statements of the survey respondents was identified, confirming this hypothesis. Baxter et al (2013) and Gates et al (2012) also found that organisational performance was influenced by the existence of an ERM program, but did not identify which aspect of the ERM program implementation created that effect. This finding extends the literature by determining that the existence of risk strategies has a positive effect on financial performance. Future ERM research should use the measure of the number or extent of ERM risk appetite statements as an independent variable representing the level of ERM implementation.

Sixty percent of the survey respondents and 93% of the interview participants also indicated they use ERM to identify the financial effect of identified risks. This finding supports the studies by Gates, Nicolas and Walker (2012) and Li et al (2014) that found that ERM adds value through enhancing management practices. This
finding extends the literature as the previous studies did not identify the actual management processes that contribute to the additional value, and this study has identified management practices. Future research should investigate which management practices have the largest effect on value enhancement.

The findings from this hypothesis provide valuable insight for practitioners working in this area to assist in improving their ERM program. An understanding of the limitations experienced by other organisations can enable practitioners to improve or build upon their own program and realise the financial benefits sooner.

**H2: The level of ERM implementation is greater when the risk characteristics are more numerous**

Intelligent risk taking can derive value for the organisation far beyond conservative risk management approaches.

This hypothesis was tested by examining the relationship between the existence of a risk appetite statement (a core component of ERM implementation which defines the amount and type of risks that are acceptable to the organisation) and the primary risk objective of having a common understanding of risk across functions and business units. The organisational characteristics effecting ERM implementation in Vietnamese construction companies were found to be the commitment of the board and senior management, ERM ownership, risk management culture, sufficient resources, risk identification and effective communication (Phu and Thao, 2017). This research extends the literature through the findings that ERM implementation is significantly (p<0.05) effected by the organisation’s risk characteristics of having a common understanding of risk across functions and business units and the organisational characteristic of communicating ERM objectives to all staff. Future research should examine the links between other risk characteristics such as risk appetite, communication and the organisation’s risks objectives.

The literature has demonstrated a positive relationship between organisational value and ERM. Sithipolvanichgul (2016) found that the organisation’s size and
economic factors have a statistically positive relationship with ERM implementation. This study extends the literature as it identifies variables that may be influencing the result of the previous research. Therefore, there is an opportunity for future research to examine the variables in greater detail to determine how they are influencing the financial performance outcomes.

The analysis of the interview data also provided support for this hypothesis and produced two relevant themes, the effect of culture and the effect of the level of the support from senior management on ERM implementation. Barton et al (2002) found that the organisational characteristic which had the greatest effect on ERM implementation was the organisation’s ability to measure its risks. This research has extended the literature by identifying the effect of culture and the support of senior management on ERM implementation.

The findings of both the survey and interviews supported this hypothesis and confirmed the importance of ensuring that the organisational characteristics are aligned with the ERM implementation to ensure that it is implemented properly. Failure to align organisational characteristics with ERM will result in a reduction in the level of ERM implementation and, as this research has found that ERM implementation is significantly associated with organisational financial performance, will result in a reduction in organisational financial performance as well.

**H3: The low level of risk maturity in Australia reduces the effect of ERM on organisational financial performance**

The maturity of an organisation’s ERM program is an emerging area of interest as the influence of maturity on the organisation’s value becomes more apparent and is interrelated with implementation maturity, however, there has been little research conducted on this within Australia. This is a particularly important hypothesis because the level of financial system maturity in Australia is high (RBA, 2017), which creates demand for senior managers to provide risk oversight. If the ERM implementation in Australia is immature (due to being relatively recently adopted), then the scope for senior management risk oversight is limited. A finding
in support of this hypothesis would identify and interesting tension in senior management responsibilities in countries such as Australia. A global study conducted by the Chartered Global Account Management (CGAM, 2015) found that only 35% of 1300 respondents had a formal ERM program, but that 60% of their board of directors were demanding that senior management increased risk oversight.

Having a risk appetite statement is an indication of the level of ERM implementation and the activity of identifying strategic risks is an indication of the maturity of the implementation (Gallagher 2014). To test this hypothesis, the relationship between these two variables was examined. The relationship was found not to be statistically significant. In contrast, Farrell and Gallagher (2014) identified a significant relationship between these two variables in situations when the ERM implementation is mature. The finding of a non-significant relationship, when compared to Farrell and Gallagher’s finding of a significant relationship for mature ERM implementation, indicates that ERM implementation in Australian must be in the immature phase.

The qualitative data analysis determined that the majority of respondents had a values statement in place, half of the respondents had a risk appetite statement linked to their risk management and only a small number of respondents claimed that they had a rewards system that was linked to their risk management. The number of respondents with a risk appetite statement would have been higher if ERM implementation in Australia had been mature.

The finding that ERM implementation is immature in Australia indicates that, despite the level of development of the country’s financial system, the opportunities for senior management to participate in risk oversight are limited by the maturity of the ERM implementation in the country. It demonstrates that even countries with developed financial systems do not allow a high level of senior management risk oversight.

In terms of the elements of ERM implementation, the survey analysis determined that 87% of survey respondents reported utilised policies and procedures and that
75% utilised reporting capabilities. Only a small portion identified having the appropriate technology which may be a reason for the identified low level of ERM implementation maturity. A study by Aon (2013) determined that organisations with advanced risk management processes had stock prices which were 18% higher, while organisations with low risk maturity ratings had stock prices which were 10% lower in the period from March 2012 to March 2013. In addition, the organisations with mature ERM implementation experienced 38% less stock volatility than the organisations with the low ERM implementation maturity. This study suggests that the relationship between technology and ERM implementation should be examined to determine whether this is a critical factor in the maturity of ERM implementation.

The qualitative data analysis also confirmed that ERM implementation maturity in Australia is low. The interview participants had been in their role for an average of 4.4 years and described their ERM programs at the time they came into that role as unformed, immature, non-existent and with no foundation. This finding was consistent with a survey conducted by the American Institute of Certified Public Accountants (AICPA) (NC State Poole College of Management, 2016) which determined that only 25% of 445 respondents described their organisation’s level of risk management maturity as mature.

Based on the preceding discussion the hypothesis that ERM Implementation in Australia is still in an immature phase was supported.

This finding indicates that maturity in the risk appetite statement linked to their risk management and rewards system linked to their risk management aspects of ERM implementation needs to be increased. In addition, appropriate technology utilisation is low, suggesting that technology may be useful in increasing these two areas of ERM implementation.
H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.

The advancement of technology and social media has made ERM more important than ever. A negative risk event can result in financial, reputation, brand and relationship losses. However, while an organisation may be adversely effected if it does not manage its critical risks, it will also suffer the same consequences if it does not take enough risks. It will lose its customers if competitors who manage their risk levels are able to innovate and introduce a better service or more innovative products (Lam, 2003, p.273-274). The levels of risk taken must be balanced against the likely negative impact on the organisation and the benefits that could result from taking that risk.

A primary purpose of implementing ERM is “to align strategy, process, and knowledge in order to curtail surprises and losses as well as to capitalise on business opportunities.” (Marchetti, 2012, p.1) Therefore a well-designed risk management program “encourages and allows an organisation to take intelligent risks. It involves assessing quantitative factors and information as well as considering management experience and judgement.” (Marchetti, 2012, p.1)

Testing this hypothesis was quite complex as there are number of different variables that could be explored. The frequency of objective setting, the integration of risk assessment with core business activities and relationship between having a risk appetite statement and having appropriate policies and procedures were identified in the literature review as the two variables which would most strongly indicate the ability of the organisation to manage risks without an adverse effect on organisational value.

The survey analysis results indicated that objective setting was most commonly conducted on an on-going basis/annually. The survey results also indicated most of the survey respondents’ organisations used formal methods to determine their ERM objectives, indicating that they were more likely to proactively manage risks by scanning their environment to identify adverse situations.
The majority of the survey respondents’ organisations were also found to have integrated their ERM objectives with the core business activities. The survey data analysis also showed that relationship between having a risk appetite statement and having appropriate policies and procedures was very significant \((p < 0.009)\). A risk appetite statement should be embedded in practice, policies and procedures to ensure that an organisation can manage risks without having an adverse effect on its value. These findings supported the hypothesis.

To substantiate the importance of these findings, the interview participants were asked if could they execute, embed or implement a risk appetite statement without having the appropriate policies and procedures. The consistent themes emerging from this question indicated that it would be possible, but of no value and a sign of ERM implementation immaturity. The interview findings also determined that all participants considered identified risks from a strategic perspective to further develop their ERM implementation, to some extent, but this area of ERM implementation was quite underdeveloped.

Therefore, the hypothesis that there is a relationship between ERM implementation and the organisation’s ability to manage risks so as to avoid an adverse effect on organisation value was supported. The findings indicated that there is a benefit to proactively managing risks so as to reduce the impact on the organisation.

**H5: the organisation’s size moderates the effect of ERM on organisational financial performance.**

When developing an ERM program, the organisation is faced with the challenge of developing a program that is perceived as valuable in minimising surprises, losses and costs whilst allowing the organisation to become more proactive in their risk management approach. To be able to achieve this, the appropriate level of resources and capabilities have to be dedicated to the program. This logic leads to the hypothesis that, the larger the company, the more resources and capabilities are available for the implementation of ERM.
The survey respondents and interview participants represented a broad range of organisation sizes and the majority of survey respondents had ERM teams between 1 and 10 staff members. It was particularly important that small organisations were represented in this research as ERM implementation may be particularly difficult for small organisations (Ballou and Heither, 2005). This possibility is also supported by the findings from a recent survey that determined that the largest organisations, public companies, and financial services organisations were more advanced in their risk oversight processes (NC State Poole College of Management, 2016). Future study could focus on small organisations to identify the specific barriers to ERM implementation in more detail.

To test H5, a moderation test was undertaken to examine the relationship between the S&P Rating, the number of statements and the number of FTEs. The S&P Rating was the dependent variable, the number of statements was the independent variable and the number of FTEs was the moderating variable. The moderation effect of the number of FTE’s was not found to be significant.

To examine this issue further, the relationship between the number of the risk statements (i.e. risk appetite statement, values statement and rewards system linked to risk management) and the FTEs was tested. The number of statements represented the extent of the ERM implementation. The number of employees represented the organisational size. The relationship was found to be both significant \( (p < 0.01) \) and strong \( (R = 1) \). The strong direct of the number of FTE on ERM implementation suggests that there is unlikely to be a further moderating effect of FTE on any relationship influenced by the number of risk statements. Therefore, hypothesis five was not supported.

The interview participants were also asked if the organisation ownership influenced the way ERM was implemented or managed. The participants indicated that the organisation ownership did not influence the way ERM was managed and the level of sophistication of the ERM program was more closely correlated with organisation size, rather than type.
This finding has important implications for ERM practitioners, particularly in smaller organisations with fewer resources. Other factors can also influence the levels of ERM implementation, for example, Fraser and Simkins (2016) found that the more successful ERM implementations are initially established as pilot studies and then add additional features are added. Such an approach may overcome some of the effects of resource limitations.

**H6: The effect of ERM implementation on organisational financial performance is moderated by organisational culture.**

An ERM program must be successfully implemented before it can generate value, however, and a number of moderating variables can influence this process, one of which is culture.

The effect of culture on risk management has been gaining increasing attention since the Global Financial Crises in 2008 and it is now widely accepted that successful ERM implementation requires certain cultural characteristics. These characteristics include a risk orientation in the culture and awareness of the importance of risk management at every layer of the organisation (The Economic Intelligence Unit, 2007) and openness, transparency and teamwork (Fraser and Simkins, 2016). Marchetti (2012) and Mamai and Yinhua (2017) asserted that culture is a key success factor in ensuring the correct implementation of ERM. These studies have only asserted this relationship, however, rather than providing strong evidence in support of the proposed relationship. Testing this hypothesis has provided experimental evidence for this proposed relationship.

The survey data determined that culture had a significant effect on the success of ERM implementation. Ninety-seven percent of the survey respondents indicated that their organisation’s culture effected the achievement of the organisation’s risk objectives, which is a measure of the success of ERM implementation. This finding was supported by the interview data analysis which identified a key theme of culture as either a significant obstacle or facilitator of implementing ERM. Therefore, the hypothesis that there is a relationship between the success of ERM implementation and organisation culture is supported.
5.2 Implications for practice

Risk management has evolved significantly since its inception in the 1950s, and the increasing complexity, volatility and unpredictability of the economic environment continually increases the need for risk management. Because the concept of ERM is relatively new, the literature on this topic is nascent. Fraser et al. (2010, p.399-401) found that the literature does not adequately consider the cultural, logistical and historical challenges associated with risk management. This suggests that ERM implementation in Australia may potentially follow a different process to ERM implementation in other countries. This study contributes to this growing body of research. The practical implications of the five supported hypothesis also make an important contribution to the use of ERM to improve in industry in countries with immature ERM implementations, such as Australia.

The research supported the hypothesis that the relationship between ERM and organisation financial performance is influenced by organisation specific characteristics. This is important as almost all organisational decisions have some element of risk. A number of valuable implications stem from this finding. Firstly, when establishing an ERM program, it is important to consider the effect of organisation specific characteristics on the relationship between ERM and financial performance. These may differ by organisation type, nature and size amongst other factors, however this study has shown there are important implications of doing this step up front to determine where the organisation’s key risks lie and what supporting infrastructure you may need to best implement your ERM framework.

The effect of organisation specific characteristics on the relationship between ERM and financial performance is not explicitly mentioned in the COSO framework or ISO3000 standards. The COSO framework (2004) does identify some ERM practice limitations, which include the effect of business pressure on management decisions making, communication breakdown, collusion and ignoring the framework. Planning for the alignment of organisational characteristics with the ERM framework should result in a greater improvement in overall financial performance.
The finding that supported the second hypothesis - ERM Implementation in Australia is still in an immature phase is particularly relevant to planning for ERM implementation. The research findings indicated that ERM is being implemented in Australia for the purposes of compliance, rather than to gain the organisational financial performance advantage. This suggests that there is an opportunity for organisations in Australia to gain much more from their ERM programs, more developed risk reporting, a greater focus on risk assessment and a more effective connection of resources to risk-based decisions.

The findings suggested that the survey respondents may have believed that they were deriving more value from the ERM program than was the case as they identified risk assessment activities, but not incorporating risk management in the organisation’s strategic decision making. This suggests that there is an opportunity for Australian organisations to better link their risk management and the strategic planning process. It is more likely that the organisation will achieve its strategic objectives when they are strongly integrated with the ERM process. This will require the development of a complete ERM implementation, senior management support and communication and education throughout the organisation.

The low level of maturity of ERM in Australia provides many opportunities for practitioners to become early adopters of enhanced ERM programs in the Australian context. Australian organisations should utilise ERM as a coherent conceptual framework for managing risks holistically and allocate sufficient resources to its implementation to ensure that it is consistently applied across the organisation. It is also important to ensure that sufficient measures are incorporated to allow the organisation to monitor and assess the benefit that is gaining from its ERM process. In particular, Australian organisations should not consider ERM as a compliance framework and instead consider it to be a strategic framework that will enable the organisation to treat risk as an opportunity rather than a threat and increase performance levels.

This research has determined that ERM can be very valuable in protecting the organisation’s value. The finding that there is a relationship between ERM implementation and the organisation’s ability to manage risks so as to avoid any
negative effect on the organisation’s value has significant implications for practice. ERM managers should view the ERM implementations as a mechanism for enabling the organisation to control the effect of its risks. The potential benefit can be significant, as a recent study conducted by NC State Poole College of Management (2016) determined with the finding that 63% of organisations are not prepared for at least one unexpected operational event over a five-year period.

The finding that larger organisations were more likely to have an ERM framework confirms the importance of having sufficient resources available to support ERM programs. This has important implications for ERM practitioners in small organisations, where access to resources may be limited. Cooperative practices with industry bodies or small business consortiums may be a valuable way for sharing information and resources to maximise the success of ERM implementation and its subsequent contribution to organisational financial performance.

Possibly the most important finding for practice was the relationship between the success of ERM implementation and the organisational culture. This finding has far-reaching consequences for the practice of ERM implementation. The dimensions of culture which may affect ERM implementation include senior management engagement, communication, tolerance, level of insight, level of care, speed of response, confidence, openness, challenge, cooperation and adherence to rules (Heiligtag, et al., 2014). In addition, the organisation’s culture should be considered in relation to the initial plan is to adopt ERM and an open and transparent adoption process should be adopted to ensure that any potential issues can be appropriately addressed and not be embedded the program as it is implemented. A culture suitable for the successful adoption of ERM is open, transparent and productive. It must be supported by senior management, both in concept and by demonstration. The board should set expectations for how conversations about risk should occur and this should include the creation of a risk appetite statement for the organisation.

Recent events such as the Financial System Inquiry (2014) have resulted in the Australian government suggesting that Australian organisations should improve
their risk management. These research findings suggest that risk management is not being treated as a strategic management tool by Australian organisations and that a more systematic approach to its utilisation is required. A more systematic approach will enable risks to be better understood and managed and have a positive long-term effect upon organisational performance. One of the most important aspects of a systematic approach to risk management is to avoid excessive focus on short-term goals and priorities. There should be a balance between both the short and long-term risk objectives.

The benefits of this approach would include enhancing decision responsiveness, reducing the frequency of unexpected events affecting the organisation, improving management of organisational risks resulting from partnerships and cooperative relationships, improving the utilisation of capital and improving the capacity to take advantage of opportunities.

5.3 Summary
Six hypotheses were proposed for this study, five of which were supported by the survey and interview data analysis. These findings have provided a number of implications and opportunities for both practitioners and academics. The following chapter presents the findings and research questions together with concluding comments.
CHAPTER SIX: CONCLUSION

6.1 Introduction

The purpose of this research was to examine the link between ERM implementation and organisational financial performance. A review of the literature identified four important research questions:

1. How do organisations use a guiding framework as part of their ERM implementation?
2. What is the level of ERM implementation maturity in Australia?
3. How is the adoption of ERM associated with improved organisational performance?
4. How do moderating and mediating variables influence the success of the ERM program?

The research questions were examined by exploring six hypothesis:

H1: ERM implementation increases organisational financial performance.

H2: The level of ERM implementation is greater when the risk characteristics are more numerous

H3: The low level of risk maturity in Australia reduces the effect of ERM on organisational financial performance

H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.

H5: the organisation’s size moderates the effect of ERM on organisational financial performance.

H6: The effect of ERM implementation on organisational financial performance is moderated by organisational culture.
Five of these hypotheses were supported. The findings which supported these hypotheses are summarized in Table 6 below:

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Evidence</th>
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<tbody>
<tr>
<td>H1: ERM implementation increases organisational financial performance.</td>
<td>The statistically significant relationship ($p&lt;0.005$) identified between the S&amp;P Rating of the organisation, which is a recognised measure of organisational financial performance and the number of risk strategies/statements of the survey respondents, which are elements of ERM, supported this hypothesis. This significant relationship was explained by the finding that 60% of the survey respondents and 93% of the interview participants used ERM to determine the financial effect of identified risks.</td>
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<tr>
<td>H2: The level of ERM implementation is greater when the risk characteristics are more numerous</td>
<td>This hypothesis was supported by finding a statistically significant ($p&lt;0.05$) relationship between the organisational risk characteristic of communicating ERM issues to staff and the ERM objective of understanding risk for strategic advantage. The interview data analysis also identified a relationship between the effect of culture and the effect of the level of the support from senior management on ERM implementation.</td>
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<tr>
<td>H3: The low level of risk maturity in Australia reduces the effect of ERM on organisational financial performance</td>
<td>The relationship between having a risk appetite in place and identifying strategic risks was found to be not statistically significant. The literature has determined that, when the ERM implementation is mature, a significant relationship exists between these two variables. Sixty-five percent of the respondents’ organisations had a values statement in place, more than half of the respondents had a risk appetite statement linked to their risk management, but only a small number of respondents claimed that they had a rewards system that was linked to their risk management. Some elements of ERM were commonly in place; policies and procedures (87%) and reporting capabilities (75%). Few respondents reported having the</td>
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appropriate technology, however. These findings support the hypothesis that ERM implementation in Australia is still in an immature phase.

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<tr>
<th>H4: Greater levels of ERM implementation increase the organisation’s capacity to control the negative effects of risk.</th>
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<td>The relationship between the ERM component of having a risk appetite statement and having appropriate policies and procedures in place to manage risks (a component of the organisation’s ability to manage risks) was found to be statistically significant (p&lt;0.009) and supported this hypothesis. The interview data analysis identified themes which indicated that it is possible to implement a risk appetite statement without having the appropriate policies and procedures, but that this approach would not create value and was a sign of ERM immaturity. The survey data analysis also determined that the majority of respondents’ organisations used formal methods for determining their risk objectives, implying the use of these likely to manage risks by scanning their environment.</td>
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<th>H5: the organisation’s size moderates the effect of ERM on organisational financial performance.</th>
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<tr>
<td>The moderating effect of the number of FTEs on the relationship between the number of risk strategies and organisational financial performance was found not to be significant. The relationship between the number of FTEs and the number of risk strategies, however, was found to be both significant and strong (p &lt; 0.01, R = 1). This hypothesis was not supported.</td>
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<tr>
<th>H6: The effect of ERM implementation on organisational financial performance is moderated by organisational culture.</th>
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<tr>
<td>Ninety-seven percent of the survey respondents indicated that their organisation’s culture effected the achievement of the organisation’s risk objectives, which is a measure of the success of ERM implementation. This finding was supported by the interview data analysis which identified a key theme of culture as either a significant obstacle or facilitator of implementing ERM. Therefore, the hypothesis that there is a relationship</td>
</tr>
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</table>
between the success of ERM implementation and organisation culture was supported.

Table 9: Support for research hypothesis

6.2 Research Questions

This study considered four research questions. The evidence from the testing of the hypothesis will now be used to answer each of the research questions.

1. How do organisations use a guiding framework as part of their ERM implementation?

A number of frameworks have been developed to guide the implementation of ERM, however these frameworks have been developed from practice rather than from empirical or theoretical research. In spite of this, they have been influential in providing a reference point for ERM implementation and there is some evidence to suggest that they have assisted, although the mechanisms behind this are not known. The literature suggests that both the efficiency with which they are being utilised and the extent to which they are being adopted is relatively low (Lundquist, 2014). The literature also indicates that ERM is not being used efficiently (Baxter, et al. 2013; Beasley, et al, 2015), from which it is reasonable to assume that none of the currently frameworks are ideally suited to ERM implementation.

The data analysis determined that the extent of the utilisation of ERM components (such as risk appetite statements and strategies) was significantly positively related to increased financial performance, which suggests that the survey respondents would have experienced a motivation for the use of ERM implementation frameworks. The data analysis also determined, however, that some of the survey respondents were aware of the existence of these frameworks, but did not use them, others utilised the frameworks as a reference point and the remainder utilised ERM frameworks extensively.

The findings from the analysis determined that a number of elements of ERM were still not being utilised to insignificant extent, including rewards systems linked to
risk management and the use of technology for risk assessment. There is some evidence in the literature which suggests that this may be due to the fact that ERM implementation requires resources that some organisations do not possess, particularly small organisations, and organisations with a culture which is not compatible with risk management, e.g. Ballou and Heitger (2005, p.1). There is also evidence to suggest that ERM implementation needs to be customised to the particular organisation structure and systems, which may explain why it had been implemented to varying levels by the survey respondents (Fraser and Simpkins, 2010, p.101).

The most important shortfall of ERM implementation identified in the data analysis was the lack of strategic benefits gained from current levels of ERM implementation. Almost none of the participants in this research reported utilising their ERM for strategic objectives. Instead, they appeared to have adopted ERM to comply with compliance expectations and customer requirements. This finding identifies an opportunity for future research – identifying more of the reasons as to why the use of ERM implementation frameworks is incomplete and how the barriers to implementation can be overcome so that organisations maximise the return from the resources invested in ERM and utilise risk management in a more strategic manner.

2. What is the level of ERM implementation maturity in Australia?

A global study determined that 60% of board directors are directing senior management to have more involvement in risk oversight (Chartered Global Account Management, 2015). Other external motivators, such as greater increases in stock prices for organisations which can demonstrate advanced risk management processes, are creating a demand for increased levels of ERM implementation globally (Aon, 2013).

The data analysis determined that 65% of the survey respondents had introduced a risk appetite statement (an important component of ERM), but that the number of respondents using multiple ERM elements was low (17%). These findings suggest that ERM implementation amongst the respondents was quite immature,
which was confirmed by the interview data analysis. The consequence of this was reflected in the finding that there was no statistically significant relationship between having a risk appetite statement in place and the extent of the organisation’s use of ERM in strategic management of risk. The literature confirms that the absence of this relationship in an organisation is an indicator of ERM implementation immaturity (Farrell and Gallagher, 2014).

This research has determined that practitioners need to focus on ensuring that all of the elements of their ERM programs are appropriately integrated to ensure that they gain strategic level benefits. The pressures for increasing risk management capabilities will continue to grow and the risk environment is likely to become increasingly more complex. Future research should identify techniques for overcoming the barriers to complete ERM implementation.

3. How is the adoption of ERM associated with improved organisational performance?

Understanding the link between the adoption of ERM and organisational financial performance is central to both the design of, and motivation for, ERM implementation as part of the decision-making for organisational performance. Whilst the traditional commercial view is to avoid risk, strategically oriented organisations need to manage their risks in order to optimise the risk/return relationship. High performing organisations need to manage their risks in all areas of operations, if they are to effectively pursue their strategic goals. Logically, ERM is an important management tool for this purpose. The literature has, however, struggled to demonstrate a direct relationship between ERM implementation and organisational financial performance. For example, Li et al (2014) were unable to identify a positive relationship between ERM and organisational financial performance. Hoyt and Liebenberg (2011), however, were able to identify a positive relationship between organisational value and ERM implementation, but not between organisational financial performance and ERM implementation. Kommunuri et al. (2016) identified a basis for the hypothesis that there is a relationship between organisational financial performance and ERM
implementation by finding that share market prices were higher for organisations that have implemented ERM.

The survey data analysis determined that there is a significant and positive relationship between ERM implementation and organisational financial performance \( (p<0.05) \). It also determined that the relationship existed between organisational financial performance and a number of risk strategies/statements which can be considered to be components of ERM. This finding significantly extends the understanding of this relationship and provides a valuable and needed confirmation of this relationship and provides both justification and direction for the adoption of ERM as part of decision-making that is focussed on organisational performance.

The lack of a definitive finding in the extant literature may be due to the fact that most studies have only focused on publicly available information. The contrast between this finding and what has been reported in the literature is particularly interesting, considering the fact that the level of ERM implementation and strategic application of ERM in Australia was found to be low compared to the levels reported for other countries in the literature where ERM implementation is more mature. ERM implementation in Australia is low because it has only been fairly recently adopted. The strength of the finding from the survey data analysis and confirmatory themes identified in the interview data analysis, however, presents a strong case for the significance of this relationship. It is reasonable to assume, therefore, that the relationship would be even stronger for countries where the ERM implementation practices were more developed. This finding has also confirmed the existence of the relationship between ERM implementation and organisational financial performance for environments where ERM implementation is less well developed.

The data analysis also determined that culture, maturity and management support all moderated the relationship between ERM implementation and organisational financial performance. The ERM components of risk appetite statements, policies and ERM communication were all found to contribute to organisational financial performance, however, were not being currently utilised effectively by the survey
respondents. These components were not integrated into the management
decision making process to a sufficient extent to enable them to unable the full
potential organisational financial performance outcomes to be achieved.

4. How do moderating and mediating variables influence the success of the ERM
program?

An Ernst & Young (2013) report determined that senior management support,
maturity of the program and culture had the most significant effect on the success
of ERM implementation. The interview data analysis determined that culture had
the greatest effect of these three factors on ERM implementation success. This
finding informs organisations that they should invest more resources in cultivating
a suitable culture than on the other factors when implementing ERM. This
investment should include the development of a risk management oriented
culture through approving appropriate rewards and performance expectations. As
ERM implementation maturity is strongly driven by the time elapsed, the finding
that culture has a greater effect will also help organisations new to the ERM to
adopt an effective ERM implementation more quickly.

The survey data analysis identified another factor that influences the success of
ERM implementation, in addition to the three identified by Ernst and Young
(2013). A statistically significant relationship was identified between the risk
objective of having a common understanding of risk across functions and business
units and the existence of a risk appetite statement. Having a common
understanding of risk across the organisation was identified as the most popular
risk objective in the survey data analysis. The relationship between the risk
objective of a better understanding of the role of risk management in developing
strategic advantage amongst staff and communicating ERM objectives was also
found to be statistically significant. These results indicate that achieving an
understanding of the role of risk management in the organisation was strongly
related to developing risk management policy and communication. This suggests
that organisations seeking to increase the understanding of the role of ERM across
the organisation should focus on establishing appropriate policy and
communication systems (COSO, 2004).
6.3 Limitations of the research

All studies subject to limitations which affect the findings. One of the limitations of this study was the paucity of empirically based research outcomes in the literature which could be used to ground the hypotheses tested in this study. The ERM literature is continuing to evolve, however, majority of the publications are produced by business practitioners rather than researchers. The empirical literature on ERM implementation based on data collected in countries where ERM has only recently begun to be implemented, such as in Australia, is particularly limited. Whilst this created a great need for this study, the availability of contextually relevant literature on which to base the identification of research hypotheses and variables for ERM implementation studies was limited. The hypotheses and variables utilised in this study were based on literature predominantly reflecting the US context, where ERM implementation is relatively mature. A more developed ERM literature, which spans different environments and contexts, would provide a better basis for developing the constructs and items in future research.

A two-stage research design was used for this study, incorporating both quantitative and qualitative data collection. Respondent bias in the quantitative stage may have reduced the accuracy with which the data reflected the conditions in the participant’s organisation. The research design attempted to minimise the effect of respondent bias by collecting the data from the subject matter experts (senior risk managers). Whilst these participants would undoubtedly have had broad access to the organisation’s operations data and would have been knowledgeable about its ERM implementation, personal perspectives may still have influenced their responses.

The small sample of risk managers available for this study was another limitation, in conjunction with the relatively small number of respondents. The number of respondents was 9% of the target group. This response rate was consistent with other ERM research - 27% response rate for population of 1000 members of the conference board in a global risk management research project (Gates, Nicolas and Walker, 2012) and only 64 usable surveys from a target group of 1000 for a US
survey (Beasley, et al, 2015). Although adequate for the regression analysis conducted on the data, the small number of responses may also have increased the likelihood of a respondent bias. The second, qualitative, stage of the research, however, provided confirmatory and detailed evidence for the survey results which suggests that respondent bias did not have a significant effect. It is possible, however, that further significant relationships may have been identified from a larger quantitative data set.

Finally, it has been demonstrated that ERM implementation amongst the respondents was still in an immature phase. It is possible that this may have generated variations in the interpretation of the meaning of the items in the survey and contributed to the small sample size. The likelihood of significant variations in the interpretation is low, however, as the pilot of the survey determined that practitioners interpretations would be consistent with the research intention. In the pilot age, the survey was completed by two senior ERM managers, who were then interviewed to collect their assessment of the clarity of each of the items. More significant findings may have resulted from the analysis of survey data collected from senior ERM managers in a country where ERM implementation was more mature. The purpose of this study, however, was to conduct the research in the context of low ERM implementation maturity.

6.4 Recommendations for future research

Future research can extend the definition of the relationships between ERM implementation and organisational financial performance identified in this study. To do this, four future projects are recommended:

1. State of maturity based on industry or organisation type

This study identified a significant statistical relationship between ERM and organisational financial performance that creates a basis for future empirical research. This study design included a range of industries and organisation ownerships (publicly listed, private, not-for-profit and government agencies). The literature has not yet provided any evidence to indicate whether the relationship
would vary across industries and so the state of the extent literature and practice in this domain argued for the current emergent ERM context study to be inclusive, rather than focused on a single industry or organisation type. Now that significant relationships have been identified in this context, it would be appropriate to determine if the relationships are still upheld within single industries. Some industries are more exposed to risk factors than others, which suggests that the relationships identified in this study may vary between industries. Only one article to date has examined ERM implementation in a single industry (Li, et al, 2014).

It is now appropriate to investigate these relationships exist in single industry contexts to determine whether factors such as the level of maturity and the number of ERM framework elements implemented have a different relationship with organisational financial performance in different industries. In particular, industries that were early adopters of ERM, such as NGOs and the finance sector may display different relationships and provide valuable information regarding the effect of factors on mature ERM Systems, such as organisational culture.

2. Relationship between ERM and “other” factors

Future research should explore the relationship between ERM factors not represented in this study and organisational financial performance. This study determined that culture and management buy-in have a large influence on the benefits gained from an ERM program. This study did not determine, however, whether this relationship is affected by the structure or international profile of the organisation. An examination of the effect of organisational culture on the relationship between levels of ERM implementation and the organisational financial performance would also make a valuable contribution to the literature. There is some evidence of growing interest in this area and a recent meta-analysis has been undertaken of research and practitioner studies (Aslam, 2017)
3. ERM Maturity

This study determined that the extent of the ERM implementation affected the value the organisation derived from their ERM program. The effect of the extent of the ERM implementation was much greater than was anticipated in the research design. The results of this study suggest that culture is a critical component of the effective use of ERM for organisational financial performance. A detailed investigation of the various dimensions of culture and how it relates to the relationship between ERM implementation levels and organisational financial performance would provide a valuable contribution to the literature.

4. A New Coordinating Typology

The literature needs a detailed model representing the relationship between ERM, moderating and mediating factors and organisational financial performance. This study provides the fundamental components of this model. More empirical evidence and identified relationships are required in order to produce a complete model of the ERM implementation and organisational financial performance relationship. Further research, testing secondary relationships that had been identified in research conducted in other countries (Li, et al, 2014) may contribute dimensions to this model. Existing professional frameworks, particularly the updated version of the COSO framework (COSO, 2016) may also suggest other relationships which could be tested. All relationships would need to consider the moderating effect of organisational size, type and industry.

6.5 Summary

This chapter answered the research questions utilising the findings from the analysis of survey and interview data collected for this project. A summary of the contributions of the findings to the literature and the limitations of this study and opportunities for future research have also been presented.

This study has made a number of major contributions to the ERM literature by identifying a statistically significant relationship between the level of ERM implementation and organisational financial performance. Until now, the
literature has not provided evidence of this relationship, although it is the fundamental focus and justification for ERM implementation. This study was also one of the first studies to consider the factors which affect the relationship between ERM implementation and organisational financial performance in a low ERM maturity context. ERM is a relatively new management practice and its implementation is immature in most countries. Most of the literature, however, has been based on data collected in a few locations, such as the US, where ERM implementation is more mature. The findings from high ERM environmental maturity-based research contexts cannot be reliably transferred to low ERM implementation maturity contexts. This was confirmed by the finding that the relationship between the presence of risk appetite statements (a measure of the extent of the ERM implementation) and their use in identifying strategic risks was not statistically significant in the (Australian) low ERM maturity environment. In a mature ERM environment, this relationship is statistically significant. As a result, the study also found that the level of ERM implementation was influenced by the risk management compatibility of the culture. These findings extend the literature by identifying the relationships which do apply in a low ERM maturity environment.

The study also identified some interesting relationships between the level of ERM implementation and organisational risk characteristics. For example, whilst the level of ERM implementation amongst the organisations represented by the survey respondents was reasonably high on several measures, the utilisation of risk management to proactively improve financial organisational performance amongst these organisations was low. This finding, combined with the finding that there was still a significant relationship between the level of ERM implementation and organisational financial performance for the survey respondents, indicates that organisations in a low ERM maturity environment can significantly increase the return from their ERM implementation by incorporating risk management in their strategic decision making process.

Other significant contributions to the literature included the finding that possessing a risk appetite statement affected the relationship between ERM
implementation and organisational financial performance, that higher levels of ERM implementation increased the organisation’s ability to manage risk (not demonstrated in the literature), that the level of ERM implementation in large organisations was greater and the finding that the effect of culture on the level of ERM implementation was greater than the effect of other factors, such as senior management support. These findings have identified opportunities for ERM practitioners in Australia to improve the returns from their ERM implementation and has established a new agenda for future ERM research.
REFERENCES


Ernst and Young. (2013a) Our Risk Vision. Ernst and Young Publications. (http://www.ey.com/Publication/vwLUAssets/Turning_risk_into_results/$FILE/Turning%20risk%20into%20results_AU1082_1%20Feb%202012.pdf)

Ernst and Young (2013) Turning risks into results; how leading companies use risk management to fuel better performance. EY Advisory Services Publications.


Johnson and Shores


Appendix One: Letter of Invitation

Letter of invitation, sent via Campaign Monitor.

Examining the Relationship between ERM and Organisational Value

One of the biggest challenges in implementing an Enterprise Risk Management (ERM) program is being able to articulate the value that it brings. Therefore, as part of a Doctoral Program Jolene Morse, a finance professional with more than 16 years of experience in conjunction with Deakin University’s Graduate School of Management is conducting a research study to examine the Relationship between Enterprise Risk Management (ERM) and Organisational Value.

We are inviting you to participate a in survey which is online and will take about 15 minutes (or less) to complete, by accessing the following link:
https://www.surveymonkey.com/s/ERM1

In return for your time you will be provided with a copy of the outcomes of the research which will assist you in enhancing the value you derive from your risk programs. Additionally, you will have access to the researcher for any further discussions on the findings.

Naturally, the survey information you provide will be treated completely confidentially; and Deakin University’s ethics protocols will ensure that your contribution remains anonymous (ethics approval number BL-EC 57-13). Furthermore, no findings will be published which could identify any individual or organisation.

The survey will close on Friday the 15th of August.

Should you have any questions about this research please do not hesitate to contact Jolene Morse at itu@deakin.edu.au or alternatively on 0418472229.

Kind Regards,
Jolene
Appendix Two: Survey

The following table provides a summary of the survey questions and the reference to the literature that was the foundation from where these questions were formulated from, this is followed by the survey:

<table>
<thead>
<tr>
<th>Internal Environment - The internal environment encompasses the tone of an organization, and sets the basis for how risk is viewed and addressed by an entity’s people, including risk management philosophy and risk appetite, integrity and ethical values, and the environment in which they operate.</th>
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<tr>
<th>Objective Setting - Objectives must exist before management can identify potential events affecting their achievement. Enterprise risk management ensures that management has in place a process to set objectives and that the chosen objectives support and align with the entity’s mission and are consistent with its risk appetite.</th>
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<tr>
<th>Event Identification - Internal and external events affecting achievement of an entity’s objectives must be identified, distinguishing between risks and opportunities. Opportunities are channeled back to management’s strategy or objective-setting processes.</th>
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<th>Risk Assessment - Risks are analysed, considering likelihood and impact, as a basis for determining how they should be managed. Risks are assessed on an inherent and a residual basis.</th>
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<tr>
<th>Risk Response - Management selects risk responses – avoiding, accepting, or sharing risk – developing a set of actions to align risks with the entity’s risk reducing, tolerances and risk appetite.</th>
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The survey utilised a combination of formative and summative data collection questions as a number of the sources referred to in the table above utilised a similar combination of survey items. The survey trial indicated that the form of the questions was most appropriate for the phenomena and the participants and the survey is outlined below:

**Enterprise Risk Management - Definition**

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

**1. What is your Organisations name?**

**2. In what regions does your organisation operate? (Check all that apply.)**

Australia

New Zealand

America
3. If your organisation has a rating from Standard and Poor’s what classification was your ERM (including risk culture) given at the last review

   Excellent
   Strong
   Adequate with positive trend
   Adequate with strong risk controls
   Adequate
   Poor
   Not relevant

4. How many FTEs would you consider to be part of your organisation’s core ERM team?

5. Does your organisation have the following in place? (Check all that apply)

   Risk appetite policy / statement
   Values Statement
   Reward systems that are linked to risk management

6. What are the primary objectives of your risk management program?  Rank these in order of importance

   Common understanding of risk across functions and business units
   Better understanding of risk to use for strategic advantage
   Protection against earnings related surprises
   Ability to effectively respond to risks
Cost savings due to effective management of resources

More efficient capital allocation

To be able to compensate based on risk adjusted returns

7. How do you determine what your risk objectives are?

Ad hoc discussion at top management planning meetings

Structured discussion at top management planning meetings

Risk committee meets periodically to discuss risks and keeps top management appraised

Risks are identified by internal auditors

Business unit leaders identify risks and report their findings to top management

ERM process owners guide business unit’s leaders through a structured assessment process

Other, if other please describe

Other (please specify)

8. How often does your organisation review its ERM objectives?

On-going process

Monthly

Quarterly

6 Monthly

Annually

9. Are your ERM objectives integrated with the core business activities? i.e. strategic planning
Yes

No

Please explain

10. Are your ERM objectives supported by the appropriate infrastructure? (Check all that apply)

Reporting capability

Technology

Policies and procedures

Human Resources

If not, please explain
11. How do you conduct your risk assessment process?

Questionnaire or checklist

Internal workshops

Department / division based

Benchmarking process against other organisations

External consultants

Not done

Other

Other (please specify)

12. Does your organisation formally distinguish between risk types? (Tick only those that you distinguish)

Operational

Credit

Strategic

Market

13. If you quantify the financial impact of the risk, how do you do this? (Check all that apply)

Cash flow impact

Shareholder impact

Market share impact

Reputational impact
Supply chain impact

If you do not quantify the risk, please explain how this is monitored

14. Once your organisation identifies a risk do you: (Check all that apply)

Assess the significance of the risk
Quantify the financial impact of the risk
Assess the likelihood of the risk
Assess if there is an underlying opportunity in the risk
Other
Other (please specify)

15. Once a given risk has been identified how do you manage it to align with your risk objectives?

16. Do you evaluate how effectively you’re managing your risk?

Yes
No
Please explain

17. Do you have policies and processes in place to ensure risk responses are carried out effectively?

Yes
No
Please explain
18. Does your organisation have a CRO or ERM leader who regularly updates the board or a board committee on the risk objectives and what steps are being taken to meet these?

Yes
No
Please explain

19. Which business levels are aware of your ERM objectives?

Board
General manager / business unit head
Senior manager
Manager
All staff

20. What benefits have emerged from your organisation’s ERM efforts? (Check all that apply.)

Improved executive decision making
Improved rating from the rating agencies
More targeted organisational/business strategy
More informed risk/reward tolerance
More informed portfolio planning/opportunity selection
Risk avoidance
Newly identified business opportunities
Other, please describe:
Other (please specify)

21. Does your organisation (Check all that apply)

Promote moving from a culture of blame to advocating learning from its mistakes

Reward those who demonstrate compliance with risk based behaviors?

Openly discuss risk policies, appetite and tolerance levels when making a decision?

Ensure proactive identification and management of risks in everyday decision making?

Perceive risk managers as trusted advisors?

22. Do you feel your organisation’s culture impacts on the achievement of your risk objectives?

Yes

No

Please explain
Appendix Three: Survey Data

The relationship between the S&P rating and the number of strategies / statements (Risk appetite, value statement and reward system linked to risk management).

![Linear Regression Analysis](image)
Relationship between having a risk appetite in place and the number one risk objective selected by respondents. These results can be seen below:

Given the highly skewed nature of the data, a median test was undertaken, the results below show there is a statistically significant relationship between risk appetite and the number one risk objective selected by survey respondents.

![Mann-Whitney Test](image)

**Mann-Whitney Test**

| Sample Median1 | 2.5 |
| Sample Median2 | 1   |

- Median2 = 0

- Alternative ≠

- Median2 > 0

U = 42

Z = 1.65

p-value = 0.049471
There are a number of ways risk objectives can be determined, however for the survey respondents these seemed to be distributed across 4 primary categories as seen below.

However, even whilst there are four primary ways of determining the risk objectives respondents also use a combination of methods as seen below.
Relationship between having a risk appetite in place and this being supported by policy and procedure results outlined below:

<table>
<thead>
<tr>
<th>Risk appetite policy / statement</th>
<th>Policies and procedures (x=yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
<tr>
<td>n</td>
<td>34.09</td>
</tr>
<tr>
<td>y</td>
<td>65.91</td>
</tr>
</tbody>
</table>

**Two-sample Tests (for Difference Between Proportions, \( \pi_1 \) and \( \pi_2 \))**

Categories and Sample Data

<table>
<thead>
<tr>
<th>policy / statement</th>
<th>n1</th>
<th>n2</th>
</tr>
</thead>
<tbody>
<tr>
<td>n1</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>n2</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Policies and procedures (x=yes)

<table>
<thead>
<tr>
<th>Cat. 1: y</th>
<th>Cat. 2: n</th>
</tr>
</thead>
<tbody>
<tr>
<td>p1</td>
<td>0.214286</td>
</tr>
<tr>
<td>p2</td>
<td>0.5625</td>
</tr>
</tbody>
</table>

Large Sample Tests and Confidence Intervals

\[
p_{1} - p_{2} = -0.34821 \\
SE Difference = 0.146267
\]

Hypothesis Tests

\[H_0: \pi_1 - \pi_2 = 0 \]
\[H_1: \pi_1 - \pi_2 < 0 \]

\[
Z = -2.34405 \\
p-value = 0.009538
\]

Confidence Intervals

\[
ME = 0.300656 \\
Lower = -0.64887 \\
Upper = -0.04756
\]

For the power analysis and sample size determination, please refer to the chart below.

**Vertical axis title**

Difference between proportions

**Difference between proportions**
Relationship between risk appetite and strategic risk identification

<table>
<thead>
<tr>
<th>Risk appetite policy / statement</th>
<th>All</th>
<th>n</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>79.31</td>
<td>75</td>
<td>80</td>
</tr>
</tbody>
</table>

The results show that there is not a statistically significant relationship between the two variables.

To ensure risk objectives are tied back strategy and valued the financial impact of the risk should be assessed, various methods are utilised to do this and these are outlined below, with respondents usually using one or two of these methods:
If respondents are quantifying the financial impact of their risk, you would expect that they would be doing this to obtain a better understanding of risk to use it for strategic advantage. The respondents ranked the importance of this risk objective, so this data has been categorized into three categories (high, medium, and low importance) and then examined to see if there is a relationship between the number of methods used to quantify the financial impact, no relationship was found.
Correlation Analysis

Hypothesis Tests for \( \rho \)

- \( H_0: \rho = 0 \)
- \( H_1: \rho < 0 \)
- \( p-value = 0.31627 \)

Linear Regression: Analysis associated with a model of the form \( Y = mX + c + error \)

Intercept
- Set intercept = 0

Summary

Confidence Ints.

<table>
<thead>
<tr>
<th>Estimate</th>
<th>SE</th>
<th>Level</th>
<th>( R^2 )</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slope</td>
<td>0.04</td>
<td>0.08267</td>
<td>0.95</td>
<td>-0.209927</td>
<td>0.1299273</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.6157143</td>
<td>0.19885</td>
<td>0.95</td>
<td>1.2069793</td>
<td>2.0244492</td>
</tr>
</tbody>
</table>

Hypothesis Tests

- \( H_0: \text{Slope} = 0 \)
- \( H_0: \text{Interc.} = 0 \)
- \( H_1: \text{Slope} < 0 \)
- \( H_1: \text{Interc.} < 0 \)
- \( p-value = 0.31627 \)
- \( p-value = 1 \)

Prediction and Inverse Prediction

Confidence and Prediction Bands

<table>
<thead>
<tr>
<th>Level</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.95</td>
<td>1.61571</td>
<td>2.8849</td>
</tr>
<tr>
<td>0.95</td>
<td>-0.3043</td>
<td>7.60744</td>
</tr>
</tbody>
</table>
Relationship between assessing the significance of the risk and identifying strategic risks. This relationship is demonstrated below:

<table>
<thead>
<tr>
<th>Assess the significance of the risk</th>
<th>All</th>
<th>y</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>n</td>
<td>18.75</td>
<td>12</td>
<td>42.86</td>
</tr>
<tr>
<td>y</td>
<td>81.25</td>
<td>88</td>
<td>57.14</td>
</tr>
</tbody>
</table>

Two-sample Tests (for Difference Between Proportions, \( \pi_1 \) and \( \pi_2 \))

Categories and Sample Data

<table>
<thead>
<tr>
<th>Assess the significance of the risk</th>
<th>Cat. 1: ( y )</th>
<th>Cat. 2: ( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic</td>
<td>( n_1 )</td>
<td>( n_2 )</td>
</tr>
<tr>
<td>( p_1 )</td>
<td>25</td>
<td>7</td>
</tr>
<tr>
<td>( p_2 )</td>
<td>0.12</td>
<td>0.428571</td>
</tr>
</tbody>
</table>

Large Sample Tests and Confidence Intervals

Hypothesis Tests

\[ H_0: \pi_1 - \pi_2 = 0 \]
\[ H_1: \pi_1 - \pi_2 > 0 \]
\[ Z = -1.84879 \]
\[ p-value = 0.967756 \]

Confidence Intervals for \( \pi_1 - \pi_2 \)

Type (2,U,L) \( 2 \)
Level 0.95
ME Lower Upper
0.468228 -0.7768 0.159657

Power Analysis
Sample Size Determination

Vertical axis title
Difference between proportions
The majority of survey respondents confirmed that they have evaluated how effectively they are managing their risk, as show below:

Have you evaluated how effectively you're managing your risk?

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>y</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk appetite policy / statement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>n</td>
<td>19.35</td>
<td>16</td>
<td>33.33</td>
</tr>
<tr>
<td>y</td>
<td>80.65</td>
<td>84</td>
<td>66.67</td>
</tr>
</tbody>
</table>

It is expected that if the respondents are evaluating how effectively they are managing their risk, then they would have a risk appetite in place, this relationship was examined below:
The results show that this relationship is not statistically significant.
You would expect that if the organisation is communicating to all staff, then they are more likely to have an objective of better understanding of risk for strategic advantage. The objective formed part of a ranking question therefore was re-categorised into high, medium and low, the results are shown below:

<table>
<thead>
<tr>
<th>Category Labels and Numerical Summaries for All staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>St Dev</td>
</tr>
<tr>
<td>Skew</td>
</tr>
<tr>
<td>Min</td>
</tr>
<tr>
<td>Q1</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>Q3</td>
</tr>
<tr>
<td>Max</td>
</tr>
</tbody>
</table>

There is a statistically significant relationship between the variables, signifying that organisations that are communicating more broadly anticipate a strategic return from their ERM program.
It was anticipated that there would be a relationship between having a risk appetite in place and the number of benefits obtained from the ERM program, these results are detailed below:

<table>
<thead>
<tr>
<th>Category Labels and Numerical Summaries for No. of benefits that have emerged from ERM efforts</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk appetite policy / statement</td>
<td>All</td>
<td>n</td>
</tr>
<tr>
<td>Number</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>Mean</td>
<td>3.2222</td>
<td>2.4</td>
</tr>
<tr>
<td>St Dev</td>
<td>1.64862</td>
<td>1.51658</td>
</tr>
<tr>
<td>Skew</td>
<td>0.11674</td>
<td>0.31536</td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Q1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Median</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Q3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Max</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

The results are not statistically significant.
To further investigate this the relationship between having a risk appetite in place and how many methods they use to quantify the financial impact of the risk was examined with the results below:

<table>
<thead>
<tr>
<th>Category Labels and Numerical Summaries for How many methods do you use to quantify the financial impact of the risk</th>
<th>Risk appetite policy / statement</th>
<th>All</th>
<th>n</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>28</td>
<td>6</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2</td>
<td>1.33333</td>
<td>2.2381</td>
<td></td>
</tr>
<tr>
<td>St Dev</td>
<td>1.36083</td>
<td>1.0328</td>
<td>1.41084</td>
<td></td>
</tr>
<tr>
<td>Skew</td>
<td>0.85468</td>
<td>0.66567</td>
<td>0.71397</td>
<td></td>
</tr>
<tr>
<td>Min</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Q1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td>2.25</td>
<td>1.75</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Tests for comparing two categories

Two-Sample t-tests (Differences Between Means, \( \mu \))

Sample Data

<table>
<thead>
<tr>
<th></th>
<th>n1</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \bar{x}_1 )</td>
<td>2.238095238</td>
<td></td>
</tr>
<tr>
<td>( s_1 )</td>
<td>1.410842369</td>
<td></td>
</tr>
<tr>
<td>n2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>( \bar{x}_2 )</td>
<td>1.333333</td>
<td></td>
</tr>
<tr>
<td>( s_2 )</td>
<td>1.032796</td>
<td></td>
</tr>
</tbody>
</table>

\[ \bar{x}_1 - \bar{x}_2 = 0.904762 \]

SE Difference = 0.522075

Hypothesis Tests

\[ H_0: \mu_1 - \mu_2 = 0 \]

\[ H_1: \mu_1 - \mu_2 > 0 \]

DF = 10

p-value = 0.056880495

Confidence Intervals for \( \mu_1 - \mu_2 \)

Type (2,U,L) 2

Level 0.95

ME 1.163256

Lower -0.258494

Upper 2.068018

Residuals Analysis

Power Analysis

Sample Size Determination
This was a boarder line result, but supports the theory asserted in the literature.
Appendix Four: Interview Questions

The interview questions are outlined below:

**Questions:**

1. Can you tell me how many years have you been working in the area of Risk Management? And how many years have you been doing this particular role?

2. What was the state of your ERM program when you came into the role? So how have you developed this?

3. Are you familiar with the COSO framework – If no show the framework and provide a brief outline

4. Do you have a risk appetite statement in place?
   
   a. Is this supported by appropriate policies and procedures?
   
   b. How would you go about executing, implementing or embedding a risk appetite statement if it is not supported by the appropriate policies and procedures?

5. Do you feel that there is a relationship between risk appetite and strategic risks?
   
   a. Do you think this would differ if you were working for a for profit / not-for-profit organisation?

6. After identifying a strategic risk can you describe how you would go about assessing the significance of this risk?
   
   a. Do you think this would differ if you were working for a for profit / not-for-profit organisation?
   
   b. Have you benchmarked your company to know if you have identified all significant risks?
7. Can you provide an example of how you quantify the financial impact of your risk?
   a. Does this process link back to your risk appetite statement?
   b. Once you quantify a risk do you then examine it from a strategic perspective? i.e. can it be used for strategic advantage
   c. Have you considered risk for each step in your value chain?
   d. Do you allocate capital requirements or resources based on your assessment of risk?

8. Can you tell me about a circumstance when you evaluated how effectively you were managing your risk?
   a. Would you tie this back to your risk appetite statement?
   b. Would you have appropriate policies in place to support this process?
   c. How else would you use this evaluation process?

9. In your experience what are the most significant obstacles to a successful implementation of an enterprise wide risk initiative?

10. What would you do differently if you were starting with a blank sheet of paper to implement an ERM system?